Appendix E

Geotechnical Data Report

Geotechnical Data Report

UCI North Campus
University of California, Irvine
Irvine, California

University of California, Irvine Design and Construction Services

101 Academy Drive, Suite 200 | Irvine, California 92697

November 27, 2019 | Project No. 209570014











Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS





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UCI North Campus
University of California, Irvine
Irvine, California

Mr. Jim Brittell, LEED AP
Project Manager
University of California, Irvine
Design and Construction Services
101 Academy Drive, Suite 200 | Irvine, California 92697

November 27, 2019 | Project No. 209570014

Franklin Ruiz, PE

Project Engineer

Daniel Chu, PhD, PE, GE Chief Geotechnical Engineer

GM/FR/RDH/DBC/sc

Distribution: (1) Addressee (via e-mail)

Ronald Hallum, PG, CEG
Principal Geologist

No. 1484

No. GE2096

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1 INTRODUCTION

In accordance with your request and authorization, we have prepared this revised geotechnical data report for the North Campus site at the University of California, Irvine (UCI) campus. Our study was conducted in general accordance with the scope of services presented in our proposal dated February 26, 2019 This revised report presents updated seismic parameters in general accordance with the 2019 California Building Code (CBC). The purpose of our geotechnical services was to develop preliminary information regarding the soil, groundwater conditions, geologic conditions, and percolation characteristics at the site for future site development. This report presents our findings and conclusions for the project.

2 SCOPE OF SERVICES

Our scope of services included the following:

- Project coordination, planning, and scheduling the subsurface evaluation.
- Review of readily available background materials, including published topographic maps, geologic maps, fault and seismic hazard maps, groundwater data, stereoscopic aerial photographs, and project related plans.
- Reconnaissance of the site to observe the existing surface conditions from a geotechnical perspective and mark the proposed boring locations for utility clearance by Underground Service Alert.
- Performance of a geophysical survey for utility clearance.
- Subsurface exploration consisting of the drilling, sampling, and logging of thirty-five (35) small-diameter borings to depths ranging from approximately 16.5 to 61.5 feet below the ground surface, and sixteen (16) backhoe test pits up to depths of approximately 10.3 feet below the ground surface. The borings and test pits were logged by a representative of our firm, and bulk and relatively undisturbed soil and formational samples were collected at selected intervals for laboratory testing.
- Percolation testing in four (4) additional borings to a depth of approximately 10 feet below the ground surface in general accordance with Orange County Public Works Technical Guidance Document guidelines (2011).
- Geotechnical laboratory testing to evaluate in-situ moisture and dry density, percentage of particles finer than the No. 200 sieve, Atterberg limits, consolidation, direct shear strength, expansion index, Proctor density, soil corrosivity, and R-value.
- Analytical testing consisting of fifty-one (51) Title 22 Metals tests, evaluated by US Environmental Protection Agency (EPA) Test Method 6010B/7471A, and fifty-one (51) total petroleum hydrocarbons, evaluated by EPA test method 8015B. One Title 22 Metals test and one 8015B test was performed per field excavation.
- Preparation of this geotechnical data report presenting our findings for the project.

3 SITE DESCRIPTION AND PROPOSED CONSTRUCTION

The project site is located at the southeast corner of the intersection of Jamboree Road and Campus Drive, north of the main UCI campus (Figure 1). The site is bordered by Jamboree Road to the northwest, Campus Drive to the northeast, undeveloped land to the southwest, and the San Joaquin Marsh to the southeast (Figure 2). The northern portion of the site is comprised of asphalt paved parking lots, several single-story relocatable maintenance and office structures, access roads, and the UCI Arboretum. In addition, the northwest corner of the site includes the UC Irvine Hydrogen Fueling Station. The southern portion of the site currently consists of undeveloped land with overgrown grass to the east and an asphalt paved parking lot and the UCI Childhood Development Center in the east. The developed portion along the western portion of the site is relatively flat at an elevation of approximately 50 feet above mean sea level (MSL) (United States Geological Survey [USGS], 1981). The southeastern portion of the site descends towards the south and consists of nearly 1:1 (horizontal to vertical) slopes that descend towards San Joaquin Marsh to an elevation of approximately 35 feet above MSL. The site is currently under evaluation for future development, however no details were available at the time of this report.

4 SUBSURFACE EVALUATION AND LABORATORY TESTING

Our subsurface evaluation was performed from May 28, 2019 through June 11, 2019, and consisted of the drilling, logging, and sampling of thirty-five small-diameter borings (B-1 through B-35) to depths ranging from approximately 16.5 feet to 61.5 feet below the ground surface, and sixteen backhoe excavated test pits (TP-1 through TP-16) to depths ranging from approximately 4.0 to 10.3 feet below the ground surface. The borings were drilled using a truck-mounted drill rig with 8-inch-diameter hollow-stem augers. Additionally, four percolation test borings (P-1 through P-4) were drilled up to a depth of approximately 10 feet below the ground surface. The borings and test pits were logged by a representative from our firm and bulk and relatively undisturbed soil and bedrock samples were obtained at selected depths from the borings for laboratory testing. The approximate locations of the exploratory borings and test pits are shown on Figure 2. The logs of the borings and test pits are provided in Appendix A and B, respectively.

Percolation testing was performed on June 5, 2019, to evaluate the infiltration rate of the on-site soils. The approximate locations of the percolation tests are also shown on Figure 2. Details regarding the percolation testing are provided in Section 8 of this report.

Geotechnical laboratory testing was performed on representative samples to evaluate the in-situ moisture and dry density, gradation, percentage of particles finer than the No. 200 sieve, Atterberg limits, consolidation, collapse potential, direct shear strength, expansion index, Proctor density,

soil corrosivity, and R-value. The results of our in-situ moisture content and dry density tests are presented on the boring and test pit logs in Appendix A and B, respectively, and the remaining geotechnical laboratory testing results are presented in Appendix C.

In addition, analytical testing included Title 22 Metals, evaluated by EPA Test Method 6010B/7471A and total petroleum hydrocarbons, evaluated by EPA test method 8015B. One Title 22 Metals test and one 8015B test was performed per field excavation. The results of our analytical testing are presented in Appendix D.

5 GEOLOGY AND SUBSURFACE CONDITIONS

5.1 Geologic Setting

The project site is situated along the northern portion of the San Joaquin Hills, within the Peninsular Ranges Geomorphic Province of California (Norris and Webb, 1990). The San Joaquin Hills consist of a series of generally northwest-trending hills bounded by the Los Angeles Basin on the north, the Pacific Ocean on the southwest, and the Santa Ana Mountains and San Juan Creek on the east and south. The San Joaquin Hills are generally underlain by Paleocene through early Pliocene marine and non-marine sedimentary deposits. Recent research suggests the San Joaquin Hills may have been formed by folding and uplift in association with ongoing movement along a blind thrust fault in the southern Los Angeles basin.

5.2 Site Geology and Subsurface Conditions

Regional geologic mapping data (Morton and Miller, 2006) indicate the site is underlain by late Pleistocene-age marine terrace deposits and the Miocene-age Topanga Formation (Figure 3). The marine terrace deposits are described as containing silt, sand, gravel, and cobbles. The Topanga Formation, including Paularino and Los Trancos members, include interbedded sandstone, siltstone, and claystone.

The materials encountered in our exploratory borings consisted of pavement, fill, alluvium, marine terrace deposits, and Topanga Formation. A summary of the materials encountered on site is presented below. More detailed information is presented on the boring and test pits logs in Appendix A and B, respectively.

5.2.1 Pavement

Pavement was encountered in borings B-1 through B-3, B-8 through B-14, B-18 through B-25B-28 and B-29, and generally consisted of asphalt concrete (AC) over aggregate base (AB). The thickness of the AC over AB ranged from approximately 2 to 4 inches over

approximately 2 to 8 inches. Boring B-20 consisted of AC approximately 6 inches thick over fill. The AB material generally consisted of a dense, silty gravel with sand.

5.2.2 Fill Materials

Undocumented fill materials were observed in borings B-1 through B-3, B-5, B-10, B-11, 20, B-22, B-23, B-26 through B-28. The thickness of the fill encountered in borings ranged from approximately 1 to 13 feet. The fill materials observed in our borings generally consisted of moist, stiff to hard, sandy to lean clay. Scattered gravel, construction debris, and other debris were also encountered in the fill materials.

5.2.3 Alluvium

Alluvium was encountered beneath the pavement and/or fill, or at the surface in borings B-16 through B-21, B-34, and B-35 on the southeastern portion of the site. The alluvium generally consisted of moist, stiff to hard, sandy to lean clay, and moist, medium dense to dense, silty and clayey sand, and poorly graded sand with variable amount of gravel. The alluvium grades into the terrace deposits going from the southeast to the northwestern portions of the site.

5.2.4 Terrace Deposits

Terrace deposits were encountered at the surface or beneath the fill and/or alluvium. The terrace deposits generally consisted of interfingered moist, medium dense to dense, sandy silt, silty sand, and poorly graded sand, and moist to wet, stiff to hard, sandy clay, and lean to fat clay. The depth to terrace deposits ranged from the surface up to the total depth explored of approximately 61.5 feet below the ground surface. The terrace deposits grade into alluvial soils on the southeastern portion of the site.

5.2.5 Topanga Formation

Topanga Formation was encountered in exploratory boring B-30 beneath terrace deposits. The depth to the Topanga Formation observed in our exploratory boring was at a depth of approximately 18 feet below the ground surface. The Topanga Formation encountered consisted of moist, moderately to strongly indurated claystone, and, moist, moderately weathered, sandstone.

6 GROUNDWATER

Groundwater was encountered in exploratory borings B-4 through B-6, B-9, B-12 through B-14, B-16, B-29, B-34, and B-35 at a depths ranging from approximately 23 to 49.2 feet below the existing ground surface at the time of drilling. Historical high groundwater is mapped at the site at

approximately 10 feet below the ground surface (California Geological Survey [CGS], 1998). Fluctuations in the level of groundwater may occur due to variations in ground surface topography, subsurface stratification, rainfall, irrigation practices, groundwater pumping, and other factors which may not have been evident at the time of our field evaluation.

7 FLOOD HAZARDS

Based on our review of flood insurance rate maps for the project area (Federal Emergency Management Agency [FEMA], 2009), the southeastern portions of the site adjacent to the San Joaquin Marsh are located in the 100-year Flood Hazard Zone A99. Zone A99 includes areas to be protected from a 100-year flood by the Federal Flood Protection System under construction at the time of publication of the FEMA map; no base flood elevations are given. The rest of the site is located within Other Areas – Zone X, which includes areas outside the 0.2 percent annual chance floodplain. In addition, the site is not located in a zone subject to inundation due to dam failure.

8 FIELD PERCOLATION TESTING

Percolation testing was performed in percolation test borings P-1 through P-4 in general accordance with the Orange County Public Works – Orange County Watersheds Technical Guidance Document BMP Fact Sheets (2011). A 2-inch-diameter slotted polyvinyl chloride (PVC) pipe was placed in the boreholes and the annulus between the borehole walls and pipes were backfilled with clean gravel to avoid caving in the test zone. The infiltration zone was pre-soaked with water on the previous day prior to performing the percolation testing. Percolation testing was conducted by placing clean water in the PVC pipes to establish a head of water and by measuring the drop in water over a time period of approximately 6 hours. Water was added to the PVC pipes after every 10 or 30 minute increments to maintain approximately the same amount of head. The measured rate of infiltration during the last 10 or 30 minutes was utilized for the calculation of the percolation rates per the Orange County Public Works guidelines (2011). The tested percolation rates are presented in Table 1 below.

Table 1 – Percolation Test Results								
Test Boring	Approximate Depth Tested (feet)	Tested Percolation Rate (inch/hour)						
P-1	0.5 – 10.0	0.12						
P-2	4.0 - 10.0	0.01						
P-3	1.0 – 10.0	0.04						
P-4	2.0 – 10.0	1.08						

9 FAULTING AND SEISMICITY

The site is located in a seismically active area, as is the majority of southern California. The numerous faults in southern California include active, potentially active, and inactive faults. As defined by CGS, active faults are faults that have ruptured within Holocene time (approximately the last 11,000 years). Potentially active faults are those that show evidence of movement during Quaternary time (approximately the last 1.6 million years), but for which evidence of Holocene movement has not been established. Inactive faults have not ruptured in the last approximately 1.6 million years.

The approximate locations of major faults in the project area and their geographic relationship to the project are shown on Figure 4. The site is not located within a State of California Earthquake Fault Zone (formerly known as an Alquist-Priolo Special Studies Zone) (Hart and Bryant, 1997). Table 2 lists selected principal known active faults that may affect the project area, the approximate fault-to-site distances, and the maximum moment magnitudes (M_{max}) of the faults (USGS, 2008). The active San Joaquin Hills blind thrust fault is mapped approximately 1.8 miles north of the site (USGS, 2008). Blind thrust faults are low-angle faults at depth that do not break the surface and are, therefore, not shown on Figure 5. Although blind thrusts do not have a surface trace, they can be capable of generating damaging earthquakes and are included in Table 2.

Table 2 – Principal Active Faults							
Fault	Approximate Fault to Site Distance miles (kilometers)	Maximum Moment Magnitude (M _{max})					
San Joaquin Hills Blind Thrust	1.8 (2.9)	7.1					
Newport-Inglewood	5.7 (9.2)	7.5					
Puente Hills Blind Thrust	14.8 (23.9)	6.9					
Elsinore	16.4 (26.5)	7.9					
Palos Verdes	17.4 (28.0)	7.7					
Chino	19.8 (31.8)	6.8					
San Jose	25.3 (41.7)	6.7					
Coronado Bank	26.2 (43.0)	7.4					
Elysian Park	31.3 (50.3)	6.7					
San Andreas	47.5 (76.4)	8.2					

An unnamed, inferred fault is mapped approximately 1.25 miles southeast of the site (Miller, 1976). The fault has recently been referred to as the UCI Campus Fault and is shown on Figure 6. The fault was described as a northwesterly projected 80-foot-wide zone containing reverse faults with up to 12 feet of vertical displacement (Geobase, Inc., 1998). Petra Geosciences, Inc. performed an investigation, dated December 5, 1991, of the southeast extension of the UCI Campus Fault. The fault investigation located the UCI Campus Fault near the Social Science Lab and the Middle Earth Housing complex, and also recommended no habitable structures to be placed across the ground surface trace of the fault.

The principal seismic hazards evaluated at the subject site are surface fault rupture, ground motion, liquefaction, landsliding, and tsunamis and seiches. A brief description of these hazards and the potential for their occurrences on site are discussed in the following sections.

9.1 Surface Fault Rupture

Based on our review of the referenced literature and our site reconnaissance, no active faults are known to cross the project site. Therefore, the probability of damage from surface fault rupture is considered to be low. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

9.2 Ground Motion and Seismic Design Parameters

Considering the proximity of the site to active faults capable of producing a maximum moment magnitude of 6.0 or more, the project area has a high potential for experiencing strong ground motion. The 2019 California Building Code (CBC) specifies that the risk-targeted maximum considered earthquake (MCE_R) ground motion response accelerations be used to evaluate seismic loads for design of buildings and other structures. The 2019 CBC amended per the University of California (UC) Seismic Safety Policy will be implemented for this site. The MCE_R ground motion response accelerations are based on the spectral response accelerations for 5 percent damping in the direction of maximum horizontal response and incorporate a target risk for structural collapse equivalent to 1 percent in 50 years with deterministic limits for near-source effects. The horizontal peak ground acceleration that corresponds to the MCE_R for the project area was calculated as 0.51g using the 2019 Structural Engineers Association of California (SEAOC)/Office of Statewide Health Planning and Development (OSHPD) seismic design tool (web-based). Spectral response acceleration parameters, consistent with the 2019 CBC, are also provided below for the evaluation of seismic loads on buildings and other structures.

Design of the proposed improvements should be performed in accordance with the requirements of governing jurisdictions and applicable building codes. Table 3 presents the seismic design parameters for the site in accordance with the CBC (2019) guidelines and adjusted MCE_R spectral response acceleration parameters (SEAOC/OSHPD, 2019) and the UC Seismic Safety Policy 2019 CBC amendment.

Site Coefficients and Spectral Response Acceleration Parameters	Values
Site Class	C ¹
Site Coefficient, Fa	1.2
Site Coefficient, Fv	1.5
Mapped Spectral Response Acceleration at 0.2-second Period, Ss	1.282 g
Mapped Spectral Response Acceleration at 1.0-second Period, S ₁	0.458 g
Spectral Response Acceleration at 0.2-second Period Adjusted for Site Class, S _{MS}	1.539 g
Spectral Response Acceleration at 1.0-second Period Adjusted for Site Class, S _{M1}	0.687 g
Design Spectral Response Acceleration at 0.2-second Period, S _{DS}	1.026 g
Design Spectral Response Acceleration at 1.0-second Period, S _{D1}	0.458 g

¹ Based on shear wave velocity in the upper 30 meters (V_{s30}) using the CGS Data Viewer (web-based).

9.3 Liquefaction

Liquefaction is the phenomenon in which loosely deposited granular soils with silt and clay contents of less than approximately 35 percent and non-plastic silts located below the water table undergo rapid loss of shear strength when subjected to strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to a rapid rise in pore water pressure, and causes the soil to behave as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet below the ground surface. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking. The southeastern portion of the site adjacent to the marsh is located in an area mapped as being susceptible to liquefaction (Figure 5). In general, due to the relatively dense and cohesive nature of the shallow terrace deposits and depth to groundwater, liquefaction is not considered a design consideration for the site.

9.4 Landsliding

Landslides may be induced by strong vibratory motion produced by earthquakes. Research and historical data indicate that seismically induced landslides tend to occur in weak soil and rock on sloping terrain. The process for zoning earthquake-induced landslides incorporates expected future earthquake shaking, existing landslide features, slope gradient, and strength of earth materials on the slope. The project area is not mapped in an area considered susceptible to seismically induced landslides (CGS, 2001b). The majority of the subject site is situated on relatively level terrain. The relatively steep slopes along the southeastern edge of the site adjacent to the marsh may be subject to instability. We did not observe indications of landslides during our site reconnaissance or background review.

9.5 Tsunamis and Seiches

Tsunamis are long wavelength, seismic sea waves (long compared to ocean depth) generated by the sudden movement of the ocean floor during submarine earthquakes, landslides, or volcanic activity. Seiches are waves generated in a large, enclosed body of water. The project area is not located within an area considered susceptible to tsunamis or seiche inundation. Therefore, damage due to tsunamis or seiches is not a design consideration.

10 CORROSIVITY

Laboratory testing was performed on representative samples of near-surface soil to evaluate soil pH, electrical resistivity, water-soluble chloride content, and water-soluble sulfate content. The soil pH and electrical resistivity tests were performed in general accordance with California Test Method (CT) 643. Chloride content tests were performed in general accordance with CT 422. Sulfate testing was performed in general accordance with CT 417. The laboratory test results are presented in Appendix C.

The soil pH of the samples tested was measured to be between 7.1 and 7.8 and the measured electrical resistivity of the samples tested ranged from 242 and 1,056 ohm-centimeters. The chloride content of the samples tested ranged from approximately 30 to 590 parts per million (ppm). The sulfate content of the tested samples ranged from approximately 0.001 to 0.108 percent by weight (i.e., 10 ppm to 1080 ppm). Based on the laboratory test results and California Department of Transportation (Caltrans, 2018a) corrosion criteria, the project site can be classified as a corrosive site, which is defined as having earth materials with more than 500 ppm chlorides, more than 0.15 percent sulfates (i.e., 1,500 ppm), a pH of 5.5 or less, and an electrical resistivity of less than 1,100 ohm-centimeters.

11 PRELIMINARY CONCLUSIONS

The purpose of this study was to develop preliminary information regarding the soil and geologic conditions at the site for future site development. Based on our preliminary evaluation, it is our opinion that development of the site is feasible from a geotechnical perspective. A detailed geotechnical evaluation should be performed during the design phase to develop appropriate design and construction recommendations. A summary of our preliminary conclusions is presented below:

Fill soils were encountered in our exploratory borings and test pits in various areas of the site
to depths ranging from approximately 1 to 13 feet below the ground surface. The fill generally
consisted of moist, stiff to hard, sandy to lean clay. Scattered gravel, construction debris, and
other debris were also encountered in the fill. Documentation regarding the limits of fill or the

placement and compaction of the fill soils was not available for review. Large and abrupt variations in the thickness of the fill should be anticipated during construction.

- The native earth materials encountered in our borings and test pits on-site consist of alluvium and terrace deposits. The alluvium and terrace deposits were generally comprised of moist, stiff to hard, sandy to lean clay and fat clay, and medium dense, silty and clayey sand, and poorly graded sand. The Topanga Formation encountered in our boring generally consisted of moist, moderately to strongly indurated, claystone, lesser moderately weathered sandstone.
- The Topanga Formation materials encountered in our borings contain moderately to strongly indurated claystone and moderately cemented sandstone. These materials may involve difficult excavating conditions and may generate oversized material. Rippability should be further evaluated during the design phase of the project, particularly if deep excavations are involved.
- Excavations for at-grade structure foundations and pavements should be feasible with conventional grading equipment in good working condition.
- The on-site soils consists of clayey and sandy material consistent with Type C soils in accordance with Occupational Safety and Health Administration (OSHA) soil classifications.
 Temporary shoring should be provided in accordance with OSHA regulations.
- Groundwater was encountered at the site ranging from approximately 23 to 49.2 feet below the ground surface. However, the historical high groundwater level is mapped at approximately 10 feet below the ground surface.
- Laboratory test results indicate that the on-site surficial clayey soils have expansion index values ranging from approximately 29 to 73, indicating a low to medium potential for expansion.
- Our infiltration testing of the near-surface soils resulted in infiltration rates ranging from approximately 0.01 to 1.08 inches per hour.
- The southeastern portion of the site is located within a mapped Seismic Hazards Zone considered susceptible to liquefaction.
- The subject site is not located within a State of California Earthquake Fault Zone (formerly known as an Alquist-Priolo Special Studies Zone).
- The southeastern portion of the site is located within a designated floodplain area, within the 0.2 percent annual chance of flooding.
- Based on our laboratory corrosion testing, the on-site soil can be classified as corrosive based on the Caltrans Corrosion Guidelines (Caltrans, 2018a).

12 LIMITATIONS

The field evaluation and geotechnical data presented in this report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the data, conclusions, and opinions presented in this report. There is no

evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report is intended for preliminary design purposes only. It is suggested that the bidders and their geotechnical consultant perform an independent evaluation of the subsurface conditions in the project areas. The independent evaluations may include, but not be limited to, review of other geotechnical reports prepared for the adjacent areas, site reconnaissance, and additional exploration and laboratory testing.

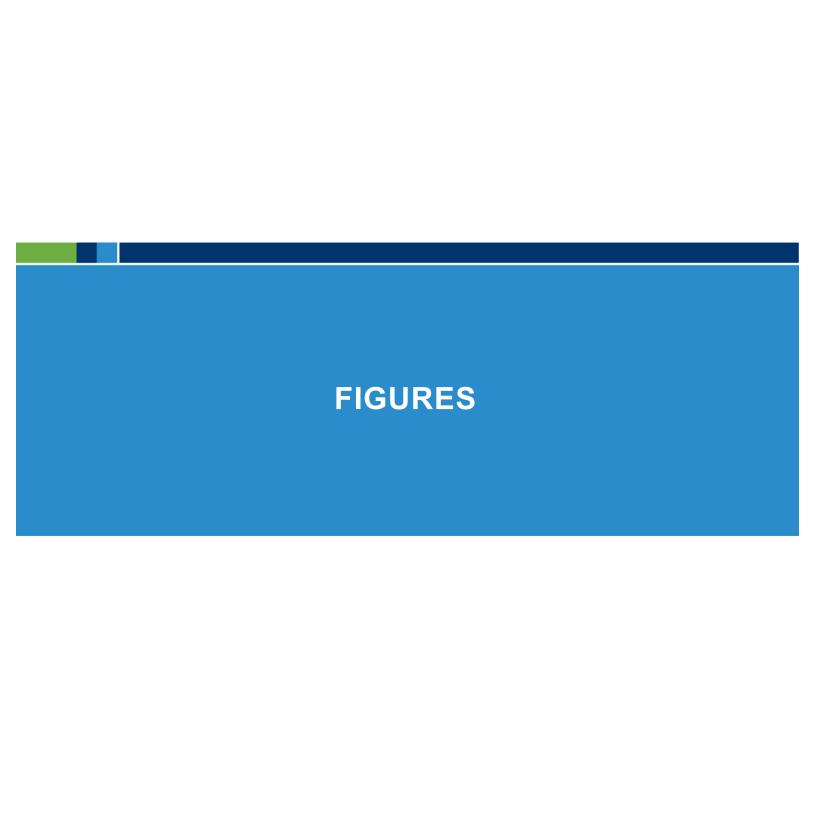
Our conclusions are based on an analysis of the observed site conditions. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

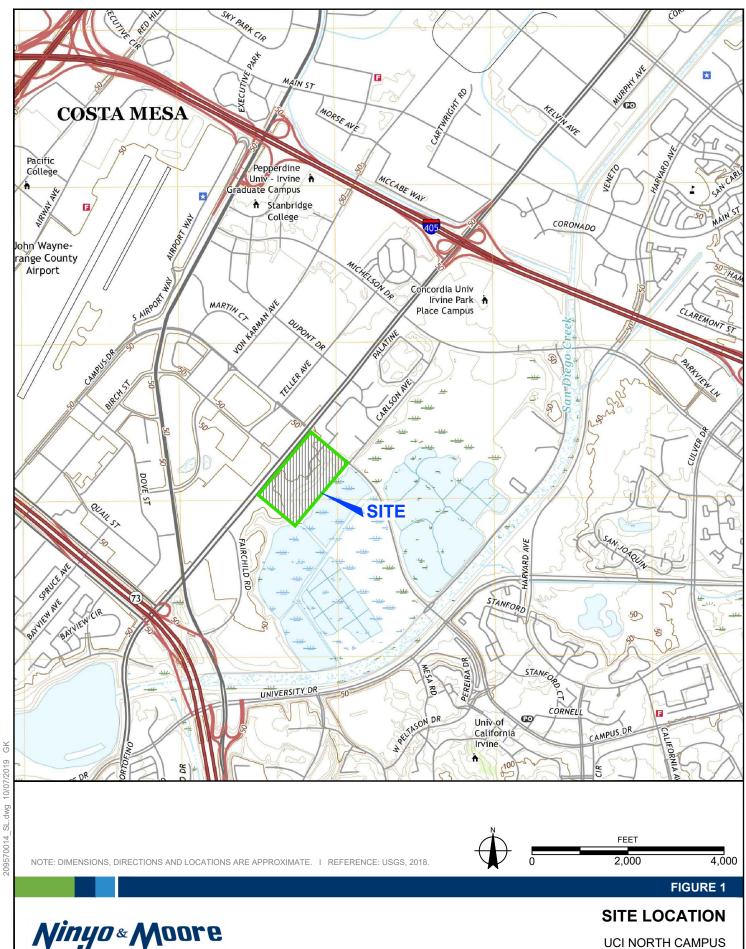
This report is intended exclusively for use by the client and the design-build teams of the project. Any use or reuse of the findings and conclusions of this report by parties other than the client and its bidders is undertaken at said parties' sole risk.

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IRVINE, CALIFORNA

209570014 I 11/19

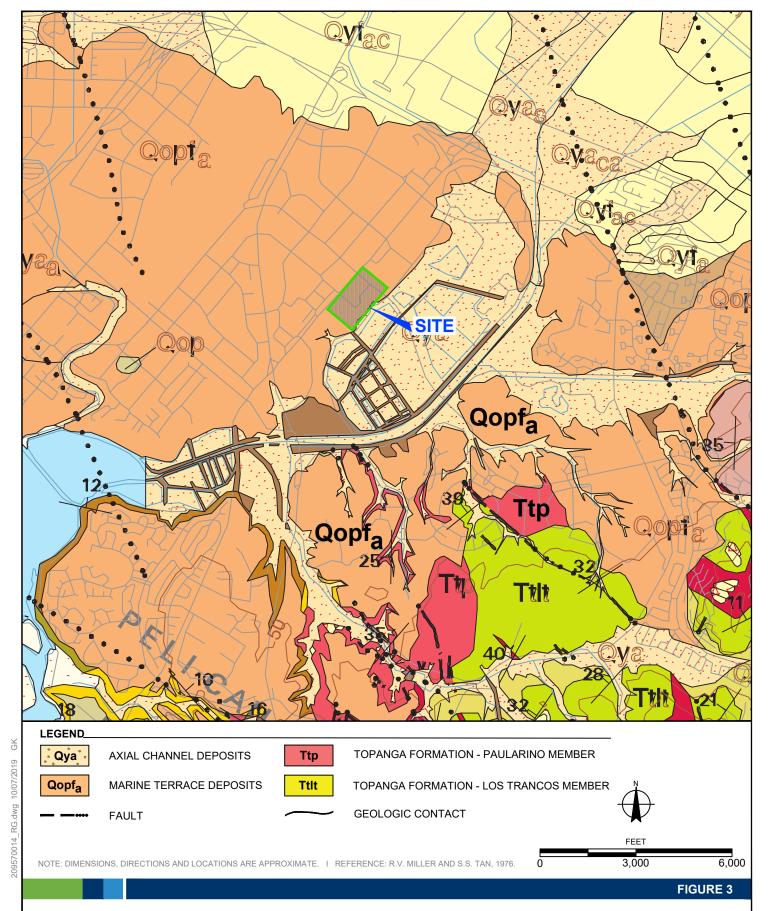
Winyo & Moore Geotechnical & Environmental Sciences Consultants

BORING AND TEST PIT LOCATIONS

UCI NORTH CAMPUS IRVINE, CALIFORNA

209570014 I 11/19

FIGURE 2

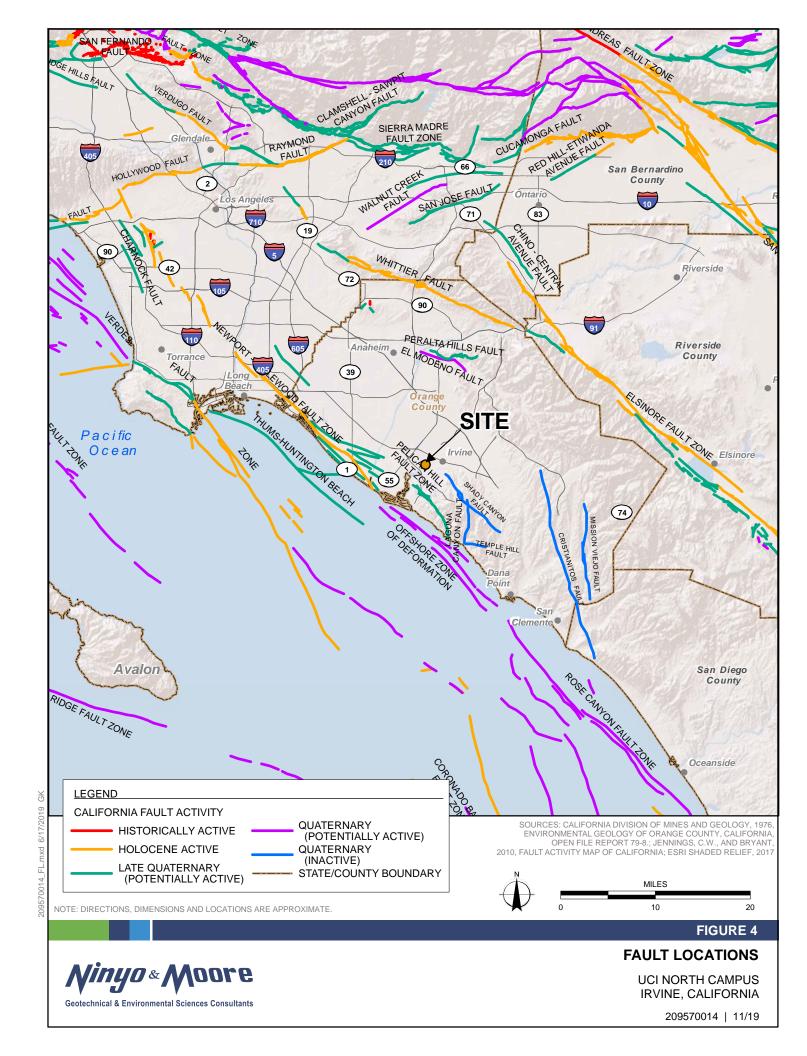


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REGIONAL GEOLOGY

UCI NORTH CAMPUS IRVINE, CALIFORNA

209570014 I 11/19



Qsw SLOPEWASH DEPOSITS

Qtm MARINE TERRACE DEPOSITS

DEVELOPED AREA WITH UNDELINEATED ARTIFICIAL CUTS AND FILLS (1976).

~~~~ APPROXIMATE GEOLOGIC CONTACT

TOPANGA FORMATION

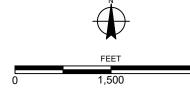
Ttp PAULARINO MEMBER

Ttl LOS TRANCOS MEMBER

Ttb BOMMER MEMBER

- ---- FAULT

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: R.V. MILLER AND S.S. TAN, 1976.





3,000

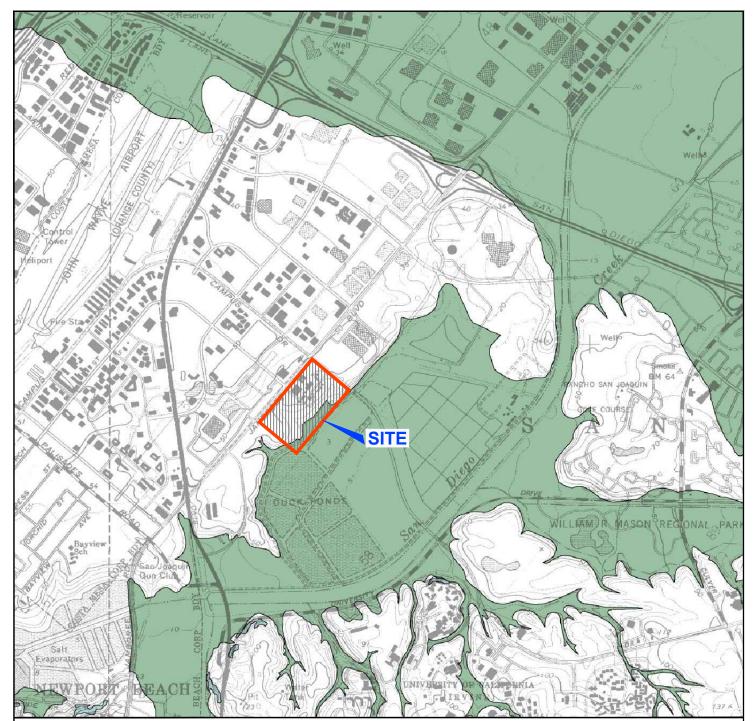
### **UCI CAMPUS FAULT**

UCI NORTH CAMPUS IRVINE, CALIFORNA

209570014 I 11/19

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#### LEGEND\_



#### IQUEFACTION

Areas where historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.



#### EARTHQUAKE-INDUCED LANDSLIDES

Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.



#### FIGURE 6

# **SEISMIC HAZARD ZONES**

UCI NORTH CAMPUS IRVINE, CALIFORNA

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# **APPENDIX A**

**Boring Logs** 

# **APPENDIX A**

#### **BORING LOGS**

#### Field Procedure for the Collection of Disturbed Samples

Disturbed soil samples were obtained in the field using the following method.

#### **Bulk Samples**

Bulk samples of representative earth materials were obtained from the exploratory borings. The samples were bagged and transported to the laboratory for testing.

#### The Standard Penetration Test (SPT) Sampler

Disturbed drive samples of earth materials were obtained by means of a Standard Penetration Test sampler. The sampler is composed of a split barrel with an external diameter of 2 inches and an unlined internal diameter of 13/8 inches. The sampler was driven into the ground 12 to 18 inches with a 140-pound hammer falling freely from a height of 30 inches in general accordance with ASTM D 1586. The blow counts were recorded for every 6 inches of penetration; the blow counts reported on the logs are those for the last 12 inches of penetration. Soil samples were observed and removed from the sampler, bagged, sealed, and transported to the laboratory for testing.

#### Field Procedure for the Collection of Relatively Undisturbed Samples

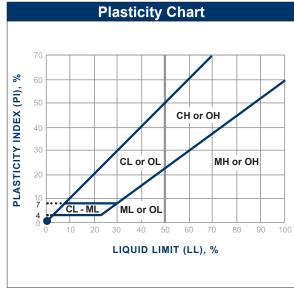
Relatively undisturbed soil samples were obtained in the field using the following method.

#### The Modified Split-Barrel Drive Sampler

The sampler, with an external diameter of 3 inches, was lined with 1-inch-long, thin brass rings with inside diameters of approximately 2.4 inches. The sample barrel was driven into the ground with the weight of a hammer in general accordance with ASTM D 3550. The driving weight was permitted to fall freely. The approximate length of the fall, the weight of the hammer, and the number of blows per foot of driving are presented on the boring logs as an index to the relative resistance of the materials sampled. The samples were removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

|                     | Soil Clas                   | sification C                                            | hart                | Per AST                         | M D 2488                       |  |
|---------------------|-----------------------------|---------------------------------------------------------|---------------------|---------------------------------|--------------------------------|--|
| _                   |                             |                                                         | Secondary Divisions |                                 |                                |  |
| ř                   | rimary Divis                | sions                                                   | Gro                 | oup Symbol                      | Group Name                     |  |
|                     |                             | CLEAN GRAVEL                                            | N.                  | GW                              | well-graded GRAVEL             |  |
|                     |                             | less than 5% fines                                      |                     | GP                              | poorly graded GRAVEL           |  |
|                     | GRAVEL                      |                                                         |                     | GW-GM                           | well-graded GRAVEL with silt   |  |
|                     | more than 50% of            | GRAVEL with DUAL                                        |                     | GP-GM                           | poorly graded GRAVEL with silt |  |
|                     | coarse                      | CLASSIFICATIONS 5% to 12% fines                         |                     | GW-GC                           | well-graded GRAVEL with clay   |  |
|                     | retained on                 |                                                         |                     | GP-GC                           | poorly graded GRAVEL with      |  |
|                     | No. 4 sieve                 | GRAVEL with                                             |                     | GM                              | silty GRAVEL                   |  |
| COARSE-<br>GRAINED  |                             | FINES<br>more than                                      |                     | GC                              | clayey GRAVEL                  |  |
| SOILS<br>more than  |                             | 12% fines                                               |                     | GC-GM                           | silty, clayey GRAVEL           |  |
| 50% retained        |                             | CLEAN SAND                                              |                     | SW                              | well-graded SAND               |  |
| on No. 200<br>sieve |                             | less than 5% fines                                      |                     | SP                              | poorly graded SAND             |  |
|                     |                             | SAND with<br>DUAL<br>CLASSIFICATIONS<br>5% to 12% fines |                     | SW-SM                           | well-graded SAND with silt     |  |
|                     | SAND<br>50% or more         |                                                         |                     | SP-SM                           | poorly graded SAND with silt   |  |
|                     | of coarse<br>fraction       |                                                         |                     | SW-SC                           | well-graded SAND with clay     |  |
|                     | passes<br>No. 4 sieve       |                                                         |                     | SP-SC                           | poorly graded SAND with clay   |  |
|                     |                             | SAND with FINES                                         |                     | SM                              | silty SAND                     |  |
|                     |                             | more than 12% fines                                     |                     | sc                              | clayey SAND                    |  |
|                     |                             | 12% lines                                               |                     | SC-SM                           | silty, clayey SAND             |  |
|                     |                             |                                                         |                     | CL                              | lean CLAY                      |  |
|                     | SILT and                    | INORGANIC                                               |                     | ML                              | SILT                           |  |
|                     | CLAY<br>liquid limit        |                                                         |                     | CL-ML                           | silty CLAY                     |  |
| FINE-               | less than 50%               | ORGANIC                                                 |                     | OL (PI > 4)                     | organic CLAY                   |  |
| GRAINED<br>SOILS    |                             | ORGANIC                                                 |                     | OL (PI < 4)                     | organic SILT                   |  |
| 50% or more passes  |                             | INORGANIC                                               |                     | СН                              | fat CLAY                       |  |
| No. 200 sieve       | SILT and CLAY               | INURGANIC                                               |                     | МН                              | elastic SILT                   |  |
|                     | liquid limit<br>50% or more | ODCANIC                                                 |                     | OH (plots on or above "A"-line) | organic CLAY                   |  |
|                     |                             | ORGANIC                                                 |                     | OH (plots<br>below "A"-line)    | organic SILT                   |  |
|                     | Highly (                    | Organic Soils                                           |                     | PT                              | Peat                           |  |

| Grain Size |        |         |                 |                    |                                |  |  |  |  |
|------------|--------|---------|-----------------|--------------------|--------------------------------|--|--|--|--|
|            | Desci  | ription | Sieve<br>Size   | Grain Size         | Approximate<br>Size            |  |  |  |  |
|            | Bou    | lders   | > 12"           | > 12"              | Larger than basketball-sized   |  |  |  |  |
|            | Cob    | bles    | 3 - 12"         | 3 - 12"            | Fist-sized to basketball-sized |  |  |  |  |
|            | Gravel | Coarse  | 3/4 - 3"        | 3/4 - 3"           | Thumb-sized to fist-sized      |  |  |  |  |
|            | Glavei | Fine    | #4 - 3/4"       | 0.19 - 0.75"       | Pea-sized to thumb-sized       |  |  |  |  |
|            | Sand   | Coarse  | #10 - #4        | 0.079 - 0.19"      | Rock-salt-sized to pea-sized   |  |  |  |  |
|            |        | Medium  | #40 - #10       | 0.017 - 0.079"     | Sugar-sized to rock-salt-sized |  |  |  |  |
|            |        | Fine    | #200 - #40      | 0.0029 -<br>0.017" | Flour-sized to sugar-sized     |  |  |  |  |
|            | Fir    | nes     | Passing<br>#200 | < 0.0029"          | Flour-sized and smaller        |  |  |  |  |



| Apparent Density - Coarse-Grained Soil |                     |                                          |                       |                                          |  |  |  |  |
|----------------------------------------|---------------------|------------------------------------------|-----------------------|------------------------------------------|--|--|--|--|
|                                        | Spooling C          | able or Cathead                          | Automatic Trip Hammer |                                          |  |  |  |  |
| Apparent<br>Density                    | SPT<br>(blows/foot) | Modified<br>Split Barrel<br>(blows/foot) | SPT<br>(blows/foot)   | Modified<br>Split Barrel<br>(blows/foot) |  |  |  |  |
| Very Loose                             | ≤ 4                 | ≤ 8                                      | ≤ 3                   | ≤ 5                                      |  |  |  |  |
| Loose                                  | 5 - 10              | 9 - 21                                   | 4 - 7                 | 6 - 14                                   |  |  |  |  |
| Medium<br>Dense                        | 11 - 30             | 22 - 63                                  | 8 - 20                | 15 - 42                                  |  |  |  |  |
| Dense                                  | 31 - 50             | 64 - 105                                 | 21 - 33               | 43 - 70                                  |  |  |  |  |
| Very Dense                             | > 50                | > 105                                    | > 33                  | > 70                                     |  |  |  |  |

| Consistency - Fine-Grained Soil |                     |                                          |                       |                                          |  |  |  |  |
|---------------------------------|---------------------|------------------------------------------|-----------------------|------------------------------------------|--|--|--|--|
|                                 | Spooling Ca         | able or Cathead                          | Automatic Trip Hammer |                                          |  |  |  |  |
| Consis-<br>tency                | SPT<br>(blows/foot) | Modified<br>Split Barrel<br>(blows/foot) | SPT<br>(blows/foot)   | Modified<br>Split Barrel<br>(blows/foot) |  |  |  |  |
| Very Soft                       | < 2                 | < 3                                      | < 1                   | < 2                                      |  |  |  |  |
| Soft                            | 2 - 4               | 3 - 5                                    | 1 - 3                 | 2 - 3                                    |  |  |  |  |
| Firm                            | 5 - 8               | 6 - 10                                   | 4 - 5                 | 4 - 6                                    |  |  |  |  |
| Stiff                           | 9 - 15              | 11 - 20                                  | 6 - 10                | 7 - 13                                   |  |  |  |  |
| Very Stiff                      | 16 - 30             | 21 - 39                                  | 11 - 20               | 14 - 26                                  |  |  |  |  |
| Hard                            | > 30                | > 39                                     | > 20                  | > 26                                     |  |  |  |  |



| Bulk sample.  Modified split-barrel drive sampler.                           |                |
|------------------------------------------------------------------------------|----------------|
| Modified split-barrel drive sampler.                                         |                |
| <b>   </b>                                                                   |                |
| No recovery with modified split-barrel drive sampler.                        |                |
| Sample retained by others.                                                   |                |
| Standard Penetration Test (SPT).                                             |                |
| No recovery with a SPT.                                                      |                |
| XX/XX Shelby tube sample. Distance pushed in inches/length of sample recover | red in inches. |
| No recovery with Shelby tube sampler.                                        |                |
| Continuous Push Sample.                                                      |                |
| Seepage.                                                                     |                |
| ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐                                        |                |
|                                                                              |                |
| SM MAJOR MATERIAL TYPE (SOIL):                                               |                |
| Solid line denotes unit change.                                              | -              |
| CL Dashed line denotes material change.                                      |                |
| Attitudes: Strike/Dip                                                        |                |
| b: Bedding                                                                   |                |
| c: Contact<br>j: Joint                                                       |                |
| f: Fracture F: Fault                                                         |                |
| cs: Clay Seam                                                                |                |
| s: Shear bss: Basal Slide Surface                                            |                |
| sf: Shear Fracture                                                           |                |
| sz: Shear Zone<br>sbs: Shear Bedding Surface                                 |                |
|                                                                              |                |
| The total depth line is a solid line that is drawn at the bottom of the      | boring.        |



|              | LES            |            |          | (                 |                                                       |                            | DATE DRILLED 6/1/19 BORING NO. B-1                                                                                                                                                               |
|--------------|----------------|------------|----------|-------------------|-------------------------------------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAMPLES        | TOC (%)    | (%)      | , (PCF            |                                                       | NOI .                      | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1                                                                                                                                                        |
| DEPTH (feet) |                | 3LOWS/FOOT | MOISTURE | DRY DENSITY (PCF) | SYMBOL                                                | CLASSIFICATION<br>U.S.C.S. | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                            |
| DEP          | Bulk<br>Driven | BLOV       | MOIS     | Y DE              | S                                                     | LASS<br>U.                 | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                                 |
|              |                |            |          | PO                |                                                       | O                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH DESCRIPTION/INTERPRETATION                                                                                                                            |
| 0            |                |            |          |                   | PROMENS                                               | GM                         | ASPHALT CONCRETE: Approximately 2 inches thick.                                                                                                                                                  |
| -            |                |            |          |                   |                                                       | CL                         | AGGREGATE BASE: Gray, moist, dense, silty GRAVEL with sand; approximately 5.5 inches thick.                                                                                                      |
| _            |                |            |          |                   |                                                       |                            | FILL: Reddish brown, moist, stiff, sandy CLAY; few pockets of sand; trace fine angular gravel.                                                                                                   |
|              |                |            |          |                   |                                                       | CL                         | TERRACE DEPOSITS: Olive brown, moist, stiff, CLAY; layers of white calcium carbonate.                                                                                                            |
| -            |                | 6          |          |                   |                                                       |                            |                                                                                                                                                                                                  |
| -            |                |            |          |                   |                                                       |                            |                                                                                                                                                                                                  |
| 10 -         |                |            |          |                   |                                                       |                            |                                                                                                                                                                                                  |
|              |                | 54         | 16.6     | 114.1             |                                                       |                            | Reddish brown mottled; hard.                                                                                                                                                                     |
| =            |                |            |          |                   |                                                       |                            |                                                                                                                                                                                                  |
| -            |                |            |          |                   |                                                       |                            |                                                                                                                                                                                                  |
| -            |                | 21         |          |                   |                                                       |                            |                                                                                                                                                                                                  |
|              |                |            |          |                   |                                                       |                            |                                                                                                                                                                                                  |
|              |                |            |          |                   |                                                       |                            |                                                                                                                                                                                                  |
| 20 –         |                | 46         | 23.3     | 101.9             |                                                       |                            | Sandy. Grayish brown mottled.                                                                                                                                                                    |
| -            |                |            |          |                   |                                                       |                            |                                                                                                                                                                                                  |
| _            |                |            |          |                   |                                                       |                            |                                                                                                                                                                                                  |
|              |                | 21         |          |                   |                                                       |                            | Olive brown.                                                                                                                                                                                     |
| -            |                | 21         |          |                   |                                                       |                            | Olive brown.                                                                                                                                                                                     |
| -            |                |            |          |                   |                                                       | SP-SM                      | Grayish brown, moist, very dense, poorly graded SAND with silt.                                                                                                                                  |
| 30 -         |                |            |          |                   | ( 63 66<br>( 63 9 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 |                            |                                                                                                                                                                                                  |
|              |                | 50/5       |          |                   | i en fili<br>printari<br>e e e e e e                  |                            | Total Depth = 31.4 feet.                                                                                                                                                                         |
| -            |                |            |          |                   |                                                       |                            | Groundwater was not encountered during drilling. Backfilled with on-site soil and patched with rapid-set concrete dyed black on 6/1/19.                                                          |
| -            |                |            |          |                   |                                                       |                            | Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. |
| -            |                |            |          |                   |                                                       |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is             |
| 40 -         |                |            |          |                   |                                                       |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                                  |



|        | SAMPLES                               |       |                | (F)               |                                      | 7                                          | DATE DRILLED 6/1/19 BORING NO B-2                                                                                                                                                         |
|--------|---------------------------------------|-------|----------------|-------------------|--------------------------------------|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (feet) | SAN                                   | DO TO | (%) =          | Y (PC             |                                      | ATION                                      | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1                                                                                                                                                 |
| TH (f  | DEPTH (feet)  Bulk Driven  BLOWS/FOOT | VS/F( | MOISTURE       | DRY DENSITY (PCF) | SYMBOL                               | CLASSIFICATION<br>U.S.C.S.                 | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                     |
| DEP    |                                       | BLO   | MOIS           | .Y DE             | S                                    | LASS                                       | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                          |
|        |                                       |       | D <sub>R</sub> |                   | O                                    | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH |                                                                                                                                                                                           |
| 0      |                                       |       |                |                   | <b>XXX</b>                           |                                            | ASPHALT CONCRETE:                                                                                                                                                                         |
|        |                                       |       |                |                   |                                      | CL                                         | Approximately 2.5 inches thick. AGGREGATE BASE:                                                                                                                                           |
| -      |                                       |       |                |                   |                                      |                                            | Gray, moist, dense, silty GRAVEL with sand; approximately 6 inches thick.                                                                                                                 |
| -      |                                       |       |                |                   |                                      |                                            | FILL: Dark grayish brown, moist, stiff, CLAY.                                                                                                                                             |
|        | 7                                     | 9     |                |                   |                                      | SM                                         | TERRACE DEPOSITS:                                                                                                                                                                         |
| -      |                                       |       |                |                   |                                      |                                            | Yellowish brown, moist, medium dense, silty SAND; interbedded layers of sandy clay.                                                                                                       |
| -      |                                       |       |                |                   |                                      |                                            | Reddish to yellowish brown, moist, hard, SILT.                                                                                                                                            |
| 10 -   |                                       |       |                |                   |                                      |                                            |                                                                                                                                                                                           |
| .0     |                                       | 30    | 24.1           | 100.5             |                                      |                                            |                                                                                                                                                                                           |
| -      |                                       |       |                |                   |                                      |                                            |                                                                                                                                                                                           |
| _      |                                       |       |                |                   |                                      | SM                                         | Yellowish brown, moist, dense, silty SAND.                                                                                                                                                |
|        |                                       | 0.4   |                |                   |                                      |                                            |                                                                                                                                                                                           |
| -      |                                       | 24    |                |                   |                                      |                                            |                                                                                                                                                                                           |
| -      |                                       |       |                |                   |                                      |                                            | Olive brown, reddish brown mottled, moist, hard, CLAY.                                                                                                                                    |
| 00     |                                       |       |                |                   |                                      | OL                                         |                                                                                                                                                                                           |
| 20 -   |                                       | 26    |                |                   |                                      |                                            |                                                                                                                                                                                           |
| -      |                                       |       |                |                   |                                      |                                            |                                                                                                                                                                                           |
| _      |                                       |       |                |                   |                                      |                                            |                                                                                                                                                                                           |
|        |                                       |       |                |                   |                                      |                                            |                                                                                                                                                                                           |
| -      |                                       | 21    |                |                   |                                      |                                            |                                                                                                                                                                                           |
| -      |                                       |       |                |                   |                                      |                                            | Yellowish brown, moist, very dense, poorly graded SAND with silt.                                                                                                                         |
|        |                                       |       |                |                   |                                      | SP-SM                                      | Tellowish brown, moist, very dense, poorly graded SAND with sitt.                                                                                                                         |
| 30 -   |                                       | 50/6" |                |                   | (446);<br>(146);<br>(446);<br>(416); |                                            |                                                                                                                                                                                           |
| -      |                                       |       |                |                   | èthian                               |                                            | Total Depth = 31.5 feet.                                                                                                                                                                  |
|        |                                       |       |                |                   |                                      |                                            | Groundwater was not encountered during drilling.  Backfilled with on-site soil and patched with rapid-set concrete dyed black on 6/1/19.                                                  |
| -      |                                       |       |                |                   |                                      |                                            | Notes:                                                                                                                                                                                    |
| -      |                                       |       |                |                   |                                      |                                            | Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. |
|        |                                       |       |                |                   |                                      |                                            | The ground elevation shown above is an estimation only. It is based on our interpretations                                                                                                |
|        |                                       |       |                |                   |                                      |                                            | of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.                 |
| 40 -   |                                       |       |                |                   |                                      |                                            |                                                                                                                                                                                           |



|              | SAMPLES     |                        |          | (F)               |             | -                                         | DATE DRILLED 6/1/19 BORING NO B-3                                                                                                                                                    |
|--------------|-------------|------------------------|----------|-------------------|-------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAN<br>OOT  | (%)                    | / (PC    |                   | Į           | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1 |                                                                                                                                                                                      |
| DEPTH (feet) |             | riven SA<br>BLOWS/FOOT | MOISTURE | DRY DENSITY (PCF) | SYMBOL      | IFICA<br>S.C.S                            | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                |
| DEF          | Bulk        |                        | MOIS     | Y DE              | S           | CLASSIFICATION<br>U.S.C.S.                | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                     |
|              |             |                        |          | P                 |             | 0                                         | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH  DESCRIPTION/INTERPRETATION                                                                                                               |
| 0            |             |                        |          |                   | <b>::</b> 5 | CL                                        | ASPHALT CONCRETE: Approximately 2 inches thick.                                                                                                                                      |
| -            |             |                        |          |                   |             | OL                                        | AGGREGATE BASE: Gray, moist, dense, silty GRAVEL with sand; approximately 8 inches thick.                                                                                            |
|              |             |                        |          |                   |             |                                           | FILL: Brown, grayish brown mottled, moist, sandy CLAY; scattered pockets of sand.                                                                                                    |
|              |             |                        |          |                   |             | CL                                        | TERRACE DEPOSITS: Olive brown, moist, hard CLAY; trace caliche.                                                                                                                      |
| -            |             | 23                     | 22.4     | 102.9             |             |                                           |                                                                                                                                                                                      |
|              |             |                        |          |                   |             |                                           |                                                                                                                                                                                      |
|              |             |                        |          |                   |             | SM                                        | Grayish brown, moist, medium dense, silty SAND.                                                                                                                                      |
| 10 -         | ,           | 20                     |          |                   |             |                                           |                                                                                                                                                                                      |
| -            |             | ] 20                   |          |                   |             |                                           |                                                                                                                                                                                      |
|              |             |                        |          |                   |             |                                           | Olive brown, moist, hard, fat CLAY; few caliche.                                                                                                                                     |
| -            |             | _                      |          |                   |             |                                           |                                                                                                                                                                                      |
| -            |             | 33                     | 23.4     | 100.9             |             |                                           |                                                                                                                                                                                      |
|              |             |                        |          |                   |             |                                           | Total Depth = 16.5 feet. Groundwater was not encountered during drilling.                                                                                                            |
| -            |             |                        |          |                   |             |                                           | Backfilled with on-site soil and patched with rapid-set concrete dyed black on 6/1/19.                                                                                               |
| 20 -         |             |                        |          |                   |             |                                           | Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due                                                                                   |
|              |             |                        |          |                   |             |                                           | to seasonal variations in precipitation and several other factors as discussed in the report.                                                                                        |
| -            |             |                        |          |                   |             |                                           | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is |
| -            |             | _                      |          |                   |             |                                           | not sufficiently accurate for preparing construction bids and design documents.                                                                                                      |
|              |             |                        |          |                   |             |                                           |                                                                                                                                                                                      |
|              |             |                        |          |                   |             |                                           |                                                                                                                                                                                      |
| -            | +           | _                      |          |                   |             |                                           |                                                                                                                                                                                      |
| 30 -         |             | -                      |          |                   |             |                                           |                                                                                                                                                                                      |
|              |             |                        |          |                   |             |                                           |                                                                                                                                                                                      |
| -            | +           |                        |          |                   |             |                                           |                                                                                                                                                                                      |
| _            |             | _                      |          |                   |             |                                           |                                                                                                                                                                                      |
|              |             |                        |          |                   |             |                                           |                                                                                                                                                                                      |
| -            | $\parallel$ | -                      |          |                   |             |                                           |                                                                                                                                                                                      |
| _            |             | -                      |          |                   |             |                                           |                                                                                                                                                                                      |
|              |             |                        |          |                   |             |                                           |                                                                                                                                                                                      |
| 40 -         |             |                        |          |                   |             |                                           |                                                                                                                                                                                      |

|              | LES            |            |              |                   |          |                            | DATE DRILLED 6/3/19 BORING NO. B-4                                                                       |
|--------------|----------------|------------|--------------|-------------------|----------|----------------------------|----------------------------------------------------------------------------------------------------------|
| et)          | SAMPLES        | TO         | (%)          | , (PCF            |          | NOI .                      | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 2                                                                |
| DEPTH (feet) |                | BLOWS/FOOT | MOISTURE (%) | NSIT              | SYMBOL   | CLASSIFICATION<br>U.S.C.S. | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                    |
| DEP          | Bulk<br>Driven | BLOV       | MOIS         | DRY DENSITY (PCF) | SY       |                            | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                         |
|              |                |            |              |                   |          |                            | SAMPLED BYGM LOGGED BYGM REVIEWED BYRDH DESCRIPTION/INTERPRETATION                                       |
| 0            |                |            |              |                   |          | CL                         | TERRACE DEPOSITS: Dark brown, moist, hard, CLAY; few caliche; interbedded layers of silty sand.          |
| -            |                |            |              |                   |          |                            | Dank brown, moist, hard, ODAT, few danone, interseduced layers of sinty same.                            |
| _            |                |            |              |                   |          |                            |                                                                                                          |
|              |                | 50/11"     | 16.0         | 113.6             |          |                            | Decrease in sand.                                                                                        |
| -            |                | 00/11      | 10.0         | 110.0             |          |                            |                                                                                                          |
| -            |                |            |              |                   |          |                            |                                                                                                          |
| 10 -         |                | 27         |              |                   |          |                            |                                                                                                          |
| -            |                | 21         |              |                   |          |                            |                                                                                                          |
|              |                |            |              |                   |          |                            |                                                                                                          |
| -            |                |            |              |                   |          |                            |                                                                                                          |
| -            |                | 36         | 18.7         | 105.9             |          |                            | Few fine gravel.                                                                                         |
| -            |                |            |              |                   |          |                            |                                                                                                          |
| 20 -         |                |            |              |                   |          |                            |                                                                                                          |
| _            |                | 20         |              |                   |          |                            | Olive brown; reddish brown mottled; very stiff; laminated.                                               |
|              |                |            |              |                   |          |                            |                                                                                                          |
| -            |                |            |              |                   |          |                            |                                                                                                          |
| -            |                | 58         | 21.0         | 106.3             |          |                            | Hard.                                                                                                    |
| -            |                |            | <u></u><br>  |                   |          | <br>SP                     | @27': Groundwater encountered during drilling; wet.  Grayish brown, wet, very dense, poorly graded SAND. |
| 30 -         |                |            |              |                   |          | SF                         | orayion brown, wor, vory dones, poorly graded critics.                                                   |
| 30           |                | 56         |              |                   |          |                            |                                                                                                          |
| -            |                |            |              |                   |          |                            |                                                                                                          |
| -            |                |            |              |                   |          |                            | Gray, wet, very stiff, sandy CLAY.                                                                       |
| -            |                | 22         |              |                   |          |                            |                                                                                                          |
| _            |                |            |              |                   |          |                            | Gray, wet, stiff, SILT.                                                                                  |
|              |                |            |              |                   |          |                            |                                                                                                          |
| 40 -         |                |            |              |                   | <u> </u> |                            | FIGURE A- 4                                                                                              |

|              | SAMPLES        |                  |          | <u>E</u>          |         | _                          | DATE DRILLED6/3/19 BORING NOB-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------|----------------|------------------|----------|-------------------|---------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DEPTH (feet) | SAM            | TOC              | (%)      | r (PC             | SYMBOL  | CLASSIFICATION<br>U.S.C.S. | GROUND ELEVATION 50' ± (MSL) SHEET 2 OF 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|              |                | BLOWS/FOOT       | MOISTURE | NSIT              |         |                            | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| DEP          | Bulk<br>Driven | BLO <sub>\</sub> | MOIS     | DRY DENSITY (PCF) |         |                            | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|              |                |                  |          | DR                |         |                            | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH DESCRIPTION/INTERPRETATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 40           | 7              |                  |          |                   |         | ML                         | TERRACE DEPOSITS: (Continued) Gray, wet, stiff, SILT.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| -            |                |                  |          |                   |         |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -            |                |                  |          |                   |         |                            | Gray, wet, very stiff, CLAY.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|              |                | 21               | 42.6     | 78.9              |         | CL                         | Gray, wet, very still, CLAT.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| =            |                | 21               | 42.0     | 70.9              |         |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -            |                |                  |          |                   |         |                            | Olive brown, wet, dense, silty SAND; trace clay.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 50 -         |                |                  |          |                   |         |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|              |                | 27               |          |                   |         |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -            |                |                  |          |                   |         | <br>SP                     | Gray, wet, very dense, poorly graded SAND; fine sand.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| -            |                |                  |          |                   |         | Oi                         | grant of the state |
| -            |                | 50/6"            |          |                   |         |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| _            |                |                  |          |                   |         |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|              |                |                  |          |                   |         |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 60 –         |                | 47               |          |                   |         |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -            |                |                  |          |                   | (111171 |                            | Total Depth = 61.5 feet.  Groundwater encountered during drilling at approximately 27 feet.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| -            |                |                  |          |                   |         |                            | Backfilled with bentonite cement grout on 6/3/19.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|              |                |                  |          |                   |         |                            | Notes: Groundwater may rise to a level higher than that measured in borehole due to relatively                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| -            |                |                  |          |                   |         |                            | slow rate of seepage in clay and several other factors as discussed in the report. Please refer to the report for groundwater monitoring recommendations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| -            | H              |                  |          |                   |         |                            | The ground elevation shown above is an estimation only. It is based on our interpretations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 70 -         |                |                  |          |                   |         |                            | of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|              |                |                  |          |                   |         |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -            |                |                  |          |                   |         |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -            |                |                  |          |                   |         |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -            |                |                  |          |                   |         |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|              |                |                  |          |                   |         |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -            |                |                  |          |                   |         |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 80 -         | Ш              |                  |          |                   |         |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

|              | SAMPLES  |            |          | SF)               |        | Z                          | DATE DRILLED6/3/19 BORING NOB-5                                                                                                                                                      |
|--------------|----------|------------|----------|-------------------|--------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DEPTH (feet) | SAN      | 100        | E (%)    | Y (PC             | SYMBOL | CLASSIFICATION<br>U.S.C.S. | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1                                                                                                                                            |
|              |          | 3LOWS/FOOT | MOISTURE | INSIT             |        |                            | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                |
|              | Bulk     | BLO        | MOIS     | DRY DENSITY (PCF) |        |                            | DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"                                                                                                                                   |
|              |          |            |          |                   |        |                            | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH DESCRIPTION/INTERPRETATION                                                                                                                |
| 0            |          |            |          |                   |        | CL                         | FILL: Dark grayish brown, moist, hard, sandy CLAY; few scattered fine angular gravel.                                                                                                |
| -            |          |            |          |                   |        |                            | Bank grayion brown, moles, mara, samay ob 11, 10% coaltered line angular graves.                                                                                                     |
| _            |          |            |          |                   |        |                            |                                                                                                                                                                                      |
|              | ۲,       |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |          | 25         |          |                   |        |                            |                                                                                                                                                                                      |
| -            |          |            |          |                   |        |                            |                                                                                                                                                                                      |
| 10           |          |            |          |                   |        |                            |                                                                                                                                                                                      |
| 10 –         |          | 36         | 20.5     | 105.9             |        | СН                         | Dark grayish brown, moist, hard, fat CLAY.                                                                                                                                           |
| =            |          |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |          |            |          |                   |        | CL                         | TERRACE DEPOSITS: Dark brown, moist, very stiff, CLAY; few caliche; interbedded layers of silty sand.                                                                                |
|              |          | 12         |          |                   |        |                            |                                                                                                                                                                                      |
| -            |          |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |          |            |          |                   |        |                            |                                                                                                                                                                                      |
| 20 -         |          |            |          |                   |        |                            |                                                                                                                                                                                      |
|              |          | 37         |          |                   |        |                            | Hard; sandy.                                                                                                                                                                         |
| -            |          |            | <u></u>  |                   |        |                            |                                                                                                                                                                                      |
| -            |          |            |          |                   |        | <br>SP                     | @23': Groundwater measured after drilling; wet.  Olive brown, wet, dense, poorly graded SAND; fine sand.                                                                             |
| _            |          | 27         |          |                   |        |                            |                                                                                                                                                                                      |
|              |          |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |          |            |          |                   |        |                            |                                                                                                                                                                                      |
| 30 -         |          | 50/8"      | 26.8     | 96.9              |        |                            | Very dense.                                                                                                                                                                          |
|              |          | 00/0       | 20.0     | 00.0              | min    |                            | Total Depth = 30.8 feet.  Groundwater measured after drilling at approximately 23 feet.                                                                                              |
|              |          |            |          |                   |        |                            | Backfilled with bentonite cement grout and capped with on-site soil on 6/3/19.                                                                                                       |
| -            |          |            |          |                   |        |                            | Notes: Groundwater may rise to a level higher than that measured in borehole due to relatively                                                                                       |
| -            |          |            |          |                   |        |                            | slow rate of seepage in clay and several other factors as discussed in the report. Please refer to the report for groundwater monitoring recommendations.                            |
| -            |          |            |          |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is |
|              |          |            |          |                   |        |                            | of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.            |
| 40 -         | <u> </u> |            |          |                   |        |                            |                                                                                                                                                                                      |



|              | LES            |            |          | (-                |        |                            | DATE DRILLED 6/3/19 BORING NO. B-6                                                                                                                                                   |
|--------------|----------------|------------|----------|-------------------|--------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DEPTH (feet) | SAMPLES        | OT L       | (%)      | DRY DENSITY (PCF) | SYMBOL | CLASSIFICATION<br>U.S.C.S. | GROUND ELEVATION 45' ± (MSL) SHEET 1 OF 1                                                                                                                                            |
|              |                | BLOWS/FOOT | MOISTURE |                   |        |                            | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                |
| DEP.         | Bulk<br>Driven | BLOW       | NOIS     | Y DEN             |        |                            | DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"                                                                                                                                   |
|              |                | _          | _        | DR                |        |                            | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH                                                                                                                                           |
| 0            |                |            |          |                   |        | CL                         | DESCRIPTION/INTERPRETATION TERRACE DEPOSITS:                                                                                                                                         |
|              |                |            |          |                   |        | CL                         | Reddish brown, moist, medium dense, lean CLAY; few scattered gravel.                                                                                                                 |
| -            |                |            |          |                   |        |                            | Dady was tick has two hards as links to a grant of hoomed                                                                                                                            |
| -            |                |            |          |                   |        |                            | Dark grayish brown; hard; caliche; no gravel observed.                                                                                                                               |
|              |                | 47         | 17.2     | 109.9             |        |                            |                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| 10 -         |                |            |          |                   |        |                            |                                                                                                                                                                                      |
|              |                | 26         |          |                   |        |                            | Reddish brown.                                                                                                                                                                       |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
|              |                | 52         |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                | 32         |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| 20 -         |                |            |          |                   |        | SM                         | Gray, moist, very dense, silty SAND.                                                                                                                                                 |
| 20           |                | 43         |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                |            | _¥_      |                   |        |                            | √@23.8': Groundwater encountered during drilling; wet.                                                                                                                               |
|              |                |            |          |                   |        | SP                         | Gray, wet, very dense, poorly graded SAND; fine sand.                                                                                                                                |
| -            |                | 50/6"      |          |                   |        |                            |                                                                                                                                                                                      |
|              |                |            |          |                   |        | ML                         | Olive brown, interbedded layers of reddish brown, wet, hard, SILT; laminated.                                                                                                        |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| 30 -         |                | 28         |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            | Total Depth = 31.5 feet.  Groundwater encountered during drilling at approximately 23.8 feet.                                                                                        |
|              |                |            |          |                   |        |                            | Backfilled with bentonite cement grout and capped with on-site soil on 6/3/19.                                                                                                       |
|              |                |            |          |                   |        |                            | Notes:  Groundwater may rise to a level higher than that measured in herehole due to relatively.                                                                                     |
| -            |                |            |          |                   |        |                            | Groundwater may rise to a level higher than that measured in borehole due to relatively slow rate of seepage in clay and several other factors as discussed in the report. Please    |
| _            |                |            |          |                   |        |                            | refer to the report for groundwater monitoring recommendations.                                                                                                                      |
|              |                |            |          |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is |
| 40 -         | Ш              |            | <u> </u> |                   |        |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                      |



|              | SAMPLES        |            |          | Œ                 |                                                          |                            | DATE DRILLED6/1/19 BORING NOB-7                                                                                                                                                                                                                                      |
|--------------|----------------|------------|----------|-------------------|----------------------------------------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAM            | T00        | (%) :    | DRY DENSITY (PCF) |                                                          | CLASSIFICATION<br>U.S.C.S. | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1                                                                                                                                                                                                                            |
| DEPTH (feet) |                | BLOWS/FOOT | MOISTURE | LISN              | SYMBOL                                                   | SIFICA<br>S.C.8            | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                                                                                                |
| DEF          | Bulk<br>Driven | BLO\       | MOIS     | 3Y DE             | S                                                        | SLASS<br>U                 | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                                                                                                     |
|              |                |            |          | A                 |                                                          | O                          | SAMPLED BYGM LOGGED BYGM REVIEWED BYRDH  DESCRIPTION/INTERPRETATION                                                                                                                                                                                                  |
| -            |                |            |          |                   |                                                          | CL                         | TERRACE DEPOSITS: Grayish brown, moist, very stiff, CLAY; few caliche.                                                                                                                                                                                               |
| 10 —         |                | 17         |          |                   |                                                          | <br>SP                     | Light yellowish brown to white, moist, very dense, poorly graded SAND; fine sand.                                                                                                                                                                                    |
| -            |                |            |          |                   |                                                          | <u>-</u>                   | Reddish brown, moist, very stiff, sandy CLAY.                                                                                                                                                                                                                        |
| 20 -         |                | 40         | 20.7     | 105.7             |                                                          |                            | Hard.                                                                                                                                                                                                                                                                |
| -            |                | 28         |          |                   |                                                          |                            | Few rootlets; laminated.                                                                                                                                                                                                                                             |
| _            |                |            |          |                   |                                                          |                            |                                                                                                                                                                                                                                                                      |
| 30 -         |                |            |          |                   | F10146<br>141414<br>111414<br>111414<br>111414<br>111414 | SP-SM                      | Yellowish brown, moist, dense, poorly graded SAND with silt.                                                                                                                                                                                                         |
| 30 -         |                | 70         |          |                   | 141999<br>6133301<br>643363<br>643333                    |                            |                                                                                                                                                                                                                                                                      |
| -            |                |            |          |                   |                                                          |                            | Total Depth = 31.5 feet.  Groundwater was not encountered during drilling.  Backfilled with on-site soil on 6/1/19.                                                                                                                                                  |
| -            |                |            |          |                   |                                                          |                            | Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.                                                                     |
| -<br>40 –    |                |            |          |                   |                                                          |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents. |



|        | SAMPLES     |            |          | ;F)               |        | 7                          | DATE DRILLED 6/8/19 BORING NO B-8                                                                                                                                         |
|--------|-------------|------------|----------|-------------------|--------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (feet) | SAN         | 700        | (%) =    | Y (PC             | _      | ATION.                     | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1                                                                                                                                 |
| H (    |             | BLOWS/FOOT | TURE     | DRY DENSITY (PCF) | SYMBOL | S.C.8                      | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                     |
| DEPTH  | Bulk        | BLOV       | MOISTURE |                   | SY     | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                          |
|        |             |            |          |                   |        | O                          | SAMPLED BYGM LOGGED BYGM REVIEWED BYRDH                                                                                                                                   |
| 0      |             |            |          |                   | retts  | GM                         | ASPHALT CONCRETE:                                                                                                                                                         |
|        |             |            |          |                   |        | CL                         | Approximately 3 inches thick. AGGREGATE BASE:                                                                                                                             |
|        |             |            |          |                   |        |                            | Gray, moist, dense, silty GRAVEL with sand; approximately 6 inches thick.  TERRACE DEPOSITS:                                                                              |
| -      | ╂           | _          |          |                   |        |                            | Reddish brown, moist, hard, CLAY with caliche.                                                                                                                            |
|        | 7           | 28         |          |                   |        |                            |                                                                                                                                                                           |
| -      |             | ] 20       |          |                   |        |                            |                                                                                                                                                                           |
| -      |             |            |          |                   |        | <br>SM                     | Reddish brown, moist, dense, silty SAND; few oxidation stains.                                                                                                            |
|        |             |            |          |                   |        | Civi                       |                                                                                                                                                                           |
| 10 -   |             | 54         | 9.8      | 109.2             |        |                            |                                                                                                                                                                           |
| -      |             |            |          |                   |        |                            |                                                                                                                                                                           |
|        |             | <u></u>    |          |                   |        |                            | Olive brown, moist, very stiff, sandy CLAY; trace caliche; trace coarse sand.                                                                                             |
| -      |             |            |          |                   |        |                            |                                                                                                                                                                           |
| -      |             | 15         |          |                   |        |                            |                                                                                                                                                                           |
|        |             |            |          |                   |        |                            |                                                                                                                                                                           |
| -      |             | _          |          |                   |        |                            |                                                                                                                                                                           |
| 20 -   |             |            |          |                   |        |                            |                                                                                                                                                                           |
|        |             | <u> 61</u> |          |                   |        | <br>SM                     | Hard. Yellowish brown to white, moist, dense, silty SAND.                                                                                                                 |
| -      | H           |            |          |                   |        | Sivi                       | Tellowish brown to write, moist, dense, sitty SAND.                                                                                                                       |
| _      |             |            |          |                   |        | CL                         | Grayish brown, moist, very stiff, sandy CLAY; few oxidation stains; thin interbeds of silty sand.                                                                         |
|        |             |            |          |                   |        |                            | Saliu.                                                                                                                                                                    |
| -      | + I         | 15         |          |                   |        |                            |                                                                                                                                                                           |
|        |             |            |          |                   |        |                            |                                                                                                                                                                           |
| -      |             |            |          |                   |        | SM                         | Olive brown, moist, dense, silty SAND; few oxidation stains.                                                                                                              |
| 30 -   |             |            |          |                   |        |                            |                                                                                                                                                                           |
|        |             | 58         |          |                   |        |                            | Total Donth - 24 5 foot                                                                                                                                                   |
| -      | $\parallel$ |            |          |                   |        |                            | Total Depth = 31.5 feet.  Groundwater was not encountered during drilling.                                                                                                |
|        |             | _          |          |                   |        |                            | Backfilled with with on-site soil and patched with rapid-set concrete dyed black on 6/8/19.                                                                               |
|        |             |            |          |                   |        |                            | Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due                                                                        |
| -      |             | _          |          |                   |        |                            | to seasonal variations in precipitation and several other factors as discussed in the report.                                                                             |
| _      |             |            |          |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations                                                                                |
|        |             |            |          |                   |        |                            | of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents. |
| 40 -   | Ш           |            |          |                   |        |                            | FIGURE A- 9                                                                                                                                                               |

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FIGURE A- 9

UCI NORTH CAMPUS IRVINE, CALIFORNIA 209570014 | 11/19

|              | SAMPLES        |            |          | Ē                 |        |                            | DATE DRILLED6/7/19 BORING NOB-9                                                                                                                        |
|--------------|----------------|------------|----------|-------------------|--------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAM            | T00        | (%)      | r (PC             |        | NOIT.                      | GROUND ELEVATION <u>± (MSL)</u> SHEET <u>1</u> OF <u>2</u>                                                                                             |
| DEPTH (feet) |                | BLOWS/FOOT | MOISTURE | NSIT              | SYMBOL | S.C.S                      | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                  |
| DEP          | Bulk<br>Driven | BLO        | MOIS     | DRY DENSITY (PCF) | S      | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                       |
|              |                |            |          | R                 |        | O                          | SAMPLED BYGM LOGGED BYGM REVIEWED BYRDH                                                                                                                |
| 0            |                |            |          |                   |        | , GM                       | DESCRIPTION/INTERPRETATION  ASPHALT CONCRETE:                                                                                                          |
| -            |                |            |          |                   |        | CL                         | Approximately 5 inches thick.  AGGREGATE BASE:                                                                                                         |
|              |                |            |          |                   |        |                            | Gray, moist, dense, silty GRAVEL with sand; approximately 6 inches thick.  TERRACE DEPOSITS:  Reddish brown, moist, very stiff, CLAY with few caliche. |
| -            |                |            |          |                   |        |                            | Reduist brown, moist, very still, CLAT with lew callerie.                                                                                              |
| -            |                | 12         |          |                   |        |                            |                                                                                                                                                        |
|              |                |            |          |                   |        | <br>SM                     | Yellowish brown, moist, very dense, silty SAND.                                                                                                        |
| 40           |                |            |          |                   |        | SIVI                       | Tollowich Brown, molec, very defice, any critical                                                                                                      |
| 10 -         |                | _50/6"_    | 7.6_     | 102.7             |        | <br>SP                     | Grayish brown, moist, very dense, poorly graded SAND.                                                                                                  |
| -            |                |            |          |                   |        |                            |                                                                                                                                                        |
|              |                |            |          |                   |        | CL                         | Olive brown, moist, very stiff, CLAY.                                                                                                                  |
|              |                | 16         |          |                   |        |                            |                                                                                                                                                        |
|              |                |            |          |                   |        |                            |                                                                                                                                                        |
| -            |                |            |          |                   |        |                            |                                                                                                                                                        |
| 20 -         |                | 32         | 23.1     | 125.6             |        | CH                         | Olive brown, moist, hard, fat CLAY.                                                                                                                    |
|              |                | 32         | 23.1     | 123.0             |        |                            |                                                                                                                                                        |
|              |                |            |          |                   |        |                            |                                                                                                                                                        |
| -            |                |            |          |                   |        | SM                         | Olive brown, moist, dense, silty SAND.                                                                                                                 |
|              |                | 26         |          |                   |        |                            |                                                                                                                                                        |
| -            |                |            |          |                   |        |                            |                                                                                                                                                        |
| 30 -         |                |            | _\\\ =\_ |                   |        | SP                         | @28.7': Groundwater encountered during drilling; wet. Yellowish brown, wet, very dense, poorly graded SAND; oxidation staining.                        |
| 30 -         |                | 76/10"     |          |                   |        |                            |                                                                                                                                                        |
| -            |                |            |          |                   |        |                            |                                                                                                                                                        |
| -            |                |            |          |                   |        | СН                         | Grayish brown, moist, stiff, CLAY.                                                                                                                     |
| _            |                | 7          |          |                   |        |                            |                                                                                                                                                        |
|              |                |            |          |                   |        |                            |                                                                                                                                                        |
| -            |                |            |          |                   |        |                            |                                                                                                                                                        |
| 40 -         |                |            |          |                   |        |                            | FIGURE A. 10                                                                                                                                           |

|              | SAMPLES |            |          | (L            |                                                                 |                            | DATE DRILLED6/7/19 BORING NOB-9                                                                                                                                           |
|--------------|---------|------------|----------|---------------|-----------------------------------------------------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAM     | 700        | (%) =    | DENSITY (PCF) | ارا                                                             | CLASSIFICATION<br>U.S.C.S. | GROUND ELEVATION <u>± (MSL)</u> SHEET <u>2</u> OF <u>2</u>                                                                                                                |
| DEPTH (feet) |         | 3LOWS/FOOT | MOISTURE | INSIT         | SYMBOL                                                          | SIFICA<br>S.C.8            | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                     |
| DEF          | Bulk    | BLO        | MOIS     | DRY DE        | Ś                                                               | CLAS                       | DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"                                                                                                                        |
|              |         |            |          |               |                                                                 |                            | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH DESCRIPTION/INTERPRETATION                                                                                                     |
| 40           |         | 10         | 54.3     | 68.5          |                                                                 | СН                         | TERRACE DEPOSITS: (Continued) Gray, moist, stiff, CLAY; thin interbeds of sand.                                                                                           |
|              |         |            |          |               |                                                                 |                            |                                                                                                                                                                           |
| _            |         | _          |          |               |                                                                 |                            |                                                                                                                                                                           |
| _            |         | 5          |          |               |                                                                 |                            | Firm.                                                                                                                                                                     |
|              |         | _          |          |               |                                                                 |                            |                                                                                                                                                                           |
|              |         |            |          |               |                                                                 |                            |                                                                                                                                                                           |
| 50 -         |         | 10         |          |               |                                                                 |                            | Stiff.                                                                                                                                                                    |
| -            |         |            |          |               |                                                                 |                            |                                                                                                                                                                           |
|              |         | _          |          |               |                                                                 |                            |                                                                                                                                                                           |
|              |         | 10         |          |               |                                                                 |                            |                                                                                                                                                                           |
| -            |         |            |          |               |                                                                 |                            |                                                                                                                                                                           |
| -            |         |            |          |               |                                                                 | SP-SM                      | Gray, moist, very dense, poorly graded SAND with silt.                                                                                                                    |
| 60 -         |         | 50/5"      |          |               | 1.000 (7.50<br>(4.19.04)<br>(4.20.00)<br>(4.20.00)<br>(4.20.00) |                            |                                                                                                                                                                           |
|              |         |            |          |               | 1 (2,5.1)                                                       |                            | Total Depth = 60.9 feet. Groundwater encountered during drilling at approximately 28.7 feet.                                                                              |
|              |         |            |          |               |                                                                 |                            | Backfilled with bentonite cement grout and patched with rapid-set concrete dyed black on 6/7/19.                                                                          |
| -            |         |            |          |               |                                                                 |                            | Notes: Groundwater may rise to a level higher than that measured in borehole due to relatively                                                                            |
| -            |         | _          |          |               |                                                                 |                            | slow rate of seepage in clay and several other factors as discussed in the report. Please refer to the report for groundwater monitoring recommendations.                 |
| -            |         |            |          |               |                                                                 |                            | The ground elevation shown above is an estimation only. It is based on our interpretations                                                                                |
| 70 -         |         | <u> </u>   |          |               |                                                                 |                            | of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents. |
| _            |         |            |          |               |                                                                 |                            |                                                                                                                                                                           |
|              |         |            |          |               |                                                                 |                            |                                                                                                                                                                           |
| -            |         | 1          |          |               |                                                                 |                            |                                                                                                                                                                           |
| -            |         | _          |          |               |                                                                 |                            |                                                                                                                                                                           |
| _            |         |            |          |               |                                                                 |                            |                                                                                                                                                                           |
| 80 -         |         |            |          |               |                                                                 |                            |                                                                                                                                                                           |

|        | SAMPLES        |            |          | (L            |              |                            | DATE DRILLED5/8/19 BORING NOB-10                                                                                                                                                          |
|--------|----------------|------------|----------|---------------|--------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (feet) | SAM            | TO         | (%)      | DENSITY (PCF) |              | NO<br>E .                  | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1                                                                                                                                                 |
| H (fe  |                | /S/FC      | 'URE     | SIT           | SYMBOL       | FICA<br>S.C.S              | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                     |
| DEPTH  | Bulk<br>Driven | BLOWS/FOOT | MOISTURE | 7 DEN         | SYI          | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"                                                                                                                                        |
|        | B              |            | 2        | DRY           |              | ರ                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH                                                                                                                                                |
| 0      |                |            |          |               |              |                            | DESCRIPTION/INTERPRETATION                                                                                                                                                                |
| 0      |                |            |          |               |              | CL                         | ASPHALT CONCRETE: Approximately 3.5 inches thick.                                                                                                                                         |
| -      |                |            |          |               |              |                            | AGGREGATE BASE: Grayish brown, moist, dense, silty GRAVEL with sand; approximately 5 inches thick.                                                                                        |
| -      |                |            |          |               |              |                            | FILL: Grayish brown, reddish brown mottled, moist, stiff, CLAY; trace angular fine gravel; few                                                                                            |
|        |                | 0.4        |          |               |              | CL                         | sand. TERRACE DEPOSITS:                                                                                                                                                                   |
| -      |                | 24         |          |               |              |                            | Grayish brown, moist, very stiff, CLAY; layers of caliche.                                                                                                                                |
| _      |                |            |          |               |              |                            |                                                                                                                                                                                           |
|        |                |            |          |               |              |                            |                                                                                                                                                                                           |
| 10 -   |                | 21         |          |               |              |                            | Mottled reddish brown; hard.                                                                                                                                                              |
| _      |                |            |          |               |              | <br>SM                     | Yellowish brown, moist, medium dense, silty SAND; fine to medium sand.                                                                                                                    |
|        |                |            |          |               |              | <b></b>                    |                                                                                                                                                                                           |
| -      |                |            |          |               |              |                            |                                                                                                                                                                                           |
|        |                | 37         | 12.2     | 94.6          |              |                            | Laminated.                                                                                                                                                                                |
| -      |                | 0.         | 12.2     | 01.0          |              |                            | Editinated.                                                                                                                                                                               |
| =      |                |            |          |               |              |                            | Yellowish brown, reddish brown mottled, very stiff CLAY.                                                                                                                                  |
|        |                |            |          |               |              | OL                         |                                                                                                                                                                                           |
| 20 –   |                | 18         |          |               |              |                            |                                                                                                                                                                                           |
| -      |                |            |          |               |              |                            |                                                                                                                                                                                           |
|        |                |            |          |               |              |                            |                                                                                                                                                                                           |
| =      |                |            |          |               |              |                            |                                                                                                                                                                                           |
| _      |                |            |          |               |              | <br>SM                     | Yellowish brown, moist, medium dense, silty SAND; fine to medium sand.                                                                                                                    |
|        |                |            |          |               |              | CL                         | @ 26': Slight chatter on gravel. Yellowish brown, reddish brown mottled, moist, hard, sandy CLAY; layers of caliche.                                                                      |
| -      |                |            |          |               |              |                            |                                                                                                                                                                                           |
| 30 -   |                |            |          |               |              |                            |                                                                                                                                                                                           |
| 30     |                | 45         |          |               |              |                            | Yellowish brown, moist, very dense, silty SAND.                                                                                                                                           |
| -      |                |            |          |               | 1:1:1:1:1:1: |                            | Total Depth = 31.5 feet. Groundwater was not encountered during drilling.                                                                                                                 |
| -      |                |            |          |               |              |                            | Backfilled with on-site soil and patched with cold patch asphalt on 5/28/19. Patched with rapid-set concrete dyed black on 5/31/19.                                                       |
|        |                |            |          |               |              |                            | Notes:                                                                                                                                                                                    |
| -      |                |            |          |               |              |                            | Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. |
| -      | H              |            |          |               |              |                            | The ground elevation shown above is an estimation only. It is based on our interpretations                                                                                                |
| 40 -   |                |            |          |               |              |                            | of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.                 |



|          | ဟ       |            |          |               |        |                            |                                                                                                                                                                                           |
|----------|---------|------------|----------|---------------|--------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | SAMPLES |            |          | CF)           |        | z                          | DATE DRILLED 5/28/19 BORING NO B-11                                                                                                                                                       |
| (feet)   | SAN     |            | E (%)    | DENSITY (PCF) | 닐      | ATIO<br>S.                 | GROUND ELEVATION <u>50' ± (MSL)</u> SHEET <u>1</u> OF <u>1</u>                                                                                                                            |
| ОЕРТН (( |         | BLOWS/FOOT | MOISTURE | INSIT         | SYMBOL | SIFIC<br>.S.C.             | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                     |
| DEF      | Bulk    | BLO        | MOIS     | DRY DE        | Ś      | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"                                                                                                                                        |
|          |         |            |          | DR            |        | O                          | SAMPLED BYGM LOGGED BYGM REVIEWED BYRDH                                                                                                                                                   |
| 0        |         |            |          |               | -205   |                            | DESCRIPTION/INTERPRETATION  ASPHALT CONCRETE:                                                                                                                                             |
|          |         |            |          |               |        | CL                         | Approximately 3.5 inches thick. AGGREGATE BASE:                                                                                                                                           |
|          |         | -          |          |               |        |                            | Grayish brown, moist, dense, silty GRAVEL with sand; approximately 2 inches thick.                                                                                                        |
| -        |         | -          |          |               |        |                            | FILL: Grayish brown, reddish brown mottled, moist, stiff, sandy CLAY; trace fine angular gravel.                                                                                          |
|          | ٦,      | 14         |          |               |        | CL                         | TERRACE DEPOSITS: Grayish brown, moist, very stiff, CLAY; few layers of caliche; little sand.                                                                                             |
| -        |         | 14         |          |               |        |                            |                                                                                                                                                                                           |
|          |         | -          |          |               |        |                            |                                                                                                                                                                                           |
| 4.0      |         |            |          |               |        |                            | Olive brown, moist, medium dense, sandy SILT with gravel; trace rootlets.                                                                                                                 |
| 10 -     |         | 28         | 14.2     | 115.6         |        |                            |                                                                                                                                                                                           |
| -        |         | -          |          |               |        |                            |                                                                                                                                                                                           |
|          |         |            |          |               |        | CL                         | Olive brown, moist, very stiff, CLAY.                                                                                                                                                     |
|          |         |            |          |               |        |                            |                                                                                                                                                                                           |
| -        | +       | 20         |          |               |        |                            |                                                                                                                                                                                           |
|          |         |            |          |               |        |                            |                                                                                                                                                                                           |
|          |         |            |          |               |        |                            |                                                                                                                                                                                           |
| 20 -     |         | 29         | 16.4     | 112.0         |        |                            | Hard.                                                                                                                                                                                     |
|          |         |            | 10.4     |               |        |                            |                                                                                                                                                                                           |
|          |         |            |          |               |        | SM                         | Yellowish brown, moist, very dense, silty SAND; fine to medium sand; few layers oxidized reddish brown.                                                                                   |
| -        |         | _          |          |               |        |                            | Drill stem chatter at approximately 22 feet.                                                                                                                                              |
|          |         | 63         |          |               |        |                            |                                                                                                                                                                                           |
|          |         |            |          |               |        |                            |                                                                                                                                                                                           |
|          | +       |            | L        |               |        | :                          |                                                                                                                                                                                           |
| 30 -     |         |            |          |               |        | CL                         | Olive brown, moist, hard, CLAY; with shell fragments up to approximately 3/8 inch diameter.                                                                                               |
|          |         | 32         | 23.4     | 101.2         |        |                            | Total Dopth 24 5 foot                                                                                                                                                                     |
| -        |         | -          |          |               |        |                            | Total Depth = 31.5 feet.  Groundwater was not encountered during drilling.                                                                                                                |
|          |         | -          |          |               |        |                            | Backfilled with on-site soil and patched with cold patch asphalt on 5/28/19. Patched with rapid-set concrete dyed black on 5/31/19.                                                       |
|          |         |            |          |               |        |                            | Notes:                                                                                                                                                                                    |
| -        |         |            |          |               |        |                            | Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. |
|          |         | -          |          |               |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations                                                                                                |
| 40       |         |            |          |               |        |                            | of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.                 |



|              | ES             |            |          |                   |                    |                            | DATE DRILLED 6/7/40 POPING NO D 42                                                                                                                                                   |
|--------------|----------------|------------|----------|-------------------|--------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <del></del>  | SAMPLES        | F          | (%)      | PCF)              |                    | S                          | DATE DRILLED 6/7/19 BORING NO. B-12                                                                                                                                                  |
| DEPTH (feet) | S              | 3LOWS/FOOT | RE (9    | ) YTi             | 30L                | CLASSIFICATION<br>U.S.C.S. | GROUND ELEVATION <u>± (MSL)</u> SHEET <u>1</u> OF <u>1</u>                                                                                                                           |
| EPTH         | Z E            | OWS,       | MOISTURE | DRY DENSITY (PCF) | SYMBOL             | SSIFI<br>U.S.(             | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                |
|              | Bulk<br>Driven | B          | MO       | JRY [             |                    | CLA                        | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                     |
|              |                |            |          |                   |                    |                            | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH  DESCRIPTION/INTERPRETATION                                                                                                               |
| 0            |                |            |          |                   | \$;\ <b>!</b> \$\$ | GM                         | ASPHALT CONCRETE: Approximately 2.5 inches thick.                                                                                                                                    |
| -            |                |            |          |                   |                    | CL                         | AGGREGATE BASE:                                                                                                                                                                      |
|              |                |            |          |                   |                    |                            | Gray, moist, dense, silty GRAVEL with sand; approximately 7 inches thick.  TERRACE DEPOSITS:                                                                                         |
| -            |                |            |          |                   |                    |                            | Reddish brown, moist, stiff, sandy CLAY.                                                                                                                                             |
|              |                | 32         | 35.4     | 85.3              |                    |                            | Yellowish brown; hard.                                                                                                                                                               |
| -            |                | 32         | 33.4     | 00.0              |                    |                            | Tellowish brown, nard.                                                                                                                                                               |
| _            |                |            |          |                   |                    |                            |                                                                                                                                                                                      |
|              |                |            |          |                   |                    |                            |                                                                                                                                                                                      |
| 10 -         |                |            |          |                   |                    |                            |                                                                                                                                                                                      |
|              |                | 18         |          |                   |                    |                            | With caliche.                                                                                                                                                                        |
| -            |                |            |          |                   |                    |                            |                                                                                                                                                                                      |
| _            |                |            |          |                   |                    |                            |                                                                                                                                                                                      |
|              |                |            |          |                   |                    |                            |                                                                                                                                                                                      |
| -            |                | 23         | 19.4     | 108.6             |                    |                            | Grayish brown; trace caliche.                                                                                                                                                        |
|              |                |            |          |                   |                    |                            |                                                                                                                                                                                      |
| -            |                |            |          |                   |                    |                            |                                                                                                                                                                                      |
| 20           |                |            |          |                   |                    |                            |                                                                                                                                                                                      |
| 20 –         |                | 19         |          |                   |                    |                            | Yellowish brown; very stiff.                                                                                                                                                         |
| -            |                |            |          |                   |                    |                            |                                                                                                                                                                                      |
|              |                |            | <u>=</u> |                   |                    |                            |                                                                                                                                                                                      |
| =            |                |            |          |                   |                    |                            |                                                                                                                                                                                      |
|              |                | 73         |          |                   |                    |                            | Hard; grayish brown mottled.                                                                                                                                                         |
| -            |                | /3         |          |                   |                    |                            | Tiard, grayish brown mothed.                                                                                                                                                         |
| -            |                |            |          |                   |                    |                            |                                                                                                                                                                                      |
|              |                |            | ₹        |                   |                    | SP                         | Grayish brown, moist, very dense, poorly graded SAND.  @29': Groundwater encountered during drilling; wet.                                                                           |
| 30 -         |                |            |          |                   |                    |                            | ©25. Stouridwater cheodificate during drining, wet.                                                                                                                                  |
|              |                | 49         |          |                   |                    |                            | Total Depth = 31.5 feet.                                                                                                                                                             |
| -            |                |            |          |                   |                    |                            | Groundwater encountered during drilling at approximately 29 feet.                                                                                                                    |
| -            |                |            |          |                   |                    |                            | Backfilled with bentonite cement grout and patched with rapid-set concrete dyed black on 6/7/19.                                                                                     |
|              |                |            |          |                   |                    |                            | Notes:                                                                                                                                                                               |
| -            |                |            |          |                   |                    |                            | Groundwater may rise to a level higher than that measured in borehole due to relatively slow rate of seepage in clay and several other factors as discussed in the report. Please    |
| -            |                |            |          |                   |                    |                            | refer to the report for groundwater monitoring recommendations.                                                                                                                      |
|              |                |            |          |                   |                    |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is |
| 40 -         |                |            |          |                   |                    |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                      |



|              | S-I-ES         |            |          | (-                |        |                            | DATE DRILLED6/11/19BORING NOB-13                                                                                                                                                     |
|--------------|----------------|------------|----------|-------------------|--------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| et)          | SAMPLES        | TO         | (%)      | , (PCF            |        | NOI .                      | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1                                                                                                                                            |
| DEPTH (feet) |                | BLOWS/FOOT | MOISTURE | (SIT)             | SYMBOL | CLASSIFICATION<br>U.S.C.S. | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                |
| DEP.         | Bulk<br>Driven | BLOV       | MOIS     | DRY DENSITY (PCF) | λS     | LASS<br>U.                 | DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"                                                                                                                                   |
|              | ۵۵             |            | _        | DR                |        | Ö                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH                                                                                                                                           |
| 0            |                |            |          |                   |        |                            | DESCRIPTION/INTERPRETATION ASPHALT CONCRETE:                                                                                                                                         |
|              |                |            |          |                   |        | CL                         | Approximately 5 inches thick.  TERRACE DEPOSITS:                                                                                                                                     |
| -            |                |            | <u>_</u> |                   |        |                            | Dark reddish brown, moist, stiff, CLAY; trace to few caliche.                                                                                                                        |
| -            |                |            | _        |                   |        |                            |                                                                                                                                                                                      |
| _            |                | 6          |          |                   |        |                            | Olive brown.                                                                                                                                                                         |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| 10 -         |                |            |          |                   |        |                            | Olive brown, moist, hard, fat CLAY.                                                                                                                                                  |
|              |                | 32         | 29.6     | 90.5              |        | СН                         | Olive brown, moist, nard, lat CLAT.                                                                                                                                                  |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
|              |                | 18         |          |                   |        |                            | Very stiff.                                                                                                                                                                          |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| 20 -         |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| 20           |                | 49         |          |                   |        |                            | Hard.                                                                                                                                                                                |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                |            |          |                   |        | SP                         | Olive brown, moist, very dense, poorly graded SAND; fine sand.                                                                                                                       |
|              |                | 35         |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                | 33         | ₹        |                   |        |                            | @ 26 Ot Croundwater appointered during drillings wat                                                                                                                                 |
| -            |                |            | -        |                   |        |                            | @26.9': Groundwater encountered during drilling; wet.                                                                                                                                |
| 20           |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| 30 -         |                | 83         |          |                   |        |                            | Few layers of oxidized reddish brown.                                                                                                                                                |
| -            |                |            |          |                   |        |                            | Total Depth = 31.5 feet. Groundwater encountered during drilling at approximately 29.9 feet.                                                                                         |
| -            |                |            |          |                   |        |                            | Backfilled with bentonite cement grout and patched with rapid-set concrete dyed black on 6/11/19.                                                                                    |
| _            |                |            |          |                   |        |                            | Notes: Groundwater may rise to a level higher than that measured in borehole due to relatively                                                                                       |
|              |                |            |          |                   |        |                            | slow rate of seepage in clay and several other factors as discussed in the report. Please refer to the report for groundwater monitoring recommendations.                            |
|              |                |            |          |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is |
| 40 -         |                |            |          |                   |        |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                      |



|              | SAMPLES |             |          | (i                |         |                            | DATE DRILLED6/11/19 BORING NOB-14                                                                                                                                                    |
|--------------|---------|-------------|----------|-------------------|---------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAMI    | T00         | (%)      | DRY DENSITY (PCF) |         | NO E                       | GROUND ELEVATION <u>+ (MSL)</u> SHEET <u>1</u> OF <u>1</u>                                                                                                                           |
| DEPTH (feet) |         | BLOWS/FOOT  | MOISTURE | NSIT              | SYMBOL  | CLASSIFICATION<br>U.S.C.S. | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                |
| DEP          | Bulk    | BLOV        | MOIS     | KY DE             | S       | LASS<br>U.                 | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                     |
|              |         |             |          | R                 |         | O                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH                                                                                                                                           |
| 0            |         |             |          |                   | 1, 1, 1 | GM                         | ASPHALT CONCRETE:                                                                                                                                                                    |
| -            |         |             |          |                   |         | CL                         | Approximately 3 inches thick.  AGGREGATE BASE:  Crown mainty depose all ty CRAVEL with conductors with a conductor of the conductors and approximately 3 inches thick                |
|              |         |             |          |                   |         |                            | Gray, moist, dense, silty GRAVEL with sand; approximately 2 inches thick.  TERRACE DEPOSITS: Olive brown, moist, hard, CLAY with caliche; trace rootlets.                            |
| -            |         |             |          |                   |         |                            | Onve brown, most, nara, obxt with callene, trace rootiets.                                                                                                                           |
| -            |         | <u>61</u> _ | 23.2     | 102.9             |         |                            | White, moist, dense, silty SAND; fine sand.                                                                                                                                          |
| -            |         |             |          |                   |         |                            | Olive brown, moist, very stiff, CLAY; trace rootlets.                                                                                                                                |
| 40           |         |             |          |                   |         | OL                         |                                                                                                                                                                                      |
| 10 –         |         | 14          |          |                   |         |                            |                                                                                                                                                                                      |
| -            |         |             |          |                   |         |                            |                                                                                                                                                                                      |
| -            |         |             |          |                   |         | SM                         | Yellowish brown, moist, very dense, silty SAND.                                                                                                                                      |
| _            |         | 75          | 20.6     | 102.4             |         |                            |                                                                                                                                                                                      |
|              |         |             |          |                   |         |                            |                                                                                                                                                                                      |
| =            |         |             | ¥        |                   |         |                            | @17.8': Groundwater encountered during drilling; wet.                                                                                                                                |
| 20 -         |         |             |          |                   |         |                            |                                                                                                                                                                                      |
| _            |         | 50          |          |                   |         |                            | Few thinly interbedded layers of oxidized reddish brown.                                                                                                                             |
|              |         |             |          |                   |         |                            |                                                                                                                                                                                      |
| -            |         |             |          |                   |         | CH                         | Grayish brown, reddish brown mottled, moist to wet, very stiff, CLAY; oxidized.                                                                                                      |
| -            |         | 13          | 47.4     | 73.6              |         |                            |                                                                                                                                                                                      |
|              |         |             |          |                   |         |                            |                                                                                                                                                                                      |
|              |         |             |          |                   |         |                            |                                                                                                                                                                                      |
| 30 -         | 7       | 18          |          |                   |         |                            | With caliche.                                                                                                                                                                        |
| -            |         |             |          |                   |         |                            | Total Depth = 31.5 feet.  Groundwater encountered during drilling at approximately 17.8 feet.                                                                                        |
| -            |         |             |          |                   |         |                            | Backfilled with bentonite cement grout and patched with rapid-set concrete dyed black on 6/11/19.                                                                                    |
| _            |         |             |          |                   |         |                            | Notes: Groundwater may rise to a level higher than that measured in borehole due to relatively                                                                                       |
|              |         |             |          |                   |         |                            | slow rate of seepage in clay and several other factors as discussed in the report. Please refer to the report for groundwater monitoring recommendations.                            |
| -            |         |             |          |                   |         |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is |
| 40 -         | Щ       |             |          |                   | Щ       |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                      |



|              | SAMPLES        |            | _     | CF)                            |        | z                          | DATE DRILLED6/11/19 BORING NOB-15                                                                                                                                                         |
|--------------|----------------|------------|-------|--------------------------------|--------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| feet)        | SAI            | T00        | E (%) | MOISTURE (%) DRY DENSITY (PCF) | ٦      | ATIO<br>S.                 | GROUND ELEVATION 30' ± (MSL) SHEET 1 OF 1                                                                                                                                                 |
| DEPTH (feet) |                | 3LOWS/FOOT | TUR   |                                | SYMBOL | SIFIC<br>.S.C.             | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                     |
| DEF          | Bulk<br>Driven | BLO        | MOIS  |                                | S      | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"                                                                                                                                        |
|              |                |            |       | PO                             |        |                            | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH DESCRIPTION/INTERPRETATION                                                                                                                     |
| 0            |                |            |       |                                | THIN   | √ GM                       | AGGREGATE BASE:                                                                                                                                                                           |
| _            |                |            |       |                                |        | CL                         | Gray, moist, dense, silty GRAVEL with sand; approximately 2 inches thick.  TERRACE DEPOSITS:                                                                                              |
|              |                |            |       |                                |        |                            | Olive gray, moist, stiff, CLAY; few rootlets; trace sea shells; trace sand.                                                                                                               |
| -            |                |            |       |                                |        |                            |                                                                                                                                                                                           |
| -            |                | 9          |       |                                |        |                            |                                                                                                                                                                                           |
|              |                |            |       |                                |        |                            |                                                                                                                                                                                           |
| -            |                |            |       |                                |        |                            |                                                                                                                                                                                           |
| 10 –         |                |            |       |                                |        |                            |                                                                                                                                                                                           |
|              |                | 38         |       |                                |        |                            | Grayish brown; hard; increase in sand.                                                                                                                                                    |
| -            |                |            |       |                                |        |                            |                                                                                                                                                                                           |
| _            |                |            |       |                                |        |                            | Chatter.                                                                                                                                                                                  |
|              |                |            |       |                                |        |                            |                                                                                                                                                                                           |
| -            |                | 11         |       |                                |        |                            | Olive brown; very stiff; trace to few caliche.                                                                                                                                            |
| -            |                |            |       |                                |        |                            |                                                                                                                                                                                           |
|              |                |            |       |                                |        |                            |                                                                                                                                                                                           |
| 20 –         |                | 26         |       |                                |        |                            |                                                                                                                                                                                           |
| _            |                |            |       |                                |        |                            |                                                                                                                                                                                           |
|              |                |            |       |                                |        |                            |                                                                                                                                                                                           |
| =            |                |            |       |                                |        |                            |                                                                                                                                                                                           |
| _            |                | 15         |       |                                |        |                            | Very stiff; thin interbeds of silty sand.                                                                                                                                                 |
|              |                |            |       |                                |        |                            |                                                                                                                                                                                           |
| -            |                |            |       |                                |        |                            |                                                                                                                                                                                           |
| 30 -         |                |            |       |                                |        |                            |                                                                                                                                                                                           |
|              |                | 33         |       |                                |        |                            | Hard; layer of coarse clayey sand.                                                                                                                                                        |
| -            |                |            |       |                                |        |                            | Total Depth = 31.5 feet.  Groundwater was not encountered during drilling.                                                                                                                |
| -            |                |            |       |                                |        |                            | Backfilled with on-site soil on 6/11/19.                                                                                                                                                  |
|              |                |            |       |                                |        |                            | Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due                                                                                        |
| =            |                |            |       |                                |        |                            | to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations |
| -            |                |            |       |                                |        |                            | of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.                 |
|              |                |            |       |                                |        |                            |                                                                                                                                                                                           |
| 40 -         | Щ              |            |       |                                |        |                            |                                                                                                                                                                                           |

|              | SAMPLES        |            |              | ;F)               |        | 7                          | DATE DRILLED 6/11/19 BORING NO B-16                                                                     |
|--------------|----------------|------------|--------------|-------------------|--------|----------------------------|---------------------------------------------------------------------------------------------------------|
| eet)         | SAN            | 700        | (%) =        | Y (PC             | _ ا    | ATION                      | GROUND ELEVATION <u>± (MSL)</u> SHEET <u>1</u> OF <u>2</u>                                              |
| DEPTH (feet) |                | BLOWS/FOOT | MOISTURE (%) | NSIT              | SYMBOL | SEIC/                      | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                   |
| DEP          | Bulk<br>Driven | BLO        | MOIS         | DRY DENSITY (PCF) | S      | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                        |
|              |                |            |              | DR                |        |                            | SAMPLED BY GM REVIEWED BY RDH                                                                           |
| 0            |                |            |              |                   |        | CL                         | ALLUVIUM:                                                                                               |
|              |                |            |              |                   |        |                            | Dark brown, moist, hard, CLAY; few caliche; trace sea shell fragments; trace coarse sand; few rootlets. |
|              |                |            |              |                   |        |                            | Black.                                                                                                  |
| -            |                |            |              |                   |        |                            |                                                                                                         |
| -            |                | 16         | 20.3         | 100.2             |        |                            |                                                                                                         |
|              |                |            |              |                   |        |                            |                                                                                                         |
|              |                |            |              |                   |        |                            |                                                                                                         |
| 10 -         |                | 16         |              |                   |        |                            |                                                                                                         |
| -            |                | 10         |              |                   |        |                            |                                                                                                         |
|              |                |            |              |                   |        |                            |                                                                                                         |
| -            |                |            |              |                   |        |                            |                                                                                                         |
| -            |                | 25         | 22.0         | 105.9             |        |                            | Olive brown; hard.                                                                                      |
| _            |                |            |              |                   |        |                            |                                                                                                         |
|              |                |            |              |                   |        |                            | Very stiff.                                                                                             |
| 20 -         |                | 14         |              |                   |        |                            | Trace caliche.                                                                                          |
| -            |                |            |              |                   |        |                            |                                                                                                         |
|              |                |            |              |                   |        |                            |                                                                                                         |
| -            |                |            |              |                   |        |                            |                                                                                                         |
|              |                | 29         |              |                   |        |                            | Hard.                                                                                                   |
|              |                |            |              |                   |        |                            |                                                                                                         |
|              |                |            |              |                   |        |                            | Sandy.                                                                                                  |
| 30 –         | 7              | 28         |              |                   |        |                            |                                                                                                         |
| -            |                |            |              |                   |        | SP                         | TERRACE DEPOSITS: Yellowish brown, moist, very dense, poorly graded SAND.                               |
| _            |                |            | Ş            |                   |        |                            |                                                                                                         |
|              |                |            | 4            |                   |        |                            | @34': Seepage encountered during drilling; wet.                                                         |
| -            |                | 90/9"      |              |                   |        |                            |                                                                                                         |
|              |                |            |              |                   |        |                            |                                                                                                         |
| 40 -         |                |            | ₹            |                   |        |                            | @39.4': Groundwater encountered during drilling; wet.                                                   |



|              | SAMPLES        |                  |          | <u> </u>          |        |                            | DATE DRILLED6/11/19 BORING NO B-16                                                                                                                                                                                                                                   |
|--------------|----------------|------------------|----------|-------------------|--------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAM            | T00              | (%) :    | DRY DENSITY (PCF) |        | CLASSIFICATION<br>U.S.C.S. | GROUND ELEVATION         ± (MSL)         SHEET         2         OF         2                                                                                                                                                                                        |
| DEPTH (feet) |                | 3LOWS/FOOT       | MOISTURE | NSIT              | SYMBOL | SIFICA<br>S.C.S            | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                                                                                                |
| DEP          | Bulk<br>Driven | BLO <sub>\</sub> | MOIS     | XY DE             | S      | SLASS<br>U                 | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                                                                                                     |
|              |                |                  |          | P.O.              |        | 0                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH                                                                                                                                                                                                                           |
| 40           |                | 42               |          |                   |        | SP                         | TERRACE DEPOSITS: (Continued)                                                                                                                                                                                                                                        |
| -            |                |                  |          |                   |        |                            | Yellowish brown, wet, very dense, poorly graded SAND; medium sand.                                                                                                                                                                                                   |
|              |                |                  |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| _            |                |                  |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| =            | $\dashv A$     | 50/5"            |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |                |                  |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| 50 -         |                |                  |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| 00           |                | 28               |          |                   |        |                            | Gray.                                                                                                                                                                                                                                                                |
| -            |                |                  |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |                |                  |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |                | 51               | 27.1     | 94.8              |        |                            | Dense; fine sand.                                                                                                                                                                                                                                                    |
|              |                |                  |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| =            |                |                  |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| 60 –         |                | 79               |          |                   |        |                            | Very dense.                                                                                                                                                                                                                                                          |
| _            |                | 19               |          |                   |        |                            | Total Depth = 61.5 feet.                                                                                                                                                                                                                                             |
|              |                |                  |          |                   |        |                            | Groundwater encountered during drilling at approximately 39.4 feet. Seepage encountered during drilling at approximately 34 feet.                                                                                                                                    |
| =            |                |                  |          |                   |        |                            | Backfilled with bentonite cement grout and patched with on-site soil on 6/11/19.                                                                                                                                                                                     |
| -            |                |                  |          |                   |        |                            | Notes: Groundwater may rise to a level higher than that measured in borehole due to seasonal                                                                                                                                                                         |
| _            |                |                  |          |                   |        |                            | variations in precipitation and several other factors as discussed in the report.                                                                                                                                                                                    |
|              |                |                  |          |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents. |
| 70 –         |                |                  |          |                   |        |                            | not came only accurate for proparing conduction blue and design accuments.                                                                                                                                                                                           |
| -            |                |                  |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| _            |                |                  |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
|              |                |                  |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |                |                  |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |                |                  |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| 80 –         |                |                  |          |                   |        |                            |                                                                                                                                                                                                                                                                      |

|              | SAMPLES        |            |          | F)                |                                                     |                            | DATE DRILLED6/8/19BORING NOB-17                                                                                                                                                                                                                                      |
|--------------|----------------|------------|----------|-------------------|-----------------------------------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAM            | T00        | (%)      | Y (PCI            |                                                     | CLASSIFICATION<br>U.S.C.S. | GROUND ELEVATION 30' ± (MSL) SHEET 1 OF 1                                                                                                                                                                                                                            |
| DEPTH (feet) |                | BLOWS/FOOT | MOISTURE | NSIT              | SYMBOL                                              | SIFICA<br>S.C.9            | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                                                                                                |
| DEF          | Bulk<br>Driven | BLO        | MOIS     | DRY DENSITY (PCF) | S                                                   | SLASS<br>U                 | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                                                                                                     |
|              |                |            |          | DF                |                                                     | O                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH DESCRIPTION/INTERPRETATION                                                                                                                                                                                                |
| 0            |                |            |          |                   |                                                     | CL                         | TOPSOIL: Grayish black, moist, very stiff, lean CLAY.                                                                                                                                                                                                                |
| -            |                |            |          |                   |                                                     |                            |                                                                                                                                                                                                                                                                      |
| -            |                |            |          |                   |                                                     |                            |                                                                                                                                                                                                                                                                      |
|              |                | 13         |          |                   |                                                     | CL                         | ALLUVIUM:                                                                                                                                                                                                                                                            |
| -            |                |            |          |                   |                                                     |                            | Olive brown, moist, very stiff, CLAY; few sand.                                                                                                                                                                                                                      |
| -            |                |            |          |                   |                                                     |                            |                                                                                                                                                                                                                                                                      |
| 10 -         |                |            |          |                   |                                                     |                            |                                                                                                                                                                                                                                                                      |
| _            |                | 26         | 21.1     | 102.6             | 7 (1) (1)<br>1 (1) (1)<br>1 (1) (1)                 | SP-SM                      | TERRACE DEPOSITS: Yellowish brown, moist, medium dense, poorly graded SAND with silt; trace oxidation                                                                                                                                                                |
|              |                |            |          |                   | 000000<br>000000<br>000000<br>000000                |                            | stains; massive.                                                                                                                                                                                                                                                     |
| -            |                |            |          |                   | 8.42000<br>68.6900<br>8.69000<br>0.69000            |                            |                                                                                                                                                                                                                                                                      |
| -            |                | 46         |          |                   | (410)0<br>(110)0<br>(100)0<br>(100)0<br>(100)0      |                            | Very dense; thin interbeds oxidized at contacts between layers.                                                                                                                                                                                                      |
| -            |                |            |          |                   | (61999<br>(11999)<br>(1899)<br>(1999)               |                            |                                                                                                                                                                                                                                                                      |
| 20 -         |                |            |          |                   | itioni<br>Clanici<br>Lightii<br>Clanici             |                            |                                                                                                                                                                                                                                                                      |
| 20           |                | 50/4"      | 4.3      | 95.4              | 1.03000<br>1.03000<br>1.03000<br>1.03000            |                            |                                                                                                                                                                                                                                                                      |
| -            |                |            |          |                   | 1.23233<br>1.23233<br>1.23233<br>1.23233<br>1.23233 |                            |                                                                                                                                                                                                                                                                      |
| -            |                |            |          |                   | 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6               |                            |                                                                                                                                                                                                                                                                      |
| _            |                | 43         |          |                   | (414)                                               |                            |                                                                                                                                                                                                                                                                      |
|              |                |            |          |                   |                                                     |                            |                                                                                                                                                                                                                                                                      |
| -            |                |            |          |                   | 14956<br>64999<br>74999                             |                            |                                                                                                                                                                                                                                                                      |
| 30 -         |                | 50/6"      |          |                   | idiki<br>Kaban<br>Kaban<br>Kaban                    |                            |                                                                                                                                                                                                                                                                      |
| -            |                |            |          |                   | # 53 0 P S                                          |                            | Total Depth = 31.5 feet. Groundwater was not encountered during drilling.                                                                                                                                                                                            |
| _            |                |            |          |                   |                                                     |                            | Backfilled with on-site soil on 6/8/19.                                                                                                                                                                                                                              |
| -            |                |            |          |                   |                                                     |                            | Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.                                                                     |
| -            |                |            |          |                   |                                                     |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents. |
| 40 -         |                |            |          |                   |                                                     |                            | not came. Stray accounts for proparing construction stack and design accounterts.                                                                                                                                                                                    |

| METHOD OF DRILLING 8* Hollow-Stem Auger (2R Drilling)  DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30*  SAMPLED BY M LOGGED BY M REVIEWED BY RDH  DESCRIPTIONINTERRETATION  CL ALLUVIUM: Dark reddish brown, moist, stiff, CLAY with rootlets.  SC Yellowish brown, moist, medium dense, poorly graded SAND; few oxidation stains.  10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |        | SAMPLES       |       |       | Œ.         |     |            | DATE DRILLED6/8/19BORING NOB-18                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------------|-------|-------|------------|-----|------------|----------------------------------------------------------------------------------------------------|
| SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH  CL ALLUVIUM Description/inverpretation  CL ALLUVIUM Description/inverpretation  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Books and in preport. Groundwater was not encountered during drilling. Books and in preport. The ground elevation should be robe under several other factors as discussed in the report. The ground elevation should be robe this evaluation. It is based on our interpretations of published maps and other focucints revents revenued to this passed on our interpretations of published maps and other focucints revenued to the published maps.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | et)    | SAM           | T00   | (%) : | r (PC      |     | NOIT :     | GROUND ELEVATION 40' ± (MSL) SHEET 1 OF 1                                                          |
| SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH  ONLY COMMITTEE BY GM LOGGED BY GM REVIEWED BY RDH  DESCRIPTION/INTERPRETATION  CL. ALLUVIUM: Dark reddish brown, moist, medium dense, clayey SAND.  Yellowish brown, moist, medium dense, poorly graded SAND; few oxidation stains.  CL. Olive brown, moist, very stilf, sandy CLAY with caliche.  CL. Olive brown, moist, very stilf, sandy CLAY with caliche.  SP TERRACE DEPOSITS: Yellowish brown, moist, very dense, poorly graded SAND; fine sand; massive.  Trace oxidation stains.  Trace oxidation stains.  Trace oxidation stains.  Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with no-rise soil on 6/2/19. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only, It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is | TH (fe |               | VS/FC | TURE  | KY DENSITY | MBO | S.C.S      | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                              |
| SAMPLED BY M LOGGED BY M REVIEWED BY RDH DESCRIPTION/INTERPRETATION  CL ALLUVIUM: Dark reddish brown, moist, medium dense, clayey SAND.  Yellowish brown, moist, medium dense, poorly graded SAND; few oxidation stains.  Yellowish brown, moist, medium dense, poorly graded SAND; few oxidation stains.  CL Olive brown, moist, very stiff, sandy CLAY with caliche.  CL Olive brown, moist, very stiff, sandy CLAY with caliche.  SP TERRACE DEPOSITS: Yellowish brown, moist, very dense, poorly graded SAND; fine sand; massive.  Trace oxidation stains.  Trace oxidation stains.  Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only, it is based on our interpretations of problished maps and other documents reviewed for the purposes of this evaluation. It is | DEP    | 3ulk<br>riven | BLOV  | MOIS  |            | S   | LASS<br>U. | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                   |
| CL ALLUMM: Dark redidsh brown, moist, stiff, CLAY with rootlets.  SC Yellowish brown, moist, medium dense, clayey SAND.  40 12.5 104.9  CL Olive brown, moist, medium dense, poorly graded SAND; few oxidation stains.  CL Olive brown, moist, very stiff, sandy CLAY with caliche.  SP TERRACE DEPOSITS: Yellowish brown, moist, very dense, poorly graded SAND; fine sand; massive.  Trace oxidation stains.  Trace oxidation stains.  Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only, it is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                 |        |               |       |       | DR         |     | O          |                                                                                                    |
| Yellowish brown, moist, medium dense, clayey SAND.  Yellowish brown, moist, medium dense, poorly graded SAND; few oxidation stains.  CL Olive brown, moist, very stiff, sandy CLAY with caliche.  SP TERRACE DEPOSITS: Yellowish brown, moist, very dense, poorly graded SAND; fine sand; massive.  Trace oxidation stains.  Trace oxidation stains.  Trace oxidation stains.  Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only, It is based on our interport. The ground elevation shown above is an estimation only, It is based on our interport. The ground elevation shown above is an estimation only, It is based on our interport.                                                                                                                              | 0      |               |       |       |            |     | CL         | ALLUVIUM:                                                                                          |
| Yellowish brown, moist, medium dense, poorly graded SAND; few oxidation stains.  CL Olive brown, moist, very stiff, sandy CLAY with caliche.  SP TERRACE DEPOSITS: Yellowish brown, moist, very dense, poorly graded SAND; fine sand; massive.  Trace oxidation stains.  Trace oxidation stains.  Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                       | _      |               |       |       |            |     |            |                                                                                                    |
| 10 17 17 CL Olive brown, moist, very stiff, sandy CLAY with caliche.  25 Hard.  SP TERRACE DEPOSITS: Yellowish brown, moist, very dense, poorly graded SAND; fine sand; massive.  Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only its based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                            |        |               |       |       |            |     | SC         | Tellowish brown, moist, medium dense, dayey SAND.                                                  |
| Dive brown, moist, very stiff, sandy CLAY with caliche.  10 25 Hard.  SP TERRACE DEPOSITS: Yellowish brown, moist, very dense, poorly graded SAND; fine sand; massive.  30 50/5'  Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other fact or sa discussed in the report. The ground elevation shown es an everal other fact is as discussed in the report. The ground elevation shown sove is an esveral other fact is as discussed in the report. The ground elevation shown sove is an esveral other fact is as discussed in the report.                                                                                                                                                                                                                                                                                                                           | -      |               |       |       |            | 772 | SP         | Yellowish brown, moist, medium dense, poorly graded SAND; few oxidation stains.                    |
| Hard.  SP TERRACE DEPOSITS: Yellowish brown, moist, very dense, poorly graded SAND; fine sand; massive.  Trace oxidation stains.  Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation of. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -      |               | 40    | 12.5  | 104.9      |     |            |                                                                                                    |
| Hard.  SP TERRACE DEPOSITS: Yellowish brown, moist, very dense, poorly graded SAND; fine sand; massive.  Trace oxidation stains.  Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation of. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                          | _      |               |       |       |            |     |            |                                                                                                    |
| Hard.  SP TERRACE DEPOSITS: Yellowish brown, moist, very dense, poorly graded SAND; fine sand; massive.  Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        |               |       |       |            |     | CL         | Olive brown, moist, very stiff, sandy CLAY with caliche.                                           |
| Hard.  SP TERRACE DEPOSITS: Yellowish brown, moist, very dense, poorly graded SAND; fine sand; massive.  Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 10 –   |               | 17    |       |            |     |            |                                                                                                    |
| Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -      |               |       |       |            |     |            |                                                                                                    |
| Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |        |               |       |       |            |     |            |                                                                                                    |
| Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -      |               |       |       |            |     |            |                                                                                                    |
| Yellowish brown, moist, very dense, poorly graded SAND; fine sand; massive.  Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | -      |               | 25    |       |            |     |            | Hard.                                                                                              |
| Yellowish brown, moist, very dense, poorly graded SAND; fine sand; massive.  Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | _      |               |       |       |            |     |            |                                                                                                    |
| Trace oxidation stains.  Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        |               |       |       |            |     | SP         | Yellowish brown, moist, very dense, poorly graded SAND; fine sand; massive.                        |
| Total Depth = 31.5 feet.  Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 20 –   |               | 44    |       |            |     |            |                                                                                                    |
| Total Depth = 31.5 feet.  Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | -      |               |       |       |            |     |            |                                                                                                    |
| Total Depth = 31.5 feet.  Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | _      |               |       |       |            |     |            |                                                                                                    |
| Total Depth = 31.5 feet.  Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |               |       |       |            |     |            |                                                                                                    |
| Total Depth = 31.5 feet.  Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | -      |               | 50/5" |       |            |     |            | Trace oxidation stains.                                                                            |
| Total Depth = 31.5 feet.  Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | _      |               |       |       |            |     |            |                                                                                                    |
| Total Depth = 31.5 feet.  Groundwater was not encountered during drilling. Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |               |       |       |            |     |            |                                                                                                    |
| Groundwater was not encountered during drilling.  Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 30 –   |               | 52    |       |            |     |            |                                                                                                    |
| Backfilled with on-site soil on 6/8/19.  Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | -      |               |       |       |            |     |            |                                                                                                    |
| Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | _      |               |       |       |            |     |            |                                                                                                    |
| to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |        |               |       |       |            |     |            | Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due |
| of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -      |               |       |       |            |     |            |                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | -      |               |       |       |            |     |            | of published maps and other documents reviewed for the purposes of this evaluation. It is          |
| 40                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 40 -   |               |       |       |            |     |            |                                                                                                    |



|              | SAMPLES        |            |          | E E               |                                                                                                                                                                               |                            | DATE DRILLED5/3/19 BORING NOB-19                                                                                                                                                          |
|--------------|----------------|------------|----------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| et)          | SAM            | TO         | (%)      | / (PC             |                                                                                                                                                                               | NO E                       | GROUND ELEVATION 30' ± (MSL) SHEET 1 OF 1                                                                                                                                                 |
| DEPTH (feet) |                | BLOWS/FOOT | TURE     | VSIT              | SYMBOL                                                                                                                                                                        | IFICA<br>S.C.S             | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                     |
| DEP          | Bulk<br>Driven | BLOV       | MOISTURE | DRY DENSITY (PCF) | SΥ                                                                                                                                                                            | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                          |
|              | ۵              |            | _        | DR                |                                                                                                                                                                               | O                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH                                                                                                                                                |
| 0            |                |            |          |                   | ///                                                                                                                                                                           | CL                         | DESCRIPTION/INTERPRETATION ALLUVIUM:                                                                                                                                                      |
|              |                |            |          |                   |                                                                                                                                                                               | 02                         | Grayish brown, moist, stiff, sandy CLAY; few precipitates consisting of calcite.                                                                                                          |
|              |                |            |          |                   |                                                                                                                                                                               |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |                                                                                                                                                                               |                            |                                                                                                                                                                                           |
| -            |                | 9          |          |                   |                                                                                                                                                                               |                            |                                                                                                                                                                                           |
|              |                |            |          |                   |                                                                                                                                                                               |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |                                                                                                                                                                               | SP-SM                      | TERRACE DEPOSITS: Grayish brown to white, moist, very dense, poorly graded SAND with silt.                                                                                                |
| 10 -         |                |            |          |                   | 66000<br>66000<br>160000<br>60000                                                                                                                                             |                            | Crayion brown to write, moist, very defise, poorly graded 67 ave war one.                                                                                                                 |
| _            |                | 50/5"      | 4.7      | 103.8             | 141301                                                                                                                                                                        |                            |                                                                                                                                                                                           |
|              |                |            |          |                   |                                                                                                                                                                               |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   | # 639,45<br>644,45<br>664,45<br>664,45<br>664,45                                                                                                                              |                            |                                                                                                                                                                                           |
| -            |                | 45         |          |                   | 663333<br>663333<br>663333<br>663333<br>663333                                                                                                                                |                            |                                                                                                                                                                                           |
|              |                |            |          |                   | 0000000<br>0000000<br>0000000000000000000000                                                                                                                                  |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   | 1.03013<br>6.6903<br>1.03033<br>1.03033                                                                                                                                       |                            |                                                                                                                                                                                           |
| 20 -         |                | 00/40#     |          |                   | 123201<br>123201<br>123201<br>123201                                                                                                                                          |                            | To a suidelian eleia                                                                                                                                                                      |
| _            |                | 89/12"     |          |                   | 669934<br>669999<br>669999                                                                                                                                                    |                            | Trace oxidation stains.                                                                                                                                                                   |
|              |                |            |          |                   | 141414<br>141414<br>111414                                                                                                                                                    |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   | 0000000<br>0000000<br>0000000                                                                                                                                                 |                            |                                                                                                                                                                                           |
| -            |                | 57         |          |                   |                                                                                                                                                                               |                            |                                                                                                                                                                                           |
|              |                |            |          |                   |                                                                                                                                                                               |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   | 613336<br>613336<br>613336                                                                                                                                                    |                            |                                                                                                                                                                                           |
| 30 -         |                | 77/44"     |          |                   | 61996<br>12030<br>12030                                                                                                                                                       |                            | Oxidized reddish brown.                                                                                                                                                                   |
|              |                | 77/11"     |          |                   | incidrum<br>E E E E E E E<br>E E E E E E E E E E E E<br>E E E E E E E E E E E E E E E E E E<br>E E E E E E E E E E E E E E E E E E<br>E E E E E E E E E E E E E E E E E E E E |                            | Total Depth = 31.4 feet.                                                                                                                                                                  |
| -            |                |            |          |                   |                                                                                                                                                                               |                            | Groundwater was not encountered during drilling. Backfilled with on-site soil on 5/31/19.                                                                                                 |
| -            |                |            |          |                   |                                                                                                                                                                               |                            | Notes:                                                                                                                                                                                    |
| -            |                |            |          |                   |                                                                                                                                                                               |                            | Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. |
| _            |                |            |          |                   |                                                                                                                                                                               |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is      |
|              |                |            |          |                   |                                                                                                                                                                               |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                           |
| 40 -         | ш              |            |          |                   |                                                                                                                                                                               |                            |                                                                                                                                                                                           |



|              | SAMPLES        |            |          | F)                |                                                |                            | DATE DRILLED5/29/19 BORING NOB-20                                                                                                                                                         |
|--------------|----------------|------------|----------|-------------------|------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAM            | JOT        | (%) =    | DRY DENSITY (PCF) |                                                | CLASSIFICATION<br>U.S.C.S. | GROUND ELEVATION 30' ± (MSL) SHEET 1 OF 1                                                                                                                                                 |
| DEPTH (feet) |                | BLOWS/FOOT | MOISTURE | NSIT              | SYMBOL                                         | SIFICA<br>S.C.8            | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                     |
| DEF          | Bulk<br>Driven | BLO        | MOIS     | ۲Y DE             | Ś                                              | CLASS<br>U                 | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                          |
|              |                |            |          | DF                |                                                | Ü                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH DESCRIPTION/INTERPRETATION                                                                                                                     |
| 0            |                |            |          |                   |                                                | CL                         | FILL: Dark brown, moist, stiff, CLAY; few sand pockets.                                                                                                                                   |
| -            |                |            |          |                   |                                                |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |                                                | CL                         | ALLUVIUM: Brown, moist, stiff, CLAY; few to little caliche.                                                                                                                               |
|              |                | 10         |          |                   |                                                |                            |                                                                                                                                                                                           |
| _            |                |            |          |                   |                                                |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |                                                |                            |                                                                                                                                                                                           |
| 10 –         |                | 00         | 40.0     | 440.4             |                                                |                            | Matthad and dish harrows hand                                                                                                                                                             |
| -            |                | 32         | 16.2     | 112.4             |                                                |                            | Mottled reddish brown; hard.                                                                                                                                                              |
|              |                |            |          |                   |                                                |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |                                                |                            |                                                                                                                                                                                           |
| -            |                | 29         |          |                   |                                                |                            | Interbedded layers of sandy clay.                                                                                                                                                         |
| -            |                |            |          |                   |                                                | SP-SM                      | TERRACE DEPOSITS:                                                                                                                                                                         |
| 20 -         |                |            |          |                   | 6 6 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9        |                            | Light yellowish brown, reddish brown oxidized, moist, very dense, poorly graded SAND with silt.                                                                                           |
|              |                | 83/12"     | 3.8      | 96.1              | #49999<br>#43999<br>#49999<br>#49999           |                            | Thin layers oxidized reddish brown.                                                                                                                                                       |
| -            |                |            |          |                   | #11999<br>#41999<br>#41999<br>#41999           |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   | # 655/46<br>(#447)<br>(1447)<br>(1447)         |                            |                                                                                                                                                                                           |
| -            |                | 42         |          |                   |                                                |                            |                                                                                                                                                                                           |
| _            |                |            |          |                   | 669999<br>669999<br>669999<br>669999<br>869999 |                            |                                                                                                                                                                                           |
|              |                |            |          |                   | 000000<br>0000000000000000000000000000000      |                            |                                                                                                                                                                                           |
| 30 -         |                | 50/6"      |          |                   | 663045<br>66305<br>66306<br>66306              |                            | Total Donth 24.0 foot                                                                                                                                                                     |
| -            |                |            |          |                   |                                                |                            | Total Depth = 31.0 feet.  Groundwater was not encountered during drilling.  Backfilled with on-site soil on 5/29/19.                                                                      |
| _            |                |            |          |                   |                                                |                            | Notes:                                                                                                                                                                                    |
|              |                |            |          |                   |                                                |                            | Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. |
| _            |                |            |          |                   |                                                |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |                                                |                            |                                                                                                                                                                                           |
| 40 –         |                |            |          |                   |                                                |                            |                                                                                                                                                                                           |



|              | SAMPLES                |            |          | )F)               |                                                                        | 7                          | DATE DRILLED 5/28/19 BORING NO B-21                                                                                                                                                                                                                                  |
|--------------|------------------------|------------|----------|-------------------|------------------------------------------------------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAN                    | 700        | (%) =    | Y (PC             |                                                                        | OTTO .:                    | GROUND ELEVATION <u>40' ± (MSL)</u> SHEET <u>1</u> OF <u>1</u>                                                                                                                                                                                                       |
| DEPTH (feet) |                        | BLOWS/FOOT | TURE     | DRY DENSITY (PCF) | SYMBOL                                                                 | S.C.8                      | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                                                                                                |
| DEP          | Bulk                   | BLOV       | MOISTURE | Y DE              | S                                                                      | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"                                                                                                                                                                                                                   |
|              | ۵                      |            |          | DR                |                                                                        | O                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH  DESCRIPTION/INTERPRETATION                                                                                                                                                                                               |
| 0            |                        |            |          |                   |                                                                        | ∖GM                        | BASE:                                                                                                                                                                                                                                                                |
|              |                        |            |          |                   |                                                                        | CL                         | Gray, moist, dense, silty GRAVEL with sand; approximately 2 inches thick.  ALLUVIUM: Reddish brown, grayish brown mottled, moist, stiff, CLAY; trace fine angular gravel.                                                                                            |
|              |                        | 40         |          |                   |                                                                        |                            | Grayish brown; trace gypsum crystals.                                                                                                                                                                                                                                |
|              | 7                      | <u>10</u>  |          |                   |                                                                        | SM                         | Yellowish brown, moist, medium dense, silty SAND; trace gypsum crystals.                                                                                                                                                                                             |
| 10 -         |                        |            |          |                   |                                                                        |                            |                                                                                                                                                                                                                                                                      |
|              |                        | 60         | 15.0     | 108.6             |                                                                        |                            | Increase in gypsum crystals; dense.                                                                                                                                                                                                                                  |
|              |                        |            |          |                   |                                                                        | CL                         | Olive brown, moist, very stiff, CLAY.                                                                                                                                                                                                                                |
|              |                        |            |          |                   |                                                                        |                            |                                                                                                                                                                                                                                                                      |
|              | $+ \!\!\!\!/\!\!\!\!/$ | 14         |          |                   |                                                                        |                            |                                                                                                                                                                                                                                                                      |
|              |                        |            |          |                   |                                                                        |                            |                                                                                                                                                                                                                                                                      |
|              |                        |            |          |                   |                                                                        |                            | Yellowish brown, reddish brown oxidized; few sand.                                                                                                                                                                                                                   |
| 20 -         |                        | 31         | 21.5     | 101.4             |                                                                        |                            | Hard.                                                                                                                                                                                                                                                                |
|              |                        |            |          |                   |                                                                        |                            |                                                                                                                                                                                                                                                                      |
|              |                        |            |          |                   |                                                                        |                            |                                                                                                                                                                                                                                                                      |
|              |                        |            |          |                   |                                                                        | SP-SM                      | TERRACE DEPOSITS: Grayish brown, moist, very dense, poorly graded SAND with silt.                                                                                                                                                                                    |
|              | + I                    | 35         |          |                   | 0000000<br>000000<br>000000<br>000000                                  |                            | graded of and man con-                                                                                                                                                                                                                                               |
|              |                        |            |          |                   | 1.03000<br>6 6 9 9 9 9<br>1.0310 13                                    |                            |                                                                                                                                                                                                                                                                      |
|              |                        |            |          |                   | 7.25 27 13<br>27 13 13 13<br>17 13 13 13 13 13 13 13 13 13 13 13 13 13 |                            |                                                                                                                                                                                                                                                                      |
| 30 -         |                        | 96/9"      |          |                   | # 03034<br>##2323<br>##2323                                            |                            |                                                                                                                                                                                                                                                                      |
|              |                        | 30/3       |          |                   | 100000                                                                 |                            | Total Dept = 31.3 feet.                                                                                                                                                                                                                                              |
|              |                        |            |          |                   |                                                                        |                            | Groundwater was not encountered during drilling. Backfilled with on-site soil on 5/28/19.                                                                                                                                                                            |
|              |                        |            |          |                   |                                                                        |                            | Notes:                                                                                                                                                                                                                                                               |
|              |                        |            |          |                   |                                                                        |                            | Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.                                                                            |
| 40           |                        |            |          |                   |                                                                        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents. |
| 40 -         |                        |            |          |                   |                                                                        |                            | FIGURE A- 24                                                                                                                                                                                                                                                         |

*Minyo* « Moore

**UCI NORTH CAMPUS** IRVINE, CALIFORNIA 209570014 | 11/19

|        | SAMPLES        |            |          | E)                |        |                            | DATE DRILLED 5/28/19 BORING NO B-22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------|----------------|------------|----------|-------------------|--------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (feet) | SAM            | T00        | (%)      | Y (PC             |        | NOIT .:                    | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| TH (fe |                | BLOWS/FOOT | MOISTURE | NSIT              | SYMBOL | S.C.S                      | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| DEPTH  | Bulk<br>Driven | BLOV       | MOIS     | DRY DENSITY (PCF) | S      | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|        | ۵ ۵            |            |          | DR                |        | O                          | SAMPLED BYGM LOGGED BYGM REVIEWED BYRDH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 0      |                |            |          |                   | 1919   | GM                         | AGGREGATE BASE:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| _      |                |            |          |                   |        | CL                         | Gray, moist, dense, silty GRAVEL with sand; approximately 2 inches thick.  FILL:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|        |                |            |          |                   |        |                            | Grayish brown, reddish brown mottled, moist, hard, CLAY; trace angular fine gravel.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| -      |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -      |                | 48         | 17.6     | 109.6             |        |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| _      |                |            |          |                   |        | CL                         | TERRACE DEPOSITS: Olive brown, moist, stiff, CLAY; few layers of gypsum crystals.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|        |                |            |          |                   |        |                            | 5 m c 2 m m, m c 2 m m, c 2 m m, c 2 m m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 2 m c 3 y c 3 m c 3 m c 3 y c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c 3 m c |
| 10 –   | 7              | 9          |          |                   |        |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -      |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| _      |                |            |          |                   |        |                            | Yellowish brown, reddish brown oxidized, moist, dense, clayey SAND; few layers of silty                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|        |                | 61         |          |                   |        | SC                         | sand.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| -      |                | 01         |          |                   |        |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -      |                |            |          |                   |        |                            | Olive brown, moist, very stiff, CLAY; few pockets of sand.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 20 –   |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        |                | 23         |          |                   |        |                            | Hard.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| _      |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -      |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -      |                | 33         | 25.7     | 97.2              |        |                            | Yellowish brown; few oxidized veins.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| _      | -              |            |          |                   |        | SM                         | Yellowish brown, moist, very dense, silty SAND; fine to medium sand.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|        |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 30 -   | 7              | 67         |          |                   |        |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -      |                |            |          |                   |        |                            | Total Depth = 31.5 feet. Groundwater was not encountered during drilling.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| _      |                |            |          |                   |        |                            | Backfilled with on-site soil on 5/28/19.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|        |                |            |          |                   |        |                            | Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| =      |                |            |          |                   |        |                            | to seasonal variations in precipitation and several other factors as discussed in the report.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| -      |                |            |          |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 40 -   |                |            |          |                   |        |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |



| O DEPTH (feet) | Bulk SAMPLES | BLOWS/FOOT     | MOISTURE (%) | DRY DENSITY (PCF) | SYMBOL | CLASSIFICATION<br>U.S.C.S. | DATE DRILLED         5/29/19         BORING NO.         B-23           GROUND ELEVATION 50' ± (MSL)         SHEET 1 OF 2           METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)           DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer)         DROP 30"           SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH DESCRIPTION/INTERPRETATION                       |
|----------------|--------------|----------------|--------------|-------------------|--------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 -           |              | 18<br>15<br>40 | 22.5         | 101.3             |        | CL<br>CL<br>SP-SM          | PILL: Reddish brown, moist, stiff, sandy CLAY; few sand pockets.  TERRACE DEPOSITS: Reddish brown, moist, very stiff, lean CLAY; few caliche.  Drill stem chatter. Olive brown; few layers of gypsum crystals.  Drill stem chatter.  Hard; few thin layers of clayey sand.  Yellowish brown, moist, medium dense, poorly graded SAND with silt; trace to few layers |
| 20 -           |              | 16             | 23.6         | 103.0             |        | <u>-</u>                   | Yellowish brown, moist, medium dense, poorly graded SAND with silt; trace to few layers oxidized reddish brown.                                                                                                                                                                                                                                                     |
|                |              | <u>30</u>      |              |                   |        | SP                         | White, moist, very dense, poorly graded SAND; thin layers oxidized reddish brown.                                                                                                                                                                                                                                                                                   |

|              | SAMPLES        |            |          | (i                |                                                          |                            | DATE DRILLED5/29/19 BORING NOB-23                                                                                                                                                         |
|--------------|----------------|------------|----------|-------------------|----------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| et)          | SAM            | ТОС        | (%)      | / (PCI            |                                                          | CLASSIFICATION<br>U.S.C.S. | GROUND ELEVATION <u>50' ± (MSL)</u> SHEET <u>2</u> OF <u>2</u>                                                                                                                            |
| DEPTH (feet) |                | BLOWS/FOOT | MOISTURE | NSIT              | SYMBOL                                                   | S.C.S                      | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                     |
| DEP          | Bulk<br>Driven | BLOV       | MOIS     | DRY DENSITY (PCF) | S                                                        | LASS<br>U.                 | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                          |
|              |                |            |          | RO                |                                                          | O                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH                                                                                                                                                |
| 40           |                | 67         |          |                   | 00777777<br>00777777<br>00777777<br>00777777             | SP-SM                      | DESCRIPTION/INTERPRETATION  TERRACE DEPOSITS: (Continued)                                                                                                                                 |
| -            |                | 67         |          |                   |                                                          |                            | White to light yellowish brown, moist, very dense, poorly graded SAND with silt; few thin layers oxidized reddish brown.                                                                  |
|              |                |            |          |                   | 613333<br>143353<br>643333<br>64333                      |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   | 121773<br>121773<br>121773<br>121773                     |                            |                                                                                                                                                                                           |
| -            |                | 50/5"      |          |                   | 1211711<br>141141<br>141141<br>141141                    |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   | 141344<br>141344<br>141344                               |                            |                                                                                                                                                                                           |
|              |                |            |          |                   | 1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1                 |                            |                                                                                                                                                                                           |
| 50 -         |                | 73         |          |                   | 6 63 35 13<br>0 7 7 7 7 7<br>7 7 7 7 7 7 7 7 7 7 7 7 7 7 |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   | 66966<br>669966<br>669966                                |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   | 669999<br>669999<br>669999                               |                            |                                                                                                                                                                                           |
|              |                | 50/6"      | 3.1      | 99.9              |                                                          |                            | Gray.                                                                                                                                                                                     |
| -            |                | 00/0       | 0.1      | 00.0              | # (39.44)<br># (39.44)<br># (39.44)                      |                            | Citay.                                                                                                                                                                                    |
| =            |                |            |          |                   | 142000<br>643000<br>643000                               |                            |                                                                                                                                                                                           |
| 60 -         |                |            |          |                   |                                                          |                            |                                                                                                                                                                                           |
|              |                | 74         |          |                   | (#)(#)<br>(#)(#)                                         |                            | Total Depth = 61.5 feet.                                                                                                                                                                  |
| -            |                |            |          |                   |                                                          |                            | Groundwater was not encountered during drilling. Backfilled with cement-bentonite grout on 5/29/19.                                                                                       |
| -            |                |            |          |                   |                                                          |                            | Notes:                                                                                                                                                                                    |
| -            |                |            |          |                   |                                                          |                            | Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. |
| _            |                |            |          |                   |                                                          |                            | The ground elevation shown above is an estimation only. It is based on our interpretations                                                                                                |
|              |                |            |          |                   |                                                          |                            | of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.                 |
| 70 –         |                |            |          |                   |                                                          |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |                                                          |                            |                                                                                                                                                                                           |
| _            |                |            |          |                   |                                                          |                            |                                                                                                                                                                                           |
|              |                |            |          |                   |                                                          |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |                                                          |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |                                                          |                            |                                                                                                                                                                                           |
| 80 -         |                |            |          |                   |                                                          |                            |                                                                                                                                                                                           |
|              |                |            |          |                   |                                                          |                            | FIGURE A. 27                                                                                                                                                                              |

|              | SAMPLES        |            |          | F)                |        |                            | DATE DRILLED5/31/19 BORING NOB-24                                                                                                                                                         |
|--------------|----------------|------------|----------|-------------------|--------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| et)          | SAM            | T00        | (%)      | r (PC             |        | NOIT ::                    | GROUND ELEVATION 40' ± (MSL) SHEET 1 OF 1                                                                                                                                                 |
| DEPTH (feet) |                | BLOWS/FOOT | MOISTURE | NSIT              | SYMBOL | S.C.S                      | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                     |
| DEP          | Bulk<br>Driven | BLOV       | MOIS     | DRY DENSITY (PCF) | S      | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"                                                                                                                                        |
|              |                |            |          | DR                |        | O                          | SAMPLED BYGM LOGGED BYGM REVIEWED BYRDH                                                                                                                                                   |
| 0            |                |            |          |                   |        | CL                         | DESCRIPTION/INTERPRETATION TERRACE DEPOSITS:                                                                                                                                              |
| _            |                |            |          |                   |        |                            | Dark grayish brown, moist, hard, CLAY with caliche.                                                                                                                                       |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                | 30         | 29.3     | 90.4              |        |                            |                                                                                                                                                                                           |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |          |                   |        | <br>SM                     | Yellowish brown, reddish brown oxidized, moist, dense, silty SAND.                                                                                                                        |
| 10 -         |                | 29         |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |          |                   |        | CL                         | Yellowish brown, moist, hard, sandy CLAY; oxidized reddish brown.                                                                                                                         |
|              |                | 0.4        | 40.4     | 400.5             |        |                            |                                                                                                                                                                                           |
| -            |                | 34         | 18.4     | 108.5             |        |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| 20 -         |                |            |          |                   |        |                            |                                                                                                                                                                                           |
|              |                | 18         |          |                   |        |                            | Very stiff.                                                                                                                                                                               |
| -            |                |            | 9        |                   |        |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |        |                            | @ 23': Seepage encountered during drilling; wet.                                                                                                                                          |
|              |                | 43         |          |                   |        |                            | Reddish brown, yellowish brown mottled; hard.                                                                                                                                             |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |        | SP                         | Yellowish brown, moist, very dense, poorly graded SAND; thin interbeds of clay.                                                                                                           |
| 30 -         |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| _            |                | 54         |          |                   |        |                            | Total Depth = 31.5 feet.                                                                                                                                                                  |
|              |                |            |          |                   |        |                            | Groundwater was not encountered during drilling.  No groundwater in boring after measurement at completion of boring.                                                                     |
| -            |                |            |          |                   |        |                            | Seepage encountered at approximately 23 feet.  Backfilled with cement-bentonite grout on 5/31/19.                                                                                         |
| -            |                |            |          |                   |        |                            | Notes:                                                                                                                                                                                    |
| _            |                |            |          |                   |        |                            | Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. |
|              |                |            |          |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is      |
| 40 -         |                |            |          |                   |        |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                           |



|              | SAMPLES        |            |          | E E               |        |                            | DATE DRILLED5/30/19 BORING NOB-25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------|----------------|------------|----------|-------------------|--------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAM            | TOC        | (%)      | Y (PC             |        | NOT .:                     | GROUND ELEVATION <u>50' ± (MSL)</u> SHEET <u>1</u> OF <u>1</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| DEPTH (feet) |                | BLOWS/FOOT | MOISTURE | TISN:             | SYMBOL | SIFICA<br>S.C.8            | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| DEF          | Bulk<br>Driven | BLO        | MOIS     | DRY DENSITY (PCF) | S      | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|              |                |            |          | ă                 |        | Ü                          | SAMPLED BYGM LOGGED BYGM REVIEWED BYRDH DESCRIPTION/INTERPRETATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 0            |                |            |          |                   | //     | СН                         | TERRACE DEPOSITS: Dark grayish brown, moist, hard, CLAY; with caliche.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| -            |                | 80/12"     | 14.1     | 111.7             |        |                            | Interbedded layers of yellowish brown; sandy clay.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| -            |                |            |          |                   |        | <br>SP                     | Yellowish brown, moist, very dense, poorly graded SAND.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 10 -         |                | 50         |          |                   |        | SF                         | . Sisting a single sing |
| -            |                |            |          |                   |        |                            | Olive brown, reddish brown mottled, moist, hard, CLAY; few interbedded layers of silty sand.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| -            |                | 32         |          |                   |        |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 20 -         |                | 20         |          |                   |        |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|              |                | <u> 36</u> |          |                   |        |                            | Vallentish brown as ist as diversed as a least CAND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|              |                |            |          |                   |        | SC                         | Yellowish brown, moist, medium dense, clayey SAND.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| -            |                |            |          |                   |        | CH                         | Gray, moist, hard, CLAY; few scattered medium to coarse sand.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 30 -         |                | 25         |          |                   |        |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -            | <u></u>        |            |          |                   |        |                            | Total Depth = 31.5 feet. Groundwater was not encountered during drilling. Backfilled with on-site soil on 5/30/19.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| -            |                |            |          |                   |        |                            | Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| -            |                |            |          |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 40 -         |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

*Ninyo* « Moore

|              | SAMPLES        |            |          | Ē                 |        | _                          | DATE DRILLED 5/30/19 BORING NO B-26                                                                                                                                                  |
|--------------|----------------|------------|----------|-------------------|--------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| et)          | SAM            | TOC        | (%) :    | r (PC             |        | NO E                       | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1                                                                                                                                            |
| DEPTH (feet) |                | BLOWS/FOOT | MOISTURE | NSIT              | SYMBOL | CLASSIFICATION<br>U.S.C.S. | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                |
| DEP          | Bulk<br>Driven | BLOV       | MOIS     | DRY DENSITY (PCF) | SY     | LASS<br>U.                 | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                     |
|              |                |            | _        | DR                |        | O                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH                                                                                                                                           |
| 0            |                |            |          |                   |        | CL                         | DESCRIPTION/INTERPRETATION FILL:                                                                                                                                                     |
|              |                |            |          |                   |        | OL.                        | Reddish brown, moist, stiff, sandy CLAY; few rootlets.                                                                                                                               |
|              |                |            |          |                   |        | CL                         | TERRACE DEPOSITS:                                                                                                                                                                    |
| -            |                |            |          |                   |        | CL                         | Dark grayish brown, moist, hard, lean CLAY; with caliche veins.                                                                                                                      |
| -            |                | 30         |          |                   |        |                            |                                                                                                                                                                                      |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| 10 -         |                |            |          |                   |        |                            |                                                                                                                                                                                      |
|              |                | 50/6"      | 13.7     | 111.0             |        |                            |                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| _            |                | 18         |          |                   |        |                            | Very stiff.                                                                                                                                                                          |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| 20 -         |                |            |          |                   |        |                            |                                                                                                                                                                                      |
|              |                | 35         | 24.2     | 99.2              |        |                            | Hard; few sand; reddish brown mottled.                                                                                                                                               |
| -            |                |            |          |                   |        | SP                         | Yellowish brown, moist, very dense, poorly graded SAND; fine sand.                                                                                                                   |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                | 91/11"     |          |                   |        | SM                         | Yellowish brown, moist, very dense, silty SAND.                                                                                                                                      |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                      |
| 30 -         |                |            |          |                   |        |                            |                                                                                                                                                                                      |
|              |                | 20         |          |                   |        | CL                         | Yellowish brown, moist, very stiff, sandy CLAY.  Total Depth = 31.5 feet.                                                                                                            |
| -            |                |            |          |                   |        |                            | Groundwater was not encountered during drilling.  Backfilled with on-site soil on 5/30/19.                                                                                           |
| -            |                |            |          |                   |        |                            | Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due                                                                                   |
| -            |                |            |          |                   |        |                            | to seasonal variations in precipitation and several other factors as discussed in the report.                                                                                        |
| -            |                |            |          |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is |
| 40 -         |                |            | <u> </u> |                   |        |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                      |
|              |                |            |          |                   |        |                            | FIGURE A. 20                                                                                                                                                                         |

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FIGURE A- 30

|              | SAMPLES        |            |          | (=                |        |                            | DATE DRILLED 5/30/19 BORING NO B-27                                                                                                                                                       |
|--------------|----------------|------------|----------|-------------------|--------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| et)          | SAM            | T00        | (%)      | r (PC             |        | NOIT .:                    | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1                                                                                                                                                 |
| DEPTH (feet) |                | BLOWS/FOOT | MOISTURE | NSIT              | SYMBOL | SIFICA<br>S.C.8            | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                     |
| DEF          | Bulk<br>Driven | BLO        | MOIS     | DRY DENSITY (PCF) | S      | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                          |
|              |                |            |          | D A               |        | Ü                          | SAMPLED BYGM LOGGED BYGM REVIEWED BYRDH DESCRIPTION/INTERPRETATION                                                                                                                        |
| 0            |                |            |          |                   |        | CL                         | FILL: Dark brown, moist, stiff, lean CLAY; trace coarse gravel-sized asphalt fragments.                                                                                                   |
| -            |                |            |          |                   |        |                            | Dank Stown, Molec, Gain, Idan DE VI, Made Goales graves dieba aspirak magmente.                                                                                                           |
| -            |                |            |          |                   |        |                            | TERRA OF REPORTE                                                                                                                                                                          |
|              |                | 24         | 19.9     | 105.4             |        | СН                         | TERRACE DEPOSITS: Dark brown, moist, very stiff, fat CLAY; few caliche.                                                                                                                   |
| -            |                | 27         | 10.0     | 100.4             |        |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| 10 -         |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| _            |                | 17         |          |                   |        |                            | Olive brown.                                                                                                                                                                              |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                | 32         |          |                   |        |                            | Reddish brown mottling; hard.                                                                                                                                                             |
| -            |                |            |          |                   |        |                            | Reddish brown, yellowish brown mottled, moist, very dense, clayey SAND.                                                                                                                   |
|              |                |            |          |                   |        | SC                         | Reddish brown, yellowish brown mottled, moist, very dense, dayey OAND.                                                                                                                    |
| 20 -         |                | <u>68</u>  |          |                   |        | <br>SP                     | Yellowish brown, moist, very dense, poorly graded SAND.                                                                                                                                   |
| -            |                |            |          |                   |        | Si                         | , , , , , , , , , , , , , , , , , , ,                                                                                                                                                     |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| _            |                | 50/5"      | 9.0      | 100.1             |        |                            |                                                                                                                                                                                           |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |        |                            | Vollowigh brown roddish brown mottled majet hard conduct AV                                                                                                                               |
| 30 -         |                | 22         |          |                   |        | CL                         | Yellowish brown, reddish brown mottled, moist, hard, sandy CLAY.                                                                                                                          |
| _            |                |            |          |                   |        |                            | Total Depth = 31.5 feet.                                                                                                                                                                  |
|              |                |            |          |                   |        |                            | Groundwater was not encountered during drilling. Backfilled with on-site soil on 5/30/19.                                                                                                 |
| -            |                |            |          |                   |        |                            | Notes:                                                                                                                                                                                    |
| _            | H              |            |          |                   |        |                            | Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. |
| _            |                |            |          |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is      |
|              |                |            |          |                   |        |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                           |
| 40 -         |                |            |          |                   | -      |                            |                                                                                                                                                                                           |



|        | SAMPLES |            |          | (F)           |        | 7                          | DATE DRILLED 6/8/19 BORING NO B-28                                                                                                                                                                                                                                   |
|--------|---------|------------|----------|---------------|--------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (feet) | SAN     | DO         | (%) =    | Y (PC         | پ      | ATION.S.                   | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1                                                                                                                                                                                                                            |
| TH (f  |         | BLOWS/FOOT | MOISTURE | DENSITY (PCF) | SYMBOL | CLASSIFICATION<br>U.S.C.S. | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                                                                                                |
| DEPTH  | Bulk    | BLO        | MOIS     | DRY DE        | S      | SLASS<br>U                 | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                                                                                                     |
|        |         |            |          | JO.           |        |                            | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH  DESCRIPTION/INTERPRETATION                                                                                                                                                                                               |
| 0      |         |            |          |               | N      | GM                         | ASPHALT CONCRETE: Approximately 4 inches thick.                                                                                                                                                                                                                      |
|        |         | -          |          |               |        | GM<br>CL                   | AGGREGATE BASE: Brown, moist, dense, silty GRAVEL with sand; approximately 2 inches thick.                                                                                                                                                                           |
|        |         |            |          |               |        |                            | ASPHALT CONCRETE: Approximately 3 inches thick.                                                                                                                                                                                                                      |
|        |         |            |          |               |        |                            | AGGREGATE BASE:                                                                                                                                                                                                                                                      |
|        |         | 13         |          |               |        | CL                         | Gray, moist, dense, silty GRAVEL with sand; approximately 3 inches thick.  FILL:                                                                                                                                                                                     |
|        |         |            |          |               |        |                            | Dark grayish brown, moist, stiff, sandy CLAY; trace angular coarse sand; few rootlets.  TERRACE DEPOSITS:                                                                                                                                                            |
|        |         | 1          |          |               |        |                            | Grayish brown, moist, very stiff, CLAY with caliche.                                                                                                                                                                                                                 |
| 10 -   |         |            |          |               |        |                            |                                                                                                                                                                                                                                                                      |
|        |         | 48         | 7.9_     | 107.8         |        | <br>SP                     | Yellowish brown, moist, medium dense, poorly graded SAND.                                                                                                                                                                                                            |
| -      |         | 1          |          |               |        | Oi.                        | , , , , , , , , , , , , , , , , , , ,                                                                                                                                                                                                                                |
|        |         |            |          |               |        | CL                         | Olive brown, moist, very stiff, CLAY.                                                                                                                                                                                                                                |
|        |         |            |          |               |        |                            |                                                                                                                                                                                                                                                                      |
|        |         | 19         |          |               |        |                            |                                                                                                                                                                                                                                                                      |
|        |         |            |          |               |        |                            |                                                                                                                                                                                                                                                                      |
| -      |         |            |          |               |        |                            |                                                                                                                                                                                                                                                                      |
| 20 -   |         |            |          |               |        |                            |                                                                                                                                                                                                                                                                      |
|        |         | 77/10"     |          |               |        | SM                         | White, moist, very dense, silty SAND.                                                                                                                                                                                                                                |
|        |         |            |          |               |        |                            |                                                                                                                                                                                                                                                                      |
| -      |         | -          |          |               |        | SP                         | Yellowish brown to white, moist, very dense, poorly graded SAND.                                                                                                                                                                                                     |
|        |         |            |          |               |        |                            |                                                                                                                                                                                                                                                                      |
|        | 7       | 69         |          |               |        |                            |                                                                                                                                                                                                                                                                      |
|        |         | L          |          |               | ,,,,,  |                            |                                                                                                                                                                                                                                                                      |
|        |         |            |          |               |        | CL                         | Olive brown, moist, hard, CLAY; trace oxidation staining.                                                                                                                                                                                                            |
| 30 -   |         | 20         |          |               |        |                            |                                                                                                                                                                                                                                                                      |
|        |         | 28         |          |               |        |                            | Total Depth = 31.5 feet.                                                                                                                                                                                                                                             |
|        |         |            |          |               |        |                            | Groundwater was not encountered during drilling.  Backfilled with on-site soil and patched with rapid-set concrete dyed black on 6/8/19.                                                                                                                             |
|        |         | -          |          |               |        |                            |                                                                                                                                                                                                                                                                      |
| -      |         | -          |          |               |        |                            | Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.                                                                     |
|        |         | -          |          |               |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents. |
| 40 -   | Ш       |            |          |               |        |                            | · · · · · · · · · · · · · · · · · · ·                                                                                                                                                                                                                                |

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FIGURE A- 32

|              | SAMPLES |            |          | E)                |                                                    |                            | DATE DRILLED6/1/19BORING NOB-29                                                                                                                 |
|--------------|---------|------------|----------|-------------------|----------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAM     |            | (%)      | DRY DENSITY (PCF) | _                                                  | CLASSIFICATION<br>U.S.C.S. | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 2                                                                                                       |
| DEPTH (feet) |         | BLOWS/FOOT | MOISTURE | LISN              | SYMBOL                                             | SIFICA<br>S.C.8            | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                           |
| DEF          | Bulk    | BLO        | MOIS     | 3√ DE             | Ś                                                  | CLASS<br>U                 | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                |
|              |         |            |          | JO.               |                                                    |                            | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH DESCRIPTION/INTERPRETATION                                                                           |
| 0            |         |            |          |                   | 333                                                | CL                         | ASPHALT CONCRETE: Approximately 3.5 inches thick. AGGREGATE BASE:                                                                               |
|              |         |            |          |                   |                                                    |                            | Gray, moist, dense, silty GRAVEL with sand; approximately 5 inches thick.  TERRACE DEPOSITS: Dark reddish brown, moist, hard CLAY with caliche. |
|              |         |            |          |                   |                                                    | <br>SM                     | Reddish brown, moist, medium dense, silty SAND; trace clay pockets.                                                                             |
| -            |         | 27         | 15.2     | 114.6             |                                                    | O                          |                                                                                                                                                 |
|              |         |            |          |                   |                                                    |                            |                                                                                                                                                 |
| 10 -         |         | 26         |          |                   |                                                    |                            | Thin interbeds of sandy clay.                                                                                                                   |
|              |         |            |          |                   |                                                    |                            |                                                                                                                                                 |
|              |         | 44         |          |                   | ener.                                              | <br>SP-SM                  | Brown, moist, dense, poorly graded SAND with silt.                                                                                              |
| -            |         | 44         |          |                   | 14366<br>14366<br>14366<br>14366<br>14366<br>14366 |                            |                                                                                                                                                 |
| -            |         |            |          |                   |                                                    | CL                         | Olive, moist, hard, CLAY.                                                                                                                       |
| 20 -         |         | 23         |          |                   |                                                    |                            |                                                                                                                                                 |
| -            |         |            |          |                   |                                                    |                            |                                                                                                                                                 |
| -            |         | 50/4"      |          |                   |                                                    | SC                         | Yellowish brown, grayish brown mottled, moist, very dense, clayey SAND.                                                                         |
| -            |         | 50//4"     |          |                   |                                                    | SP                         | Yellowish brown, moist, very dense, poorly graded SAND; fine sand.                                                                              |
| -            |         |            |          |                   |                                                    | CL                         | Olive, moist, very stiff, CLAY.                                                                                                                 |
| 30 -         |         | 12         |          |                   |                                                    |                            |                                                                                                                                                 |
| -            |         |            |          |                   |                                                    |                            |                                                                                                                                                 |
| -            |         |            |          |                   |                                                    |                            |                                                                                                                                                 |
| -            |         | 27         | 26.0     | 97.0              |                                                    |                            | Yellowish brown; hard; sandy.                                                                                                                   |
| _            |         |            |          |                   |                                                    |                            |                                                                                                                                                 |
| 40 -         |         |            |          |                   |                                                    |                            |                                                                                                                                                 |

|              | SAMPLES        |            |          | ;F)               |        | 7                          | DATE DRILLED 6/1/19 BORING NO B-29                                                                                                                                                                                                                                   |
|--------------|----------------|------------|----------|-------------------|--------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAN            | TOC        | (%)      | Y (PC             |        | AD T.                      | GROUND ELEVATION 50' ± (MSL) SHEET 2 OF 2                                                                                                                                                                                                                            |
| DEPTH (feet) |                | BLOWS/FOOT | TURE     | NSIT              | SYMBOL | S.C.9                      | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                                                                                                |
| DEP          | Bulk<br>Driven | BLO√       | MOISTURE | DRY DENSITY (PCF) | S      | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                                                                                                     |
|              | ٥              |            |          | DR                |        | 0                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH  DESCRIPTION/INTERPRETATION                                                                                                                                                                                               |
| 40           | 7              | 16         |          |                   |        |                            | TERRACE DEPOSITS: (Continued) Dark gray, moist, very stiff, CLAY.                                                                                                                                                                                                    |
| -            |                |            |          |                   |        |                            | Bank gray, moist, very still, OEXT.                                                                                                                                                                                                                                  |
| -            |                |            | <u></u>  |                   |        |                            | @ 43.3': Groundwater measured immediately after drilling.                                                                                                                                                                                                            |
| -            |                | <u> 76</u> |          |                   |        |                            | Yellowish brown; hard; sandy. Yellowish brown, moist, very dense, silty SAND; grayish brown mottled.                                                                                                                                                                 |
| 50           |                |            | <u></u>  |                   |        |                            | @ 48.4': Groundwater encountered during drilling; wet.                                                                                                                                                                                                               |
| 50 -         |                | 44         |          |                   |        |                            | Thin interbeds of sandy clay.                                                                                                                                                                                                                                        |
|              |                |            |          |                   |        | CH                         | Dark grayish brown, wet, hard, fat CLAY.                                                                                                                                                                                                                             |
| -            |                | 55         | 22.3     | 103.7             |        |                            |                                                                                                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| 60 -         |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
|              |                | 12         |          |                   |        |                            | Bluish gray; very stiff; laminated.  Total Depth = 61.5 feet.                                                                                                                                                                                                        |
| -            |                |            |          |                   |        |                            | Groundwater was encountered during drilling at approximately 48.4 feet.                                                                                                                                                                                              |
| -            |                |            |          |                   |        |                            | Groundwater was measured immediately after drilling at approximately 43.3 feet.  Backfilled with cement-bentonite grout and patched with rapid-set concrete dyed black on 5/31/19.                                                                                   |
|              |                |            |          |                   |        |                            | Notes:                                                                                                                                                                                                                                                               |
|              |                |            |          |                   |        |                            | Groundwater may rise to a level higher than that measured in borehole due to relatively slow rate of seepage in clay and several other factors as discussed in the report. Please refer to the report for groundwater monitoring recommendations.                    |
| 70 -         |                |            |          |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents. |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| _            |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| 80 -         |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
|              |                |            |          |                   |        |                            | FIGURE A- 34                                                                                                                                                                                                                                                         |

|              | SAMPLES |            |          | E E               |        |                            | DATE DRILLED5/31/19 BORING NOB-30                                                                                                                                                         |
|--------------|---------|------------|----------|-------------------|--------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| et)          | SAM     | T00        | (%)      | / (PC             |        | NO I.                      | GROUND ELEVATION 50 ± (MSL) SHEET 1 OF 1                                                                                                                                                  |
| DEPTH (feet) |         | BLOWS/FOOT | MOISTURE | DRY DENSITY (PCF) | SYMBOL | CLASSIFICATION<br>U.S.C.S. | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                     |
| DEP          | Bulk    | BLOV       | MOIS     | Y DE              | SY     | LASS<br>U.                 | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                          |
|              |         |            |          | DR                |        | O                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH                                                                                                                                                |
| 0            |         |            |          |                   |        | CL                         | DESCRIPTION/INTERPRETATION TERRACE DEPOSITS:                                                                                                                                              |
| -            |         |            |          |                   |        |                            | Dark grayish brown, moist, hard, CLAY; with caliche; thin layers of reddish brown, sandy clay.                                                                                            |
|              |         |            |          |                   |        |                            |                                                                                                                                                                                           |
| -            |         |            |          |                   |        |                            |                                                                                                                                                                                           |
| -            |         | 28         |          |                   |        |                            |                                                                                                                                                                                           |
| _            |         |            | L        |                   |        |                            | TV TI                                                                                                                                                                                     |
|              |         |            |          |                   |        | SP                         | Yellowish brown, moist, very dark, poorly graded SAND; fine to medium sand.                                                                                                               |
| 10 –         |         | 76         | 1.8      | 111.2             |        |                            |                                                                                                                                                                                           |
| -            |         | -          |          |                   |        |                            |                                                                                                                                                                                           |
| _            |         |            |          |                   |        | CL                         | Olive brown, moist, very stiff, CLAY.                                                                                                                                                     |
|              |         |            |          |                   |        |                            |                                                                                                                                                                                           |
| -            |         | 17         |          |                   |        |                            |                                                                                                                                                                                           |
| -            |         |            |          |                   |        |                            | TOPANGA FORMATION:                                                                                                                                                                        |
| 20 -         |         |            |          |                   |        |                            | Black, moist, strongly indurated, CLAYSTONE.                                                                                                                                              |
|              |         | 84         | 16.0     | 115.6             |        |                            |                                                                                                                                                                                           |
| -            |         |            | L        |                   |        |                            | Yellowish brown, moist, moderately cemented, friable SANDSTONE; few oxidation stains.                                                                                                     |
| -            |         |            |          |                   |        |                            | Tellowish brown, moist, moderately cemented, mable SANDSTONE, lew oxidation stains.                                                                                                       |
| _            |         | 50         |          |                   |        |                            |                                                                                                                                                                                           |
|              |         |            |          |                   |        |                            |                                                                                                                                                                                           |
| -            |         |            | †        |                   |        |                            | Yellowish brown mottled gray and reddish brown, moist, moderately indurated, weathered CLAYSTONE.                                                                                         |
| 30 -         |         | 34         |          |                   |        |                            |                                                                                                                                                                                           |
| _            |         | . 34       |          |                   |        |                            | Total Depth = 31.5 feet.                                                                                                                                                                  |
|              |         |            |          |                   |        |                            | Groundwater was not encountered during drilling. Backfilled with on-site soil on 5/31/19.                                                                                                 |
| -            |         |            |          |                   |        |                            | Notes:  Groundwater though not encountered at the time of drilling, may rise to a higher level due.                                                                                       |
| -            |         | _          |          |                   |        |                            | Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. |
| _            |         | _          |          |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is      |
|              |         |            |          |                   |        |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                           |
| 40 –         |         |            |          | <u> </u>          | -      |                            | FIGURE A- 25                                                                                                                                                                              |

*Ninyo* « Moore

**UCI NORTH CAMPUS** IRVINE, CALIFORNIA 209570014 | 11/19

|              | SAMPLES        |            |          | F)                |        |                            | DATE DRILLED 5/31/19 BORING NO B-31                                                                                                                                                                                                                                  |
|--------------|----------------|------------|----------|-------------------|--------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAM            | T00        | (%)      | Y (PCI            |        | NOIT (                     | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1                                                                                                                                                                                                                            |
| DEPTH (feet) |                | BLOWS/FOOT | MOISTURE | :NSIT             | SYMBOL | SIFICA<br>S.C.9            | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                                                                                                |
| DEF          | Bulk<br>Driven | BLO        | MOIS     | DRY DENSITY (PCF) | Ś      | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                                                                                                     |
|              |                |            |          | DE                |        |                            | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH DESCRIPTION/INTERPRETATION                                                                                                                                                                                                |
| 0            |                |            |          |                   |        | CL                         | TERRACE DEPOSITS: Reddish brown, moist, hard, sandy CLAY.                                                                                                                                                                                                            |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            | Reddish brown mottled; laminated.                                                                                                                                                                                                                                    |
|              |                | 23         | 23.5     | 100.6             |        |                            |                                                                                                                                                                                                                                                                      |
| -            |                | 23         | 20.0     | 100.0             |        |                            |                                                                                                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| 10 -         |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| _            |                | 11         |          |                   |        |                            | Not laminated; very stiff.                                                                                                                                                                                                                                           |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |                |            |          |                   |        | SM                         | Light yellowish brown, moist, very dense, silty SAND; thinly interbedded.                                                                                                                                                                                            |
| -            |                | 68         | 9.5      | 119.0             |        |                            |                                                                                                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            | Oxidized reddish brown at contacts between layers.                                                                                                                                                                                                                   |
| 20 -         |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| 20           |                | 50         |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| =            |                |            |          |                   |        | CL                         | Olive brown, moist, hard, sandy CLAY; laminated; caliche at contacts between layers.                                                                                                                                                                                 |
| -            |                | 34         | 24.0     | 99.3              |        |                            |                                                                                                                                                                                                                                                                      |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                                                                                                      |
| 30 -         | 7              | 20         |          |                   |        |                            | Very stiff.                                                                                                                                                                                                                                                          |
| -            |                |            |          |                   | ///    |                            | Total Depth = 31.5 feet. Groundwater was not encountered during drilling.                                                                                                                                                                                            |
| _            |                |            |          |                   |        |                            | Backfilled with on-site soil on 5/31/19.                                                                                                                                                                                                                             |
| -            |                |            |          |                   |        |                            | Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.                                                                     |
| -            |                |            |          |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents. |
| 40 -         |                |            |          |                   |        |                            | FIGURE A. 26                                                                                                                                                                                                                                                         |

|              | SAMPLES        |                  |          | )F)               |        | 7                          | DATE DRILLED 5/30/19 BORING NO B-32                                                                                                                                                       |
|--------------|----------------|------------------|----------|-------------------|--------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAN            | DOT              | (%) =    | DRY DENSITY (PCF) | ٦      | CLASSIFICATION<br>U.S.C.S. | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1                                                                                                                                                 |
| DEPTH (feet) |                | BLOWS/FOOT       | MOISTURE | NSIT              | SYMBOL | SIFIC.                     | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                     |
| DEF          | Bulk<br>Driven | BLO <sub>1</sub> | MOIS     | XY DE             | Ś      | LASS<br>U                  | DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"                                                                                                                                        |
|              |                |                  |          | DR                |        | O                          | SAMPLED BYGM LOGGED BYGM REVIEWED BYRDH                                                                                                                                                   |
| 0            |                |                  |          |                   |        | CL                         | DESCRIPTION/INTERPRETATION  TERRACE DEPOSITS:                                                                                                                                             |
| -            |                |                  |          |                   |        |                            | Reddish gray, moist, firm, sandy CLAY; trace rootlets.                                                                                                                                    |
|              |                |                  |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                |                  |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                | 5                |          |                   |        |                            |                                                                                                                                                                                           |
|              |                |                  |          |                   |        |                            |                                                                                                                                                                                           |
|              |                |                  |          |                   |        |                            | Olive brown, moist, hard, fat CLAY; with caliche.                                                                                                                                         |
| 10 -         |                | 55               | 22.7     | 103.1             |        |                            |                                                                                                                                                                                           |
| -            |                |                  |          |                   |        |                            |                                                                                                                                                                                           |
|              |                |                  |          |                   |        | CL                         | Yellowish brown,moist, hard, sandy CLAY.                                                                                                                                                  |
|              |                |                  |          |                   |        |                            |                                                                                                                                                                                           |
| -            | +[             | 59               |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                |                  |          |                   |        |                            |                                                                                                                                                                                           |
| 20 -         |                |                  |          |                   |        |                            |                                                                                                                                                                                           |
| 20 -         |                | 50/6"            |          |                   |        |                            | Oxidized reddish brown.                                                                                                                                                                   |
| -            |                |                  |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                |                  |          |                   |        |                            |                                                                                                                                                                                           |
|              |                | 17               |          |                   |        |                            | Dark grayish brown; very stiff; sea shells.                                                                                                                                               |
| -            |                |                  |          |                   |        |                            | Dain grayion storm, very cam, coa cricile.                                                                                                                                                |
| -            |                |                  |          |                   |        |                            | Olive brown, moist, hard, fat CLAY; reddish brown mottling.                                                                                                                               |
| 30 -         |                |                  |          |                   |        |                            |                                                                                                                                                                                           |
|              |                | 49               |          |                   | //     |                            | Total Depth = 31.5 feet.                                                                                                                                                                  |
| -            |                |                  |          |                   |        |                            | Groundwater was not encountered during drilling.  Backfilled with on-site soil on 5/30/19.                                                                                                |
| -            | H              |                  |          |                   |        |                            | Notes:                                                                                                                                                                                    |
| -            |                |                  |          |                   |        |                            | Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. |
|              |                |                  |          |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations                                                                                                |
|              |                |                  |          |                   |        |                            | of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.                 |
| 40 -         |                |                  |          |                   |        |                            | FIGURE A- 37                                                                                                                                                                              |

**Ninyo & Moore**Geotechnical & Environmental Sciences Consultants

FIGURE A- 37

|              | SAMPLES        |            |          | (F)               |        | <b>-</b>                   | DATE DRILLED 5/29/19 BORING NO B-33                                                                                                                                                       |
|--------------|----------------|------------|----------|-------------------|--------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAM            | TOC        | (%) =    | DRY DENSITY (PCF) | ۲      | CLASSIFICATION<br>U.S.C.S. | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1                                                                                                                                                 |
| DEPTH (feet) |                | BLOWS/FOOT | MOISTURE | NSIT              | SYMBOL | SIFIC/                     | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                     |
| DEF          | Bulk<br>Driven | BLO        | MOIS     | KY DE             | S      | LASS<br>U                  | DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"                                                                                                                                        |
|              |                |            |          | DR                |        | O                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH DESCRIPTION/INTERPRETATION                                                                                                                     |
| 0            |                |            |          |                   |        | CL                         | TERRACE DEPOSITS: Grayish brown, moist, hard, CLAY; few to little caliche.                                                                                                                |
| -            |                |            |          |                   |        |                            | Grayish brown, moist, hard, GLAT, few to little callene.                                                                                                                                  |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                | 50<br>     | 20.4     | 106.8             |        |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |        | СН                         | Grayish brown, moist, very stiff, fat CLAY; few gypsum crystals.                                                                                                                          |
| 10 -         |                |            |          |                   |        |                            |                                                                                                                                                                                           |
|              |                | 19         |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| _            |                | 28         | 34.6     | 87.8              |        |                            | Hard.                                                                                                                                                                                     |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |        | SM                         | Grayish brown, moist, very dense, silty SAND; reddish brown mottled; oxidation staining.                                                                                                  |
| 20 -         |                | 34         |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                | 01         |          |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                | 56         |          |                   |        |                            | Dense.                                                                                                                                                                                    |
| -            |                |            |          |                   |        | CL                         | Olive brown, moist, very stiff, CLAY; few caliche.                                                                                                                                        |
| 30 -         |                |            |          |                   |        |                            |                                                                                                                                                                                           |
| 30           |                | 16         |          |                   |        |                            |                                                                                                                                                                                           |
| -            |                |            |          |                   |        |                            | Total Depth = 31.5 feet.  Groundwater was not encountered during drilling.  Partilled with an eith soil on 5/20/10                                                                        |
| -            |                |            |          |                   |        |                            | Backfilled with on-site soil on 5/29/19.  Notes:                                                                                                                                          |
| -            |                |            |          |                   |        |                            | Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. |
|              |                |            |          |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations                                                                                                |
| -            |                |            |          |                   |        |                            | of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.                 |
| 40 -         |                |            |          |                   |        |                            | FIGURE A- 38                                                                                                                                                                              |

|              | SAMPLES |            |              | (i                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                            | DATE DRILLED6/4/19 BORING NOB-34                                                                                                 |
|--------------|---------|------------|--------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| feet)        | SAM     | OOT        | MOISTURE (%) | DRY DENSITY (PCF) | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | CLASSIFICATION<br>U.S.C.S. | GROUND ELEVATION 30' ± (MSL) SHEET 1 OF 2                                                                                        |
| DEPTH (feet) |         | BLOWS/FOOT | TUR          | INSI              | SYMBOL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | SIFIC<br>S.C.              | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                            |
| DEF          | Bulk    | BLO        | MOIS         | ₹Y DE             | Ś                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SLAS8<br>U                 | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                 |
|              |         |            |              | A                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | O                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH                                                                                       |
| 0            |         |            |              |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SC                         | DESCRIPTION/INTERPRETATION  ALLUVIUM:                                                                                            |
| -            |         |            |              |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                            | Olive brown, moist, medium dense, clayey SAND with gravel.  Dark brown, moist, hard, sandy CLAY; few scattered gravelly caliche. |
| -            |         | 26         | 20.5         | 104.9             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | CL                         | Olive brown.                                                                                                                     |
| 10 -         | 7       | 18         |              |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                            | Reddish brown mottling; very stiff.                                                                                              |
| _            |         |            |              |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SP-SM                      | TERRACE DEPOSITS: Yellowish brown, moist, very dense, poorly graded SAND; fine sand; massive.                                    |
| -            |         | 50/5"      |              |                   | 669999<br>149999<br>149999<br>149999<br>149999<br>149999<br>149999<br>149999<br>149999                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                            |                                                                                                                                  |
| 20 -         | 7       | 48         |              |                   | 669999<br>669999<br>669999<br>669999<br>669999<br>669999<br>669999<br>669999<br>669999                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                            |                                                                                                                                  |
| -            |         | -          |              |                   | 663933<br>669993<br>669993<br>669993                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                            |                                                                                                                                  |
| -            |         | 50/4"      | 3.8          | 93.6              | 1.63 00 10<br>6 6 9 9 0 10<br>6 6 9 9 0 10<br>1.63 00 10<br>6 6 9 9 9 10<br>1.63 00 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                            | Trace oxidation staining.                                                                                                        |
|              |         |            |              |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                            |                                                                                                                                  |
| 30 -         | 7       | 45         |              |                   | 10 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                            |                                                                                                                                  |
| _            |         | 1          |              |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                            |                                                                                                                                  |
|              |         |            |              |                   | 0000000<br>0000000<br>0000000<br>0000000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                            |                                                                                                                                  |
|              |         | 50/5"      |              |                   | irriiii<br>Graadi<br>Graadi<br>Graadi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                            |                                                                                                                                  |
| -            |         | 30/3       | ₹            |                   | ireirii<br>613320<br>7433211<br>663333                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                            | @36.2': Groundwater encountered during drilling; wet.                                                                            |
|              |         | _          |              |                   | 661944<br>141324<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>14134<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141334<br>141 |                            |                                                                                                                                  |
| 40 -         |         |            |              |                   | 1 64 36 16<br>146 146<br>1 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |                                                                                                                                  |

|              | SAMPLES |            |              | F)                |        | _                          | DATE DRILLED6/4/19 BORING NOB-34                                                                                                                                                                                                                                     |
|--------------|---------|------------|--------------|-------------------|--------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAM     | DOT        | (%)          | Y (PC             |        | ADIT (S                    | GROUND ELEVATION <u>30' ± (MSL)</u> SHEET <u>2</u> OF <u>2</u>                                                                                                                                                                                                       |
| DEPTH (feet) |         | BLOWS/FOOT | MOISTURE (%) | NSIT              | SYMBOL | S.C.8                      | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                                                                                                |
| DEP          | Bulk    | BLOV       | MOIS         | DRY DENSITY (PCF) | S      | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                                                                                                     |
|              |         |            |              | DA                |        | O                          | SAMPLED BY GM REVIEWED BY RDH                                                                                                                                                                                                                                        |
| 40           |         | 80/9"      |              |                   |        | SP                         | DESCRIPTION/INTERPRETATION  TERRACE DEPOSITS: (Continued)                                                                                                                                                                                                            |
| -            |         | 60/9       |              |                   |        |                            | Grayish brown, wet, very dense, poorly graded SAND; fine sand; oxidation staining.                                                                                                                                                                                   |
|              |         |            |              |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |         |            |              |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |         | 50/6"      | 38.4         | 92.2              |        |                            | Dark grayish brown.                                                                                                                                                                                                                                                  |
|              |         |            |              |                   |        |                            |                                                                                                                                                                                                                                                                      |
|              |         |            |              |                   |        |                            |                                                                                                                                                                                                                                                                      |
| 50 -         |         | 51         |              |                   |        |                            | Thinly interbedded layers; increase in silt.                                                                                                                                                                                                                         |
| -            |         |            |              |                   |        |                            |                                                                                                                                                                                                                                                                      |
|              |         |            |              |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |         |            |              |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |         | 92/9"      |              |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |         |            |              |                   |        |                            |                                                                                                                                                                                                                                                                      |
|              |         |            |              |                   |        |                            |                                                                                                                                                                                                                                                                      |
| 60 –         |         | 83/9"      |              |                   |        |                            | Dark grayish brown; thinly interbedded.                                                                                                                                                                                                                              |
| -            |         |            |              |                   |        |                            | Total Depth = 61.3 feet.  Groundwater encountered during drilling at approximately 36.2 feet.                                                                                                                                                                        |
| -            |         |            |              |                   |        |                            | Backfilled with bentonite cement grout and capped with on-site soil on 6/4/19.                                                                                                                                                                                       |
|              |         |            |              |                   |        |                            | Notes: Groundwater may rise to a level higher than that measured in borehole due to seasonal                                                                                                                                                                         |
| -            |         |            |              |                   |        |                            | variations in precipitation and several other factors as discussed in the report.                                                                                                                                                                                    |
| -            |         |            |              |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for propering construction hide and design documents. |
| 70 –         |         |            |              |                   |        |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                                                                                                      |
| . •          |         |            |              |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |         |            |              |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |         |            |              |                   |        |                            |                                                                                                                                                                                                                                                                      |
|              |         |            |              |                   |        |                            |                                                                                                                                                                                                                                                                      |
|              |         |            |              |                   |        |                            |                                                                                                                                                                                                                                                                      |
| -            |         |            |              |                   |        |                            |                                                                                                                                                                                                                                                                      |
| 80 -         |         |            |              |                   |        |                            | FIGURE A- 40                                                                                                                                                                                                                                                         |

|              | SAMPLES |            |              | Ē                 |                                                                   | _                          | DATE DRILLED6/4/18 BORING NOB-35                                          |
|--------------|---------|------------|--------------|-------------------|-------------------------------------------------------------------|----------------------------|---------------------------------------------------------------------------|
| eet)         | SAM     | )<br>100   | (%)          | Y (PC             |                                                                   | ATION<br>S.                | GROUND ELEVATION 40' ± (MSL) SHEET 1 OF 2                                 |
| DEPTH (feet) |         | BLOWS/FOOT | MOISTURE (%) | LISN              | SYMBOL                                                            | SIFICA<br>S.C.S            | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                     |
| DEP          | Bulk    | BLO        | MOIS         | DRY DENSITY (PCF) | S                                                                 | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                          |
|              |         |            |              | R                 |                                                                   | 0                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH                                |
| 0            |         |            |              |                   |                                                                   | SP                         | DESCRIPTION/INTERPRETATION  ALLUVIUM:                                     |
|              |         |            |              |                   |                                                                   |                            | Yellowish brown, moist, medium dense, poorly graded SAND; few gravel.     |
|              |         |            |              |                   |                                                                   |                            |                                                                           |
| -            |         |            |              |                   |                                                                   |                            |                                                                           |
| -            |         | 10         |              |                   |                                                                   |                            | Trace gravel.                                                             |
|              |         |            |              |                   |                                                                   |                            |                                                                           |
|              |         |            |              |                   |                                                                   |                            |                                                                           |
| 10 -         |         | 43         | 5.5          | 109.0             | 6490<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1 | SP-SM                      | Yellowish brown, moist, dense, poorly graded SAND with silt.              |
| -            |         | -          |              |                   | 663346<br>663346<br>663346<br>663346                              |                            |                                                                           |
| -            |         |            |              |                   |                                                                   | CL                         | Grayish brown, moist, very stiff, sandy CLAY.                             |
|              | 7       | 16         |              |                   |                                                                   |                            |                                                                           |
|              |         |            |              |                   |                                                                   |                            |                                                                           |
| -            |         | -          |              |                   |                                                                   |                            |                                                                           |
| 20 -         |         |            |              |                   |                                                                   |                            |                                                                           |
|              |         | _50/4"     |              |                   |                                                                   | SP                         | TERRACE DEPOSITS: Yellowish brown, moist, very dense, poorly graded SAND. |
|              |         |            |              |                   |                                                                   |                            | Tollower Brown, molec, very defice, peerly graded 67 ave.                 |
| -            |         |            |              |                   |                                                                   |                            |                                                                           |
| -            |         | 63         |              |                   |                                                                   |                            | Thinly interbedded layers.                                                |
|              |         | -          |              |                   |                                                                   |                            |                                                                           |
|              |         |            |              |                   |                                                                   |                            |                                                                           |
| 30 -         |         | 50/5"      | 4.1          | 86.5              |                                                                   |                            |                                                                           |
| -            |         |            |              |                   |                                                                   |                            |                                                                           |
| -            |         | -          |              |                   |                                                                   |                            |                                                                           |
|              |         | 88/11"     |              |                   |                                                                   |                            |                                                                           |
| -            |         |            |              |                   |                                                                   |                            |                                                                           |
| -            |         | ]          |              |                   |                                                                   |                            |                                                                           |
| 40 -         |         |            |              |                   |                                                                   |                            |                                                                           |

|              | SAMPLES |            |          | E E               |        |                            | DATE DRILLED6/4/18 BORING NOB-35                                                                                                                                                     |
|--------------|---------|------------|----------|-------------------|--------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAM     | 10C        | (%)      | Y (PC             |        | NOIT.                      | GROUND ELEVATION <u>40' ± (MSL)</u> SHEET <u>2</u> OF <u>2</u>                                                                                                                       |
| DEPTH (feet) |         | 3LOWS/FOOT | MOISTURE | LISN              | SYMBOL | SIFICA<br>S.C.S            | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                |
| DEF          | Bulk    | BLO        | MOIS     | DRY DENSITY (PCF) | S      | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT140 lbs. (Auto. Trip Hammer) DROP30"                                                                                                                                     |
|              |         |            |          | P                 |        | O                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH DESCRIPTION/INTERPRETATION                                                                                                                |
| 40           |         | 50/6"      |          |                   |        | SP                         | TERRACE DEPOSITS: (Continued) Grayish brown, moist, very dense, poorly graded SAND; fine sand.                                                                                       |
|              |         |            |          |                   |        |                            | eraylan aram, mora, rary damas, poetry graded or the firm canal                                                                                                                      |
|              |         | _          |          |                   |        |                            |                                                                                                                                                                                      |
|              |         | 50         |          |                   |        |                            | Yellowish brown; thin layer of sandy clay.                                                                                                                                           |
| -            |         |            |          |                   |        |                            | Tonome. Totalin, alimitayor or bandy olay.                                                                                                                                           |
|              |         | -          |          |                   |        |                            |                                                                                                                                                                                      |
| 50 -         |         | 50/01      | ₹        | 440.0             |        |                            | @49.5': Groundwater encountered during drilling; wet.                                                                                                                                |
| -            |         | 50/3"      | 3.2      | 119.0             |        |                            |                                                                                                                                                                                      |
|              |         |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |         |            |          |                   |        |                            |                                                                                                                                                                                      |
|              |         | 94/12"     |          |                   |        |                            |                                                                                                                                                                                      |
| -            |         | -          |          |                   |        |                            |                                                                                                                                                                                      |
| 60 -         |         |            |          |                   |        | SM                         | Dark gray, wet, very dense, silty SAND.                                                                                                                                              |
|              |         | 50/6"      |          |                   |        |                            | Total Depth = 61 feet.                                                                                                                                                               |
|              |         |            |          |                   |        |                            | Groundwater encountered during drilling at approximately 49.5 feet.  Backfilled with bentonite cement grout and capped with on-site soil on 6/4/19.                                  |
| -            |         | _          |          |                   |        |                            | Notes: Groundwater may rise to a level higher than that measured in borehole due to seasonal                                                                                         |
|              |         | -          |          |                   |        |                            | variations in precipitation and several other factors as discussed in the report.                                                                                                    |
|              |         |            |          |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is |
|              |         |            |          |                   |        |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                      |
| 70 -         |         | -          |          |                   |        |                            |                                                                                                                                                                                      |
| -            |         |            |          |                   |        |                            |                                                                                                                                                                                      |
| _            |         | -          |          |                   |        |                            |                                                                                                                                                                                      |
| _            |         |            |          |                   |        |                            |                                                                                                                                                                                      |
|              |         |            |          |                   |        |                            |                                                                                                                                                                                      |
| -            |         | -          |          |                   |        |                            |                                                                                                                                                                                      |
| 80 -         |         |            |          |                   |        |                            |                                                                                                                                                                                      |

|              | SAMPLES        |            |              | ;F)               |        | 7                          | DATE DRILLED 6/4/19 BORING NO P-1                                                                                                                                                         |
|--------------|----------------|------------|--------------|-------------------|--------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| feet)        | SAN            | T00        | E (%)        |                   | ٦      | CLASSIFICATION<br>U.S.C.S. | GROUND ELEVATION 50' ± (MSL) SHEET 1 OF 1                                                                                                                                                 |
| DEPTH (feet) |                | BLOWS/FOOT | MOISTURE (%) | ENSIT             | SYMBOL | SIFIC<br>J.S.C.            | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                     |
| DE           | Bulk<br>Driven | BLC        | MO           | DRY DENSITY (PCF) | 0)     | CLAS                       | DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"                                                                                                                                        |
|              |                |            |              |                   |        |                            | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH DESCRIPTION/INTERPRETATION                                                                                                                     |
| 0            |                |            |              |                   |        | SM                         | FILL: Gray, moist, medium dense, silty SAND; few clay pockets; trace gravel.                                                                                                              |
| -            |                |            |              |                   |        | CL                         | Dark grayish brown, moist, hard, CLAY; few scattered fine angular gravel.                                                                                                                 |
| -            |                |            |              |                   |        |                            |                                                                                                                                                                                           |
| -            |                |            |              |                   |        |                            |                                                                                                                                                                                           |
| -            |                |            |              |                   |        |                            |                                                                                                                                                                                           |
| 10 -         |                |            |              |                   |        |                            | Total Depth = 10 feet.                                                                                                                                                                    |
| -            |                |            |              |                   |        |                            | Groundwater was not encountered during drilling. Percolation test presoaked at 10:05 AM.                                                                                                  |
|              |                |            |              |                   |        |                            | Backfilled with on-site soil on 6/5/19.  Notes:                                                                                                                                           |
|              |                |            |              |                   |        |                            | Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. |
| -            |                |            |              |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is      |
| -            |                |            |              |                   |        |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                           |
| 20 -         |                |            |              |                   |        |                            |                                                                                                                                                                                           |
| -            |                |            |              |                   |        |                            |                                                                                                                                                                                           |
| -            |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
| 30 -         |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
| -            |                |            |              |                   |        |                            |                                                                                                                                                                                           |
| 40 -         |                |            |              |                   |        |                            |                                                                                                                                                                                           |

|              | SAMPLES  |            |              | .F.               |          | 7                          | DATE DRILLED 6/4/19 BORING NO P-2                                                                                                                                                                                                                                    |
|--------------|----------|------------|--------------|-------------------|----------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAN      | 00<br>T00  | (%) =        | Y (PC             | <b>_</b> | ATION<br>S.                | GROUND ELEVATION <u>± (MSL)</u> SHEET <u>1</u> OF <u>1</u>                                                                                                                                                                                                           |
| DEPTH (feet) |          | BLOWS/FOOT | MOISTURE (%) | NSIT              | SYMBOL   | SIFIC/                     | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                                                                                                |
| DEF          | Bulk     | BLO        | MOIS         | DRY DENSITY (PCF) | S        | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"                                                                                                                                                                                                                   |
|              |          |            |              | D A               |          | O                          | SAMPLED BY GM REVIEWED BY RDH DESCRIPTION/INTERPRETATION                                                                                                                                                                                                             |
| 0            |          |            |              |                   |          | CL                         | ALLUVIUM: Dark grayish brown, moist, hard, CLAY with caliche.                                                                                                                                                                                                        |
|              |          |            |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
|              |          | -          |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
|              |          |            |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
| -            |          |            |              |                   |          |                            | Olive brown; increase in moisture; sandy.                                                                                                                                                                                                                            |
|              |          |            |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
| 10 -         |          |            |              |                   |          |                            | Total Depth = 10 feet.                                                                                                                                                                                                                                               |
|              |          |            |              |                   |          |                            | Groundwater was not encountered during drilling. Percolation test presoaked at 9:22 AM.                                                                                                                                                                              |
|              |          |            |              |                   |          |                            | Backfilled with on-site soil on 6/5/19.                                                                                                                                                                                                                              |
| -            |          | -          |              |                   |          |                            | Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due                                                                                                                                                                   |
|              |          |            |              |                   |          |                            | to seasonal variations in precipitation and several other factors as discussed in the report.                                                                                                                                                                        |
|              |          |            |              |                   |          |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for propering construction hide and design documents. |
|              |          |            |              |                   |          |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                                                                                                      |
| 20 -         |          |            |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
|              |          | _          |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
|              |          |            |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
|              |          |            |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
| -            |          |            |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
|              |          |            |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
| 30 -         |          | =          |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
|              |          |            |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
|              |          | 1          |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
|              | $\vdash$ | -          |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
|              |          | _          |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
|              |          |            |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
| -            |          | 1          |              |                   |          |                            |                                                                                                                                                                                                                                                                      |
| 40 -         | Щ        |            |              |                   |          |                            |                                                                                                                                                                                                                                                                      |

|              | SAMPLES        |            |              | (F)               |        | 7                          | DATE DRILLED 6/4/19 BORING NO P-3                                                                                                                                                         |
|--------------|----------------|------------|--------------|-------------------|--------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAN            | DOT        | E (%)        | Y (PC             | ٦,     | ATION<br>S.                | GROUND ELEVATION <u>± (MSL)</u> SHEET <u>1</u> OF <u>1</u>                                                                                                                                |
| DEPTH (feet) |                | BLOWS/FOOT | MOISTURE (%) | LISN              | SYMBOL | SIFIC.                     | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                     |
| DEF          | Bulk<br>Driven | BLO        | MOIS         | DRY DENSITY (PCF) | S      | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"                                                                                                                                        |
|              |                |            |              | ٥                 |        |                            | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH  DESCRIPTION/INTERPRETATION                                                                                                                    |
| 0            |                |            |              |                   |        | ML                         | TERRACE DEPOSITS: Grayish brown, moist, stiff, SILT; few rootlets.                                                                                                                        |
|              |                |            |              |                   |        | CL                         | Dark grayish brown, moist, stiff, CLAY; trace caliche.                                                                                                                                    |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
| 10 -         |                |            |              |                   | Y///   |                            | Total Depth = 10 feet. Groundwater was not encountered during drilling.                                                                                                                   |
| -            |                |            |              |                   |        |                            | Percolation test presoaked at 8:57 AM. Backfilled with on-site soil on 6/5/19.                                                                                                            |
|              |                |            |              |                   |        |                            | Notes:                                                                                                                                                                                    |
|              |                |            |              |                   |        |                            | Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. |
|              |                |            |              |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is      |
| -            |                |            |              |                   |        |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                           |
| 20 -         |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
| =            |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
| 30 -         |                |            |              |                   |        |                            |                                                                                                                                                                                           |
| 30           |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
| -            |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
|              |                |            |              |                   |        |                            |                                                                                                                                                                                           |
| 40 -         | Ш              |            |              |                   |        |                            |                                                                                                                                                                                           |

|              | SAMPLES |            |              | .F.               |        | 7                          | DATE DRILLED 6/4/19 BORING NO P-4                                                                                                                                                    |
|--------------|---------|------------|--------------|-------------------|--------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| eet)         | SAN     | 700        | (%) =        | Y (PC             | ļ      | ATION.S.                   | GROUND ELEVATION <u>± (MSL)</u> SHEET <u>1</u> OF <u>1</u>                                                                                                                           |
| DEPTH (feet) |         | BLOWS/FOOT | MOISTURE (%) | NSIT              | SYMBOL | SIFIC/                     | METHOD OF DRILLING 8" Hollow-Stem Auger (2R Drilling)                                                                                                                                |
| DEF          | Bulk    | BLO        | MOIS         | DRY DENSITY (PCF) | S      | CLASSIFICATION<br>U.S.C.S. | DRIVE WEIGHT 140 lbs. (Auto. Trip Hammer) DROP 30"                                                                                                                                   |
|              |         |            |              | - PA              |        | O                          | SAMPLED BY GM LOGGED BY GM REVIEWED BY RDH DESCRIPTION/INTERPRETATION                                                                                                                |
| 0            |         |            |              |                   |        | CL                         | TERRACE DEPOSITS: Dark grayish brown, moist, hard, CLAY; trace caliche.                                                                                                              |
| -            |         | _          |              |                   |        |                            |                                                                                                                                                                                      |
|              |         | -          |              |                   |        |                            |                                                                                                                                                                                      |
|              |         |            |              |                   |        |                            |                                                                                                                                                                                      |
| -            |         | -          |              |                   |        |                            | Olive brown; increase in caliche; sandy.                                                                                                                                             |
| -            |         | _          |              |                   |        |                            |                                                                                                                                                                                      |
| 10 -         |         |            |              |                   |        |                            | Total Depth = 10 feet.                                                                                                                                                               |
|              |         |            |              |                   |        |                            | Groundwater was not encountered during drilling. Percolation test presoaked at 8:15 AM.                                                                                              |
| -            |         | -          |              |                   |        |                            | Backfilled with on-site soil on 6/5/19.                                                                                                                                              |
| -            |         | _          |              |                   |        |                            | Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due                                                                                   |
| -            |         | _          |              |                   |        |                            | to seasonal variations in precipitation and several other factors as discussed in the report.                                                                                        |
|              |         |            |              |                   |        |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is |
| -            |         |            |              |                   |        |                            | not sufficiently accurate for preparing construction bids and design documents.                                                                                                      |
| 20 -         |         |            |              |                   |        |                            |                                                                                                                                                                                      |
| -            |         | -          |              |                   |        |                            |                                                                                                                                                                                      |
|              |         |            |              |                   |        |                            |                                                                                                                                                                                      |
| -            |         |            |              |                   |        |                            |                                                                                                                                                                                      |
| -            |         | _          |              |                   |        |                            |                                                                                                                                                                                      |
|              |         | -          |              |                   |        |                            |                                                                                                                                                                                      |
|              |         |            |              |                   |        |                            |                                                                                                                                                                                      |
| 30 -         |         |            |              |                   |        |                            |                                                                                                                                                                                      |
| -            |         | _          |              |                   |        |                            |                                                                                                                                                                                      |
|              |         | -          |              |                   |        |                            |                                                                                                                                                                                      |
|              |         |            |              |                   |        |                            |                                                                                                                                                                                      |
| -            |         |            |              |                   |        |                            |                                                                                                                                                                                      |
| -            |         | _          |              |                   |        |                            |                                                                                                                                                                                      |
| 40 -         |         |            |              |                   |        |                            |                                                                                                                                                                                      |

# **APPENDIX B**

Test Pit Logs

## **APPENDIX B**

## **TEST PIT LOGS**

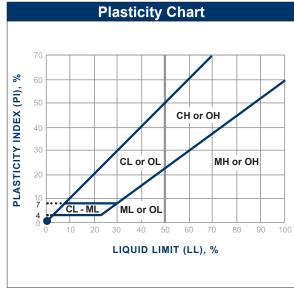
## Field Procedure for the Collection of Disturbed Samples

Disturbed soil samples were obtained in the field using the following method.

<u>Bulk Samples</u>
Bulk samples of representative earth materials were obtained from the exploratory borings. The samples were bagged and transported to the laboratory for testing.

| Soil Classification Chart Per ASTM D 2488 |                             |                                    |     |                                 |                                |  |  |  |  |  |
|-------------------------------------------|-----------------------------|------------------------------------|-----|---------------------------------|--------------------------------|--|--|--|--|--|
| _                                         |                             |                                    |     | Seco                            | ndary Divisions                |  |  |  |  |  |
| ř                                         | rimary Divis                | sions                              | Gro | up Symbol Group Name            |                                |  |  |  |  |  |
|                                           |                             | CLEAN GRAVEL                       | N.  | GW                              | well-graded GRAVEL             |  |  |  |  |  |
|                                           |                             | less than 5% fines                 |     | GP                              | poorly graded GRAVEL           |  |  |  |  |  |
|                                           | GRAVEL                      |                                    |     | GW-GM                           | well-graded GRAVEL with silt   |  |  |  |  |  |
|                                           | more than 50% of            | GRAVEL with DUAL                   |     | GP-GM                           | poorly graded GRAVEL with silt |  |  |  |  |  |
|                                           | coarse                      | CLASSIFICATIONS<br>5% to 12% fines |     | GW-GC                           | well-graded GRAVEL with clay   |  |  |  |  |  |
|                                           | retained on                 |                                    |     | GP-GC                           | poorly graded GRAVEL with      |  |  |  |  |  |
|                                           | No. 4 sieve                 | GRAVEL with                        |     | GM                              | silty GRAVEL                   |  |  |  |  |  |
| COARSE-<br>GRAINED                        |                             | FINES<br>more than                 |     | GC                              | clayey GRAVEL                  |  |  |  |  |  |
| SOILS<br>more than                        |                             | 12% fines                          |     | GC-GM                           | silty, clayey GRAVEL           |  |  |  |  |  |
| 50% retained                              |                             | CLEAN SAND                         |     | SW                              | well-graded SAND               |  |  |  |  |  |
| on No. 200<br>sieve                       |                             | less than 5% fines                 |     | SP                              | poorly graded SAND             |  |  |  |  |  |
|                                           |                             |                                    |     | SW-SM                           | well-graded SAND with silt     |  |  |  |  |  |
|                                           | SAND<br>50% or more         | SAND with DUAL                     |     | SP-SM                           | poorly graded SAND with silt   |  |  |  |  |  |
|                                           | of coarse<br>fraction       | CLASSIFICATIONS<br>5% to 12% fines |     | SW-SC                           | well-graded SAND with clay     |  |  |  |  |  |
|                                           | passes<br>No. 4 sieve       |                                    |     | SP-SC                           | poorly graded SAND with clay   |  |  |  |  |  |
|                                           |                             | SAND with FINES                    |     | SM                              | silty SAND                     |  |  |  |  |  |
|                                           |                             | more than 12% fines                |     | sc                              | clayey SAND                    |  |  |  |  |  |
|                                           |                             | 12% lines                          |     | SC-SM                           | silty, clayey SAND             |  |  |  |  |  |
|                                           |                             |                                    |     | CL                              | lean CLAY                      |  |  |  |  |  |
|                                           | SILT and                    | INORGANIC                          |     | ML                              | SILT                           |  |  |  |  |  |
|                                           | CLAY<br>liquid limit        |                                    |     | CL-ML                           | silty CLAY                     |  |  |  |  |  |
| FINE-                                     | less than 50%               | ORGANIC                            |     | OL (PI > 4)                     | organic CLAY                   |  |  |  |  |  |
| GRAINED<br>SOILS                          |                             | ORGANIC                            |     | OL (PI < 4)                     | organic SILT                   |  |  |  |  |  |
| 50% or more passes                        |                             | INORGANIC                          |     | СН                              | fat CLAY                       |  |  |  |  |  |
| No. 200 sieve                             | SILT and CLAY               | INURGANIC                          |     | МН                              | elastic SILT                   |  |  |  |  |  |
|                                           | liquid limit<br>50% or more | ODCANIC                            |     | OH (plots on or above "A"-line) | organic CLAY                   |  |  |  |  |  |
|                                           |                             | ORGANIC                            |     | OH (plots<br>below "A"-line)    | organic SILT                   |  |  |  |  |  |
|                                           | Highly (                    | Organic Soils                      |     | PT                              | Peat                           |  |  |  |  |  |

| Grain Size |        |                  |                 |                    |                                |  |  |  |  |  |  |
|------------|--------|------------------|-----------------|--------------------|--------------------------------|--|--|--|--|--|--|
|            | Desci  | ription          | Sieve<br>Size   | Grain Size         | Approximate<br>Size            |  |  |  |  |  |  |
|            | Bou    | lders            | > 12"           | > 12"              | Larger than basketball-sized   |  |  |  |  |  |  |
|            | Cob    | bles             | 3 - 12"         | 3 - 12"            | Fist-sized to basketball-sized |  |  |  |  |  |  |
|            | Gravel | Coarse           | 3/4 - 3"        | 3/4 - 3"           | Thumb-sized to fist-sized      |  |  |  |  |  |  |
|            | Graver | Fine             | #4 - 3/4"       | 0.19 - 0.75"       | Pea-sized to thumb-sized       |  |  |  |  |  |  |
|            |        | Coarse           | #10 - #4        | 0.079 - 0.19"      | Rock-salt-sized to pea-sized   |  |  |  |  |  |  |
|            | Sand   | Medium #40 - #10 |                 | 0.017 - 0.079"     | Sugar-sized to rock-salt-sized |  |  |  |  |  |  |
|            |        | Fine             | #200 - #40      | 0.0029 -<br>0.017" | Flour-sized to sugar-sized     |  |  |  |  |  |  |
|            | Fines  |                  | Passing<br>#200 | < 0.0029"          | Flour-sized and smaller        |  |  |  |  |  |  |



| Apparent Density - Coarse-Grained Soil |                     |                                          |                       |                                          |  |  |  |  |  |  |  |  |
|----------------------------------------|---------------------|------------------------------------------|-----------------------|------------------------------------------|--|--|--|--|--|--|--|--|
|                                        | Spooling C          | able or Cathead                          | Automatic Trip Hammer |                                          |  |  |  |  |  |  |  |  |
| Apparent<br>Density                    | SPT<br>(blows/foot) | Modified<br>Split Barrel<br>(blows/foot) | SPT<br>(blows/foot)   | Modified<br>Split Barrel<br>(blows/foot) |  |  |  |  |  |  |  |  |
| Very Loose                             | ≤ 4                 | ≤ 8                                      | ≤ 3                   | ≤ 5                                      |  |  |  |  |  |  |  |  |
| Loose                                  | 5 - 10              | 9 - 21                                   | 4 - 7 6 - 14          |                                          |  |  |  |  |  |  |  |  |
| Medium<br>Dense                        | 11 - 30             | 22 - 63                                  | 8 - 20                | 15 - 42                                  |  |  |  |  |  |  |  |  |
| Dense                                  | 31 - 50             | 64 - 105                                 | 21 - 33               | 43 - 70                                  |  |  |  |  |  |  |  |  |
| Very Dense                             | > 50                | > 105                                    | > 33                  | > 70                                     |  |  |  |  |  |  |  |  |

| Consistency - Fine-Grained Soil |                     |                                          |                       |                                          |  |  |  |  |  |  |  |  |
|---------------------------------|---------------------|------------------------------------------|-----------------------|------------------------------------------|--|--|--|--|--|--|--|--|
|                                 | Spooling Ca         | able or Cathead                          | Automatic Trip Hammer |                                          |  |  |  |  |  |  |  |  |
| Consis-<br>tency                | SPT<br>(blows/foot) | Modified<br>Split Barrel<br>(blows/foot) | SPT<br>(blows/foot)   | Modified<br>Split Barrel<br>(blows/foot) |  |  |  |  |  |  |  |  |
| Very Soft                       | < 2                 | < 3                                      | < 1                   | < 2                                      |  |  |  |  |  |  |  |  |
| Soft                            | 2 - 4               | 3 - 5                                    | 1 - 3                 | 2 - 3                                    |  |  |  |  |  |  |  |  |
| Firm                            | 5 - 8               | 6 - 10                                   | 4 - 5                 | 4 - 6                                    |  |  |  |  |  |  |  |  |
| Stiff                           | 9 - 15              | 11 - 20                                  | 6 - 10                | 7 - 13                                   |  |  |  |  |  |  |  |  |
| Very Stiff                      | 16 - 30             | 21 - 39                                  | 11 - 20               | 14 - 26                                  |  |  |  |  |  |  |  |  |
| Hard                            | > 30                | > 39                                     | > 20                  | > 26                                     |  |  |  |  |  |  |  |  |





SCALE

inch

Ш

 $\sim$ 

feet

**TEST PIT LOG** 

EXPLANATION OF TEST PIT, CORE, TRENCH AND HAND AUGER LOG SYMBOLS

| LOCATION Irvine, California  GROUND ELEVATION 50'± (msl) | ОЕРТН (FEET) | SAMPLES | MOISTURE (%) | DRY DENSITY<br>(PCF) | ASSIFICATION<br>U.S.C.S. | TEST PIT NO: TP-1  LOGGED BY VAM/ECH                                                                                                                                                                                                                                 |
|----------------------------------------------------------|--------------|---------|--------------|----------------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| METHOD OF EXCAVATION Backhoe (Strongarm Environmental)   | DEPT         | Bulk    | OIST         | JRY I                | ASSI<br>U.S              | DATE EXCAVATED 6/3/2019                                                                                                                                                                                                                                              |
| TEST PIT DIAGRAM                                         |              | Dri     | MO           |                      | CLA                      | DESCRIPTION                                                                                                                                                                                                                                                          |
|                                                          | 0            |         |              |                      |                          | TERRACE DEPOSITS:                                                                                                                                                                                                                                                    |
|                                                          | 2            |         |              |                      | CL                       | Reddish brown, moist, hard, CLAY; little sand; abundant fissures; blocky texture; rootlets; root hairs.                                                                                                                                                              |
|                                                          | 2            |         |              |                      |                          | Little caliche and gravel.                                                                                                                                                                                                                                           |
|                                                          | 6            |         |              |                      | sc                       | Pale brown to white, medium dense, clayey SAND; iron oxidation staining, root hairs, root casts, porous.                                                                                                                                                             |
| Caliche Inclusions                                       | 8            |         |              | _                    |                          | Gray, moist, hard, silty CLAY; caliche inclusions.                                                                                                                                                                                                                   |
| Gallette illedadelle                                     | 10           |         |              |                      | CL                       | Gray, make, mare, early GD VI, earlier metadorie.                                                                                                                                                                                                                    |
|                                                          | 12           |         |              |                      |                          | Total Depth = 10.0 feet.  No groundwater encountered.  Backfilled with compacted on-site soils 6/3/19.                                                                                                                                                               |
| <u>✓ N58°E</u>                                           | 14           |         |              |                      |                          |                                                                                                                                                                                                                                                                      |
|                                                          | 16           |         |              |                      |                          | Notes:                                                                                                                                                                                                                                                               |
|                                                          | 18           |         |              |                      |                          | Groundwater, though not encountered at the time of excavation, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.                                                                          |
|                                                          | 20           |         |              |                      |                          | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents. |
|                                                          |              |         |              |                      |                          | SCALE: 1"=4"                                                                                                                                                                                                                                                         |

## **TEST PIT LOG**

UCI NORTH CAMPUS IRVINE, CALIFORNIA

209570014 I 11/19

Winyo & Moore

Geotechnical & Environmental Sciences Consultants

| LOCATION Irvine, California  GROUND ELEVATION 50'± (msl)  METHOD OF EXCAVATION Backhoe (Strongarm Environmental)  TEST PIT DIAGRAM | DEPTH (FEET)         | Bulk<br>Driven SAMPLES | Sand Cone MOISTURE (%) | DRY DENSITY | (PCF) | CLASSIFICATION<br>U.S.C.S. | TEST PIT NO: TP-2  LOGGED BY VAM/ECH  DATE EXCAVATED 6/3/2019  DESCRIPTION                                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------|------------------------|-------------|-------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                    | 0<br>2<br>4          |                        |                        |             |       | СН                         | FILL:  Reddish brown, moist, hard, CLAY; rootlets; porous fissures; blocky texture; black clay inclusions, few gravel, asphalt concrete and Portland concrete pieces.  No fissures.                                                                                                                      |
|                                                                                                                                    | 8                    |                        |                        |             |       | СН                         | TERRACE DEPOSITS: Black, moist, hard, CLAY; porous.                                                                                                                                                                                                                                                      |
| <u>✓ N50°E</u>                                                                                                                     | 10<br>12<br>14<br>16 |                        |                        |             |       |                            | Total Depth = 10.0 feet. No groundwater encountered. Backfilled with compacted on-site soils 6/3/19.  Notes: Groundwater, though not encountered at the time of excavation, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. |
|                                                                                                                                    | 20                   |                        |                        |             |       |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.  SCALE: 1"=4"                       |

## **TEST PIT LOG**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| GROUND ELEVATION 50'± (msl)  METHOD OF EXCAVATION Backhoe (Strongarm Environmental)  TEST PIT DIAGRAM | 0 DEPTH (FEET)     | Bulk   Driven   SAMPLES   Sand Cone | MOISTURE (%) | DRY DENSITY (PCF) | CLASSIFICATION H U.S.C.S. | TEST PIT NO: TP-3  LOGGED BY VAM/ECH  DATE EXCAVATED 6/3/2019  DESCRIPTION  TERRACE DEPOSITS:  Reddish brown, moist, hard, CLAY; rootlets; trace gravel; porous; blocky texture; fissures.  Caliche veins, fissures infilled.                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------|--------------|-------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                       | 6<br>8<br>10<br>12 |                                     |              |                   |                           | Total Depth = 4.5 feet. No groundwater encountered. Backfilled with compacted on-site soils 6/3/19.                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                       | 16<br>18<br>20     |                                     |              |                   |                           | Notes:  Groundwater, though not encountered at the time of excavation, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.  SCALE: 1"=4" |

## **TEST PIT LOG**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| LOCATIONIrvine, California                             | <u> </u>       | LES     |           | (9)          | >                    | Z                        | TEST PIT NO:TP-4                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------|----------------|---------|-----------|--------------|----------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GROUND ELEVATION 50'± (msl)                            | ОЕРТН (FEET)   | SAMPLES |           | MOISTURE (%) | DRY DENSITY<br>(PCF) | ASSIFICATION<br>U.S.C.S. | LOGGED BY VAM/ECH                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| METHOD OF EXCAVATION Backhoe (Strongarm Environmental) | PTH            |         |           | ISTU         | Y DE<br>(PC          | SSIFI<br>U.S.C           | DATE EXCAVATED6/3/2019                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| TEST PIT DIAGRAM                                       | DE             | Bulk    | Sand Cone | MO           | DR                   | CLAS                     | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                        | 2              |         |           |              |                      | СН                       | TERRACE DEPOSITS:  Reddish brown, moist, hard, CLAY; fissured; blocky texture, rootlets; root casts, porous.                                                                                                                                                                                                                                                                                                                                                              |
|                                                        | 4              |         |           |              |                      | sc                       | Pale brown to white, moist, medium dense, clayey SAND; caliche sand and gravel; root cast; rootlets, porous.                                                                                                                                                                                                                                                                                                                                                              |
|                                                        | 8              |         |           |              |                      |                          | Black, moist, hard, CLAY; caliche lense and inclusions.                                                                                                                                                                                                                                                                                                                                                                                                                   |
| N6°E                                                   | 10             |         |           |              |                      |                          | Total Depth = 9.0 feet (refusal). No groundwater encountered. Backfilled with compacted on-site soils 6/3/19.                                                                                                                                                                                                                                                                                                                                                             |
|                                                        | 16<br>18<br>20 |         |           |              |                      |                          | Notes:  Groundwater, though not encountered at the time of excavation, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents. |
|                                                        |                |         |           |              |                      |                          | SCALE: 1"=4"                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                        |                | 1 1     | 1 1       |              |                      |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

## **TEST PIT LOG**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| GROUND ELEVATION 50'± (msl)  METHOD OF EXCAVATION Backhoe (Strongarm Environmental)  TEST PIT DIAGRAM | DEPTH (FEET)   | Bulk<br>Driven SAMPI ES | e e | MOISTURE (%) | DRY DENSITY<br>(PCF) | CLASSIFICATION<br>U.S.C.S. | TEST PIT NO: TP-5  LOGGED BY                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------|----------------|-------------------------|-----|--------------|----------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                       | 2              |                         |     |              |                      | CH                         | TERRACE DEPOSITS:  Dark grayish brown, moist, hard, CLAY; little caliche gravel; moderately cemented.  Gray, moist, hard, CLAY; fissures infilled with dark grayish brown clay; blocky texture.  Caliche veins; fissures infilled with gypsum; sand fissures individual crystals visible.                                                              |
| <u>✓ N31°E</u>                                                                                        | 6<br>8         |                         |     |              |                      |                            | Total Depth = 4.5 feet. No groundwater encountered. Backfilled with compacted on-site soils 6/3/19.                                                                                                                                                                                                                                                    |
|                                                                                                       | 10<br>12<br>14 |                         |     |              |                      |                            |                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                       | 16<br>18       |                         |     |              |                      |                            | Notes:  Groundwater, though not encountered at the time of excavation, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the |
|                                                                                                       | 20             |                         |     |              |                      |                            | purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.  SCALE: 1"=4"                                                                                                                                                                                                                       |

## **TEST PIT LOG**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| GROUND ELEVATION 50'± (msl) METHOD OF EXCAVATION Backhoe (Strongarm Environmental)  TEST PIT DIAGRAM | O DEPTH (FEET)     | 11110 | Driven SAMPLES | Sand Cone | MOISTURE (%) | DRY DENSITY<br>(PCF) | CLASSIFICATION<br>U.S.C.S. | TEST PIT NO: TP-6  LOGGED BY VAM/ECH  DATE EXCAVATED 6/3/2019  DESCRIPTION  TERRACE DEPOSITS:                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------|--------------------|-------|----------------|-----------|--------------|----------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                      | 2                  |       |                |           |              |                      | СН                         | Black, moist, hard, CLAY; desiccation cracks; rootlets.  Blocky texture; root hairs; scattered caliche gravel.                                                                                                                                                                                                                                                                                                                                                                          |
| N59°E                                                                                                | 6<br>8<br>10<br>12 |       |                |           |              |                      |                            | Total Depth = 4.0 feet.  No groundwater encountered.  Backfilled with compacted on-site soils 6/3/19.                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                      | 16<br>18<br>20     |       |                |           |              |                      |                            | Notes:  Groundwater, though not encountered at the time of excavation, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.  SCALE: 1"=4" |

## **TEST PIT LOG**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| Irvine, California LOCATION                            |              |          | ES      |           |                      |       | z                          | TEST PIT NO: TP-7                                                                                                                                                                                                                                                    |
|--------------------------------------------------------|--------------|----------|---------|-----------|----------------------|-------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 50'± (msl)                                             | EET          |          | SAMPLES | %         | 8                    | ∑II   | J .                        | IEST MILINO:                                                                                                                                                                                                                                                         |
| GROUND ELEVATION                                       | ОЕРТН (FEET) |          |         |           | ביים<br>ביים<br>ביים | (PCF) | CLASSIFICATION<br>U.S.C.S. | LOGGED BYVAM/ECH                                                                                                                                                                                                                                                     |
| METHOD OF EXCAVATION Backhoe (Strongarm Environmental) | EPT          | <u> </u> | eu .    | Cone      |                      | DRY [ | SSII<br>U.S                | DATE EXCAVATED6/3/2019                                                                                                                                                                                                                                               |
| TEST PIT DIAGRAM                                       |              | Bulk     | Driven  | Sand Cone | Ĭ                    | Ω     | CL/                        | DESCRIPTION                                                                                                                                                                                                                                                          |
|                                                        | 0            |          |         |           |                      |       |                            | FILL:                                                                                                                                                                                                                                                                |
|                                                        | 2            |          |         |           |                      |       | СН                         | Brown, moist, hard, CLAY; rootlets; trace gravel; asphalt concrete pieces; desiccation cracking.                                                                                                                                                                     |
|                                                        | 4            |          |         |           | $\frac{1}{1}$        |       | SC                         | Pale brown, moist, loose, clayey SAND; few gravel; asphalt concrete pieces; approximately 6 inches thick.                                                                                                                                                            |
|                                                        |              |          |         |           | $ \bot $             |       | CL                         | TERRACE DEPOSITS:                                                                                                                                                                                                                                                    |
|                                                        |              |          |         |           |                      |       |                            | Dark brown to black, moist, hard; blocky texture.                                                                                                                                                                                                                    |
| N60°E                                                  | 6 8          |          |         |           |                      |       |                            | Total Depth = 4.7 feet.  No groundwater encountered.  Backfilled with compacted on-site soils 6/3/19.                                                                                                                                                                |
|                                                        | 10           |          |         |           |                      |       |                            |                                                                                                                                                                                                                                                                      |
|                                                        | 12           |          |         |           |                      |       |                            |                                                                                                                                                                                                                                                                      |
|                                                        |              |          |         |           |                      |       |                            |                                                                                                                                                                                                                                                                      |
|                                                        | 14           |          |         |           |                      |       |                            |                                                                                                                                                                                                                                                                      |
|                                                        | 16           |          |         |           |                      |       |                            | Notes:                                                                                                                                                                                                                                                               |
|                                                        | 18           |          |         |           |                      |       |                            | Groundwater, though not encountered at the time of excavation, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.                                                                          |
|                                                        | 20           |          |         |           |                      |       |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents. |
|                                                        |              |          |         |           |                      |       |                            | SCALE: 1"=4"                                                                                                                                                                                                                                                         |

## **TEST PIT LOG**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| GROUND ELEVATION 50'± (msl)  METHOD OF EXCAVATION Backhoe (Strongarm Environmental)  TEST PIT DIAGRAM | DEPTH (FEET)             | Driven SAMPLES Sand Cone | MOISTURE (%) | DRY DENSITY (PCF) | CLASSIFICATION U.S.C.S. | TEST PIT NO: TP-8  LOGGED BY VAM/ECH  DATE EXCAVATED 6/3/2019  DESCRIPTION  TERRACE DEPOSITS:  Reddish gray, moist, hard, fat CLAY; blocky texture; desiccation cracking; rootlets and root hairs.  Dark reddish gray; slickensided; root hairs.                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------|-------------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                       | 4                        |                          |              |                   |                         | √ Strong brown.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| N50°E                                                                                                 | 6<br>8<br>10<br>12<br>14 |                          |              |                   |                         | Total Depth =4.0 feet. No groundwater encountered. Backfilled with compacted on-site soils 6/3/19.                                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                       | 18<br>20                 |                          |              |                   |                         | Groundwater, though not encountered at the time of excavation, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.  SCALE: 1"=4" |

## **TEST PIT LOG**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| LOCATION Irvine, California  GROUND ELEVATION 50'± (msl)  METHOD OF EXCAVATION Backhoe (Strongarm Environmental) | ОЕРТН (FEET) | Bulk Driven SAMPLES | MOISTURE (%) | DRY DENSITY<br>(PCF) | ASSIFICATION<br>U.S.C.S. | TEST PIT NO: TP-9  LOGGED BY VAM/ECH  DATE EXCAVATED 6/3/2019                                                                                     |
|------------------------------------------------------------------------------------------------------------------|--------------|---------------------|--------------|----------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| TEST PIT DIAGRAM                                                                                                 |              | Driv                | Σ            |                      | CLA8                     | DESCRIPTION                                                                                                                                       |
|                                                                                                                  | 0            |                     |              |                      |                          | TOPSOIL:                                                                                                                                          |
|                                                                                                                  | 2            |                     |              |                      | СН                       | Brown, moist, dense, fat CLAY; trace roots; scattered caliche gravel; blocky texture.                                                             |
|                                                                                                                  |              |                     |              |                      |                          | TERRACE DEPOSITS:                                                                                                                                 |
|                                                                                                                  | 4            |                     |              |                      |                          | Dark brown to black, moist, hard, CLAY; trace roots.                                                                                              |
|                                                                                                                  | 6            |                     |              |                      | CL                       | Light grayish brown, abundant caliche gravel.                                                                                                     |
|                                                                                                                  | 8            |                     |              |                      |                          |                                                                                                                                                   |
|                                                                                                                  |              |                     |              |                      |                          | Total Depth = 8.0 feet.  No groundwater encountered.  Backfilled with compacted on-site soils 6/3/19.                                             |
| _N7°E                                                                                                            | 10           |                     |              |                      |                          | '<br>                                                                                                                                             |
|                                                                                                                  | 12           |                     |              |                      |                          |                                                                                                                                                   |
|                                                                                                                  | 14           |                     |              |                      |                          |                                                                                                                                                   |
|                                                                                                                  |              |                     |              |                      |                          |                                                                                                                                                   |
|                                                                                                                  | 16           |                     | 1            |                      |                          | Notes: Groundwater, though not encountered at the time of excavation, may rise                                                                    |
|                                                                                                                  | 18           |                     |              |                      |                          | to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.                               |
|                                                                                                                  |              |                     |              |                      |                          | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the |
|                                                                                                                  | 20           |                     |              |                      |                          | purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.                                |
|                                                                                                                  |              |                     |              |                      |                          | SCALE: 1"=4"                                                                                                                                      |

## **TEST PIT LOG**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| GROUND ELEVATION 50'± (msl)  METHOD OF EXCAVATION Backhoe (Strongarm Environmental) | ОЕРТН (FEET) | SAMPLES | nd Cone MOISTURE (%) | DRY DENSITY<br>(PCF) | ASSIFICATION<br>U.S.C.S. | TEST PIT NO: TP-10  LOGGED BY VAM/ECH  DATE EXCAVATED 6/3/2019                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------|--------------|---------|----------------------|----------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| METHOD OF EXCAVATION Backhoe (Strongarm Environmental)  TEST PIT DIAGRAM            | DEP          | Bulk    | Sand Cone<br>MOISTU  | DRY                  | CLASS<br>U.              | DATE EXCAVATED 6/3/2019  DESCRIPTION                                                                                                                                                                                                                                    |
|                                                                                     | 0            |         | <i>σ</i>             |                      | СН                       | TERRACE DEPOSITS:  Brown, moist, hard, fat CLAY; scattered caliche gravel; trace roots; trace pinhole porosity.                                                                                                                                                         |
|                                                                                     | 4            |         |                      |                      | CL_SC                    | Light brown, moist, hard, CLAY; few caliche gravel; quartz gravel; trace roots.  Dark brown, moist, dense, clayey SAND; trace pinhole porosity.                                                                                                                         |
|                                                                                     | 6            |         |                      |                      |                          | Total Depth = 5.0 feet.  No groundwater encountered.  Backfilled with compacted on-site soils 6/3/19.                                                                                                                                                                   |
|                                                                                     | 10           |         |                      |                      |                          |                                                                                                                                                                                                                                                                         |
|                                                                                     | 12           |         |                      |                      |                          |                                                                                                                                                                                                                                                                         |
|                                                                                     | 14           |         |                      |                      |                          | Notes:                                                                                                                                                                                                                                                                  |
|                                                                                     | 18           |         |                      |                      |                          | Groundwater, though not encountered at the time of excavation, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our |
|                                                                                     | 20           |         |                      |                      |                          | interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.  SCALE: 1"=4"                                                                 |

## **TEST PIT LOG**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| GROUND ELEVATION 50'± (msl)  METHOD OF EXCAVATION Backhoe (Strongarm Environmental)  TEST PIT DIAGRAM | DEPTH (FEET) | Driven SAMPLES Sand Cone | MOISTURE (%) | DRY DENSITY<br>(PCF) | CLASSIFICATION<br>U.S.C.S. | TEST PIT NO: TP-11  LOGGED BY VAM/ECH  DATE EXCAVATED 6/3/2019  DESCRIPTION                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------|--------------|--------------------------|--------------|----------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                       | 0            |                          |              |                      |                            | TERRACE DEPOSITS:  Brown, moist, hard, fat CLAY; scattered caliche gravel; blocky texture;                                                                                                                                                                           |
|                                                                                                       | 2            |                          |              |                      | CH                         | desiccation cracks; trace roots.                                                                                                                                                                                                                                     |
|                                                                                                       | 4            |                          |              |                      | SP                         | White, moist, poorly graded SAND; trace caliche.                                                                                                                                                                                                                     |
| <u>N70°W</u>                                                                                          | 6            |                          |              |                      |                            | Total Depth = 4.0 feet. No groundwater encountered. Backfilled with compacted on-site soils 6/3/19.                                                                                                                                                                  |
|                                                                                                       | 8            |                          |              |                      |                            |                                                                                                                                                                                                                                                                      |
|                                                                                                       | 10           |                          |              |                      |                            |                                                                                                                                                                                                                                                                      |
|                                                                                                       | 12           |                          |              |                      |                            |                                                                                                                                                                                                                                                                      |
|                                                                                                       | 14           |                          |              |                      |                            |                                                                                                                                                                                                                                                                      |
|                                                                                                       | 16           |                          |              |                      |                            | Notes:  Groundwater, though not encountered at the time of excavation, may rise                                                                                                                                                                                      |
|                                                                                                       | 18           |                          |              |                      |                            | to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.                                                                                                                                                  |
|                                                                                                       | 20           |                          |              |                      |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents. |
|                                                                                                       |              |                          |              |                      |                            | SCALE: 1"=4"                                                                                                                                                                                                                                                         |

## **TEST PIT LOG**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| GROUND ELEVATION 50'± (msl)  METHOD OF EXCAVATION Backhoe (Strongarm Environmental)  TEST PIT DIAGRAM | DEPTH (FEET)   | Bulk Driven SAMPLES | MOISTURE (%) | DRY DENSITY<br>(PCF) | CLASSIFICATION<br>U.S.C.S. | TEST PIT NO: TP-12  LOGGED BY                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------|----------------|---------------------|--------------|----------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                       | 2              |                     |              |                      | СН                         | TERRACE DEPOSITS:  Dark brown, moist, hard, CLAY; trace roots; scattered caliche gravel; blocky texture.                                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                       | 6              |                     |              |                      | CL                         | Olive, moist, very stiff, sandy CLAY.                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                       |                |                     |              |                      | SM                         | Olive gray, moist, medium dense, silty SAND.                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| N14°E                                                                                                 | 10<br>12<br>14 |                     |              |                      |                            | Total Depth = 9.3 feet. No groundwater encountered. Backfilled with compacted on-site soils 6/3/19.                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                       | 16<br>18<br>20 |                     |              |                      |                            | Notes:  Groundwater, though not encountered at the time of excavation, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.  SCALE: 1"=4" |

## **TEST PIT LOG**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| LOCATION Irvine, California  GROUND ELEVATION 50'± (msl)  METHOD OF EXCAVATION Backhoe (Strongarm Environmental)  TEST PIT DIAGRAM | DEPTH (FEET)   | Bulk Driven SAMPLES | MOISTURE (%) | DRY DENSITY<br>(PCF) | CLASSIFICATION<br>U.S.C.S. | TEST PIT NO: TP-13  LOGGED BY                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------|--------------|----------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                    | 0              |                     |              |                      |                            | TERRACE DEPOSITS:  Black, moist, hard, fat CLAY; roots and rootlets; blocky texture; porous.                                                                                                                                                                                    |
|                                                                                                                                    | 4              |                     |              |                      | CH                         | Olive to brown; abundant caliche gravel; weakly cemented.  Olive; massive; no visible porosity.                                                                                                                                                                                 |
|                                                                                                                                    | 8              |                     |              |                      | SM                         | Yellow, moist, silty SAND; iron oxidation staining, weakly cemented.                                                                                                                                                                                                            |
| <u>✓N15°W</u>                                                                                                                      | 10<br>12<br>14 |                     |              |                      |                            | Total Depth = 10.0 feet. No groundwater encountered. Backfilled with compacted on-site soils 6/3/19.                                                                                                                                                                            |
|                                                                                                                                    | 16<br>18       |                     |              |                      |                            | Notes:  Groundwater, though not encountered at the time of excavation, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our |
|                                                                                                                                    | 20             |                     |              |                      |                            | interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.  SCALE: 1"=4"                                                                         |

## **TEST PIT LOG**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| LOCATION Irvine, California  GROUND ELEVATION 50'± (msl)  METHOD OF EXCAVATION Backhoe (Strongarm Environmental)  TEST PIT DIAGRAM | DEPTH (FEET)   | Bulk Driven SAMPLES | MOISTURE (%) | DRY DENSITY<br>(PCF) | CLASSIFICATION<br>U.S.C.S. | TEST PIT NO: TP-14  LOGGED BY VAM/ECH  DATE EXCAVATED 6/3/2019  DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------|--------------|----------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                    | 0<br>2<br>4    |                     |              |                      | CH<br>SP-SM                | TERRACE DEPOSITS: Black, moist, hard, fat CLAY; roots and rootlets; blocky texture.  Few caliche gravel; no texture.  Yellow, moist, medium dense, poorly graded SAND with silt; pockets of black clay.                                                                                                                                                                                                                                                                                |
|                                                                                                                                    | 8              |                     |              |                      |                            | Yellow to gray, moist, medium dense, poorly graded SAND with silt; iron oxidation staining; silt lenses.  Abundant shell fragments.                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                    | 10<br>12<br>14 |                     |              |                      |                            | Total Depth = 9.5 feet.  No groundwater encountered.  Backfilled with compacted on-site soils 6/3/19.                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                    | 16<br>18<br>20 |                     |              |                      |                            | Notes: Groundwater, though not encountered at the time of excavation, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.  SCALE: 1"=4" |

## **TEST PIT LOG**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| LOCATIONIrvine, California  GROUND ELEVATION50'± (msl)  METHOD OF EXCAVATIONBackhoe (Strongarm Environmental)  TEST PIT DIAGRAM | DEPTH (FEET)   | Bulk Driven SAMPLES | MOISTURE (%) | DRY DENSITY<br>(PCF) | CLASSIFICATION<br>U.S.C.S. | TEST PIT NO: TP-15  LOGGED BY                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------|--------------|----------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Filled Animal                                                                                                                   | 0<br>2<br>4    |                     | -            |                      | CH<br>CL<br>SM             | TERRACE DEPOSITS:  Black, moist, hard, fat CLAY; blocky texture; rootlets; scattered caliche gravel; rootlets.  Mottled black and gray; moist, silty CLAY; rootlets.  Gray, moist, medium dense, silty SAND; iron oxidation staining; trace shells; trace filled animal burrows.  Brownish red, moist, hard, CLAY; blocky texture; abundant caliche veins.                                                                                                                              |
| N44°E                                                                                                                           | 10 12 14       |                     | -            |                      |                            | Total Depth = 7.0 feet. No groundwater encountered. Backfilled with compacted on-site soils 6/3/19.                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                 | 16<br>18<br>20 |                     |              |                      |                            | Notes:  Groundwater, though not encountered at the time of excavation, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.  SCALE: 1"=4" |

## **TEST PIT LOG**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| LOCATIONIrvine, California  GROUND ELEVATION50'± (msl)  METHOD OF EXCAVATIONBackhoe (Strongarm Environmental)  TEST PIT DIAGRAM | DEPTH (FEET) | Bulk | Driven SAMPLES | MOISTURE (%) | DRY DENSITY<br>(PCF) | CLASSIFICATION<br>U.S.C.S. | TEST PIT NO: TP-16  LOGGED BY VAM/ECH  DATE EXCAVATED 6/3/2019  DESCRIPTION                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------|--------------|------|----------------|--------------|----------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12011113113111                                                                                                                  | 0            | +    | 0)             |              |                      |                            | TERRACE DEPOSITS:                                                                                                                                                                                                            |
|                                                                                                                                 | _   2        |      |                |              |                      | СН                         | Black, moist, hard, CLAY; blocky texture; rootlets, scattered caliche gravel.                                                                                                                                                |
|                                                                                                                                 |              |      |                | _            |                      | SM                         | Olive, moist, hard, sandy SILT; blocky texture; caliche veins.                                                                                                                                                               |
|                                                                                                                                 | 6            |      |                |              |                      | SM                         | Olive, moist, medium dense, silty SAND.                                                                                                                                                                                      |
|                                                                                                                                 |              |      |                |              |                      |                            |                                                                                                                                                                                                                              |
| <u> </u>                                                                                                                        | 8            |      |                |              |                      |                            | Total Depth =7.3 feet.  No groundwater encountered.  Backfilled with compacted on-site soils 6/3/19.                                                                                                                         |
|                                                                                                                                 | 12           |      |                |              |                      |                            |                                                                                                                                                                                                                              |
|                                                                                                                                 | 14           |      |                |              |                      |                            |                                                                                                                                                                                                                              |
|                                                                                                                                 |              |      |                |              |                      |                            | Neton                                                                                                                                                                                                                        |
|                                                                                                                                 | 16           |      |                |              |                      |                            | Notes:  Groundwater, though not encountered at the time of excavation, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.                          |
|                                                                                                                                 | 20           |      |                |              |                      |                            | The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing |
|                                                                                                                                 | 20           |      |                |              |                      |                            | construction bids and design documents.  SCALE: 1"=4"                                                                                                                                                                        |

## **TEST PIT LOG**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



# **APPENDIX C**

**Laboratory Testing** 

### **APPENDIX C**

#### **LABORATORY TESTING**

## **Classification**

Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488. Soil classifications are indicated on the logs of the exploratory borings and test pits in Appendix A and B, respectively.

#### **In-Place Moisture and Density Tests**

The moisture content and dry density of relatively undisturbed samples obtained from the exploratory borings were evaluated in general accordance with ASTM D 2937. The test results are presented on the logs of the exploratory borings and test pits in Appendix A and B, respectively.

## 200 Wash

Evaluation of the percentage of particles finer than the No. 200 sieve in selected soil samples was performed in general accordance with ASTM D 1140. The results of the tests are presented on Figures C-1 through C-4.

#### **Atterberg Limits**

Tests were performed on selected representative fine-grained soil samples to evaluate the liquid limit, plastic limit, and plasticity index in general accordance with ASTM D 4318. These test results were utilized to evaluate the soil classification in accordance with the USCS. The test results and classifications are shown on Figures C-5 through C-7.

## **Consolidation Tests**

Consolidation tests were performed on selected relatively undisturbed soil samples in general accordance with ASTM D 2435. The samples were inundated during testing to represent adverse field conditions. The percent of consolidation for each load cycle was recorded as a ratio of the amount of vertical compression to the original height of the sample. The results of the tests are summarized on Figures C-8 through C-22.

#### **Direct Shear Tests**

Direct shear tests were performed on relatively undisturbed samples in general accordance with ASTM D 3080 to evaluate the shear strength characteristics of selected materials. The samples were inundated during shearing to represent adverse field conditions. The results are shown on Figures C-23 through C-33.

#### **Expansion Index Tests**

The expansion indices of representative near-surface samples were evaluated in general accordance with ASTM D4829. The samples were molded under a specified compactive energy at approximately 50 percent saturation (plus or minus 2 percent). The prepared 1-inch thick and 4-inch diameter samples were loaded with a surcharge of 144 pounds per square foot and were inundated with distilled water. Readings of volumetric swell were made for a period of 24 hours. The results of these tests are presented on Figure C-34 and C-35.

#### **Proctor Density Tests**

The maximum dry density and optimum moisture content of selected representative soil samples were evaluated using the Modified Proctor method in general accordance with ASTM D 1557. The results of the tests are summarized on Figures C-36 through C-39.

#### **Soil Corrosivity Tests**

Soil pH, and minimum resistivity tests were performed on representative samples in general accordance with California Test (CT) 643. The sulfate and chloride contents of the selected samples were evaluated in general accordance with CT 417 and CT 422, respectively. The test results are presented on Figure C-40 and C-41.

## R-Value

The resistance value, or R-value, for site soils was evaluated in general accordance with CT 301. Samples were prepared and evaluated for exudation pressure and expansion pressure. The equilibrium R-value is reported as the lesser or more conservative of the two calculated results. The test results are shown on Figure C-42.

| SAMPLE<br>LOCATION | SAMPLE<br>DEPTH<br>(ft) | DESCRIPTION                  | PERCENT<br>PASSING<br>NO. 4 | PERCENT<br>PASSING<br>NO. 200 | USCS<br>(TOTAL<br>SAMPLE) |
|--------------------|-------------------------|------------------------------|-----------------------------|-------------------------------|---------------------------|
| B-4                | 35.0-36.5               | LEAN CLAY                    | 100                         | 87                            | CL                        |
| B-6                | 0.0-3.0                 | LEAN CLAY                    | 91                          | 64                            | CL                        |
| B-7                | 5.0-6.5                 | LEAN CLAY                    | 98                          | 87                            | CL                        |
| B-8                | 10.0-11.5               | SILTY SAND                   | 100                         | 33                            | SM                        |
| B-8                | 30.0-31.5               | SILTY SAND                   | 100                         | 32                            | SM                        |
| B-9                | 60.0-60.9               | POORLY GRADED SAND WITH SILT | 99                          | 6                             | SP-SM                     |
| B-10               | 15.0-16.5               | SILTY SAND                   | 100                         | 44                            | SM                        |
| B-11               | 10.0-11.5               | SANDY SILT WITH GRAVEL       | 83                          | 52                            | ML                        |
| B-11               | 25.0-26.5               | SILTY SAND                   | 100                         | 14                            | SM                        |
|                    |                         |                              |                             |                               |                           |

#### FIGURE C-1

## **NO. 200 SIEVE ANALYSIS TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| SAMPLE<br>LOCATION | SAMPLE<br>DEPTH<br>(ft) | DESCRIPTION                  | PERCENT<br>PASSING<br>NO. 4 | PERCENT<br>PASSING<br>NO. 200 | USCS<br>(TOTAL<br>SAMPLE) |
|--------------------|-------------------------|------------------------------|-----------------------------|-------------------------------|---------------------------|
| B-12               | 25.0-26.5               | LEAN CLAY                    | 100                         | 53                            | CL                        |
| B-14               | 15.0-16.5               | SILTY SAND                   | 100                         | 15                            | SM                        |
| B-16               | 35.0-36.5               | POORLY GRADED SAND           | 100                         | 3                             | SP                        |
| B-17               | 20.0-21.5               | POORLY GRADED SAND WITH SILT | 100                         | 6                             | SP-SM                     |
| B-19               | 10.0-11.5               | POORLY GRADED SAND WITH SILT | 100                         | 9                             | SP-SM                     |
| B-19               | 20.0-21.5               | POORLY GRADED SAND WITH SILT | 100                         | 7                             | SP-SM                     |
| B-20               | 20.0-21.5               | POORLY GRADED SAND WITH SILT | 100                         | 9                             | SP-SM                     |
| B-21               | 10.0-11.5               | SILTY SAND                   | 94                          | 21                            | SM                        |
| B-21               | 30.0-31.5               | POORLY GRADED SAND WITH SILT | 100                         | 7                             | SP-SM                     |
|                    |                         |                              |                             |                               |                           |

#### FIGURE C-2

## **NO. 200 SIEVE ANALYSIS TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| SAMPLE<br>LOCATION | SAMPLE<br>DEPTH<br>(ft) | DESCRIPTION                  | PERCENT<br>PASSING<br>NO. 4 | PERCENT<br>PASSING<br>NO. 200 | USCS<br>(TOTAL<br>SAMPLE) |
|--------------------|-------------------------|------------------------------|-----------------------------|-------------------------------|---------------------------|
| B-22               | 15.0-16.5               | CLAYEY SAND                  | 100                         | 45                            | SC                        |
| B-23               | 20.0-21.5               | LEAN CLAY                    | 100                         | 50                            | CL                        |
| B-23               | 45.0-46.5               | POORLY GRADED SAND WITH SILT | 100                         | 8                             | SP-SM                     |
| B-26               | 25.0-26.5               | SILTY SAND                   | 100                         | 14                            | SM                        |
| B-29               | 5.0-6.5                 | SILTY SAND                   | 100                         | 44                            | SM                        |
| B-29               | 15.0-16.5               | POORLY GRADED SAND WITH SILT | 100                         | 5                             | SP-SM                     |
| B-31               | 20.0-21.5               | SILTY SAND                   | 100                         | 15                            | SM                        |
| B-32               | 20.0-21.5               | LEAN CLAY                    | 100                         | 51                            | CL                        |
| B-33               | 25.0-26.5               | SILTY SAND                   | 100                         | 15                            | SM                        |
|                    |                         |                              |                             |                               |                           |

#### FIGURE C-3

## **NO. 200 SIEVE ANALYSIS TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| SAMPLE<br>LOCATION | SAMPLE<br>DEPTH<br>(ft) | DESCRIPTION                             | PERCENT<br>PASSING<br>NO. 4 | PERCENT<br>PASSING<br>NO. 200 | USCS<br>(TOTAL<br>SAMPLE) |
|--------------------|-------------------------|-----------------------------------------|-----------------------------|-------------------------------|---------------------------|
| B-34               | 25.0-26.5               | POORLY GRADED SAND WITH SILT            | 100                         | 7                             | SP-SM                     |
| B-35               | 10.0-11.5               | POORLY GRADED SAND WITH SILT AND GRAVEL | 71                          | 7                             | SP-SM                     |
|                    |                         |                                         |                             |                               |                           |
|                    |                         |                                         |                             |                               |                           |
|                    |                         |                                         |                             |                               |                           |
|                    |                         |                                         |                             |                               |                           |
|                    |                         |                                         |                             |                               |                           |
|                    |                         |                                         |                             |                               |                           |
|                    |                         |                                         |                             |                               |                           |

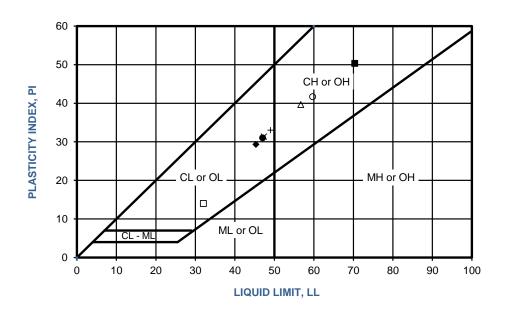
## FIGURE C-4

## **NO. 200 SIEVE ANALYSIS TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| SYMBOL | LOCATION | DEPTH (ft) | LIQUID<br>LIMIT | PLASTIC<br>LIMIT | PLASTICITY<br>INDEX | USCS<br>CLASSIFICATION<br>(Fraction Finer Than<br>No. 40 Sieve) | uscs |
|--------|----------|------------|-----------------|------------------|---------------------|-----------------------------------------------------------------|------|
| •      | B-1      | 1.0-5.0    | 47              | 16               | 31                  | CL                                                              | CL   |
| -      | B-3      | 15.0-16.5  | 70              | 20               | 50                  | СН                                                              | СН   |
| •      | B-4      | 0.0-5.0    | 45              | 16               | 29                  | CL                                                              | CL   |
| 0      | B-5      | 10.0-11.5  | 60              | 18               | 42                  | СН                                                              | СН   |
| _      | B-9      | 1.0-5.0    | 32              | 18               | 14                  | CL                                                              | CL   |
| Δ      | B-9      | 20.0-21.5  | 57              | 17               | 40                  | СН                                                              | СН   |
| ×      | B-11     | 0.5-5.0    | 47              | 16               | 31                  | CL                                                              | CL   |
| +      | B-12     | 1.0-4.0    | 49              | 16               | 33                  | CL                                                              | CL   |



#### FIGURE C-5

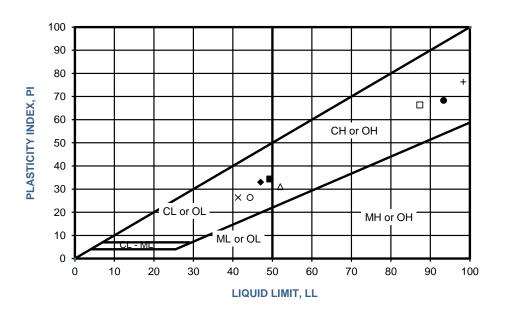
#### ATTERBERG LIMITS TEST RESULTS

UCI NORTH CAMPUS IRVINE, CALIFORNIA 209570014 | 11/19



| SYMBOL | LOCATION | DEPTH (ft) | LIQUID<br>LIMIT | PLASTIC<br>LIMIT | PLASTICITY<br>INDEX | USCS CLASSIFICATION (Fraction Finer Than No. 40 Sieve) | uscs |
|--------|----------|------------|-----------------|------------------|---------------------|--------------------------------------------------------|------|
| •      | B-13     | 10.0-11.5  | 93              | 25               | 68                  | СН                                                     | СН   |
| -      | B-17     | 0.0-5.0    | 49              | 15               | 34                  | CL                                                     | CL   |
| •      | B-17     | 10.0-11.5  | 47              | 14               | 33                  | CL                                                     | CL   |
| 0      | B-21     | 20.0-21.5  | 44              | 18               | 26                  | CL                                                     | CL   |
|        | B-25     | 15.0-16.5  | 87              | 28               | 59                  | СН                                                     | СН   |
| Δ      | B-26     | 10.0-11.5  | 52              | 21               | 31                  | CL                                                     | CL   |
| ×      | B-27     | 0.0-5.0    | 41              | 15               | 26                  | CL                                                     | CL   |
| +      | B-27     | 15.0-16.5  | 98              | 22               | 76                  | СН                                                     | СН   |

NP - INDICATES NON-PLASTIC



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

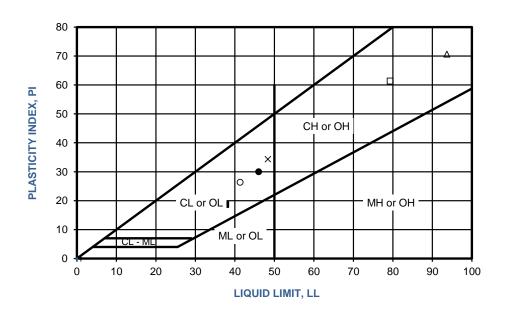
#### FIGURE C-6

#### ATTERBERG LIMITS TEST RESULTS

UCI NORTH CAMPUS IRVINE, CALIFORNIA 209570014 | 11/19



| SYMBOL | LOCATION | DEPTH (ft) | LIQUID<br>LIMIT | PLASTIC<br>LIMIT | PLASTICITY<br>INDEX | USCS<br>CLASSIFICATION<br>(Fraction Finer Than<br>No. 40 Sieve) | uscs |
|--------|----------|------------|-----------------|------------------|---------------------|-----------------------------------------------------------------|------|
| •      | B-28     | 1.0-5.0    | 46              | 16               | 30                  | CL                                                              | CL   |
| -      | B-29     | 35.0-36.5  | 38              | 19               | 19                  | CL                                                              | CL   |
| •      | B-29     | 55.0-56.5  | 61              | 17               | 44                  | СН                                                              | СН   |
| 0      | B-30     | 20.0-21.5  | 41              | 15               | 26                  | CL                                                              | CL   |
| _      | B-32     | 10.0-11.5  | 79              | 18               | 61                  | СН                                                              | СН   |
| Δ      | B-33     | 15.0-16.5  | 94              | 23               | 71                  | СН                                                              | СН   |
| x      | B-34     | 2.0-5.0    | 48              | 14               | 34                  | CL                                                              | CL   |
|        |          |            |                 |                  |                     |                                                                 |      |

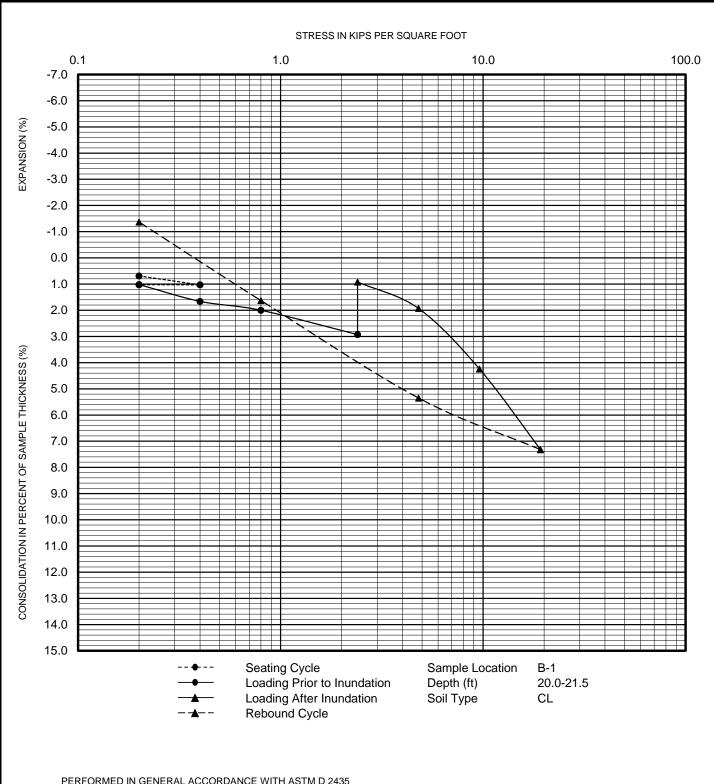


#### FIGURE C-7

#### ATTERBERG LIMITS TEST RESULTS

UCI NORTH CAMPUS IRVINE, CALIFORNIA







## **CONSOLIDATION TEST RESULTS**

**UCI NORTH CAMPUS** IRVINE, CALIFORNIA



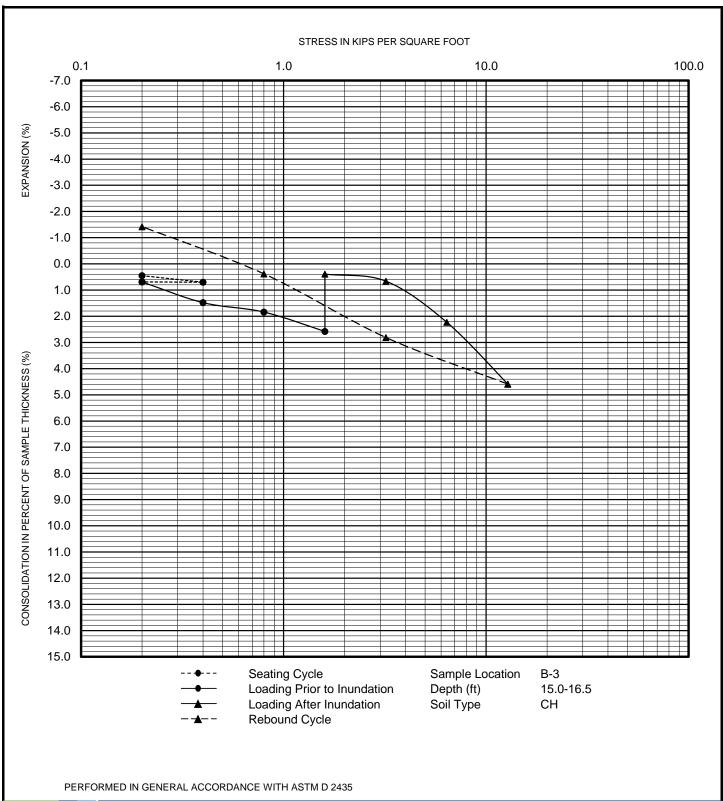
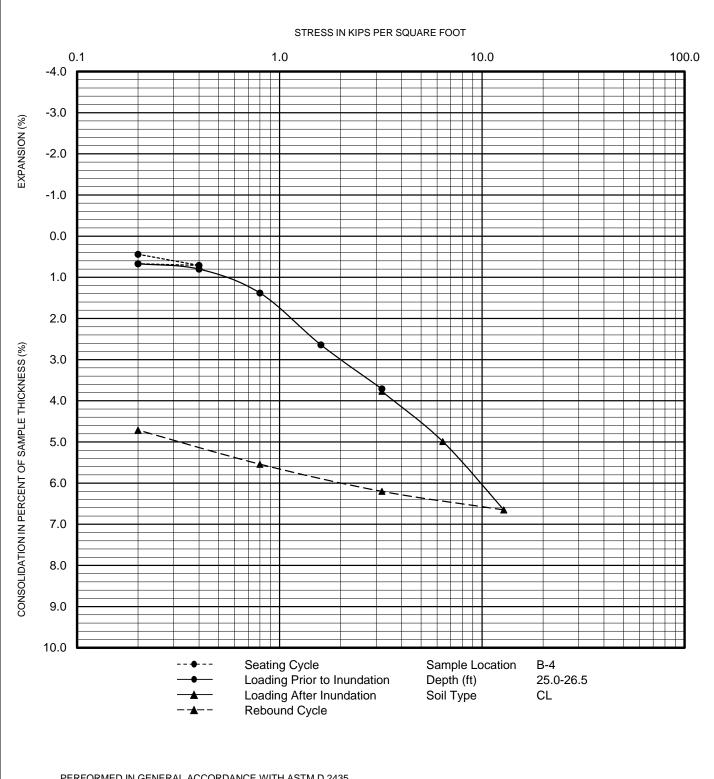


FIGURE C-9

#### **CONSOLIDATION TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



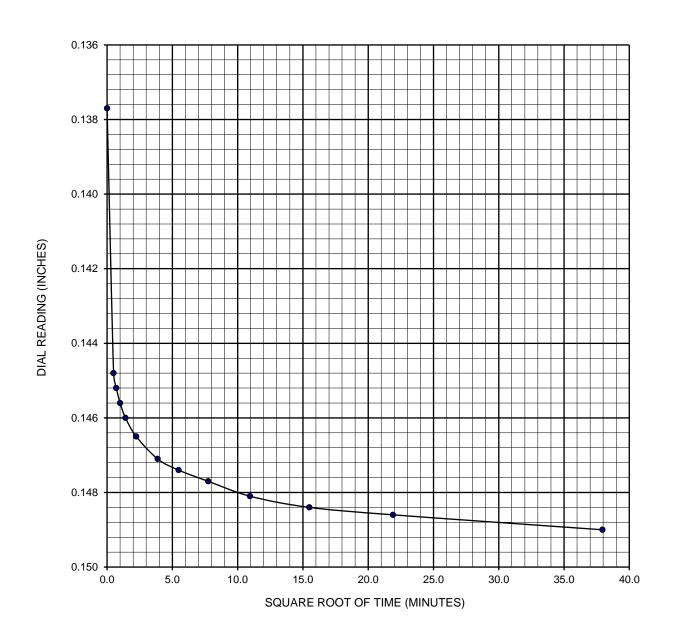




#### **CONSOLIDATION TEST RESULTS**

**UCI NORTH CAMPUS** IRVINE, CALIFORNIA





Sample Location B-4 Load (ksf) 6.4

Depth (ft) 25.0-26.5 Soil Type CL

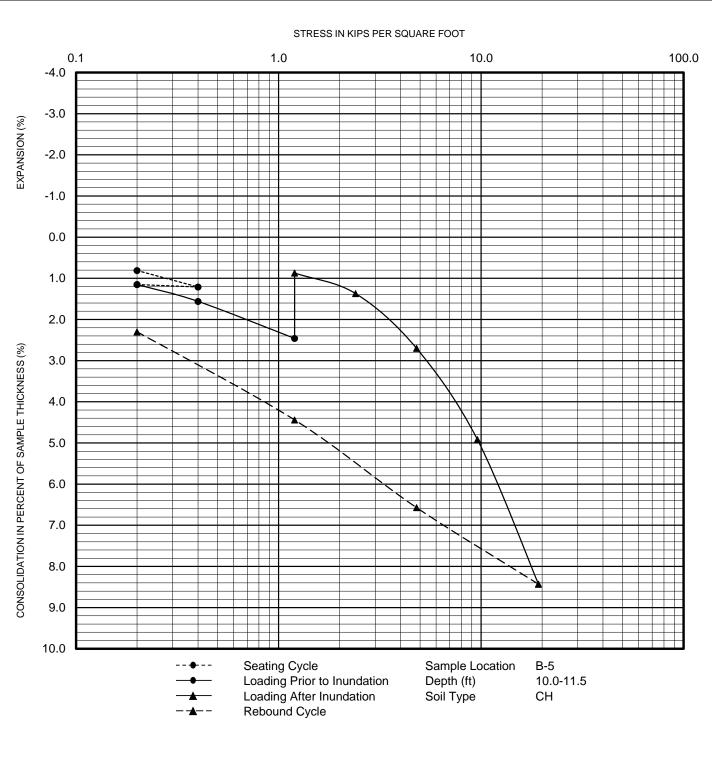
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435 - SQUARE ROOT OF TIME METHOD

## FIGURE C-11

## TIME RATE OF CONSOLIDATION TEST RESULTS

UCI NORTH CAMPUS IRVINE, CALIFORNIA



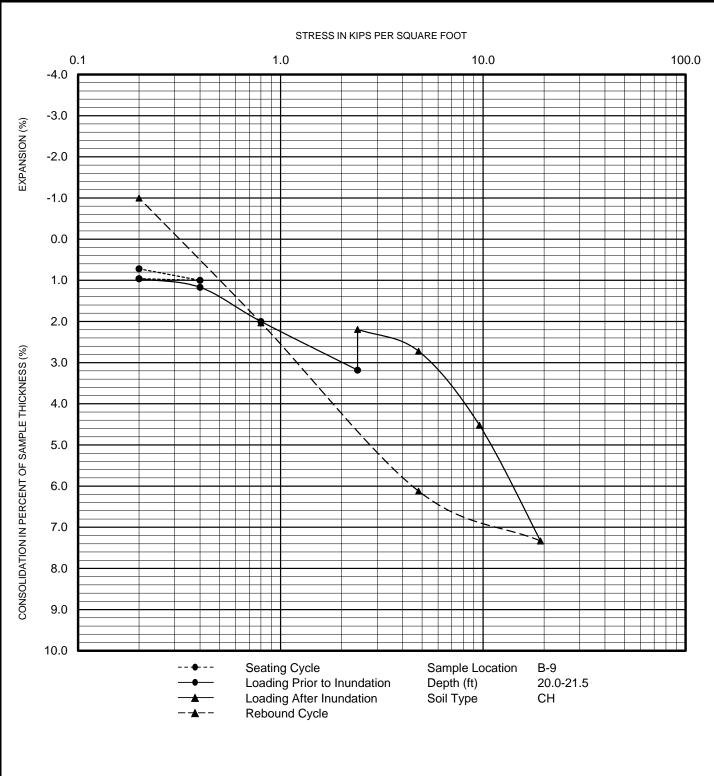




## **CONSOLIDATION TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



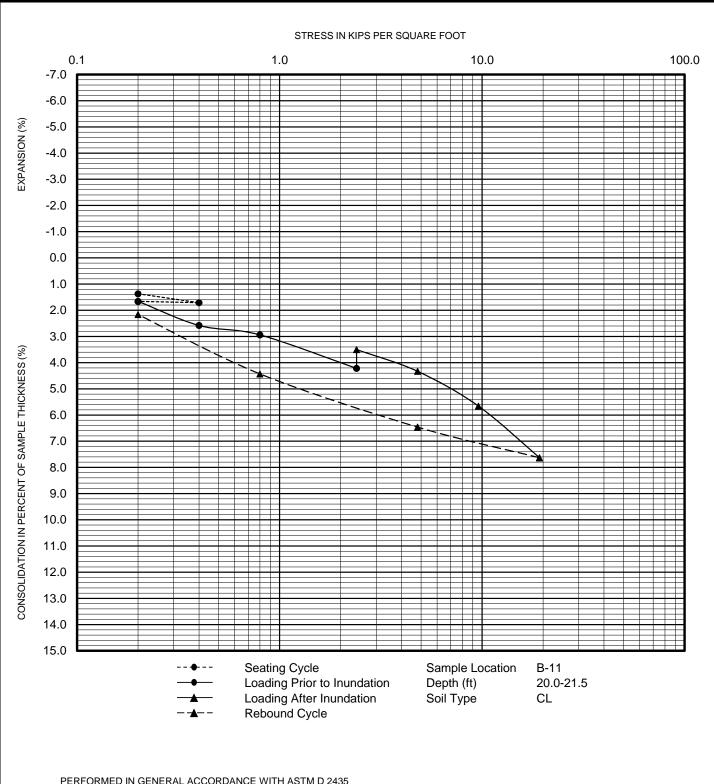




## **CONSOLIDATION TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



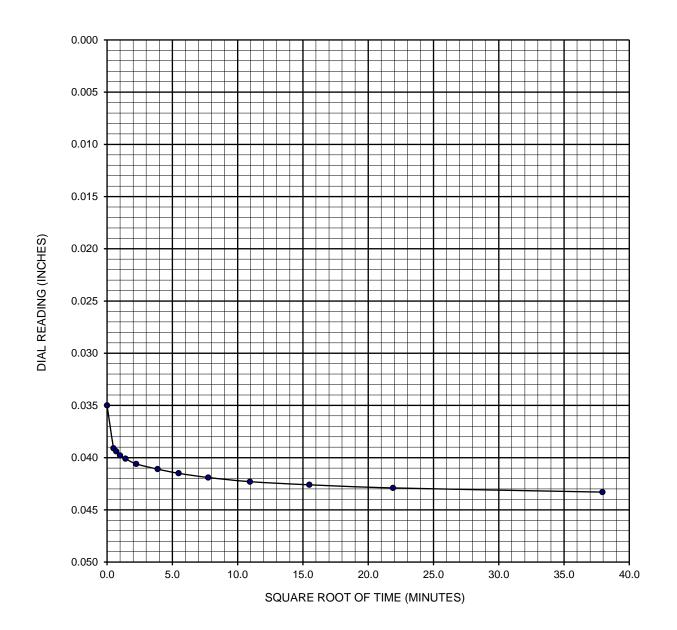


## FIGURE C-14

## **CONSOLIDATION TEST RESULTS**

**UCI NORTH CAMPUS** IRVINE, CALIFORNIA





Sample Location B-11 Depth (ft) 20.0-21.5 Load (ksf) 4.8 Soil Type CL

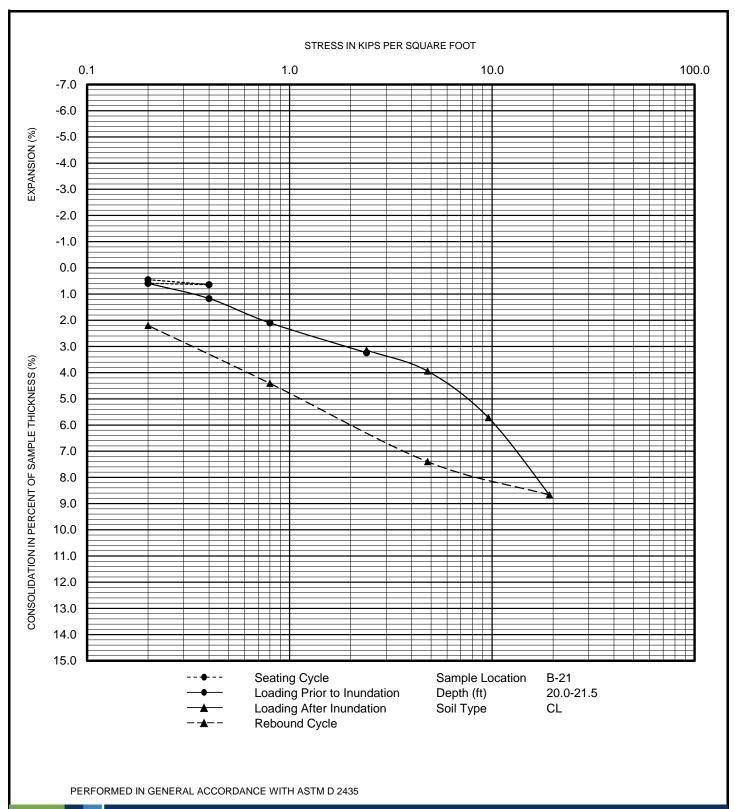
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435 - SQUARE ROOT OF TIME METHOD

## FIGURE C-15

## TIME RATE OF CONSOLIDTION TEST RESULTS

UCI NORTH CAMPUS IRVINE, CALIFORNIA

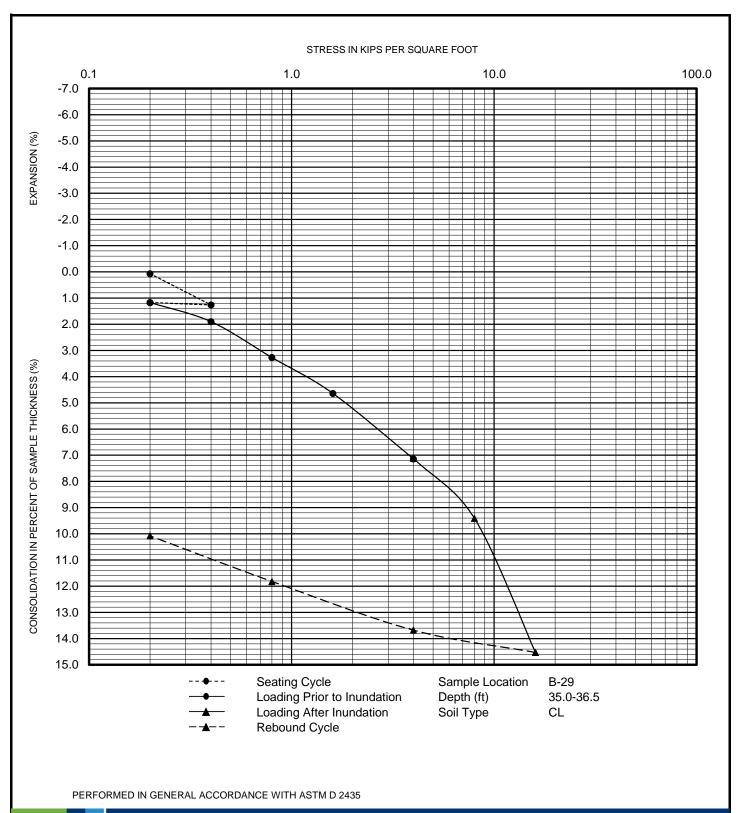






UCI NORTH CAMPUS IRVINE, CALIFORNIA

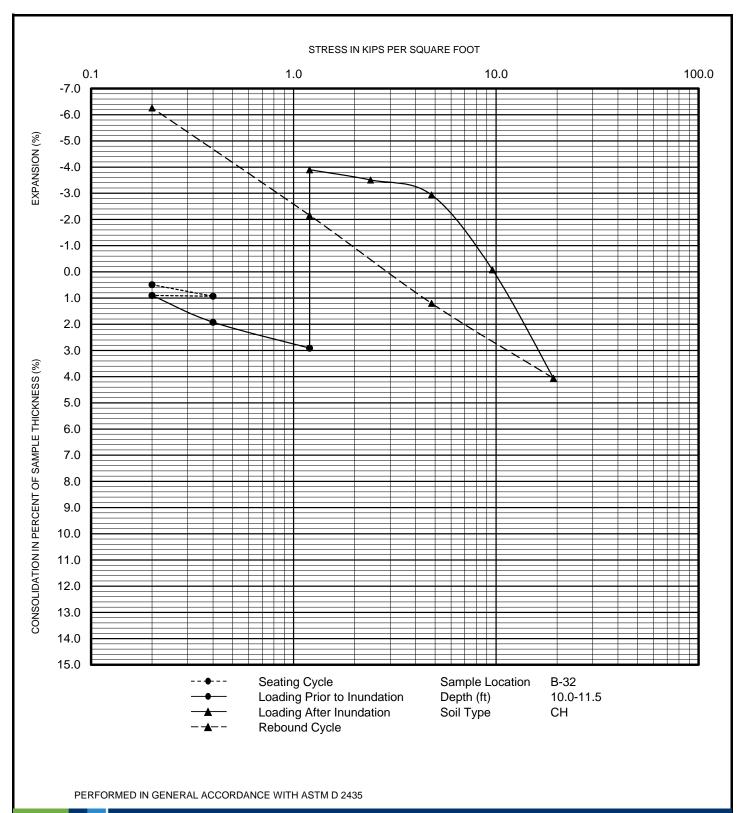






UCI NORTH CAMPUS IRVINE, CALIFORNIA

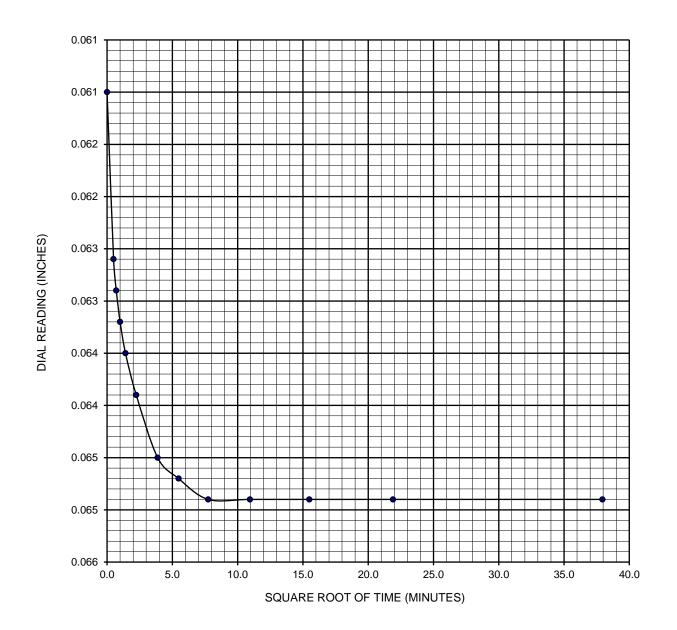






UCI NORTH CAMPUS IRVINE, CALIFORNIA





Sample Location B-32 Depth (ft) 10.0-11.5

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435 - SQUARE ROOT OF TIME METHOD

## FIGURE C-19

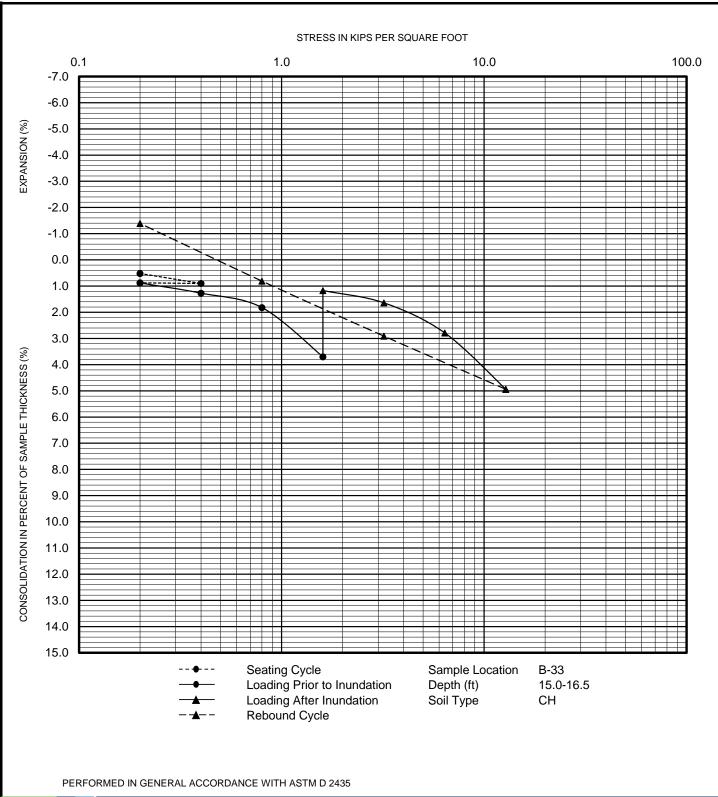
## TIME RATE OF CONSOLIDATION TEST RESULTS

Load (ksf) 2.4

Soil Type CH

UCI NORTH CAMPUS IRVINE, CALIFORNIA

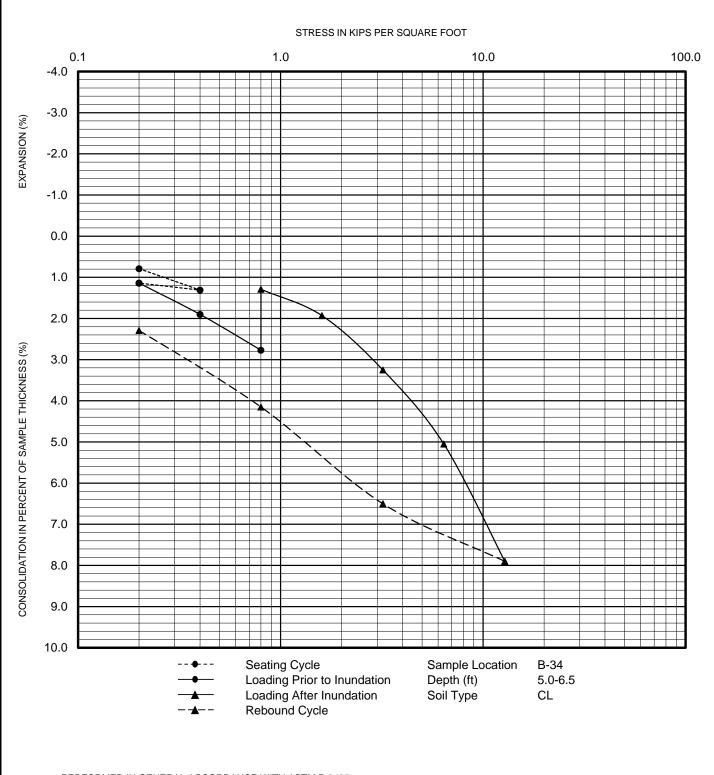






UCI NORTH CAMPUS IRVINE, CALIFORNIA



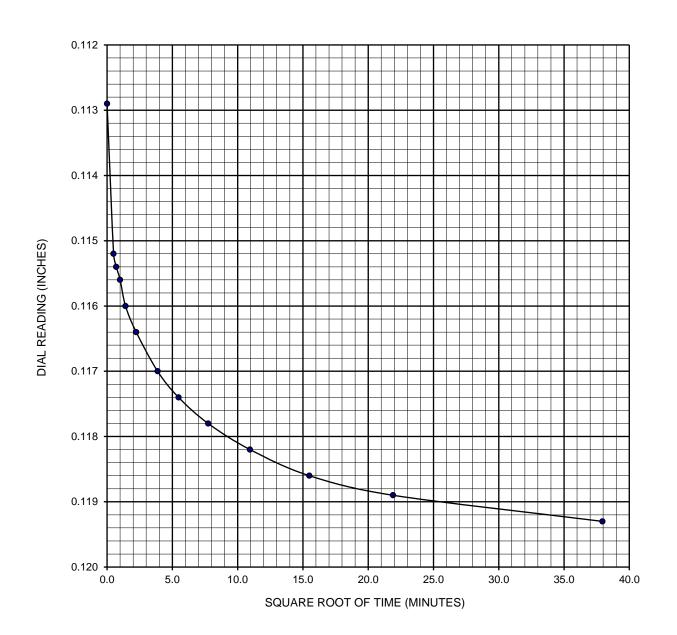




## **CONSOLIDATION TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA





Sample Location B-34 Load (ksf) 1.6

Depth (ft) 5.0-6.5 Soil Type CL

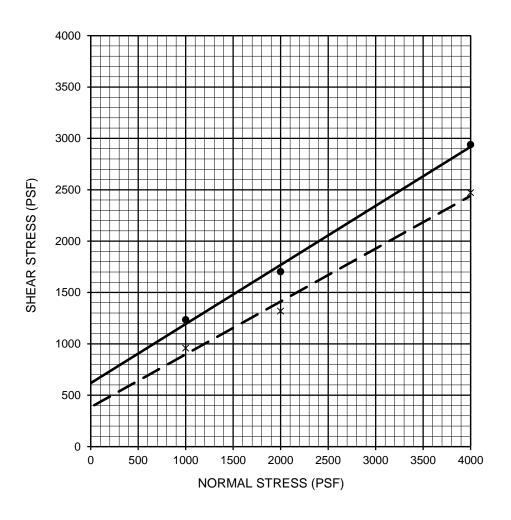
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435 - SQUARE ROOT OF TIME METHOD

# FIGURE C-22

## TIME RATE OF CONSOLIDATION TEST RESULTS

UCI NORTH CAMPUS IRVINE, CALIFORNIA





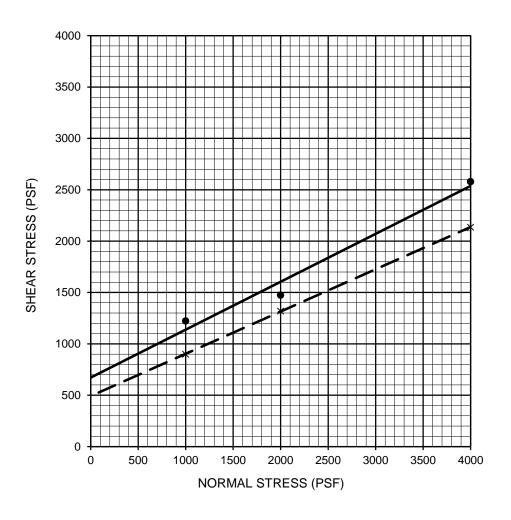
| Description | Symbol | Sample<br>Location | Depth<br>(ft) | Shear<br>Strength | Cohesion<br>(psf) | Friction Angle<br>(degrees) | Soil Type |
|-------------|--------|--------------------|---------------|-------------------|-------------------|-----------------------------|-----------|
| LEAN CLAY   | •      | B-1                | 10.0-11.5     | Peak              | 618               | 30                          | CL        |
| LEAN CLAY   | x      | B-1                | 10.0-11.5     | Ultimate          | 384               | 27                          | CL        |

# FIGURE C-23

# **DIRECT SHEAR TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA





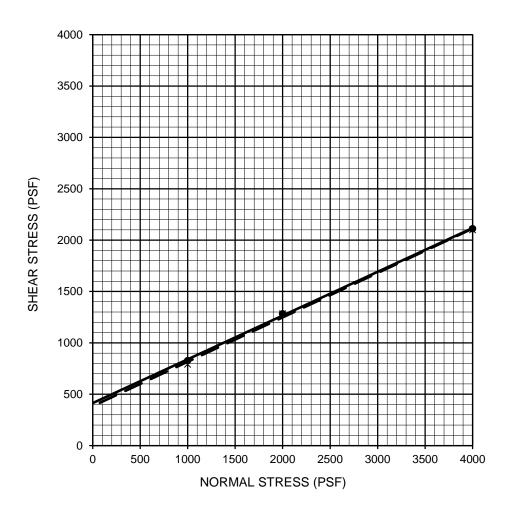
| Description | Symbol | Sample<br>Location | Depth<br>(ft) | Shear<br>Strength | Cohesion<br>(psf) | Friction Angle<br>(degrees) | Soil Type |
|-------------|--------|--------------------|---------------|-------------------|-------------------|-----------------------------|-----------|
| LEAN CLAY   | •      | B-4                | 15.0-16.5     | Peak              | 672               | 25                          | CL        |
| LEAN CLAY   | x      | B-4                | 15.0-16.5     | Ultimate          | 492               | 22                          | CL        |

# FIGURE C-24

# **DIRECT SHEAR TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA





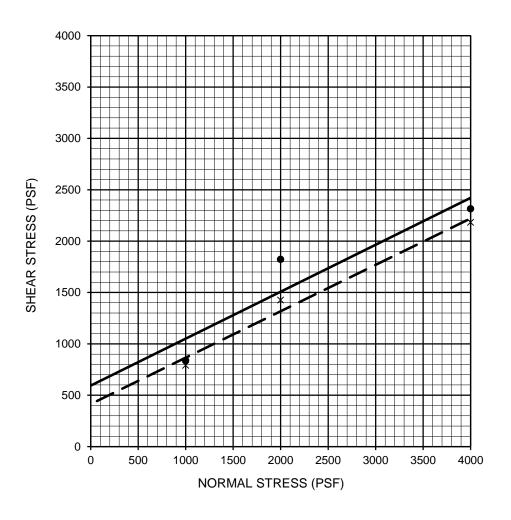
| Description | Symbol | Sample<br>Location | Depth<br>(ft) | Shear<br>Strength | Cohesion<br>(psf) | Friction Angle<br>(degrees) | Soil Type |
|-------------|--------|--------------------|---------------|-------------------|-------------------|-----------------------------|-----------|
| LEAN CLAY   | •      | B-7                | 0.0-5.0       | Peak              | 414               | 23                          | CL        |
| LEAN CLAY   | x      | B-7                | 0.0-5.0       | Ultimate          | 384               | 23                          | CL        |

# FIGURE C-25

## **DIRECT SHEAR TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA





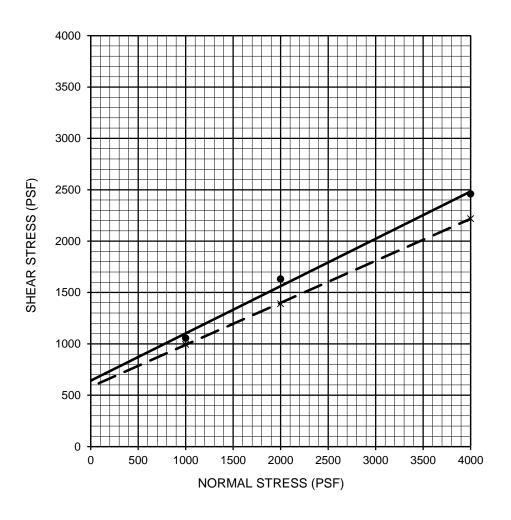
| Description | Symbol | Sample<br>Location | Depth<br>(ft) | Shear<br>Strength | Cohesion<br>(psf) | Friction Angle<br>(degrees) | Soil Type |
|-------------|--------|--------------------|---------------|-------------------|-------------------|-----------------------------|-----------|
| LEAN CLAY   | •      | B-10               | 5.0-6.5       | Peak              | 594               | 25                          | CL        |
| LEAN CLAY   | x      | B-10               | 5.0-6.5       | Ultimate          | 414               | 24                          | CL        |

# FIGURE C-26

## **DIRECT SHEAR TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA





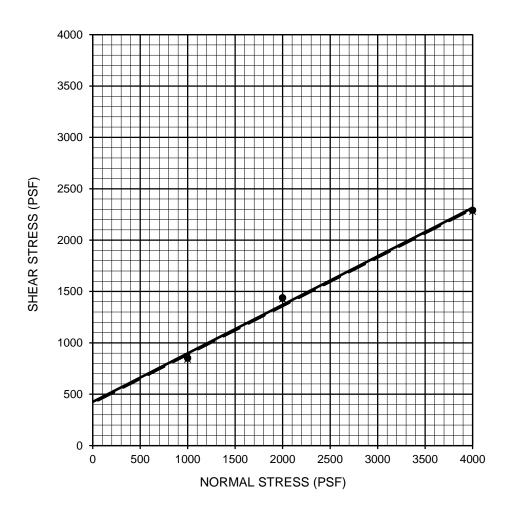
| Description | Symbol | Sample<br>Location | Depth<br>(ft) | Shear<br>Strength | Cohesion<br>(psf) | Friction Angle<br>(degrees) | Soil Type |
|-------------|--------|--------------------|---------------|-------------------|-------------------|-----------------------------|-----------|
| LEAN CLAY   | •      | B-12               | 5.0-6.5       | Peak              | 642               | 25                          | CL        |
| LEAN CLAY   | x      | B-12               | 5.0-6.5       | Ultimate          | 582               | 22                          | CL        |

# **FIGURE C-27**

# **DIRECT SHEAR TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA





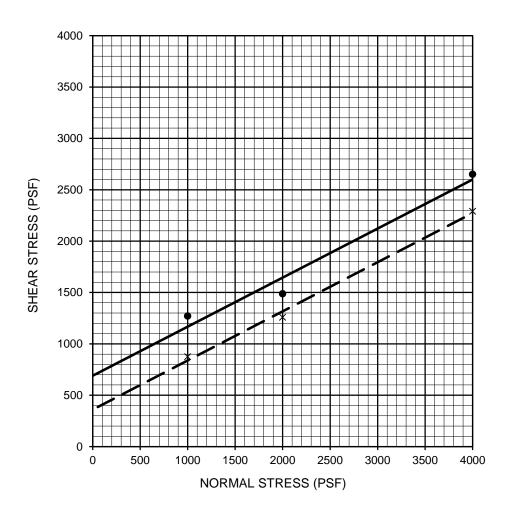
| Description | Symbol | Sample<br>Location | Depth<br>(ft) | Shear<br>Strength | Cohesion<br>(psf) | Friction Angle<br>(degrees) | Soil Type |
|-------------|--------|--------------------|---------------|-------------------|-------------------|-----------------------------|-----------|
| LEAN CLAY   | •      | B-15               | 0.5-5.0       | Peak              | 426               | 25                          | CL        |
| LEAN CLAY   | x      | B-15               | 0.5-5.0       | Ultimate          | 414               | 25                          | CL        |

# FIGURE C-28

# **DIRECT SHEAR TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA





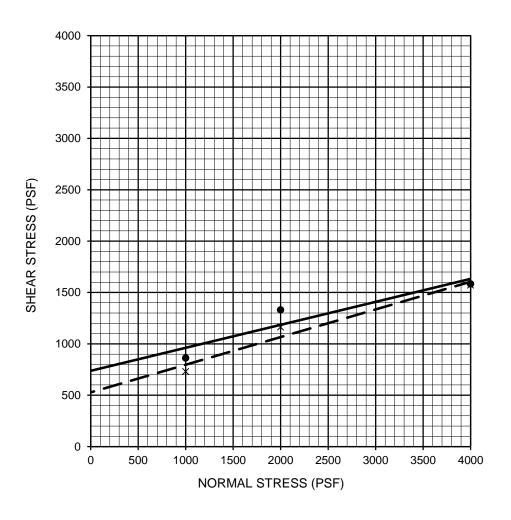
| Description | Symbol | Sample<br>Location | Depth<br>(ft) | Shear<br>Strength | Cohesion<br>(psf) | Friction Angle<br>(degrees) | Soil Type |
|-------------|--------|--------------------|---------------|-------------------|-------------------|-----------------------------|-----------|
| LEAN CLAY   | •      | B-16               | 15.0-16.5     | Peak              | 690               | 26                          | CL        |
| LEAN CLAY   | x      | B-16               | 15.0-16.5     | Ultimate          | 360               | 26                          | CL        |

# FIGURE C-29

## **DIRECT SHEAR TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA





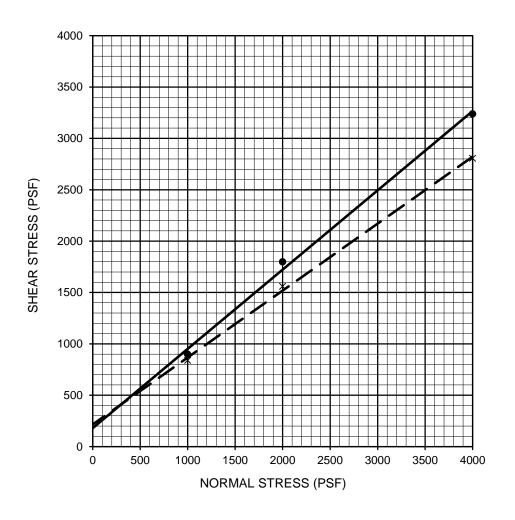
| Description | Symbol | Sample<br>Location | Depth<br>(ft) | Shear<br>Strength | Cohesion<br>(psf) | Friction Angle<br>(degrees) | Soil Type |
|-------------|--------|--------------------|---------------|-------------------|-------------------|-----------------------------|-----------|
| LEAN CLAY   | •      | B-23               | 5.0-6.5       | Peak              | 738               | 13                          | CL        |
| LEAN CLAY   | x      | B-23               | 5.0-6.5       | Ultimate          | 528               | 15                          | CL        |

# FIGURE C-30

# **DIRECT SHEAR TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA





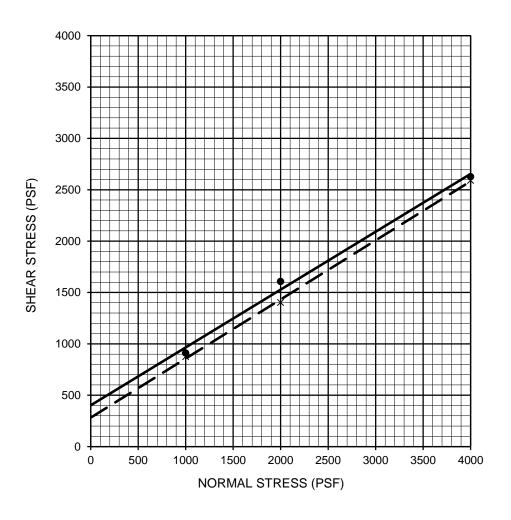
| Description                  | Symbol | Sample<br>Location | Depth<br>(ft) | Shear<br>Strength | Cohesion<br>(psf) | Friction Angle<br>(degrees) | Soil Type |
|------------------------------|--------|--------------------|---------------|-------------------|-------------------|-----------------------------|-----------|
| POORLY GRADED SAND WITH SILT | •      | B-29               | 15.0-16.5     | Peak              | 180               | 38                          | SP-SM     |
| POORLY GRADED SAND WITH SILT | x      | B-29               | 15.0-16.5     | Ultimate          | 216               | 33                          | SP-SM     |

# FIGURE C-31

## **DIRECT SHEAR TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA





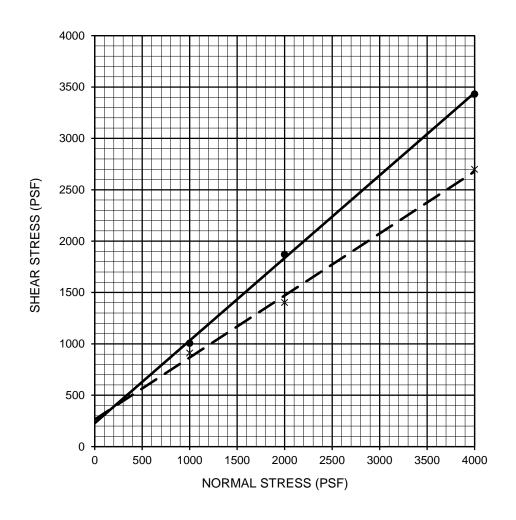
| Description | Symbol | Sample<br>Location | Depth<br>(ft) | Shear<br>Strength | Cohesion<br>(psf) | Friction Angle<br>(degrees) | Soil Type |
|-------------|--------|--------------------|---------------|-------------------|-------------------|-----------------------------|-----------|
| SILTY SAND  | •      | B-35               | 5.0-6.5       | Peak              | 402               | 29                          | SP        |
| SILTY SAND  | x      | B-35               | 5.0-6.5       | Ultimate          | 282               | 30                          | SP        |

# FIGURE C-32

# **DIRECT SHEAR TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA





| Description                              | Symbol | Sample<br>Location | Depth<br>(ft) | Shear<br>Strength | Cohesion<br>(psf) | Friction Angle<br>(degrees) | Soil Type |
|------------------------------------------|--------|--------------------|---------------|-------------------|-------------------|-----------------------------|-----------|
| POORLY GRADED SAND<br>WITH SILT & GRAVEL | •      | B-35               | 10.0-11.5     | Peak              | 228               | 39                          | SP-SM     |
| POORLY GRADED SAND<br>WITH SILT & GRAVEL | x      | B-35               | 10.0-11.5     | Ultimate          | 264               | 31                          | SP-SM     |

# FIGURE C-33

# **DIRECT SHEAR TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| SAMPLE<br>LOCATION | SAMPLE<br>DEPTH (ft) | INITIAL<br>MOISTURE<br>(percent) | COMPACTED DRY<br>DENSITY (pcf) | FINAL<br>MOISTURE<br>(percent) | VOLUMETRIC<br>SWELL (in) | EXPANSION<br>INDEX | POTENTIAL<br>EXPANSION |
|--------------------|----------------------|----------------------------------|--------------------------------|--------------------------------|--------------------------|--------------------|------------------------|
| B-4                | 0.0-5.0              | 13.7                             | 96.0                           | 30.6                           | 0.070                    | 70                 | Medium                 |
| B-5                | 0.0-5.0              | 12.7                             | 100.5                          | 29.4                           | 0.073                    | 73                 | Medium                 |
| B-7                | 0.0-5.0              | 13.0                             | 97.4                           | 33.3                           | 0.043                    | 43                 | Low                    |
| B-8                | 1.0-5.0              | 12.5                             | 98.9                           | 28.4                           | 0.029                    | 29                 | Low                    |
| B-9                | 1.0-5.0              | 11.7                             | 101.8                          | 31.2                           | 0.065                    | 65                 | Medium                 |
| B-11               | 0.5-5.0              | 13.1                             | 98.3                           | 29.4                           | 0.064                    | 64                 | Medium                 |
| B-14               | 1.0-5.0              | 15.2                             | 91.0                           | 40.4                           | 0.056                    | 56                 | Medium                 |
| B-16               | 0.0-5.0              | 16.2                             | 90.3                           | 34.1                           | 0.072                    | 72                 | Medium                 |

UBC STANDARD 18-2

✓ ASTM D 4829



## **EXPANSION INDEX TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| SAMPLE<br>LOCATION | SAMPLE<br>DEPTH (ft) | INITIAL<br>MOISTURE<br>(percent) | COMPACTED DRY<br>DENSITY (pcf) | FINAL<br>MOISTURE<br>(percent) | VOLUMETRIC<br>SWELL (in) | EXPANSION<br>INDEX | POTENTIAL<br>EXPANSION |
|--------------------|----------------------|----------------------------------|--------------------------------|--------------------------------|--------------------------|--------------------|------------------------|
| B-23               | 0.0-5.0              | 14.2                             | 94.6                           | 30.0                           | 0.054                    | 54                 | Medium                 |
| B-26               | 0.0-5.0              | 11.5                             | 102.9                          | 31.0                           | 0.057                    | 57                 | Medium                 |
| B-27               | 0.0-5.0              | 13.0                             | 92.5                           | 31.2                           | 0.031                    | 31                 | Low                    |
| B-34               | 2.0-5.0              | 11.2                             | 103.7                          | 26.3                           | 0.066                    | 66                 | Medium                 |
|                    |                      |                                  |                                |                                |                          |                    |                        |
|                    |                      |                                  |                                |                                |                          |                    |                        |
|                    |                      |                                  |                                |                                |                          |                    |                        |
|                    |                      |                                  |                                |                                |                          |                    |                        |
|                    |                      |                                  |                                |                                |                          |                    |                        |

UBC STANDARD 18-2

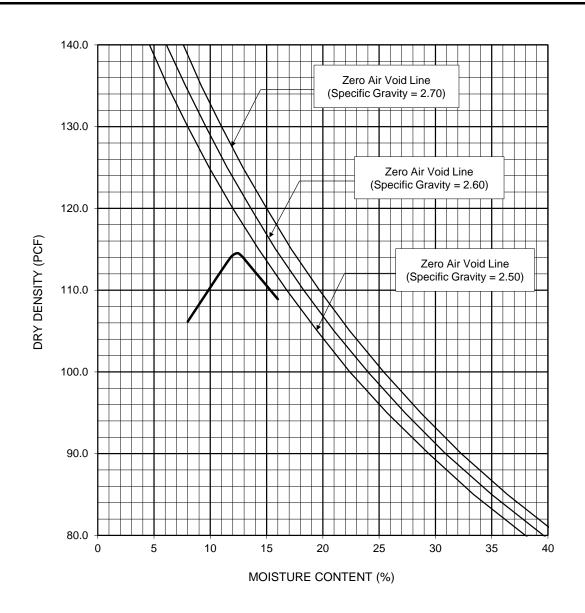
✓ ASTM D 4829



## **EXPANSION INDEX TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



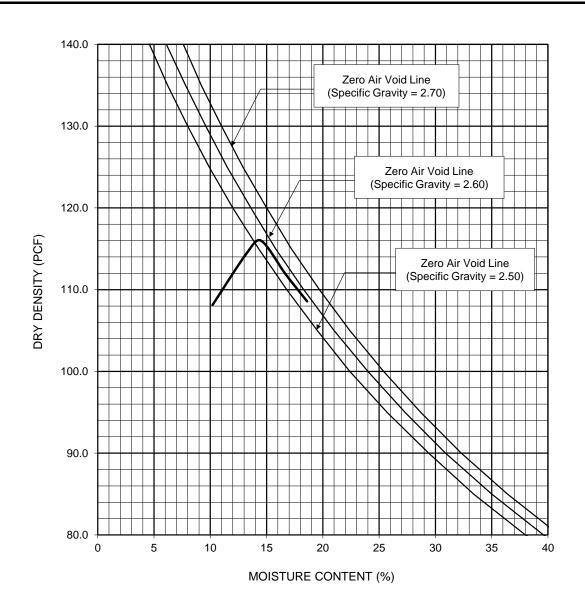


| Sample<br>Location | Depth<br>(ft) | Soil Description                               | Maximum Dry<br>Density<br>(pcf) | Optimum Moisture<br>Content<br>(percent) |
|--------------------|---------------|------------------------------------------------|---------------------------------|------------------------------------------|
| B-7                | 0.0-5.0       | Grayish Brown Lean Clay                        | 114.5                           | 12.5                                     |
| Dry Density and M  | oisture Conte | nt Values Corrected for Oversize (ASTM D 4718) | N/A                             | N/A                                      |



#### FIGURE C-36

## PROCTOR DENSITY TEST RESULTS

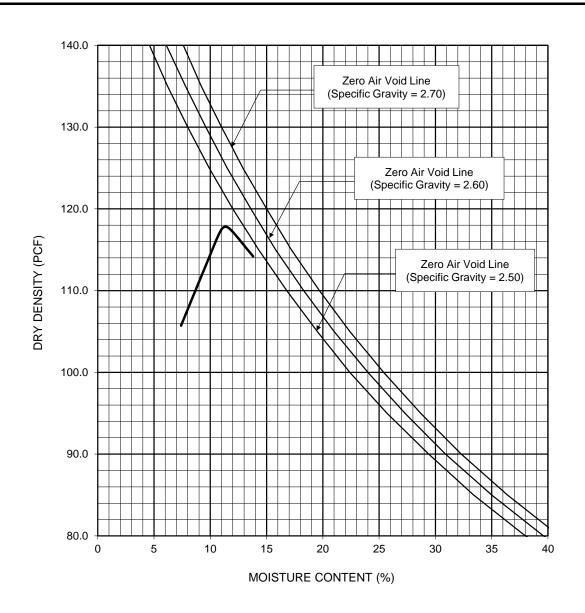


| Sample<br>Location | Depth<br>(ft) | Soil Description                               | Maximum Dry<br>Density<br>(pcf) | Optimum Moisture<br>Content<br>(percent) |
|--------------------|---------------|------------------------------------------------|---------------------------------|------------------------------------------|
| B-15               | 0.5-5.0       | Olive Gray Lean Clay                           | 116.0                           | 14.5                                     |
| Dry Density and M  | oisture Conte | nt Values Corrected for Oversize (ASTM D 4718) | N/A                             | N/A                                      |



## FIGURE C-37

## PROCTOR DENSITY TEST RESULTS

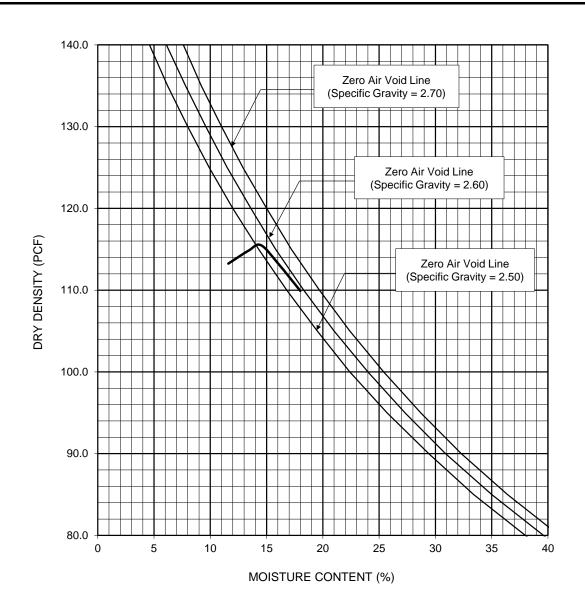


| Sample<br>Location | Depth<br>(ft) | Soil Description                               | Maximum Dry<br>Density<br>(pcf) | Optimum Moisture<br>Content<br>(percent) |
|--------------------|---------------|------------------------------------------------|---------------------------------|------------------------------------------|
| B-32               | 0.0-5.0       | Reddish Gray Lean Clay                         | 117.5                           | 11.0                                     |
| Dry Density and M  | oisture Conte | nt Values Corrected for Oversize (ASTM D 4718) | N/A                             | N/A                                      |



## FIGURE C-38

#### PROCTOR DENSITY TEST RESULTS



| Sample<br>Location | Depth<br>(ft) | Soil Description                               | Maximum Dry<br>Density<br>(pcf) | Optimum Moisture<br>Content<br>(percent) |
|--------------------|---------------|------------------------------------------------|---------------------------------|------------------------------------------|
| B-35               | 0.0-5.0       | Yellowish Brown Sandy Silt                     | 115.5                           | 14.5                                     |
| Dry Density and M  | oisture Conte | nt Values Corrected for Oversize (ASTM D 4718) | N/A                             | N/A                                      |



#### FIGURE C-39

# PROCTOR DENSITY TEST RESULTS

| SAMPLE   | SAMPLE     | -u1             | RESISTIVITY <sup>1</sup> | SULFATE CONTENT <sup>2</sup> |       | CHLORIDE                      |
|----------|------------|-----------------|--------------------------|------------------------------|-------|-------------------------------|
| LOCATION | DEPTH (ft) | pH <sup>1</sup> | (ohm-cm)                 | (ppm)                        | (%)   | CONTENT <sup>3</sup><br>(ppm) |
| B-1      | 1.0-5.0    | 7.3             | 581                      | 340                          | 0.034 | 40                            |
| B-9      | 1.0-5.0    | 7.8             | 1,034                    | 180                          | 0.018 | 70                            |
| B-10     | 1.0-5.0    | 7.7             | 684                      | 350                          | 0.035 | 230                           |
| B-14     | 1.0-5.0    | 7.8             | 242                      | 1080                         | 0.108 | 100                           |
| B-16     | 0.0-5.0    | 7.1             | 995                      | 30                           | 0.003 | 40                            |
| B-24     | 0.0-5.0    | 7.7             | 406                      | 540                          | 0.054 | 590                           |
| B-26     | 0.0-5.0    | 7.1             | 955                      | 40                           | 0.004 | 30                            |
| B-28     | 1.0-5.0    | 7.6             | 1,056                    | 10                           | 0.001 | 30                            |

- <sup>1</sup> PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643
- <sup>2</sup> PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417
- $^{\rm 3}$   $\,$  PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422  $\,$

FIGURE C-40

#### **CORROSIVITY TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| SAMPLE   | SAMPLE     | pH <sup>1</sup> | RESISTIVITY <sup>1</sup> | SULFATE CONTENT <sup>2</sup> |       | CHLORIDE<br>CONTENT <sup>3</sup> |  |
|----------|------------|-----------------|--------------------------|------------------------------|-------|----------------------------------|--|
| LOCATION | DEPTH (ft) | рп              | (ohm-cm)                 | (ppm)                        | (%)   | (ppm)                            |  |
| B-29     | 1.0-5.0    | 7.3             | 701                      | 280                          | 0.028 | 70                               |  |
| B-34     | 2.0-5.0    | 7.5             | 764                      | 350                          | 0.035 | 190                              |  |
|          |            |                 |                          |                              |       |                                  |  |
|          |            |                 |                          |                              |       |                                  |  |
|          |            |                 |                          |                              |       |                                  |  |
|          |            |                 |                          |                              |       |                                  |  |
|          |            |                 |                          |                              |       |                                  |  |
|          |            |                 |                          |                              |       |                                  |  |

- <sup>1</sup> PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643
- <sup>2</sup> PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417
- $^{\rm 3}$   $\,$  PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422  $\,$

## FIGURE C-41

# **CORROSIVITY TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



| SAMPLE LOCATION | SAMPLE DEPTH<br>(ft) | SOIL TYPE | R-VALUE |
|-----------------|----------------------|-----------|---------|
| B-9             | 1.0-5.0              | CL        | 6       |
| B-15            | 0.5-5.0              | CL        | 5       |
| B-23            | 0.0-5.0              | CL        | 0       |
| B-24            | 0.0-5.0              | CL        | 5       |
| B-26            | 0.0-5.0              | CL        | 0       |
| B-29            | 1.0-5.0              | CL        | 0       |
| B-34            | 2.0-5.0              | CL        | 5       |
|                 |                      |           |         |
|                 |                      |           |         |



# **R-VALUE TEST RESULTS**

UCI NORTH CAMPUS IRVINE, CALIFORNIA



# **APPENDIX D**

**Analytical Testing** 





04 June 2019

Franklin Ruiz Ninyo & Moore 475 Goddard, Ste. 200 Irvine, CA 92618

RE: UCI North Campus

Enclosed are the results of analyses for samples received by the laboratory on 05/28/19 15:22. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mike Jaroudi

**Project Manager** 



25712 Commercentre Drive Lake Forest, California 92630 949.297.5020 Phone 949.297.5027 Fax

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/04/19 08:29

#### ANALYTICAL REPORT FOR SAMPLES

| Sample ID  | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|------------|---------------|--------|----------------|----------------|
| B-10 @ 5'  | T191698-01    | Soil   | 05/24/19 10:15 | 05/28/19 15:22 |
| B-11 @ 5'  | T191698-02    | Soil   | 05/24/19 10:46 | 05/28/19 15:22 |
| B-21 @ 5'  | T191698-03    | Soil   | 05/24/19 13:42 | 05/28/19 15:22 |
| B-22A @ 5' | T191698-04    | Soil   | 05/24/19 12:20 | 05/28/19 15:22 |

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25712 Commercentre Drive Lake Forest, California 92630 949.297.5020 Phone 949.297.5027 Fax

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
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#### **DETECTIONS SUMMARY**

| Sample ID: | B-10 @ 5' | Labora | Laboratory ID: T191698-01 |            |           |       |
|------------|-----------|--------|---------------------------|------------|-----------|-------|
|            |           |        | Reporting                 |            |           |       |
| Analyte    |           | Result | Limit                     | Units      | Method    | Notes |
| Barium     |           | 210    | 1.0                       | mg/kg      | EPA 6010b |       |
| Chromium   |           | 25     | 2.0                       | mg/kg      | EPA 6010b |       |
| Cobalt     |           | 14     | 2.0                       | mg/kg      | EPA 6010b |       |
| Copper     |           | 24     | 1.0                       | mg/kg      | EPA 6010b |       |
| Lead       |           | 11     | 3.0                       | mg/kg      | EPA 6010b |       |
| Nickel     |           | 22     | 2.0                       | mg/kg      | EPA 6010b |       |
| Vanadium   |           | 64     | 5.0                       | mg/kg      | EPA 6010b |       |
| Zinc       |           | 81     | 1.0                       | mg/kg      | EPA 6010b |       |
| Sample ID: | B-11 @ 5' | Labora | tory ID:                  | T191698-02 |           |       |
|            |           |        | Reporting                 |            |           |       |
| Analyte    |           | Result | Limit                     | Units      | Method    | Notes |
| Barium     |           | 200    | 1.0                       | mg/kg      | EPA 6010b |       |
| Chromium   |           | 24     | 2.0                       | mg/kg      | EPA 6010b |       |
| Cobalt     |           | 13     | 2.0                       | mg/kg      | EPA 6010b |       |
| Copper     |           | 22     | 1.0                       | mg/kg      | EPA 6010b |       |
| Lead       |           | 12     | 3.0                       | mg/kg      | EPA 6010b |       |
| Nickel     |           | 21     | 2.0                       | mg/kg      | EPA 6010b |       |
| Vanadium   |           | 59     | 5.0                       | mg/kg      | EPA 6010b |       |
| Zinc       |           | 76     | 1.0                       | mg/kg      | EPA 6010b |       |
| Sample ID: | B-21 @ 5' | Labora | tory ID:                  | T191698-03 |           |       |
|            |           |        | Reporting                 |            |           |       |
| Analyte    |           | Result | Limit                     | Units      | Method    | Notes |
| Barium     |           | 160    | 1.0                       | mg/kg      | EPA 6010b |       |
| Chromium   |           | 18     | 2.0                       | mg/kg      | EPA 6010b |       |
| Cobalt     |           | 8.6    | 2.0                       | mg/kg      | EPA 6010b |       |
| Copper     |           | 12     | 1.0                       | mg/kg      | EPA 6010b |       |
| Lead       |           | 8.8    | 3.0                       | mg/kg      | EPA 6010b |       |
| Nickel     |           | 15     | 2.0                       | mg/kg      | EPA 6010b |       |
| Vanadium   |           | 42     | 5.0                       | mg/kg      | EPA 6010b |       |

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| Sample ID: | B-21 @ 5'  | Labora | atory ID: | T191698-03 |           |       |
|------------|------------|--------|-----------|------------|-----------|-------|
|            |            |        | Reporting |            |           |       |
| Analyte    |            | Result | Limit     | Units      | Method    | Notes |
| Zinc       |            | 43     | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | B-22A @ 5' | Labora | atory ID: | T191698-04 |           |       |
|            |            |        | Reporting |            |           |       |
| Analyte    |            | Result | Limit     | Units      | Method    | Notes |
| Barium     |            | 200    | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |            | 25     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |            | 13     | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |            | 20     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |            | 11     | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |            | 22     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |            | 57     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |            | 75     | 1.0       | mg/kg      | EPA 6010b |       |

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# B-10 @ 5' T191698-01 (Soil)

| Analyte                                 | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                         |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 8 | 015B   |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                            | ND     | 10                 | mg/kg     | 1        | 9052844 | 05/28/19 | 05/30/19 | EPA 8015B         |       |
| C13-C28 (DRO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                          | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                  |        | 103 %              | 65-       | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                     |        |                    |           |          |         |          |          |                   |       |
| Antimony                                | ND     | 3.0                | mg/kg     | 1        | 9052923 | 05/29/19 | 05/29/19 | EPA 6010b         |       |
| Silver                                  | ND     | 2.0                | "         | "        | "       | "        | 05/29/19 | "                 |       |
| Arsenic                                 | ND     | 5.0                | "         | "        | "       | "        | 05/29/19 | "                 |       |
| Barium                                  | 210    | 1.0                | "         | "        | "       | "        | 05/29/19 | "                 |       |
| Beryllium                               | ND     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                                 | ND     | 2.0                | "         | "        | "       | "        | 05/29/19 | "                 |       |
| Chromium                                | 25     | 2.0                | "         | "        | "       | "        | 05/29/19 | "                 |       |
| Cobalt                                  | 14     | 2.0                | "         | "        | "       | "        | 05/29/19 | "                 |       |
| Copper                                  | 24     | 1.0                | "         | "        | "       | "        | 05/29/19 | "                 |       |
| Lead                                    | 11     | 3.0                | "         | "        | "       | "        | 05/29/19 | "                 |       |
| Molybdenum                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                  | 22     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                | 64     | 5.0                | "         | "        | "       | "        | 05/29/19 | "                 |       |
| Zinc                                    | 81     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471     |        |                    |           |          |         |          |          |                   |       |
| Mercury                                 | ND     | 0.10               | mg/kg     | 1        | 9052922 | 05/29/19 | 05/29/19 | EPA 7471A<br>Soil |       |

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# B-11 @ 5' T191698-02 (Soil)

| Analyte                                  | Result | Reporting<br>Limit | Units      | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|------------------------------------------|--------|--------------------|------------|----------|---------|----------|----------|-------------------|-------|
|                                          |        | SunStar L          | aboratorio | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 80 | 015B   |                    |            |          |         |          |          |                   |       |
| C6-C12 (GRO)                             | ND     | 10                 | mg/kg      | 1        | 9052844 | 05/28/19 | 05/30/19 | EPA 8015B         |       |
| C13-C28 (DRO)                            | ND     | 10                 | "          | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                           | ND     | 10                 | "          | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                   |        | 104 %              | 65-1       | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                      |        |                    |            |          |         |          |          |                   |       |
| Antimony                                 | ND     | 3.0                | mg/kg      | 1        | 9052923 | 05/29/19 | 05/29/19 | EPA 6010b         |       |
| Silver                                   | ND     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Arsenic                                  | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Barium                                   | 200    | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Beryllium                                | ND     | 1.0                | "          | "        | "       | "        | 05/29/19 | "                 |       |
| Cadmium                                  | ND     | 2.0                | "          | "        | "       | "        | 05/29/19 | "                 |       |
| Chromium                                 | 24     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Cobalt                                   | 13     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Copper                                   | 22     | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Lead                                     | 12     | 3.0                | "          | "        | "       | "        | "        | "                 |       |
| Molybdenum                               | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Nickel                                   | 21     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Selenium                                 | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Thallium                                 | ND     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Vanadium                                 | 59     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Zinc                                     | 76     | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471      |        |                    |            |          |         |          |          |                   |       |
| Mercury                                  | ND     | 0.10               | mg/kg      | 1        | 9052922 | 05/29/19 | 05/29/19 | EPA 7471A<br>Soil |       |

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 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/04/19 08:29

# B-21 @ 5' T191698-03 (Soil)

| Analyte                                  | Result | Reporting<br>Limit | Units      | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|------------------------------------------|--------|--------------------|------------|----------|---------|----------|----------|-------------------|-------|
|                                          |        | SunStar L          | aboratorio | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 80 | 015B   |                    |            |          |         |          |          |                   |       |
| C6-C12 (GRO)                             | ND     | 10                 | mg/kg      | 1        | 9052844 | 05/28/19 | 05/30/19 | EPA 8015B         |       |
| C13-C28 (DRO)                            | ND     | 10                 | "          | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                           | ND     | 10                 | "          | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                   |        | 105 %              | 65-1       | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                      |        |                    |            |          |         |          |          |                   |       |
| Antimony                                 | ND     | 3.0                | mg/kg      | 1        | 9052923 | 05/29/19 | 05/29/19 | EPA 6010b         |       |
| Silver                                   | ND     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Arsenic                                  | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Barium                                   | 160    | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Beryllium                                | ND     | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Cadmium                                  | ND     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Chromium                                 | 18     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Cobalt                                   | 8.6    | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Copper                                   | 12     | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Lead                                     | 8.8    | 3.0                | "          | "        | "       | "        | "        | "                 |       |
| Molybdenum                               | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Nickel                                   | 15     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Selenium                                 | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Thallium                                 | ND     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Vanadium                                 | 42     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Zinc                                     | 43     | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471      |        |                    |            |          |         |          |          |                   |       |
| Mercury                                  | ND     | 0.10               | mg/kg      | 1        | 9052922 | 05/29/19 | 05/29/19 | EPA 7471A<br>Soil |       |

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Mike Jaroudi, Project Manager Page 6 of 12



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/04/19 08:29

# B-22A @ 5' T191698-04 (Soil)

| Analyte                                        | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|------------------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                                |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| <b>Extractable Petroleum Hydrocarbons by 8</b> | 015B   |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                                   | ND     | 10                 | mg/kg     | 1        | 9052844 | 05/28/19 | 05/31/19 | EPA 8015B         |       |
| C13-C28 (DRO)                                  | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                                 | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                         |        | 105 %              | 65-1      | !35      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                            |        |                    |           |          |         |          |          |                   |       |
| Antimony                                       | ND     | 3.0                | mg/kg     | 1        | 9052923 | 05/29/19 | 05/29/19 | EPA 6010b         |       |
| Silver                                         | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                                        | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                         | 200    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                                      | ND     | 1.0                | "         | "        | "       | "        | 05/29/19 | "                 |       |
| Cadmium                                        | ND     | 2.0                | "         | "        | "       | "        | 05/29/19 | "                 |       |
| Chromium                                       | 25     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                         | 13     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                         | 20     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                           | 11     | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                                     | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                         | 22     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                       | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                       | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                       | 57     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                           | 75     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471            |        |                    |           |          |         |          |          |                   |       |
| Mercury                                        | ND     | 0.10               | mg/kg     | 1        | 9052922 | 05/29/19 | 05/29/19 | EPA 7471A<br>Soil |       |

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Mike Jaroudi, Project Manager

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/04/19 08:29

# **Extractable Petroleum Hydrocarbons by 8015B - Quality Control**

#### SunStar Laboratories, Inc.

|                              |        | Reporting |       | Spike       | Source     |             | %REC   |      | RPD   |       |
|------------------------------|--------|-----------|-------|-------------|------------|-------------|--------|------|-------|-------|
| Analyte                      | Result | Limit     | Units | Level       | Result     | %REC        | Limits | RPD  | Limit | Notes |
| Batch 9052844 - EPA 3550B GC |        |           |       |             |            |             |        |      |       |       |
| Blank (9052844-BLK1)         |        |           |       | Prepared: ( | 05/28/19 A | nalyzed: 05 | /30/19 |      |       |       |
| C6-C12 (GRO)                 | ND     | 10        | mg/kg |             |            |             |        |      |       |       |
| C13-C28 (DRO)                | ND     | 10        | "     |             |            |             |        |      |       |       |
| C29-C40 (MORO)               | ND     | 10        | "     |             |            |             |        |      |       |       |
| Surrogate: p-Terphenyl       | 114    |           | "     | 100         |            | 114         | 65-135 |      |       |       |
| LCS (9052844-BS1)            |        |           |       | Prepared: ( | 05/28/19 A | nalyzed: 05 | /30/19 |      |       |       |
| C13-C28 (DRO)                | 540    | 10        | mg/kg | 500         |            | 109         | 75-125 |      |       |       |
| Surrogate: p-Terphenyl       | 111    |           | "     | 100         |            | 111         | 65-135 |      |       |       |
| LCS Dup (9052844-BSD1)       |        |           |       | Prepared: ( | 05/28/19 A | nalyzed: 05 | /30/19 |      |       |       |
| C13-C28 (DRO)                | 490    | 10        | mg/kg | 500         |            | 98.4        | 75-125 | 9.82 | 20    |       |
| Surrogate: p-Terphenyl       | 78.5   |           | "     | 100         |            | 78.5        | 65-135 |      |       |       |
|                              |        |           |       |             |            |             |        |      |       |       |

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Mike Jaroudi, Project Manager

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RPD

%REC

Ninyo & Moore Project: UCI North Campus

475 Goddard, Ste. 200 Project Number: 209570014 Reported: Irvine CA, 92618 Project Manager: Franklin Ruiz 06/04/19 08:29

Reporting

## Metals by EPA 6010B - Quality Control

#### SunStar Laboratories, Inc.

Spike

Source

|                            |        | Reporting    |       | Spike      | Source      |          | %REC   |     | RPD   |       |
|----------------------------|--------|--------------|-------|------------|-------------|----------|--------|-----|-------|-------|
| Analyte                    | Result | Limit        | Units | Level      | Result      | %REC     | Limits | RPD | Limit | Notes |
| Batch 9052923 - EPA 3050B  |        |              |       |            |             |          |        |     |       |       |
| Blank (9052923-BLK1)       |        |              |       | Prepared & | z Analyzed: | 05/29/19 |        |     |       |       |
| Antimony                   | ND     | 3.0          | mg/kg |            |             |          |        |     |       |       |
| Silver                     | ND     | 2.0          | "     |            |             |          |        |     |       |       |
| Arsenic                    | ND     | 5.0          | "     |            |             |          |        |     |       |       |
| Barium                     | ND     | 1.0          | "     |            |             |          |        |     |       |       |
| Beryllium                  | ND     | 1.0          | "     |            |             |          |        |     |       |       |
| Cadmium                    | ND     | 2.0          | "     |            |             |          |        |     |       |       |
| Chromium                   | ND     | 2.0          | "     |            |             |          |        |     |       |       |
| Cobalt                     | ND     | 2.0          | "     |            |             |          |        |     |       |       |
| Copper                     | ND     | 1.0          | "     |            |             |          |        |     |       |       |
| Lead                       | ND     | 3.0          | "     |            |             |          |        |     |       |       |
| Molybdenum                 | ND     | 5.0          | "     |            |             |          |        |     |       |       |
| Nickel                     | ND     | 2.0          | "     |            |             |          |        |     |       |       |
| Selenium                   | ND     | 5.0          | "     |            |             |          |        |     |       |       |
| Thallium                   | ND     | 2.0          | "     |            |             |          |        |     |       |       |
| Vanadium                   | ND     | 5.0          | "     |            |             |          |        |     |       |       |
| Zine                       | ND     | 1.0          | "     |            |             |          |        |     |       |       |
| LCS (9052923-BS1)          |        |              |       | Prepared & | Analyzed:   | 05/29/19 |        |     |       |       |
| Arsenic                    | 120    | 5.0          | mg/kg | 100        |             | 120      | 75-125 |     |       |       |
| Barium                     | 120    | 1.0          | "     | 100        |             | 120      | 75-125 |     |       |       |
| Cadmium                    | 122    | 2.0          | "     | 100        |             | 122      | 75-125 |     |       |       |
| Chromium                   | 118    | 2.0          | "     | 100        |             | 118      | 75-125 |     |       |       |
| Lead                       | 122    | 3.0          | "     | 100        |             | 122      | 75-125 |     |       |       |
| Matrix Spike (9052923-MS1) | Sour   | ce: T191698- | 01    | Prepared & | z Analyzed: | 05/29/19 |        |     |       |       |
| Arsenic                    | 106    | 4.5          | mg/kg | 90.9       | 4.22        | 112      | 75-125 |     |       |       |
| Barium                     | 249    | 0.91         | "     | 90.9       | 206         | 47.2     | 75-125 |     |       | QM-0  |
| Cadmium                    | 105    | 1.8          | "     | 90.9       | 1.18        | 114      | 75-125 |     |       |       |
| Chromium                   | 128    | 1.8          | "     | 90.9       | 25.1        | 114      | 75-125 |     |       |       |
| Lead                       | 111    | 2.7          | "     | 90.9       | 10.7        | 110      | 75-125 |     |       |       |

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Mike Jaroudi, Project Manager Page 9 of 12



RPD

%REC

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/04/19 08:29

Reporting

## Metals by EPA 6010B - Quality Control

# SunStar Laboratories, Inc.

Spike

Source

| Analyte                         | Result | Limit       | Units | Level      | Result      | %REC     | Limits | RPD  | Limit | Notes |
|---------------------------------|--------|-------------|-------|------------|-------------|----------|--------|------|-------|-------|
| Batch 9052923 - EPA 3050B       |        |             |       |            |             |          |        |      |       |       |
| Matrix Spike Dup (9052923-MSD1) | Source | e: T191698- | 01    | Prepared & | k Analyzed: | 05/29/19 |        |      |       |       |
| Arsenic                         | 118    | 5.0         | mg/kg | 100        | 4.22        | 114      | 75-125 | 10.7 | 20    |       |
| Barium                          | 329    | 1.0         | "     | 100        | 206         | 123      | 75-125 | 27.8 | 20    | QM-07 |
| Cadmium                         | 117    | 2.0         | "     | 100        | 1.18        | 116      | 75-125 | 11.0 | 20    |       |
| Chromium                        | 140    | 2.0         | "     | 100        | 25.1        | 115      | 75-125 | 8.78 | 20    |       |
| Lead                            | 123    | 3.0         | "     | 100        | 10.7        | 113      | 75-125 | 10.9 | 20    |       |
|                                 |        |             |       |            |             |          |        |      |       |       |

SunStar Laboratories, Inc.

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Mike Jaroudi, Project Manager

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/04/19 08:29

## Cold Vapor Extraction EPA 7470/7471 - Quality Control

# SunStar Laboratories, Inc.

| Analyte                         | Result | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC     | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |
|---------------------------------|--------|--------------------|-------|----------------|------------------|----------|----------------|------|--------------|-------|
| Batch 9052922 - EPA 7471A Soil  |        |                    |       |                |                  |          |                |      |              |       |
| Blank (9052922-BLK1)            |        |                    |       | Prepared &     | Analyzed:        | 05/29/19 |                |      |              |       |
| Mercury                         | ND     | 0.10               | mg/kg |                |                  |          |                |      |              |       |
| LCS (9052922-BS1)               |        |                    |       | Prepared &     | Analyzed:        | 05/29/19 |                |      |              |       |
| Mercury                         | 0.352  | 0.10               | mg/kg | 0.397          |                  | 88.6     | 80-120         |      |              |       |
| Matrix Spike (9052922-MS1)      | Sour   | ce: T191698-       | 01    | Prepared &     | Analyzed:        | 05/29/19 |                |      |              |       |
| Mercury                         | 0.337  | 0.10               | mg/kg | 0.385          | ND               | 87.6     | 75-125         |      |              |       |
| Matrix Spike Dup (9052922-MSD1) | Sour   | ce: T191698-       | 01    | Prepared &     | Analyzed:        | 05/29/19 |                |      |              |       |
| Mercury                         | 0.344  | 0.10               | mg/kg | 0.417          | ND               | 82.7     | 75-125         | 2.19 | 20           |       |

SunStar Laboratories, Inc.

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Mike Jaroudi, Project Manager Page 11 of 12



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/04/19 08:29

#### **Notes and Definitions**

QM-07 The spike recovery and or RPD was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable

LCS recovery.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

SunStar Laboratories, Inc.

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Mike Jaroudi, Project Manager

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# **SunStar**Laboratories

# **Chain of Custody Record**

25712 Commercentre Drive, Lake Forest, CA 92630 949-297-5020

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Addre  | nt: Ninys & Mines: 475 God<br>ne: (949) 753<br>ect Manager: Frank              | 1979 SU                                | Fax:(                  | 00<br>149) 75 | ולסד צ                                  |            | P  | ate:_<br>roject<br>ollect<br>atch # | Nar              | ne:  | <u> </u> | <u>e1</u>   | <u> </u>       |         | <i>y</i> | C    | ge:OfOfOfOfOfOfOfOf   | ]                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------------------|----------------------------------------|------------------------|---------------|-----------------------------------------|------------|----|-------------------------------------|------------------|------|----------|-------------|----------------|---------|----------|------|-----------------------|-------------------------|
| in a second seco | 202    | Sample ID<br>&   ○ ⑥ 5 /                                                       | Date<br>Sampled<br>5/24/19             |                        | J.            | Container Type Yos Glass                | 8260 + OXY |    |                                     | 8015M (gasoline) |      |          | Tals        | X KPA 8015 TPH |         |          |      | Comments/Preservative | - Total # of containers |
| 110<br>102                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |        | B-21@5'                                                                        | 5/28/19                                | 1:4294                 | SOIL          |                                         |            |    |                                     |                  |      | >        |             |                |         |          |      | JCF<br>TCF            | 1                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        |                                                                                |                                        |                        |               |                                         | yaanna -   |    |                                     |                  |      |          |             |                |         |          |      |                       |                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        | quished by: (signature)                                                        | Date / Tir<br>5/25/19                  |                        | 0/-           | y: (signeture)                          | \$<br>-28  | 19 | Time                                |                  | Chai |          | Custoc      | ly sea         | als Y/  |          | 4    | Notes                 |                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Relind | quished by: (signature) quished by: (signature) ple disposal Instructions: Dis | Date / Tir<br>28 - 19 15<br>Date / Tir | 7:2 <sup>2</sup><br>me | Received b    | y: (signature) y: (signature) to client | 28 /       |    | Time                                |                  |      | ceive    | Seals d goo | d cor          | nditior | n/cold   | 4.1% |                       |                         |



# SAMPLE RECEIVING REVIEW SHEET

| Batch/Work Order #:                                                 |              | T19698             |              |                          |                           |                      |           |         |
|---------------------------------------------------------------------|--------------|--------------------|--------------|--------------------------|---------------------------|----------------------|-----------|---------|
| Client Name:                                                        | NIN          | YO & MOORE         |              | Project:                 |                           | UCINO                | ORTH CA   | AMPUS   |
| Delivered by:                                                       | ☐ Client     | ⊠ SunStar C        | ourie        | r 🗌 GSO                  | ☐ FedEx                   | Oth                  | er        |         |
| If Courier, Received by:                                            |              | HARIT              |              | Date/Time C<br>Received: | Courier                   | 5-2                  | 28-19 15: | 00      |
| Lab Received by:                                                    |              | SUNNY              |              | Date/Time I<br>Received: | ab                        | 5-2                  | 28-19 15: | 22      |
| Total number of coolers re                                          | ceived: 0    |                    | :<br>:       |                          |                           |                      |           |         |
| Temperature: Cooler #1                                              | 2.9 °(       | C +/- the CF ( 1.2 | °C)          | = 4.1                    | °C correct                | ted temperat         | ure       |         |
| Temperature: Cooler #2                                              | ٥(           | C +/- the CF ( 1.2 | ,°C)         | = :                      | °C correc                 | ted temperat         | ure       |         |
| Temperature: Cooler #3                                              | ٥(           | C +/- the CF ( 1.2 | °C)          | =                        | °C correc                 | ted temperat         | ure       |         |
| Temperature criteria = ≤ (no frozen containers)                     | 6°C          | Wit                | hin c        | riteria?                 | <b>⊠Yes</b>               | □No                  |           |         |
| If NO: Samples received If on ice, samples collected?               |              | ne day             | Yes<br>Yes → | Acceptable               | $\square N_0 \rightarrow$ | e Non-Co<br>e Non-Co | *         |         |
| Custody seals intact on co                                          | oler/sample  |                    |              |                          | □Yes                      | □No*                 | ⊠N/A      | •       |
| Sample containers intact                                            |              |                    |              |                          | ⊠Yes                      | □No*                 |           |         |
| Sample labels match Chair                                           | n of Custody | / IDs              | }            |                          | ⊠Yes                      | □No*                 |           |         |
| Total number of container                                           | s received m | atch COC           |              |                          | ⊠Yes                      | □No*                 |           |         |
| Proper containers received                                          | for analyse  | s requested on Co  | ЭĊ           |                          | ⊠Yes                      | □No*                 |           |         |
| Proper preservative indica                                          | ted on COC   | containers for an  | alyse        | s requested              | □Yes                      | □No*                 | ⊠N/A      |         |
| Complete shipment receive containers, labels, volumes holding times |              |                    |              |                          | Yes                       | □No*                 |           |         |
| * Complete Non-Conformance                                          | ce Receiving | Sheet if checked   | Co           | oler/Sample Re           | view - Initials           | and date:            | HP        | 5-28-19 |
| Comments:                                                           |              |                    | 2, 1         |                          |                           |                      |           |         |
|                                                                     |              |                    |              |                          |                           |                      |           |         |
|                                                                     |              | •                  |              |                          |                           |                      |           |         |

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#### WORK ORDER

#### T191698

Client:Ninyo & MooreProject Manager:Mike JaroudiProject:UCI North CampusProject Number:209570014

Report To:

Ninyo & Moore Franklin Ruiz

475 Goddard, Ste. 200 Irvine, CA 92618

Date Due:

06/04/19 17:00 (5 day TAT)

Yes

Received By:

Sunny Lounethone

Logged In By:

Harit Patel

Date Received:

05/28/19 15:22

Date Logged In:

05/28/19 15:30

Samples Received at:

4.1°C

Custody Seals Containers Intact No Yes

Received On Ice

COC/Labels Agree Yes Preservation Confiri No

| Analysis                            | Due                      | TAT       | Expires             | Comments |
|-------------------------------------|--------------------------|-----------|---------------------|----------|
| T191698-01 B-10 @ 5' [S             | Soil] Sampled 05/24/19 1 | 0:15 (GM  | Г-08:00) Pacific Ti | me       |
| 6010 Title 22                       | 06/04/19 15:00           | 5         | 11/20/19 10:15      |          |
| 8015 Carbon Chain                   | 06/04/19 15:00           | 5         | 06/07/19 10:15      |          |
| T191698-02 B-11 @ 5' [S             | Soil] Sampled 05/24/19 1 | 0:46 (GMT | Γ-08:00) Pacific Ti | me       |
| 6010 Title 22                       | 06/04/19 15:00           | 5         | 11/20/19 10:46      |          |
| 8015 Carbon Chain                   | 06/04/19 15:00           | 5         | 06/07/19 10:46      |          |
| T191698-03 B-21 @ 5' [S             | Soil] Sampled 05/24/19 1 | 3:42 (GM  | Г-08:00) Pacific Ti | me       |
| 6010 Title 22                       | 06/04/19 15:00           | 5         | 11/20/19 13:42      |          |
| 8015 Carbon Chain                   | 06/04/19 15:00           | 5         | 06/07/19 13:42      |          |
| T191698-04 B-22A @ 5'<br>Time (US & | [Soil] Sampled 05/24/19  | 12:20 (GN | IT-08:00) Pacific   |          |
| 6010 Title 22                       | 06/04/19 15:00           | 5         | 11/20/19 12:20      |          |
| 8015 Carbon Chain                   | 06/04/19 15:00           | 5         | 06/07/19 12:20      |          |

| Analysis groups included in | n this work order |  |  |  |
|-----------------------------|-------------------|--|--|--|
| 6010 Title 22               |                   |  |  |  |
| subgroup 6010B T22          | 7470/71 Hg        |  |  |  |

| Reviewed By | <br>Date |  |
|-------------|----------|--|





05 June 2019

Franklin Ruiz Ninyo & Moore 475 Goddard, Ste. 200 Irvine, CA 92618

RE: UCI North Campus

Enclosed are the results of analyses for samples received by the laboratory on 05/29/19 15:48. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mike Jaroudi

**Project Manager** 



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/05/19 17:48

#### ANALYTICAL REPORT FOR SAMPLES

| Sample ID   | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-------------|---------------|--------|----------------|----------------|
| B-20 @ 5'   | T191719-01    | Soil   | 05/29/19 07:50 | 05/29/19 15:48 |
| B-23 @ 3'   | T191719-02    | Soil   | 05/29/19 09:50 | 05/29/19 15:48 |
| B-33 @ 0.5' | T191719-03    | Soil   | 05/29/19 13:40 | 05/29/19 15:48 |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
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 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/05/19 17:48

#### **DETECTIONS SUMMARY**

| Sample ID: | B-20 @ 5'   | Labora | tory ID:  | T191719-01 |           |       |
|------------|-------------|--------|-----------|------------|-----------|-------|
|            |             |        | Reporting |            |           |       |
| Analyte    |             | Result | Limit     | Units      | Method    | Notes |
| Barium     |             | 200    | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |             | 16     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |             | 7.0    | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |             | 9.9    | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |             | 5.7    | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |             | 13     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |             | 36     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |             | 39     | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | B-23 @ 3'   | Labora | tory ID:  | T191719-02 |           |       |
|            |             |        | Reporting |            |           |       |
| Analyte    |             | Result | Limit     | Units      | Method    | Notes |
| Barium     |             | 180    | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |             | 20     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |             | 10     | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |             | 20     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |             | 8.5    | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |             | 18     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |             | 51     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |             | 69     | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | B-33 @ 0.5' | Labora | tory ID:  | T191719-03 |           |       |
|            |             |        | Reporting |            |           |       |
| Analyte    |             | Result | Limit     | Units      | Method    | Notes |
| C29-C40 (M | (ORO)       | 30     | 10        | mg/kg      | EPA 8015B |       |
| Barium     |             | 180    | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |             | 22     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |             | 11     | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |             | 20     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |             | 11     | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |             | 18     | 2.0       | mg/kg      | EPA 6010b |       |

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 Project Manager: Franklin Ruiz
 06/05/19 17:48

| <b>Sample ID:</b> B-33 @ 0.5' | Laboratory | ID:     | T191719-03 |           |       |
|-------------------------------|------------|---------|------------|-----------|-------|
|                               | Rej        | porting |            |           |       |
| Analyte                       | Result     | Limit   | Units      | Method    | Notes |
| Vanadium                      | 53         | 5.0     | mg/kg      | EPA 6010b |       |
| Zinc                          | 68         | 1.0     | mg/kg      | EPA 6010b |       |

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Ninyo & Moore Project: UCI North Campus

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 Project Manager: Franklin Ruiz
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# B-20 @ 5' T191719-01 (Soil)

| Analyte                                 | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                         |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 8 | 8015B  |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                            | ND     | 10                 | mg/kg     | 1        | 9053036 | 05/30/19 | 06/01/19 | EPA 8015B         |       |
| C13-C28 (DRO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                          | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                  |        | 96.8 %             | 65-1      | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                     |        |                    |           |          |         |          |          |                   |       |
| Antimony                                | ND     | 3.0                | mg/kg     | 1        | 9053022 | 05/30/19 | 05/31/19 | EPA 6010b         |       |
| Silver                                  | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                                 | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                  | 200    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                               | ND     | 1.0                | "         | "        | "       | "        | 05/31/19 | "                 |       |
| Cadmium                                 | ND     | 2.0                | "         | "        | "       | "        | 05/31/19 | "                 |       |
| Chromium                                | 16     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                  | 7.0    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                  | 9.9    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                    | 5.7    | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                  | 13     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                | 36     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                    | 39     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471     |        |                    |           |          |         |          |          |                   |       |
| Mercury                                 | ND     | 0.10               | mg/kg     | 1        | 9053020 | 05/30/19 | 06/05/19 | EPA 7471A<br>Soil |       |

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 Project Manager: Franklin Ruiz
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# B-23 @ 3' T191719-02 (Soil)

| Analyte                               | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|---------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                       |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by | 8015B  |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                          | ND     | 10                 | mg/kg     | 1        | 9053036 | 05/30/19 | 06/01/19 | EPA 8015B         |       |
| C13-C28 (DRO)                         | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                        | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                |        | 90.9 %             | 65        | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                   |        |                    |           |          |         |          |          |                   |       |
| Antimony                              | ND     | 3.0                | mg/kg     | 1        | 9053022 | 05/30/19 | 05/31/19 | EPA 6010b         |       |
| Silver                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                               | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                | 180    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                             | ND     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                               | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Chromium                              | 20     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                | 10     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                | 20     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                  | 8.5    | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                            | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                | 18     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                              | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                              | 51     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                  | 69     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471   |        |                    |           |          |         |          |          |                   |       |
| Mercury                               | ND     | 0.10               | mg/kg     | 1        | 9053020 | 05/30/19 | 06/05/19 | EPA 7471A<br>Soil |       |

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# B-33 @ 0.5' T191719-03 (Soil)

| Analyte                               | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|---------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                       |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by | 8015B  |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                          | ND     | 10                 | mg/kg     | 1        | 9053036 | 05/30/19 | 06/01/19 | EPA 8015B         |       |
| C13-C28 (DRO)                         | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                        | 30     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                |        | 94.3 %             | 65-       | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                   |        |                    |           |          |         |          |          |                   |       |
| Antimony                              | ND     | 3.0                | mg/kg     | 1        | 9053022 | 05/30/19 | 05/31/19 | EPA 6010b         |       |
| Silver                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                               | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                | 180    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                             | ND     | 1.0                | "         | "        | "       | "        | 05/31/19 | "                 |       |
| Cadmium                               | ND     | 2.0                | "         | "        | "       | "        | 05/31/19 | "                 |       |
| Chromium                              | 22     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                | 11     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                | 20     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                  | 11     | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                            | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                | 18     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                              | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                              | 53     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                  | 68     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471   |        |                    |           |          |         |          |          |                   |       |
| Mercury                               | ND     | 0.10               | mg/kg     | 1        | 9053020 | 05/30/19 | 06/05/19 | EPA 7471A<br>Soil |       |

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 Project Manager: Franklin Ruiz
 06/05/19 17:48

# **Extractable Petroleum Hydrocarbons by 8015B - Quality Control**

#### SunStar Laboratories, Inc.

| Analyte                      | Result | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC        | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |
|------------------------------|--------|--------------------|-------|----------------|------------------|-------------|----------------|------|--------------|-------|
| Batch 9053036 - EPA 3550B GC |        |                    |       |                |                  |             |                |      |              |       |
| Blank (9053036-BLK1)         |        |                    |       | Prepared: (    | 05/30/19 A       | nalyzed: 06 | /01/19         |      |              |       |
| C6-C12 (GRO)                 | ND     | 10                 | mg/kg |                |                  |             |                |      |              |       |
| C13-C28 (DRO)                | ND     | 10                 | "     |                |                  |             |                |      |              |       |
| C29-C40 (MORO)               | ND     | 10                 | "     |                |                  |             |                |      |              |       |
| Surrogate: p-Terphenyl       | 94.7   |                    | "     | 99.0           |                  | 95.6        | 65-135         |      |              |       |
| LCS (9053036-BS1)            |        |                    |       | Prepared: (    | 05/30/19 A       | nalyzed: 06 | /01/19         |      |              |       |
| C13-C28 (DRO)                | 520    | 10                 | mg/kg | 500            |                  | 104         | 75-125         |      |              |       |
| Surrogate: p-Terphenyl       | 89.8   |                    | "     | 100            |                  | 89.8        | 65-135         |      |              |       |
| LCS Dup (9053036-BSD1)       |        |                    |       | Prepared: (    | 05/30/19 A       | nalyzed: 06 | /01/19         |      |              |       |
| C13-C28 (DRO)                | 540    | 10                 | mg/kg | 510            |                  | 106         | 75-125         | 3.49 | 20           |       |
| Surrogate: p-Terphenyl       | 92.2   |                    | "     | 102            |                  | 90.3        | 65-135         |      |              |       |

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RPD

%REC

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/05/19 17:48

Reporting

## Metals by EPA 6010B - Quality Control

#### SunStar Laboratories, Inc.

Spike

Source

|                            |        | Reporting     |       | Spike       | Source     |             | /OKEC  |     | KrD   |       |
|----------------------------|--------|---------------|-------|-------------|------------|-------------|--------|-----|-------|-------|
| Analyte                    | Result | Limit         | Units | Level       | Result     | %REC        | Limits | RPD | Limit | Notes |
| Batch 9053022 - EPA 3050B  |        |               |       |             |            |             |        |     |       |       |
| Blank (9053022-BLK1)       |        |               |       | Prepared: ( | 05/30/19 A | nalyzed: 05 | /31/19 |     |       |       |
| Antimony                   | ND     | 3.0           | mg/kg |             |            |             |        |     |       |       |
| Silver                     | ND     | 2.0           | "     |             |            |             |        |     |       |       |
| Arsenic                    | ND     | 5.0           | "     |             |            |             |        |     |       |       |
| Barium                     | ND     | 1.0           | "     |             |            |             |        |     |       |       |
| Beryllium                  | ND     | 1.0           | "     |             |            |             |        |     |       |       |
| Cadmium                    | ND     | 2.0           | "     |             |            |             |        |     |       |       |
| Chromium                   | ND     | 2.0           | "     |             |            |             |        |     |       |       |
| Cobalt                     | ND     | 2.0           | "     |             |            |             |        |     |       |       |
| Copper                     | ND     | 1.0           | "     |             |            |             |        |     |       |       |
| Lead                       | ND     | 3.0           | "     |             |            |             |        |     |       |       |
| Molybdenum                 | ND     | 5.0           | "     |             |            |             |        |     |       |       |
| Nickel                     | ND     | 2.0           | "     |             |            |             |        |     |       |       |
| Selenium                   | ND     | 5.0           | "     |             |            |             |        |     |       |       |
| Thallium                   | ND     | 2.0           | "     |             |            |             |        |     |       |       |
| Vanadium                   | ND     | 5.0           | "     |             |            |             |        |     |       |       |
| Zine                       | ND     | 1.0           | "     |             |            |             |        |     |       |       |
| LCS (9053022-BS1)          |        |               |       | Prepared: ( | 05/30/19 A | nalyzed: 05 | /31/19 |     |       |       |
| Arsenic                    | 104    | 5.0           | mg/kg | 100         |            | 104         | 75-125 |     |       |       |
| Barium                     | 104    | 1.0           | "     | 100         |            | 104         | 75-125 |     |       |       |
| Cadmium                    | 105    | 2.0           | "     | 100         |            | 105         | 75-125 |     |       |       |
| Chromium                   | 105    | 2.0           | "     | 100         |            | 105         | 75-125 |     |       |       |
| Lead                       | 104    | 3.0           | "     | 100         |            | 104         | 75-125 |     |       |       |
| Matrix Spike (9053022-MS1) | Sou    | rce: T191705- | 01    | Prepared: ( | 05/30/19 A | nalyzed: 05 | /31/19 |     |       |       |
| Arsenic                    | 90.5   | 5.0           | mg/kg | 95.2        | 1.96       | 93.0        | 75-125 |     |       |       |
| Barium                     | 243    | 1.0           | "     | 95.2        | 200        | 45.2        | 75-125 |     |       | QR-(  |
| Cadmium                    | 91.7   | 2.0           | "     | 95.2        | ND         | 96.3        | 75-125 |     |       |       |
| Chromium                   | 123    | 2.0           | "     | 95.2        | 35.4       | 91.5        | 75-125 |     |       |       |
| Lead                       | 97.3   | 3.0           | "     | 95.2        | 12.1       | 89.4        | 75-125 |     |       |       |

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RPD

%REC

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/05/19 17:48

Reporting

## Metals by EPA 6010B - Quality Control

#### SunStar Laboratories, Inc.

Spike

Source

| Analyte                         | Result | Limit       | Units | Level       | Result     | %REC        | Limits | RPD  | Limit | Notes |
|---------------------------------|--------|-------------|-------|-------------|------------|-------------|--------|------|-------|-------|
| Batch 9053022 - EPA 3050B       |        |             |       |             |            |             |        |      |       |       |
| Matrix Spike Dup (9053022-MSD1) | Source | e: T191705- | 01    | Prepared: ( | 05/30/19 A | nalyzed: 05 | /31/19 |      |       |       |
| Arsenic                         | 93.9   | 5.0         | mg/kg | 94.3        | 1.96       | 97.5        | 75-125 | 3.74 | 20    |       |
| Barium                          | 283    | 1.0         | "     | 94.3        | 200        | 88.8        | 75-125 | 15.5 | 20    |       |
| Cadmium                         | 93.2   | 2.0         | "     | 94.3        | ND         | 98.8        | 75-125 | 1.57 | 20    |       |
| Chromium                        | 128    | 2.0         | "     | 94.3        | 35.4       | 98.2        | 75-125 | 4.40 | 20    |       |
| Lead                            | 102    | 3.0         | "     | 94.3        | 12.1       | 94.8        | 75-125 | 4.28 | 20    |       |

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Mike Jaroudi, Project Manager Page 9 of 11



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/05/19 17:48

#### Cold Vapor Extraction EPA 7470/7471 - Quality Control

# SunStar Laboratories, Inc.

|                                 | D 1    | Reporting    | TT 14 | Spike       | Source      | 0/DEG       | %REC   | DDD  | RPD   | N     |
|---------------------------------|--------|--------------|-------|-------------|-------------|-------------|--------|------|-------|-------|
| Analyte                         | Result | Limit        | Units | Level       | Result      | %REC        | Limits | RPD  | Limit | Notes |
| Batch 9053020 - EPA 7471A Soil  |        |              |       |             |             |             |        |      |       |       |
| Blank (9053020-BLK1)            |        |              |       | Prepared: ( | )5/30/19 Aı | nalyzed: 06 | /05/19 |      |       |       |
| Mercury                         | ND     | 0.10         | mg/kg |             |             |             |        |      |       |       |
| LCS (9053020-BS1)               |        |              |       | Prepared: ( | )5/30/19 Aı | nalyzed: 06 | /05/19 |      |       |       |
| Mercury                         | 0.283  | 0.10         | mg/kg | 0.315       |             | 90.0        | 80-120 |      |       |       |
| Matrix Spike (9053020-MS1)      | Sour   | ce: T191705- | 01    | Prepared: ( | )5/30/19 Aı | nalyzed: 06 | /05/19 |      |       |       |
| Mercury                         | 0.341  | 0.10         | mg/kg | 0.315       | 0.0602      | 89.2        | 75-125 |      |       |       |
| Matrix Spike Dup (9053020-MSD1) | Sour   | ce: T191705- | 01    | Prepared: ( | )5/30/19 Aı | nalyzed: 06 | /05/19 |      |       |       |
| Mercury                         | 0.352  | 0.10         | mg/kg | 0.320       | 0.0602      | 91.4        | 75-125 | 3.41 | 20    |       |

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Mike Jaroudi, Project Manager Page 10 of 11



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
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 06/05/19 17:48

#### **Notes and Definitions**

QR-04 The percent recovery and/or RPD was outside acceptance criteria. Results accepted based upon percent recovery results in duplicate

QC sample and the CCV and CCB results.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

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H

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# **SunStar**Laboratories

# **Chain of Custody Record**

25712 Commercentre Drive, Lake Forest, CA 92630 949-297-5020

| Project Manager: Franklin Rviz Batch #: T191719 EDF#:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Comments/I    Sample   Sampl |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |
| B-33 e 0.5' 5/29/19 1:40PH SOIL 402 Glass To-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |
| 5/29/19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | otes |
| Refinquished by: (signature) Date / Time Received by: (signature) Date / Time Seals intact? Y/N/NA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |
| 166 5-29-19 15:48 5-29-19 15:48 Received good condition/cold 1.92                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |
| Relinquished by: (signature)  Date / Time  Received by: (signature)  Date / Time  Turn around time: 1 fands 1  Sample disposal Instructions: Disposal @ \$2.00 each Return to client Pickup                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | (    |



# SAMPLE RECEIVING REVIEW SHEET

| Batch/Work Order #:                                                | T191719                      |              |                            |                                                                     |               |                 |  |  |
|--------------------------------------------------------------------|------------------------------|--------------|----------------------------|---------------------------------------------------------------------|---------------|-----------------|--|--|
| Client Name:                                                       | Ningo & Mod                  | ore          | Project:                   | _                                                                   | 0011          | Vorth Compus    |  |  |
| Delivered by:                                                      | Client SunSta                | ar Couriei   | GSO [                      | ] FedEx                                                             | Oth           | er              |  |  |
| If Courier, Received by:                                           | Horit                        |              | Date/Time Con<br>Received: |                                                                     |               | 1 15:12         |  |  |
| Lab Received by:                                                   | Sunny                        |              | Date/Time Lat Received:    | )                                                                   | 5-29-17       | 15:48           |  |  |
| Total number of coolers re                                         | eceived: O                   |              |                            |                                                                     |               |                 |  |  |
| Temperature: Cooler #1                                             | °C +/- the CF                | ( 1.2°C)     | . 1. 9                     | °C corre                                                            | cted temperat | ure             |  |  |
| Temperature: Cooler #2                                             | °C +/- the CF                | ( 1.2°C)     | =                          | °C corre                                                            | cted temperat | ure             |  |  |
| Temperature: Cooler #3                                             | °C +/- the CF                | (1.2°C)      | =                          | °C corre                                                            | cted temperat | ure             |  |  |
| Temperature criteria = 5 (no frozen containers)                    | ≤ 6°C                        | Within cr    | riteria?                   | Ves                                                                 | □No           |                 |  |  |
| If NO:                                                             |                              |              |                            |                                                                     |               |                 |  |  |
| Samples received                                                   | on ice?                      | ∐Yes         |                            | □No →                                                               |               | nformance Sheet |  |  |
| If on ice, samples collected?                                      | received same day            | ∐Yes →       | Acceptable                 | Complete Non-Conformance Sheet ☐No → Complete Non-Conformance Sheet |               |                 |  |  |
| Custody seals intact on co                                         | ooler/sample                 |              |                            | □Yes                                                                | □No*          | N/A             |  |  |
| Sample containers intact                                           |                              |              |                            | <b></b> ✓Yes                                                        | □No*          |                 |  |  |
| Sample labels match Chair                                          | in of Custody IDs            |              |                            | Yes                                                                 | □No*          |                 |  |  |
| Total number of container                                          | rs received match COC        |              |                            | Yes                                                                 | ∐No*          |                 |  |  |
| Proper containers received                                         | d for analyses requested of  | on COC       |                            | Yes                                                                 | □No*          |                 |  |  |
| Proper preservative indica                                         | ated on COC/containers f     | for analyses | s requested                | ∐Yes                                                                | □No*          | Ū∕N/A           |  |  |
| Complete shipment receive containers, labels, volume holding times |                              |              | Yes                        | □No*                                                                |               |                 |  |  |
| * Complete Non-Conforman                                           | nce Receiving Sheet if checl | ked Co       | oler/Sample Revi           | ew - Initial                                                        | s and date:   | HP 5-29-19      |  |  |
| Comments:                                                          |                              |              |                            |                                                                     |               |                 |  |  |
|                                                                    |                              |              |                            |                                                                     |               |                 |  |  |



#### WORK ORDER

#### T191719

Client: Ninyo & Moore **Project Manager:** Mike Jaroudi **Project: UCI North Campus Project Number:** 209570014

Report To:

Ninyo & Moore Franklin Ruiz

475 Goddard, Ste. 200 Irvine, CA 92618

Date Due:

06/05/19 17:00 (5 day TAT)

Yes

Received By:

Sunny Lounethone

Logged In By:

Harit Patel

Date Received:

05/29/19 15:48

Date Logged In:

05/29/19 15:50

Samples Received at:

1.9°C

No

Custody Seals Received On Ice Containers Intact

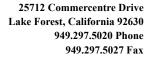
Yes COC/Labels Agree Yes

Preservation Confiri No

| Analysis                                                                            | Due                      | TAT            | Expires                                       | Comments |  |  |  |  |
|-------------------------------------------------------------------------------------|--------------------------|----------------|-----------------------------------------------|----------|--|--|--|--|
| T191719-01 B-20 @ 5' [S                                                             | Soil] Sampled 05/29/19 0 | 7:50 (GMT      | Γ-08:00) Pacific Ti                           | me       |  |  |  |  |
| 6010 Title 22                                                                       | 06/05/19 15:00           | 5              | 11/25/19 07:50                                |          |  |  |  |  |
| 8015 Carbon Chain                                                                   | 06/05/19 15:00           | 5              | 06/12/19 07:50                                |          |  |  |  |  |
| <b>T191719-02 B-23</b> @ 3' [S (US & 6010 Title 22                                  | 06/05/19 15:00           | 9:50 (GMT<br>5 | 1- <b>08:00) Pacific Ti</b><br>11/25/19 09:50 | me       |  |  |  |  |
| 8015 Carbon Chain                                                                   | 06/05/19 15:00           | 5              | 06/12/19 09:50                                |          |  |  |  |  |
| T191719-03 B-33 @ 0.5' [Soil] Sampled 05/29/19 13:40 (GMT-08:00) Pacific Time (US & |                          |                |                                               |          |  |  |  |  |
| 6010 Title 22                                                                       | 06/05/19 15:00           | 5              | 11/25/19 13:40                                |          |  |  |  |  |
| 8015 Carbon Chain                                                                   | 06/05/19 15:00           | 5              | 06/12/19 13:40                                |          |  |  |  |  |

| Analysis groups included in | ı this work order |  |  |
|-----------------------------|-------------------|--|--|
| 6010 Title 22               |                   |  |  |
| subgroup 6010B T22          | 7470/71 Hg        |  |  |

| Reviewed    | Bv |
|-------------|----|
| ICC VIC WCG | ъy |





07 June 2019

Franklin Ruiz Ninyo & Moore 475 Goddard, Ste. 200 Irvine, CA 92618

RE: UCI North Campus

Enclosed are the results of analyses for samples received by the laboratory on 05/31/19 15:26. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mike Jaroudi

**Project Manager** 



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/07/19 11:23

#### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| B-24 @ 4' | T191763-01    | Soil   | 05/31/19 08:15 | 05/31/19 15:26 |
| B-31 @ 3' | T191763-02    | Soil   | 05/31/19 10:58 | 05/31/19 15:26 |
| B-30 @ 5' | T191763-03    | Soil   | 05/31/19 11:15 | 05/31/19 15:26 |
| B-19 @ 5' | T191763-04    | Soil   | 05/31/19 12:40 | 05/31/19 15:26 |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
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 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/07/19 11:23

#### **DETECTIONS SUMMARY**

| Sample ID: B-24 @ 4' |           | Labora | tory ID:  | T191763-01 |           |       |
|----------------------|-----------|--------|-----------|------------|-----------|-------|
|                      |           |        | Reporting |            |           |       |
| Analyte              |           | Result | Limit     | Units      | Method    | Notes |
| Barium               |           | 130    | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium             |           | 18     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt               |           | 13     | 2.0       | mg/kg      | EPA 6010b |       |
| Copper               |           | 14     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead                 |           | 7.1    | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel               |           | 18     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium             |           | 33     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc                 |           | 50     | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID:           | B-31 @ 3' | Labora | tory ID:  | T191763-02 |           |       |
|                      |           |        | Reporting |            |           |       |
| Analyte              |           | Result | Limit     | Units      | Method    | Notes |
| C29-C40 (MO          | RO)       | 36     | 10        | mg/kg      | EPA 8015B |       |
| Barium               |           | 160    | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium             |           | 17     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt               |           | 14     | 2.0       | mg/kg      | EPA 6010b |       |
| Copper               |           | 13     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead                 |           | 8.6    | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel               |           | 16     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium             |           | 40     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc                 |           | 50     | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID:           | B-30 @ 5' | Labora | tory ID:  | T191763-03 |           |       |
|                      |           |        | Reporting |            |           |       |
| Analyte              |           | Result | Limit     | Units      | Method    | Notes |
| Barium               |           | 120    | 0.91      | mg/kg      | EPA 6010b |       |
| Chromium             |           | 21     | 1.8       | mg/kg      | EPA 6010b |       |
| Cobalt               |           | 11     | 1.8       | mg/kg      | EPA 6010b |       |
| Copper               |           | 18     | 0.91      | mg/kg      | EPA 6010b |       |
| Lead                 |           | 8.6    | 2.7       | mg/kg      | EPA 6010b |       |
| Nickel               |           | 19     | 1.8       | mg/kg      | EPA 6010b |       |

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Ninyo & Moore Project: UCI North Campus

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 06/07/19 11:23

| Sample ID: | B-30 @ 5' Laboratory ID: |         |           | T191763-03 |           |       |
|------------|--------------------------|---------|-----------|------------|-----------|-------|
|            |                          |         | Reporting |            |           |       |
| Analyte    |                          | Result  | Limit     | Units      | Method    | Notes |
| Vanadium   |                          | 46      | 4.5       | mg/kg      | EPA 6010b |       |
| Zinc       |                          | 59      | 0.91      | mg/kg      | EPA 6010b |       |
| Sample ID: | B-19 @ 5'                | Laborat | ory ID:   | T191763-04 |           |       |
|            |                          |         | Reporting |            |           |       |
| Analyte    |                          | Result  | Limit     | Units      | Method    | Notes |
| Barium     |                          | 34      | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |                          | 14      | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |                          | 6.2     | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |                          | 8.2     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |                          | 4.9     | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |                          | 12      | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |                          | 31      | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |                          | 33      | 1.0       | mg/kg      | EPA 6010b |       |

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 Project Manager: Franklin Ruiz
 06/07/19 11:23

# B-24 @ 4' T191763-01 (Soil)

| Analyte                                        | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|------------------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                                |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| <b>Extractable Petroleum Hydrocarbons by 8</b> | 015B   |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                                   | ND     | 10                 | mg/kg     | 1        | 9060316 | 06/03/19 | 06/03/19 | EPA 8015B         |       |
| C13-C28 (DRO)                                  | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                                 | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                         |        | 89.7 %             | 65-1      | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                            |        |                    |           |          |         |          |          |                   |       |
| Antimony                                       | ND     | 3.0                | mg/kg     | 1        | 9060306 | 06/03/19 | 06/03/19 | EPA 6010b         |       |
| Silver                                         | ND     | 2.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Arsenic                                        | ND     | 5.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Barium                                         | 130    | 1.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Beryllium                                      | ND     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                                        | ND     | 2.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Chromium                                       | 18     | 2.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Cobalt                                         | 13     | 2.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Copper                                         | 14     | 1.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Lead                                           | 7.1    | 3.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Molybdenum                                     | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                         | 18     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                       | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                       | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                       | 33     | 5.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Zinc                                           | 50     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471            |        |                    |           |          |         |          |          |                   |       |
| Mercury                                        | ND     | 0.10               | mg/kg     | 1        | 9060312 | 06/03/19 | 06/03/19 | EPA 7471A<br>Soil |       |

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 Project Manager: Franklin Ruiz
 06/07/19 11:23

# B-31 @ 3' T191763-02 (Soil)

| Analyte                               | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|---------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                       |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by | 8015B  |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                          | ND     | 10                 | mg/kg     | 1        | 9060316 | 06/03/19 | 06/03/19 | EPA 8015B         |       |
| C13-C28 (DRO)                         | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                        | 36     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                |        | 102 %              | 65-1      | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                   |        |                    |           |          |         |          |          |                   |       |
| Antimony                              | ND     | 3.0                | mg/kg     | 1        | 9060306 | 06/03/19 | 06/03/19 | EPA 6010b         |       |
| Silver                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                               | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                | 160    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                             | ND     | 1.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Cadmium                               | ND     | 2.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Chromium                              | 17     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                | 14     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                | 13     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                  | 8.6    | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                            | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                | 16     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                              | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                              | 40     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                  | 50     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471   |        |                    |           |          |         |          |          |                   |       |
| Mercury                               | ND     | 0.10               | mg/kg     | 1        | 9060312 | 06/03/19 | 06/03/19 | EPA 7471A<br>Soil |       |

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Soil

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/07/19 11:23

# B-30 @ 5' T191763-03 (Soil)

| Analyte                                  | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|------------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-----------|-------|
|                                          |        | SunStar L          | aboratori | es, Inc. |         |          |          |           |       |
| Extractable Petroleum Hydrocarbons by 80 | 15B    |                    |           |          |         |          |          |           |       |
| C6-C12 (GRO)                             | ND     | 10                 | mg/kg     | 1        | 9060316 | 06/03/19 | 06/03/19 | EPA 8015B |       |
| C13-C28 (DRO)                            | ND     | 10                 | "         | "        | "       | "        | "        | "         |       |
| C29-C40 (MORO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "         |       |
| Surrogate: p-Terphenyl                   |        | 94.1 %             | 65-1      | !35      | "       | "        | "        | "         |       |
| Metals by EPA 6010B                      |        |                    |           |          |         |          |          |           |       |
| Antimony                                 | ND     | 2.7                | mg/kg     | 1        | 9060306 | 06/03/19 | 06/03/19 | EPA 6010b |       |
| Silver                                   | ND     | 1.8                | "         | "        | "       | "        | "        | "         |       |
| Arsenic                                  | ND     | 4.5                | "         | "        | "       | "        | "        | "         |       |
| Barium                                   | 120    | 0.91               | "         | "        | "       | "        | "        | "         |       |
| Beryllium                                | ND     | 0.91               | "         | "        | "       | "        | "        | "         |       |
| Cadmium                                  | ND     | 1.8                | "         | "        | "       | "        | "        | "         |       |
| Chromium                                 | 21     | 1.8                | "         | "        | "       | "        | "        | "         |       |
| Cobalt                                   | 11     | 1.8                | "         | "        | "       | "        | "        | "         |       |
| Copper                                   | 18     | 0.91               | "         | "        | "       | "        | "        | "         |       |
| Lead                                     | 8.6    | 2.7                | "         | "        | "       | "        | "        | "         |       |
| Molybdenum                               | ND     | 4.5                | "         | "        | "       | "        | "        | "         |       |
| Nickel                                   | 19     | 1.8                | "         | "        | "       | "        | "        | "         |       |
| Selenium                                 | ND     | 4.5                | "         | "        | "       | "        | "        | "         |       |
| Thallium                                 | ND     | 1.8                | "         | "        | "       | "        | "        | "         |       |
| Vanadium                                 | 46     | 4.5                | "         | "        | "       | "        | "        | "         |       |
| Zinc                                     | 59     | 0.91               | "         | "        | "       | "        | "        | "         |       |
| Cold Vapor Extraction EPA 7470/7471      |        |                    |           |          |         |          |          |           |       |
| Mercury                                  | ND     | 0.10               | mg/kg     | 1        | 9060312 | 06/03/19 | 06/03/19 | EPA 7471A |       |

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 Project Manager: Franklin Ruiz
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# B-19 @ 5' T191763-04 (Soil)

| Analyte                                  | Result | Reporting<br>Limit | Units | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|------------------------------------------|--------|--------------------|-------|----------|---------|----------|----------|-------------------|-------|
| SunStar Laboratories, Inc.               |        |                    |       |          |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 80 | 15B    |                    |       |          |         |          |          |                   |       |
| C6-C12 (GRO)                             | ND     | 10                 | mg/kg | 1        | 9060316 | 06/03/19 | 06/03/19 | EPA 8015B         |       |
| C13-C28 (DRO)                            | ND     | 10                 | "     | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                           | ND     | 10                 | "     | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                   |        | 87.7 %             | 65-1  | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                      |        |                    |       |          |         |          |          |                   |       |
| Antimony                                 | ND     | 3.0                | mg/kg | 1        | 9060306 | 06/03/19 | 06/03/19 | EPA 6010b         |       |
| Silver                                   | ND     | 2.0                | "     | "        | "       | "        | 06/03/19 | "                 |       |
| Arsenic                                  | ND     | 5.0                | "     | "        | "       | "        | 06/03/19 | "                 |       |
| Barium                                   | 34     | 1.0                | "     | "        | "       | "        | "        | "                 |       |
| Beryllium                                | ND     | 1.0                | "     | "        | "       | "        | 06/03/19 | "                 |       |
| Cadmium                                  | ND     | 2.0                | "     | "        | "       | "        | 06/03/19 | "                 |       |
| Chromium                                 | 14     | 2.0                | "     | "        | "       | "        | "        | "                 |       |
| Cobalt                                   | 6.2    | 2.0                | "     | "        | "       | "        | "        | "                 |       |
| Copper                                   | 8.2    | 1.0                | "     | "        | "       | "        | 06/03/19 | "                 |       |
| Lead                                     | 4.9    | 3.0                | "     | "        | "       | "        | 06/03/19 | "                 |       |
| Molybdenum                               | ND     | 5.0                | "     | "        | "       | "        | "        | "                 |       |
| Nickel                                   | 12     | 2.0                | "     | "        | "       | "        | "        | "                 |       |
| Selenium                                 | ND     | 5.0                | "     | "        | "       | "        | "        | "                 |       |
| Thallium                                 | ND     | 2.0                | "     | "        | "       | "        | "        | "                 |       |
| Vanadium                                 | 31     | 5.0                | "     | "        | "       | "        | 06/03/19 | "                 |       |
| Zinc                                     | 33     | 1.0                | "     | "        | "       | "        | 06/03/19 | "                 |       |
| Cold Vapor Extraction EPA 7470/7471      |        |                    |       |          |         |          |          |                   |       |
| Mercury                                  | ND     | 0.10               | mg/kg | 1        | 9060312 | 06/03/19 | 06/03/19 | EPA 7471A<br>Soil |       |

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## **Extractable Petroleum Hydrocarbons by 8015B - Quality Control**

#### SunStar Laboratories, Inc.

|                                 |        | Reporting     |       | Spike      | Source    |          | %REC   |      | RPD   |       |
|---------------------------------|--------|---------------|-------|------------|-----------|----------|--------|------|-------|-------|
| Analyte                         | Result | Limit         | Units | Level      | Result    | %REC     | Limits | RPD  | Limit | Notes |
| Batch 9060316 - EPA 3550B GC    |        |               |       |            |           |          |        |      |       |       |
| Blank (9060316-BLK1)            |        |               |       | Prepared & | Analyzed: | 06/03/19 |        |      |       |       |
| C6-C12 (GRO)                    | ND     | 10            | mg/kg |            |           |          |        |      |       |       |
| C13-C28 (DRO)                   | ND     | 10            | "     |            |           |          |        |      |       |       |
| C29-C40 (MORO)                  | ND     | 10            | "     |            |           |          |        |      |       |       |
| Surrogate: p-Terphenyl          | 106    |               | "     | 100        |           | 106      | 65-135 |      |       |       |
| LCS (9060316-BS1)               |        |               |       | Prepared & | Analyzed: | 06/03/19 |        |      |       |       |
| C13-C28 (DRO)                   | 550    | 10            | mg/kg | 505        |           | 110      | 75-125 |      |       |       |
| Surrogate: p-Terphenyl          | 103    |               | "     | 101        |           | 102      | 65-135 |      |       |       |
| Matrix Spike (9060316-MS1)      | Sou    | rce: T191763- | 01    | Prepared & | Analyzed: | 06/03/19 |        |      |       |       |
| C13-C28 (DRO)                   | 570    | 10            | mg/kg | 495        | ND        | 114      | 75-125 |      |       |       |
| Surrogate: p-Terphenyl          | 96.7   |               | "     | 99.0       |           | 97.6     | 65-135 |      |       |       |
| Matrix Spike Dup (9060316-MSD1) | Sou    | rce: T191763- | 01    | Prepared & | Analyzed: | 06/03/19 |        |      |       |       |
| C13-C28 (DRO)                   | 520    | 10            | mg/kg | 500        | ND        | 105      | 75-125 | 7.86 | 20    |       |
| Surrogate: p-Terphenyl          | 92.4   |               | "     | 100        |           | 92.4     | 65-135 |      |       |       |

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Analyte

25712 Commercentre Drive Lake Forest, California 92630 949.297.5020 Phone 949.297.5027 Fax

RPD

Limit

Notes

%REC

Limits

RPD

Ninyo & Moore Project: UCI North Campus

Result

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Reporting

Limit

#### Metals by EPA 6010B - Quality Control

#### SunStar Laboratories, Inc.

Units

Spike

Level

Source

Result

%REC

| maryte                     | Result | Dillit      | Cinto | Levei      | Result    | /UKLC    | Lillits | IXI D | Lillit | 110103 |
|----------------------------|--------|-------------|-------|------------|-----------|----------|---------|-------|--------|--------|
| Batch 9060306 - EPA 3050B  |        |             |       |            |           |          |         |       |        |        |
| Blank (9060306-BLK1)       |        |             |       | Prepared & | Analyzed: | 06/03/19 |         |       |        |        |
| Antimony                   | ND     | 3.0         | mg/kg |            |           |          |         |       |        |        |
| Silver                     | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| Arsenic                    | ND     | 5.0         | "     |            |           |          |         |       |        |        |
| Barium                     | ND     | 1.0         | "     |            |           |          |         |       |        |        |
| Beryllium                  | ND     | 1.0         | "     |            |           |          |         |       |        |        |
| Cadmium                    | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| Chromium                   | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| Cobalt                     | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| Copper                     | ND     | 1.0         | "     |            |           |          |         |       |        |        |
| Lead                       | ND     | 3.0         | "     |            |           |          |         |       |        |        |
| Molybdenum                 | ND     | 5.0         | "     |            |           |          |         |       |        |        |
| Nickel                     | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| Selenium                   | ND     | 5.0         | "     |            |           |          |         |       |        |        |
| Гhallium                   | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| Vanadium                   | ND     | 5.0         | "     |            |           |          |         |       |        |        |
| Zinc                       | ND     | 1.0         | "     |            |           |          |         |       |        |        |
| LCS (9060306-BS1)          |        |             |       | Prepared & | Analyzed: | 06/03/19 |         |       |        |        |
| Arsenic                    | 94.5   | 5.0         | mg/kg | 100        |           | 94.5     | 75-125  |       |        |        |
| Barium                     | 95.7   | 1.0         | "     | 100        |           | 95.7     | 75-125  |       |        |        |
| Cadmium                    | 96.0   | 2.0         | "     | 100        |           | 96.0     | 75-125  |       |        |        |
| Chromium                   | 95.9   | 2.0         | "     | 100        |           | 95.9     | 75-125  |       |        |        |
| Lead                       | 96.6   | 3.0         | "     | 100        |           | 96.6     | 75-125  |       |        |        |
| Matrix Spike (9060306-MS1) | Sourc  | e: T191763- | 01    | Prepared & | Analyzed: | 06/03/19 |         |       |        |        |
| Arsenic                    | 81.7   | 5.0         | mg/kg | 91.7       | 1.20      | 87.7     | 75-125  |       |        |        |
| Barium                     | 215    | 1.0         | "     | 91.7       | 133       | 88.8     | 75-125  |       |        |        |
| Cadmium                    | 80.5   | 2.0         | "     | 91.7       | 0.792     | 86.9     | 75-125  |       |        |        |
| Chromium                   | 100    | 2.0         | "     | 91.7       | 17.8      | 90.0     | 75-125  |       |        |        |
| Lead                       | 83.5   | 3.0         | "     | 91.7       | 7.05      | 83.3     | 75-125  |       |        |        |

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#### Metals by EPA 6010B - Quality Control

#### SunStar Laboratories, Inc.

| Analyte                         | Result | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC     | %REC<br>Limits | RPD  | RPD<br>Limit | Notes  |
|---------------------------------|--------|--------------------|-------|----------------|------------------|----------|----------------|------|--------------|--------|
| · ·                             | resuit | Ziiiit             | Omts  | Level          | resurt           | /UKEC    | Limits         | ППБ  | Lillit       | 110003 |
| Batch 9060306 - EPA 3050B       |        |                    |       |                |                  |          |                |      |              |        |
| Matrix Spike Dup (9060306-MSD1) | Sourc  | e: T191763-        | 01    | Prepared &     | ኔ Analyzed:      | 06/03/19 |                |      |              |        |
| Arsenic                         | 91.6   | 5.0                | mg/kg | 91.7           | 1.20             | 98.6     | 75-125         | 11.5 | 20           |        |
| Barium                          | 255    | 1.0                | "     | 91.7           | 133              | 133      | 75-125         | 17.2 | 20           | QR-0   |
| Cadmium                         | 91.1   | 2.0                | "     | 91.7           | 0.792            | 98.4     | 75-125         | 12.3 | 20           |        |
| Chromium                        | 115    | 2.0                | "     | 91.7           | 17.8             | 105      | 75-125         | 13.2 | 20           |        |
| Lead                            | 94.4   | 3.0                | "     | 91.7           | 7.05             | 95.2     | 75-125         | 12.3 | 20           |        |

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Ninyo & Moore Project: UCI North Campus

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 Project Manager: Franklin Ruiz
 06/07/19 11:23

#### Cold Vapor Extraction EPA 7470/7471 - Quality Control

# SunStar Laboratories, Inc.

| Analyte                         | Result | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC        | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |
|---------------------------------|--------|--------------------|-------|----------------|------------------|-------------|----------------|------|--------------|-------|
| Batch 9060312 - EPA 7471A Soil  |        |                    |       |                |                  |             |                |      |              |       |
| Blank (9060312-BLK1)            |        |                    |       | Prepared: 0    | 06/03/19 A       | nalyzed: 06 | /04/19         |      |              |       |
| Mercury                         | ND     | 0.10               | mg/kg |                |                  |             |                |      |              |       |
| LCS (9060312-BS1)               |        |                    |       | Prepared: 0    | 06/03/19 A       | nalyzed: 06 | /04/19         |      |              |       |
| Mercury                         | 0.400  | 0.10               | mg/kg | 0.410          |                  | 97.6        | 80-120         |      |              |       |
| Matrix Spike (9060312-MS1)      | Sour   | ce: T191752-       | 01    | Prepared: 0    | 06/03/19 A       | nalyzed: 06 | /04/19         |      |              |       |
| Mercury                         | 0.406  | 0.10               | mg/kg | 0.403          | ND               | 101         | 75-125         |      |              |       |
| Matrix Spike Dup (9060312-MSD1) | Sour   | ce: T191752-       | 01    | Prepared: 0    | 06/03/19 A       | nalyzed: 06 | /04/19         |      |              |       |
| Mercury                         | 0.401  | 0.10               | mg/kg | 0.410          | ND               | 97.9        | 75-125         | 1.14 | 20           |       |

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Ninyo & Moore Project: UCI North Campus

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 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/07/19 11:23

#### **Notes and Definitions**

QR-04 The percent recovery and/or RPD was outside acceptance criteria. Results accepted based upon percent recovery results in duplicate

QC sample and the CCV and CCB results.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

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H

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# **SunStar**Laboratories

# **Chain of Custody Record**

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| Client: Vinyo 6                 | Hoore              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                |        |                                   | Dat                                           | le:       | 5                | /3             | 3)                                             |                           | 1                  | <u>ာ်</u>     | <u>.</u>                | _ Pag | ge:Of                 | <u> </u>              |
|---------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------|--------|-----------------------------------|-----------------------------------------------|-----------|------------------|----------------|------------------------------------------------|---------------------------|--------------------|---------------|-------------------------|-------|-----------------------|-----------------------|
| Address: 475 G                  | 970P6              | Cuile                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 500        | Irulhe,        | CH     |                                   | Pro                                           | ject      | Nan              | ne:            | UC                                             |                           | V                  | ) o ()        | $\mathcal{L}_{-}^{-}$   |       | NOW                   |                       |
| Phone: (948) 753                | 1 20 6             | Fax: (9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 19) 753    | -7075          |        |                                   |                                               | lecto     |                  |                | hE                                             | 1                         |                    |               | - 46                    | Clie  | nt Project #: 2095700 | 14                    |
| Project Manager: Fra            | nulin R            | שיטיב                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |                | · .    |                                   | Bat                                           | ch#       | t:               | 11             | 9                                              | - (                       | 76                 | 3             |                         | EDF   |                       |                       |
|                                 |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            | [              |        |                                   | _                                             |           |                  | - 1            | - ,<br>1                                       |                           |                    |               |                         | _     |                       |                       |
|                                 |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                |        |                                   |                                               |           |                  |                | ain                                            | als                       |                    |               |                         |       |                       |                       |
| Laboratory ID #                 | Date               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Sample     | Container      | 1 1    | 8260 + OXY<br>8260 BTEX, OXY only |                                               | 8021 BTEX | 8015M (gasoline) | 8015M (diesel) | 8015M Ext./Carbon Chain                        | 6010/7000 Title 22 Metals | 6020 ICP-MS Metals | PA SOIS TP    |                         |       |                       | Total # of containers |
|                                 | Sampled            | Time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Type       | Type           |        | 8260<br>8260                      | 8270                                          | 802       | 801              | 801            | 801                                            | 60                        | 602                | 0             |                         |       | Comments/Preservative | <u></u>               |
| 01 8-24 6 41                    | 5/19               | 8.1544                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2010       | 402 Glas Ja-   |        | _                                 | -                                             |           |                  | <u> </u>       | _]                                             | X                         | _                  | <b>Z</b> ‡    | -                       |       | TCG                   | $-\downarrow 1$       |
| 028-31631                       | 5/31/19            | 10:58 AM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 15016      | You Glass Jer  | H      |                                   | <u>1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 </u> |           |                  | -              |                                                | V                         |                    | X             | -                       |       | JOR                   | -                     |
|                                 |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | , 3        | 10 00 00       |        |                                   |                                               |           |                  |                |                                                |                           |                    |               |                         | "     |                       |                       |
| 03 B-30 P5                      | 5/3//1 <b>¢</b>    | 11 44                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 201C       | Muz Glay Jor   |        |                                   |                                               |           |                  |                |                                                | X                         | *                  | X             |                         |       | Ice -                 | <u>,</u>              |
| 04 B-19 e 5'                    | 5/31/19            | 12:40 PM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5011       | 402 Glass Jen  |        |                                   | 1-                                            |           |                  |                | <u>.                                      </u> | $\checkmark$              |                    | $\times$      |                         |       | ±C75                  | +                     |
|                                 | <u> </u>           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                |        |                                   |                                               |           |                  |                |                                                |                           |                    |               |                         |       |                       |                       |
|                                 |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                | ++     |                                   |                                               |           |                  |                |                                                |                           |                    |               |                         |       |                       |                       |
|                                 |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                |        |                                   |                                               |           |                  |                |                                                | $\dashv$                  | _                  | +             | +-                      | +     |                       |                       |
|                                 |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            | 7              | 1-1    |                                   |                                               | -         |                  |                |                                                |                           |                    | $\dashv$      | +                       | 1     |                       |                       |
|                                 |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                |        |                                   |                                               |           |                  |                |                                                |                           | -                  |               |                         |       |                       |                       |
|                                 |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ļ          |                | $\bot$ |                                   |                                               |           |                  |                |                                                |                           |                    |               |                         |       |                       |                       |
| Relinquished by: (signature)    | Date / Ti          | imo                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Possived b | y: (signature) | 1_1    |                                   | ate / T                                       | ime       | L                |                |                                                |                           | 1                  |               |                         |       | Nata                  |                       |
| Relinquished by: (signature)    | - 5/31/            | and the second s | Paul       | Dunn           | S      | -3/-1                             |                                               | S:\c      | ,4               | Cha            | in of                                          |                           |                    | 1.00          | ntainer<br>Y <b>W</b> W |       | Notes                 |                       |
| Relinguished by: (signature)    | Date / Ti          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Received b | y: (signature) |        | Da                                | ate / T                                       | ime       |                  |                |                                                |                           | -                  |               | Y/N/v                   |       |                       |                       |
| Tail thomas                     | 5-31-19            | 15:26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            | <i></i>        | 5      | ~31-1°                            |                                               | 520       | jo               | Re             | eceiv                                          | ed g                      | ood i              | conditi       | on/cold                 | 3.2   |                       | -                     |
| Relinquished by: (signature)    | Date / T           | ime                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Received b | y: (signature) |        | Da                                | ate / T                                       | ime       |                  |                | <i>(</i>                                       |                           |                    |               |                         |       |                       |                       |
|                                 | <del> </del>       | 4.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | L          |                |        | <u> </u>                          | <u> </u>                                      |           |                  | Turn           | arc                                            | ound                      | time               | e: <b>∑†t</b> | 190                     | 9     |                       |                       |
| Sample disposal Instructions: D | isposal @ \$2.00 o | each                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Return     | to client      |        | Pickup                            |                                               |           |                  |                |                                                |                           |                    | • • •         |                         |       | <b>COC</b> 181365     |                       |
|                                 |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | - 12- pt   |                |        |                                   |                                               |           |                  |                |                                                |                           |                    |               | 1.00                    |       | TOTOO!                |                       |



# SAMPLE RECEIVING REVIEW SHEET

| Batch/Work Order #:                                                                                                                                                                                                                | T19 17                                                                                                                         | 63                                                   |                            |                                         |                               |             |          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|----------------------------|-----------------------------------------|-------------------------------|-------------|----------|
| Client Name:                                                                                                                                                                                                                       | Ninyo & Moore                                                                                                                  | -Irvine                                              | Project:                   |                                         | ICI                           | North       | Campus   |
| Delivered by:                                                                                                                                                                                                                      | ☐ Client ☑ Sur                                                                                                                 |                                                      | □ GSO □                    | FedEx                                   | Oth                           |             |          |
| If Courier, Received by:                                                                                                                                                                                                           | Paul                                                                                                                           |                                                      | Date/Time Cou<br>Received: |                                         | 5-31-                         | 19          | 15:04    |
| Lab Received by:                                                                                                                                                                                                                   | Dan                                                                                                                            |                                                      | Date/Time Lab Received:    | (                                       | 5-31-1                        | 19 1        | 5:26     |
| Total number of coolers re                                                                                                                                                                                                         | eceived: O                                                                                                                     |                                                      |                            |                                         |                               |             |          |
| Temperature: Cooler #1                                                                                                                                                                                                             | 2.3 °C +/- the                                                                                                                 | CF ( 1.2°C) =                                        | = 3.5                      | °C correc                               | ted tempera                   | ture        |          |
| Temperature: Cooler #2                                                                                                                                                                                                             | °C +/- the                                                                                                                     | CF ( 1.2°C) =                                        |                            | °C correc                               | ted tempera                   | ture        |          |
| Temperature: Cooler #3                                                                                                                                                                                                             | °C +/- the                                                                                                                     | CF (1.2°C) =                                         | =                          | °C correc                               | ted tempera                   | ature       |          |
| Temperature criteria = 5 (no frozen containers)                                                                                                                                                                                    | ≤6°C                                                                                                                           | Within cr                                            | iteria?                    | Yes                                     | □No                           |             |          |
| If NO:                                                                                                                                                                                                                             |                                                                                                                                |                                                      |                            | •                                       |                               |             |          |
| Samples received                                                                                                                                                                                                                   | on ice?                                                                                                                        | □Yes                                                 |                            | □No → Complet                           |                               | onforman    | e Sheet  |
| If on ice, samples collected?                                                                                                                                                                                                      | received same day                                                                                                              | ∏Yes →                                               | Acceptable                 | □No →                                   |                               |             | ce Sheet |
|                                                                                                                                                                                                                                    |                                                                                                                                | <u></u>                                              |                            | Compice                                 | C I TOIL C                    | United than |          |
| Custody seals intact on co                                                                                                                                                                                                         | oler/sample                                                                                                                    |                                                      |                            | Yes                                     |                               | ☑N/A        |          |
| Custody seals intact on co                                                                                                                                                                                                         | oler/sample                                                                                                                    |                                                      |                            |                                         |                               |             |          |
|                                                                                                                                                                                                                                    |                                                                                                                                |                                                      |                            | ∐Yes                                    | □No*                          |             |          |
| Sample containers intact                                                                                                                                                                                                           | n of Custody IDs                                                                                                               |                                                      |                            | □Yes<br>□Yes                            | □No*                          |             |          |
| Sample containers intact Sample labels match Chai                                                                                                                                                                                  | n of Custody IDs                                                                                                               | C                                                    |                            | □Yes<br>□Yes<br>□Yes                    | □No* □No* □No*                |             |          |
| Sample containers intact Sample labels match Chai Total number of container                                                                                                                                                        | n of Custody IDs s received match CO                                                                                           | C<br>ed on COC                                       | requested                  | ☐Yes  ☐Yes  ☐Yes  ☐Yes  ☐Yes            | □No* □No* □No* □No*           |             |          |
| Sample containers intact Sample labels match Chai Total number of container Proper containers received                                                                                                                             | n of Custody IDs rs received match CO d for analyses request ated on COC/containe yed in good condition                        | C<br>ed on COC<br>rs for analyses<br>with correct te | emperatures,               | ☐Yes  ☐Yes  ☐Yes  ☐Yes  ☐Yes  ☐Yes      | □No* □No* □No* □No* □No*      | ₩N/A        |          |
| Sample containers intact Sample labels match Chair Total number of container Proper containers received Proper preservative indicate Complete shipment received containers, labels, volume                                         | n of Custody IDs rs received match CO d for analyses request ated on COC/containe yed in good condition rs preservatives and w | C ed on COC rs for analyses with correct te          | emperatures,               | ☐Yes ☐Yes ☐Yes ☐Yes ☐Yes ☐Yes ☐Yes ☐Yes | □No* □No* □No* □No* □No* □No* | ₩N/A        | 5-31-19  |
| Sample containers intact Sample labels match Chair Total number of container Proper containers received Proper preservative indicate Complete shipment receive containers, labels, volume holding times                            | n of Custody IDs rs received match CO d for analyses request ated on COC/containe yed in good condition rs preservatives and w | C ed on COC rs for analyses with correct te          | emperatures,<br>specified  | ☐Yes ☐Yes ☐Yes ☐Yes ☐Yes ☐Yes ☐Yes ☐Yes | □No* □No* □No* □No* □No* □No* | ₩N/A        |          |
| Sample containers intact Sample labels match Chair Total number of containers Proper containers received Proper preservative indicate Complete shipment receive containers, labels, volume holding times * Complete Non-Conformant | n of Custody IDs rs received match CO d for analyses request ated on COC/containe yed in good condition rs preservatives and w | C ed on COC rs for analyses with correct te          | emperatures,<br>specified  | ☐Yes ☐Yes ☐Yes ☐Yes ☐Yes ☐Yes ☐Yes ☐Yes | □No* □No* □No* □No* □No* □No* | ₩N/A        |          |





#### WORK ORDER

#### T191763

Client:Ninyo & MooreProject Manager:Mike JaroudiProject:UCI North CampusProject Number:209570014

Report To:

Ninyo & Moore Franklin Ruiz

475 Goddard, Ste. 200 Irvine, CA 92618

Date Due:

06/07/19 17:00 (5 day TAT)

Yes

Received By: Dan Marteski Logged In By: Paul Berner Date Received:

05/31/19 15:26

Date Logged In:

05/31/19 15:36

Samples Received at:  $3.5^{\circ}C$ 

Custody Seals No

Received On Ice

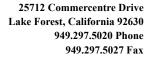
Containers Intact Yes
COC/Labels Agree Yes

Preservation Confiri

TAT **Comments** Due **Expires** Analysis T191763-01 B-24 @ 4' [Soil] Sampled 05/31/19 08:15 (GMT-08:00) Pacific Time (US & 6010 Title 22 06/07/19 15:00 11/27/19 08:15 8015 Carbon Chain 06/07/19 15:00 5 06/14/19 08:15 T191763-02 B-31 @ 3' [Soil] Sampled 05/31/19 10:58 (GMT-08:00) Pacific Time (US & 6010 Title 22 06/07/19 15:00 5 11/27/19 10:58 8015 Carbon Chain 06/07/19 15:00 5 06/14/19 10:58 T191763-03 B-30 @ 5' [Soil] Sampled 05/31/19 11:15 (GMT-08:00) Pacific Time (US & 6010 Title 22 06/07/19 15:00 5 11/27/19 11:15 8015 Carbon Chain 06/07/19 15:00 5 06/14/19 11:15 T191763-04 B-19 @ 5' [Soil] Sampled 05/31/19 12:40 (GMT-08:00) Pacific Time (US & 6010 Title 22 06/07/19 15:00 5 11/27/19 12:40 8015 Carbon Chain 06/07/19 15:00 5 06/14/19 12:40

| Analysis groups included in | ı this work order |  |
|-----------------------------|-------------------|--|
| 6010 Title 22               |                   |  |
| subgroup 6010B T22          | 7470/71 Hg        |  |

| Reviewed By | Date |  |
|-------------|------|--|





07 June 2019

Franklin Ruiz Ninyo & Moore 475 Goddard, Ste. 200 Irvine, CA 92618

RE: UCI North Campus

Enclosed are the results of analyses for samples received by the laboratory on 05/31/19 15:26. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mike Jaroudi

**Project Manager** 



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/07/19 11:25

#### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| B-32 @ 3' | T191764-01    | Soil   | 05/30/19 07:30 | 05/31/19 15:26 |
| B-27 @ 1' | T191764-02    | Soil   | 05/30/19 12:00 | 05/31/19 15:26 |
| B-26 @ 5' | T191764-03    | Soil   | 05/30/19 13:05 | 05/31/19 15:26 |
| B-25 @ 5' | T191764-04    | Soil   | 05/30/19 14:08 | 05/31/19 15:26 |

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Mike Jaroudi, Project Manager

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/07/19 11:25

#### **DETECTIONS SUMMARY**

| Sample ID:  | B-32 @ 3' | Labora | tory ID:  | T191764-01 |           |       |
|-------------|-----------|--------|-----------|------------|-----------|-------|
|             |           |        | Reporting |            |           |       |
| Analyte     |           | Result | Limit     | Units      | Method    | Notes |
| Barium      |           | 200    | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium    |           | 25     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt      |           | 12     | 2.0       | mg/kg      | EPA 6010b |       |
| Copper      |           | 22     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead        |           | 12     | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel      |           | 20     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium    |           | 60     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc        |           | 77     | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID:  | B-27 @ 1' | Labora | tory ID:  | T191764-02 |           |       |
|             |           |        | Reporting |            |           |       |
| Analyte     |           | Result | Limit     | Units      | Method    | Notes |
| C29-C40 (MC | PRO)      | 44     | 10        | mg/kg      | EPA 8015B |       |
| Barium      |           | 130    | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium    |           | 19     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt      |           | 9.5    | 2.0       | mg/kg      | EPA 6010b |       |
| Copper      |           | 15     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead        |           | 13     | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel      |           | 15     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium    |           | 45     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc        |           | 57     | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID:  | B-26 @ 5' | Labora | tory ID:  | T191764-03 |           |       |
|             |           |        | Reporting |            |           |       |
| Analyte     |           | Result | Limit     | Units      | Method    | Notes |
| Barium      |           | 160    | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium    |           | 24     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt      |           | 13     | 2.0       | mg/kg      | EPA 6010b |       |
| Copper      |           | 21     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead        |           | 11     | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel      |           | 20     | 2.0       | mg/kg      | EPA 6010b |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/07/19 11:25

| Sample ID: | B-26 @ 5' | Laborat | tory ID:  | T191764-03 |           |       |
|------------|-----------|---------|-----------|------------|-----------|-------|
|            |           |         | Reporting |            |           |       |
| Analyte    |           | Result  | Limit     | Units      | Method    | Notes |
| Vanadium   |           | 60      | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |           | 67      | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | B-25 @ 5' | Laborat | tory ID:  | T191764-04 |           |       |
|            |           |         | Reporting |            |           |       |
| Analyte    |           | Result  | Limit     | Units      | Method    | Notes |
| Barium     |           | 290     | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |           | 22      | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |           | 14      | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |           | 26      | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |           | 10      | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |           | 21      | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |           | 61      | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |           | 85      | 1.0       | mg/kg      | EPA 6010b |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/07/19 11:25

# B-32 @ 3' T191764-01 (Soil)

| Analyte                                  | Result | Reporting<br>Limit | Units      | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|------------------------------------------|--------|--------------------|------------|----------|---------|----------|----------|-------------------|-------|
|                                          |        | SunStar L          | aboratorio | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 80 | 15B    |                    |            |          |         |          |          |                   |       |
| C6-C12 (GRO)                             | ND     | 10                 | mg/kg      | 1        | 9060316 | 06/03/19 | 06/03/19 | EPA 8015B         |       |
| C13-C28 (DRO)                            | ND     | 10                 | "          | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                           | ND     | 10                 | "          | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                   |        | 82.3 %             | 65-1       | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                      |        |                    |            |          |         |          |          |                   |       |
| Antimony                                 | ND     | 3.0                | mg/kg      | 1        | 9060306 | 06/03/19 | 06/03/19 | EPA 6010b         |       |
| Silver                                   | ND     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Arsenic                                  | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Barium                                   | 200    | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Beryllium                                | ND     | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Cadmium                                  | ND     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Chromium                                 | 25     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Cobalt                                   | 12     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Copper                                   | 22     | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Lead                                     | 12     | 3.0                | "          | "        | "       | "        | "        | "                 |       |
| Molybdenum                               | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Nickel                                   | 20     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Selenium                                 | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Thallium                                 | ND     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Vanadium                                 | 60     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Zinc                                     | 77     | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471      |        |                    |            |          |         |          |          |                   |       |
| Mercury                                  | ND     | 0.10               | mg/kg      | 1        | 9060415 | 06/04/19 | 06/05/19 | EPA 7471A<br>Soil |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/07/19 11:25

# B-27 @ 1' T191764-02 (Soil)

| Analyte                         | Result        | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|---------------------------------|---------------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                 |               | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarl | bons by 8015B |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                    | ND            | 10                 | mg/kg     | 1        | 9060316 | 06/03/19 | 06/03/19 | EPA 8015B         |       |
| C13-C28 (DRO)                   | ND            | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                  | 44            | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl          |               | 86.8 %             | 65        | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B             |               |                    |           |          |         |          |          |                   |       |
| Antimony                        | ND            | 3.0                | mg/kg     | 1        | 9060306 | 06/03/19 | 06/03/19 | EPA 6010b         |       |
| Silver                          | ND            | 2.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Arsenic                         | ND            | 5.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Barium                          | 130           | 1.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Beryllium                       | ND            | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                         | ND            | 2.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Chromium                        | 19            | 2.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Cobalt                          | 9.5           | 2.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Copper                          | 15            | 1.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Lead                            | 13            | 3.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Molybdenum                      | ND            | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                          | 15            | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                        | ND            | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                        | ND            | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                        | 45            | 5.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Zinc                            | 57            | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470  | 7471          |                    |           |          |         |          |          |                   |       |
| Mercury                         | ND            | 0.10               | mg/kg     | 1        | 9060415 | 06/04/19 | 06/05/19 | EPA 7471A<br>Soil |       |

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Ninyo & Moore Project: UCI North Campus

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 Project Manager: Franklin Ruiz
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# B-26 @ 5' T191764-03 (Soil)

| Analyte                                 | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                         |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 8 | 015B   |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                            | ND     | 10                 | mg/kg     | 1        | 9060316 | 06/03/19 | 06/03/19 | EPA 8015B         |       |
| C13-C28 (DRO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                          | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                  |        | 92.7 %             | 65-1      | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                     |        |                    |           |          |         |          |          |                   |       |
| Antimony                                | ND     | 3.0                | mg/kg     | 1        | 9060306 | 06/03/19 | 06/03/19 | EPA 6010b         |       |
| Silver                                  | ND     | 2.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Arsenic                                 | ND     | 5.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Barium                                  | 160    | 1.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Beryllium                               | ND     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                                 | ND     | 2.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Chromium                                | 24     | 2.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Cobalt                                  | 13     | 2.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Copper                                  | 21     | 1.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Lead                                    | 11     | 3.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Molybdenum                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                  | 20     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                | 60     | 5.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Zinc                                    | 67     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471     |        |                    |           |          |         |          |          |                   |       |
| Mercury                                 | ND     | 0.10               | mg/kg     | 1        | 9060415 | 06/04/19 | 06/05/19 | EPA 7471A<br>Soil |       |

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 Project Manager: Franklin Ruiz
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# B-25 @ 5' T191764-04 (Soil)

| Analyte                                  | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|------------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                          |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 80 | 015B   |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                             | ND     | 10                 | mg/kg     | 1        | 9060316 | 06/03/19 | 06/04/19 | EPA 8015B         |       |
| C13-C28 (DRO)                            | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                   |        | 89.4 %             | 65-1      | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                      |        |                    |           |          |         |          |          |                   |       |
| Antimony                                 | ND     | 3.0                | mg/kg     | 1        | 9060306 | 06/03/19 | 06/03/19 | EPA 6010b         |       |
| Silver                                   | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                                  | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                   | 290    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                                | ND     | 1.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Cadmium                                  | ND     | 2.0                | "         | "        | "       | "        | 06/03/19 | "                 |       |
| Chromium                                 | 22     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                   | 14     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                   | 26     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                     | 10     | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                               | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                   | 21     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                 | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                 | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                 | 61     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                     | 85     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471      |        |                    |           |          |         |          |          |                   |       |
| Mercury                                  | ND     | 0.10               | mg/kg     | 1        | 9060415 | 06/04/19 | 06/05/19 | EPA 7471A<br>Soil |       |

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Ninyo & Moore Project: UCI North Campus

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 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/07/19 11:25

## **Extractable Petroleum Hydrocarbons by 8015B - Quality Control**

#### SunStar Laboratories, Inc.

|                                 |        | Reporting     |       | Spike      | Source    |          | %REC   |      | RPD   |       |
|---------------------------------|--------|---------------|-------|------------|-----------|----------|--------|------|-------|-------|
| Analyte                         | Result | Limit         | Units | Level      | Result    | %REC     | Limits | RPD  | Limit | Notes |
| Batch 9060316 - EPA 3550B GC    |        |               |       |            |           |          |        |      |       |       |
| Blank (9060316-BLK1)            |        |               |       | Prepared & | Analyzed: | 06/03/19 |        |      |       |       |
| C6-C12 (GRO)                    | ND     | 10            | mg/kg |            |           |          |        |      |       |       |
| C13-C28 (DRO)                   | ND     | 10            | "     |            |           |          |        |      |       |       |
| C29-C40 (MORO)                  | ND     | 10            | "     |            |           |          |        |      |       |       |
| Surrogate: p-Terphenyl          | 106    |               | "     | 100        |           | 106      | 65-135 |      |       |       |
| LCS (9060316-BS1)               |        |               |       | Prepared & | Analyzed: | 06/03/19 |        |      |       |       |
| C13-C28 (DRO)                   | 550    | 10            | mg/kg | 505        |           | 110      | 75-125 |      |       |       |
| Surrogate: p-Terphenyl          | 103    |               | "     | 101        |           | 102      | 65-135 |      |       |       |
| Matrix Spike (9060316-MS1)      | Sou    | rce: T191763- | 01    | Prepared & | Analyzed: | 06/03/19 |        |      |       |       |
| C13-C28 (DRO)                   | 570    | 10            | mg/kg | 495        | ND        | 114      | 75-125 |      |       |       |
| Surrogate: p-Terphenyl          | 96.7   |               | "     | 99.0       |           | 97.6     | 65-135 |      |       |       |
| Matrix Spike Dup (9060316-MSD1) | Sou    | rce: T191763- | 01    | Prepared & | Analyzed: | 06/03/19 |        |      |       |       |
| C13-C28 (DRO)                   | 520    | 10            | mg/kg | 500        | ND        | 105      | 75-125 | 7.86 | 20    |       |
| Surrogate: p-Terphenyl          | 92.4   |               | "     | 100        |           | 92.4     | 65-135 |      |       |       |

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Analyte

25712 Commercentre Drive Lake Forest, California 92630 949.297.5020 Phone 949.297.5027 Fax

RPD

Limit

Notes

%REC

Limits

RPD

Ninyo & Moore Project: UCI North Campus

Result

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/07/19 11:25

Reporting

Limit

#### Metals by EPA 6010B - Quality Control

#### SunStar Laboratories, Inc.

Units

Spike

Level

Source

Result

%REC

| 1 mary to                  | Result | Lillit      | Cints | Levei      | resuit      | /orche   | Lillins | ICI D | Lillin | 110103 |
|----------------------------|--------|-------------|-------|------------|-------------|----------|---------|-------|--------|--------|
| Batch 9060306 - EPA 3050B  |        |             |       |            |             |          |         |       |        |        |
| Blank (9060306-BLK1)       |        |             |       | Prepared & | : Analyzed: | 06/03/19 |         |       |        |        |
| Antimony                   | ND     | 3.0         | mg/kg |            |             |          |         |       |        |        |
| Silver                     | ND     | 2.0         | "     |            |             |          |         |       |        |        |
| Arsenic                    | ND     | 5.0         | "     |            |             |          |         |       |        |        |
| Barium                     | ND     | 1.0         | "     |            |             |          |         |       |        |        |
| Beryllium                  | ND     | 1.0         | "     |            |             |          |         |       |        |        |
| Cadmium                    | ND     | 2.0         | "     |            |             |          |         |       |        |        |
| Chromium                   | ND     | 2.0         | "     |            |             |          |         |       |        |        |
| Cobalt                     | ND     | 2.0         | "     |            |             |          |         |       |        |        |
| Copper                     | ND     | 1.0         | "     |            |             |          |         |       |        |        |
| Lead                       | ND     | 3.0         | "     |            |             |          |         |       |        |        |
| Molybdenum                 | ND     | 5.0         | "     |            |             |          |         |       |        |        |
| Nickel                     | ND     | 2.0         | "     |            |             |          |         |       |        |        |
| Selenium                   | ND     | 5.0         | "     |            |             |          |         |       |        |        |
| <b>Challium</b>            | ND     | 2.0         | "     |            |             |          |         |       |        |        |
| <i>V</i> anadium           | ND     | 5.0         | "     |            |             |          |         |       |        |        |
| Zinc                       | ND     | 1.0         | "     |            |             |          |         |       |        |        |
| LCS (9060306-BS1)          |        |             |       | Prepared & | Analyzed:   | 06/03/19 |         |       |        |        |
| Arsenic                    | 94.5   | 5.0         | mg/kg | 100        |             | 94.5     | 75-125  |       |        |        |
| Barium                     | 95.7   | 1.0         | "     | 100        |             | 95.7     | 75-125  |       |        |        |
| Cadmium                    | 96.0   | 2.0         | "     | 100        |             | 96.0     | 75-125  |       |        |        |
| Chromium                   | 95.9   | 2.0         | "     | 100        |             | 95.9     | 75-125  |       |        |        |
| Lead                       | 96.6   | 3.0         | "     | 100        |             | 96.6     | 75-125  |       |        |        |
| Matrix Spike (9060306-MS1) | Sourc  | e: T191763- | 01    | Prepared & | Analyzed:   | 06/03/19 |         |       |        |        |
| Arsenic                    | 81.7   | 5.0         | mg/kg | 91.7       | 1.20        | 87.7     | 75-125  |       |        |        |
| Barium                     | 215    | 1.0         | "     | 91.7       | 133         | 88.8     | 75-125  |       |        |        |
| Cadmium                    | 80.5   | 2.0         | "     | 91.7       | 0.792       | 86.9     | 75-125  |       |        |        |
| Chromium                   | 100    | 2.0         | "     | 91.7       | 17.8        | 90.0     | 75-125  |       |        |        |
| Lead                       | 83.5   | 3.0         | "     | 91.7       | 7.05        | 83.3     | 75-125  |       |        |        |

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#### Metals by EPA 6010B - Quality Control

#### SunStar Laboratories, Inc.

| Analyte                         | Result | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC     | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |
|---------------------------------|--------|--------------------|-------|----------------|------------------|----------|----------------|------|--------------|-------|
| Batch 9060306 - EPA 3050B       |        |                    |       |                |                  |          |                |      |              |       |
| Matrix Spike Dup (9060306-MSD1) | Source | e: T191763-        | 01    | Prepared &     | λ Analyzed:      | 06/03/19 |                |      |              |       |
| Arsenic                         | 91.6   | 5.0                | mg/kg | 91.7           | 1.20             | 98.6     | 75-125         | 11.5 | 20           |       |
| Barium                          | 255    | 1.0                | "     | 91.7           | 133              | 133      | 75-125         | 17.2 | 20           | QR-04 |
| Cadmium                         | 91.1   | 2.0                | "     | 91.7           | 0.792            | 98.4     | 75-125         | 12.3 | 20           |       |
| Chromium                        | 115    | 2.0                | "     | 91.7           | 17.8             | 105      | 75-125         | 13.2 | 20           |       |
| Lead                            | 94.4   | 3.0                | "     | 91.7           | 7.05             | 95.2     | 75-125         | 12.3 | 20           |       |

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#### Cold Vapor Extraction EPA 7470/7471 - Quality Control

# SunStar Laboratories, Inc.

| Analyte                         | Result | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC        | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |
|---------------------------------|--------|--------------------|-------|----------------|------------------|-------------|----------------|------|--------------|-------|
| Batch 9060415 - EPA 7471A Soil  |        |                    |       |                |                  |             |                |      |              |       |
| Blank (9060415-BLK1)            |        |                    |       | Prepared: 0    | 06/04/19 A       | nalyzed: 06 | /05/19         |      |              |       |
| Mercury                         | ND     | 0.10               | mg/kg |                |                  |             |                |      |              |       |
| LCS (9060415-BS1)               |        |                    |       | Prepared: 0    | 06/04/19 A       | nalyzed: 06 | /05/19         |      |              |       |
| Mercury                         | 0.277  | 0.10               | mg/kg | 0.315          |                  | 88.0        | 80-120         |      |              |       |
| Matrix Spike (9060415-MS1)      | Sour   | ce: T191764-       | 01    | Prepared: 0    | 06/04/19 A       | nalyzed: 06 | /05/19         |      |              |       |
| Mercury                         | 0.286  | 0.10               | mg/kg | 0.325          | ND               | 87.8        | 75-125         |      |              |       |
| Matrix Spike Dup (9060415-MSD1) | Sour   | ce: T191764-       | 01    | Prepared: 0    | 06/04/19 A       | nalyzed: 06 | /05/19         |      |              |       |
| Mercury                         | 0.299  | 0.10               | mg/kg | 0.315          | ND               | 95.2        | 75-125         | 4.74 | 20           |       |

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Mike Jaroudi, Project Manager

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/07/19 11:25

#### **Notes and Definitions**

QR-04 The percent recovery and/or RPD was outside acceptance criteria. Results accepted based upon percent recovery results in duplicate

QC sample and the CCV and CCB results.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

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# SunStar Laboratories

# **Chain of Custody Record**

25712 Commercentre Drive, Lake Forest, CA 92630 949-297-5020

| Address: M75 Gallo<br>Phone: (949) 752-                                                                        | 1 50× 2                                            | 300                   | ורה כב                                                                          | 4 * 4<br>2 * 1 |                        | Date:<br>Projec | ct Nar   | ne: | UC    | , ,<br>,( | ν                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | orn             | C          | Pag<br>O (v<br>Clier | e:Of<br>VW<br>nt Project #: 2695700   \ | -<br>-                |
|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-----------------------|---------------------------------------------------------------------------------|----------------|------------------------|-----------------|----------|-----|-------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------|----------------------|-----------------------------------------|-----------------------|
| Project Manager: Fran                                                                                          | Klin Rurz                                          |                       |                                                                                 |                |                        | Batch           |          |     |       | 17        | 76                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 4               |            | EDF                  |                                         | -                     |
| Sample ID  OI 6-32 © 3'  O2 8-27 © 1  O3 6-26 © 5'  Relinquished by: (signature)  Relinquished by: (signature) | Date Sampled T 5/30/14 7:3 5/20/19 12: 5/30/19 12: | Received b Received b | Yoz Glas Jar y: (signature) |                | Date - 19 Date - 3(-1) | e / Tim         | :04<br>e | Cha | 90 ui | Tot       | al # wody s work with the state of the state | of contaeals Y/ | DNA<br>NNA |                      | Comments/Preservative TCC TCC TCC Notes | Total # of containers |



# SAMPLE RECEIVING REVIEW SHEET

| Batch/Work Order #:                                   | T19 1764                                                                                                             |                             |                                                                              |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------|
| Client Name:                                          | Ningo & Moore - Irvine                                                                                               | Project:                    | UCI North Campus                                                             |
| Delivered by:                                         | Client SunStar Courier                                                                                               |                             | FedEx Other                                                                  |
| If Courier, Received by:                              | Paul                                                                                                                 | Date/Time Cour<br>Received: | rier <u>S-31-19</u> 15:04                                                    |
| Lab Received by:                                      | Dan                                                                                                                  | Date/Time Lab Received:     | 5-31-19 15:26                                                                |
| Total number of coolers r                             | eceived: O                                                                                                           |                             |                                                                              |
| Temperature: Cooler #1                                | 2.3 °C +/- the CF (1.2°C) =                                                                                          | = 3.5                       | °C corrected temperature                                                     |
| Temperature: Cooler #2                                | °C +/- the CF (1.2°C)                                                                                                | =                           | °C corrected temperature                                                     |
| Temperature: Cooler #3                                | °C +/- the CF (1.2°C)                                                                                                |                             | °C corrected temperature                                                     |
| Temperature criteria = (no frozen containers)         | ≤6°C Within cr                                                                                                       | iteria?                     | ✓Yes □No                                                                     |
| If NO: Samples received If on ice, samples collected? | received same day                                                                                                    | Accentable                  | ☐No →  Complete Non-Conformance Sheet  ☐No →  Complete Non-Conformance Sheet |
| Custody seals intact on co                            | ooler/sample                                                                                                         |                             | Yes No* N/A                                                                  |
| Sample containers intact                              |                                                                                                                      |                             | ✓Yes □No*                                                                    |
| Sample labels match Cha                               | in of Custody IDs                                                                                                    |                             | Ves □No*                                                                     |
| Total number of container                             | rs received match COC                                                                                                |                             | ☐Yes ☐No*                                                                    |
| Proper containers receive                             | d for analyses requested on COC                                                                                      |                             | Yes No*                                                                      |
| Complete shipment receive                             | ated on COC/containers for analyses<br>yed in good condition with correct te<br>es preservatives and within method s | emperatures,                | □Yes □No* □N/A □Yes □No*                                                     |
| holding times                                         |                                                                                                                      |                             |                                                                              |
|                                                       |                                                                                                                      | oler/Sample Review          | w - Initials and date: $PB = S - 3/-19$                                      |
|                                                       |                                                                                                                      | oler/Sample Reviev          | w - Initials and date: PB S - 3/-19                                          |



#### WORK ORDER

#### T191764

Client: Ninyo & Moore **Project Manager:** Mike Jaroudi **Project: UCI North Campus Project Number:** 209570014

Report To:

Ninyo & Moore Franklin Ruiz

475 Goddard, Ste. 200 Irvine, CA 92618

Date Due:

06/07/19 17:00 (5 day TAT)

Received By: Logged In By: Paul Berner

Dan Marteski

05/31/19 15:26 Date Logged In: 05/31/19 15:59

Date Received:

Samples Received at:

3.5°C

Custody Seals

No

Received On Ice Yes

Containers Intact Yes COC/Labels Agree Yes Preservation Confiri No

| Analysis                | Due                      | TAT      | Expires              | Comments |
|-------------------------|--------------------------|----------|----------------------|----------|
| T191764-01 B-32 @ 3' [S | Soil] Sampled 05/30/19 0 | 7:30 (GM | Γ-08:00) Pacific Tir | me       |
| 6010 Title 22           | 06/07/19 15:00           | 5        | 11/26/19 07:30       |          |
| 8015 Carbon Chain       | 06/07/19 15:00           | 5        | 06/13/19 07:30       |          |
| T191764-02 B-27 @ 1' [S | Soil] Sampled 05/30/19 1 | 2:00 (GM | Γ-08:00) Pacific Tir | me       |
| 6010 Title 22           | 06/07/19 15:00           | 5        | 11/26/19 12:00       |          |
| 8015 Carbon Chain       | 06/07/19 15:00           | 5        | 06/13/19 12:00       |          |
| T191764-03 B-26 @ 5' [S | Soil] Sampled 05/30/19 1 | 3:05 (GM | Γ-08:00) Pacific Tir | me       |
| 6010 Title 22           | 06/07/19 15:00           | 5        | 11/26/19 13:05       |          |
| 8015 Carbon Chain       | 06/07/19 15:00           | 5        | 06/13/19 13:05       |          |
| T191764-04 B-25 @ 5' [S | Soil] Sampled 05/30/19 1 | 4:08 (GM | Γ-08:00) Pacific Tir | me       |
| 6010 Title 22           | 06/07/19 15:00           | 5        | 11/26/19 14:08       |          |
| 8015 Carbon Chain       | 06/07/19 15:00           | 5        | 06/13/19 14:08       |          |

| 6010 Title 22                 | Analysis groups included | ed in this work order |      |      |  |  |
|-------------------------------|--------------------------|-----------------------|------|------|--|--|
|                               | 6010 Title 22            |                       |      |      |  |  |
| subgroup 6010B T22 7470/71 Hg | subgroup 6010B T22       | 7470/71 Hg            | <br> | <br> |  |  |

| Reviewed By | Date |
|-------------|------|





11 June 2019

Franklin Ruiz Ninyo & Moore 475 Goddard, Ste. 200 Irvine, CA 92618

RE: UCI North Campus

Enclosed are the results of analyses for samples received by the laboratory on 06/03/19 17:26. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mike Jaroudi

**Project Manager** 



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/11/19 08:43

#### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| B-4@5'    | T191780-01    | Soil   | 06/03/19 09:40 | 06/03/19 17:26 |
| B-5@5'    | T191780-02    | Soil   | 06/03/19 13:15 | 06/03/19 17:26 |
| B-6@3'    | T191780-03    | Soil   | 06/03/19 14:30 | 06/03/19 17:26 |

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Mike Jaroudi, Project Manager

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/11/19 08:43

#### **DETECTIONS SUMMARY**

| Sample ID: | B-4@5' | Laborate | ory ID:   | T191780-01 |           |       |
|------------|--------|----------|-----------|------------|-----------|-------|
|            |        |          | Reporting |            |           |       |
| Analyte    |        | Result   | Limit     | Units      | Method    | Notes |
| Arsenic    |        | 5.6      | 5.0       | mg/kg      | EPA 6010b |       |
| Barium     |        | 200      | 1.0       | mg/kg      | EPA 6010b |       |
| Beryllium  |        | 1.4      | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |        | 29       | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |        | 15       | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |        | 27       | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |        | 16       | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |        | 25       | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |        | 70       | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |        | 97       | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | B-5@5' | Laborate | ory ID:   | T191780-02 |           |       |
|            |        |          | Reporting |            |           |       |
| Analyte    |        | Result   | Limit     | Units      | Method    | Notes |
| Arsenic    |        | 6.8      | 5.0       | mg/kg      | EPA 6010b |       |
| Barium     |        | 260      | 1.0       | mg/kg      | EPA 6010b |       |
| Beryllium  |        | 1.4      | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |        | 29       | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |        | 14       | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |        | 26       | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |        | 15       | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |        | 24       | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |        | 70       | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |        | 97       | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | B-6@3' | Laborate | ory ID:   | T191780-03 |           |       |
|            |        |          | Reporting |            |           |       |
| Analyte    |        | Result   | Limit     | Units      | Method    | Notes |
| Barium     |        | 150      | 1.0       | mg/kg      | EPA 6010b |       |
| Beryllium  |        | 1.0      | 1.0       | mg/kg      | EPA 6010b |       |
|            |        |          |           |            |           |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/11/19 08:43

| ample ID: B-6@3' | Labora | tory ID:  | T191780-03 |           |       |
|------------------|--------|-----------|------------|-----------|-------|
|                  |        | Reporting |            |           |       |
| Analyte          | Result | Limit     | Units      | Method    | Notes |
| Cobalt           | 12     | 2.0       | mg/kg      | EPA 6010b |       |
| Copper           | 20     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead             | 8.4    | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel           | 19     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium         | 54     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc             | 79     | 1.0       | mg/kg      | EPA 6010b |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
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 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/11/19 08:43

## B-4@5' T191780-01 (Soil)

| Analyte                               | Result | Reporting<br>Limit | Units      | Dilution | Batch   | Prepared | Analyzed | Method             | Notes |
|---------------------------------------|--------|--------------------|------------|----------|---------|----------|----------|--------------------|-------|
|                                       |        | SunStar L          | aboratorio | es, Inc. |         |          |          |                    |       |
| Extractable Petroleum Hydrocarbons by | 8015B  |                    |            |          |         |          |          |                    |       |
| C6-C12 (GRO)                          | ND     | 10                 | mg/kg      | 1        | 9060426 | 06/04/19 | 06/06/19 | EPA 8015B          |       |
| C13-C28 (DRO)                         | ND     | 10                 | "          | "        | "       | "        | "        | "                  |       |
| C29-C40 (MORO)                        | ND     | 10                 | "          | "        | "       | "        | "        | "                  |       |
| Surrogate: p-Terphenyl                |        | 94.6 %             | 65-1       | 35       | "       | "        | "        | "                  |       |
| Metals by EPA 6010B                   |        |                    |            |          |         |          |          |                    |       |
| Antimony                              | ND     | 3.0                | mg/kg      | 1        | 9060416 | 06/04/19 | 06/04/19 | EPA 6010b          |       |
| Silver                                | ND     | 2.0                | "          | "        | "       | "        | "        | "                  |       |
| Arsenic                               | 5.6    | 5.0                | "          | "        | "       | "        | "        | "                  |       |
| Barium                                | 200    | 1.0                | "          | "        | "       | "        | "        | "                  |       |
| Beryllium                             | 1.4    | 1.0                | "          | "        | "       | "        | "        | "                  |       |
| Cadmium                               | ND     | 2.0                | "          | "        | "       | "        | "        | "                  |       |
| Chromium                              | 29     | 2.0                | "          | "        | "       | "        | "        | "                  |       |
| Cobalt                                | 15     | 2.0                | "          | "        | "       | "        | "        | "                  |       |
| Copper                                | 27     | 1.0                | "          | "        | "       | "        | "        | "                  |       |
| Lead                                  | 16     | 3.0                | "          | "        | "       | "        | "        | "                  |       |
| Molybdenum                            | ND     | 5.0                | "          | "        | "       | "        | "        | "                  |       |
| Nickel                                | 25     | 2.0                | "          | "        | "       | "        | "        | "                  |       |
| Selenium                              | ND     | 5.0                | "          | "        | "       | "        | "        | "                  |       |
| Thallium                              | ND     | 2.0                | "          | "        | "       | "        | "        | "                  |       |
| Vanadium                              | 70     | 5.0                | "          | "        | "       | "        | "        | "                  |       |
| Zinc                                  | 97     | 1.0                | "          | "        | "       | "        | "        | "                  |       |
| Cold Vapor Extraction EPA 7470/7471   |        |                    |            |          |         |          |          |                    |       |
| Mercury                               | ND     | 0.10               | mg/kg      | 1        | 9060415 | 06/04/19 | 06/05/19 | EPA 7471 A<br>Soil |       |

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Mike Jaroudi, Project Manager Page 4 of 11



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/11/19 08:43

# B-5@5' T191780-02 (Soil)

| Analyte                               | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|---------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                       |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by | 8015B  |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                          | ND     | 10                 | mg/kg     | 1        | 9060426 | 06/04/19 | 06/06/19 | EPA 8015B         |       |
| C13-C28 (DRO)                         | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                        | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                |        | 105 %              | 65-1      | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                   |        |                    |           |          |         |          |          |                   |       |
| Antimony                              | ND     | 3.0                | mg/kg     | 1        | 9060416 | 06/04/19 | 06/04/19 | EPA 6010b         |       |
| Silver                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                               | 6.8    | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                | 260    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                             | 1.4    | 1.0                | "         | "        | "       | "        | 06/04/19 | "                 |       |
| Cadmium                               | ND     | 2.0                | "         | "        | "       | "        | 06/04/19 | "                 |       |
| Chromium                              | 29     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                | 14     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                | 26     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                  | 15     | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                            | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                | 24     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                              | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                              | 70     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                  | 97     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471   |        |                    |           |          |         |          |          |                   |       |
| Mercury                               | ND     | 0.10               | mg/kg     | 1        | 9060415 | 06/04/19 | 06/05/19 | EPA 7471A<br>Soil |       |

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Mike Jaroudi, Project Manager Page 5 of 11



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/11/19 08:43

## B-6@3' T191780-03 (Soil)

| Analyte                                 | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                         |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 8 | 015B   |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                            | ND     | 10                 | mg/kg     | 1        | 9060426 | 06/04/19 | 06/06/19 | EPA 8015B         |       |
| C13-C28 (DRO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                          | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                  |        | 111 %              | 65-1      | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                     |        |                    |           |          |         |          |          |                   |       |
| Antimony                                | ND     | 3.0                | mg/kg     | 1        | 9060416 | 06/04/19 | 06/04/19 | EPA 6010b         |       |
| Silver                                  | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                                 | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                  | 150    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                               | 1.0    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                                 | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Chromium                                | 24     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                  | 12     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                  | 20     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                    | 8.4    | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                  | 19     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                | 54     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                    | 79     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471     |        |                    |           |          |         |          |          |                   |       |
| Mercury                                 | ND     | 0.10               | mg/kg     | 1        | 9060415 | 06/04/19 | 06/05/19 | EPA 7471A<br>Soil |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/11/19 08:43

## **Extractable Petroleum Hydrocarbons by 8015B - Quality Control**

#### SunStar Laboratories, Inc.

| Analyte                      | Result                                | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC        | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |  |
|------------------------------|---------------------------------------|--------------------|-------|----------------|------------------|-------------|----------------|------|--------------|-------|--|
| Batch 9060426 - EPA 3550B GC |                                       |                    |       |                |                  |             |                |      |              |       |  |
| Blank (9060426-BLK1)         | Prepared: 06/04/19 Analyzed: 06/06/19 |                    |       |                |                  |             |                |      |              |       |  |
| C6-C12 (GRO)                 | ND                                    | 10                 | mg/kg |                |                  |             |                |      |              |       |  |
| C13-C28 (DRO)                | ND                                    | 10                 | "     |                |                  |             |                |      |              |       |  |
| C29-C40 (MORO)               | ND                                    | 10                 | "     |                |                  |             |                |      |              |       |  |
| Surrogate: p-Terphenyl       | 111                                   |                    | "     | 100            |                  | 111         | 65-135         |      |              |       |  |
| LCS (9060426-BS1)            |                                       |                    |       | Prepared: (    | 06/04/19 Aı      | nalyzed: 06 | /06/19         |      |              |       |  |
| C13-C28 (DRO)                | 490                                   | 10                 | mg/kg | 500            |                  | 98.3        | 75-125         |      |              |       |  |
| Surrogate: p-Terphenyl       | 115                                   |                    | "     | 100            |                  | 115         | 65-135         |      |              |       |  |
| LCS Dup (9060426-BSD1)       |                                       |                    |       | Prepared: (    | 06/04/19 Aı      | nalyzed: 06 | /06/19         |      |              |       |  |
| C13-C28 (DRO)                | 460                                   | 10                 | mg/kg | 500            |                  | 92.1        | 75-125         | 6.58 | 20           |       |  |
| Surrogate: p-Terphenyl       | 108                                   |                    | "     | 100            |                  | 108         | 65-135         |      |              |       |  |

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Mike Jaroudi, Project Manager

Page 7 of 11



Analyte

25712 Commercentre Drive Lake Forest, California 92630 949.297.5020 Phone 949.297.5027 Fax

RPD

Limit

Notes

%REC

Limits

RPD

Ninyo & Moore Project: UCI North Campus

Result

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/11/19 08:43

Reporting

Limit

#### Metals by EPA 6010B - Quality Control

#### SunStar Laboratories, Inc.

Units

Spike

Level

Source

Result

%REC

| 7 mary to                  | Result | Lillin      | Cints | Levei      | resuit    | /orche   | Lillins | ICI D | Liiiit | 110103 |
|----------------------------|--------|-------------|-------|------------|-----------|----------|---------|-------|--------|--------|
| Batch 9060416 - EPA 3050B  |        |             |       |            |           |          |         |       |        |        |
| Blank (9060416-BLK1)       |        |             |       | Prepared & | Analyzed: | 06/04/19 |         |       |        |        |
| Antimony                   | ND     | 3.0         | mg/kg |            |           |          |         |       |        |        |
| Silver                     | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| Arsenic                    | ND     | 5.0         | "     |            |           |          |         |       |        |        |
| Barium                     | ND     | 1.0         | "     |            |           |          |         |       |        |        |
| Beryllium                  | ND     | 1.0         | "     |            |           |          |         |       |        |        |
| Cadmium                    | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| Chromium                   | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| Cobalt                     | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| Copper                     | ND     | 1.0         | "     |            |           |          |         |       |        |        |
| Lead                       | ND     | 3.0         | "     |            |           |          |         |       |        |        |
| Molybdenum                 | ND     | 5.0         | "     |            |           |          |         |       |        |        |
| Vickel                     | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| Selenium                   | ND     | 5.0         | "     |            |           |          |         |       |        |        |
| Thallium Thallium          | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| <i>V</i> anadium           | ND     | 5.0         | "     |            |           |          |         |       |        |        |
| Zine                       | ND     | 1.0         | "     |            |           |          |         |       |        |        |
| LCS (9060416-BS1)          |        |             |       | Prepared & | Analyzed: | 06/04/19 |         |       |        |        |
| Arsenic                    | 101    | 5.0         | mg/kg | 100        |           | 101      | 75-125  |       |        |        |
| Barium                     | 102    | 1.0         | "     | 100        |           | 102      | 75-125  |       |        |        |
| Cadmium                    | 102    | 2.0         | "     | 100        |           | 102      | 75-125  |       |        |        |
| Chromium                   | 101    | 2.0         | "     | 100        |           | 101      | 75-125  |       |        |        |
| Lead                       | 99.4   | 3.0         | "     | 100        |           | 99.4     | 75-125  |       |        |        |
| Matrix Spike (9060416-MS1) | Sourc  | e: T191772- | 01    | Prepared & | Analyzed: | 06/04/19 |         |       |        |        |
| Arsenic                    | 86.7   | 5.0         | mg/kg | 94.3       | 1.26      | 90.5     | 75-125  |       |        |        |
| Barium                     | 260    | 1.0         | "     | 94.3       | 161       | 105      | 75-125  |       |        |        |
| Cadmium                    | 88.3   | 2.0         | "     | 94.3       | 0.874     | 92.6     | 75-125  |       |        |        |
| Chromium                   | 138    | 2.0         | "     | 94.3       | 49.9      | 93.6     | 75-125  |       |        |        |
| Lead                       | 90.4   | 3.0         | "     | 94.3       | 5.97      | 89.5     | 75-125  |       |        |        |

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RPD

%REC

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/11/19 08:43

Reporting

#### Metals by EPA 6010B - Quality Control

## SunStar Laboratories, Inc.

Spike

Source

| Analyte                         | Result             | Limit | Units | Level                         | Result | %REC | Limits | RPD  | Limit | Notes |
|---------------------------------|--------------------|-------|-------|-------------------------------|--------|------|--------|------|-------|-------|
| Batch 9060416 - EPA 3050B       |                    |       |       |                               |        |      |        |      |       |       |
| Matrix Spike Dup (9060416-MSD1) | Source: T191772-01 |       |       | Prepared & Analyzed: 06/04/19 |        |      |        |      |       |       |
| Arsenic                         | 92.5               | 5.0   | mg/kg | 97.1                          | 1.26   | 94.0 | 75-125 | 6.51 | 20    |       |
| Barium                          | 266                | 1.0   | "     | 97.1                          | 161    | 108  | 75-125 | 2.29 | 20    |       |
| Cadmium                         | 95.2               | 2.0   | "     | 97.1                          | 0.874  | 97.1 | 75-125 | 7.53 | 20    |       |
| Chromium                        | 147                | 2.0   | "     | 97.1                          | 49.9   | 99.9 | 75-125 | 6.10 | 20    |       |
| Lead                            | 97.3               | 3.0   | "     | 97.1                          | 5.97   | 94.1 | 75-125 | 7.38 | 20    |       |

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Mike Jaroudi, Project Manager

Page 9 of 11



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/11/19 08:43

#### Cold Vapor Extraction EPA 7470/7471 - Quality Control

# SunStar Laboratories, Inc.

| Analyte                         | Result | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC                                  | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |  |
|---------------------------------|--------|--------------------|-------|----------------|------------------|---------------------------------------|----------------|------|--------------|-------|--|
| Batch 9060415 - EPA 7471A Soil  |        |                    |       |                |                  |                                       |                |      |              |       |  |
| Blank (9060415-BLK1)            |        |                    |       |                |                  | Prepared: 06/04/19 Analyzed: 06/05/19 |                |      |              |       |  |
| Mercury                         | ND     | 0.10               | mg/kg |                |                  |                                       |                |      |              |       |  |
| LCS (9060415-BS1)               |        |                    |       | Prepared: 0    | 06/04/19 A       | nalyzed: 06                           | /05/19         |      |              |       |  |
| Mercury                         | 0.277  | 0.10               | mg/kg | 0.315          |                  | 88.0                                  | 80-120         |      |              |       |  |
| Matrix Spike (9060415-MS1)      | Sour   | ce: T191764-       | 01    | Prepared: 0    | 06/04/19 A       | nalyzed: 06                           | /05/19         |      |              |       |  |
| Mercury                         | 0.286  | 0.10               | mg/kg | 0.325          | ND               | 87.8                                  | 75-125         |      |              |       |  |
| Matrix Spike Dup (9060415-MSD1) | Sour   | Source: T191764-01 |       |                | 06/04/19 A       | nalyzed: 06                           |                |      |              |       |  |
| Mercury                         | 0.299  | 0.10               | mg/kg | 0.315          | ND               | 95.2                                  | 75-125         | 4.74 | 20           |       |  |

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Mike Jaroudi, Project Manager Page 10 of 11



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/11/19 08:43

#### **Notes and Definitions**

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

SunStar Laboratories, Inc.

H

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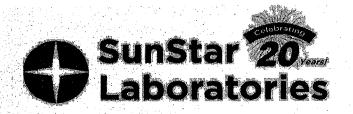
Page 11 of 11

# **SunStar**Laboratories

## **Chain of Custody Record**

25712 Commercentre Drive, Lake Forest, CA 92630 949-297-5020

| Addr<br>Phor      | ess:_<br>e: (°c | 47.<br>149 | 5 G         | 3- DC               | مرکم کی                          | Fax: (90        | 00<br>19) 733                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | - 7071                                               | -<br>- |            |                     | Date<br>Proj<br>Coll<br>Bate | ect l     | Nam<br>r:        | те:<br>С       | 14                      | <u> </u>                          |                    | Nor              | -K_            | (            | Clie | 7110 |     | 0<br>20 <del>5</del> 5 | ا ا م ه رو | 4     | <br><br>              |
|-------------------|-----------------|------------|-------------|---------------------|----------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|--------|------------|---------------------|------------------------------|-----------|------------------|----------------|-------------------------|-----------------------------------|--------------------|------------------|----------------|--------------|------|------|-----|------------------------|------------|-------|-----------------------|
| A Laboratory ID # | €-4<br>B-5      |            | ple ID      |                     | Date<br>Sampled<br>L/3/19        | Time<br>G:40 AM | Soll                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Container<br>Type<br>Y & Gloss Two<br>Y oz Gloss Two |        | 8260 + OXY | 8260 BTEX, OXY only | 8270                         | 8021 BTEX | 8015M (gasoline) | 8015M (diesel) | 8015M Ext./Carbon Chain | X   X   6010/7000 Title 22 Metals | 6020 ICP-MS Metals | XXXEPA BOISB TPH |                |              |      |      |     | nents/Pr<br>ICE        | ,          | e     | Total # of containers |
|                   | <del></del>     | · · ·      |             | <del></del>         |                                  |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                      |        |            |                     |                              |           |                  | Mark Street    | _                       |                                   |                    |                  |                |              |      |      | -   |                        |            |       | +                     |
|                   |                 |            |             |                     |                                  |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                      | -      |            | -                   |                              | _         |                  |                | $\Box$                  |                                   |                    |                  |                |              |      |      | •   | <u> </u>               |            |       | $oxed{\Box}$          |
|                   | <u> </u>        |            | <del></del> |                     |                                  |                 | AND DESCRIPTION OF THE PERSON |                                                      |        |            |                     | $\vdash$                     |           | $\dashv$         |                |                         |                                   |                    | -                |                |              |      |      |     | <u> </u>               |            |       |                       |
|                   |                 |            |             |                     |                                  |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                      |        |            |                     |                              |           |                  |                |                         |                                   |                    |                  |                |              |      |      | _   |                        |            | _     |                       |
| Relin             | quishe          | ed by: (s  | signatu     | ire)                | Date / T  L/3/  Date / T  (-3-19 | ime             | Received b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | py: (signature) py: (signature)                      |        |            | Date                | e / Ti                       | me        |                  |                |                         | Cus<br>Se                         | tody<br>als i      | # of contact     | s Y/🛭<br>? Y/N | VNA<br>I/SDA |      |      |     | No                     | ites       |       |                       |
| Relin             | quishe          | d by: (s   | signatu     | ıre)                | Date / T                         | ime             | Received b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | oy: (signature)                                      |        |            | Date                | e / Ti                       | me        |                  |                | n aro                   |                                   |                    |                  |                |              |      |      | ·   |                        | <u> </u>   | · · · |                       |
| Samp              | e dispo         | osal Inst  | ructions    | s: Dis <sub>l</sub> | oosal @ \$2.00 e                 | each            | Return                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | to client                                            |        | Pick       | up _                |                              |           | · .              |                |                         |                                   |                    |                  |                |              |      | CO   | C 1 | 813                    | 64         |       |                       |



# SAMPLE RECEIVING REVIEW SHEET

| Batch/Work Order #:                                                | T191780                     |                             |                    |             |               |
|--------------------------------------------------------------------|-----------------------------|-----------------------------|--------------------|-------------|---------------|
| Client Name:                                                       | Ningo & Moore -]            | Project:                    | <u>U</u> ,         | LI Nor      | th Campus     |
| Delivered by:                                                      |                             |                             |                    | Other       |               |
| If Courier, Received by:                                           | Trans                       | Date/Time Control Received: | ourier 6           | 3-19 1      | 4:38          |
| Lab Received by:                                                   | Pan                         | Date/Time La<br>Received:   | ab                 | - 3-19      | 17:26         |
| Total number of coolers re                                         | eceived: O                  |                             |                    |             |               |
| Temperature: Cooler #1                                             | <b>₩.</b> 8 °C +/- the CF   | $T(1.2^{\circ}C) = 2.0$     | °C corrected       | temperature |               |
| Temperature: Cooler #2                                             | °C +/- the CF               | $T(1.2^{\circ}C) =$         | °C corrected       | temperature |               |
| Temperature: Cooler #3                                             | °C +/- the CF               | $T(1.2^{\circ}C) =$         | °C corrected       | temperature |               |
| Temperature criteria = :<br>(no frozen containers)                 | ≤6°C                        | Within criteria?            | <b>☑Yes</b> [      | ∐No         |               |
| If NO:                                                             |                             |                             |                    |             |               |
| Samples received                                                   | on ice?                     | □Yes                        | □No → Complete     | Non-Confe   | ormance Sheet |
| If on ice, samples collected?                                      | received same day           | ☐Yes → Acceptable           | □No →              |             | ormance Sheet |
| Custody seals intact on co                                         | ooler/sample                |                             | ☐Yes [             | ]No* [      | ZN/A          |
| Sample containers intact                                           |                             |                             | ☑Yes [             | ]No*        |               |
| Sample labels match Cha                                            | in of Custody IDs           |                             | ☑Yes [             | ]No*        |               |
| Total number of containe                                           | rs received match COC       |                             | ☐Yes [             | ]No*        |               |
| Proper containers receive                                          | d for analyses requested    | on COC                      | □Yes [             | ]No*        |               |
| Proper preservative indica                                         | ated on COC/containers      | for analyses requested      | ∐Yes [             | ]No* [      | ZN/A          |
| Complete shipment receive containers, labels, volume holding times |                             |                             | Yes                | □No*        |               |
| * Complete Non-Conformar                                           | nce Receiving Sheet if chec | ked Cooler/Sample Rev       | view - Initials ar | nd date:    | B 6-3-19      |
| Commontes                                                          |                             |                             |                    |             |               |
| Comments:                                                          |                             |                             |                    |             |               |



#### WORK ORDER

#### T191780

Client: Ninyo & Moore **Project Manager:** Mike Jaroudi **Project: UCI North Campus Project Number:** 209570014

Report To:

Ninyo & Moore Franklin Ruiz

475 Goddard, Ste. 200 Irvine, CA 92618

Date Due:

06/11/19 17:00 (5 day TAT)

Received By: Dan Marteski Logged In By: Travis Berner Date Received:

06/03/19 17:26

Date Logged In:

06/03/19 17:31

Samples Received at:

Custody Seals

2°C No

Received On Ice Yes

Yes

Containers Intact COC/Labels Agree Yes Preservation Confiri No

| Analysis                     | Due                      | TAT       | Expires             | Comments |
|------------------------------|--------------------------|-----------|---------------------|----------|
| T191780-01 B-4@5' [Soi       | l] Sampled 06/03/19 09:  | 40 (GMT-0 | 08:00) Pacific Time |          |
| (US &                        |                          |           |                     |          |
| 6010 Title 22                | 06/11/19 15:00           | 5         | 11/30/19 09:40      |          |
| 8015 Carbon Chain            | 06/11/19 15:00           | 5         | 06/17/19 09:40      |          |
| T191780-02 B-5@5' [Soi (US & | l] Sampled 06/03/19 13:  | 15 (GMT-0 | 08:00) Pacific Time |          |
| 6010 Title 22                | 06/11/19 15:00           | 5         | 11/30/19 13:15      |          |
| 8015 Carbon Chain            | 06/11/19 15:00           | 5         | 06/17/19 13:15      |          |
| T191780-03 B-6@3' [Soi (US & | l] Sampled 06/03/19 14:. | 30 (GMT-0 | 08:00) Pacific Time |          |
| 6010 Title 22                | 06/11/19 15:00           | 5         | 11/30/19 14:30      |          |
| 8015 Carbon Chain            | 06/11/19 15:00           | 5         | 06/17/19 14:30      |          |

#### Analysis groups included in this work order 6010 Title 22 subgroup 6010B T22 7470/71 Hg





11 June 2019

Franklin Ruiz Ninyo & Moore 475 Goddard, Ste. 200 Irvine, CA 92618

RE: UCI North Campus

Enclosed are the results of analyses for samples received by the laboratory on 06/03/19 17:26. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mike Jaroudi

**Project Manager** 



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/11/19 08:45

#### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| B-29@5'   | T191782-01    | Soil   | 06/01/19 07:35 | 06/03/19 17:26 |
| B-1@5'    | T191782-02    | Soil   | 06/01/19 12:19 | 06/03/19 17:26 |
| B-2@5'    | T191782-03    | Soil   | 06/01/19 13:02 | 06/03/19 17:26 |
| B-7@5'    | T191782-04    | Soil   | 06/01/19 14:35 | 06/03/19 17:26 |
| B-3@5'    | T191782-05    | Soil   | 06/01/19 15:50 | 06/03/19 17:26 |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/11/19 08:45

#### **DETECTIONS SUMMARY**

| Sample ID:    | B-29@5' | Laborate | ory ID:   | T191782-01 |           |       |
|---------------|---------|----------|-----------|------------|-----------|-------|
|               |         |          | Reporting |            |           |       |
| Analyte       |         | Result   | Limit     | Units      | Method    | Notes |
| Barium        |         | 110      | 1.0       | mg/kg      | EPA 6010b |       |
| Beryllium     |         | 1.2      | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium      |         | 26       | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt        |         | 15       | 2.0       | mg/kg      | EPA 6010b |       |
| Copper        |         | 23       | 1.0       | mg/kg      | EPA 6010b |       |
| Lead          |         | 11       | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel        |         | 26       | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium      |         | 63       | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc          |         | 87       | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID:    | B-1@5'  | Laborate | ory ID:   | T191782-02 |           |       |
| - Sumple 12 t | B 1(0)3 |          | -         | 1171702-02 |           |       |
|               |         |          | Reporting |            |           |       |
| Analyte       |         | Result   | Limit     | Units      | Method    | Notes |
| Antimony      |         | 3.1      | 3.0       | mg/kg      | EPA 6010b |       |
| Barium        |         | 170      | 1.0       | mg/kg      | EPA 6010b |       |
| Beryllium     |         | 1.2      | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium      |         | 25       | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt        |         | 13       | 2.0       | mg/kg      | EPA 6010b |       |
| Copper        |         | 24       | 1.0       | mg/kg      | EPA 6010b |       |
| Lead          |         | 9.5      | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel        |         | 20       | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium      |         | 62       | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc          |         | 79       | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID:    | B-2@5'  | Laborate | ory ID:   | T191782-03 |           |       |
|               |         |          | Reporting |            |           |       |
| Analyte       |         | Result   | Limit     | Units      | Method    | Notes |
| Barium        |         | 620      | 1.0       | mg/kg      | EPA 6010b |       |
| Beryllium     |         | 1.1      | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium      |         | 24       | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt        |         | 12       | 2.0       | mg/kg      | EPA 6010b |       |
|               |         |          |           |            |           |       |

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Ninyo & Moore Project: UCI North Campus

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 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
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| Sample ID: | B-2@5' | Labora | tory ID:  | T191782-03 |           |       |
|------------|--------|--------|-----------|------------|-----------|-------|
|            |        |        | Reporting |            |           |       |
| Analyte    |        | Result | Limit     | Units      | Method    | Notes |
| Copper     |        | 23     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |        | 8.8    | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |        | 20     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |        | 61     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |        | 78     | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | B-7@5' | Labora | tory ID:  | T191782-04 |           |       |
|            |        |        | Reporting |            |           |       |
| Analyte    |        | Result | Limit     | Units      | Method    | Notes |
| Barium     |        | 240    | 1.0       | mg/kg      | EPA 6010b |       |
| Beryllium  |        | 1.1    | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |        | 22     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |        | 13     | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |        | 19     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |        | 9.5    | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |        | 19     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |        | 57     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |        | 73     | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | B-3@5' | Labora | tory ID:  | T191782-05 |           |       |
|            |        |        | Reporting |            |           |       |
| Analyte    |        | Result | Limit     | Units      | Method    | Notes |
| Barium     |        | 380    | 1.0       | mg/kg      | EPA 6010b |       |
| Beryllium  |        | 1.2    | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |        | 26     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |        | 14     | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |        | 26     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |        | 11     | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |        | 22     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |        | 64     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |        | 100    | 1.0       | mg/kg      | EPA 6010b |       |

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Ninyo & Moore Project: UCI North Campus

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Mike Jaroudi, Project Manager



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#### B-29@5' T191782-01 (Soil)

| Analyte                                  | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|------------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                          |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 80 | )15B   |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                             | ND     | 10                 | mg/kg     | 1        | 9060426 | 06/04/19 | 06/06/19 | EPA 8015B         |       |
| C13-C28 (DRO)                            | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                   |        | 113 %              | 65-1      | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                      |        |                    |           |          |         |          |          |                   |       |
| Antimony                                 | ND     | 3.0                | mg/kg     | 1        | 9060416 | 06/04/19 | 06/04/19 | EPA 6010b         |       |
| Silver                                   | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                                  | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                   | 110    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                                | 1.2    | 1.0                | "         | "        | "       | "        | 06/04/19 | "                 |       |
| Cadmium                                  | ND     | 2.0                | "         | "        | "       | "        | 06/04/19 | "                 |       |
| Chromium                                 | 26     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                   | 15     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                   | 23     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                     | 11     | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                               | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                   | 26     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                 | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                 | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                 | 63     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                     | 87     | 1.0                | "         | "        | "       | "        | "        | II .              |       |
| Cold Vapor Extraction EPA 7470/7471      |        |                    |           |          |         |          |          |                   |       |
| Mercury                                  | ND     | 0.10               | mg/kg     | 1        | 9060415 | 06/04/19 | 06/05/19 | EPA 7471A<br>Soil |       |

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#### B-1@5' T191782-02 (Soil)

| Analyte                             | Result   | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-------------------------------------|----------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                     |          | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons  | by 8015B |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                        | ND       | 10                 | mg/kg     | 1        | 9060426 | 06/04/19 | 06/06/19 | EPA 8015B         |       |
| C13-C28 (DRO)                       | ND       | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                      | ND       | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl              |          | 114 %              | 65-1      | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                 |          |                    |           |          |         |          |          |                   |       |
| Antimony                            | 3.1      | 3.0                | mg/kg     | 1        | 9060416 | 06/04/19 | 06/04/19 | EPA 6010b         |       |
| Silver                              | ND       | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                             | ND       | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                              | 170      | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                           | 1.2      | 1.0                | "         | "        | "       | "        | 06/04/19 | "                 |       |
| Cadmium                             | ND       | 2.0                | "         | "        | "       | "        | 06/04/19 | "                 |       |
| Chromium                            | 25       | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                              | 13       | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                              | 24       | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                | 9.5      | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                          | ND       | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                              | 20       | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                            | ND       | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                            | ND       | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                            | 62       | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                | 79       | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471 |          |                    |           |          |         |          |          |                   |       |
| Mercury                             | ND       | 0.10               | mg/kg     | 1        | 9060415 | 06/04/19 | 06/05/19 | EPA 7471A<br>Soil |       |

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#### B-2@5' T191782-03 (Soil)

| Analyte                                 | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                         |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 8 | 8015B  |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                            | ND     | 10                 | mg/kg     | 1        | 9060426 | 06/04/19 | 06/06/19 | EPA 8015B         |       |
| C13-C28 (DRO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                          | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                  |        | 110 %              | 65-1      | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                     |        |                    |           |          |         |          |          |                   |       |
| Antimony                                | ND     | 3.0                | mg/kg     | 1        | 9060416 | 06/04/19 | 06/04/19 | EPA 6010b         |       |
| Silver                                  | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                                 | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                  | 620    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                               | 1.1    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                                 | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Chromium                                | 24     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                  | 12     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                  | 23     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                    | 8.8    | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                  | 20     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                | 61     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                    | 78     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471     |        |                    |           |          |         |          |          |                   |       |
| Mercury                                 | ND     | 0.10               | mg/kg     | 1        | 9060415 | 06/04/19 | 06/05/19 | EPA 7471A<br>Soil |       |

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#### B-7@5' T191782-04 (Soil)

| Analyte                                 | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                         |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 8 | 015B   |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                            | ND     | 10                 | mg/kg     | 1        | 9060426 | 06/04/19 | 06/06/19 | EPA 8015B         |       |
| C13-C28 (DRO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                          | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                  |        | 115 %              | 65-1      | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                     |        |                    |           |          |         |          |          |                   |       |
| Antimony                                | ND     | 3.0                | mg/kg     | 1        | 9060416 | 06/04/19 | 06/04/19 | EPA 6010b         |       |
| Silver                                  | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                                 | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                  | 240    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                               | 1.1    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                                 | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Chromium                                | 22     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                  | 13     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                  | 19     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                    | 9.5    | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                  | 19     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                | 57     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                    | 73     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471     |        |                    |           |          |         |          |          |                   |       |
| Mercury                                 | ND     | 0.10               | mg/kg     | 1        | 9060415 | 06/04/19 | 06/05/19 | EPA 7471A<br>Soil |       |

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#### B-3@5' T191782-05 (Soil)

| Analyte                                  | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|------------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                          |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 80 | 015B   |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                             | ND     | 10                 | mg/kg     | 1        | 9060426 | 06/04/19 | 06/06/19 | EPA 8015B         |       |
| C13-C28 (DRO)                            | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                   |        | 113 %              | 65-1      | !35      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                      |        |                    |           |          |         |          |          |                   |       |
| Antimony                                 | ND     | 3.0                | mg/kg     | 1        | 9060416 | 06/04/19 | 06/04/19 | EPA 6010b         |       |
| Silver                                   | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                                  | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                   | 380    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                                | 1.2    | 1.0                | "         | "        | "       | "        | 06/04/19 | "                 |       |
| Cadmium                                  | ND     | 2.0                | "         | "        | "       | "        | 06/04/19 | "                 |       |
| Chromium                                 | 26     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                   | 14     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                   | 26     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                     | 11     | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                               | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                   | 22     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                 | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                 | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                 | 64     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                     | 100    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471      |        |                    |           |          |         |          |          |                   |       |
| Mercury                                  | ND     | 0.10               | mg/kg     | 1        | 9060415 | 06/04/19 | 06/05/19 | EPA 7471A<br>Soil |       |

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#### **Extractable Petroleum Hydrocarbons by 8015B - Quality Control**

#### SunStar Laboratories, Inc.

| Analyte                      | Result | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC        | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |
|------------------------------|--------|--------------------|-------|----------------|------------------|-------------|----------------|------|--------------|-------|
| Batch 9060426 - EPA 3550B GC |        |                    |       |                |                  |             |                |      |              |       |
| Blank (9060426-BLK1)         |        |                    |       | Prepared: (    | 06/04/19 A       | nalyzed: 06 | /06/19         |      |              |       |
| C6-C12 (GRO)                 | ND     | 10                 | mg/kg |                |                  |             |                |      |              |       |
| C13-C28 (DRO)                | ND     | 10                 | "     |                |                  |             |                |      |              |       |
| C29-C40 (MORO)               | ND     | 10                 | "     |                |                  |             |                |      |              |       |
| Surrogate: p-Terphenyl       | 111    |                    | "     | 100            |                  | 111         | 65-135         |      |              |       |
| LCS (9060426-BS1)            |        |                    |       | Prepared: (    | 06/04/19 A       | nalyzed: 06 | /06/19         |      |              |       |
| C13-C28 (DRO)                | 490    | 10                 | mg/kg | 500            |                  | 98.3        | 75-125         |      |              |       |
| Surrogate: p-Terphenyl       | 115    |                    | "     | 100            |                  | 115         | 65-135         |      |              |       |
| LCS Dup (9060426-BSD1)       |        |                    |       | Prepared: (    | 06/04/19 A       | nalyzed: 06 | /06/19         |      |              |       |
| C13-C28 (DRO)                | 460    | 10                 | mg/kg | 500            |                  | 92.1        | 75-125         | 6.58 | 20           |       |
| Surrogate: p-Terphenyl       | 108    |                    | "     | 100            |                  | 108         | 65-135         |      |              |       |

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Analyte

25712 Commercentre Drive Lake Forest, California 92630 949.297.5020 Phone 949.297.5027 Fax

RPD

Limit

Notes

%REC

Limits

RPD

Ninyo & Moore Project: UCI North Campus

Result

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

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 06/11/19 08:45

Reporting

Limit

#### Metals by EPA 6010B - Quality Control

#### SunStar Laboratories, Inc.

Units

Spike

Level

Source

Result

%REC

| 7 mary to                  | Result | Lillin      | Cints | Levei      | resuit    | /orche   | Liiiits | ICI D | Liiiit | 110103 |
|----------------------------|--------|-------------|-------|------------|-----------|----------|---------|-------|--------|--------|
| Batch 9060416 - EPA 3050B  |        |             |       |            |           |          |         |       |        |        |
| Blank (9060416-BLK1)       |        |             |       | Prepared & | Analyzed: | 06/04/19 |         |       |        |        |
| Antimony                   | ND     | 3.0         | mg/kg |            |           |          |         |       |        |        |
| Silver                     | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| Arsenic                    | ND     | 5.0         | "     |            |           |          |         |       |        |        |
| Barium                     | ND     | 1.0         | "     |            |           |          |         |       |        |        |
| Beryllium                  | ND     | 1.0         | "     |            |           |          |         |       |        |        |
| Cadmium                    | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| Chromium                   | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| Cobalt                     | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| Copper                     | ND     | 1.0         | "     |            |           |          |         |       |        |        |
| Lead                       | ND     | 3.0         | "     |            |           |          |         |       |        |        |
| Molybdenum                 | ND     | 5.0         | "     |            |           |          |         |       |        |        |
| Vickel                     | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| Selenium                   | ND     | 5.0         | "     |            |           |          |         |       |        |        |
| Thallium Thallium          | ND     | 2.0         | "     |            |           |          |         |       |        |        |
| <i>V</i> anadium           | ND     | 5.0         | "     |            |           |          |         |       |        |        |
| Zine                       | ND     | 1.0         | "     |            |           |          |         |       |        |        |
| LCS (9060416-BS1)          |        |             |       | Prepared & | Analyzed: | 06/04/19 |         |       |        |        |
| Arsenic                    | 101    | 5.0         | mg/kg | 100        |           | 101      | 75-125  |       |        |        |
| Barium                     | 102    | 1.0         | "     | 100        |           | 102      | 75-125  |       |        |        |
| Cadmium                    | 102    | 2.0         | "     | 100        |           | 102      | 75-125  |       |        |        |
| Chromium                   | 101    | 2.0         | "     | 100        |           | 101      | 75-125  |       |        |        |
| Lead                       | 99.4   | 3.0         | "     | 100        |           | 99.4     | 75-125  |       |        |        |
| Matrix Spike (9060416-MS1) | Sourc  | e: T191772- | 01    | Prepared & | Analyzed: | 06/04/19 |         |       |        |        |
| Arsenic                    | 86.7   | 5.0         | mg/kg | 94.3       | 1.26      | 90.5     | 75-125  |       |        |        |
| Barium                     | 260    | 1.0         | "     | 94.3       | 161       | 105      | 75-125  |       |        |        |
| Cadmium                    | 88.3   | 2.0         | "     | 94.3       | 0.874     | 92.6     | 75-125  |       |        |        |
| Chromium                   | 138    | 2.0         | "     | 94.3       | 49.9      | 93.6     | 75-125  |       |        |        |
| Lead                       | 90.4   | 3.0         | "     | 94.3       | 5.97      | 89.5     | 75-125  |       |        |        |

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Mike Jaroudi, Project Manager

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RPD

%REC

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/11/19 08:45

Reporting

#### Metals by EPA 6010B - Quality Control

#### SunStar Laboratories, Inc.

Spike

Source

| Analyte                         | Result | Limit       | Units | Level      | Result    | %REC     | Limits | RPD  | Limit | Notes |
|---------------------------------|--------|-------------|-------|------------|-----------|----------|--------|------|-------|-------|
| Batch 9060416 - EPA 3050B       |        |             |       |            |           |          |        |      |       |       |
| Matrix Spike Dup (9060416-MSD1) | Source | e: T191772- | 01    | Prepared & | Analyzed: | 06/04/19 |        |      |       |       |
| Arsenic                         | 92.5   | 5.0         | mg/kg | 97.1       | 1.26      | 94.0     | 75-125 | 6.51 | 20    |       |
| Barium                          | 266    | 1.0         | "     | 97.1       | 161       | 108      | 75-125 | 2.29 | 20    |       |
| Cadmium                         | 95.2   | 2.0         | "     | 97.1       | 0.874     | 97.1     | 75-125 | 7.53 | 20    |       |
| Chromium                        | 147    | 2.0         | "     | 97.1       | 49.9      | 99.9     | 75-125 | 6.10 | 20    |       |
| Lead                            | 97.3   | 3.0         | "     | 97.1       | 5.97      | 94.1     | 75-125 | 7.38 | 20    |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/11/19 08:45

#### Cold Vapor Extraction EPA 7470/7471 - Quality Control

#### SunStar Laboratories, Inc.

| Analyte                         | Result | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC        | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |
|---------------------------------|--------|--------------------|-------|----------------|------------------|-------------|----------------|------|--------------|-------|
| Batch 9060415 - EPA 7471A Soil  |        |                    |       |                |                  |             |                |      |              |       |
| Blank (9060415-BLK1)            |        |                    |       | Prepared: 0    | 06/04/19 A       | nalyzed: 06 | /05/19         |      |              |       |
| Mercury                         | ND     | 0.10               | mg/kg |                |                  |             |                |      |              |       |
| LCS (9060415-BS1)               |        |                    |       | Prepared: 0    | 06/04/19 A       | nalyzed: 06 | /05/19         |      |              |       |
| Mercury                         | 0.277  | 0.10               | mg/kg | 0.315          |                  | 88.0        | 80-120         |      |              |       |
| Matrix Spike (9060415-MS1)      | Sour   | ce: T191764-       | 01    | Prepared: 0    | 06/04/19 A       | nalyzed: 06 | /05/19         |      |              |       |
| Mercury                         | 0.286  | 0.10               | mg/kg | 0.325          | ND               | 87.8        | 75-125         |      |              |       |
| Matrix Spike Dup (9060415-MSD1) | Sour   | ce: T191764-       | 01    | Prepared: 0    | 06/04/19 A       | nalyzed: 06 | /05/19         |      |              |       |
| Mercury                         | 0.299  | 0.10               | mg/kg | 0.315          | ND               | 95.2        | 75-125         | 4.74 | 20           | ·     |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/11/19 08:45

#### **Notes and Definitions**

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

SunStar Laboratories, Inc.

H

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# **Chain of Custody Record**

25712 Commercentre Drive, Lake Forest, CA 92630 949-297-5020

| Samp                          |                   | Relin                        | 0                            | Relin                                    | 7                            | Relin                    |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |        |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ٥٥          |          | 94        |          | 20         |    | 20           |          | 10            | Laboratory ID #             | Proje                     | Phone:_(                 | Address                 | Clier            |
|-------------------------------|-------------------|------------------------------|------------------------------|------------------------------------------|------------------------------|--------------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------|-----------|----------|------------|----|--------------|----------|---------------|-----------------------------|---------------------------|--------------------------|-------------------------|------------------|
| Sample disposal Instructions: |                   | Relinquished by: (signature) | 6                            | Relinq <del>uishe</del> d by: (signature |                              | Relinquished by:         |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |        |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | B-3         |          | 8-72      |          | 8-2P       |    | 8-10         |          | 3 br-9        |                             | Project Manager: Franklin | ē<br>Q                   | ess:                    | Client: (1) 20 s |
| al Inst                       |                   | by: (s                       |                              | by: (s                                   | \<br><b>~</b>                | by: (s                   |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |        |     | (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2           | -        | U         |          |            |    | V            |          | (9)           | Samı                        | ager:                     | વિષ9                     | シア                      | Ć                |
| ruction                       |                   | ignati                       | 1                            | ignati                                   |                              | (signature)              |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |        |     | OHE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | U           |          | 7         |          | Ù          | •  | B            |          | J             | Sample ID                   | 3                         | 1                        | _                       | do               |
|                               |                   | ure)                         | <u>م</u>                     | ure)                                     |                              | ure)                     |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |        |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             | •        |           |          |            |    |              |          |               |                             | الملام                    | 753-                     | Godd ard                | <u></u>          |
| Dispos                        |                   |                              | 6-7-19                       |                                          |                              |                          |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |        | _   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 6           |          | ~         | $\dashv$ | 6          | +  | ٦            | -        |               |                             |                           | لُ                       | 3                       | Tool C           |
| al @                          | ja vi             | - 1                          |                              | Da                                       | 6/3/19                       | D                        |          | STANSON OF THE PARTY OF THE PAR |          |        |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ,<br>       |          | $\exists$ |          | $\exists$  |    |              | 1        | /1/19         | Date<br>Sampled             | Curz                      | 0406                     | 3                       | f                |
| Disposal @ \$2.00 each        |                   | Date / Time                  | 17:26                        | Date / T                                 | <u>''</u><br>و               | Date / Time              |          | NAME OF TAXABLE PARTY.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |        |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 12          |          | 2         |          | ٥          |    | 2            | ,        | 2             | lte<br>pled                 | 7                         | O                        |                         |                  |
| each                          |                   | ime                          | 6.3                          | Time                                     |                              | ime                      |          | and the same                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |          |        | _   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 30          |          | P         | -        | _          |    | 13           |          | 77:           |                             |                           | Fax: (                   | Sun Le                  |                  |
|                               |                   |                              |                              |                                          |                              |                          |          | W. Carrer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |        |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 40 OS ( E   |          | 2:35 PM   |          | 102 pm     | •  | NPI:         |          | 7:35 AM       | Time                        |                           | <u>6)</u>                |                         |                  |
|                               |                   | Rec                          |                              | Rec                                      |                              | Re                       |          | 2000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |        | -   | $\vdash$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |          |           |          |            |    | 17:19M SOIL  | _        | -             | S                           |                           | 25L (5hb)                | S                       |                  |
| Retu                          | a.                | ceive                        | and the                      | Receive                                  | 7                            | ceive                    |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |        |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Soil        | ` .      | 2016      |          | 201        |    |              |          | 71 PS         | Sample<br>Type              |                           | , SL                     | 0                       |                  |
| Return to client              | - Ve              | Received by: (signature)     |                              | <b>t</b> by: (                           | $\mathcal{A}$                | Received by: (signature) |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |        |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Ш           |          |           | _        | <u></u>    |    |              |          | 2             |                             |                           | 3-7                      |                         |                  |
| lient _                       |                   | signa                        | 5                            | (Šignature)                              | 1                            | signa                    |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | A        |        |     | Bearing the State of the State | Yoz Glan Fr |          | 4026 Jay  |          | Marcha Tro | Š. | Yoz Glas Jar |          | Maz Glass Jo- | Container<br>Type           | 1                         | 70                       |                         |                  |
| -                             |                   | ture)                        | Ş                            | ture)                                    | N                            | ture)                    |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | STATE OF |        |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             | 5,       | 7         |          |            |    | ۲            | ar<br>.: | ٦٥١           | iner                        |                           |                          |                         |                  |
|                               |                   |                              |                              |                                          | Ŋ                            |                          |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | CARROLL  |        |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             |          |           |          | ,          |    |              |          |               | 8260                        |                           | w/s                      | 1                       |                  |
| Pickup                        | la de             |                              | 6-1                          | , _                                      | 6                            | _                        | ļ        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.00     |        |     | L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |             | - 1      |           |          |            |    |              |          |               | 8260 + OXY                  |                           |                          |                         |                  |
| ٦                             |                   | )ate /                       | -3-1                         | Date /                                   | 6-2-                         | Date /                   | _        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |        | 1   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             | 1        | 1         |          |            | _  | 4.           | -        | _             | 8260 BTEX, OXY only<br>8270 | <b></b>                   | 0                        | п.                      |                  |
| 1                             |                   | Date / Time                  | 19 1726                      | Time                                     | 19 14:38                     | Date / Time              | 1 E      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -        |        | +   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Н           |          |           | $\dashv$ | _          |    |              |          |               | 8270<br>8021 BTEX           | Batch #:                  | Collector:               | Project Name:           | Date:            |
| •                             |                   | U                            | بر                           | <br>                                     | 4.38                         | Ψ                        |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |        | +   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             |          |           |          | _          |    |              |          |               | 8015M (gasoline)            | #                         | ğ                        | ot Na                   |                  |
|                               | Ţ                 |                              | 1.1                          | 13.1                                     |                              |                          |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |        |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | П           |          |           | 7        | : "        |    | -            |          | -             | 8015M (diesel)              | +                         | 2                        | me:                     | $\equiv$         |
|                               | n arc             |                              | (ecei                        |                                          | ain of                       |                          |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          | 2000   |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             | .*       |           |          |            |    |              |          |               | 8015M Ext./Carbon Chain     | 917                       | 7                        | ح                       | 7%               |
|                               | bnu               |                              | ed go                        | Sea                                      | Cust                         | τo                       |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          | V      |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | X           |          | X         |          | X          |    | X            |          | $\sim$        | 6010/7000 Title 22 Metals   | 782                       |                          | 의                       | 3                |
|                               | Turn around time: |                              | 00<br>C                      | als int                                  | ody s                        | tal#                     |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          | A      |     | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |             | _        |           | _        |            | ,  |              |          |               | 6020 ICP-MS Metals          |                           |                          | _                       |                  |
|                               |                   | , file,                      | onditi                       | act?                                     | eals \                       | 엉                        | _        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | - 1      |        |     | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ×           | -        | X         | _        | X          | _  | X            | _        | ×             | TPA 8015B TPH               |                           |                          | 44.00                   |                  |
|                               |                   |                              | Received good condition/cold | Seals intact? Y/N/NA                     | Chain of Custody seals Y/ŴNA | Total # of containers    |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 7        | Н      |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             | <u>`</u> | +         |          |            |    |              | -        |               |                             |                           |                          | 7                       |                  |
|                               |                   | •                            | 1d 2.0                       | N/4                                      |                              | ω                        |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | +        |        |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             |          | $\dashv$  | $\dashv$ | -          |    | -            | _        | -             |                             | П                         | ၂ ၂                      | $\triangle^{\parallel}$ | т.               |
| 1                             | ' ,<br>           |                              | <u>්</u>                     | A                                        |                              |                          |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |        |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             |          |           | $\dashv$ |            |    | _            |          |               |                             | EDF#:                     | lient                    | 2445                    | Page:            |
|                               |                   |                              |                              |                                          | . 4                          |                          |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |        | OT. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             |          |           |          |            | •  |              |          |               |                             |                           | Client Project #: 209570 | ا څ                     | · ·              |
|                               | ٠.                |                              |                              | ì                                        |                              |                          |          | ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |        | 9   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | اسه         |          |           |          |            |    |              |          |               | Comn                        |                           | ect#:                    | ۱,                      | د ر<br>مسیور     |
|                               |                   |                              | 4.                           | : <u> </u>                               |                              |                          |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |        | ١   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | CC          |          | 707       |          | 72         |    | 6            |          | 30I           | nents                       |                           | 20                       |                         |                  |
|                               |                   |                              |                              |                                          |                              | Notes                    |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |        |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | G           |          | Ct.       |          | C          |    | Ct           |          | C             | /Pres                       |                           | 957                      |                         | Q                |
|                               |                   |                              |                              |                                          |                              | S                        |          | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |        |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 9           |          |           |          |            |    |              |          |               | Comments/Preservative       |                           | 0                        |                         |                  |
|                               |                   | , repl<br>sees               | 100 L                        |                                          |                              |                          |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          | ļ.<br> |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             | . :      |           |          |            |    |              |          |               | Ye                          |                           | -                        |                         |                  |
| -                             |                   |                              |                              |                                          |                              |                          | <i> </i> | Н                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |        |     | $\coprod$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |          |           | -        |            | _  |              |          |               |                             |                           |                          |                         |                  |
|                               |                   |                              |                              |                                          |                              |                          | <u> </u> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |        |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             |          |           |          | _          |    |              |          | <b>-</b>      | Total # of containers       |                           |                          |                         |                  |



# SAMPLE RECEIVING REVIEW SHEET

| Batch/Work Order #: 19782                                                                                                                   | and the second of the second o |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client Name: Nayof More - Irwie                                                                                                             | Project:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Delivered by: ☐ Client ☑ SunStar Courie                                                                                                     | r 🗌 GSO 🔲 FedEx 🔝 Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| If Courier, Received by:                                                                                                                    | Date/Time Courier Received: 6-3-19 14:38                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Lab Received by:                                                                                                                            | Date/Time Lab Received: 6-3-19 17:26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Total number of coolers received: 0                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Temperature: Cooler #1 · & °C +/- the CF (1.2°C)                                                                                            | = 2.0 °C corrected temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Temperature: Cooler #2 °C +/- the CF (1.2°C)                                                                                                | = °C corrected temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Temperature: Cooler #3 °C +/- the CF (1.2°C)                                                                                                | = °C corrected temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Temperature criteria = $\leq 6^{\circ}$ C Within c (no frozen containers)                                                                   | riteria? <b>Vyes No</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| If NO:                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Samples received on ice?                                                                                                                    | □No → Complete Non-Conformance Sheet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| If on ice, samples received same day collected?                                                                                             | Acceptable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Custody seals intact on cooler/sample                                                                                                       | □Yes □No* ☑N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Sample containers intact                                                                                                                    | ✓Yes □No*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Sample labels match Chain of Custody IDs                                                                                                    | ✓Yes □No*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Total number of containers received match COC                                                                                               | ✓Yes □No*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Proper containers received for analyses requested on COC                                                                                    | ✓Yes □No*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Proper preservative indicated on COC/containers for analyse                                                                                 | es requested  Yes No*  N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Complete shipment received in good condition with correct t<br>containers, labels, volumes preservatives and within method<br>holding times |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| * Complete Non-Conformance Receiving Sheet if checked Co                                                                                    | poler/Sample Review - Initials and date: \( \tag{\beta} \) \( \beta - \frac{3}{2} - 19 \)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Comments:                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |





#### WORK ORDER

#### T191782

Client:Ninyo & MooreProject Manager:Mike JaroudiProject:UCI North CampusProject Number:209570014

Report To:

Ninyo & Moore Franklin Ruiz

475 Goddard, Ste. 200 Irvine, CA 92618

Date Due:

06/11/19 17:00 (5 day TAT)

Received By: Dan Marteski Logged In By: Travis Berner Date Received: 0

06/03/19 17:26

Date Logged In: 06/0

06/03/19 17:45

Samples Received at:

nt: 2°C

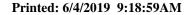
Custody Seals No

Received On Ice Yes

COC/Labels Agree Yes
Preservation Confir No

| Analysis                           | Due                  | TAT       | Expires              | Comments |
|------------------------------------|----------------------|-----------|----------------------|----------|
| T191782-01 B-29@5' [Soil]<br>(US & | Sampled 06/01/19 07  | :35 (GMT  | -08:00) Pacific Time |          |
| 6010 Title 22                      | 06/11/19 15:00       | 5         | 11/28/19 07:35       |          |
| 8015 Carbon Chain                  | 06/11/19 15:00       | 5         | 06/15/19 07:35       |          |
| T191782-02 B-1@5' [Soil] (US &     | Sampled 06/01/19 12: | 19 (GMT-0 | 08:00) Pacific Time  |          |
| 6010 Title 22                      | 06/11/19 15:00       | 5         | 11/28/19 12:19       |          |
| 8015 Carbon Chain                  | 06/11/19 15:00       | 5         | 06/15/19 12:19       |          |
| T191782-03 B-2@5' [Soil] (US &     | Sampled 06/01/19 13: | 02 (GMT-0 | 08:00) Pacific Time  |          |
| 6010 Title 22                      | 06/11/19 15:00       | 5         | 11/28/19 13:02       |          |
| 8015 Carbon Chain                  | 06/11/19 15:00       | 5         | 06/15/19 13:02       |          |
| T191782-04 B-7@5' [Soil] (US &     | Sampled 06/01/19 14: | 35 (GMT-0 | 08:00) Pacific Time  |          |
| 6010 Title 22                      | 06/11/19 15:00       | 5         | 11/28/19 14:35       |          |
| 8015 Carbon Chain                  | 06/11/19 15:00       | 5         | 06/15/19 14:35       |          |
| T191782-05 B-3@5' [Soil] (US &     | Sampled 06/01/19 15: | 50 (GMT-0 | 08:00) Pacific Time  |          |
| 6010 Title 22                      | 06/11/19 15:00       | 5         | 11/28/19 15:50       |          |
| 8015 Carbon Chain                  | 06/11/19 15:00       | 5         | 06/15/19 15:50       |          |

| _  |         | -  |
|----|---------|----|
| ĸ  | eviewed | Rv |
| 1, | CVICWCU | DУ |





#### WORK ORDER

#### T191782

| Client: Ninyo & M. Project: UCI North |                        | Project Manager:<br>Project Number: | Mike Jaroudi<br>209570014 |  |
|---------------------------------------|------------------------|-------------------------------------|---------------------------|--|
| Analysis groups includ                | led in this work order |                                     |                           |  |
| 6010 Title 22                         |                        |                                     |                           |  |
| subgroup 6010B T22                    | 7470/71 Hg             |                                     |                           |  |

Reviewed By Date Page 2 of 2





12 June 2019

Franklin Ruiz Ninyo & Moore 475 Goddard, Ste. 200 Irvine, CA 92618

RE: UCI North Campus

Enclosed are the results of analyses for samples received by the laboratory on 06/05/19 16:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mike Jaroudi

**Project Manager** 



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/12/19 11:03

#### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| B-34 @ 5  | T191835-01    | Soil   | 06/04/19 10:28 | 06/05/19 16:50 |
| B-35 @ 5  | T191835-02    | Soil   | 06/04/19 15:25 | 06/05/19 16:50 |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/12/19 11:03

#### **DETECTIONS SUMMARY**

| Sample ID:                   | B-34 @ 5 | Laborat           | ory ID:           | T191835-01              |                                     |       |
|------------------------------|----------|-------------------|-------------------|-------------------------|-------------------------------------|-------|
|                              |          |                   | Reporting         |                         |                                     |       |
| Analyte                      |          | Result            | Limit             | Units                   | Method                              | Notes |
| Barium                       |          | 170               | 1.0               | mg/kg                   | EPA 6010b                           |       |
| Chromium                     |          | 13                | 2.0               | mg/kg                   | EPA 6010b                           |       |
| Cobalt                       |          | 5.1               | 2.0               | mg/kg                   | EPA 6010b                           |       |
| Copper                       |          | 8.7               | 1.0               | mg/kg                   | EPA 6010b                           |       |
| Lead                         |          | 3.7               | 3.0               | mg/kg                   | EPA 6010b                           |       |
| Nickel                       |          | 9.9               | 2.0               | mg/kg                   | EPA 6010b                           |       |
| Vanadium                     |          | 29                | 5.0               | mg/kg                   | EPA 6010b                           |       |
| Zinc                         |          | 30                | 1.0               | mg/kg                   | EPA 6010b                           |       |
|                              |          |                   |                   |                         |                                     |       |
| Sample ID:                   | B-35 @ 5 | Laborat           | ory ID:           | T191835-02              |                                     |       |
|                              |          |                   | Reporting         |                         |                                     |       |
| Analyte                      |          | Result            | Limit             | Units                   | Method                              | Notes |
|                              |          |                   |                   |                         |                                     |       |
| Barium                       |          | 44                | 1.0               | mg/kg                   | EPA 6010b                           |       |
| Barium<br>Chromium           |          | 44<br>8.1         | 1.0<br>2.0        | mg/kg<br>mg/kg          | EPA 6010b<br>EPA 6010b              |       |
|                              |          |                   |                   |                         |                                     |       |
| Chromium                     |          | 8.1               | 2.0               | mg/kg                   | EPA 6010b                           |       |
| Chromium<br>Cobalt           |          | 8.1<br>2.7        | 2.0<br>2.0        | mg/kg<br>mg/kg          | EPA 6010b<br>EPA 6010b              |       |
| Chromium<br>Cobalt<br>Copper |          | 8.1<br>2.7<br>2.8 | 2.0<br>2.0<br>1.0 | mg/kg<br>mg/kg<br>mg/kg | EPA 6010b<br>EPA 6010b<br>EPA 6010b |       |

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Ninyo & Moore Project: UCI North Campus

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 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/12/19 11:03

#### B-34 @ 5 T191835-01 (Soil)

| Analyte                                 | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                         |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 8 | 015B   |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                            | ND     | 10                 | mg/kg     | 1        | 9060609 | 06/06/19 | 06/07/19 | EPA 8015B         |       |
| C13-C28 (DRO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                          | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                  |        | 123 %              | 65-1      | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                     |        |                    |           |          |         |          |          |                   |       |
| Antimony                                | ND     | 3.0                | mg/kg     | 1        | 9060611 | 06/06/19 | 06/11/19 | EPA 6010b         |       |
| Silver                                  | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                                 | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                  | 170    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                               | ND     | 1.0                | "         | "        | "       | "        | 06/11/19 | "                 |       |
| Cadmium                                 | ND     | 2.0                | "         | "        | "       | "        | 06/11/19 | "                 |       |
| Chromium                                | 13     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                  | 5.1    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                  | 8.7    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                    | 3.7    | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                  | 9.9    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                | 29     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                    | 30     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471     |        |                    |           |          |         |          |          |                   |       |
| Mercury                                 | ND     | 0.10               | mg/kg     | 1        | 9060610 | 06/06/19 | 06/07/19 | EPA 7471A<br>Soil |       |

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Ninyo & Moore Project: UCI North Campus

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 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/12/19 11:03

#### B-35 @ 5 T191835-02 (Soil)

| Analyte                               | Result  | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|---------------------------------------|---------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                       |         | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by | y 8015B |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                          | ND      | 10                 | mg/kg     | 1        | 9060609 | 06/06/19 | 06/07/19 | EPA 8015B         |       |
| C13-C28 (DRO)                         | ND      | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                        | ND      | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                |         | 113 %              | 65-1      | !35      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                   |         |                    |           |          |         |          |          |                   |       |
| Antimony                              | ND      | 3.0                | mg/kg     | 1        | 9060611 | 06/06/19 | 06/11/19 | EPA 6010b         |       |
| Silver                                | ND      | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                               | ND      | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                | 44      | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                             | ND      | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                               | ND      | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Chromium                              | 8.1     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                | 2.7     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                | 2.8     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                  | ND      | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                            | ND      | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                | 3.7     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                              | ND      | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                              | ND      | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                              | 16      | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                  | 18      | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471   |         |                    |           |          |         |          |          |                   |       |
| Mercury                               | ND      | 0.10               | mg/kg     | 1        | 9060610 | 06/06/19 | 06/07/19 | EPA 7471A<br>Soil |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/12/19 11:03

#### **Extractable Petroleum Hydrocarbons by 8015B - Quality Control**

#### SunStar Laboratories, Inc.

|                                 |        | Reporting  |       | Spike       | Source     |             | %REC    |      | RPD   |       |
|---------------------------------|--------|------------|-------|-------------|------------|-------------|---------|------|-------|-------|
| Analyte                         | Result | Limit      | Units | Level       | Result     | %REC        | Limits  | RPD  | Limit | Notes |
| Batch 9060609 - EPA 3550B GC    |        |            |       |             |            |             |         |      |       |       |
| Blank (9060609-BLK1)            |        |            |       | Prepared: ( | 06/06/19 A | nalyzed: 06 | 5/07/19 |      |       |       |
| C6-C12 (GRO)                    | ND     | 10         | mg/kg |             |            |             |         |      |       |       |
| C13-C28 (DRO)                   | ND     | 10         | "     |             |            |             |         |      |       |       |
| C29-C40 (MORO)                  | ND     | 10         | "     |             |            |             |         |      |       |       |
| Surrogate: p-Terphenyl          | 127    |            | "     | 100         |            | 127         | 65-135  |      |       |       |
| LCS (9060609-BS1)               |        |            |       | Prepared: ( | 06/06/19 A | nalyzed: 06 | 5/07/19 |      |       |       |
| C13-C28 (DRO)                   | 530    | 10         | mg/kg | 500         |            | 107         | 75-125  |      |       |       |
| Surrogate: p-Terphenyl          | 121    |            | "     | 100         |            | 121         | 65-135  |      |       |       |
| Matrix Spike (9060609-MS1)      | Source | : T191820- | 03    | Prepared: ( | 06/06/19 A | nalyzed: 06 | 5/07/19 |      |       |       |
| C13-C28 (DRO)                   | 520    | 10         | mg/kg | 510         | ND         | 101         | 75-125  |      |       |       |
| Surrogate: p-Terphenyl          | 115    |            | "     | 102         |            | 112         | 65-135  |      |       |       |
| Matrix Spike Dup (9060609-MSD1) | Source | : T191820- | 03    | Prepared: ( | 06/06/19 A | nalyzed: 06 | 5/07/19 |      |       |       |
| C13-C28 (DRO)                   | 510    | 10         | mg/kg | 505         | ND         | 101         | 75-125  | 1.28 | 20    |       |
| Surrogate: p-Terphenyl          | 117    |            | "     | 101         |            | 116         | 65-135  |      |       |       |
|                                 |        |            |       |             |            |             |         |      |       |       |

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RPD

%REC

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/12/19 11:03

Reporting

#### Metals by EPA 6010B - Quality Control

#### SunStar Laboratories, Inc.

Spike

Source

| Analyte                    | Result | Limit       | Units | Level       | Result     | %REC        | Limits | RPD | Limit | Notes |
|----------------------------|--------|-------------|-------|-------------|------------|-------------|--------|-----|-------|-------|
| Batch 9060611 - EPA 3050B  |        |             |       |             |            |             |        |     |       |       |
| Blank (9060611-BLK1)       |        |             |       | Prepared: ( | 06/06/19 A | nalyzed: 06 | /11/19 |     |       |       |
| Antimony                   | ND     | 3.0         | mg/kg |             |            |             |        |     |       |       |
| Silver                     | ND     | 2.0         | "     |             |            |             |        |     |       |       |
| Arsenic                    | ND     | 5.0         | "     |             |            |             |        |     |       |       |
| Barium                     | ND     | 1.0         | "     |             |            |             |        |     |       |       |
| Beryllium                  | ND     | 1.0         | "     |             |            |             |        |     |       |       |
| Cadmium                    | ND     | 2.0         | "     |             |            |             |        |     |       |       |
| Chromium                   | ND     | 2.0         | "     |             |            |             |        |     |       |       |
| Cobalt                     | ND     | 2.0         | "     |             |            |             |        |     |       |       |
| Copper                     | ND     | 1.0         | "     |             |            |             |        |     |       |       |
| Lead                       | ND     | 3.0         | "     |             |            |             |        |     |       |       |
| Molybdenum                 | ND     | 5.0         | "     |             |            |             |        |     |       |       |
| Nickel                     | ND     | 2.0         | "     |             |            |             |        |     |       |       |
| Selenium                   | ND     | 5.0         | "     |             |            |             |        |     |       |       |
| Thallium                   | ND     | 2.0         | "     |             |            |             |        |     |       |       |
| Vanadium                   | ND     | 5.0         | "     |             |            |             |        |     |       |       |
| Zinc                       | ND     | 1.0         | "     |             |            |             |        |     |       |       |
| LCS (9060611-BS1)          |        |             |       | Prepared: ( | 06/06/19 A | nalyzed: 06 | /11/19 |     |       |       |
| Arsenic                    | 19.5   | 5.0         | mg/kg | 25.0        |            | 78.0        | 75-125 |     |       |       |
| Barium                     | 20.0   | 1.0         | "     | 25.0        |            | 80.1        | 75-125 |     |       |       |
| Cadmium                    | 20.0   | 2.0         | "     | 25.0        |            | 80.1        | 75-125 |     |       |       |
| Chromium                   | 20.0   | 2.0         | "     | 25.0        |            | 79.9        | 75-125 |     |       |       |
| Lead                       | 19.9   | 3.0         | "     | 25.0        |            | 79.6        | 75-125 |     |       |       |
| Matrix Spike (9060611-MS1) | Source | e: T191837- | 01    | Prepared: ( | 06/06/19 A | nalyzed: 06 | /11/19 |     |       |       |
| Arsenic                    | 18.6   | 5.0         | mg/kg | 24.8        | ND         | 74.9        | 75-125 |     |       | QM-0: |
| Barium                     | 59.9   | 1.0         | "     | 24.8        | 38.8       | 85.5        | 75-125 |     |       |       |
| Cadmium                    | 18.8   | 2.0         | "     | 24.8        | 0.282      | 74.7        | 75-125 |     |       | QM-03 |
| Chromium                   | 22.0   | 2.0         | "     | 24.8        | 5.72       | 65.9        | 75-125 |     |       | QM-03 |
| Lead                       | 18.8   | 3.0         | "     | 24.8        | 0.841      | 72.6        | 75-125 |     |       | QM-05 |

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RPD

%REC

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/12/19 11:03

Reporting

#### Metals by EPA 6010B - Quality Control

#### SunStar Laboratories, Inc.

Spike

Source

| Analyte                         | Result | Limit       | Units | Level       | Result     | %REC        | Limits | RPD  | Limit | Notes |
|---------------------------------|--------|-------------|-------|-------------|------------|-------------|--------|------|-------|-------|
| Batch 9060611 - EPA 3050B       |        |             |       |             |            |             |        |      |       |       |
| Matrix Spike Dup (9060611-MSD1) | Source | e: T191837- | 01    | Prepared: ( | 06/06/19 A | nalyzed: 06 | /11/19 |      |       |       |
| Arsenic                         | 16.7   | 5.0         | mg/kg | 24.0        | ND         | 69.5        | 75-125 | 10.5 | 20    | QM-05 |
| Barium                          | 53.2   | 1.0         | "     | 24.0        | 38.8       | 59.9        | 75-125 | 12.0 | 20    | QM-05 |
| Cadmium                         | 17.1   | 2.0         | "     | 24.0        | 0.282      | 70.1        | 75-125 | 9.09 | 20    | QM-05 |
| Chromium                        | 20.3   | 2.0         | "     | 24.0        | 5.72       | 60.8        | 75-125 | 7.94 | 20    | QM-05 |
| Lead                            | 17.9   | 3.0         | "     | 24.0        | 0.841      | 70.8        | 75-125 | 5.08 | 20    | QM-05 |

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Ninyo & Moore Project: UCI North Campus

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 Project Manager: Franklin Ruiz
 06/12/19 11:03

#### Cold Vapor Extraction EPA 7470/7471 - Quality Control

#### SunStar Laboratories, Inc.

| Analyte                         | Result | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC        | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |
|---------------------------------|--------|--------------------|-------|----------------|------------------|-------------|----------------|------|--------------|-------|
| Batch 9060610 - EPA 7471A Soil  |        |                    |       |                |                  |             |                |      |              |       |
| Blank (9060610-BLK1)            |        |                    |       | Prepared: 0    | 06/06/19 A       | nalyzed: 06 | /07/19         |      |              |       |
| Mercury                         | ND     | 0.10               | mg/kg |                |                  |             |                |      |              |       |
| LCS (9060610-BS1)               |        |                    |       | Prepared: 0    | 06/06/19 A       | nalyzed: 06 | /07/19         |      |              |       |
| Mercury                         | 0.259  | 0.10               | mg/kg | 0.320          |                  | 81.0        | 80-120         |      |              |       |
| Matrix Spike (9060610-MS1)      | Sour   | ce: T191835-       | 01    | Prepared: 0    | 06/06/19 A       | nalyzed: 06 | /07/19         |      |              |       |
| Mercury                         | 0.210  | 0.10               | mg/kg | 0.305          | ND               | 69.0        | 75-125         |      |              | QM-05 |
| Matrix Spike Dup (9060610-MSD1) | Sour   | ce: T191835-       | -01   | Prepared: 0    | 06/06/19 A       | nalyzed: 06 | /07/19         |      |              |       |
| Mercury                         | 0.242  | 0.10               | mg/kg | 0.320          | ND               | 75.8        | 75-125         | 14.1 | 20           |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/12/19 11:03

#### **Notes and Definitions**

QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to possible matrix interference. The LCS was within

acceptance criteria. The data is acceptable as no negative impact on data is expected.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

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# **SunStar**Laboratories

## **Chain of Custody Record**

25712 Commercentre Drive, Lake Forest, CA 92630 949-297-5020

| Addr<br>Phor   | nt: Ninyo & A<br>ress: 475 God<br>ne: (949) 753-7                          | 1 x 2 50                  | ite 20<br>Fax: (9)          | 10<br>49) 753  | ודסק־                                                           | · .  |                                  | Pro                               | oject<br>Necto | Nam<br>or:       | /4<br>ne:        | <u>UC</u>               | <u> </u>           | No                         | irth   | (   | Client F         |             | 01                                    | f<br>(700) | <u> </u><br> |                       |
|----------------|----------------------------------------------------------------------------|---------------------------|-----------------------------|----------------|-----------------------------------------------------------------|------|----------------------------------|-----------------------------------|----------------|------------------|------------------|-------------------------|--------------------|----------------------------|--------|-----|------------------|-------------|---------------------------------------|------------|--------------|-----------------------|
| Proje          | ect Manager: FV                                                            | ANKIIN K                  |                             |                |                                                                 | •    |                                  | Ba                                | tch #          | :                |                  | 7/9/8                   | 35                 |                            |        | Ł   | EDF #:_          |             | · · · · · · · · · · · · · · · · · · · | -          |              |                       |
|                | Sample ID    B-35   5'                                                     | Date<br>Sampled<br>6/4/19 | Time<br>10)28744<br>3)25 PM | Sample<br>Type | Container<br>Type<br>Yoz G by To-                               | 8260 | 8260 + OXY<br>8260 BTEX OXY only | 8270                              | 8021 BTEX      | 8015M (gasoline) | * 8015M (diesel) | 8015M Ext./Carbon Chain | 6020 ICP-MS Metals | 1 X X BAY ED 15 B TPH      |        |     |                  | Comr<br>I c | E                                     | eservative |              | Total # of containers |
|                |                                                                            |                           | · ·                         |                |                                                                 |      | 21 1                             |                                   |                |                  |                  |                         |                    |                            |        |     |                  |             |                                       |            |              |                       |
| Relin<br>Relin | equished by: (signature) equished by: (signature) equished by: (signature) | Date / T                  | ime<br>({-50                | Received b     | by: (signature) by: (signature) by: (signature) by: (signature) | 65   | <b>6-5-</b><br>Da<br>79 /€<br>Da | ate / T<br><i>s:so</i><br>ate / T | (5-)<br>Time   |                  |                  | ceive                   |                    | y seal<br>intact<br>I cond | s Y/N/ | /NA | 2<br>¥<br>¥<br>4 |             | No                                    | tes        |              | >                     |
| Samp           | ole disposal Instructions:                                                 | Disposal @ \$2.00         | each <u>*</u>               | Ketum          | to client                                                       | ŀ    | Pickup                           |                                   |                |                  |                  |                         |                    |                            |        |     | C                | oc 1        | 813                                   | 62         |              |                       |



## SAMPLE RECEIVING REVIEW SHEET

| Batch/Work Order #:                                   | 719            | 1825 T191835             |                          |                            |                                                    |
|-------------------------------------------------------|----------------|--------------------------|--------------------------|----------------------------|----------------------------------------------------|
| Client Name:                                          | Ningo          | 4 Moore                  | Project:                 |                            | UCI NORTH CAMPUS                                   |
| Delivered by:                                         | Client         | SunStar Courier          | □GSO                     | ☐ FedEx                    | Other                                              |
| If Courier, Received by:                              | <u> </u>       | TRAVIS                   | Date/Time (Received:     |                            | 6.5.19 / 15.59                                     |
| Lab Received by:                                      |                | Samy                     | Date/Time I<br>Received: | _ab<br>                    | 6.5.19 / 16.50                                     |
| Total number of coolers re                            | eceived:       |                          |                          |                            |                                                    |
| Temperature: Cooler #1                                | 2.2 °(         | C +/- the CF ( 1.2°C)    | = 3.4                    | °C correct                 | ted temperature                                    |
| Temperature: Cooler #2                                | °(             | C +/- the CF ( 1.2°C)    |                          | °C correct                 | ted temperature                                    |
| Temperature: Cooler #3                                | °(             | C +/- the CF ( 1.2°C)    | =                        | °C correct                 | ted temperature                                    |
| Temperature criteria = (no frozen containers)         | ≤ 6°C          | Within cr                | iteria?                  | ⊠Yes                       | □No                                                |
| If NO: Samples received If on ice, samples collected? |                | □Yes  ne day □Yes →      | Acceptable               | $\square$ No $\rightarrow$ | e Non-Conformance Sheet<br>e Non-Conformance Sheet |
| Custody seals intact on co                            | ooler/sample   |                          |                          | □Yes<br>Yes                | □No* ⊠N/A ( · · · · · · · · · · · · · · · · · ·    |
| Sample labels match Cha                               | in of Custody  | IDs                      |                          | ⊠Yes                       | □No*                                               |
| Total number of container                             | rs received m  | atch COC                 |                          | ⊠Yes                       | □No*                                               |
| Proper containers receive                             | d for analyses | s requested on COC       |                          | ⊠Yes                       | □No*                                               |
| Proper preservative indica                            |                | ·                        |                          | ∐Yes                       | □No* ⊠N/A                                          |
| Complete shipment receive                             | a been at bee  | ondition with correct to | emperatures,             |                            |                                                    |
| holding times                                         |                | es and within method     | specified                | X Yes                      | □No*                                               |
|                                                       | es preservativ | es and within method     | specified oler/Sample Re |                            |                                                    |
| holding times                                         | es preservativ | es and within method     |                          |                            | and date:                                          |



#### WORK ORDER

#### T191835

Client: Ninyo & Moore **Project Manager:** Mike Jaroudi **Project: UCI North Campus Project Number:** 209570014

Report To:

Ninyo & Moore Franklin Ruiz

475 Goddard, Ste. 200 Irvine, CA 92618

Date Due:

06/13/19 17:00 (5 day TAT)

Yes

Received By: Logged In By:

Sunny Lounethone

Sunny Lounethone

Date Received:

06/05/19 16:50

Date Logged In:

06/05/19 18:00

Samples Received at: 3.4°C

Custody Seals

No

Received On Ice Containers Intact

Yes

COC/Labels Agree Preservation Confiri No

| Analysis                       | Due                      | TAT       | Expires              | Comments |
|--------------------------------|--------------------------|-----------|----------------------|----------|
| T191835-01 B-34 @ 5 [See (US & | oil] Sampled 06/04/19 10 | 0:28 (GMT | 7-08:00) Pacific Tim | ae       |
| 6010 Title 22                  | 06/13/19 15:00           | 5         | 12/01/19 10:28       |          |
| 8015 Carbon Chain              | 06/13/19 15:00           | 5         | 06/18/19 10:28       |          |
| T191835-02 B-35 @ 5 [So (US &  | oil] Sampled 06/04/19 1  | 5:25 (GMT | '-08:00) Pacific Tim | ne       |
| 6010 Title 22                  | 06/13/19 15:00           | 5         | 12/01/19 15:25       |          |
| 8015 Carbon Chain              | 06/13/19 15:00           | 5         | 06/18/19 15:25       |          |

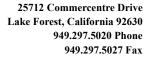
Analysis groups included in this work order

6010 Title 22

subgroup 6010B T22 7470/71 Hg

Reviewed By

Date





14 June 2019

Franklin Ruiz Ninyo & Moore 475 Goddard, Ste. 200 Irvine, CA 92618

RE: UCI North Campus

Enclosed are the results of analyses for samples received by the laboratory on 06/07/19 14:23. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mike Jaroudi

**Project Manager** 



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/14/19 08:36

#### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| B-9@5     | T191867-01    | Soil   | 06/07/19 07:30 | 06/07/19 14:23 |
| B-12@4    | T191867-02    | Soil   | 06/07/19 12:08 | 06/07/19 14:23 |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/14/19 08:36

#### **DETECTIONS SUMMARY**

| Laborat | ory ID:                                                        | T191867-01                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |
|---------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
|         | Reporting                                                      |                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |
| Result  | Limit                                                          | Units                                                                                                                                                                                                                                                                                                                                                                                  | Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Notes                           |
| 39      | 1.0                                                            | mg/kg                                                                                                                                                                                                                                                                                                                                                                                  | EPA 6010b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |
| 14      | 2.0                                                            | mg/kg                                                                                                                                                                                                                                                                                                                                                                                  | EPA 6010b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |
| 8.2     | 2.0                                                            | mg/kg                                                                                                                                                                                                                                                                                                                                                                                  | EPA 6010b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |
| 16      | 1.0                                                            | mg/kg                                                                                                                                                                                                                                                                                                                                                                                  | EPA 6010b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |
| 5.5     | 3.0                                                            | mg/kg                                                                                                                                                                                                                                                                                                                                                                                  | EPA 6010b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |
| 13      | 2.0                                                            | mg/kg                                                                                                                                                                                                                                                                                                                                                                                  | EPA 6010b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |
| 34      | 5.0                                                            | mg/kg                                                                                                                                                                                                                                                                                                                                                                                  | EPA 6010b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |
| 63      | 1.0                                                            | mg/kg                                                                                                                                                                                                                                                                                                                                                                                  | EPA 6010b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |
|         |                                                                |                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |
| Laborat | ory ID:                                                        | T191867-02                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |
|         | Reporting                                                      |                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |
| Result  | Limit                                                          | Units                                                                                                                                                                                                                                                                                                                                                                                  | Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Notes                           |
| 61      | 1.0                                                            | mg/kg                                                                                                                                                                                                                                                                                                                                                                                  | EPA 6010b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |
| 12      | 2.0                                                            | mg/kg                                                                                                                                                                                                                                                                                                                                                                                  | EPA 6010b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |
| 6.9     | 2.0                                                            | mg/kg                                                                                                                                                                                                                                                                                                                                                                                  | EPA 6010b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |
| 11      | 1.0                                                            | mg/kg                                                                                                                                                                                                                                                                                                                                                                                  | EPA 6010b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |
| 4.7     | 3.0                                                            | mg/kg                                                                                                                                                                                                                                                                                                                                                                                  | EPA 6010b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |
|         | 5.0                                                            | 0 0                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |
| 11      | 2.0                                                            | mg/kg                                                                                                                                                                                                                                                                                                                                                                                  | EPA 6010b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |
|         |                                                                |                                                                                                                                                                                                                                                                                                                                                                                        | EPA 6010b<br>EPA 6010b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                 |
|         | Result 39 14 8.2 16 5.5 13 34 63  Laborat  Result 61 12 6.9 11 | Result         Limit           39         1.0           14         2.0           8.2         2.0           16         1.0           5.5         3.0           13         2.0           34         5.0           63         1.0           Exporting           Result         Limit           61         1.0           12         2.0           6.9         2.0           11         1.0 | Result   Limit   Units   39   1.0   mg/kg   14   2.0   mg/kg   8.2   2.0   mg/kg   16   1.0   mg/kg   5.5   3.0   mg/kg   13   2.0   mg/kg   34   5.0   mg/kg   63   1.0   mg/kg   63   1.0   mg/kg   1.0   mg/kg   64   1.0   mg/kg   65   1.0   mg/kg   66   1.0   mg/kg   67   69   2.0   mg/kg   68   69   2.0   mg/kg   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0   2.0 | Result   Limit   Units   Method |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/14/19 08:36

# B-9@5 T191867-01 (Soil)

| Analyte                                 | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                         |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 8 | 015B   |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                            | ND     | 10                 | mg/kg     | 1        | 9061026 | 06/10/19 | 06/10/19 | EPA 8015B         |       |
| C13-C28 (DRO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                          | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                  |        | 105 %              | 65-1      | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                     |        |                    |           |          |         |          |          |                   |       |
| Antimony                                | ND     | 3.0                | mg/kg     | 1        | 9061033 | 06/10/19 | 06/12/19 | EPA 6010b         |       |
| Silver                                  | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                                 | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                  | 39     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                               | ND     | 1.0                | "         | "        | "       | "        | 06/12/19 | "                 |       |
| Cadmium                                 | ND     | 2.0                | "         | "        | "       | "        | 06/12/19 | "                 |       |
| Chromium                                | 14     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                  | 8.2    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                  | 16     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                    | 5.5    | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                  | 13     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                | 34     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                    | 63     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471     |        |                    |           |          |         |          |          |                   |       |
| Mercury                                 | ND     | 0.10               | mg/kg     | 1        | 9061020 | 06/10/19 | 06/11/19 | EPA 7471A<br>Soil |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/14/19 08:36

# B-12@4 T191867-02 (Soil)

| Analyte                           | Result      | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------|-------------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                   |             | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbo  | ns by 8015B |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                      | ND          | 10                 | mg/kg     | 1        | 9061026 | 06/10/19 | 06/10/19 | EPA 8015B         |       |
| C13-C28 (DRO)                     | ND          | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                    | ND          | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl            |             | 111 %              | 65-1      | !35      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B               |             |                    |           |          |         |          |          |                   |       |
| Antimony                          | ND          | 3.0                | mg/kg     | 1        | 9061033 | 06/10/19 | 06/12/19 | EPA 6010b         |       |
| Silver                            | ND          | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                           | ND          | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                            | 61          | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                         | ND          | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                           | ND          | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Chromium                          | 12          | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                            | 6.9         | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                            | 11          | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                              | 4.7         | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                        | ND          | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                            | 11          | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                          | ND          | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                          | ND          | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                          | 29          | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                              | 39          | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/74 | 71          |                    |           |          |         |          |          |                   |       |
| Mercury                           | ND          | 0.10               | mg/kg     | 1        | 9061020 | 06/10/19 | 06/11/19 | EPA 7471A<br>Soil |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/14/19 08:36

# **Extractable Petroleum Hydrocarbons by 8015B - Quality Control**

## SunStar Laboratories, Inc.

|                                 |        | Reporting   |       | Spike       | Source     |             | %REC    |      | RPD   |       |
|---------------------------------|--------|-------------|-------|-------------|------------|-------------|---------|------|-------|-------|
| Analyte                         | Result | Limit       | Units | Level       | Result     | %REC        | Limits  | RPD  | Limit | Notes |
| Batch 9061026 - EPA 3550B GC    |        |             |       |             |            |             |         |      |       |       |
| Blank (9061026-BLK1)            |        |             |       | Prepared &  | Analyzed:  | 06/10/19    |         |      |       |       |
| C6-C12 (GRO)                    | ND     | 10          | mg/kg |             |            |             |         |      |       |       |
| C13-C28 (DRO)                   | ND     | 10          | "     |             |            |             |         |      |       |       |
| C29-C40 (MORO)                  | ND     | 10          | "     |             |            |             |         |      |       |       |
| Surrogate: p-Terphenyl          | 109    |             | "     | 99.0        |            | 111         | 65-135  |      |       |       |
| LCS (9061026-BS1)               |        |             |       | Prepared: ( | 06/10/19 A | nalyzed: 06 | 5/11/19 |      |       |       |
| C13-C28 (DRO)                   | 550    | 10          | mg/kg | 495         |            | 111         | 75-125  |      |       |       |
| Surrogate: p-Terphenyl          | 125    |             | "     | 99.0        |            | 126         | 65-135  |      |       |       |
| Matrix Spike (9061026-MS1)      | Sourc  | e: T191867- | 01    | Prepared: ( | 06/10/19 A | nalyzed: 06 | 5/11/19 |      |       |       |
| C13-C28 (DRO)                   | 510    | 10          | mg/kg | 500         | ND         | 102         | 75-125  |      |       |       |
| Surrogate: p-Terphenyl          | 107    |             | "     | 100         |            | 107         | 65-135  |      |       |       |
| Matrix Spike Dup (9061026-MSD1) | Source | e: T191867- | 01    | Prepared: ( | 06/10/19 A | nalyzed: 06 | 5/11/19 |      |       |       |
| C13-C28 (DRO)                   | 490    | 10          | mg/kg | 495         | ND         | 98.1        | 75-125  | 4.40 | 20    |       |
| Surrogate: p-Terphenyl          | 104    |             | "     | 99.0        |            | 105         | 65-135  |      |       |       |

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RPD

%REC

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/14/19 08:36

Reporting

# Metals by EPA 6010B - Quality Control

## SunStar Laboratories, Inc.

Spike

Source

| Analyte                    | Result | Limit       | Units | Level       | Result     | %REC        | Limits | RPD | Limit | Notes |
|----------------------------|--------|-------------|-------|-------------|------------|-------------|--------|-----|-------|-------|
| Batch 9061033 - EPA 3050B  |        |             |       |             |            |             |        |     |       |       |
| Blank (9061033-BLK1)       |        |             |       | Prepared: ( | 06/10/19 A | nalyzed: 06 | /12/19 |     |       |       |
| Antimony                   | ND     | 3.0         | mg/kg |             |            |             |        |     |       |       |
| Silver                     | ND     | 2.0         | "     |             |            |             |        |     |       |       |
| Arsenic                    | ND     | 5.0         | "     |             |            |             |        |     |       |       |
| Barium                     | ND     | 1.0         | "     |             |            |             |        |     |       |       |
| Beryllium                  | ND     | 1.0         | "     |             |            |             |        |     |       |       |
| Cadmium                    | ND     | 2.0         | "     |             |            |             |        |     |       |       |
| Chromium                   | ND     | 2.0         | "     |             |            |             |        |     |       |       |
| Cobalt                     | ND     | 2.0         | "     |             |            |             |        |     |       |       |
| Copper                     | ND     | 1.0         | "     |             |            |             |        |     |       |       |
| Lead                       | ND     | 3.0         | "     |             |            |             |        |     |       |       |
| Molybdenum                 | ND     | 5.0         | "     |             |            |             |        |     |       |       |
| Nickel                     | ND     | 2.0         | "     |             |            |             |        |     |       |       |
| Selenium                   | ND     | 5.0         | "     |             |            |             |        |     |       |       |
| Thallium                   | ND     | 2.0         | "     |             |            |             |        |     |       |       |
| Vanadium                   | ND     | 5.0         | "     |             |            |             |        |     |       |       |
| Zinc                       | ND     | 1.0         | "     |             |            |             |        |     |       |       |
| LCS (9061033-BS1)          |        |             |       | Prepared: ( | 06/10/19 A | nalyzed: 06 | /12/19 |     |       |       |
| Arsenic                    | 81.5   | 5.0         | mg/kg | 100         |            | 81.5        | 75-125 |     |       |       |
| Barium                     | 84.6   | 1.0         | "     | 100         |            | 84.6        | 75-125 |     |       |       |
| Cadmium                    | 84.9   | 2.0         | "     | 100         |            | 84.9        | 75-125 |     |       |       |
| Chromium                   | 84.9   | 2.0         | "     | 100         |            | 84.9        | 75-125 |     |       |       |
| Lead                       | 83.3   | 3.0         | "     | 100         |            | 83.3        | 75-125 |     |       |       |
| Matrix Spike (9061033-MS1) | Source | e: T191867- | -01   | Prepared: ( | 06/10/19 A | nalyzed: 06 | /12/19 |     |       |       |
| Arsenic                    | 57.4   | 5.0         | mg/kg | 98.0        | 3.17       | 55.3        | 75-125 |     |       | QM-0  |
| Barium                     | 91.0   | 1.0         | "     | 98.0        | 38.8       | 53.2        | 75-125 |     |       | QM-0  |
| Cadmium                    | 55.8   | 2.0         | "     | 98.0        | 0.743      | 56.2        | 75-125 |     |       | QM-0  |
| Chromium                   | 69.0   | 2.0         | "     | 98.0        | 13.6       | 56.5        | 75-125 |     |       | QM-0  |
| Lead                       | 57.5   | 3.0         | "     | 98.0        | 5.50       | 53.0        | 75-125 |     |       | QM-0  |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/14/19 08:36

# Metals by EPA 6010B - Quality Control

#### SunStar Laboratories, Inc.

| Analyte                         | Result | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC        | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |
|---------------------------------|--------|--------------------|-------|----------------|------------------|-------------|----------------|------|--------------|-------|
| Batch 9061033 - EPA 3050B       |        |                    |       |                |                  |             |                |      |              |       |
| Matrix Spike Dup (9061033-MSD1) | Sourc  | e: T191867-        | 01    | Prepared: (    | 06/10/19 A       | nalyzed: 06 | 5/12/19        |      |              |       |
| Arsenic                         | 54.7   | 5.0                | mg/kg | 91.7           | 3.17             | 56.1        | 75-125         | 4.83 | 20           | QM-01 |
| Barium                          | 87.0   | 1.0                | "     | 91.7           | 38.8             | 52.6        | 75-125         | 4.43 | 20           | QM-01 |
| Cadmium                         | 53.6   | 2.0                | "     | 91.7           | 0.743            | 57.6        | 75-125         | 4.05 | 20           | QM-01 |
| Chromium                        | 67.0   | 2.0                | "     | 91.7           | 13.6             | 58.3        | 75-125         | 2.88 | 20           | QM-0  |
| Lead                            | 54.9   | 3.0                | "     | 91.7           | 5.50             | 53.9        | 75-125         | 4.53 | 20           | QM-01 |

SunStar Laboratories, Inc.

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/14/19 08:36

# Cold Vapor Extraction EPA 7470/7471 - Quality Control

## SunStar Laboratories, Inc.

| Analyte                         | Result | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC        | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |
|---------------------------------|--------|--------------------|-------|----------------|------------------|-------------|----------------|------|--------------|-------|
| Batch 9061020 - EPA 7471A Soil  |        |                    |       |                |                  |             |                |      |              |       |
| Blank (9061020-BLK1)            |        |                    |       | Prepared: (    | 06/10/19 A       | nalyzed: 06 | /11/19         |      |              |       |
| Mercury                         | ND     | 0.10               | mg/kg |                |                  |             |                |      |              |       |
| LCS (9061020-BS1)               |        |                    |       | Prepared: (    | 06/10/19 A       | nalyzed: 06 | /11/19         |      |              |       |
| Mercury                         | 0.273  | 0.10               | mg/kg | 0.310          |                  | 88.1        | 80-120         |      |              |       |
| Matrix Spike (9061020-MS1)      | Sour   | ce: T191859-       | 01    | Prepared: (    | 06/10/19 A       | nalyzed: 06 | /11/19         |      |              |       |
| Mercury                         | 0.417  | 0.10               | mg/kg | 0.325          | 0.465            | NR          | 75-125         |      |              | QM-01 |
| Matrix Spike Dup (9061020-MSD1) | Sour   | ce: T191859-       | -01   | Prepared: (    | 06/10/19 A       | nalyzed: 06 | /11/19         |      |              |       |
| Mercury                         | 0.541  | 0.10               | mg/kg | 0.310          | 0.465            | 24.5        | 75-125         | 25.8 | 20           | QM-01 |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/14/19 08:36

#### **Notes and Definitions**

QM-01 The % recovery is outside of established control limits due to matrix interference and/or sample dilution due to matrix effect. The batch

was accepted based on acceptable LCS recovery.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

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# **Chain of Custody Record**

25712 Commercentre Drive, Lake Forest, CA 92630 949-297-5020

| Client: \_\ Address: \_\ Phone: \_\ Project Ma | Jiny of 1<br>475 God<br>449) 753-<br>anager: Fran | 100re<br>100d SV<br>7070<br>Klin K | 11-e 20 7<br>Fax: (9)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| Laboratory ID #                                | Sample ID                                         | Date<br>Sampled                    | Time<br>730 Å!4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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# SAMPLE RECEIVING REVIEW SHEET

| Batch/Work Order #:                                                                                                                                                                                   | 7/9/867                                                                                                                                                                              | <u>.                                    </u> |                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| Client Name:                                                                                                                                                                                          | NINYO & MODE                                                                                                                                                                         | Project:                                     |                                                                                               | UCI NORTH CAMPUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Delivered by:                                                                                                                                                                                         | ☐ Client ☐ SunStar Couri                                                                                                                                                             | er GSO [                                     | FedEx                                                                                         | ☐ Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| Lab Received by:                                                                                                                                                                                      | Sunday                                                                                                                                                                               | Date/Time La Received:                       | b<br>                                                                                         | 67.19 / 14:23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Total number of coolers r                                                                                                                                                                             | eceived: &                                                                                                                                                                           | W. W     |                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Temperature: Cooler #1                                                                                                                                                                                | °C +/- the CF ( 1.2°C)                                                                                                                                                               | = 2.4                                        | °C correc                                                                                     | ted temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| Temperature: Cooler #3                                                                                                                                                                                | °C +/- the CF ( 1.2°C)                                                                                                                                                               | =                                            | °C correc                                                                                     | ted temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Temperature criteria = : (no frozen containers)                                                                                                                                                       | ≤6°C Within                                                                                                                                                                          | criteria?                                    | <b>⊠</b> Yes                                                                                  | □No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| If NO: Samples received If on ice, samples collected?                                                                                                                                                 | received same day                                                                                                                                                                    | → Acceptable                                 | □No →                                                                                         | e Non-Conformance Sheet e Non-Gonformance Sheet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| Custody seals intact on co                                                                                                                                                                            | poler/sample                                                                                                                                                                         |                                              | ∐Yes<br>⊠Yes                                                                                  | □No* ☑N/A □No*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| Sample containers intact Sample labels match Cha Total number of containe Proper containers receive Proper preservative indicate Complete shipment receive                                            | in of Custody IDs rs received match COC d for analyses requested on COC                                                                                                              | temperatures,                                | ⊠Yes  ⊠Yes  ⊠Yes  ⊠Yes                                                                        | □No* □No* □No*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Sample containers intact Sample labels match Cha Total number of container Proper containers receive Proper preservative indicates Complete shipment receive containers, labels, volume holding times | in of Custody IDs rs received match COC d for analyses requested on COC ated on COC/containers for analys wed in good condition with correct es preservatives and within method      | temperatures,                                | <ul><li>✓ Yes</li><li>✓ Yes</li><li>✓ Yes</li><li>✓ Yes</li><li>✓ Yes</li><li>✓ Yes</li></ul> | □No* □No* □No* □No* □No* □No* □No*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Sample containers intact Sample labels match Cha Total number of container Proper containers receive Proper preservative indicates Complete shipment receive containers, labels, volume holding times | in of Custody IDs  rs received match COC  d for analyses requested on COC  ated on COC/containers for analys  ved in good condition with correct  es preservatives and within method | temperatures,<br>I specified                 | <ul><li>✓ Yes</li><li>✓ Yes</li><li>✓ Yes</li><li>✓ Yes</li><li>✓ Yes</li><li>✓ Yes</li></ul> | □No* □No* □No* □No* □No* □No* □No* □No*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |



#### WORK ORDER

#### T191867

Client: Ninyo & Moore **Project Manager:** Mike Jaroudi 209570014 **Project: UCI North Campus Project Number:** 

Report To:

Ninyo & Moore Franklin Ruiz

475 Goddard, Ste. 200 Irvine, CA 92618

Date Due:

06/14/19 17:00 (5 day TAT)

Yes

Received By: Logged In By: Sunny Lounethone Sunny Lounethone Date Received:

06/07/19 14:23

Date Logged In:

06/07/19 16:00

Samples Received at:

Containers Intact

Preservation Confiri

2.4°C

Custody Seals No Received On Ice

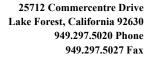
Yes COC/Labels Agree Yes

**Comments** Due TAT **Analysis Expires** T191867-01 B-9@5 [Soil] Sampled 06/07/19 07:30 (GMT-08:00) Pacific Time (US & 6010 Title 22 06/14/19 15:00 5 12/04/19 07:30 8015 Carbon Chain 06/14/19 15:00 5 06/21/19 07:30 T191867-02 B-12@4 [Soil] Sampled 06/07/19 12:08 (GMT-08:00) Pacific Time (US & 6010 Title 22 06/14/19 15:00 5 12/04/19 12:08 8015 Carbon Chain 06/14/19 15:00 5 06/21/19 12:08

Analysis groups included in this work order

6010 Title 22

subgroup 6010B T22 7470/71 Hg





17 June 2019

Franklin Ruiz Ninyo & Moore 475 Goddard, Ste. 200 Irvine, CA 92618

RE: UCI North Campus

Enclosed are the results of analyses for samples received by the laboratory on 06/10/19 11:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mike Jaroudi

**Project Manager** 



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/17/19 10:40

#### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| B-28@5'   | T191887-01    | Soil   | 06/08/19 08:17 | 06/10/19 11:30 |
| B-8@5'    | T191887-02    | Soil   | 06/08/19 09:13 | 06/10/19 11:30 |
| B-18@5'   | T191887-03    | Soil   | 06/08/19 11:00 | 06/10/19 11:30 |
| B-17@3'   | T191887-04    | Soil   | 06/08/19 11:52 | 06/10/19 11:30 |

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Mike Jaroudi, Project Manager

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/17/19 10:40

#### **DETECTIONS SUMMARY**

| Sample ID: B-28@5' |         | Labora | tory ID:  | T191887-01 |           |       |
|--------------------|---------|--------|-----------|------------|-----------|-------|
|                    |         |        | Reporting |            |           |       |
| Analyte            |         | Result | Limit     | Units      | Method    | Notes |
| Barium             |         | 94     | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium           |         | 12     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt             |         | 6.8    | 2.0       | mg/kg      | EPA 6010b |       |
| Copper             |         | 11     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead               |         | 5.9    | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel             |         | 11     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium           |         | 31     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc               |         | 38     | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID:         | B-8@5'  | Labora | tory ID:  | T191887-02 |           |       |
|                    |         |        | Reporting |            |           |       |
| Analyte            |         | Result | Limit     | Units      | Method    | Notes |
| Barium             |         | 67     | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium           |         | 13     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt             |         | 6.1    | 2.0       | mg/kg      | EPA 6010b |       |
| Copper             |         | 12     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead               |         | 4.6    | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel             |         | 10     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium           |         | 30     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc               |         | 48     | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID:         | B-18@5' | Labora | tory ID:  | T191887-03 |           |       |
|                    |         |        | Reporting |            |           |       |
| Analyte            |         | Result | Limit     | Units      | Method    | Notes |
| Barium             |         | 79     | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium           |         | 9.2    | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt             |         | 3.6    | 2.0       | mg/kg      | EPA 6010b |       |
| Copper             |         | 4.7    | 1.0       | mg/kg      | EPA 6010b |       |
| Nickel             |         | 5.7    | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium           |         | 22     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc               |         | 21     | 1.0       | mg/kg      | EPA 6010b |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/17/19 10:40

| Sample ID: B-17@3' | Labora | tory ID:  | T191887-04 |           |       |
|--------------------|--------|-----------|------------|-----------|-------|
|                    |        | Reporting |            |           |       |
| Analyte            | Result | Limit     | Units      | Method    | Notes |
| Barium             | 100    | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium           | 11     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt             | 5.3    | 2.0       | mg/kg      | EPA 6010b |       |
| Copper             | 7.7    | 1.0       | mg/kg      | EPA 6010b |       |
| Lead               | 3.8    | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel             | 8.8    | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium           | 27     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc               | 29     | 1.0       | mg/kg      | EPA 6010b |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/17/19 10:40

# B-28@5' T191887-01 (Soil)

| Analyte                                 | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                         |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 8 | 8015B  |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                            | ND     | 10                 | mg/kg     | 1        | 9061027 | 06/10/19 | 06/12/19 | EPA 8015B         |       |
| C13-C28 (DRO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                          | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                  |        | 106 %              | 65-1      | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                     |        |                    |           |          |         |          |          |                   |       |
| Antimony                                | ND     | 3.0                | mg/kg     | 1        | 9061117 | 06/11/19 | 06/12/19 | EPA 6010b         |       |
| Silver                                  | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                                 | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                  | 94     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                               | ND     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                                 | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Chromium                                | 12     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                  | 6.8    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                  | 11     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                    | 5.9    | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                  | 11     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                | 31     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                    | 38     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471     |        |                    |           |          |         |          |          |                   |       |
| Mercury                                 | ND     | 0.10               | mg/kg     | 1        | 9061118 | 06/11/19 | 06/12/19 | EPA 7471A<br>Soil |       |

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Mike Jaroudi, Project Manager

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/17/19 10:40

# B-8@5' T191887-02 (Soil)

| Analyte                                 | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                         |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 8 | 015B   |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                            | ND     | 10                 | mg/kg     | 1        | 9061027 | 06/10/19 | 06/12/19 | EPA 8015B         |       |
| C13-C28 (DRO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                          | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                  |        | 105 %              | 65-1      | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                     |        |                    |           |          |         |          |          |                   |       |
| Antimony                                | ND     | 3.0                | mg/kg     | 1        | 9061117 | 06/11/19 | 06/12/19 | EPA 6010b         |       |
| Silver                                  | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                                 | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                  | 67     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                               | ND     | 1.0                | "         | "        | "       | "        | 06/12/19 | "                 |       |
| Cadmium                                 | ND     | 2.0                | "         | "        | "       | "        | 06/12/19 | "                 |       |
| Chromium                                | 13     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                  | 6.1    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                  | 12     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                    | 4.6    | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                  | 10     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                | 30     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                    | 48     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471     |        |                    |           |          |         |          |          |                   |       |
| Mercury                                 | ND     | 0.10               | mg/kg     | 1        | 9061118 | 06/11/19 | 06/12/19 | EPA 7471A<br>Soil |       |

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Mike Jaroudi, Project Manager Page 5 of 12



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/17/19 10:40

# B-18@5' T191887-03 (Soil)

| Analyte                               | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|---------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                       |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by | 8015B  |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                          | ND     | 10                 | mg/kg     | 1        | 9061027 | 06/10/19 | 06/12/19 | EPA 8015B         |       |
| C13-C28 (DRO)                         | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                        | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                |        | 106 %              | 65-1      | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                   |        |                    |           |          |         |          |          |                   |       |
| Antimony                              | ND     | 3.0                | mg/kg     | 1        | 9061117 | 06/11/19 | 06/12/19 | EPA 6010b         |       |
| Silver                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                               | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                | 79     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                             | ND     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                               | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Chromium                              | 9.2    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                | 3.6    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                | 4.7    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                  | ND     | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                            | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                | 5.7    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                              | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                              | 22     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                  | 21     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471   |        |                    |           |          |         |          |          |                   |       |
| Mercury                               | ND     | 0.10               | mg/kg     | 1        | 9061118 | 06/11/19 | 06/12/19 | EPA 7471A<br>Soil |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/17/19 10:40

# B-17@3' T191887-04 (Soil)

| Analyte                                  | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|------------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                          |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 80 | 015B   |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                             | ND     | 10                 | mg/kg     | 1        | 9061027 | 06/10/19 | 06/12/19 | EPA 8015B         |       |
| C13-C28 (DRO)                            | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                   |        | 108 %              | 65-       | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                      |        |                    |           |          |         |          |          |                   |       |
| Antimony                                 | ND     | 3.0                | mg/kg     | 1        | 9061117 | 06/11/19 | 06/12/19 | EPA 6010b         |       |
| Silver                                   | ND     | 2.0                | "         | "        | "       | "        | 06/12/19 | "                 |       |
| Arsenic                                  | ND     | 5.0                | "         | "        | "       | "        | 06/12/19 | "                 |       |
| Barium                                   | 100    | 1.0                | "         | "        | "       | "        | 06/12/19 | "                 |       |
| Beryllium                                | ND     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                                  | ND     | 2.0                | "         | "        | "       | "        | 06/12/19 | "                 |       |
| Chromium                                 | 11     | 2.0                | "         | "        | "       | "        | 06/12/19 | "                 |       |
| Cobalt                                   | 5.3    | 2.0                | "         | "        | "       | "        | 06/12/19 | "                 |       |
| Copper                                   | 7.7    | 1.0                | "         | "        | "       | "        | 06/12/19 | "                 |       |
| Lead                                     | 3.8    | 3.0                | "         | "        | "       | "        | 06/12/19 | "                 |       |
| Molybdenum                               | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                   | 8.8    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                 | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                 | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                 | 27     | 5.0                | "         | "        | "       | "        | 06/12/19 | "                 |       |
| Zinc                                     | 29     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471      |        |                    |           |          |         |          |          |                   |       |
| Mercury                                  | ND     | 0.10               | mg/kg     | 1        | 9061118 | 06/11/19 | 06/12/19 | EPA 7471A<br>Soil |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/17/19 10:40

# **Extractable Petroleum Hydrocarbons by 8015B - Quality Control**

## SunStar Laboratories, Inc.

| Analyte                      | Result | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC        | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |
|------------------------------|--------|--------------------|-------|----------------|------------------|-------------|----------------|------|--------------|-------|
| Batch 9061027 - EPA 3550B GC |        |                    |       |                |                  |             |                |      |              |       |
| Blank (9061027-BLK1)         |        |                    |       | Prepared: 0    | 06/10/19 A       | nalyzed: 06 | /11/19         |      |              |       |
| C6-C12 (GRO)                 | ND     | 10                 | mg/kg |                |                  |             |                |      |              |       |
| C13-C28 (DRO)                | ND     | 10                 | "     |                |                  |             |                |      |              |       |
| C29-C40 (MORO)               | ND     | 10                 | "     |                |                  |             |                |      |              |       |
| Surrogate: p-Terphenyl       | 113    |                    | "     | 100            |                  | 113         | 65-135         |      |              |       |
| LCS (9061027-BS1)            |        |                    |       | Prepared: 0    | 06/10/19 A       | nalyzed: 06 | /11/19         |      |              |       |
| C13-C28 (DRO)                | 460    | 10                 | mg/kg | 500            |                  | 92.2        | 75-125         |      |              |       |
| Surrogate: p-Terphenyl       | 110    |                    | "     | 100            |                  | 110         | 65-135         |      |              |       |
| LCS Dup (9061027-BSD1)       |        |                    |       | Prepared: 0    | 06/10/19 A       | nalyzed: 06 | /11/19         |      |              |       |
| C13-C28 (DRO)                | 460    | 10                 | mg/kg | 500            |                  | 91.1        | 75-125         | 1.15 | 20           |       |
| Surrogate: p-Terphenyl       | 109    |                    | "     | 100            |                  | 109         | 65-135         |      |              |       |

SunStar Laboratories, Inc.

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Mike Jaroudi, Project Manager

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RPD

%REC

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/17/19 10:40

Reporting

# Metals by EPA 6010B - Quality Control

# SunStar Laboratories, Inc.

Spike

Source

| Analyte                    | Result | Limit       | Units | Level       | Result      | %REC        | Limits | RPD | Limit | Notes |
|----------------------------|--------|-------------|-------|-------------|-------------|-------------|--------|-----|-------|-------|
| Batch 9061117 - EPA 3050B  |        |             |       |             |             |             |        |     |       |       |
| Blank (9061117-BLK1)       |        |             |       | Prepared: ( | 06/11/19 Aı | nalyzed: 06 | /12/19 |     |       |       |
| Antimony                   | ND     | 3.0         | mg/kg |             |             |             |        |     |       |       |
| Silver                     | ND     | 2.0         | "     |             |             |             |        |     |       |       |
| Arsenic                    | ND     | 5.0         | "     |             |             |             |        |     |       |       |
| Barium                     | ND     | 1.0         | "     |             |             |             |        |     |       |       |
| Beryllium                  | ND     | 1.0         | "     |             |             |             |        |     |       |       |
| Cadmium                    | ND     | 2.0         | "     |             |             |             |        |     |       |       |
| Chromium                   | ND     | 2.0         | "     |             |             |             |        |     |       |       |
| Cobalt                     | ND     | 2.0         | "     |             |             |             |        |     |       |       |
| Copper                     | ND     | 1.0         | "     |             |             |             |        |     |       |       |
| Lead                       | ND     | 3.0         | "     |             |             |             |        |     |       |       |
| Molybdenum                 | ND     | 5.0         | "     |             |             |             |        |     |       |       |
| Nickel                     | ND     | 2.0         | "     |             |             |             |        |     |       |       |
| Selenium                   | ND     | 5.0         | "     |             |             |             |        |     |       |       |
| Thallium                   | ND     | 2.0         | "     |             |             |             |        |     |       |       |
| Vanadium                   | ND     | 5.0         | "     |             |             |             |        |     |       |       |
| Zinc                       | ND     | 1.0         | "     |             |             |             |        |     |       |       |
| LCS (9061117-BS1)          |        |             |       | Prepared: ( | 06/11/19 Aı | nalyzed: 06 | /12/19 |     |       |       |
| Arsenic                    | 83.7   | 5.0         | mg/kg | 100         |             | 83.7        | 75-125 |     |       |       |
| Barium                     | 86.6   | 1.0         | "     | 100         |             | 86.6        | 75-125 |     |       |       |
| Cadmium                    | 86.8   | 2.0         | "     | 100         |             | 86.8        | 75-125 |     |       |       |
| Chromium                   | 87.3   | 2.0         | "     | 100         |             | 87.3        | 75-125 |     |       |       |
| Lead                       | 85.7   | 3.0         | "     | 100         |             | 85.7        | 75-125 |     |       |       |
| Matrix Spike (9061117-MS1) | Source | e: T191887- | 01    | Prepared: ( | 06/11/19 Aı | nalyzed: 06 | /12/19 |     |       |       |
| Arsenic                    | 55.0   | 5.0         | mg/kg | 97.1        | 2.70        | 53.9        | 75-125 |     |       | QM-0  |
| Barium                     | 139    | 1.0         | "     | 97.1        | 93.9        | 46.3        | 75-125 |     |       | QM-0  |
| Cadmium                    | 53.3   | 2.0         | "     | 97.1        | 0.592       | 54.3        | 75-125 |     |       | QM-0  |
| Chromium                   | 66.7   | 2.0         | "     | 97.1        | 12.4        | 55.9        | 75-125 |     |       | QM-0  |
| Lead                       | 57.4   | 3.0         | "     | 97.1        | 5.91        | 53.0        | 75-125 |     |       | QM-0  |

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Mike Jaroudi, Project Manager

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RPD

%REC

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/17/19 10:40

Reporting

# Metals by EPA 6010B - Quality Control

# SunStar Laboratories, Inc.

Spike

Source

| Analyte                         | Result | Limit       | Units | Level       | Result     | %REC        | Limits | RPD   | Limit | Notes |
|---------------------------------|--------|-------------|-------|-------------|------------|-------------|--------|-------|-------|-------|
| Batch 9061117 - EPA 3050B       |        |             |       |             |            |             |        |       |       |       |
| Matrix Spike Dup (9061117-MSD1) | Sourc  | e: T191887- | -01   | Prepared: ( | 06/11/19 A | nalyzed: 06 | /12/19 |       |       |       |
| Arsenic                         | 51.6   | 4.5         | mg/kg | 90.9        | 2.70       | 53.8        | 75-125 | 6.29  | 20    | QM-01 |
| Barium                          | 138    | 0.91        | "     | 90.9        | 93.9       | 48.3        | 75-125 | 0.776 | 20    | QM-01 |
| Cadmium                         | 50.2   | 1.8         | "     | 90.9        | 0.592      | 54.5        | 75-125 | 5.99  | 20    | QM-01 |
| Chromium                        | 63.7   | 1.8         | "     | 90.9        | 12.4       | 56.5        | 75-125 | 4.48  | 20    | QM-01 |
| Lead                            | 53.8   | 2.7         | "     | 90.9        | 5.91       | 52.6        | 75-125 | 6.51  | 20    | QM-01 |

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Mike Jaroudi, Project Manager

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/17/19 10:40

## Cold Vapor Extraction EPA 7470/7471 - Quality Control

# SunStar Laboratories, Inc.

| Analyte                         | Result | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC        | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |
|---------------------------------|--------|--------------------|-------|----------------|------------------|-------------|----------------|------|--------------|-------|
| Batch 9061118 - EPA 7471A Soil  |        |                    |       |                |                  |             |                |      |              |       |
| Blank (9061118-BLK1)            |        |                    |       | Prepared: 0    | 06/11/19 A       | nalyzed: 06 | /12/19         |      |              |       |
| Mercury                         | ND     | 0.10               | mg/kg |                |                  |             |                |      |              |       |
| LCS (9061118-BS1)               |        |                    |       | Prepared: 0    | 06/11/19 A       | nalyzed: 06 | /12/19         |      |              |       |
| Mercury                         | 0.310  | 0.10               | mg/kg | 0.315          |                  | 98.4        | 80-120         |      |              |       |
| Matrix Spike (9061118-MS1)      | Sour   | ce: T191887-       | 01    | Prepared: 0    | 06/11/19 A       | nalyzed: 06 | /12/19         |      |              |       |
| Mercury                         | 0.320  | 0.10               | mg/kg | 0.320          | ND               | 100         | 75-125         |      |              |       |
| Matrix Spike Dup (9061118-MSD1) | Sour   | ce: T191887-       | 01    | Prepared: 0    | 06/11/19 A       | nalyzed: 06 | /12/19         |      |              |       |
| Mercury                         | 0.316  | 0.10               | mg/kg | 0.310          | ND               | 102         | 75-125         | 1.23 | 20           |       |

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Mike Jaroudi, Project Manager Page 11 of 12



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/17/19 10:40

#### **Notes and Definitions**

QM-01 The % recovery is outside of established control limits due to matrix interference and/or sample dilution due to matrix effect. The batch

was accepted based on acceptable LCS recovery.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Mike Jaroudi, Project Manager

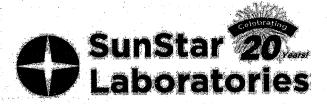
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# **SunStar**Laboratories

# **Chain of Custody Record**

25712 Commercentre Drive, Lake Forest, CA 92630 949-297-5020

| Clier           | it: Whyse A                              | 100rc               |                  |              |                 |          |                   |                  | Date    | e:(                                   | / ا      | 8/             | 2             | org                | 7                  |                 |                                                  | Pag          | je: <u> </u>     | Of                                    | 1           |                       |
|-----------------|------------------------------------------|---------------------|------------------|--------------|-----------------|----------|-------------------|------------------|---------|---------------------------------------|----------|----------------|---------------|--------------------|--------------------|-----------------|--------------------------------------------------|--------------|------------------|---------------------------------------|-------------|-----------------------|
| Addr            | ress: 475 GOZ<br>ne: (au <b>4) 75</b> 3~ | 130×9 Z             | ule 20           | , Drun       | ne, CA          |          |                   |                  | Proi    | ect N                                 | lam      | ie:            | U             | (C)                |                    | N               | 5/H_                                             | . (          | amous            |                                       |             |                       |
| Phor            | ne. (aug) - 53-                          | 7076                | Fax: (G          | ر کار        | (707)           | -        |                   |                  | Coll    | ector                                 | r: (     | -<br>(-01      | rest          |                    | You                | tl.             | (Gh)                                             | Clie         | nt Project #: 20 | 957001                                | 14          |                       |
| Proje           | ect Manager: Zva                         | skelih 1            | S 1117           |              | , , , , ,       | -        |                   |                  | Bato    | ch #:                                 | 119      | 18             | 38            | 7                  |                    | - V             | <del>, ,</del>                                   | EDF          | : #·             |                                       | <u>'</u>    |                       |
| ı roje          | scriviariage,                            |                     | <u> </u>         |              |                 |          |                   |                  |         | JII //                                |          |                |               |                    |                    |                 |                                                  |              |                  |                                       |             |                       |
|                 |                                          |                     |                  |              |                 |          |                   |                  |         |                                       |          |                |               |                    |                    |                 |                                                  | l            |                  |                                       |             |                       |
|                 |                                          |                     |                  |              |                 |          |                   |                  |         |                                       |          |                |               | -                  |                    |                 | i                                                |              |                  |                                       |             |                       |
|                 |                                          |                     |                  |              |                 |          |                   |                  |         |                                       |          |                | 듩             | <u>s</u>           |                    | <i>Z</i>        |                                                  |              |                  |                                       |             |                       |
| 7.N             | er i                                     |                     |                  |              | -               |          |                   | only             |         |                                       |          |                | క్            | Metals             |                    | <u> -</u>       |                                                  |              |                  |                                       |             |                       |
|                 |                                          |                     |                  |              |                 | -        |                   | Ϋ́o              |         | Ī.                                    | إ        |                | ğ             | 22                 | etals              | م               |                                                  |              |                  |                                       |             | ners                  |
| #               |                                          | 4 P. F.             |                  |              |                 |          | 1                 | λXO              |         |                                       | ig       | <del>6</del>   | Sart          | iţe                | Ž                  | 80126           |                                                  |              |                  |                                       |             | ntai                  |
| آ _             |                                          |                     |                  |              |                 |          | λχο               | втех,            |         | $\times$                              | asc      | lies           | ᄫ             |                    | Σ̈́                | R               |                                                  |              |                  |                                       |             | 8                     |
| rato            |                                          |                     |                  |              |                 |          | 1 +               | BTI              |         |                                       | <u></u>  | <u>S</u>       | N<br>N        | 20/                | 힐                  | 4               |                                                  |              | ·                |                                       |             | 0 #                   |
| Laboratory ID # |                                          | Date                | T:               | Sample       | Container       | 8260     | 560               | 8260             | 8270    | 8021 BTEX                             | )15      | 8015M (diesel) | 015           | 6010/7000 Title 22 | 6020 ICP-MS Metals | (CPA            |                                                  |              |                  | /D                                    |             | Total # of containers |
|                 | Sample ID                                | Sampled (18)19      | Time<br>8:17 Al- | Type<br>Soil | Type Use Glass  | <u> </u> | 80                | 8                | 8       | ŏ l                                   | <u>∞</u> | <u></u>        | $\frac{8}{8}$ | <del>Š</del>       | ŏ,                 | <u> </u>        |                                                  |              | Tomments         | /Preservative                         | )           | +                     |
| 01              | B-00 C 5'                                | 4/8/17              | 021777           | 30.0         | 1.40 -1001/01   |          |                   |                  |         |                                       |          |                | 寸             | 7                  |                    |                 | 1                                                |              | 1 4 0            | See To the second                     |             | $\dashv$              |
| 02              | B-1 e \$1                                | (18/19              | 9:13/14          | 201C         | Yoz Glas Jo     |          |                   |                  |         |                                       |          |                |               | $\operatorname{A}$ | ⋾                  | X               | 1                                                |              | JC (5            | · · · · · · · · · · · · · · · · · · · |             | $\sqcap$              |
| £74             | <b>V</b>                                 |                     |                  |              |                 |          | 4, <sup>1</sup> , | 10/14/<br>17/14/ |         |                                       |          |                |               |                    |                    |                 |                                                  | ļ            |                  |                                       |             |                       |
| 03              | B-18 @ 5'                                | 618/19              | 11.00 W          | 5012         | Yoz Glas Ju     | 30,      |                   |                  |         |                                       | _        |                | _             |                    | $\rightarrow$      | 嵙_              |                                                  |              | ICE              |                                       |             | 1                     |
| <u> </u>        | 0 \ A A                                  | (15 /16             | 11:52AN          | Do 14        | V Clare         | - 1      | 8                 | -                |         | -                                     |          | +              | $\dashv$      | J                  | $\downarrow$       | -               | \ \frac{1}{2}                                    | <u> </u>     | ICG              |                                       |             | $\forall$             |
| 7               | B-12 @ 31                                | 618/19              | 11.50#1          | 1201C        | Yorcho Ja       |          |                   |                  | . *     |                                       | +        | $\dashv$       | -             | $\ominus$          | - +                | <del>~</del>  - |                                                  |              | 200              | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |             | $\dashv$              |
|                 |                                          |                     |                  |              |                 |          | 20                |                  |         |                                       | $\dashv$ | $\neg$         | $\dashv$      |                    | $\dashv$           |                 |                                                  |              |                  |                                       | $\neg \neg$ |                       |
|                 |                                          |                     |                  |              |                 |          | 32/               |                  |         | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | _        |                |               |                    | -                  |                 |                                                  |              |                  |                                       |             | 100                   |
| Ť               |                                          |                     | 7                |              |                 | 144      |                   |                  |         |                                       |          |                |               | -                  |                    | -               |                                                  | 1            |                  | <u> </u>                              | 100         |                       |
|                 |                                          |                     |                  |              |                 | -        |                   |                  |         |                                       | _        |                |               |                    |                    |                 | ļ                                                | ļ '          |                  |                                       |             | -                     |
| 1 T             |                                          |                     |                  | 1 A 31       |                 |          |                   |                  |         |                                       | +        |                |               |                    |                    |                 | <del> </del>                                     |              |                  | $\rightarrow \leftarrow$              | 3.57°E      |                       |
|                 |                                          |                     |                  |              |                 |          | -                 |                  |         |                                       | $\dashv$ | 7              | 1             | +                  | $\dashv$           | _               | <del>                                     </del> | -            | 9.1              | 7                                     |             |                       |
| Relin           | quished by: (signature)                  | Date / Ti           | ime              | Received     | y: (signature)  |          | <u> </u>          | Date             | e / Tii | me                                    |          |                |               | To                 | tal#               | of cont         | ainers                                           | 4            |                  | Notes                                 |             | $\supset$             |
|                 | 7/M/                                     | 6/10/1              | 9 11:03          | March        | Am              | 6-1      | 0-                | 19               | 1       | 1:0                                   | 3        | Chai           | n of          |                    |                    | seals Y         |                                                  | Y            |                  |                                       |             |                       |
| Relin           | quished by: (signature)                  | Date / Ti           | me               | Received b   | by: (signature) |          |                   | Date             | e / Tir | me                                    | $\dashv$ | J, 101         |               |                    | _                  | tact? Y         |                                                  | <del>'</del> |                  |                                       |             | <u>.</u>              |
| The             | quished by: (signature)  Prom 6-10       | -19 11              | :30              | 5            | M               | 6-       | 10-               | 19               | 11      | :30                                   |          | Re             | ceiv          |                    |                    | onditio         |                                                  | 3.4          | 1                |                                       |             | 7                     |
|                 | quished by: (signature)                  | Date / Ti           |                  |              | by: (signature) |          |                   |                  | e / Tir |                                       |          |                | 30141         | Ju go              |                    | .c.,aitio       | " ooiu                                           | 1            | 1                | . •                                   |             | ,                     |
|                 |                                          | t et                |                  | 1 - 1-       |                 |          |                   |                  |         |                                       | -        | :<br>Turn      | aro           | und                | time               |                 |                                                  |              |                  |                                       |             | · 4                   |
| Samo            | le disposal Instructions: D              | )isposal @ \$2.00 e | each             | Return       | to client       |          | Pick              | up _             |         |                                       | —'       | - 4111         | 410           | unu                |                    | •               |                                                  |              |                  |                                       |             |                       |
|                 | •                                        | <del>-</del>        |                  |              |                 |          |                   |                  |         |                                       | •        | •              |               |                    |                    |                 |                                                  |              | <b>COC</b> 181   | 361                                   |             |                       |



# SAMPLE RECEIVING REVIEW SHEET

| Batch/Work Order #:                                   | T19 1887                                                     |                           | A Comment          | er to a classification of the second | and the Markey County Carrier in |
|-------------------------------------------------------|--------------------------------------------------------------|---------------------------|--------------------|--------------------------------------|----------------------------------|
| Client Name:                                          | Ninyo & Moore                                                | Project:                  | <u>_</u>           | )CI,                                 | Vonth Campus                     |
| Delivered by:                                         | ☐ Client ☐ SunStar Co                                        | ourier 🗌 GSO [            | ☐ FedEx            | Other                                |                                  |
| If Courier, Received by:                              | Paul                                                         | Date/Time Co<br>Received: | urier              | 6-10-                                | 19 11:03<br>19 11:30             |
| Lab Received by:                                      | Travis                                                       | Date/Time La<br>Received: | b(                 | 5-10-                                | 19 11:30                         |
| Total number of coolers re                            | eceived: <i>O</i>                                            |                           |                    |                                      |                                  |
| Temperature: Cooler #1                                | 2.2 °C +/- the CF (1.2                                       | °C) = 3.4                 | °C correcte        | ed temperatur                        |                                  |
| Temperature: Cooler #2                                | °C +/- the CF ( 1.2                                          | °C) =                     | °C correcte        | ed temperatur                        |                                  |
| Temperature: Cooler #3                                | °C +/- the CF ( 1.2                                          | °C) =                     | °C correcte        | ed temperatur                        | e                                |
| Temperature criteria = < (no frozen containers)       | <b>≤6°C</b> Wit                                              | hin criteria?             | Yes                | □No                                  |                                  |
| If NO: Samples received If on ice, samples collected? |                                                              | Yes → Acceptable          | <sup>™</sup> □No → |                                      | formance Sheet<br>formance Sheet |
| Custody seals intact on co                            | oler/s <mark>ample</mark>                                    |                           | □¥es<br>✓Yes       | □Mo*<br>□No*                         | MN/A                             |
| Sample labels match Chair                             | in of Custody IDs                                            |                           | <b>∑</b> Yes       | □No*                                 |                                  |
| Total number of container                             | rs received match COC                                        |                           | ✓Yes               | □No*                                 |                                  |
| Proper containers receive                             | d for analyses requested on Co                               | oc                        | ✓Yes               | □No*                                 |                                  |
| Proper preservative indica                            | ated on COC/containers for ar                                | alyses requested          | □Yes               | □No*                                 | MN/A                             |
|                                                       | ved in good condition with cores preservatives and within me | ethod specified           | Yes                | □No*                                 |                                  |
| * Complete Non-Conformat                              | nce Receiving Sheet if checked                               | Cooler/Sample Rev         | iew - Initials     | and date:                            | rB 6-10-19                       |
| Comments:                                             |                                                              |                           |                    |                                      |                                  |
|                                                       |                                                              |                           |                    |                                      |                                  |





#### WORK ORDER

#### T191887

Client:Ninyo & MooreProject Manager:Mike JaroudiProject:UCI North CampusProject Number:209570014

Report To:

Ninyo & Moore Franklin Ruiz

475 Goddard, Ste. 200 Irvine, CA 92618

Date Due:

06/17/19 17:00 (5 day TAT)

Yes

Received By: Travis Berner
Logged In By: Travis Berner

Date Received:

06/10/19 11:30

Date Logged In:

06/10/19 11:32

Samples Received at:  $3.4^{\circ}C$ 

Custody Seals No Received On Ice

COC/Labels Agree Yes
Preservation Confir No

| Analysis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Due                      | TAT       | Expires             | Comments |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------|---------------------|----------|
| T191887-01 B-28@5' [Set (US &                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | oil] Sampled 06/08/19 08 | :17 (GMT- | 08:00) Pacific Time |          |
| 6010 Title 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 06/17/19 15:00           | 5         | 12/05/19 08:17      |          |
| 8015 Carbon Chain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 06/17/19 15:00           | 5         | 06/22/19 08:17      |          |
| T191887-02 B-8@5' [Soi<br>(US &                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | il] Sampled 06/08/19 09: | 13 (GMT-0 | 8:00) Pacific Time  |          |
| 6010 Title 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 06/17/19 15:00           | 5         | 12/05/19 09:13      |          |
| 8015 Carbon Chain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 06/17/19 15:00           | 5         | 06/22/19 09:13      |          |
| T191887-03 B-18@5' [State of the control of the con | oil] Sampled 06/08/19 11 | :00 (GMT- | 08:00) Pacific Time |          |
| 6010 Title 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 06/17/19 15:00           | 5         | 12/05/19 11:00      |          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 00/1//1/ 15.00           | 9         | 12/03/17 11.00      |          |
| 8015 Carbon Chain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 06/17/19 15:00           | 5         | 06/22/19 11:00      |          |
| 8015 Carbon Chain  T191887-04 B-17@3' [S (US &                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 06/17/19 15:00           | 5         | 06/22/19 11:00      | ,        |
| T191887-04 B-17@3' [S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 06/17/19 15:00           | 5         | 06/22/19 11:00      |          |

| Analysis groups included in this work order |            |  |  |  |  |  |
|---------------------------------------------|------------|--|--|--|--|--|
| 6010 Title 22                               |            |  |  |  |  |  |
| subgroup 6010B T22                          | 7470/71 Hg |  |  |  |  |  |

| Reviewed By | Date |
|-------------|------|





19 June 2019

Franklin Ruiz Ninyo & Moore 475 Goddard, Ste. 200 Irvine, CA 92618

RE: UCI North Campus

Enclosed are the results of analyses for samples received by the laboratory on 06/11/19 17:35. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mike Jaroudi

**Project Manager** 



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:11

#### ANALYTICAL REPORT FOR SAMPLES

| Sample ID     | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|---------------|---------------|--------|----------------|----------------|
| T-9: 0-1.0    | T191911-01    | Soil   | 06/03/19 00:45 | 06/11/19 17:35 |
| T-10: 2.0-2.5 | T191911-02    | Soil   | 06/03/19 01:20 | 06/11/19 17:35 |
| T-11: 1.0-1.5 | T191911-03    | Soil   | 06/03/19 11:50 | 06/11/19 17:35 |
| T-12: 7.0-7.5 | T191911-04    | Soil   | 06/03/19 10:50 | 06/11/19 17:35 |
| T-13: 2.0-3.0 | T191911-05    | Soil   | 06/03/19 08:45 | 06/11/19 17:35 |
| T-14: 2.5-3.0 | T191911-06    | Soil   | 06/03/19 09:07 | 06/11/19 17:35 |
| T-15: 6.0-6.5 | T191911-07    | Soil   | 06/03/19 09:25 | 06/11/19 17:35 |
| T-1: 0-0.5    | T191911-08    | Soil   | 06/04/19 10:45 | 06/11/19 17:35 |
| T-2: 4.0-4.3  | T191911-09    | Soil   | 06/04/19 11:25 | 06/11/19 17:35 |
| T-3: 1.0-1.5  | T191911-10    | Soil   | 06/04/19 11:45 | 06/11/19 17:35 |
| T-4: 0-0.5    | T191911-11    | Soil   | 06/04/19 12:15 | 06/11/19 17:35 |
| T-5: 2.5-3.0  | T191911-12    | Soil   | 06/04/19 09:55 | 06/11/19 17:35 |
| T-6: 3.5-4.0  | T191911-13    | Soil   | 06/04/19 07:40 | 06/11/19 17:35 |
| T-7: 2.5-3.0  | T191911-14    | Soil   | 06/04/19 09:35 | 06/11/19 17:35 |
| T-8: 1.0-1.5  | T191911-15    | Soil   | 06/04/19 09:00 | 06/11/19 17:35 |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:11

#### **DETECTIONS SUMMARY**

| Sample ID: | T-9: 0-1.0    | Labora | tory ID:  | T191911-01 |           |       |
|------------|---------------|--------|-----------|------------|-----------|-------|
|            |               |        | Reporting |            |           |       |
| Analyte    |               | Result | Limit     | Units      | Method    | Notes |
| Barium     |               | 120    | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |               | 13     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |               | 7.9    | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |               | 13     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |               | 12     | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |               | 9.5    | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |               | 32     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |               | 50     | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | T-10: 2.0-2.5 | Labora | tory ID:  | T191911-02 |           |       |
|            |               |        | Reporting |            |           |       |
| Analyte    |               | Result | Limit     | Units      | Method    | Notes |
| Barium     |               | 140    | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |               | 14     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |               | 8.3    | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |               | 13     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |               | 6.6    | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |               | 9.8    | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |               | 36     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |               | 46     | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | T-11: 1.0-1.5 | Labora | tory ID:  | T191911-03 |           |       |
|            |               |        | Reporting |            |           |       |
| Analyte    |               | Result | Limit     | Units      | Method    | Notes |
| Barium     |               | 150    | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |               | 16     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |               | 7.6    | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |               | 13     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |               | 5.7    | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |               | 11     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |               | 33     | 5.0       | mg/kg      | EPA 6010b |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
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 Irvine CA, 92618
 Project Manager: Franklin Ruiz
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| Sample ID:         | T-11: 1.0-1.5 | Labora       | tory ID:     | T191911-03 |                     |       |
|--------------------|---------------|--------------|--------------|------------|---------------------|-------|
|                    |               |              | Reporting    |            |                     |       |
| Analyte            |               | Result       | Limit        | Units      | Method              | Notes |
| Zinc               |               | 43           | 1.0          | mg/kg      | EPA 6010b           |       |
|                    |               |              |              |            |                     |       |
| Sample ID:         | T-12: 7.0-7.5 | Laborat      | tory ID:     | T191911-04 |                     |       |
|                    |               |              | Reporting    |            |                     |       |
| Analyte            |               | Result       | Limit        | Units      | Method              | Notes |
| Barium             |               | 24           | 1.0          | mg/kg      | EPA 6010b           |       |
| Chromium           |               | 7.4          | 2.0          | mg/kg      | EPA 6010b           |       |
| Cobalt             |               | 2.5          | 2.0          | mg/kg      | EPA 6010b           |       |
| Copper             |               | 7.0          | 1.0          | mg/kg      | EPA 6010b           |       |
| Vanadium           |               | 8.8          | 5.0          | mg/kg      | EPA 6010b           |       |
| Zinc               |               | 16           | 1.0          | mg/kg      | EPA 6010b           |       |
|                    |               |              |              |            |                     |       |
| Sample ID:         | T-13: 2.0-3.0 | Laborat      | tory ID:     | T191911-05 |                     |       |
|                    |               |              | Reporting    |            |                     |       |
| Analyte            |               | Result       | Limit        | Units      | Method              | Notes |
| C29-C40 (N         | MORO)         | 10           | 10           | mg/kg      | EPA 8015B           |       |
| Barium             |               | 82           | 1.0          | mg/kg      | EPA 6010b           |       |
| Chromium           |               | 9.8          | 2.0          | mg/kg      | EPA 6010b           |       |
| Cobalt             |               | 5.6          | 2.0          | mg/kg      | EPA 6010b           |       |
| Copper             |               | 8.7          | 1.0          | mg/kg      | EPA 6010b           |       |
| Lead               |               | 6.2          | 3.0          | mg/kg      | EPA 6010b           |       |
| Nickel             |               | 5.7          | 2.0          | mg/kg      | EPA 6010b           |       |
| Vanadium           |               | 22           | 5.0          | mg/kg      | EPA 6010b           |       |
| Zinc               |               | 26           | 1.0          | mg/kg      | EPA 6010b           |       |
| Sample ID:         | T-14: 2.5-3.0 | Laborat      | tory ID:     | T191911-06 |                     |       |
| Sample 1D.         | 1-14. 2.3-3.0 | Laborat      |              | 1191911-00 |                     |       |
| A malveta          |               | Dogult       | Reporting    | ¥1mi4a     | Mathad              | Note: |
| Analyte<br>Barium  |               | Result<br>97 | Limit<br>1.0 | Units      | Method<br>EPA 6010b | Notes |
|                    |               |              |              | mg/kg      |                     |       |
| Chromium<br>Cobalt |               | 11           | 2.0<br>2.0   | mg/kg      | EPA 6010b           |       |
|                    |               | 7.7          |              | mg/kg      | EPA 6010b           |       |
| Copper<br>Lead     |               | 8.6          | 1.0          | mg/kg      | EPA 6010b           |       |
|                    |               | 4.3          | 3.0          | mg/kg      | EPA 6010b           |       |
| Nickel             |               | 8.1          | 2.0          | mg/kg      | EPA 6010b           |       |

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| Sample ID: | T-14: 2.5-3.0 | Laborat | tory ID:  | T191911-06 |           |       |
|------------|---------------|---------|-----------|------------|-----------|-------|
|            |               |         | Reporting |            |           |       |
| Analyte    |               | Result  | Limit     | Units      | Method    | Notes |
| Vanadium   |               | 29      | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |               | 31      | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | T-15: 6.0-6.5 | Laborat | tory ID:  | T191911-07 |           |       |
|            |               |         | Reporting |            |           |       |
| Analyte    |               | Result  | Limit     | Units      | Method    | Notes |
| Barium     |               | 30      | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |               | 4.5     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |               | 2.2     | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |               | 1.5     | 1.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |               | 9.6     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |               | 12      | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | T-1: 0-0.5    | Labora  | tory ID:  | T191911-08 |           |       |
| _          |               |         | Reporting |            |           |       |
| Analyte    |               | Result  | Limit     | Units      | Method    | Notes |
| C29-C40 (M | IORO)         | 27      | 10        | mg/kg      | EPA 8015B |       |
| Barium     |               | 130     | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |               | 14      | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |               | 7.5     | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |               | 15      | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |               | 12      | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |               | 9.2     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |               | 36      | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |               | 54      | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | T-2: 4.0-4.3  | Labora  | tory ID:  | T191911-09 |           |       |
| •          |               |         | Reporting |            |           |       |
| Analyte    |               | Result  | Limit     | Units      | Method    | Notes |
| C29-C40 (M | IORO)         | 81      | 10        | mg/kg      | EPA 8015B | 1.000 |
| Barium     | ,             | 96      | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |               | 11      | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |               | 6.6     | 2.0       | mg/kg      | EPA 6010b |       |
|            |               |         |           |            |           |       |

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Ninyo & Moore Project: UCI North Campus

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 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:11

| Sample ID:                                                                                            | T-2: 4.0-4.3 | Labora                                      | tory ID:                                                        | T191911-09                                                                    |                                                                                        |       |
|-------------------------------------------------------------------------------------------------------|--------------|---------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-------|
|                                                                                                       |              |                                             | Reporting                                                       |                                                                               |                                                                                        |       |
| Analyte                                                                                               |              | Result                                      | Limit                                                           | Units                                                                         | Method                                                                                 | Notes |
| Lead                                                                                                  |              | 8.6                                         | 3.0                                                             | mg/kg                                                                         | EPA 6010b                                                                              |       |
| Nickel                                                                                                |              | 7.6                                         | 2.0                                                             | mg/kg                                                                         | EPA 6010b                                                                              |       |
| Vanadium                                                                                              |              | 29                                          | 5.0                                                             | mg/kg                                                                         | EPA 6010b                                                                              |       |
| Zinc                                                                                                  |              | 39                                          | 1.0                                                             | mg/kg                                                                         | EPA 6010b                                                                              |       |
| Sample ID:                                                                                            | T-3: 1.0-1.5 | Labora                                      | tory ID:                                                        | T191911-10                                                                    |                                                                                        |       |
|                                                                                                       |              |                                             | Reporting                                                       |                                                                               |                                                                                        |       |
| Analyte                                                                                               |              | Result                                      | Limit                                                           | Units                                                                         | Method                                                                                 | Notes |
| C29-C40 (M                                                                                            | MORO)        | 26                                          | 10                                                              | mg/kg                                                                         | EPA 8015B                                                                              |       |
| Barium                                                                                                |              | 130                                         | 1.0                                                             | mg/kg                                                                         | EPA 6010b                                                                              |       |
| Chromium                                                                                              |              | 14                                          | 2.0                                                             | mg/kg                                                                         | EPA 6010b                                                                              |       |
| Cobalt                                                                                                |              | 8.1                                         | 2.0                                                             | mg/kg                                                                         | EPA 6010b                                                                              |       |
| Copper                                                                                                |              | 14                                          | 1.0                                                             | mg/kg                                                                         | EPA 6010b                                                                              |       |
| Lead                                                                                                  |              | 9.6                                         | 3.0                                                             | mg/kg                                                                         | EPA 6010b                                                                              |       |
| Nickel                                                                                                |              | 9.9                                         | 2.0                                                             | mg/kg                                                                         | EPA 6010b                                                                              |       |
| THEREI                                                                                                |              |                                             |                                                                 |                                                                               |                                                                                        |       |
| Vanadium                                                                                              |              | 38                                          | 5.0                                                             | mg/kg                                                                         | EPA 6010b                                                                              |       |
|                                                                                                       |              | 38<br>48                                    | 5.0<br>1.0                                                      | mg/kg<br>mg/kg                                                                | EPA 6010b<br>EPA 6010b                                                                 |       |
| Vanadium<br>Zinc                                                                                      | T-4: 0-0.5   | 48                                          |                                                                 |                                                                               |                                                                                        |       |
| Vanadium<br>Zinc                                                                                      | T-4: 0-0.5   | 48                                          | 1.0                                                             | mg/kg                                                                         |                                                                                        |       |
| Vanadium<br>Zinc                                                                                      | T-4: 0-0.5   | 48                                          | 1.0                                                             | mg/kg                                                                         |                                                                                        | Notes |
| Vanadium Zinc  Sample ID:  Analyte                                                                    |              | 48<br>Labora                                | tory ID:                                                        | mg/kg<br>T191911-11                                                           | EPA 6010b                                                                              | Notes |
| Vanadium Zinc  Sample ID:                                                                             |              | 48<br>Labora<br>Result                      | tory ID:  Reporting Limit                                       | mg/kg T191911-11 Units                                                        | EPA 6010b  Method                                                                      | Notes |
| Vanadium Zinc  Sample ID:  Analyte C29-C40 (M                                                         |              | Labora  Result 20                           | tory ID:  Reporting Limit 10                                    | mg/kg T191911-11 Units mg/kg                                                  | Method EPA 8015B                                                                       | Notes |
| Vanadium<br>Zinc<br>Sample ID:<br>Analyte<br>C29-C40 (M<br>Barium                                     |              | Labora  Result 20 120                       | tory ID:  Reporting Limit 10 1.0                                | mg/kg T191911-11 Units mg/kg mg/kg mg/kg                                      | Method EPA 8015B EPA 6010b                                                             | Notes |
| Vanadium<br>Zinc  Sample ID:  Analyte C29-C40 (M Barium Chromium                                      |              | 48  Labora  Result 20 120 13                | tory ID:  Reporting Limit 10 1.0 2.0                            | mg/kg T191911-11 Units mg/kg mg/kg                                            | Method EPA 8015B EPA 6010b EPA 6010b                                                   | Notes |
| Vanadium Zinc  Sample ID:  Analyte C29-C40 (M Barium Chromium Cobalt                                  |              | 48  Labora  Result 20 120 13 7.3            | tory ID:  Reporting Limit 10 1.0 2.0 2.0                        | mg/kg T191911-11 Units mg/kg mg/kg mg/kg mg/kg                                | Method EPA 8015B EPA 6010b EPA 6010b EPA 6010b                                         | Notes |
| Vanadium Zinc  Sample ID:  Analyte C29-C40 (M Barium Chromium Cobalt Copper                           |              | Result 20 120 13 7.3                        | 1.0 tory ID: Reporting Limit 10 1.0 2.0 2.0 1.0                 | mg/kg T191911-11 Units mg/kg mg/kg mg/kg mg/kg mg/kg                          | Method EPA 8015B EPA 6010b EPA 6010b EPA 6010b EPA 6010b                               | Notes |
| Vanadium Zinc  Sample ID:  Analyte C29-C40 (M Barium Chromium Cobalt Copper Lead                      |              | 48  Labora  Result 20 120 13 7.3 12 9.3     | 1.0 tory ID: Reporting Limit 10 1.0 2.0 2.0 1.0 3.0             | mg/kg T191911-11 Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg                    | Method EPA 8015B EPA 6010b EPA 6010b EPA 6010b EPA 6010b EPA 6010b                     | Notes |
| Vanadium Zinc  Sample ID:  Analyte C29-C40 (M Barium Chromium Cobalt Copper Lead Nickel               |              | 48  Labora  Result 20 120 13 7.3 12 9.3 9.4 | 1.0 tory ID: Reporting Limit 10 1.0 2.0 2.0 1.0 3.0 2.0         | mg/kg T191911-11  Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg             | Method EPA 8015B EPA 6010b EPA 6010b EPA 6010b EPA 6010b EPA 6010b EPA 6010b           | Notes |
| Vanadium Zinc  Sample ID:  Analyte C29-C40 (M Barium Chromium Cobalt Copper Lead Nickel Vanadium      |              | Result 20 120 13 7.3 12 9.3 9.4 34 41       | 1.0  tory ID:  Reporting Limit 10 1.0 2.0 2.0 1.0 3.0 2.0 5.0   | mg/kg T191911-11  Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg       | Method EPA 8015B EPA 6010b | Notes |
| Vanadium Zinc  Sample ID:  Analyte C29-C40 (M Barium Chromium Cobalt Copper Lead Nickel Vanadium Zinc | 40RO)        | Result 20 120 13 7.3 12 9.3 9.4 34 41       | 1.0 tory ID: Reporting Limit 10 1.0 2.0 2.0 1.0 3.0 2.0 5.0 1.0 | mg/kg T191911-11  Units mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg | Method EPA 8015B EPA 6010b | Notes |

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Ninyo & Moore Project: UCI North Campus

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 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:11

| Sample ID: | T-5: 2.5-3.0 | Labora | tory ID:  | T191911-12 |           |       |
|------------|--------------|--------|-----------|------------|-----------|-------|
|            |              |        | Reporting |            |           |       |
| Analyte    |              | Result | Limit     | Units      | Method    | Notes |
| Barium     |              | 63     | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |              | 15     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |              | 4.3    | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |              | 8.6    | 1.0       | mg/kg      | EPA 6010b |       |
| Nickel     |              | 6.9    | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |              | 20     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |              | 25     | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | T-6: 3.5-4.0 | Labora | tory ID:  | T191911-13 |           |       |
|            |              |        | Reporting |            |           |       |
| Analyte    |              | Result | Limit     | Units      | Method    | Notes |
| Barium     |              | 120    | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |              | 13     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |              | 7.2    | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |              | 13     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |              | 6.5    | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |              | 9.0    | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |              | 33     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |              | 44     | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | T-7: 2.5-3.0 | Labora | tory ID:  | T191911-14 |           |       |
|            |              |        | Reporting |            |           |       |
| Analyte    |              | Result | Limit     | Units      | Method    | Notes |
| C29-C40 (M | ORO)         | 31     | 10        | mg/kg      | EPA 8015B |       |
| Barium     |              | 51     | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |              | 5.0    | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |              | 3.2    | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |              | 3.6    | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |              | 7.8    | 3.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |              | 17     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |              | 25     | 1.0       | mg/kg      | EPA 6010b |       |

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| <b>Sample ID:</b> T-8: 1.0-1.5 | Laborate | ory ID:   | T191911-15 |           |       |
|--------------------------------|----------|-----------|------------|-----------|-------|
|                                |          | Reporting |            |           |       |
| Analyte                        | Result   | Limit     | Units      | Method    | Notes |
| C29-C40 (MORO)                 | 29       | 10        | mg/kg      | EPA 8015B |       |
| Barium                         | 130      | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium                       | 14       | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt                         | 7.7      | 2.0       | mg/kg      | EPA 6010b |       |
| Copper                         | 13       | 1.0       | mg/kg      | EPA 6010b |       |
| Lead                           | 7.7      | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel                         | 9.2      | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium                       | 36       | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc                           | 46       | 1.0       | mg/kg      | EPA 6010b |       |

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# T-9: 0-1.0 T191911-01 (Soil)

| Analyte                                 | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                         |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 8 | 015B   |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                            | ND     | 10                 | mg/kg     | 1        | 9061225 | 06/12/19 | 06/14/19 | EPA 8015B         |       |
| C13-C28 (DRO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                          | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                  |        | 99.3 %             | 65-1      | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                     |        |                    |           |          |         |          |          |                   |       |
| Antimony                                | ND     | 3.0                | mg/kg     | 1        | 9061307 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                                  | ND     | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Arsenic                                 | ND     | 5.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Barium                                  | 120    | 1.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Beryllium                               | ND     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                                 | ND     | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Chromium                                | 13     | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Cobalt                                  | 7.9    | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Copper                                  | 13     | 1.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Lead                                    | 12     | 3.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Molybdenum                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                  | 9.5    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                | 32     | 5.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Zinc                                    | 50     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471     |        |                    |           |          |         |          |          |                   |       |
| Mercury                                 | ND     | 0.10               | mg/kg     | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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# T-10: 2.0-2.5 T191911-02 (Soil)

| Analyte                            | Result     | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Note |
|------------------------------------|------------|--------------------|-----------|----------|---------|----------|----------|-------------------|------|
|                                    |            | SunStar L          | aboratori | es, Inc. |         |          |          |                   |      |
| Extractable Petroleum Hydrocarbon  | s by 8015B |                    |           |          |         |          |          |                   |      |
| C6-C12 (GRO)                       | ND         | 10                 | mg/kg     | 1        | 9061225 | 06/12/19 | 06/14/19 | EPA 8015B         |      |
| C13-C28 (DRO)                      | ND         | 10                 | "         | "        | "       | "        | "        | "                 |      |
| C29-C40 (MORO)                     | ND         | 10                 | "         | "        | "       | "        | "        | "                 |      |
| Surrogate: p-Terphenyl             |            | 107 %              | 65-1      | 35       | "       | "        | "        | "                 |      |
| Metals by EPA 6010B                |            |                    |           |          |         |          |          |                   |      |
| Antimony                           | ND         | 3.0                | mg/kg     | 1        | 9061307 | 06/13/19 | 06/14/19 | EPA 6010b         |      |
| Silver                             | ND         | 2.0                | "         | "        | "       | "        | "        | "                 |      |
| Arsenic                            | ND         | 5.0                | "         | "        | "       | "        | "        | "                 |      |
| Barium                             | 140        | 1.0                | "         | "        | "       | "        | "        | "                 |      |
| Beryllium                          | ND         | 1.0                | "         | "        | "       | "        | 06/14/19 | "                 |      |
| Cadmium                            | ND         | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |      |
| Chromium                           | 14         | 2.0                | "         | "        | "       | "        | "        | "                 |      |
| Cobalt                             | 8.3        | 2.0                | "         | "        | "       | "        | "        | "                 |      |
| Copper                             | 13         | 1.0                | "         | "        | "       | "        | "        | "                 |      |
| Lead                               | 6.6        | 3.0                | "         | "        | "       | "        | "        | "                 |      |
| Molybdenum                         | ND         | 5.0                | "         | "        | "       | "        | "        | "                 |      |
| Nickel                             | 9.8        | 2.0                | "         | "        | "       | "        | "        | "                 |      |
| Selenium                           | ND         | 5.0                | "         | "        | "       | "        | "        | "                 |      |
| Thallium                           | ND         | 2.0                | "         | "        | "       | "        | "        | "                 |      |
| Vanadium                           | 36         | 5.0                | "         | "        | "       | "        | "        | "                 |      |
| Zinc                               | 46         | 1.0                | "         | "        | "       | "        | "        | "                 |      |
| Cold Vapor Extraction EPA 7470/747 | 1          |                    |           |          |         |          |          |                   |      |
| Mercury                            | ND         | 0.10               | mg/kg     | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |      |

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# T-11: 1.0-1.5 T191911-03 (Soil)

| Analyte                             | Result   | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-------------------------------------|----------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                     |          | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons  | by 8015B |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                        | ND       | 10                 | mg/kg     | 1        | 9061225 | 06/12/19 | 06/14/19 | EPA 8015B         |       |
| C13-C28 (DRO)                       | ND       | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                      | ND       | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl              |          | 105 %              | 65-1      | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                 |          |                    |           |          |         |          |          |                   |       |
| Antimony                            | ND       | 3.0                | mg/kg     | 1        | 9061307 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                              | ND       | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                             | ND       | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                              | 150      | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                           | ND       | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                             | ND       | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Chromium                            | 16       | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                              | 7.6      | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                              | 13       | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                | 5.7      | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                          | ND       | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                              | 11       | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                            | ND       | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                            | ND       | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                            | 33       | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                | 43       | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471 |          |                    |           |          |         |          |          |                   |       |
| Mercury                             | ND       | 0.10               | mg/kg     | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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# T-12: 7.0-7.5 T191911-04 (Soil)

| Analyte                                  | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|------------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                          |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 80 | 15B    |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                             | ND     | 10                 | mg/kg     | 1        | 9061225 | 06/12/19 | 06/14/19 | EPA 8015B         |       |
| C13-C28 (DRO)                            | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                   |        | 112 %              | 65-1      | !35      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                      |        |                    |           |          |         |          |          |                   |       |
| Antimony                                 | ND     | 3.0                | mg/kg     | 1        | 9061307 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                                   | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                                  | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                   | 24     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                                | ND     | 1.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Cadmium                                  | ND     | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Chromium                                 | 7.4    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                   | 2.5    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                   | 7.0    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                     | ND     | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                               | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                   | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                 | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                 | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                 | 8.8    | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                     | 16     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471      |        |                    |           |          |         |          |          |                   |       |
| Mercury                                  | ND     | 0.10               | mg/kg     | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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# T-13: 2.0-3.0 T191911-05 (Soil)

| Analyte                                 | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                         |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 8 | 015B   |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                            | ND     | 10                 | mg/kg     | 1        | 9061225 | 06/12/19 | 06/14/19 | EPA 8015B         |       |
| C13-C28 (DRO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                          | 10     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                  |        | 104 %              | 65-1      | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                     |        |                    |           |          |         |          |          |                   |       |
| Antimony                                | ND     | 3.0                | mg/kg     | 1        | 9061307 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                                  | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                                 | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                  | 82     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                               | ND     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                                 | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Chromium                                | 9.8    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                  | 5.6    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                  | 8.7    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                    | 6.2    | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                  | 5.7    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                | 22     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                    | 26     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471     |        |                    |           |          |         |          |          |                   |       |
| Mercury                                 | ND     | 0.10               | mg/kg     | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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# T-14: 2.5-3.0 T191911-06 (Soil)

| Analyte                            | Result     | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|------------------------------------|------------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                    |            | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons | s by 8015B |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                       | ND         | 10                 | mg/kg     | 1        | 9061225 | 06/12/19 | 06/14/19 | EPA 8015B         |       |
| C13-C28 (DRO)                      | ND         | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                     | ND         | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl             |            | 105 %              | 65-1      | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                |            |                    |           |          |         |          |          |                   |       |
| Antimony                           | ND         | 3.0                | mg/kg     | 1        | 9061307 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                             | ND         | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                            | ND         | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                             | 97         | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                          | ND         | 1.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Cadmium                            | ND         | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Chromium                           | 11         | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                             | 7.7        | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                             | 8.6        | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                               | 4.3        | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                         | ND         | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                             | 8.1        | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                           | ND         | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                           | ND         | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                           | 29         | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                               | 31         | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/747 | 1          |                    |           |          |         |          |          |                   |       |
| Mercury                            | ND         | 0.10               | mg/kg     | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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Soil

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
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 Project Manager: Franklin Ruiz
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# T-15: 6.0-6.5 T191911-07 (Soil)

| Analyte                                  | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method    | Notes |
|------------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-----------|-------|
|                                          |        | SunStar L          | aboratori | es, Inc. |         |          |          |           |       |
| Extractable Petroleum Hydrocarbons by 80 | 15B    |                    |           |          |         |          |          |           |       |
| C6-C12 (GRO)                             | ND     | 10                 | mg/kg     | 1        | 9061225 | 06/12/19 | 06/14/19 | EPA 8015B |       |
| C13-C28 (DRO)                            | ND     | 10                 | "         | "        | "       | "        | "        | "         |       |
| C29-C40 (MORO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "         |       |
| Surrogate: p-Terphenyl                   |        | 109 %              | 65-1      | 135      | "       | "        | "        | "         |       |
| Metals by EPA 6010B                      |        |                    |           |          |         |          |          |           |       |
| Antimony                                 | ND     | 3.0                | mg/kg     | 1        | 9061307 | 06/13/19 | 06/14/19 | EPA 6010b |       |
| Silver                                   | ND     | 2.0                | "         | "        | "       | "        | "        | "         |       |
| Arsenic                                  | ND     | 5.0                | "         | "        | "       | "        | "        | "         |       |
| Barium                                   | 30     | 1.0                | "         | "        | "       | "        | "        | "         |       |
| Beryllium                                | ND     | 1.0                | "         | "        | "       | "        | "        | "         |       |
| Cadmium                                  | ND     | 2.0                | "         | "        | "       | "        | "        | "         |       |
| Chromium                                 | 4.5    | 2.0                | "         | "        | "       | "        | "        | "         |       |
| Cobalt                                   | 2.2    | 2.0                | "         | "        | "       | "        | "        | "         |       |
| Copper                                   | 1.5    | 1.0                | "         | "        | "       | "        | "        | "         |       |
| Lead                                     | ND     | 3.0                | "         | "        | "       | "        | "        | "         |       |
| Molybdenum                               | ND     | 5.0                | "         | "        | "       | "        | "        | "         |       |
| Nickel                                   | ND     | 2.0                | "         | "        | "       | "        | "        | "         |       |
| Selenium                                 | ND     | 5.0                | "         | "        | "       | "        | "        | "         |       |
| Thallium                                 | ND     | 2.0                | "         | "        | "       | "        | "        | "         |       |
| Vanadium                                 | 9.6    | 5.0                | "         | "        | "       | "        | "        | "         |       |
| Zinc                                     | 12     | 1.0                | "         | "        | "       | "        | "        | "         |       |
| Cold Vapor Extraction EPA 7470/7471      |        |                    |           |          |         |          |          |           |       |
| Mercury                                  | ND     | 0.10               | mg/kg     | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A |       |

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# T-1: 0-0.5 T191911-08 (Soil)

| Analyte                                 | Result | Reporting<br>Limit | Units      | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------------|--------|--------------------|------------|----------|---------|----------|----------|-------------------|-------|
|                                         |        | SunStar L          | aboratorio | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 8 | 8015B  |                    |            |          |         |          |          |                   |       |
| C6-C12 (GRO)                            | ND     | 10                 | mg/kg      | 1        | 9061225 | 06/12/19 | 06/14/19 | EPA 8015B         |       |
| C13-C28 (DRO)                           | ND     | 10                 | "          | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                          | 27     | 10                 | "          | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                  |        | 97.4 %             | 65-1       | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                     |        |                    |            |          |         |          |          |                   |       |
| Antimony                                | ND     | 3.0                | mg/kg      | 1        | 9061307 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                                  | ND     | 2.0                | "          | "        | "       | "        | 06/14/19 | "                 |       |
| Arsenic                                 | ND     | 5.0                | "          | "        | "       | "        | 06/14/19 | "                 |       |
| Barium                                  | 130    | 1.0                | "          | "        | "       | "        | 06/14/19 | "                 |       |
| Beryllium                               | ND     | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Cadmium                                 | ND     | 2.0                | "          | "        | "       | "        | 06/14/19 | "                 |       |
| Chromium                                | 14     | 2.0                | "          | "        | "       | "        | 06/14/19 | "                 |       |
| Cobalt                                  | 7.5    | 2.0                | "          | "        | "       | "        | 06/14/19 | "                 |       |
| Copper                                  | 15     | 1.0                | "          | "        | "       | "        | 06/14/19 | "                 |       |
| Lead                                    | 12     | 3.0                | "          | "        | "       | "        | 06/14/19 | "                 |       |
| Molybdenum                              | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Nickel                                  | 9.2    | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Selenium                                | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Thallium                                | ND     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Vanadium                                | 36     | 5.0                | "          | "        | "       | "        | 06/14/19 | "                 |       |
| Zinc                                    | 54     | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471     |        |                    |            |          |         |          |          |                   |       |
| Mercury                                 | ND     | 0.10               | mg/kg      | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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# T-2: 4.0-4.3 T191911-09 (Soil)

| Analyte                               | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|---------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                       |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by | 8015B  |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                          | ND     | 10                 | mg/kg     | 1        | 9061225 | 06/12/19 | 06/14/19 | EPA 8015B         |       |
| C13-C28 (DRO)                         | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                        | 81     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                |        | 109 %              | 65-1      | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                   |        |                    |           |          |         |          |          |                   |       |
| Antimony                              | ND     | 3.0                | mg/kg     | 1        | 9061307 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                               | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                | 96     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                             | ND     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                               | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Chromium                              | 11     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                | 6.6    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                | 11     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                  | 8.6    | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                            | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                | 7.6    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                              | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                              | 29     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                  | 39     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471   |        |                    |           |          |         |          |          |                   |       |
| Mercury                               | ND     | 0.10               | mg/kg     | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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# T-3: 1.0-1.5 T191911-10 (Soil)

| Analyte                               | Result  | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|---------------------------------------|---------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                       |         | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by | y 8015B |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                          | ND      | 10                 | mg/kg     | 1        | 9061225 | 06/12/19 | 06/14/19 | EPA 8015B         |       |
| C13-C28 (DRO)                         | ND      | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                        | 26      | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                |         | 106 %              | 65-1      | !35      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                   |         |                    |           |          |         |          |          |                   |       |
| Antimony                              | ND      | 3.0                | mg/kg     | 1        | 9061307 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                                | ND      | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                               | ND      | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                | 130     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                             | ND      | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                               | ND      | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Chromium                              | 14      | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                | 8.1     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                | 14      | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                  | 9.6     | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                            | ND      | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                | 9.9     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                              | ND      | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                              | ND      | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                              | 38      | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                  | 48      | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471   |         |                    |           |          |         |          |          |                   |       |
| Mercury                               | ND      | 0.10               | mg/kg     | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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# T-4: 0-0.5 T191911-11 (Soil)

| Analyte                               | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|---------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                       |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by | 8015B  |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                          | ND     | 10                 | mg/kg     | 1        | 9061225 | 06/12/19 | 06/14/19 | EPA 8015B         |       |
| C13-C28 (DRO)                         | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                        | 20     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                |        | 107 %              | 65-       | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                   |        |                    |           |          |         |          |          |                   |       |
| Antimony                              | ND     | 3.0                | mg/kg     | 1        | 9061307 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                               | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                | 120    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                             | ND     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                               | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Chromium                              | 13     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                | 7.3    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                | 12     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                  | 9.3    | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                            | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                | 9.4    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                              | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                              | 34     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                  | 41     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471   |        |                    |           |          |         |          |          |                   |       |
| Mercury                               | ND     | 0.10               | mg/kg     | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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# T-5: 2.5-3.0 T191911-12 (Soil)

| Analyte                                 | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                         |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 8 | 015B   |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                            | ND     | 10                 | mg/kg     | 1        | 9061225 | 06/12/19 | 06/14/19 | EPA 8015B         |       |
| C13-C28 (DRO)                           | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                          | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                  |        | 111 %              | 65-1      | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                     |        |                    |           |          |         |          |          |                   |       |
| Antimony                                | ND     | 3.0                | mg/kg     | 1        | 9061307 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                                  | ND     | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Arsenic                                 | ND     | 5.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Barium                                  | 63     | 1.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Beryllium                               | ND     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                                 | ND     | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Chromium                                | 15     | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Cobalt                                  | 4.3    | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Copper                                  | 8.6    | 1.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Lead                                    | ND     | 3.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Molybdenum                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                  | 6.9    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                                | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                                | 20     | 5.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Zinc                                    | 25     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471     |        |                    |           |          |         |          |          |                   |       |
| Mercury                                 | ND     | 0.10               | mg/kg     | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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# T-6: 3.5-4.0 T191911-13 (Soil)

| Analyte                                  | Result | Reporting<br>Limit | Units      | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|------------------------------------------|--------|--------------------|------------|----------|---------|----------|----------|-------------------|-------|
|                                          |        | SunStar L          | aboratorio | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 80 | 015B   |                    |            |          |         |          |          |                   |       |
| C6-C12 (GRO)                             | ND     | 10                 | mg/kg      | 1        | 9061225 | 06/12/19 | 06/14/19 | EPA 8015B         |       |
| C13-C28 (DRO)                            | ND     | 10                 | "          | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                           | ND     | 10                 | "          | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                   |        | 108 %              | 65-1       | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                      |        |                    |            |          |         |          |          |                   |       |
| Antimony                                 | ND     | 3.0                | mg/kg      | 1        | 9061307 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                                   | ND     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Arsenic                                  | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Barium                                   | 120    | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Beryllium                                | ND     | 1.0                | "          | "        | "       | "        | 06/14/19 | "                 |       |
| Cadmium                                  | ND     | 2.0                | "          | "        | "       | "        | 06/14/19 | "                 |       |
| Chromium                                 | 13     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Cobalt                                   | 7.2    | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Copper                                   | 13     | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Lead                                     | 6.5    | 3.0                | "          | "        | "       | "        | "        | "                 |       |
| Molybdenum                               | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Nickel                                   | 9.0    | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Selenium                                 | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Thallium                                 | ND     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Vanadium                                 | 33     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Zinc                                     | 44     | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471      |        |                    |            |          |         |          |          |                   |       |
| Mercury                                  | ND     | 0.10               | mg/kg      | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:11

# T-7: 2.5-3.0 T191911-14 (Soil)

| Analyte                               | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|---------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                       |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by | 8015B  |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                          | ND     | 10                 | mg/kg     | 1        | 9061225 | 06/12/19 | 06/14/19 | EPA 8015B         |       |
| C13-C28 (DRO)                         | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                        | 31     | 10                 | "         | "        | "       | n .      | "        | "                 |       |
| Surrogate: p-Terphenyl                |        | 108 %              | 65-1      | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                   |        |                    |           |          |         |          |          |                   |       |
| Antimony                              | ND     | 3.0                | mg/kg     | 1        | 9061307 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                               | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                | 51     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                             | ND     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                               | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Chromium                              | 5.0    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                | 3.2    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                | 3.6    | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                  | 7.8    | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                            | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                              | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                              | 17     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                  | 25     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471   |        |                    |           |          |         |          |          |                   |       |
| Mercury                               | ND     | 0.10               | mg/kg     | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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Ninyo & Moore Project: UCI North Campus

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 Project Manager: Franklin Ruiz
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# T-8: 1.0-1.5 T191911-15 (Soil)

| Analyte                              | Result   | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|--------------------------------------|----------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                      |          | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons l | oy 8015B |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                         | ND       | 10                 | mg/kg     | 1        | 9061225 | 06/12/19 | 06/14/19 | EPA 8015B         |       |
| C13-C28 (DRO)                        | ND       | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                       | 29       | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl               |          | 109 %              | 65-1      | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                  |          |                    |           |          |         |          |          |                   |       |
| Antimony                             | ND       | 3.0                | mg/kg     | 1        | 9061307 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                               | ND       | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Arsenic                              | ND       | 5.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Barium                               | 130      | 1.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Beryllium                            | ND       | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                              | ND       | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Chromium                             | 14       | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Cobalt                               | 7.7      | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Copper                               | 13       | 1.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Lead                                 | 7.7      | 3.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Molybdenum                           | ND       | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                               | 9.2      | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                             | ND       | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                             | ND       | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                             | 36       | 5.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Zinc                                 | 46       | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471  |          |                    |           |          |         |          |          |                   |       |
| Mercury                              | ND       | 0.10               | mg/kg     | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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Ninyo & Moore Project: UCI North Campus

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 Irvine CA, 92618
 Project Manager: Franklin Ruiz
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# **Extractable Petroleum Hydrocarbons by 8015B - Quality Control**

#### SunStar Laboratories, Inc.

|                                 |        | Reporting   |       | Spike       | Source     |             | %REC    |       | RPD   |       |
|---------------------------------|--------|-------------|-------|-------------|------------|-------------|---------|-------|-------|-------|
| Analyte                         | Result | Limit       | Units | Level       | Result     | %REC        | Limits  | RPD   | Limit | Notes |
| Batch 9061225 - EPA 3550B GC    |        |             |       |             |            |             |         |       |       |       |
| Blank (9061225-BLK1)            |        |             |       | Prepared: ( | 06/12/19 A | nalyzed: 06 | 5/13/19 |       |       |       |
| C6-C12 (GRO)                    | ND     | 10          | mg/kg |             |            |             |         |       |       |       |
| C13-C28 (DRO)                   | ND     | 10          | "     |             |            |             |         |       |       |       |
| C29-C40 (MORO)                  | ND     | 10          | "     |             |            |             |         |       |       |       |
| Surrogate: p-Terphenyl          | 105    |             | "     | 99.0        |            | 106         | 65-135  |       |       |       |
| LCS (9061225-BS1)               |        |             |       | Prepared: ( | 06/12/19 A | nalyzed: 06 | 5/13/19 |       |       |       |
| C13-C28 (DRO)                   | 490    | 10          | mg/kg | 495         |            | 98.9        | 75-125  |       |       |       |
| Surrogate: p-Terphenyl          | 112    |             | "     | 99.0        |            | 113         | 65-135  |       |       |       |
| Matrix Spike (9061225-MS1)      | Source | e: T191891- | 21    | Prepared: ( | 06/12/19 A | nalyzed: 06 | 5/13/19 |       |       |       |
| C13-C28 (DRO)                   | 470    | 10          | mg/kg | 490         | ND         | 96.5        | 75-125  |       |       |       |
| Surrogate: p-Terphenyl          | 105    |             | "     | 98.0        |            | 107         | 65-135  |       |       |       |
| Matrix Spike Dup (9061225-MSD1) | Source | e: T191891- | 21    | Prepared: ( | 06/12/19 A | nalyzed: 06 | 5/13/19 |       |       |       |
| C13-C28 (DRO)                   | 470    | 10          | mg/kg | 490         | ND         | 95.6        | 75-125  | 0.869 | 20    |       |
| Surrogate: p-Terphenyl          | 102    |             | "     | 98.0        |            | 104         | 65-135  |       |       |       |

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RPD

%REC

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:11

Reporting

#### Metals by EPA 6010B - Quality Control

# SunStar Laboratories, Inc.

Spike

Source

| Analyte                    | Result | Limit       | Units | Level       | Result     | %REC        | Limits  | RPD | Limit | Notes |
|----------------------------|--------|-------------|-------|-------------|------------|-------------|---------|-----|-------|-------|
| Batch 9061307 - EPA 3050B  |        |             |       |             |            |             |         |     |       |       |
| Blank (9061307-BLK1)       |        |             |       | Prepared: ( | 06/13/19 A | nalyzed: 06 | 5/14/19 |     |       |       |
| Antimony                   | ND     | 3.0         | mg/kg |             |            |             |         |     |       |       |
| Silver                     | ND     | 2.0         | "     |             |            |             |         |     |       |       |
| Arsenic                    | ND     | 5.0         | "     |             |            |             |         |     |       |       |
| Barium                     | ND     | 1.0         | "     |             |            |             |         |     |       |       |
| Beryllium                  | ND     | 1.0         | "     |             |            |             |         |     |       |       |
| Cadmium                    | ND     | 2.0         | "     |             |            |             |         |     |       |       |
| Chromium                   | ND     | 2.0         | "     |             |            |             |         |     |       |       |
| Cobalt                     | ND     | 2.0         | "     |             |            |             |         |     |       |       |
| Copper                     | ND     | 1.0         | "     |             |            |             |         |     |       |       |
| Lead                       | ND     | 3.0         | "     |             |            |             |         |     |       |       |
| Molybdenum                 | ND     | 5.0         | "     |             |            |             |         |     |       |       |
| Nickel                     | ND     | 2.0         | "     |             |            |             |         |     |       |       |
| Selenium                   | ND     | 5.0         | "     |             |            |             |         |     |       |       |
| Thallium                   | ND     | 2.0         | "     |             |            |             |         |     |       |       |
| Vanadium                   | ND     | 5.0         | "     |             |            |             |         |     |       |       |
| Zinc                       | ND     | 1.0         | "     |             |            |             |         |     |       |       |
| LCS (9061307-BS1)          |        |             |       | Prepared: ( | 06/13/19 A | nalyzed: 06 | 5/14/19 |     |       |       |
| Arsenic                    | 90.9   | 5.0         | mg/kg | 100         |            | 90.9        | 75-125  |     |       |       |
| Barium                     | 92.5   | 1.0         | "     | 100         |            | 92.5        | 75-125  |     |       |       |
| Cadmium                    | 93.5   | 2.0         | "     | 100         |            | 93.5        | 75-125  |     |       |       |
| Chromium                   | 92.7   | 2.0         | "     | 100         |            | 92.7        | 75-125  |     |       |       |
| Lead                       | 92.6   | 3.0         | "     | 100         |            | 92.6        | 75-125  |     |       |       |
| Matrix Spike (9061307-MS1) | Source | e: T191911- | 01    | Prepared: ( | 06/13/19 A | nalyzed: 06 | /14/19  |     |       |       |
| Arsenic                    | 59.2   | 4.5         | mg/kg | 90.9        | 4.11       | 60.6        | 75-125  |     |       | QM-0  |
| Barium                     | 169    | 0.91        | "     | 90.9        | 118        | 56.3        | 75-125  |     |       | QM-0  |
| Cadmium                    | 56.7   | 1.8         | "     | 90.9        | 0.615      | 61.7        | 75-125  |     |       | QM-   |
| Chromium                   | 70.1   | 1.8         | "     | 90.9        | 13.0       | 62.8        | 75-125  |     |       | QM-0  |
| Lead                       | 65.0   | 2.7         | "     | 90.9        | 12.2       | 58.1        | 75-125  |     |       | QM-0  |

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RPD

%REC

Ninyo & Moore Project: UCI North Campus

475 Goddard, Ste. 200 Project Number: 209570014 Reported: Irvine CA, 92618 Project Manager: Franklin Ruiz 06/19/19 09:11

Reporting

#### Metals by EPA 6010B - Quality Control

#### SunStar Laboratories, Inc.

Spike

Source

| Analyte                         | Result | Limit       | Units | Level       | Result      | %REC        | Limits | RPD   | Limit | Notes |
|---------------------------------|--------|-------------|-------|-------------|-------------|-------------|--------|-------|-------|-------|
| Batch 9061307 - EPA 3050B       |        |             |       |             |             |             |        |       |       |       |
| Matrix Spike Dup (9061307-MSD1) | Sourc  | e: T191911- | 01    | Prepared: ( | 06/13/19 Aı | nalyzed: 06 | /14/19 |       |       |       |
| Arsenic                         | 59.0   | 4.5         | mg/kg | 90.9        | 4.11        | 60.4        | 75-125 | 0.230 | 20    | QM-05 |
| Barium                          | 161    | 0.91        | "     | 90.9        | 118         | 47.9        | 75-125 | 4.62  | 20    | QM-05 |
| Cadmium                         | 54.8   | 1.8         | "     | 90.9        | 0.615       | 59.6        | 75-125 | 3.35  | 20    | QM-05 |
| Chromium                        | 67.9   | 1.8         | "     | 90.9        | 13.0        | 60.4        | 75-125 | 3.26  | 20    | QM-05 |
| Lead                            | 63.8   | 2.7         | "     | 90.9        | 12.2        | 56.8        | 75-125 | 1.85  | 20    | QM-05 |

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Ninyo & Moore Project: UCI North Campus

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 Project Manager: Franklin Ruiz
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#### Cold Vapor Extraction EPA 7470/7471 - Quality Control

# SunStar Laboratories, Inc.

| Analyte                         | Result | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC        | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |
|---------------------------------|--------|--------------------|-------|----------------|------------------|-------------|----------------|------|--------------|-------|
| Batch 9061309 - EPA 7471A Soil  |        |                    |       |                |                  |             |                |      |              |       |
| Blank (9061309-BLK1)            |        |                    |       | Prepared: (    | 06/13/19 A       | nalyzed: 06 | /14/19         |      |              |       |
| Mercury                         | ND     | 0.10               | mg/kg |                |                  |             |                |      |              |       |
| LCS (9061309-BS1)               |        |                    |       | Prepared: (    | 06/13/19 A       | nalyzed: 06 | /14/19         |      |              |       |
| Mercury                         | 0.286  | 0.10               | mg/kg | 0.300          |                  | 95.4        | 80-120         |      |              |       |
| Matrix Spike (9061309-MS1)      | Sour   | ce: T191911-       | 01    | Prepared: (    | 06/13/19 A       | nalyzed: 06 | /14/19         |      |              |       |
| Mercury                         | 0.301  | 0.10               | mg/kg | 0.300          | ND               | 100         | 75-125         |      |              |       |
| Matrix Spike Dup (9061309-MSD1) | Sour   | ce: T191911-       | 01    | Prepared: (    | 06/13/19 A       | nalyzed: 06 | /14/19         |      |              |       |
| Mercury                         | 0.316  | 0.10               | mg/kg | 0.320          | ND               | 98.8        | 75-125         | 4.65 | 20           |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 209570014
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:11

#### **Notes and Definitions**

QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to possible matrix interference. The LCS was within

acceptance criteria. The data is acceptable as no negative impact on data is expected.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

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# **Chain of Custody Record**

SunStar Laboratories, Inc. 25712 Commercentre Dr Lake Forest, CA 92630 949-297-5020

| Client:Ninyo & Moore                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                  |              |            |                      | _            |                                                  |          | Dat                                              | e:        |                  |                |                 | 6/3/                      | 2019                                               |          |                                                  | Pag         | e:       | ř        | 0       | f           |        | _                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--------------|------------|----------------------|--------------|--------------------------------------------------|----------|--------------------------------------------------|-----------|------------------|----------------|-----------------|---------------------------|----------------------------------------------------|----------|--------------------------------------------------|-------------|----------|----------|---------|-------------|--------|-----------------------|
| Address:475 Goddard, St                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | te 200, Irvine,                                  | CA 92618     |            |                      | _            |                                                  |          | Pro                                              | ject      | Nan              | ne:_           |                 | JCIN                      | lorth                                              | Campi    | us                                               |             |          |          |         |             |        | _                     |
| Phone:949-753-7070_                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                  | Fax:         | 94         | 9-753-7071_          | _            |                                                  |          | Col                                              | lecto     | or:              |                | V. 1            | Mack                      | (inno                                              | n        |                                                  | Clier       | t Pro    | oject #: |         |             | 209570 | H                     |
| Project Manager:Fran                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                  |              |            |                      |              |                                                  |          | Bat                                              | ch#       | :                |                | 7/9             | 1911                      |                                                    |          |                                                  | EDF         | #:       |          |         |             | •      |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | `                                                | · ·          |            |                      | _            |                                                  |          |                                                  |           |                  |                |                 |                           |                                                    | -,       |                                                  | <u> </u>    |          |          |         |             |        |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                  |              |            |                      |              |                                                  |          |                                                  |           |                  | l              |                 |                           |                                                    |          | İ                                                |             |          |          |         |             |        |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                  |              | * .        |                      |              |                                                  |          |                                                  |           |                  | l              |                 |                           |                                                    |          |                                                  |             |          |          |         |             |        |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                  |              |            | •                    |              |                                                  |          |                                                  |           |                  |                | .⊆              | 6010/7000 Title 22 Metals |                                                    |          | ł                                                |             |          |          |         |             |        |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                  |              |            |                      |              |                                                  |          |                                                  |           |                  |                | ළ               | eta                       | +                                                  |          | ٠                                                |             |          |          |         |             |        |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                  |              |            |                      | 1            |                                                  | OXY only |                                                  |           |                  |                | ٦               | 2                         | 돲                                                  | '        |                                                  |             |          |          |         |             |        | 913                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1                                                |              |            |                      | 1            |                                                  | ×        |                                                  |           | Эе)              |                | 툍               | 9.2                       |                                                    |          |                                                  | #           |          |          |         |             |        | j.                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                  |              |            |                      | 1            | _                                                | 0        |                                                  |           | iilos            | sel            | ပ္              | 崖                         | 8                                                  | - 1      | •                                                | ₽           |          |          |         |             |        | è                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                  |              |            |                      | 1            | 8260 + OXY                                       | Ä        |                                                  | 8021 BTEX | 8015M (gasoline) | 8015M (diesel) | X               | 8                         | D                                                  | -        |                                                  |             |          |          |         |             |        | Total # of containers |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1                                                |              |            |                      | 1            | +                                                | ВТ       |                                                  | Е         | ) M              | Σ              | Σ               | 181                       | 210                                                |          |                                                  | ag          |          |          |         |             |        | #                     |
| the second of th | Date                                             |              | Sample     | Container            | 18           | ဖြွ                                              | မြွ      | 5                                                | 22        | 115              | 75             | 55              | 15                        | 8                                                  |          | İ                                                | aboratory   |          | _        |         |             |        | 혈                     |
| Sample ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Sampled                                          | Time         | Туре       | Туре                 | 182          | 8                                                | 8        | 8                                                | 8         | 8                | ×              | ×               | S S                       |                                                    | _        | <u> </u>                                         | 1 -         | <u> </u> | Comn     | nents/P | reservat    | ıve    | ᄩ                     |
| T-9: 0-1.0'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 6/3/2019                                         | 0:45         |            | 4 oz Jar             | ╀            |                                                  | _        |                                                  |           |                  | <u> </u>       | <u> </u>        | X                         | X,                                                 |          |                                                  | <i>図</i> (  |          | -        | •       |             |        | —                     |
| T-10: 2.0-2.5'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                  | 1:20         |            | 4 oz Jar             | -            |                                                  |          |                                                  | <u> </u>  |                  | <u> </u>       |                 | $\langle \cdot \rangle$   | X                                                  |          | <del>                                     </del> | 0%          |          |          |         |             |        | ┼                     |
| T-11: 1.0-1.5'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                  | 11:50        |            | 4 oz Jar             | -            | ├                                                | _        | _                                                |           |                  | $\vdash$       | <u> </u>        | K >                       | $\Rightarrow$                                      | _        | <u> </u>                                         | 04          | -        |          | . :     | <del></del> |        | ₩                     |
| T-12: 7.0-7.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                  | 10:50        |            | 4 oz Jar             | <del> </del> | -                                                |          | <del>                                     </del> | _         |                  | ┝              |                 | K                         | $\forall$                                          |          |                                                  | 05          |          |          |         |             |        | ╫                     |
| T-13: 2.0-3.0'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                  | 8:45<br>9:07 | ·          | 4 oz Jar             | +            | $\vdash$                                         |          | _                                                | $\vdash$  | -                | ┝              | -               | $\langle \cdot \rangle$   | <del>                                       </del> |          | -                                                | <del></del> | _        |          |         |             |        | ┿                     |
| T-14: 2.5-3.0'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                  | 9:07         |            | 4 oz Jar<br>4 oz Jar | +            | ┼─                                               | -        | -                                                | _         | <u> </u>         | -              | _               | $\kappa$                  | $\Leftrightarrow$                                  | $\dashv$ | ├─                                               | 06          | -        | -        |         |             |        | ╁                     |
| T-15: 6.0-6.5'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 6/4/2019                                         | 10:45        |            | 4 02 Jar<br>4 oz Jar | 1-           | -                                                | ├        | <del> </del>                                     | _         |                  | ┢              |                 | $ \Diamond $              | $\Theta$                                           | _        |                                                  | 08          | -        |          | -       |             |        | +                     |
| T-1: 0-0.5'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 6/4/2019                                         | 11:25        | 4          | 4 02 Jar<br>4 oz Jar | -            | -                                                |          |                                                  | <u> </u>  |                  | _              | ┢               | $\Theta$                  | $\Rightarrow$                                      |          |                                                  | 09          |          |          |         |             |        | +-                    |
| T-2: 4.0-4.3<br>T-3: 1.0-1.5'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                  | 11:45        |            | 4 oz Jar             | -            | -                                                | <u> </u> | ┝                                                | $\vdash$  |                  | _              | ┢               | $\bowtie$                 | <del>(</del>                                       |          | <del>                                     </del> | 10          |          | <u> </u> |         | <u> </u>    |        | +                     |
| T-4: 0-0.5'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                  | 12:15        |            | 4 oz Jar             | +            | <del>                                     </del> |          | -                                                |           | $\vdash$         |                |                 | R                         | $\Diamond$                                         | _        | ļ                                                | 11          |          |          |         |             |        | 十                     |
| T-5: 2.5-3.0'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                  | 9:55         |            | 4 oz Jar             | +            | <u> </u>                                         |          | -                                                |           | <u> </u>         | -              |                 | K                         | XÌ                                                 | $\dashv$ |                                                  | 12          |          |          |         |             |        | 十一                    |
| T-6: 3.5-4.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <del>                                     </del> | 7:40         |            | 4 oz Jar             | 1            | † ·                                              |          | $\vdash$                                         |           |                  |                |                 | X                         | X                                                  | $\top$   | _                                                | 13          |          |          |         |             |        | 1                     |
| T-7: 2.5-3.0'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                  | 9:35         |            | 4 oz Jar             | 1            | 1                                                |          |                                                  |           |                  |                |                 | X                         | X                                                  | -        |                                                  | 14          | m        |          |         |             |        | <del>† -</del>        |
| T-8: 1.9-1.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                  | 9:00         |            | 4 oz Jar             | T            |                                                  |          |                                                  |           | Г                |                |                 | X                         | X                                                  |          |                                                  | 15          |          |          |         |             |        | $\top$                |
| Relinguished by: (signature)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Date / T                                         |              |            | y: (signature)       | ·            | ·                                                | Date     | e/T                                              | ime       |                  |                | •               | To                        | otal#                                              | of conta | iners                                            | +           |          |          | N       | otes        |        |                       |
| X/M/2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 6/11/19 / 33                                     |              |            | v h                  |              | 1.                                               | -11-     | -10)                                             | 13        | 520              |                | -in -           |                           |                                                    | eals Y/  |                                                  |             | 1        |          |         |             |        |                       |
| Relinquished by: (signature)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Date / T                                         | imo          |            | y: (signature)       |              | 0                                                |          | e/T                                              |           | -, -             |                | <b>a</b> ll ) O |                           |                                                    | tact?Y/  |                                                  |             |          |          |         |             |        |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | A                                                |              |            | *. ' = 2             |              |                                                  |          |                                                  |           |                  |                |                 |                           |                                                    |          |                                                  | 1           | 1        |          |         |             |        |                       |
| 0 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 6-11-19                                          |              |            | Jet S                | 6            | 11-19                                            | _/       | 7:35                                             | 5         |                  | F              | ecei            | ved g                     | ood c                                              | ondition | /cold                                            | 4.9         |          |          | •       |             |        |                       |
| Relinquished by: (signature)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Date / T                                         | ime          | Received b | y: (signature)       |              |                                                  | Dat      | e/T                                              | ime       |                  |                |                 |                           |                                                    |          |                                                  | ,           |          |          |         |             |        |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                  |              |            |                      |              |                                                  |          |                                                  |           |                  | Tur            | n ar            | ound                      | l time                                             | :        |                                                  |             | 1        |          |         |             |        |                       |
| Sample disposal Instructions: D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Disposal @ \$2.00                                | each         | Return     | to client            |              | Pi                                               | ckup     |                                                  |           |                  | -              |                 |                           |                                                    |          |                                                  |             |          |          |         |             |        |                       |



# SAMPLE RECEIVING REVIEW SHEET

| Batch/Work Order #:                                    | T191911                                                               | <u> </u>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client Name:                                           | NINYO & MORE                                                          | Project:                    | UCI NOWTH CAMPUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Delivered by:                                          | ☐ Client 🗵 SunStar Cou                                                | rier 🗌 GSO 🔲 Fed            | Ex Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| If Courier, Received by:                               | TRAVIS                                                                | Date/Time Courier Received: | 6:11:19 / 13:20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Lab Received by:                                       | Swary                                                                 | Date/Time Lab Received:     | 6.11.19 / 17185                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Total number of coolers re                             |                                                                       |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Temperature: Cooler #1                                 | %C +/- the CF ( 1.2°C                                                 | C) = 4.9 °C c               | orrected temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Temperature: Cooler #2                                 | °C +/- the CF ( 1.2°C                                                 | $C) = {}^{\circ}C c$        | orrected temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Temperature: Cooler #3                                 | °C +/- the CF ( 1.2°C                                                 | C) = °C c                   | orrected temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Temperature criteria = 5 (no frozen containers)        | ≤ 6°C Withi                                                           | n criteria?                 | es                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| If NO: Samples received If on ice, samples collected?  | roceived some day                                                     | Com<br>S → Acceptable       | o → plete Non-Conformance Sheet o → plete Non-Gonformance Sheet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Custody seals intact on co<br>Sample containers intact | oler/sample                                                           |                             | The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s |
| Sample labels match Chai                               | n of Custody IDs                                                      | ⊠Y€                         | es                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Total number of container                              | rs received match COC                                                 | <b>⊠</b> Y€                 | es                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Proper containers received                             | d for analyses requested on COC                                       | ĭ≅Y€                        | es No*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Proper preservative indica                             | ted on COC/containers for analy                                       | ses requested Ye            | es                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                                        | red in good condition with corrects preservatives and within methods. |                             | Yes No*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| * Complete Non-Conforman                               | ce Receiving Sheet if checked                                         | Cooler/Sample Review - Ini  | tials and date:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Comments:                                              |                                                                       |                             | *.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                                        |                                                                       |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

Printed: 6/12/2019 10:52:53AM



#### WORK ORDER

#### T191911

Client:Ninyo & MooreProject Manager:Mike JaroudiProject:UCI North CampusProject Number:209570014

Report To:

Ninyo & Moore Franklin Ruiz

475 Goddard, Ste. 200 Irvine, CA 92618

Date Due:

06/19/19 17:00 (5 day TAT)

Yes

Received By: S
Logged In By: S

Sunny Lounethone
Sunny Lounethone

Date Received:

06/11/19 17:35

Date Logged In:

06/12/19 09:21

Samples Received at:

4.9°C

Custody Seals Containers Intact No Re

Received On Ice

Yes

COC/Labels Agree Yes Preservation Confiri No

| Analysis                              | Due                   | TAT        | Expires              | Comments |
|---------------------------------------|-----------------------|------------|----------------------|----------|
| T191911-01 T-9: 0-1.0 [Soil           | l] Sampled 06/03/19 0 | 0:45 (GMT  | Γ-08:00) Pacific Tir | me       |
| 6010 Title 22                         | 06/19/19 15:00        | 5          | 11/30/19 00:45       |          |
| 8015 Carbon Chain                     | 06/19/19 15:00        | 5          | 06/17/19 00:45       |          |
| T191911-02 T-10: 2.0-2.5 [STime (US & | Soil] Sampled 06/03/1 | 9 01:20 (G | MT-08:00) Pacific    |          |
| 6010 Title 22                         | 06/19/19 15:00        | 5          | 11/30/19 01:20       |          |
| 8015 Carbon Chain                     | 06/19/19 15:00        | 5          | 06/17/19 01:20       |          |
| T191911-03 T-11: 1.0-1.5 [STime (US & | _                     |            |                      |          |
| 6010 Title 22                         | 06/19/19 15:00        | 5          | 11/30/19 11:50       |          |
| 8015 Carbon Chain                     | 06/19/19 15:00        | 5          | 06/17/19 11:50       |          |
| T191911-04 T-12: 7.0-7.5 [STime (US & | Soil] Sampled 06/03/1 | 9 10:50 (G | MT-08:00) Pacific    |          |
| 6010 Title 22                         | 06/19/19 15:00        | 5          | 11/30/19 10:50       |          |
| 8015 Carbon Chain                     | 06/19/19 15:00        | 5          | 06/17/19 10:50       |          |
| T191911-05 T-13: 2.0-3.0 [STime (US & | Soil] Sampled 06/03/1 | 9 08:45 (G | MT-08:00) Pacific    |          |
| 6010 Title 22                         | 06/19/19 15:00        | 5          | 11/30/19 08:45       |          |
| 8015 Carbon Chain                     | 06/19/19 15:00        | 5          | 06/17/19 08:45       |          |





#### WORK ORDER

# T191911

Client:Ninyo & MooreProject Manager:Mike JaroudiProject:UCI North CampusProject Number:209570014

| Analysis                               | Due                      | TAT        | Expires             | Comments |
|----------------------------------------|--------------------------|------------|---------------------|----------|
| T191911-06 T-14: 2.5-3.0 Time (US &    | [Soil] Sampled 06/03/19  | 9 09:07 (G | MT-08:00) Pacific   |          |
| 6010 Title 22                          | 06/19/19 15:00           | 5          | 11/30/19 09:07      |          |
| 8015 Carbon Chain                      | 06/19/19 15:00           | 5          | 06/17/19 09:07      |          |
| T191911-07 T-15: 6.0-6.5<br>Time (US & | [Soil] Sampled 06/03/19  | 9 09:25 (G | MT-08:00) Pacific   |          |
| 6010 Title 22                          | 06/19/19 15:00           | 5          | 11/30/19 09:25      |          |
| 8015 Carbon Chain                      | 06/19/19 15:00           | 5          | 06/17/19 09:25      |          |
| T191911-08 T-1: 0-0.5 [S               | oil] Sampled 06/04/19 10 | 0:45 (GMT  | T-08:00) Pacific Ti | me       |
| 6010 Title 22                          | 06/19/19 15:00           | 5          | 12/01/19 10:45      |          |
| 8015 Carbon Chain                      | 06/19/19 15:00           | 5          | 06/18/19 10:45      |          |
| T191911-09 T-2: 4.0-4.3<br>Time (US &  | [Soil] Sampled 06/04/19  | 11:25 (GM  | IT-08:00) Pacific   |          |
| 6010 Title 22                          | 06/19/19 15:00           | 5          | 12/01/19 11:25      |          |
| 8015 Carbon Chain                      | 06/19/19 15:00           | 5          | 06/18/19 11:25      |          |
| T191911-10 T-3: 1.0-1.5<br>Time (US &  | [Soil] Sampled 06/04/19  | 11:45 (GM  | IT-08:00) Pacific   |          |
| 6010 Title 22                          | 06/19/19 15:00           | 5          | 12/01/19 11:45      |          |
| 8015 Carbon Chain                      | 06/19/19 15:00           | 5          | 06/18/19 11:45      |          |
| T191911-11 T-4: 0-0.5 [S               | oil] Sampled 06/04/19 12 | 2:15 (GMT  | -08:00) Pacific Ti  | me       |
| 6010 Title 22                          | 06/19/19 15:00           | 5          | 12/01/19 12:15      |          |
| 8015 Carbon Chain                      | 06/19/19 15:00           | 5          | 06/18/19 12:15      |          |
| T191911-12 T-5: 2.5-3.0<br>Time (US &  | [Soil] Sampled 06/04/19  | 09:55 (GM  | IT-08:00) Pacific   |          |
| 6010 Title 22                          | 06/19/19 15:00           | 5          | 12/01/19 09:55      |          |
| 8015 Carbon Chain                      | 06/19/19 15:00           | 5          | 06/18/19 09:55      |          |
| T191911-13 T-6: 3.5-4.0<br>Time (US &  | [Soil] Sampled 06/04/19  | 07:40 (GM  | IT-08:00) Pacific   |          |
| 6010 Title 22                          | 06/19/19 15:00           | 5          | 12/01/19 07:40      |          |
| 8015 Carbon Chain                      | 06/19/19 15:00           | 5          | 06/18/19 07:40      |          |



#### WORK ORDER

# T191911

Client:Ninyo & MooreProject Manager:Mike JaroudiProject:UCI North CampusProject Number:209570014

| Analysis                                | Due                    | TAT       | Expires           | Comments |
|-----------------------------------------|------------------------|-----------|-------------------|----------|
| T191911-14 T-7: 2.5-3.0 [<br>Time (US & | Soil] Sampled 06/04/19 | 09:35 (GM | IT-08:00) Pacific |          |
| 6010 Title 22                           | 06/19/19 15:00         | 5         | 12/01/19 09:35    |          |
| 8015 Carbon Chain                       | 06/19/19 15:00         | 5         | 06/18/19 09:35    |          |
| T191911-15 T-8: 1.0-1.5 [<br>Time (US & | Soil] Sampled 06/04/19 | 09:00 (GM | IT-08:00) Pacific |          |
| 6010 Title 22                           | 06/19/19 15:00         | 5         | 12/01/19 09:00    |          |
| 8015 Carbon Chain                       | 06/19/19 15:00         | 5         | 06/18/19 09:00    |          |

Analysis groups included in this work order

6010 Title 22

subgroup 6010B T22 7470/71 Hg

Reviewed By Date Page 3 of 3





19 June 2019

Franklin Ruiz Ninyo & Moore 475 Goddard, Ste. 200 Irvine, CA 92618

RE: UCI North Campus

Enclosed are the results of analyses for samples received by the laboratory on 06/12/19 10:47. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mike Jaroudi

**Project Manager** 



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 208394007
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:32

#### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| B-16 @ 3' | T191918-01    | Soil   | 06/11/19 07:55 | 06/12/19 10:47 |
| B-15 @ 5' | T191918-02    | Soil   | 06/11/19 11:08 | 06/12/19 10:47 |
| B-14 @ 5' | T191918-03    | Soil   | 06/11/19 12:40 | 06/12/19 10:47 |
| B-13 @ 5' | T191918-04    | Soil   | 06/11/19 12:40 | 06/12/19 10:47 |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 208394007
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:32

#### **DETECTIONS SUMMARY**

| Sample ID: | B-16 @ 3' | Laborat | tory ID:  | T191918-01 |           |       |
|------------|-----------|---------|-----------|------------|-----------|-------|
|            |           |         | Reporting |            |           |       |
| Analyte    |           | Result  | Limit     | Units      | Method    | Notes |
| Barium     |           | 81      | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |           | 10      | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |           | 5.7     | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |           | 14      | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |           | 3.7     | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |           | 7.0     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |           | 20      | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |           | 38      | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | B-15 @ 5' | Labora  | tory ID:  | T191918-02 |           |       |
|            |           |         | Reporting |            |           |       |
| Analyte    |           | Result  | Limit     | Units      | Method    | Notes |
| Barium     |           | 79      | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |           | 12      | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |           | 5.9     | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |           | 14      | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |           | 4.2     | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |           | 7.5     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |           | 23      | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |           | 40      | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | B-14 @ 5' | Laborat | tory ID:  | T191918-03 |           |       |
|            |           |         | Reporting |            |           |       |
| Analyte    |           | Result  | Limit     | Units      | Method    | Notes |
| Barium     |           | 29      | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |           | 13      | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |           | 7.0     | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |           | 11      | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |           | 3.5     | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |           | 7.6     | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |           | 25      | 5.0       | mg/kg      | EPA 6010b |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
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 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:32

| Sample ID: | B-14 @ 5' | Labora | atory ID: | T191918-03 |           |       |
|------------|-----------|--------|-----------|------------|-----------|-------|
|            |           |        | Reporting |            |           |       |
| Analyte    |           | Result | Limit     | Units      | Method    | Notes |
| Zinc       |           | 56     | 1.0       | mg/kg      | EPA 6010b |       |
| Sample ID: | B-13 @ 5' | Labora | atory ID: | T191918-04 |           |       |
|            |           |        | Reporting |            |           |       |
| Analyte    |           | Result | Limit     | Units      | Method    | Notes |
| Barium     |           | 62     | 1.0       | mg/kg      | EPA 6010b |       |
| Chromium   |           | 14     | 2.0       | mg/kg      | EPA 6010b |       |
| Cobalt     |           | 7.9    | 2.0       | mg/kg      | EPA 6010b |       |
| Copper     |           | 14     | 1.0       | mg/kg      | EPA 6010b |       |
| Lead       |           | 5.8    | 3.0       | mg/kg      | EPA 6010b |       |
| Nickel     |           | 9.5    | 2.0       | mg/kg      | EPA 6010b |       |
| Vanadium   |           | 37     | 5.0       | mg/kg      | EPA 6010b |       |
| Zinc       |           | 47     | 1.0       | mg/kg      | EPA 6010b |       |

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Ninyo & Moore Project: UCI North Campus

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 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:32

# B-16 @ 3' T191918-01 (Soil)

| Analyte                               | Result | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|---------------------------------------|--------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                       |        | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by | 8015B  |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                          | ND     | 10                 | mg/kg     | 1        | 9061314 | 06/13/19 | 06/13/19 | EPA 8015B         |       |
| C13-C28 (DRO)                         | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                        | ND     | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                |        | 103 %              | 65-1      | !35      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                   |        |                    |           |          |         |          |          |                   |       |
| Antimony                              | ND     | 3.0                | mg/kg     | 1        | 9061308 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                                | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                               | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                | 81     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                             | ND     | 1.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Cadmium                               | ND     | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Chromium                              | 10     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                | 5.7    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                | 14     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                  | 3.7    | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                            | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                | 7.0    | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                              | ND     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                              | ND     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                              | 20     | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                  | 38     | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471   |        |                    |           |          |         |          |          |                   |       |
| Mercury                               | ND     | 0.10               | mg/kg     | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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 Project Number: 208394007
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:32

# B-15 @ 5' T191918-02 (Soil)

| Analyte                                 | Result | Reporting<br>Limit | Units      | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------------|--------|--------------------|------------|----------|---------|----------|----------|-------------------|-------|
|                                         |        | SunStar L          | aboratorio | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by 8 | 015B   |                    |            |          |         |          |          |                   |       |
| C6-C12 (GRO)                            | ND     | 10                 | mg/kg      | 1        | 9061314 | 06/13/19 | 06/13/19 | EPA 8015B         |       |
| C13-C28 (DRO)                           | ND     | 10                 | "          | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                          | ND     | 10                 | "          | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                  |        | 105 %              | 65-1       | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                     |        |                    |            |          |         |          |          |                   |       |
| Antimony                                | ND     | 3.0                | mg/kg      | 1        | 9061308 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                                  | ND     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Arsenic                                 | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Barium                                  | 79     | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Beryllium                               | ND     | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Cadmium                                 | ND     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Chromium                                | 12     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Cobalt                                  | 5.9    | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Copper                                  | 14     | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Lead                                    | 4.2    | 3.0                | "          | "        | "       | "        | "        | "                 |       |
| Molybdenum                              | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Nickel                                  | 7.5    | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Selenium                                | ND     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Thallium                                | ND     | 2.0                | "          | "        | "       | "        | "        | "                 |       |
| Vanadium                                | 23     | 5.0                | "          | "        | "       | "        | "        | "                 |       |
| Zinc                                    | 40     | 1.0                | "          | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471     |        |                    |            |          |         |          |          |                   |       |
| Mercury                                 | ND     | 0.10               | mg/kg      | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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 475 Goddard, Ste. 200
 Project Number: 208394007
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:32

# B-14 @ 5' T191918-03 (Soil)

| Analyte                           | Result     | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|-----------------------------------|------------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                   |            | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbon | s by 8015B |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                      | ND         | 10                 | mg/kg     | 1        | 9061314 | 06/13/19 | 06/13/19 | EPA 8015B         |       |
| C13-C28 (DRO)                     | ND         | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                    | ND         | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl            |            | 108 %              | 65-1      | 35       | "       | "        | "        | "                 |       |
| Metals by EPA 6010B               |            |                    |           |          |         |          |          |                   |       |
| Antimony                          | ND         | 3.0                | mg/kg     | 1        | 9061308 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                            | ND         | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                           | ND         | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                            | 29         | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                         | ND         | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cadmium                           | ND         | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Chromium                          | 13         | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                            | 7.0        | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                            | 11         | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                              | 3.5        | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                        | ND         | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                            | 7.6        | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                          | ND         | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                          | ND         | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                          | 25         | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                              | 56         | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/74 | 71         |                    |           |          |         |          |          |                   |       |
| Mercury                           | ND         | 0.10               | mg/kg     | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 208394007
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:32

# B-13 @ 5' T191918-04 (Soil)

| Analyte                               | Result  | Reporting<br>Limit | Units     | Dilution | Batch   | Prepared | Analyzed | Method            | Notes |
|---------------------------------------|---------|--------------------|-----------|----------|---------|----------|----------|-------------------|-------|
|                                       |         | SunStar L          | aboratori | es, Inc. |         |          |          |                   |       |
| Extractable Petroleum Hydrocarbons by | y 8015B |                    |           |          |         |          |          |                   |       |
| C6-C12 (GRO)                          | ND      | 10                 | mg/kg     | 1        | 9061314 | 06/13/19 | 06/13/19 | EPA 8015B         |       |
| C13-C28 (DRO)                         | ND      | 10                 | "         | "        | "       | "        | "        | "                 |       |
| C29-C40 (MORO)                        | ND      | 10                 | "         | "        | "       | "        | "        | "                 |       |
| Surrogate: p-Terphenyl                |         | 95.2 %             | 65-1      | 135      | "       | "        | "        | "                 |       |
| Metals by EPA 6010B                   |         |                    |           |          |         |          |          |                   |       |
| Antimony                              | ND      | 3.0                | mg/kg     | 1        | 9061308 | 06/13/19 | 06/14/19 | EPA 6010b         |       |
| Silver                                | ND      | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Arsenic                               | ND      | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Barium                                | 62      | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Beryllium                             | ND      | 1.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Cadmium                               | ND      | 2.0                | "         | "        | "       | "        | 06/14/19 | "                 |       |
| Chromium                              | 14      | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Cobalt                                | 7.9     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Copper                                | 14      | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Lead                                  | 5.8     | 3.0                | "         | "        | "       | "        | "        | "                 |       |
| Molybdenum                            | ND      | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Nickel                                | 9.5     | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Selenium                              | ND      | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Thallium                              | ND      | 2.0                | "         | "        | "       | "        | "        | "                 |       |
| Vanadium                              | 37      | 5.0                | "         | "        | "       | "        | "        | "                 |       |
| Zinc                                  | 47      | 1.0                | "         | "        | "       | "        | "        | "                 |       |
| Cold Vapor Extraction EPA 7470/7471   |         |                    |           |          |         |          |          |                   |       |
| Mercury                               | ND      | 0.10               | mg/kg     | 1        | 9061309 | 06/13/19 | 06/14/19 | EPA 7471A<br>Soil |       |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 208394007
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:32

# **Extractable Petroleum Hydrocarbons by 8015B - Quality Control**

#### SunStar Laboratories, Inc.

|                                 |        | Reporting     |       | Spike      | Source    | ·        | %REC   |      | RPD   |       |
|---------------------------------|--------|---------------|-------|------------|-----------|----------|--------|------|-------|-------|
| Analyte                         | Result | Limit         | Units | Level      | Result    | %REC     | Limits | RPD  | Limit | Notes |
| Batch 9061314 - EPA 3550B GC    |        |               |       |            |           |          |        |      |       |       |
| Blank (9061314-BLK1)            |        |               |       | Prepared & | Analyzed: | 06/13/19 |        |      |       |       |
| C6-C12 (GRO)                    | ND     | 10            | mg/kg |            |           |          |        |      |       |       |
| C13-C28 (DRO)                   | ND     | 10            | "     |            |           |          |        |      |       |       |
| C29-C40 (MORO)                  | ND     | 10            | "     |            |           |          |        |      |       |       |
| Surrogate: p-Terphenyl          | 98.9   |               | "     | 99.0       |           | 99.9     | 65-135 |      |       |       |
| LCS (9061314-BS1)               |        |               |       | Prepared & | Analyzed: | 06/13/19 |        |      |       |       |
| C13-C28 (DRO)                   | 490    | 10            | mg/kg | 495        |           | 98.0     | 75-125 |      |       |       |
| Surrogate: p-Terphenyl          | 120    |               | "     | 99.0       |           | 121      | 65-135 |      |       |       |
| Matrix Spike (9061314-MS1)      | Sou    | rce: T191918- | 01    | Prepared & | Analyzed: | 06/13/19 |        |      |       |       |
| C13-C28 (DRO)                   | 490    | 10            | mg/kg | 495        | 2.5       | 97.6     | 75-125 |      |       |       |
| Surrogate: p-Terphenyl          | 112    |               | "     | 99.0       |           | 113      | 65-135 |      |       |       |
| Matrix Spike Dup (9061314-MSD1) | Sou    | rce: T191918- | 01    | Prepared & | Analyzed: | 06/13/19 |        |      |       |       |
| C13-C28 (DRO)                   | 460    | 10            | mg/kg | 500        | 2.5       | 92.2     | 75-125 | 4.69 | 20    |       |
| Surrogate: p-Terphenyl          | 109    |               | "     | 100        |           | 109      | 65-135 |      |       |       |

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Mike Jaroudi, Project Manager Page 8 of 12



RPD

%REC

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 208394007
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:32

Reporting

## Metals by EPA 6010B - Quality Control

# SunStar Laboratories, Inc.

Spike

Source

| Analyte                    | Result | Limit       | Units | Level       | Result      | %REC        | Limits | RPD | Limit | Notes |
|----------------------------|--------|-------------|-------|-------------|-------------|-------------|--------|-----|-------|-------|
| Batch 9061308 - EPA 3050B  |        |             |       |             |             |             |        |     |       |       |
| Blank (9061308-BLK1)       |        |             |       | Prepared: ( | 06/13/19 Aı | nalyzed: 06 | /14/19 |     |       |       |
| Antimony                   | ND     | 3.0         | mg/kg |             |             |             |        |     |       |       |
| Silver                     | ND     | 2.0         | "     |             |             |             |        |     |       |       |
| Arsenic                    | ND     | 5.0         | "     |             |             |             |        |     |       |       |
| Barium                     | ND     | 1.0         | "     |             |             |             |        |     |       |       |
| Beryllium                  | ND     | 1.0         | "     |             |             |             |        |     |       |       |
| Cadmium                    | ND     | 2.0         | "     |             |             |             |        |     |       |       |
| Chromium                   | ND     | 2.0         | "     |             |             |             |        |     |       |       |
| Cobalt                     | ND     | 2.0         | "     |             |             |             |        |     |       |       |
| Copper                     | ND     | 1.0         | "     |             |             |             |        |     |       |       |
| Lead                       | ND     | 3.0         | "     |             |             |             |        |     |       |       |
| Molybdenum                 | ND     | 5.0         | "     |             |             |             |        |     |       |       |
| Nickel                     | ND     | 2.0         | "     |             |             |             |        |     |       |       |
| Selenium                   | ND     | 5.0         | "     |             |             |             |        |     |       |       |
| Thallium                   | ND     | 2.0         | "     |             |             |             |        |     |       |       |
| Vanadium                   | ND     | 5.0         | "     |             |             |             |        |     |       |       |
| Zinc                       | ND     | 1.0         | "     |             |             |             |        |     |       |       |
| LCS (9061308-BS1)          |        |             |       | Prepared: ( | 06/13/19 Aı | nalyzed: 06 | /14/19 |     |       |       |
| Arsenic                    | 99.2   | 5.0         | mg/kg | 100         |             | 99.2        | 75-125 |     |       |       |
| Barium                     | 101    | 1.0         | "     | 100         |             | 101         | 75-125 |     |       |       |
| Cadmium                    | 101    | 2.0         | "     | 100         |             | 101         | 75-125 |     |       |       |
| Chromium                   | 102    | 2.0         | "     | 100         |             | 102         | 75-125 |     |       |       |
| Lead                       | 101    | 3.0         | "     | 100         |             | 101         | 75-125 |     |       |       |
| Matrix Spike (9061308-MS1) | Source | e: T191891- | -21   | Prepared: ( | 06/13/19 Aı | nalyzed: 06 | /14/19 |     |       |       |
| Arsenic                    | 70.4   | 5.0         | mg/kg | 97.1        | 0.590       | 71.9        | 75-125 |     |       | QM-0  |
| Barium                     | 182    | 1.0         | "     | 97.1        | 173         | 8.57        | 75-125 |     |       | QM-0  |
| Cadmium                    | 71.2   | 2.0         | "     | 97.1        | 0.303       | 73.0        | 75-125 |     |       | QM-0  |
| Chromium                   | 104    | 2.0         | "     | 97.1        | 24.9        | 81.3        | 75-125 |     |       |       |
| Lead                       | 74.6   | 3.0         | "     | 97.1        | 4.37        | 72.4        | 75-125 |     |       | QM-0  |

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RPD

%REC

Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 208394007
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:32

Reporting

#### Metals by EPA 6010B - Quality Control

#### SunStar Laboratories, Inc.

Spike

Source

| Analyte                         | Result | Limit       | Units | Level       | Result     | %REC        | Limits | RPD  | Limit | Notes |
|---------------------------------|--------|-------------|-------|-------------|------------|-------------|--------|------|-------|-------|
| Batch 9061308 - EPA 3050B       |        |             |       |             |            |             |        |      |       |       |
| Matrix Spike Dup (9061308-MSD1) | Sourc  | e: T191891- | 21    | Prepared: ( | 06/13/19 A | nalyzed: 06 | /14/19 |      |       |       |
| Arsenic                         | 66.0   | 5.0         | mg/kg | 92.6        | 0.590      | 70.7        | 75-125 | 6.43 | 20    | QM-05 |
| Barium                          | 204    | 1.0         | "     | 92.6        | 173        | 33.0        | 75-125 | 11.6 | 20    | QM-05 |
| Cadmium                         | 66.4   | 2.0         | "     | 92.6        | 0.303      | 71.4        | 75-125 | 6.97 | 20    | QM-05 |
| Chromium                        | 98.9   | 2.0         | "     | 92.6        | 24.9       | 79.8        | 75-125 | 4.95 | 20    |       |
| Lead                            | 68.6   | 3.0         | "     | 92.6        | 4.37       | 69.3        | 75-125 | 8.43 | 20    | QM-05 |

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Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 208394007
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:32

#### Cold Vapor Extraction EPA 7470/7471 - Quality Control

# SunStar Laboratories, Inc.

| Analyte                         | Result | Reporting<br>Limit | Units | Spike<br>Level | Source<br>Result | %REC        | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |
|---------------------------------|--------|--------------------|-------|----------------|------------------|-------------|----------------|------|--------------|-------|
| Batch 9061309 - EPA 7471A Soil  |        |                    |       |                |                  |             |                |      |              |       |
| Blank (9061309-BLK1)            |        |                    |       | Prepared: 0    | 06/13/19 A       | nalyzed: 06 | /14/19         |      |              |       |
| Mercury                         | ND     | 0.10               | mg/kg |                |                  |             |                |      |              |       |
| LCS (9061309-BS1)               |        |                    |       | Prepared: 0    | 06/13/19 A       | nalyzed: 06 | /14/19         |      |              |       |
| Mercury                         | 0.286  | 0.10               | mg/kg | 0.300          |                  | 95.4        | 80-120         |      |              |       |
| Matrix Spike (9061309-MS1)      | Sour   | ce: T191911-       | 01    | Prepared: 0    | 06/13/19 A       | nalyzed: 06 | /14/19         |      |              |       |
| Mercury                         | 0.301  | 0.10               | mg/kg | 0.300          | ND               | 100         | 75-125         |      |              |       |
| Matrix Spike Dup (9061309-MSD1) | Sour   | ce: T191911-       | 01    | Prepared: 0    | 06/13/19 A       | nalyzed: 06 | /14/19         |      |              |       |
| Mercury                         | 0.316  | 0.10               | mg/kg | 0.320          | ND               | 98.8        | 75-125         | 4.65 | 20           |       |

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Mike Jaroudi, Project Manager Page 11 of 12



Ninyo & Moore Project: UCI North Campus

 475 Goddard, Ste. 200
 Project Number: 208394007
 Reported:

 Irvine CA, 92618
 Project Manager: Franklin Ruiz
 06/19/19 09:32

#### **Notes and Definitions**

QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to possible matrix interference. The LCS was within

acceptance criteria. The data is acceptable as no negative impact on data is expected.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

SunStar Laboratories, Inc.

H

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# **Chain of Custody Record**

SunStar Laboratories, Inc. 25712 Commercentre Dr Lake Forest, CA 92630 949-297-5020

| Client: Ninyo & Moore           |                                                  |                   |                |                   |              |            |                     |       | e:         |                  |                |                                                  |                           | 01            |           |          |       | Pag                                              |                                                  | L                 | Of _     |               |    |                       |
|---------------------------------|--------------------------------------------------|-------------------|----------------|-------------------|--------------|------------|---------------------|-------|------------|------------------|----------------|--------------------------------------------------|---------------------------|---------------|-----------|----------|-------|--------------------------------------------------|--------------------------------------------------|-------------------|----------|---------------|----|-----------------------|
| Address: 475 Goddard, Suite     | 200                                              |                   |                | <u> </u>          |              |            |                     | Pro   | ject       | Nan              | ne:_           |                                                  |                           |               |           | <u> </u> | )C1   | N                                                | orth                                             | Co                | mp       | 5             |    |                       |
| Phone: (949) 753-7070           |                                                  | Fax: <u>(949)</u> | 753-7071       |                   |              |            |                     | Col   | lecto      | or:              | GM_            | <u> </u>                                         |                           |               |           |          |       | Clier                                            | nt Proj                                          | ect #: <u>-</u> 2 | 2083940  | )7<br>        |    |                       |
| Project Manager:                | Fro                                              | ink lin           | Ruiz           |                   |              |            |                     |       | ch#        |                  |                | 110                                              | 91                        | 91            | 8         |          |       | EDF                                              | #:                                               |                   |          | <del></del> - |    |                       |
| OIt ID                          | Date Sampled                                     | Time              | Sample<br>Type | Container<br>Type | 8260         | 8260 + OXY | 8260 BTEX, OXY only | 8270  | 8021 BTEX  | 8015M (gasoline) | 8015M (diesel) | 8015M Ext./Carbon Chain                          | 6010/7000 Title 22 Metals | EPA 8015B TPH |           |          |       | Laboratory ID #                                  |                                                  | Commi             | ents/Pre | servative     |    | Total # of containers |
| Sample ID                       |                                                  | 7:55AM            |                | You Glay Jan      |              | -          |                     | - 80_ | 8          | -8               | 8              | . &                                              | څ                         | X             | $\exists$ | -+       |       | 01                                               | <del>                                     </del> |                   | CE       | 001144110     |    |                       |
| <u> </u>                        |                                                  | 7777              |                |                   |              |            |                     |       |            |                  |                |                                                  |                           |               |           |          |       |                                                  |                                                  |                   |          |               |    | Ļ                     |
| 13-15 0 5'                      | 6/11/19                                          | 1:08 AL           | SOIL           | Yoz Glas. Ta      | <u> </u>     | _          |                     |       | <u> </u>   |                  |                | <u> </u>                                         | $\succeq$                 | M             |           | _        |       | 02                                               | <del>                                     </del> | <u> </u>          | CE       |               |    | 1                     |
| B-14@ 51                        | 11/19                                            | 12140 PH          | 2010           | Yoz Glass Jan     | _            |            |                     |       |            |                  |                |                                                  | X                         | ×             |           |          |       | 63                                               |                                                  |                   | CE       |               |    | 1                     |
| B-13@51                         | (/11/19                                          | 2,54 Ph           | 201            | Yor Glow Ja-      |              |            |                     |       |            |                  |                |                                                  | ×                         | X             |           | _        |       | 04                                               |                                                  | 7                 | ct-      |               |    | 1                     |
|                                 | <del>                                     </del> | <del></del>       | -              | <b></b>           | ╁╴           | -          |                     | -     |            | ┢                |                | <del>                                     </del> | $\vdash$                  | $\vdash$      |           | -+       |       |                                                  |                                                  | -                 | -        |               |    |                       |
|                                 |                                                  |                   |                |                   |              |            |                     |       |            |                  |                |                                                  |                           |               |           |          |       |                                                  |                                                  |                   |          |               |    | 18.                   |
|                                 |                                                  |                   |                |                   | CHEORY'S     | _          | -                   | -     |            |                  | _              | -                                                |                           |               |           |          |       | <b> </b>                                         | 1                                                |                   |          |               |    | -                     |
| ·                               |                                                  |                   |                |                   | <del> </del> | ┝╌         | _                   | ├     | ┢╌         | <del> </del>     | _              | -                                                | -                         |               |           | -        |       | -                                                | <u> </u>                                         |                   |          | <del></del>   | —- | <u> </u>              |
|                                 |                                                  | -                 | ļ              |                   | -            | ╁╴         | -                   | -     | ┼─         | -                | $\vdash$       |                                                  | $\vdash$                  | $\vdash$      | -         | _        | -     | <del>                                     </del> | +                                                |                   |          |               |    | Ì                     |
|                                 | 1                                                | <b></b>           |                |                   | †            |            |                     |       |            |                  |                |                                                  |                           |               |           |          |       |                                                  |                                                  |                   |          |               |    |                       |
| Relinquished by: (signature)    | Date / T                                         | ime               |                | by (eignature)    |              | 2-19       | Dat                 |       | ime<br>(ÎO |                  | Ch             | ain o                                            |                           | otal #        |           |          |       |                                                  |                                                  |                   | Note     | es            |    | =-                    |
| Relinquished by: (signature)    | Date / T                                         | ime               | Received       | by: (signature)   |              |            | Dat                 |       | īme        |                  |                |                                                  |                           | eals i        |           |          |       |                                                  | ]                                                |                   |          |               |    |                       |
| 1                               | 6-17-19                                          | 1047              | Yal ?          | June              | 6-1          | 2-1        | 9                   | ţ     | 2:4        | 7                | F              | Recei                                            | ived                      | good          | cond      | lition   | /cold | 4.0                                              |                                                  |                   |          |               |    |                       |
| Relinquished by: (signature)    | Date / T                                         | ime               |                | by: (signature)   |              |            | Dat                 |       |            |                  | 1              |                                                  |                           | d tim         |           |          |       |                                                  |                                                  |                   |          |               |    |                       |
| Sample dianocal Instructions: F | Nichocal @ \$2.00                                | each              | Refur          | n to client       | -            | Pi         | ckup                |       |            |                  | jur            | ıı al                                            | Juil                      | u un          | .e.—      |          |       |                                                  |                                                  |                   |          |               |    |                       |



# SAMPLE RECEIVING REVIEW SHEET

| Batch/Work Order #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | T19191                   | .8                   |                          |                 |                  |              |   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------|--------------------------|-----------------|------------------|--------------|---|
| Client Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Ninyo & M                | foore 1              | Project:                 |                 | UCI North Campus |              | - |
| Delivered by:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ☐ Client ⊠ Su            | nStar Courier        | □ GSO                    | ☐ FedEx         | Other            |              |   |
| If Courier, Received by:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Dan                      |                      | Date/Time C<br>Received: |                 | 6-12-19          | 10:30        |   |
| Lab Received by:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Paul                     |                      | Date/Time L<br>Received: | ab              | 6-12-19          | 10:47        |   |
| Total number of coolers re                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | eceived: 0               |                      |                          |                 |                  |              | - |
| Temperature: Cooler #1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2.8 °C +/- the           | $CF(1.2^{\circ}C) =$ | 4.0                      | °C correc       | ted temperature  |              |   |
| Temperature: Cooler #2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | °C +/- the               | $CF(1.2^{\circ}C) =$ |                          | °C correc       | ted temperature  |              |   |
| Temperature: Cooler #3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | °C +/- the               | $CF(1.2^{\circ}C) =$ |                          | °C correc       | ted temperature  |              |   |
| Temperature criteria = 5 (no frozen containers)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ≤6°C                     | Within crit          | eria?                    | ⊠Yes            | □No              |              |   |
| If NO: Samples received If on ice, samples collected? Custody seals intact on co                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | received same day        | □Yes → A             | Acceptable               | □No→            | e Non-Confo      | rmance Sheet |   |
| Sample containers intact                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                          |                      |                          | ⊠Yes            | □No*             |              |   |
| Sample labels match Chai                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | n of Custody IDs         |                      |                          | ⊠Yes            | □No*             |              |   |
| Total number of container                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | s received match CO      |                      |                          | ⊠Yes            | □No*             |              |   |
| Proper containers received                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | d for analyses request   | ted on COC           |                          | ⊠Yes            | □No*             |              |   |
| Proper preservative indica                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ated on COC/containe     | ers for analyses r   | requested                | □Yes            | □No* 区           | ]N/A         |   |
| Complete shipment receive containers, labels, volume holding times                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                          |                      |                          | <b>Yes</b>      | <b>□No*</b>      |              |   |
| * Complete Non-Conforman                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | n                        |                      |                          |                 |                  |              |   |
| <ul> <li>A control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the contro</li></ul> | ice Receiving Sheet it o | checked Cool         | er/Sample Rev            | view - Initials | and date:        | M 6-12-19    | _ |
| Comments:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ice Receiving Sheet if C | checked Coole        | er/Sample Rev            | view - Initials | and date: 5      | )M 6-12-19   | _ |



#### WORK ORDER

#### T191918

Client:Ninyo & MooreProject Manager:Mike JaroudiProject:UCI North CampusProject Number:208394007

Report To:

Ninyo & Moore Franklin Ruiz

475 Goddard, Ste. 200 Irvine, CA 92618

Date Due:

06/19/19 17:00 (5 day TAT)

Received By: Paul Berner Logged In By: Dan Marteski Date Received: Date Logged In: 06/12/19 10:47

06/12/19 11:15

Samples Received at:

Custody Seals No

No Received On Ice Yes

4°C

COC/Labels Agree Yes
Preservation Confir No

| Analysis                         | Due                     | TAT       | Expires              | Comments |
|----------------------------------|-------------------------|-----------|----------------------|----------|
| T191918-01 B-16 @ 3' [S          | oil] Sampled 06/11/19 0 | 7:55 (GMT | Γ-08:00) Pacific Tin | ne       |
| 6010 Title 22                    | 06/19/19 15:00          | 5         | 12/08/19 07:55       |          |
| 8015 Carbon Chain                | 06/19/19 15:00          | 5         | 06/25/19 07:55       |          |
| T191918-02 B-15 @ 5' [S          | oil] Sampled 06/11/19 1 | 1:08 (GMT | Γ-08:00) Pacific Tin | ne       |
| 6010 Title 22                    | 06/19/19 15:00          | 5         | 12/08/19 11:08       |          |
| 8015 Carbon Chain                | 06/19/19 15:00          | 5         | 06/25/19 11:08       |          |
| T191918-03 B-14 @ 5' [S<br>(US & | oil] Sampled 06/11/19 1 | 2:40 (GMT | Γ-08:00) Pacific Tin | ne       |
| 6010 Title 22                    | 06/19/19 15:00          | 5         | 12/08/19 12:40       |          |
| 8015 Carbon Chain                | 06/19/19 15:00          | 5         | 06/25/19 12:40       |          |
| T191918-04 B-13 @ 5' [S<br>(US & | oil] Sampled 06/11/19 1 | 2:40 (GMT | Γ-08:00) Pacific Tin | ne       |
| 6010 Title 22                    | 06/19/19 15:00          | 5         | 12/08/19 12:40       |          |
| 8015 Carbon Chain                | 06/19/19 15:00          | 5         | 06/25/19 12:40       |          |

| 6010 Title 22                 |  |
|-------------------------------|--|
| subgroup 6010B T22 7470/71 Hg |  |

|             | <u></u> |  |
|-------------|---------|--|
| Reviewed By | Date    |  |



475 Goddard, Suite 200 | Irvine, California 92618 | p. 949.753.7070

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www.ninyoandmoore.com