Appendix G-2

Desktop Geotechnical Review Report

Kimley»Horn

Geotechnical Engineering Report

Desert Breeze Solar
Hinkley, San Bernardino County, California
February 20, 2023
Updated March 21, 2023
Terracon Project No. 60225173

Prepared for:
Terra-Gen, LLC
San Diego, California

Prepared by:
Terracon Consultants, Inc.
Colton, California

February 20, 2023
Updated March 21, 2023

Terracon GeoReport

Terra-Gen, LLC
1145 El Camino Real, Suite 160
San Diego, California 92130

Attn: Mr. Walker Willis
Director of Engineering, High Voltage
P: (608) 632-2554
E: wwillis@terra-gen.com

Re: Geotechnical Engineering Report
Desert Breeze Solar
43880 Harper Lake Road
Hinkley, San Bernardino County, California
Terracon Project No. 60225173

Dear Mr. Willis:

We have completed the Geotechnical Engineering services for the above referenced project. This study was performed in general accordance with Terracon Proposal No. P60225173 dated and November 18, 2022 and revised on February 10, 2023. This report provides geotechnical engineering recommendations concerning earthwork and the design and construction of access roads and foundations for the proposed solar facility.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

LICENSED PROFESSIONAL ENGINEER VICTOR V. NGUYEN C 94737 EXP. 6/30/23 CIVIL STATE OF CALIFORNIA

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REPORT TOPICS

Note: This report was originally delivered in a web-based format. Orange Bold text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the *GeoReport* logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

Geotechnical Engineering Report

Desert Breeze Solar
Hinkley, San Bernardino County, California
Terracon Project No. 60225173
February 20, 2023
Updated March 21, 2023

INTRODUCTION

This report presents the results of our geotechnical engineering services performed for the proposed Desert Breeze Solar project located in Hinkley, San Bernardino County, California. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site preparation and earthwork
- Foundation design and construction
- Access road design and construction
- Seismic site classification per CBC

The geotechnical engineering Scope of Services for our current scope of work included the following:

- Thirty-four (34) test borings to depths of 20½ to 50.9 feet below ground surface (bgs).
- Corrosion testing on soil samples obtained from thirteen (13) locations.
- Lab thermal resistivity testing on soil samples obtained from eight (8) locations.
- Field electrical resistivity testing at twelve (12) locations.
- Pile load testing at eleven (11) locations targeting approximate depths of 5 to 8 feet bgs. Pile testing included two axial tension and lateral tests, and one axial compression test at each location.

Pile load testing is still in progress at the time of preparation of this report. In addition, several electrical resistivity tests are being retested to verify readings which may have been influenced by interference from surrounding improvements.

An updated report will be issued after completion of the additional testing and analysis. Such report will provide pile foundation design recommendations and considerations for support of proposed BESS structures and array panels.

Maps showing the site, boring, electrical resistivity, and pile test locations are shown in the **Site Location** and **Exploration Plan** sections, respectively. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs and as separate graphs in the **Exploration Results** section.

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information and Project Understanding	The proposed project site is located at 43880 Harper Lake Road in Hinkley, San Bernardino County, CA. Approximate coordinates for the center of the site are 35.0407°N, 117.3491°W.
Existing Improvements	The array area is currently undeveloped. The proposed BESS/substation area is currently developed as a construction laydown yard with single story structures, tanks, switchyard, and gen-tie line. Adjacent to the site are also existing PV array fields and retention/detention ponds.
Current Ground Cover	Exposed soils with dense desert vegetation within array areas. Exposed soils with little to no vegetation at substation and BESS areas.
Existing Topography (from Google Earth Pro)	The site project generally slopes down towards the northeast direction and has approximate elevations ranging from 2025 to 2100 feet within the proposed array area and 2064 to 2085 feet within the substation/BESS area.

PROJECT DESCRIPTION

Item	Description
Proposed Project	The project will include the construction of a PV solar generating facility with PV modules aligned in arrays and affixed to single-axis tracking systems or fixed arrays. PV Array area is anticipated to encompass approximately 813 acres. Portions of the site will not be developed due to geologic and biologic constraints, the anticipated developable area is on the order 600 acres BESS and substation areas will include battery containers, switchgear, inverter pads, and other ancillary support equipment.
Proposed Structure	We anticipate the BESS facility will include electrical self-contained structures supported directly on mat foundations or driven steel piles. Substation equipment and other ancillary equipment structures are anticipated to be supported on spread footings, mat foundations, or concrete piers.
Maximum Loads (assumed)	Array Structures: ■ PV Module Downward: 2 - 7 kips; ■ PV Module Uplift: 1 - 3 kips; and ■ PV Module Lateral: 2 - 4 kips. Substation Equipment and other Ancillary Equipment Structures: ■ Shallow foundation or pad supported structures are anticipated to have ground contact pressures of less than 1,500 psf.
Grading	We anticipate that the final grades of the solar array field will generally follow the existing site grades with minimal grading. We anticipate battery and substation areas will follow existing grade with minimal grade changes of less than 5 feet from existing grades.

Item	Description
Access Roadways	We understand that access roads are anticipated on site. We anticipate low-volume access roads that will have a maximum single axle load of 20,000 pounds with corresponding max wheel load of 10,000 lbs. The final design and construction of the access roads may be adjusted by the design team and owner; however, Terracon should be notified so that additional recommendations or maintenance considerations be provided to the owner.

GEOTECHNICAL CHARACTERIZATION

We have developed a general characterization of the subsurface soil and groundwater conditions based upon our review of the data and our understanding of the geologic setting and planned construction.

The geotechnical characterization forms the basis of our geotechnical calculations and evaluation of site preparation and foundation options. As noted in **General Comments**, the characterization is based upon widely spaced exploration points across the site, and variations are likely.

Subsurface Conditions

Subsurface soils encountered in exploratory borings generally consisted of loose to very dense sand with varying amounts of silt, clay and gravel to a maximum explored depth of 50.9 feet. A medium stiff silt and very stiff lean clay with sand layer was encountered in B-7 from 5 to 7½ and B-19 from 7½ to 15 feet, respectively.

Conditions encountered at each boring location are indicated on the individual boring logs shown in the **Exploration Results** section and are attached to this report. Stratification boundaries on the boring logs represent the approximate location of changes in native soil types; in situ, the transition between materials may be gradual.

Groundwater Conditions

Groundwater was encountered in various soil borings during subsurface exploration. The following table summarizes the depth and elevation of encountered groundwater. These observations represent groundwater conditions at the time of the field exploration and may not be indicative of other times, or at other locations.

Boring ID	Boring Elevation (feet) [1]	Depth to Groundwater (feet, bgs)	Groundwater Elevation (feet)
BESS-2	2068	35	2033
BESS-3	2070	38	2032
BESS-6	2069	34½	2034

Boring ID	Boring Elevation (feet) [1]	Depth to Groundwater (feet, bgs)	Groundwater Elevation (feet)
BESS-7	2071	34	2037
SUB-1	2082	45	2037
B-19	2033	19	2014

1. Elevations were based on topographic data from Google Earth

Review of the California Department of Water Resources Water Data Library indicated that recent (within the last 20 to 30 years) groundwater data within a 1-mile vicinity of the project site is not available. Historic data from a nearby well (State Well ID 11N04W30C002S) located approximately 920 feet south of the site indicated a historic high groundwater elevation of 2057 feet in 1968.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structures may be higher or lower than the levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

Electrical Resistivity Testing

Terracon performed field measurements of soil electrical resistivity for the support of grounding design. Soil resistivity data was obtained from two perpendicular arrays at ten (10) locations in proposed array areas, one (1) location in the proposed substation area, and one (1) location in the proposed BESS area. The approximate location of the tests are shown in the **Exploration Plan**. The testing was performed in general accordance with Wenner Array (4-pin) method per ASTM G57. This method was performed in accordance with IEEE Standard 81, IEEE Guide for Measuring Earth Resistivity, Ground Impedance and Earth Surface Potentials of a Ground System. Each test in the proposed array locations included perpendicular arrays with "a" spacings 0.5, 1, 2, 5, 10, 15, 25, 50, and 100 feet. At the substation/BESS location, "a" spacings of 0.5, 1, 1.5, 2, 3, 5, 7, 10, 15, 20, 30, 45, 70, 100, 150, and 200 were targeted on mutually perpendicular arrays. The "a" spacing is generally considered to be the depth of influence of the test. The electrical resistivity test results are presented in **Exploration Results**.

Lab Results

Laboratory tests were conducted on selected soil samples and the test results are presented in the **Exploration Results** section and on the boring logs. Atterberg limits test results indicate that the on-site soils generally are non-plastic or have medium plasticity. Direct shear tests performed on sandy soils encountered at approximate depths of 2½ and 5 feet bgs indicated effective friction angles ranging from 28 to 33 degrees with cohesions ranging from 0 to 340 pounds per square foot (psf), respectively. Maximum density/optimum moisture content testing conducted in accordance with ASTM D1557 (Modified Proctor) indicate the near surface soils tested have maximum dry densities ranging from 116.8 to 132.7 pounds per cubic foot (pcf) and optimum water contents ranging from 6.4 to 10.3 percent. California Bearing Ratio (CBR) tests conducted in accordance with ASTM D1883 indicate the near surface soils tested have CBRs of ranging from 10 to 16.6 at 95 percent relative compaction (as determined by ASTM D1557).

The following table summarizes results of collapse testing.

Collapse Potential Test Results			
Boring	**Sample Depth (ft)**	**Soil Description**	**Approximate Collapse Potential (Percent)[1, 2]**
BESS-2	2½	Silty Sand	Moderate
BESS-7	5	Silty Sand	Moderate
Sub-2	2½	Silty Sand	Severe[3]
	5	Poorly Graded Sand with Silt	Slight
	7½	Poorly Graded Sand with Silt	Slight

1. Severity of collapse based on ASTM D5333 Standard Test Method for Measurement of Collapse Potential of Soils.
2. Samples were saturated under normal footing loads of 2,000 psf during collapse determination.
3. Based on field blow counts and the soil encountered, it is our opinion that the tested collapse potential is due to sample disturbance.

Thermal Resistivity Testing

Terracon subcontracted Geotherm USA to perform laboratory thermal resistivity testing. Eight (8) tests were conducted across eight (8) locations at the project site from a depth of 0 to 4 feet bgs. Six (6) tests were conducted on soil samples recovered within proposed array field areas and two (2) from the proposed substation/BESS area. Tests were conducted on soil samples remolded to 85 percent relative compaction (as determined by ASTM D1557) within proposed array areas and 95 percent relative compaction within the proposed substation/BESS area. Test points targeted the higher of either the in-situ moisture content or the optimum moisture content as determined by ASTM D1557, totally dry condition, and two intermediate points. The results are included in the **Exploration Results** section of this report.

SEISMIC CONSIDERATIONS

The 2022 California Building Code (CBC) Seismic Design Parameters have been generated using the SEAOC/OSHPD Seismic Design Maps Tool. This web-based software application calculates seismic design parameters in accordance with ASCE 7-16 and 2022 CBC. The 2022 CBC requires that a site-specific ground motion study be performed in accordance with Section 11.4.8 of ASCE 7-16 for Site Class D sites with a mapped S_1 value greater than or equal 0.2.

However, Section 11.4.8 of ASCE 7-16 includes an exception from such analysis for specific structures on Site Class D sites. The commentary for Section 11 of ASCE 7-16 (Page 534 of Section C11 of ASCE 7-16) states that "In general, this exception effectively limits the requirements for site-specific hazard analysis to very tall and or flexible structures at Site Class D sites." Based on our understanding of the proposed structures, it is our assumption that the exception in Section 11.4.8 applies to the proposed structure. However, the structural engineer should verify the applicability of this exception.

Based on this exception, the spectral response accelerations presented below were calculated using the site coefficients (F_a and F_v) from Tables 1613.2.3(1) and 1613.2.3(2) presented in Section 16.4.4 of the 2022 CBC. Coordinates utilized correspond to the approximate center of the proposed substation/BESS area.

Description	Center of Site
2022 California Building Code Site Classification (CBC) [1]	D[2]
Site Latitude (°N)	35.0286
Site Longitude (°W)	117.3472
S_s Spectral Acceleration for a 0.2-Second Period	1.083
S_1 Spectral Acceleration for a 1-Second Period	0.402
F_a Site Coefficient for a 0.2-Second Period	1.067
F_v Site Coefficient for a 1-Second Period	1.9

1. Seismic site classification in general accordance with the *2022 California Building Code*.
2. The 2022 California Building Code (CBC) requires a site soil profile determination extending to a depth of 100 feet for seismic site classification. The current scope does not include the required 100-foot soil profile determination. Borings were extended to a maximum depth of 50.9 feet, and this seismic site class definition considers that similar or denser soils continue below the maximum depth of the subsurface exploration. Additional exploration to deeper depths would be required to confirm the conditions below the current depth of exploration.

Typically, a site-specific ground motion study may generate less conservative coefficients and acceleration values which may reduce construction costs. We recommend consulting with a structural engineer to evaluate the need for such study and its potential impact on construction costs.

Faulting and Estimated Ground Motions

The site is located in southern California, which is a seismically active area. The type and magnitude of seismic hazards affecting the site are dependent on the distance to causative faults, the intensity, and the magnitude of the seismic event. As calculated using the USGS Unified Hazard Tool, the Lenwood-Lockhart Fault, which is considered to have the most significant effect at the site from a design standpoint, has a maximum credible earthquake magnitude of 7.15 and the primary contributing fault segment is located approximately 3.37 kilometers from the site.

Based on the USGS Design Maps Summary Report, using the American Society of Civil Engineers (ASCE 7-16) standard, the site-modified peak ground acceleration (PGA_M) at the project site is expected to be 0.533 g. Based on the USGS Unified Hazard Tool, the project site has a mean magnitude of 6.76.

LIQUEFACTION AND SEISMIC SETTLEMENT

Liquefaction is a mode of ground failure that results from the generation of high pore water pressures during earthquake ground shaking, causing loss of shear strength. Liquefaction is typically a hazard where loose sandy soils exist below groundwater. The California Geological Survey (CGS) has designated certain areas as potential liquefaction hazard zones. These are areas considered at a risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the presence of a relatively shallow water table.

The project site is not mapped for liquefaction hazard by the CGS. Based on review of the San Bernardino County Geologic Hazard Maps, the site is not located within a liquefaction potential zone as designated by the County of San Bernardino. Based on the County map and the subsurface conditions encountered, liquefaction hazard at the site is considered to be low. Other geologic hazards related to liquefaction, such as lateral spreading, are also considered to be low.

GEOLOGIC HAZARDS

Based on our understanding of the site configuration, location, and pertinent analyses, our opinion of geologic hazards at the site are detailed as follows:

- Landslide Potential –Based on review of the San Bernardino County Geologic Hazard Maps, the project is not located within a landslide potential zone as designated by the County. Based on the site configuration and relatively level topography, it is our opinion that landslide potential at the project site is to be low.
- Surface fault rupture – Based on our review of the State of California Seismic Hazards Zones map, the northeast boundary of the site is coincident with an Alquist-Priolo Earthquake Fault Zone. However, based on discussion with the client and review of the client-provided Conceptual Site Plan with latest revision date of January 9, 2022, we understand that the no new construction is planned within this zone. As such, it is our opinion that surface fault rupture for the proposed construction is considered low.
- Liquefaction Potential – Based on review of the San Bernardino County Geologic Hazard Maps, the site is not located within a liquefaction potential zone as designated by the County of San Bernardino. Based on the County map and the subsurface conditions encountered, liquefaction hazard at the site is considered to be low.

- Ground Fissuring and Subsidence Potential – A search of publicly available information regarding surface fissuring near Harper Dry Lake did not find reports indicating fissuring near the site. Furthermore, publicly available data indicate that subsidence has occurred near Harper Lake due to groundwater withdrawal. However, this documented subsidence is limited to the areas east of the lake margin and does not appear to affect the project area. Therefore it is our opinion that fissuring, and subsidence represent a low risk to the project site.
- Lateral Spreading – The site is relatively flat and absent of free faces prone to spreading during a seismic event. As liquefaction potential at the site is low, lateral spreading potential is also considered to be low.
- Hydro-consolidation – Potential for hydro-consolidation of near surface soils at the site is considered to be low provided that the earthwork recommendations provided in this report are incorporated into project design and construction.
- Flash Flooding - Flood hazard mapping by County of San Bernardino or FEMA does not include the area of the site. The site occupies a broad alluvial apron adjacent to a playa lake that is an area of low relief. These areas are subject to sheet flow runoff and flash flooding during localized storms, typically during a monsoon season between July and October in the Mojave Desert. Assessment of flash flooding hazard is outside the scope of services of this report and should be based on a site-specific hydrologic study.
- Debris Flow – Due to the absence of nearby hillsides, debris flow hazard is considered low.

CORROSIVITY

Results of laboratory soluble sulfate, sulfides, soluble chloride, red-ox potential, electrical resistivity, total salts, and pH testing are included in the **Exploration Results** section of this report. The values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

Results of soluble sulfate testing indicate samples of the on-site soils tested possess negligible sulfate concentrations when classified in accordance with Table 19.3.1.1 of the ACI Design Manual. Concrete should be designed in accordance with the exposure class S0 provisions of the ACI Design Manual, Section 318, Chapter 19.

GEOTECHNICAL OVERVIEW

The site appears suitable for the proposed construction based upon geotechnical conditions encountered in the test borings, provided that the findings and recommendations presented in this report are incorporated into project design and construction.

We anticipate that the proposed BESS pads/substation equipment will be supported on a shallow foundation system bearing on engineered fill or driven steel piles. The substation is also anticipated to include turning poles and/or bus supports, which are likely to be supported on a shallow foundation system bearing on engineered fill or drilled shaft foundations.

We anticipate that array panels will be supported on driven steel piles.

Pile load testing is still in progress at the time of preparation of this report. As such, a subsequent report after completion of pile load testing and analysis. Such report will provide steel pile foundation recommendations and considerations for support of proposed BESS structures and array panels.

Geotechnical engineering recommendations for foundation systems and other earth connected phases of the project are outlined below. The recommendations contained in this report are based upon the results of test borings, laboratory testing, engineering analyses, and our current understanding of the proposed project. The **General Comments** section provides an understanding of the report limitations.

EARTHWORK

The following presents recommendations for site preparation, excavation, subgrade preparation, and placement of engineered fills on the project. The recommendations presented are for the design and construction of foundations and pavements are contingent upon following the recommendations outlined in this section.

Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project.

Site Preparation

Strip and remove existing vegetation, debris, and other deleterious materials from proposed foundation and roadway areas. Exposed surfaces within these areas should be free of mounds and depressions which could prevent uniform compaction. The site should be initially graded to create a relatively level surface to receive fill and provide for a relatively uniform thickness of fill beneath proposed structures.

We recommend stripping topsoil to depths that expose soils with less than 3 percent organics and no roots having a diameter greater than 1/8 inch. While the depth of the unsuitable soils should be expected to vary, the thickness of the top-soil layer may be estimated to range between 6 and 12 inches for construction budgeting purposes. The thickness of the top-soil layer was not determined during our field exploration. Therefore, the actual depth of stripping should be verified by engineering observations made during the grading operations at the project.

Stripped materials consisting of vegetation and organic materials should be wasted from the site or used to revegetate landscaped areas or exposed slopes after completion of grading operations. If it is necessary to dispose of organic materials on site, they should be placed in non-structural areas, and in fill sections not exceeding 5 feet in height.

Although no evidence of fills, utilities, or underground facilities such as septic tanks, cesspools, basements, and utilities was observed during the site reconnaissance, such features could be encountered during construction. If unexpected fills, utilities, or underground facilities are encountered, such features should be removed and the excavation thoroughly cleaned prior to backfill placement and/or construction.

Subgrade Preparation

Due to the potential for hydroconsolidation, the proposed structures may be supported by a shallow concrete foundation system bearing on engineered fill extending to a minimum depth of 3 foot below the bottom of foundations or 6 feet below existing site grades, whichever is greater.

Subgrade soils beneath exterior slabs and roadways should be scarified to a minimum depth of 12 inches, moisture conditioned, and compacted. The moisture content and compaction of subgrade soils should be maintained until slab or pavement construction.

Structures supported on either drilled shafts or driven piles may be constructed without the above recommended remedial grading.

Exposed areas which will receive fill, once properly cleared and benched where necessary, should be scarified to a minimum depth of 10 inches, moisture conditioned, and compacted per the compaction requirements in this report.

Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable. However, the workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by scarifying and drying.

Excavation

It is anticipated that excavations for the proposed construction can be accomplished with conventional earthmoving equipment.

The bottom of excavations should be thoroughly cleaned of loose soils and disturbed materials prior to backfill placement and/or construction.

Cohesionless sandy soils were encountered within various soil borings. Such soils have the tendency to cave and slough during excavations. Therefore, formwork may be needed for foundation excavations.

Individual contractors are responsible for designing and constructing stable, temporary excavations. Excavations should be sloped or shored in the interest of safety following local, and federal regulations, including current OSHA excavation and trench safety standards.

Fill Materials and Placement

All fill materials should be inorganic soils free of vegetation, debris, and fragments larger than six inches in size. Pea gravel or other open-graded materials should not be used as fill or backfill without the prior approval of the geotechnical engineer.

Clean on-site native soils and materials or approved imported materials may be used as fill material for the following:

- general site grading
- foundation areas
- exterior slab areas
- foundation backfill
- roadway areas

Imported soils for use as fill material within proposed structure areas should conform to low volume change materials as indicated in the following specifications:

Gradation	**Percent Finer by Weight (ASTM C 136)**
6”	100
3”	90-100
No. 4 Sieve	50-100
No. 200 Sieve	10-30

- Liquid Limit .... 30 (max)
- Plasticity Index .... 15 (max)
- Maximum Expansion Index* .... 20 (max)

*ASTM D4829

The contractor shall notify the Geotechnical Engineer of import sources sufficiently ahead of their use so that the sources can be observed and approved as to the physical characteristic of the import material. For all import material, the contractor shall also submit current verified reports from a recognized analytical laboratory indicating that the import has a "not applicable" (Class S0) potential for sulfate attack based upon current ACI criteria and is "mildly corrosive" to ferrous metal and copper. The reports shall be accompanied by a written statement from the contractor that the laboratory test results are representative of all import material that will be brought to the job.

Engineered fill should be placed and compacted in horizontal lifts, using equipment and procedures that will produce recommended moisture contents and densities throughout the lift. Fill lifts should not exceed 10 inches loose thickness.

Compaction Requirements

Recommended compaction and moisture content criteria for engineered fill materials are as follows:

Material Type and Location	Per the Modified Proctor Test (ASTM D 1557)		
	Minimum Compaction Requirement	Range of Moisture Contents for Compaction Above Optimum	
		Minimum	Maximum
On-site soils and low volume change imported fill:			
Beneath concrete foundations:	90%	-1%	+2%
Miscellaneous backfill:	85%	-1%	+2%
Utility trenches*:	85%	-1%	+2%
Bottom of excavation receiving fill:	90%	-1%	+2%
Beneath pavements and exterior slabs:	90%	-1%	+2%
Aggregate base:	90%	-2%	+2%

*Upper 12 inches should be compacted to 90% within structural and pavement areas. Compaction requirements within utility trenches should be verified with electrical engineer based on thermal resistivity and may be modified accordingly.

Grading and Drainage

Positive drainage should be provided during construction and maintained throughout the life of the development. Infiltration of water into utility trenches or foundation excavations should be prevented during construction. Backfill against footings and in utility and sprinkler line trenches should be well compacted and free of all construction debris to reduce the possibility of moisture infiltration.

Utility Trenches

It is anticipated that the on-site soils will provide suitable support for underground utilities and piping that may be installed. Any soft and/or unsuitable material encountered at the bottom of excavations should be removed and be replaced with an adequate bedding material. A nonexpansive granular material with a sand equivalent greater than 30 should be used for bedding and shading of utilities, unless allowed or specified otherwise by the utility manufacturer.

On-site materials are considered suitable for backfill of utility and pipe trenches from one foot above the top of the pipe to the final ground surface, provided the material is free of organic matter and deleterious substances.

Trench backfill should be mechanically placed and compacted as discussed earlier in this report. Compaction of initial lifts should be accomplished with hand-operated tampers or other lightweight compactors. If trenches are placed beneath footings, the backfill should satisfy the gradation and expansion index requirements of engineered fill discussed in this report. Flooding or jetting for placement and compaction of backfill is not recommended.

Exterior Slab Design and Construction

Exterior slabs-on-grade, exterior architectural features, and utilities founded on, or in backfill may experience some movement due to the volume change of the backfill. To reduce the potential for damage caused by movement, we recommend:

- minimizing moisture increases in the backfill;
- controlling moisture-density during placement of backfill;
- using designs which allow vertical movement between the exterior features and adjoining structural elements;
- placing effective control joints on relatively close centers.

Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of roadways. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become desiccated, saturated, or disturbed, the affected material should be removed, or these materials should be scarified, moisture conditioned, and recompacted prior to roadway construction.

The individual contractor(s) is responsible for designing and constructing stable, temporary excavations as required to maintain stability of both the excavation sides and bottom. Excavations should be sloped or shored in the interest of safety following local, and federal regulations, including current Occupational Safety and Health Administration (OSHA) excavation and trench safety standards.

Construction Observation and Testing

A geotechnical engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation, proof-rolling, placement and compaction of controlled compacted fills, backfilling of excavations to the completed subgrade.

The exposed subgrade and each lift of compacted fill should be tested, evaluated, and reworked as necessary until approved by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 2,500 square feet of compacted fill in the structural areas and 5,000 square feet in pavement/roadway areas. One density and water content test for every 50 linear feet of compacted utility trench backfill. This testing frequency criteria may be adjusted during construction as specified by the geotechnical engineer of record.

In areas of foundation excavations, the bearing subgrade should be evaluated under the direction of the Geotechnical Engineer. In the event that unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

SHALLOW FOUNDATIONS

Recommendations for foundations for the proposed structures and related structural elements are presented in the following paragraphs.

If the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for shallow foundations.

Foundation Design Recommendations

Item	Description
Foundation System	Spread footings, mat foundation, or support slab with thickened edges bearing on engineered fill
Subgrade Preparation Requirements	Engineered fill extending to a minimum depth of 3 foot below the bottom of foundations or 6 feet below existing site grades, whichever is greater.
Maximum Allowable Bearing pressure (based on settlement analysis)[1]	Square Footings ■ 4,000 psf (up to 5 feet wide) ■ 3,000 psf (up to 12 feet wide) Strip Footings ■ 3,000 psf (up to 5 feet wide) Mat Foundations or Support Slab with Thickened Edges ■ 1,400 psf (up to 25 by 50 feet)
Design Modulus of Subgrade Reaction, k[2]	200 pounds per square inch per inch (psi/in). The modulus was obtained based on estimates obtained from NAVFAC 7.1 design charts. This value is for a small-loaded area (1 Sq. ft or less) such as for forklift wheel loads or point loads and should be adjusted for larger loaded areas.
Modulus Correction Factor[2]	$k_c = k\,[(B+1)/2B)]^2$
Minimum Embedment Below Finished Grade	18 inches
Minimum Dimensions	Square footings and mats: 24 inches Strip footings: 18 inches

Item	Description
Estimated Total Settlement from Structural Loads	About 1-inch
Estimated Differential Settlement	About ½ of total settlement over a horizontal distance of 40 feet

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the foundation base elevation. An appropriate factor of safety has been applied. These bearing pressures can be increased by 1/3 for transient loads unless those loads have been factored to account for transient conditions.
2. k values should be reduced to account for dimensional effects of largely loaded areas. Where k_c is the corrected or design modulus value and B is the mat width in feet.

Settlement calculations were performed utilizing Westergaard and Hough's methods[1] to estimate the static settlement for various foundation widths with an allowable settlement of 1-inch.

Finished grade is defined as the lowest adjacent grade within five feet of the foundation for perimeter (or exterior) footings.

The allowable foundation bearing pressure applies to dead loads plus design live load conditions. The design bearing pressure may be increased by one-third when considering total loads that include wind or seismic conditions. The weight of the foundation concrete below grade may be neglected in dead load computations.

Foundations should be reinforced as necessary to reduce the potential for distress caused by differential foundation movement. Foundation excavations should be observed by the geotechnical engineer. If the soil conditions encountered differ significantly from those presented in this report, supplemental recommendations will be required.

LATERAL EARTH PRESSURES

Design Parameters

For engineered fill comprised of on-site soils or imported low volume change materials above any free water surface, recommended equivalent fluid pressures for unrestrained foundation elements are:

Item	Recommended Value [1, 2,]
Active Case	40 psf/ft
Passive Case [3,5]	400 psf/ft
At-Rest Case	60 psf/ft
Ultimate Coefficient of Sliding Friction [4,5]	0.35

[1] *FHWA Geotechnical Engineering Circular No. 6 – Shallow Foundations, FHWA-SA-02-054.*

Item	Recommended Value [1, 2,]

1. The values are based on engineered fill materials used as backfill.
2. Uniform, horizontal backfill, compacted to at least 90% of the ASTM D 1557 maximum dry density, rendering a maximum unit weight of 125 pcf.
3. Use of passive earth pressures require the sides of the excavation for the foundation to be nearly vertical and the concrete placed neat against these vertical faces or that the foundation forms be removed and compacted engineered fill be placed against the vertical foundation face
4. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions.
5. Passive pressure and sliding friction may be combined to resist sliding provided that either the passive pressure or frictional resistance is reduced by 50 percent.

The lateral earth pressures herein do not include any factor of safety and are not applicable for submerged soils/hydrostatic loading. Additional recommendations may be necessary if such conditions are to be included in the design.

Fill against foundation walls should be compacted to densities specified in the Earthwork section of this report. Compaction of each lift adjacent to walls should be accomplished with hand-operated tampers or other lightweight compactors.

DEEP FOUNDATIONS

Drilled Shaft Design Recommendations

Proposed bus supports and turning poles may be supported on drilled shaft piers. Total required embedment of the drilled shaft should be determined by the structural engineer based on structural loading and parameters provided in this report.

Drilled Shaft Axial and Lateral Loading

Drilled piers should have a minimum (center-to-center) spacing of three diameters. Closer spacing may require a reduction in axial load capacity. Axial capacity reduction can be determined by comparing the allowable axial capacity determined from the sum of individual piers in a group versus the capacity calculated using the perimeter and base of the pier group acting as a unit. The lesser of the two capacities should be used in design.

The allowable uplift capacities should only be based on the side friction of the shaft; however, the weight of the foundation should be added to these values to obtain the actual allowable uplift capacities for drilled shafts. Tensile reinforcement should extend to the bottom of shafts subjected to uplift loading.

Based on our review of the subsurface conditions in the area of the substation/BESS, our laboratory testing, and the Standard Penetration Test (SPT) results, engineering properties have been estimated for the soils conditions as shown in the following table. Due to potential for disturbance within the upper soils around the shaft, lateral and axial capacity of soils within the upper 2 feet should be neglected.

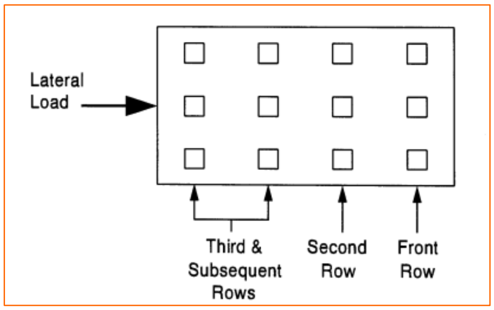
Recommended geotechnical parameters for lateral load analyses by others of drilled shaft foundations have been developed for use in the LPILE computer program. The following table summarizes input values for use in LPILE analyses along with allowable skin friction and end bearing. The values presented for allowable side friction and end bearing include a factor of safety of 2.5 and 3.0, respectively. LPILE estimated values of k_h may be used. Since deflection or a service limit criterion will most likely control lateral capacity design, no safety/resistance factor is included with the parameters.

L-Pile Soil Model[1,3]	Approximate Depth (feet)	S_u (psf) [2]	ϕ (°) [2]	γ (pcf) [2]	Allowable Unit Skin Friction (psf)	Allowable End Bearing (psf)
Sand	2-7½	---	28	110	80	--
Sand	7½-15	---	34	115	400	7,000
Sand	15-30	---	36	120	750	10,500
Sand	30-34	---	38	125	1,000	17,000
Sand	34-50	---	42	62.6	1,100	20,000

1. See **Subsurface Profile** in **Geotechnical Characterization** for more details on Stratigraphy.
2. Definition of Terms:
   S_u: Undrained shear strength
   ϕ: Internal friction angle,
   γ: Effective unit weight
3. Default LPILE k_h values are considered acceptable.

The load capacities provided herein are based on the stresses induced in the supporting soil strata. The structural capacity of the shafts/piles should be checked to assure they can safely accommodate the combined stresses induced by axial and lateral forces. Lateral deflections of shafts/piles should be evaluated using an appropriate analysis method, and will depend upon the pile's diameter, length, configuration, stiffness and "fixed head" or "free head" condition. We can provide additional analyses and estimates of lateral deflections for specific loading conditions upon request. The load-carrying capacity of shafts/piles may be increased by increasing the diameter and/or length.

When piers are used in groups, the lateral capacities of the piers in the second, third, and subsequent rows of the group should be reduced as compared to the capacity of a single, independent pier. Guidance for applying p-multiplier factors to the p values in the p-y curves for each row of pier foundations within a pier group are as follows:



1. Front row: $P_m = 0.8$;
2. Second row: $P_m = 0.4$
3. Third and subsequent row: $P_m = 0.3$.

For the case of a single row of piers supporting a laterally loaded grade beam, group action for lateral resistance of piers would need to be considered when spacing is less than three pier diameters (measured center-to-center). However, spacing closer than 3D (where D is the diameter of the pier) is not recommended due to the potential for the installation of a new pier disturbing an adjacent installed pier, likely resulting in axial capacity reduction.

Drilled Shaft Construction Considerations

Due to presence of sandy soils, caving of soils within the drilled shaft excavations should be anticipated. Temporary steel casing may be required to properly drill and clean shafts prior to concrete placement. The drilling speed should be reduced as necessary to minimize vibration and caving of the silty sand and poorly-graded sand materials. The contractor should be prepared to use casing or other approved means to prevent caving. The contractor should review the boring logs to make sure they are familiar with the anticipated subsurface conditions prior to beginning construction of the deep foundations.

As an alternative to temporary casing, the shaft excavation may be backfilled with a slurry mix in order to help stabilize sloughing sidewalls of the excavation, allowed to dry, and re-drilled through the backfill. The slurry mix design should be submitted to the Geotechnical Engineer for review and approval.

Drilled shaft foundation concrete should be placed immediately after completion of drilling and cleaning. Depending on the depth of the drilled shaft and seasonal fluctuations in groundwater, groundwater may be encountered during construction. If foundation concrete cannot be placed in dry conditions, a tremie should be used for concrete placement. Due to potential sloughing and raveling, foundation concrete quantities may exceed calculated geometric volumes.

If casing is used for drilled shaft construction, it should be withdrawn in a slow continuous manner maintaining a sufficient head of concrete to prevent infiltration of water or the creation of voids in shaft concrete. Shaft concrete should have a relatively high fluidity when placed in cased shaft holes or through a tremie. Shaft concrete with slump in the range of 6 to 8 inches is recommended.

We recommend that all drilled shaft installations be observed on a full-time basis by an experienced geotechnical engineer in order to evaluate that the soils encountered are consistent with the recommended design parameters. If the subsurface soil conditions encountered differ significantly from those presented in this report, supplemental recommendations will be required. The Geotechnical Engineer should observe the installation of drilled piers to verify the soil conditions and the diameter and depth of piers. Drilled piers should be constructed true and plumb.

Free-fall concrete placement in drilled piers will only be acceptable if provisions are taken to avoid striking the concrete on the sides of the hole or reinforcing steel. The use of a bottom-dump hopper, or an “elephant's trunk” discharging near the bottom of the hole where concrete segregation will be minimized, is recommended.

Drilled pier end bearing surfaces must be thoroughly cleaned prior to concrete placement. A representative of the Geotechnical Engineer should inspect the bearing surface and foundation pier configuration. If the subsurface soil conditions encountered differ significantly from those presented in this report, supplemental recommendations will be required.

Closely spaced piers should be drilled and filled alternately, allowing the concrete to set at least eight hours before drilling the adjacent pier. All excavations should be filled with concrete as soon after drilling as possible. In no event should pier holes be left open overnight. To prevent concrete from striking the walls of the pier and causing caving, the concrete should be placed with appropriate equipment so that the concrete is not allowed to fall freely more than 5 feet. All loose materials should be thoroughly cleaned from the bottom of the pier excavation. This is especially important because end bearing has been considered in determining the provided pier capacities. If casing is necessary and is utilized, then the casing should be withdrawn concurrently with the concrete placement.

ACCESS ROADWAYS

Compacted Native Soils Access Road Design Recommendations

Based upon the soil conditions encountered in the test borings, the use of on-site soils for construction of on-site roads is considered acceptable. Without the use of asphalt concrete or other hardened material to surface the roadways, there is an increased potential for erosion and rutting of the roadway to occur.

If high traffic loading is anticipated during wet seasons or when the upper soils are in saturated conditions, the proposed compacted soils road may experience wheel path rutting and depression on the order of 3 inches deep.

Construction of the un-surfaced roadways should consist of a minimum 10-inches of compacted on-site soils. More specifically, the upper ten inches of subgrade soils beneath existing grade, and any fill required to raise site grades should be moisture conditioned and compacted in accordance with **Fill Compaction Requirements**. The upper 10 inches beneath finish native soils road grade should also be compacted in accordance with **Fill Compaction Requirements**.

Positive drainage should be provided during construction and maintained throughout the life of the roadways. Proposed roadway design should maintain the integrity of the road and eliminate ponding. The un-surfaced roads are expected to function with periodic maintenance.

Aggregate Surface Roadway Design Recommendations

It is our understanding that aggregate surfaced roads will not be utilized during the construction of this project. Terracon can provide aggregate base sections if these roads are desired by the client.

Roadway Design and Construction Considerations

Regardless of the design, un-surfaced roadways will display varying levels of wear and deterioration. We recommend an implementation of a site inspection program at a frequency of at least once per year to verify the adequacy of the roadways. Preventative measures should be applied as needed for erosion control and re-grading. An initial site inspection should be completed approximately three months following construction.

Preventative maintenance should be planned and provided for through an on-going management program to enhance future roadway performance. Preventative maintenance activities are intended to slow the rate of deterioration, and to preserve the roadway investment.

Surfacing materials should not be placed when the surface is wet. Surface drainage should be provided away from the edge of roadways to reduce lateral moisture transmission into the subgrade.

If rut depths become excessive as construction work progresses, re-grading and re-compaction should be performed as necessary. Care should be taken to reduce or eliminate trafficking of the unpaved access road when the subgrade is wet as this will result in accelerated rutting conditions. Scarification, moisture treatment as necessary, and re-compaction of the roadways will likely be necessary as the roadways deteriorate.

Materials and construction of roadways for the project should be in accordance with the requirements and specifications of the California Department of Transportation or the applicable local governing body.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. The findings and recommendations presented in this report were prepared in a manner consistent with the standards of care and skill ordinarily exercised by members of its profession completing similar studies and practicing under similar conditions in the geographic vicinity and at the time these services have been performed. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Boring Quantity	Depth (feet)	Location
22	20.8 to 21½	Array Field Areas
4	31½ to 50.9	Substation Area
8	21½ to 41½	BESS Area

Boring Layout and Elevations: A handheld GPS device was utilized to locate exploration and test locations within an accuracy of 20+/- feet.

Subsurface Exploration Procedures: We advanced the borings with a track-mounted drill rig using continuous flight hollow stem augers. Four samples were generally obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter. Test samples were collected during drilling in general accordance with the appropriate ASTM methods using Standard Penetration Testing (SPT) and sampling using either standard split-spoon or Modified California samplers. A sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration was recorded as the Standard Penetration Test (SPT) resistance value, also referred to as N-values. The N-values are indicated on the boring logs at the test depths. The samples were placed in appropriate containers, taken to our soil laboratory for testing, and classified by a geotechnical engineer. In addition, we observed and recorded groundwater levels during drilling and sampling.

For safety purposes, all borings were backfilled with auger cuttings after their completion. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our field engineer prepared field boring logs as part of the excavation operations. These field logs include visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests to understand the engineering properties of the various soil and rock strata, as necessary, for this project. Procedural standards noted below are for reference to methodology in general. In some cases, variations to methods were applied because of local practice or professional judgment. Standards noted below include reference to other, related standards. Such references are not necessarily applicable to describe the specific test performed.

- ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- ASTM D1140 Standard Test Methods for Determining the Amount of Material Finer than 75-µm (No. 200) Sieve in Soils by Washing
- ASTM D4546 Standard Test Methods for One-Dimensional Consolidation Properties of Soils Using Incremental Loading
- ASTM D3080 Standard Test Method for Direct Shear Test of Soils Under Consolidated Drained Conditions
- ASTM D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
- ASTM D1883 Standard Test Method for California Bearing Ratio of Laboratory-Compacted Soils
- IEEE 422 Guide for Thermal Resistivity Measurements of Soil and Backfill Material
- Corrosivity testing included pH, chlorides, sulfates, and electrical lab resistivity

The laboratory testing program often included examination of soil samples by an engineer. Based on the material's texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System.

SITE LOCATION AND EXPLORATION PLANS

SITE LOCATION

Desert Breeze Solar ■ Hinkley, CA

March 21, 2023 ■ Terracon Project No. 60225173

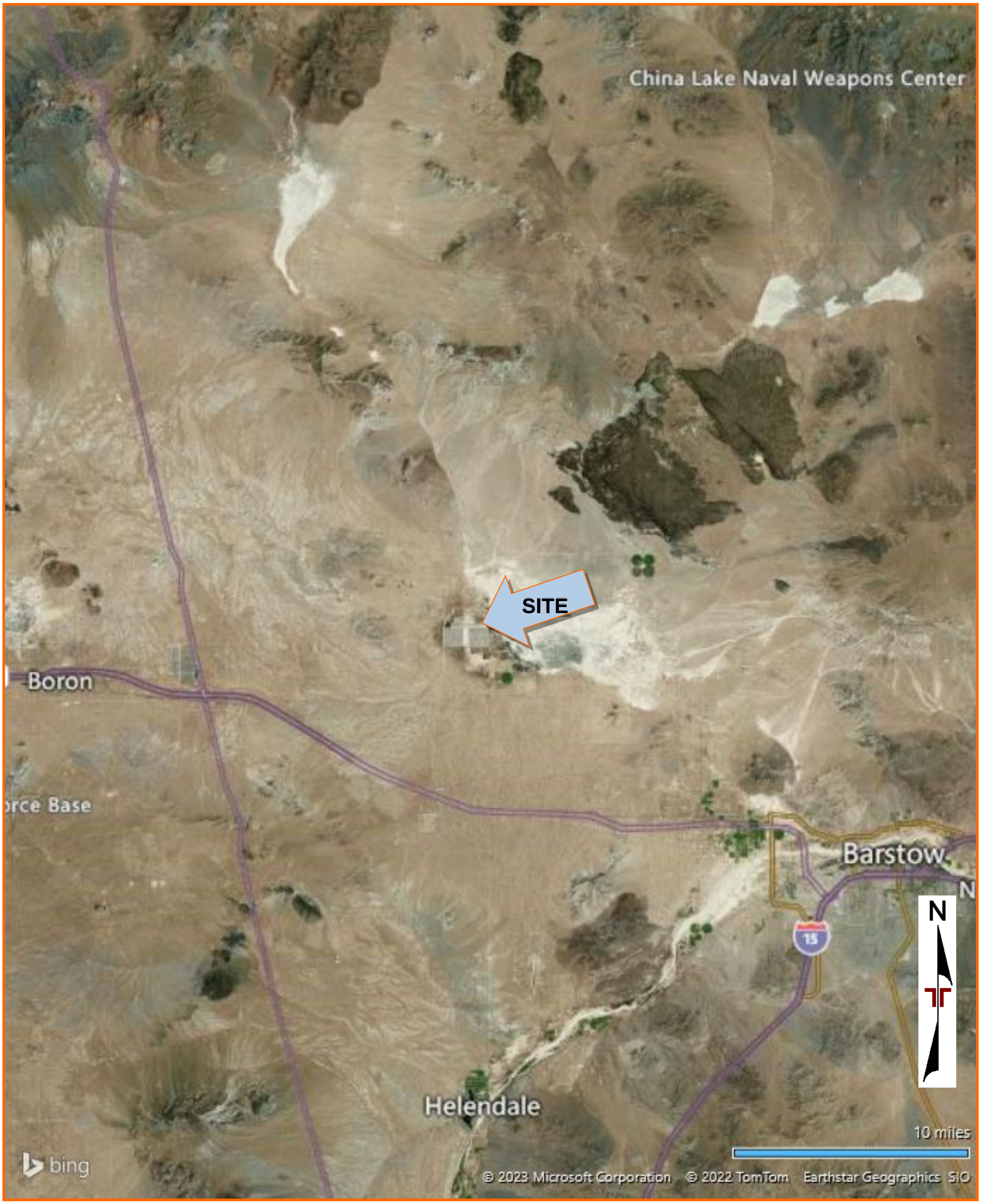


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS
NOT INTENDED FOR CONSTRUCTION PURPOSES

EXPLORATION PLAN – ARRAY AREAS

Desert Breeze Solar ■ Hinkley, CA

March 21, 2023 ■ Terracon Project No. 60225173

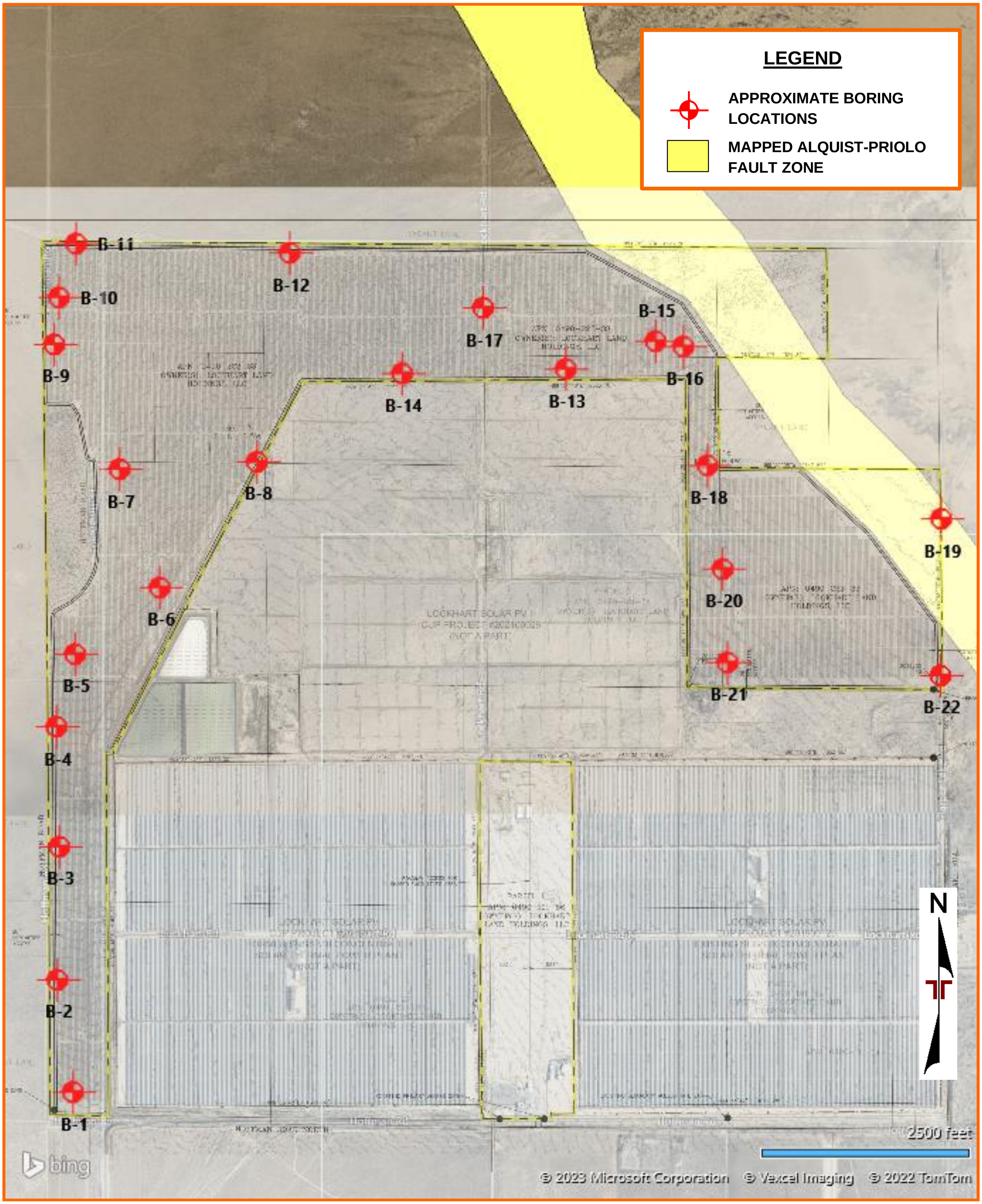
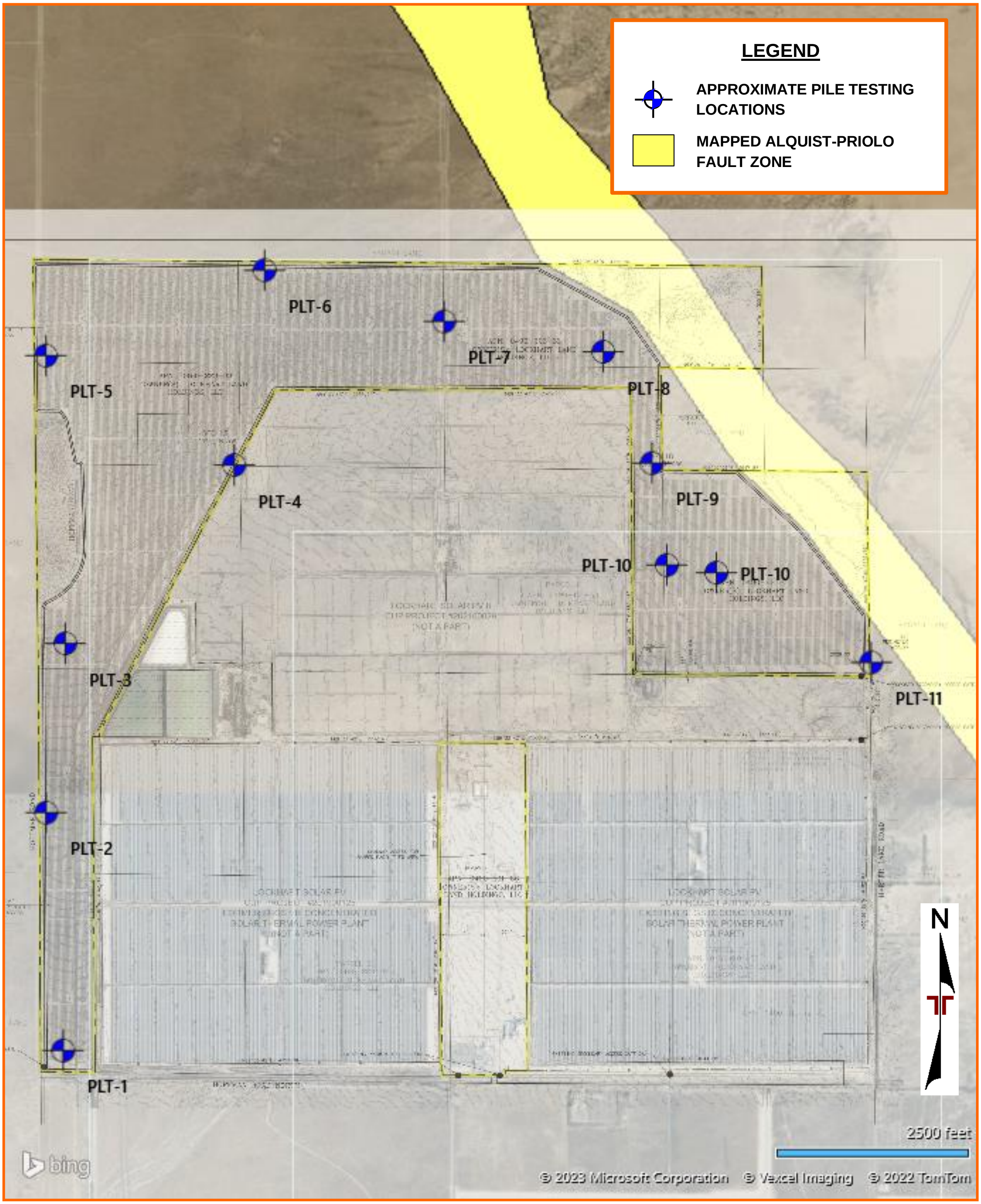


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN – ARRAY AREAS

Desert Breeze Solar ■ Hinkley, CA
March 21, 2023 ■ Terracon Project No. 60225173



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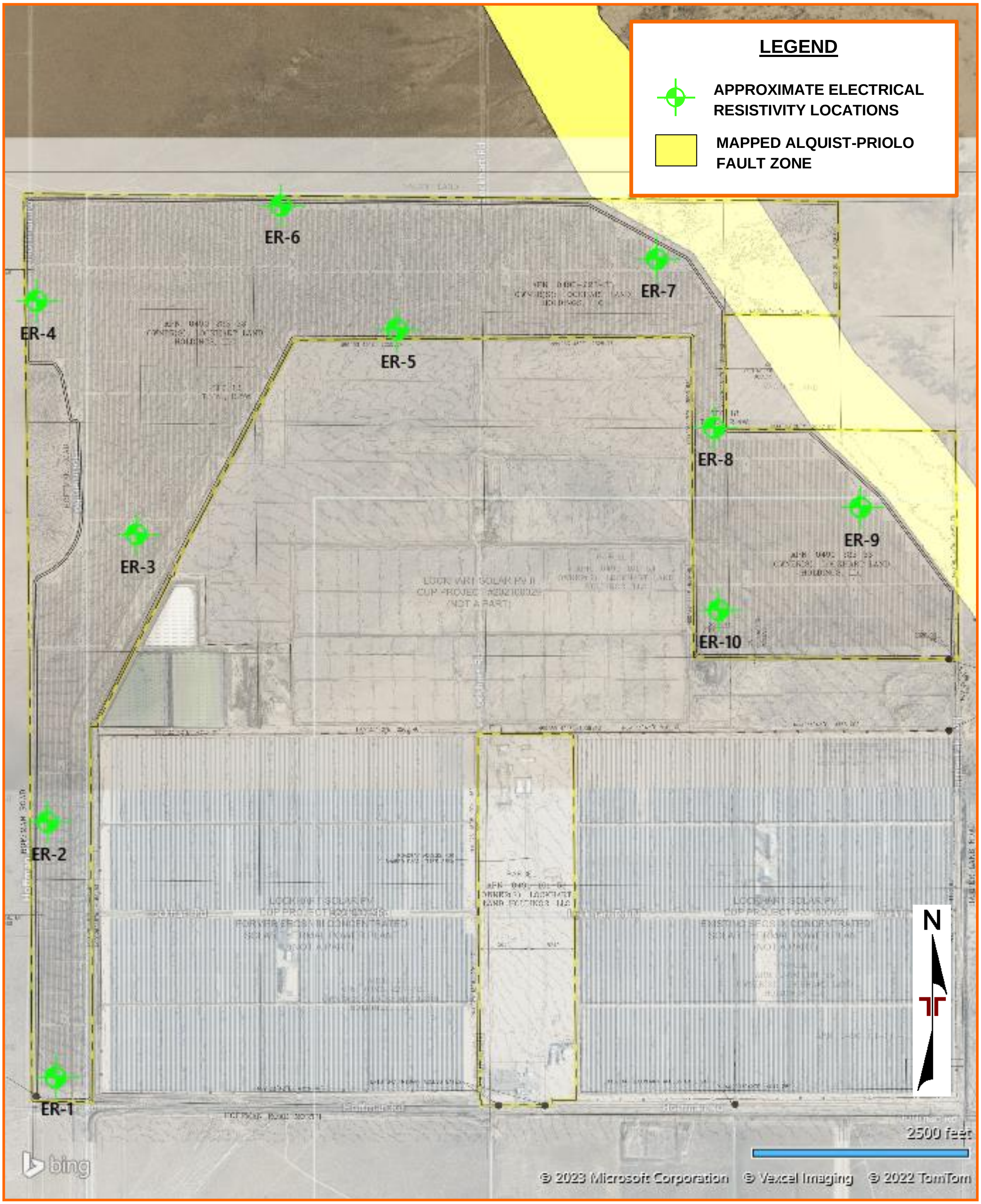
AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN – ARRAY AREAS

Desert Breeze Solar ■ Hinkley, CA

March 21, 2023 ■ Terracon Project No. 60225173



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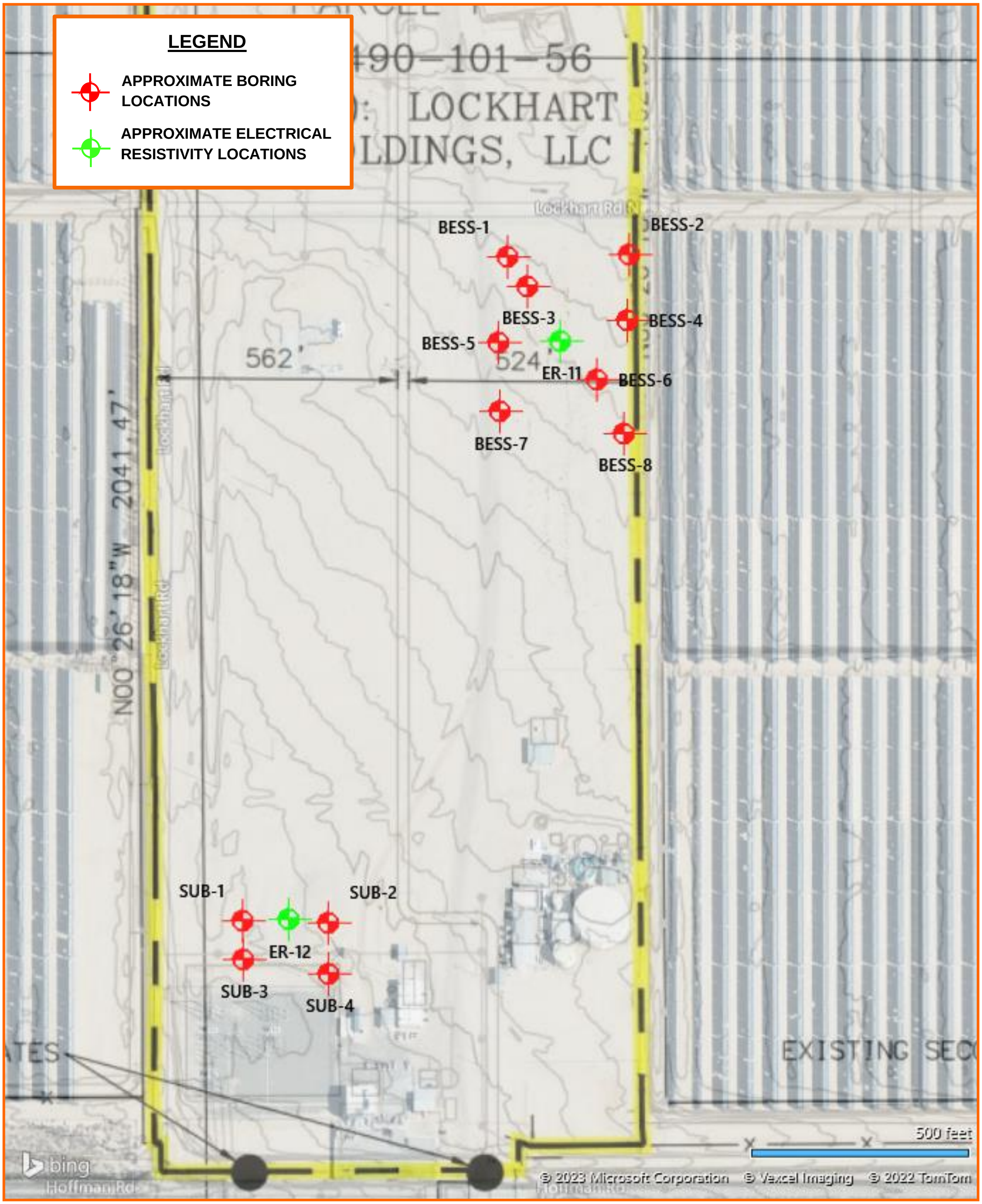
AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN – SUBSTAION AND BESS AREAS

Desert Breeze Solar ■ Hinkley, CA

March 21, 2023 ■ Terracon Project No. 60225173



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AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION RESULTS

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. BESS-1

Location: See Exploration Plan

Latitude: 35.0316° Longitude: -117.3454°

Depth (Ft.)	Material Description	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
0	**SILTY SAND (SM)**, brown									
		Hand								
	medium dense	Ring	8-9-10				3.8	113		
		Ring	9-12-17				3.5	111		
7.5	**POORLY GRADED SAND WITH SILT (SP-SM)**, brown to light brown, loose	SPT	3-3-5 N=8							
	medium dense	Ring	11-16-19				8.4	120		
	light brown	SPT	6-11-13 N=24							
	brown, dense	Ring	17-27-40							
21.5	***Boring Terminated at 21.5 Feet***									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
AS

Boring Started
01-04-2023

Boring Completed
01-04-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. BESS-2

Location: See Exploration Plan

Latitude: 35.0314° Longitude: -117.3462°

Graphic Log	Depth (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
		SILTY SAND (SM), brown to light brown										
				Grab							NP	19
		light brown, dry, loose		Ring	5-7-8				9.1	116		
	5.0	**POORLY GRADED SAND WITH SILT (SP-SM)**, light brown to tan, medium dense	5	Ring	8-12-20				2.3	118		
				Ring	10-17-23				2.9	125		
		brown to light brown	10	Ring	13-20-23				4.1	118		
		brown	15	SPT	6-12-16 N=28							
			20	Ring	16-24-27				5.3	115		
	25.0		25									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
While drilling

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
AS

Boring Started
01-04-2023

Boring Completed
01-04-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. BESS-2

Location: See Exploration Plan

Latitude: 35.0314° Longitude: -117.3462°

Depth (Ft.) / Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
CLAYEY SAND (SC), brown, moist, dense				10-22-20 N=42						31-17-14	15
medium dense	30			15-16-17				13.4	121		
light brown, very dense	35	▽		16-20-32 N=52						32-20-12	
41.0	40			30-50/6"				17.5	111		

Boring Terminated at 41 Feet

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
▽ While drilling

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
AS

Boring Started
01-04-2023

Boring Completed
01-04-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. BESS-3

Location: See Exploration Plan

Latitude: 35.0312° Longitude: -117.3454°

Depth (Ft.)	Material Description	Sample Depth (Ft.)	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown to tan		Hand								
	medium dense		Ring	7-11-10				4.5	119		
		5	Ring	9-12-14				3.9	111		
			Ring	4-17-25				10.3	126		
10.0	**POORLY GRADED SAND WITH SILT (SP-SM)**, orangish brown, medium dense	10	Ring	9-10-13				3.4	108		
		15	SPT	4-9-10 N=19							8
	dense	20	Ring	17-27-33				5.0	113		
25.0		25									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
While drilling

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
AS

Boring Started
01-04-2023

Boring Completed
01-04-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. BESS-3

Graphic Log	Location: See Exploration Plan Latitude: 35.0312° Longitude: -117.3454° Depth (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown, moist, medium dense				9-12-13 N=25							
	very dense	30			33-50/6"				11.5	120		
	brown to light brown, dense	35			12-19-20 N=39							
			▽									
		40			20-40-40				13.5	118		
	41.5											
	Boring Terminated at 41.5 Feet											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
▽ While drilling

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
AS

Boring Started
01-04-2023

Boring Completed
01-04-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. BESS-4

Location: See Exploration Plan

Latitude: 35.0311° Longitude: -117.3464°

Depth (Ft.) / Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Test Type	Compressive Strength (tsf)	Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
SILTY SAND (SM), brown											
			Grab								
loose			Ring	6-7-9				4.3	111		
medium dense	5		Ring	8-13-20				3.4	109		
7.5 **POORLY GRADED SAND WITH SILT (SP-SM)**, brown to light brown, medium dense			SPT	5-6-8 N=14							5
	10		Ring	12-18-20				4.5	111		
	15		SPT	6-10-13 N=23							
trace gravel	20		Ring	16-22-32				6.0	117		
21.5 ***Boring Terminated at 21.5 Feet***											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
AS

Boring Started
01-04-2023

Boring Completed
01-04-2023

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. BESS-5

Location: See Exploration Plan

Latitude: 35.0308° Longitude: -117.3456°

Depth (Ft.)	Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), brown			Grab sample								18
	loose			Modified California ring sampler	5-8-8				9.7	116		
	medium dense	5		Modified California ring sampler	14-10-18							
				Standard Penetration Test	7-11-13 N=24							
10.0	**POORLY GRADED SAND WITH SILT (SP-SM)**, brown to light brown, medium dense	10		Modified California ring sampler	13-20-26				4.8	114		
	medium dense	15		Standard Penetration Test	7-9-12 N=21							
21.5	dense	20		Modified California ring sampler	17-27-32				5.0	114		
	Boring Terminated at 21.5 Feet											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
AS

Boring Started
01-04-2023

Boring Completed
01-04-2023

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. BESS-6

Location: See Exploration Plan

Latitude: 35.0306° Longitude: -117.3464°

Depth (Ft.)	Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Test Type	Compressive Strength (tsf)	Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), brown	0–4		Bulk					5.7			
	medium dense	5			7-8-11				9.3	109		
	light brown to gray	7.5			11-20-20				6.5	122		
10.0	**POORLY GRADED SAND WITH SILT (SP-SM)**, light brown to orangish brown, medium dense	10			13-16-15				1.9	115		
		15			11-11-15 N=26							
20.0	**SILTY SAND (SM)**, brown dense	20			21-32-50				8.3	119		
		25										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
While drilling

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
AS

Boring Started
01-04-2023

Boring Completed
01-04-2023

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. BESS-6

Location: See Exploration Plan

Latitude: 35.0306° Longitude: -117.3464°

Graphic Log	Depth (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), brown *(continued)* medium dense				10-11-12 N=23							20
	wet, dense	30			25-38-50/6"				13.5	123		
			▽									
		35			11-15-22 N=37							14
	very dense	40			25-50/6"				16.4	113		
	41.0											

Boring Terminated at 41 Feet

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
▽ While drilling

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
AS

Boring Started
01-04-2023

Boring Completed
01-04-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. BESS-7

Location: See Exploration Plan

Latitude: 35.0305° Longitude: -117.3454°

Depth (Ft.)	Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown											
				Grab							NP	14
	loose			Ring	5-7-8				11.2	116		
		5		Ring	4-6-8				5.6	118		
	trace gravel, brown, medium dense			Ring	10-22-26				8.4	119		
10.0	**POORLY GRADED SAND (SP)**, trace silt, light brown to orangish brown, medium dense	10		Ring	10-14-14				2.4	110		
15.0	**POORLY GRADED SAND WITH SILT (SP-SM)**, orangish brown, medium dense	15		SPT	5-9-11 N=20							7
	dense	20		Ring	23-34-50/6"				5.2	113		
25.0		25										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
- While drilling
- At completion of drilling

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
AS

Boring Started
01-04-2023

Boring Completed
01-04-2023

Notes

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. BESS-7

Location: See Exploration Plan

Latitude: 35.0305° Longitude: -117.3454°

Depth (Ft.) / Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
POORLY GRADED SAND WITH SILT (SP-SM), brown to light brown, dense				11-15-20 N=35							
wet	30			17-33-35				11.2	121		
		▽ (while drilling)									
	35			7-14-23 N=37							
		▽ (at completion of drilling)									
41.5	40			20-43-50/6"				12.5	123		
Boring Terminated at 41.5 Feet											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
- ▽ While drilling
- ▽ At completion of drilling

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
AS

Boring Started
01-04-2023

Boring Completed
01-04-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. BESS-8

Location: See Exploration Plan

Latitude: 35.0305° Longitude: -117.3454°

Depth (Ft.)	Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), brown											
	loose				4-7-8				6.4	114		
	medium dense	5			8-10-20							
7.5	**POORLY GRADED SAND WITH SILT (SP-SM)**, brown, medium dense				13-15-20				5.7	111		
10.0	**SILTY SAND (SM)**, light brown, medium dense	10			15-21-24				3.9	107		
		15			9-10-15 N=25							13
	moist, dense	20			17-27-40				6.4	114		
21.5	***Boring Terminated at 21.5 Feet***											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
AS

Boring Started
01-04-2023

Boring Completed
01-04-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. SUB-1

Location: See Exploration Plan

Latitude: 35.0275° Longitude: -117.3483°

Depth (Ft.)	Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown to reddish black, dry											
				Grab								22
	medium dense				7-9-10				2.4	110		
		5			6-10-13				3.4	107		
7.5	**POORLY GRADED SAND WITH SILT (SP)**, light brown to reddish brown, dry, medium dense				13-17-22				5.5	121		
		10			13-19-21				4.3	113		
	dense	15			11-14-16 N=30							
	medium dense	20			17-23-27				3.8	116		
		25										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
While drilling

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JM

Boring Started
01-03-2023

Boring Completed
01-03-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. SUB-1

Location: See Exploration Plan

Latitude: 35.0275° Longitude: -117.3483°

Depth (Ft.)	Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	POORLY GRADED SAND WITH SILT (SP), light brown to reddish brown, dry, medium dense *(continued)*				5-9-17 N=26							
	very dense	30			33-50/6"				4.0	116		
		35			50-50-50 N=100				8.6			
40.0	**CLAYEY SAND (SC)** dark brown, moist, dense	40			25-35-50/5"				13.6	116		13
	light brown to reddish brown, wet	45	▽		13-21-25 N=46				12.8			
		50										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ While drilling

Notes

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JM

Boring Started
01-03-2023

Boring Completed
01-03-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. SUB-1

Graphic Log	Location: See Exploration Plan Latitude: 35.0275° Longitude: -117.3483° Depth (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	CLAYEY SAND (SC) *(continued)* light brown to reddish brown, wet, very dense 50.9				33-50/5"				14.5	111		
	Boring Terminated at 50.9 Feet											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
While drilling

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JM

Boring Started
01-03-2023

Boring Completed
01-03-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. SUB-2

Location: See Exploration Plan

Latitude: 35.0275° Longitude: -117.3477°

Depth (Ft.)	Description	Water Level Observations	Sample Type	Field Test Results	Test Type	Compressive Strength (tsf)	Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
0	**SILTY SAND (SM)**, brown, dry							5.4			16
	medium dense			6-8-11				5.4	94		
5.0	**POORLY GRADED SAND WITH SILT (SP-SM)**, brown, dry medium dense			9-11-20				2.4	112		
				5-10-17				2.7	104		
10				17-24-24				3.0	112		
15	dense			11-16-26 N=42							
20				22-30-40				4.3	116		
25											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JM

Boring Started
01-03-2023

Boring Completed
01-03-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. SUB-2

Location: See Exploration Plan

Latitude: 35.0275° Longitude: -117.3477°

Graphic Log	Depth (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
		POORLY GRADED SAND WITH SILT (SP-SM), brown, dry *(continued)* medium dense			11-14-15 N=29							
			30		20-27-31				5.0	115		
	31.5	***Boring Terminated at 31.5 Feet***										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JM

Boring Started
01-03-2023

Boring Completed
01-03-2023

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. SUB-3

Location: See Exploration Plan

Latitude: 35.0272° Longitude: -117.3483°

Depth (Ft.)	Description	Sample Type	Field Test Results	Test Type	Compressive Strength (tsf)	Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
0	**SILTY SAND (SM)**, light brown, dry									
2		Grab								19
2.5	medium dense		9-19-18				1.9	112		
5	red brown to light brown, dense		22-35-32				2.2	115		
7.5			18-35-40				3.4	128		23
10			10-30-40				4.5	113		
15		SPT	11-18-21 N=39							
20			22-48-22				5.2	115		
25										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater not encountered

Notes

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JM

Boring Started
01-03-2023

Boring Completed
01-03-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. SUB-3

Location: See Exploration Plan

Latitude: 35.0272° Longitude: -117.3483°

Graphic Log	Depth (Ft.) / Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown, dry *(continued)* medium dense				11-13-16 N=29							
	dense	30			28-33-43				4.4	114		
	31.5											
	Boring Terminated at 31.5 Feet											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JM

Boring Started
01-03-2023

Boring Completed
01-03-2023

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. SUB-4

Location: See Exploration Plan

Latitude: 35.0271° Longitude: -117.3477°

Depth (Ft.)	Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Test Type	Compressive Strength (tsf)	Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	POORLY GRADED SAND WITH SILT (SP-SM), light brown to reddish brown, dry			Grab								
	medium dense	5			5-8-16				2.8			
7.5	**SILTY SAND (SM)**, light brown to reddish brown medium dense				11-22-27				3.8	123		
		10			11-24-24				4.1	116		
	dense	15		SPT	7-13-20 N=33							
		20			28-38-35				7.8	117		
		25										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JM

Boring Started
01-03-2023

Boring Completed
01-03-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. SUB-4

Location: See Exploration Plan

Latitude: 35.0271° Longitude: -117.3477°

Depth (Ft.)	Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown to reddish brown *(continued)* dense				13-15-18 N=33							
	very dense	30			25-50/6"				4.1	122		
	dense	35			16-17-21 N=38				8.4			
40.0	**CLAYEY SAND (SC)**, light brown, dry dense	40			28-38-50				16.2	112		
	very dense	45			13-21-31 N=52				13.0			
		50										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JM

Boring Started
01-03-2023

Boring Completed
01-03-2023

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. SUB-4

Graphic Log	Location: See Exploration Plan Latitude: 35.0271° Longitude: -117.3477° Depth (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	CLAYEY SAND (SC), light brown, dry *(continued)* 50.9				40-50/5"				12.5	107		
	Boring Terminated at 50.9 Feet											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JM

Boring Started
01-03-2023

Boring Completed
01-03-2023

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-1

Location: See Exploration Plan

Latitude: 35.0268° Longitude: -117.3653°

Graphic Log	Depth (Ft.) / Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown											
				Grab								
	very dense				9-24-50/4"				4.6	94		
	dense	5			13-20-27 N=47							
	7.5											
	POORLY GRADED SAND WITH SILT (SP-SM), brown, very dense				19-50/3"				3.7	106		
		10			22-30-31 N=61							
		15			32-38-30 N=68							
		20			32-50/5"							
	20.9											
	Boring Terminated at 20.9 Feet											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-03-2023

Boring Completed
01-03-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-2

Location: See Exploration Plan

Latitude: 35.0305° Longitude: -117.3659°

Depth (Ft.)	Material Description	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
0.0	**SILTY SAND (SM)**, light brown										
	medium dense			16-22-24				1.7	110		
5.0	**POORLY GRADED SAND WITH SILT (SP-SM)**, brown, dense			11-18-30 N=48							
				13-34-50/6"				6.3	103		
10.0	**SILTY SAND (SM)**, light brown, very dense			21-27-27 N=54							
15.0	**POORLY GRADED SAND WITH SILT (SP-SM)**, brown, very dense			17-25-26 N=51							
	medium dense			11-9-4 N=13							
21.5	***Boring Terminated at 21.5 Feet***										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-03-2023

Boring Completed
01-03-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-3

Location: See Exploration Plan

Latitude: 35.0348° Longitude: -117.3659°

Depth (Ft.)	Material Description	Sample Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown, dry	0–2		Grab							NP	
	dense	2.5–4		Ring	22-42-43				1.7	115		
		5–6.5		SPT	14-19-19 N=38							
7.5	**POORLY GRADED SAND WITH SILT (SP-SM)**, brown, very dense	7.5–8.4		Ring	41-50/5"				1.4			
10.0	**SILTY SAND (SM)**, light brown, dense	10–11.5		SPT	20-21-21 N=42							
	very dense	15–16.5		SPT	22-32-36 N=68							
20.0	**POORLY GRADED SAND WITH SILT (SP-SM)**, light brown, dense	20–21.5		SPT	23-26-22 N=48							
21.5	***Boring Terminated at 21.5 Feet***											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-03-2023

Boring Completed
01-03-2023

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-4

Location: See Exploration Plan

Latitude: 35.0388° Longitude: -117.3660°

Depth (Ft.)	Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Test Type	Compressive Strength (tsf)	Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown, dry											
				Grab								24
	medium dense			Ring	15-21-18				5.1	107		
		5		SPT	3-6-10 N=16							
7.5	**POORLY GRADED SAND WITH SILT (SP-SM)**, light brown, dry, medium dense			Ring	11-11-16				0.7	102		
	dense	10		SPT	14-17-25 N=42							
15.0	**SILTY SAND (SM)**, light brown, dry, dense	15		SPT	14-17-25 N=42							
	very dense	20		SPT	19-34-22 N=56							
21.5	***Boring Terminated at 21.5 Feet***											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-03-2023

Boring Completed
01-03-2023

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-5

Location: See Exploration Plan

Latitude: 35.0412° Longitude: -117.3652°

Depth (Ft.)	Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown, dry											
	dense				7-22-45				3.2	114		
	medium dense	5			12-11-10 N=21							
					7-22-27				2.5	111		
10.0	**POORLY GRADED SAND WITH SILT (SP-SM)**, brown, dense	10			15-17-27 N=44							
15.0	**SILTY SAND (SM)**, light brown, dense	15			15-18-28 N=46							
	very dense	20			19-34-41 N=75							
21.5	***Boring Terminated at 21.5 Feet***											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-03-2023

Boring Completed
01-03-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-6

Location: See Exploration Plan

Latitude: 35.0433° Longitude: -117.3618°

Depth (Ft.)	Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown, dry			Grab								
	medium dense			Ring	11-18-29				6.5	105		
5.0	**POORLY GRADED SAND (SP)**, tan, medium dense	5		SPT	5-8-12 N=20							4
7.5	**POORLY GRADED SAND WITH SILT (SP-SM)**, tan, dense			Ring	18-30-40				3.9	108		
		10		SPT	15-22-18 N=40							
	brown	15		SPT	15-17-17 N=34							
20.0	**SILTY SAND (SM)**, light brown, very dense	20		SPT	20-32-29 N=61							
21.5	***Boring Terminated at 21.5 Feet***											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-03-2023

Boring Completed
01-03-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-7

Location: See Exploration Plan
Latitude: 35.0472° Longitude: -117.3634°

Graphic Log	Depth (Ft.) / Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown, dry											
				Grab							NP	
	medium dense				9-10-11				7.1	92		
	5.0	5										
	SILT (ML), trace sand, tan, dry, medium stiff				3-4-3 N=7							86
	7.5											
	SILTY SAND (SM), brown, medium dense				4-11-20				5.4	116		
	dense	10			12-20-21 N=41							
	medium dense	15			12-10-6 N=16							
	very dense	20			21-25-25 N=50							
	21.5											
	Boring Terminated at 21.5 Feet											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-04-2023

Boring Completed
01-04-2023

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-8

Location: See Exploration Plan

Latitude: 35.0475° Longitude: -117.3579°

Depth (Ft.)	Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	POORLY GRADED SAND WITH SILT (SP-SM), light brown, dry											
				Grab							NP	10
	medium dense			Ring	8-15-21				6.2	96		
5.0	**POORLY GRADED SAND (SP)**, light brown, dry, dense	5		SPT	20-18-18 N=36							
	reddish brown, very dense			Ring	40-50/6"				2.3	117		
10.0	**SILTY SAND (SM)**, light brown, dry, very dense	10		SPT	23-28-28 N=56							
	dense	15		SPT	13-18-24 N=42							
		20		SPT	13-14-23 N=37							
21.5	***Boring Terminated at 21.5 Feet***											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-17-2023

Boring Completed
01-17-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-9

Location: See Exploration Plan

Latitude: 35.0513° Longitude: -117.3661°

Depth (Ft.)	Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown			Grab								
2.5	**POORLY GRADED SAND (SP)**, tan, dry, medium dense			Ring	11-14-19				0.7			
5.0	**SILTY SAND (SM)**, light brown, dry, medium dense	5		SPT	6-9-9 N=18							
7.5	**POORLY GRADED SAND (SP)**, tan, dry, medium dense			Ring	15-22-24				0.8	99		
10.0	**SILTY SAND (SM)**, brown, dry, dense	10		SPT	15-23-24 N=47							
	grayish brown	15		SPT	17-24-24 N=48							35
20.8	tan, very dense	20		SPT	34-50/3"							
	Boring Terminated at 20.8 Feet											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-04-2023

Boring Completed
01-04-2023

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-10

Location: See Exploration Plan

Latitude: 35.0529° Longitude: -117.3659°

Depth (Ft.)	Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	POORLY GRADED SAND (SP), light brown, dry											
				Grab (hand)							NP	
	medium dense			Sampler	14-21-21				1.3			
		5		SPT	6-8-11 N=19							
7.5	**SILTY SAND (SM)**, light brown, dense			Sampler	38-34-50/6"				1.4	104		
	brown, dry	10		SPT	11-14-16 N=30							
	dense	15		SPT	18-23-25 N=48							
21.0	very dense	20		SPT	31-50/6"							
	Boring Terminated at 21 Feet											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-04-2023

Boring Completed
01-04-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-11

Location: See Exploration Plan

Latitude: 35.0546° Longitude: -117.3652°

Depth (Ft.)	Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	POORLY GRADED SAND WITH SILT (SP-SM), tan, dry											
				Grab								8
	medium dense			Ring	6-11-18				0.5			
5.0	**POORLY GRADED SAND (SP)**, tan, dry, medium dense	5		SPT	9-14-14 N=28							
				Ring	37-20-17				1.5	113		
10.0	**SILTY SAND (SM)**, brown, dry, dense	10		SPT	10-13-20 N=33							
		15		SPT	16-20-20 N=40							
20.5	very dense	20		SPT	50/6"							
	Boring Terminated at 20.5 Feet											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-04-2023

Boring Completed
01-04-2023

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-12

Location: See Exploration Plan

Latitude: 35.0543° Longitude: -117.3566°

Graphic Log Depth (Ft.)	Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown, dry											
				[hand symbol]								
	medium dense				11-16-18				7.9	114		
		5			7-10-10 N=20							
7.5	**POORLY GRADED SAND (SP)**, brown, dry, medium dense				13-21-35				1.7			
	dense	10			15-15-18 N=33							
15.0	**POORLY GRADED SAND WITH SILT (SP-SM)**, light brown, dry, dense	15			18-22-26 N=48							
	very dense	20			36-37-37 N=74							
21.5	***Boring Terminated at 21.5 Feet***											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-05-2023

Boring Completed
01-05-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-13

Location: See Exploration Plan

Latitude: 35.0505° Longitude: -117.3456°

Depth (Ft.)	Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Test Type	Compressive Strength (tsf)	Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown, dry											
				Grab							NP	
	dense			Ring	17-33-37				5.8	114		
	brown	5		SPT	12-19-22 N=41							
7.5	**POORLY GRADED SAND (SP-SM)**, light brown, dry, dense			Ring	13-37-48				7.8	102		
		10		SPT	11-14-17 N=31							
15.0	**SILTY SAND (SM)**, light brown, dry, dense	15		SPT	11-21-22 N=43							
	trace clay, medium dense	20		SPT	9-10-14 N=24							
21.5	***Boring Terminated at 21.5 Feet***											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-05-2023

Boring Completed
01-05-2023

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-14

Location: See Exploration Plan

Latitude: 35.0504° Longitude: -117.3521°

Depth (Ft.)	Material Description	Water Level Observations	Sample Type	Field Test Results	Test Type	Compressive Strength (tsf)	Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
0.0	**SILTY SAND (SM)**, light brown, dry										
	brown, dense		Hand								
			Ring	29-37-44				1.1	108		
5			SPT	10-16-16 N=32							13
	brown gray, medium dense		Ring	17-18-24				7.7	119		
10.0	**POORLY GRADED SAND (SP)**, light brown, dry, medium dense		SPT	6-10-19 N=29							
15	dense		SPT	12-16-20 N=36							
20.0	**SILTY SAND WITH GRAVEL (SM)**, brown, dry, very dense		SPT	12-31-20 N=51							
21.5	***Boring Terminated at 21.5 Feet***										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-04-2023

Boring Completed
01-04-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-15

Location: See Exploration Plan

Latitude: 35.0514° Longitude: -117.3420°

Graphic Log	Depth (Ft.) / Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), fine grained, brown, dry											
				Grab							NP	
	medium dense			Ring	13-22-24				6.3	112		
	dense	5		SPT	8-14-16 N=30							
	light brown, very dense			Ring	42-50/6"				6.4	113		
	tan, medium dense	10		SPT	9-11-17 N=28							
	dense	15		SPT	13-12-18 N=30							
	medium dense	20		SPT	11-12-9 N=21							
	21.5 ***Boring Terminated at 21.5 Feet***											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-17-2023

Boring Completed
01-17-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-16

Location: See Exploration Plan

Latitude: 35.0512° Longitude: -117.3409°

Depth (Ft.)	Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown, dry											
				Grab								21
	medium dense			Ring	10-19-30				5.1	117		
		5		SPT	10-12-14 N=26							
	dense			Ring	21-30-33				7.9	102		
10.0	**POORLY GRADED SAND (SP)**, light brown, dry, dense	10		SPT	16-19-19 N=38							
15.0	**SILTY SAND (SM)**, light browm, dry, dense	15		SPT	13-14-18 N=32							
	medium dense	20		SPT	7-5-8 N=13							
21.5	***Boring Terminated at 21.5 Feet***											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-17-2023

Boring Completed
01-17-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-17

Location: See Exploration Plan

Latitude: 35.0525° Longitude: -117.3489°

Depth (Ft.)	Material Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), tan, dry											
				Grab								
	dense			Ring	9-24-50/6"				2.8	112		
5.0	**POORLY GRADED SAND (SP)**, brown, dry, dense	5		SPT	14-22-22 N=44							
				Ring	42-36-50/6"				4.4	113		
10.0	**POORLY GRADED SAND WITH SILT (SP-SM)**, light brown, dry, dense	10		SPT	20-25-22 N=47							
	dry, very dense	15		SPT	15-23-29 N=52							
	dense	20		SPT	12-17-18 N=35							
21.5	***Boring Terminated at 21.5 Feet***											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-05-2023

Boring Completed
01-05-2023

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-18

Location: See Exploration Plan

Latitude: 35.0473° Longitude: -117.3399°

Depth (Ft.)	Description	Water Level Observations	Sample Type	Field Test Results	Test Type	Compressive Strength (tsf)	Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), brown, dry		Grab							NP	19
	reddish brown, medium dense		Ring	16-23-21				3.6	111		
5	dense		SPT	12-14-16 N=30							
	brown, very dense		Ring	30-50/6"				5.7	117		
10	dense		SPT	10-16-30 N=46							
15			SPT	15-13-25 N=38							
20.0	**POORLY GRADED SAND (SP)**, light brown, dry, dense		SPT	13-14-18 N=32							
21.5	***Boring Terminated at 21.5 Feet***										

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-17-2023

Boring Completed
01-17-2023

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-19

Location: See Exploration Plan

Latitude: 35.0456° Longitude: -117.3305°

Depth (Ft.)	Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Test Type	Compressive Strength (tsf)	Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown, dry			Grab							NP	
	medium dense				4-7-15				12.1	115		
		5			5-6-11 N=17							
7.5	**LEAN CLAY WITH SAND (CL)**, dark brown, very stiff				7-11-30				18.0	103		
		10			5-6-11 N=17							79
15.0	**SILTY SAND (SM)**, brown, dry, medium dense	15			3-6-9 N=15							
			▽									
20.0	**POORLY GRADED SAND (SP)**, brown, wet, dense	20			8-12-20 N=32							
21.5	***Boring Terminated at 21.5 Feet***											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
▽ While drilling

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-17-2023

Boring Completed
01-17-2023

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-20

Location: See Exploration Plan

Latitude: 35.0439° Longitude: -117.3393°

Depth (Ft.)	Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown, dry			Grab							NP	
	very dense			Ring	21-41-50/5"				3.8	112		
5.0	**POORLY GRADED SAND (SP)**, reddish brown, dense	5		SPT	20-22-21 N=43							
7.5	**SILTY SAND (SM)**, browm, dry, medium dense			Ring	24-32-25				4.1	115		
		10		SPT	4-7-11 N=18							
15.0	**POORLY GRADED SAND (SP)**, reddish brown, dry, dense	15		SPT	16-16-18 N=34							
		20		SPT	15-18-15 N=33							
21.5	***Boring Terminated at 21.5 Feet***											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-17-2023

Boring Completed
01-17-2023

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-21

Location: See Exploration Plan

Latitude: 35.0409° Longitude: -117.3391°

Depth (Ft.)	Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
	SILTY SAND (SM), light brown, dry											
	dense				21-33-44				2.9	116		
5.0	**POORLY GRADED SAND (SP)**, reddish brown, medium dense	5			7-13-15 N=28							
	dense				6-30-40				4.2	113		
10.0	**SILTY SAND (SM)**, tan, dry, medium dense	10			10-13-14 N=27							
15.0	**POORLY GRADED SAND (SP)**, light brown, dry, very dense	15			17-24-35 N=59							
	reddish brown, dense	20			20-20-20 N=40							
21.5	***Boring Terminated at 21.5 Feet***											

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater not encountered

Notes

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-17-2023

Boring Completed
01-17-2023

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Boring Log No. B-22

Location: See Exploration Plan

Latitude: 35.0404° Longitude: -117.3306°

Depth (Ft.)	Material Description	Water Level Observations	Sample Type	Field Test Results	Strength Test: Test Type	Strength Test: Compressive Strength (tsf)	Strength Test: Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI	Percent Fines
0.0–5.0	**SILTY SAND (SM)**, light brown, dry										
	very dense		Grab / Ring	30-50/5"				2.2	103	NP	
5.0–10.0	**POORLY GRADED SAND (SP)**, light brown, dry, dense		SPT	18-19-20 N=39							
			Ring	21-37-40				3.8	113		
10.0–15.0	**POORLY GRADED SAND (SM)**, light brown, dry, medium dense		SPT	7-9-13 N=22							
15.0–20.0	**POORLY GRsded sand (SP)**, reddish brown, dry, dense		SPT	14-17-18 N=35							
20.0–21.5	**SILTY SAND (SM)**, brown, dry, medium dense		SPT	11-17-12 N=29							

Boring Terminated at 21.5 Feet

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
CME-75

Hammer Type
Automatic

Driller
2R

Logged by
JB

Boring Started
01-17-2023

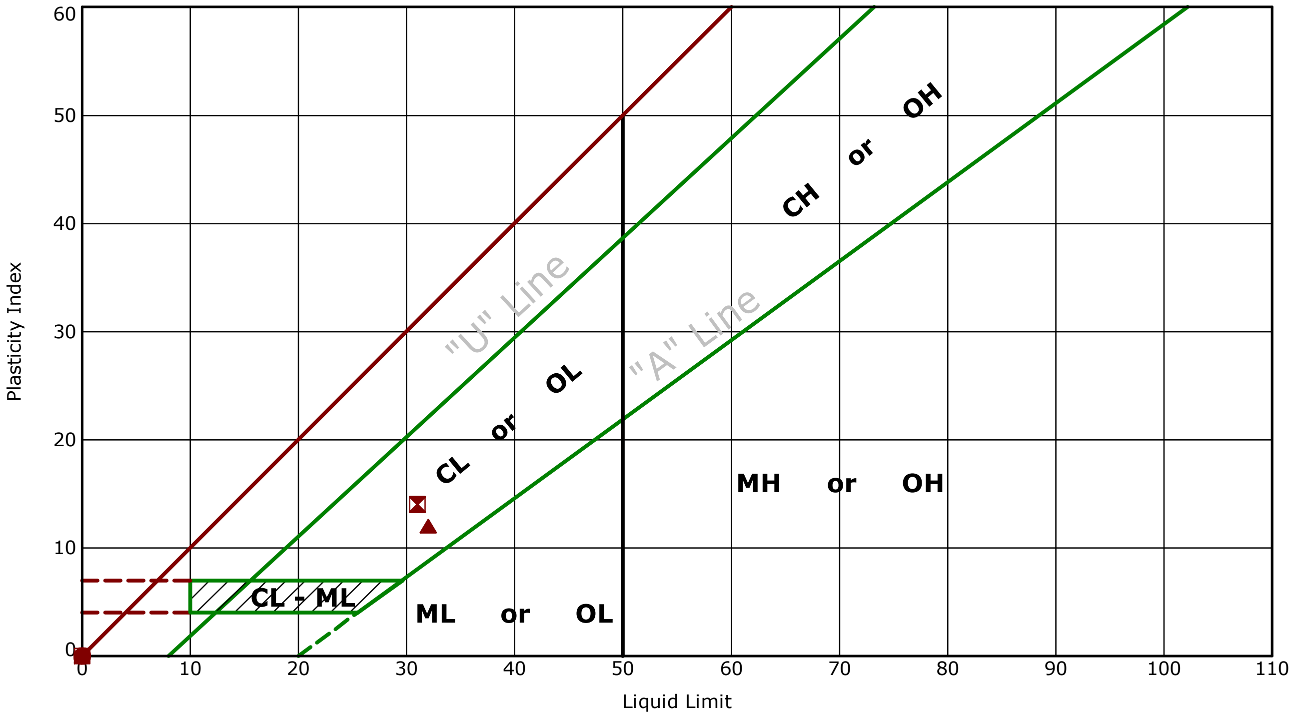
Boring Completed
01-17-2023

Desert Breeze Solar
43880 Harper Lake Rd | Hinkley, CA
Terracon Project No. 60225173

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

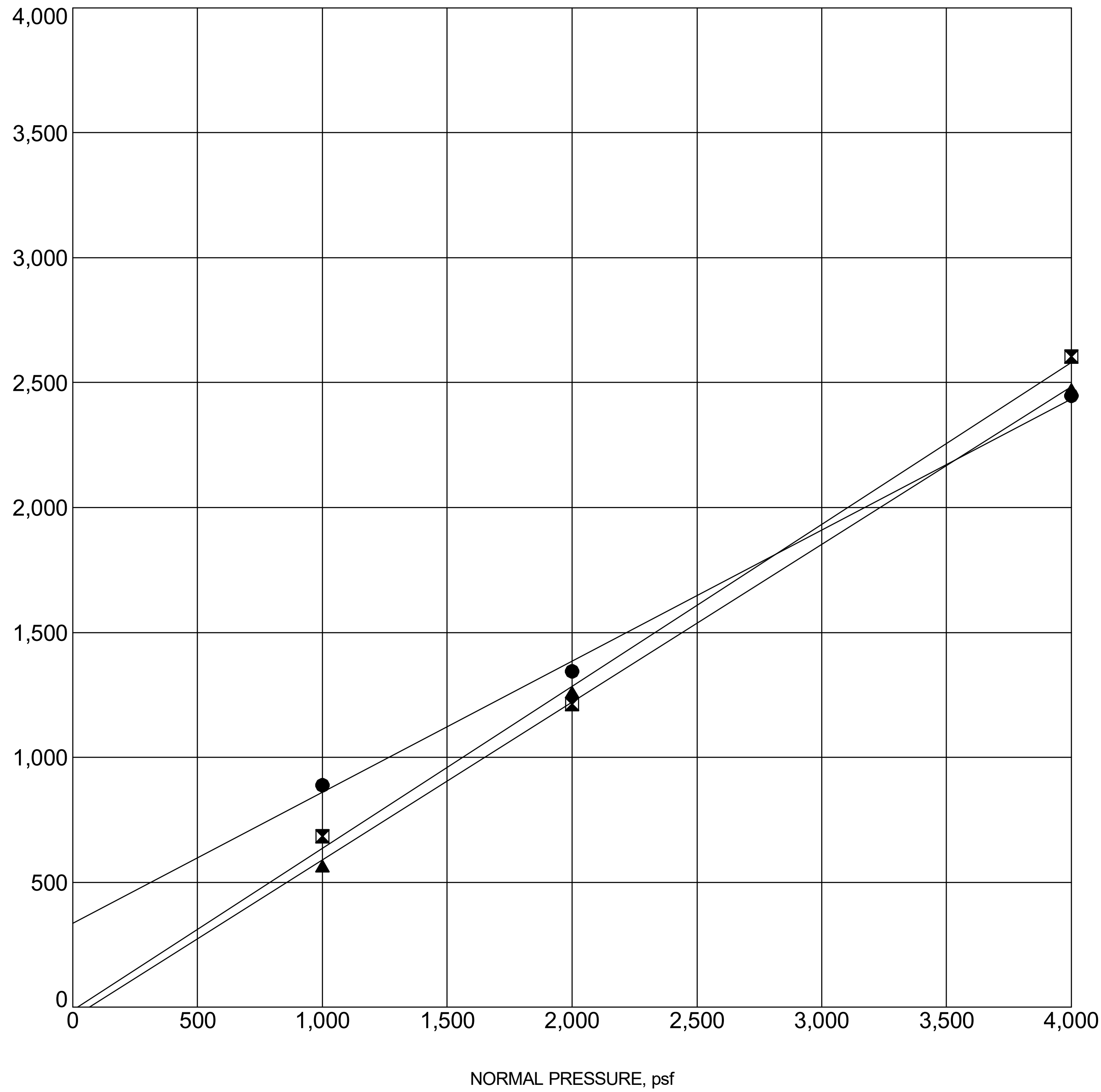
Atterberg Limit Results

ASTM D4318



	Boring ID	Depth (Ft)	LL	PL	PI	Fines	USCS	Description
	BESS-2	0 - 5	NP	NP	NP	18.6	SM	SILTY SAND
	BESS-2	25 - 26.5	31	17	14	14.7	SC	CLAYEY SAND
	BESS-2	35 - 36.5	32	20	12		SC	CLAYEY SAND
	BESS-7	0 - 5	NP	NP	NP	14.1	SM	SILTY SAND
	B-3	0 - 5	NP	NP	NP		SM	SILTY SAND
	B-7	0 - 5	NP	NP	NP		SM	SILTY SAND
	B-8	0 - 5	NP	NP	NP	9.7	SP-SM	POORLY GRADED SAND with SILT
	B-10	0 - 5	NP	NP	NP		SP	POORLY GRADED SAND
	B-13	0 - 5	NP	NP	NP		SM	SILTY SAND
	B-15	0 - 5	NP	NP	NP		SM	SILTY SAND
	B-18	0 - 5	NP	NP	NP	18.8	SM	SILTY SAND
	B-19	0 - 5	NP	NP	NP		SM	SILTY SAND
	B-20	0 - 5	NP	NP	NP		SM	SILTY SAND
	B-22	0 - 5	NP	NP	NP		SM	SILTY SAND

DIRECT SHEAR TEST ASTM D3080



	Specimen Identification		Classification	γ_d, pcf	WC,%	c, psf	ϕ°
●	SUB-1	5.0ft	SILTY SAND (SM)	107	3	336	28
⧗	B-18	2.5ft	SILTY SAND (SM)	111	4	0	33
▲	B-20	2.5ft	SILTY SAND (SM)	112	4	0	32

PROJECT: Desert Breeze Solar

SITE: 43880 Harper Lake Rd
Hinkley, CA

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

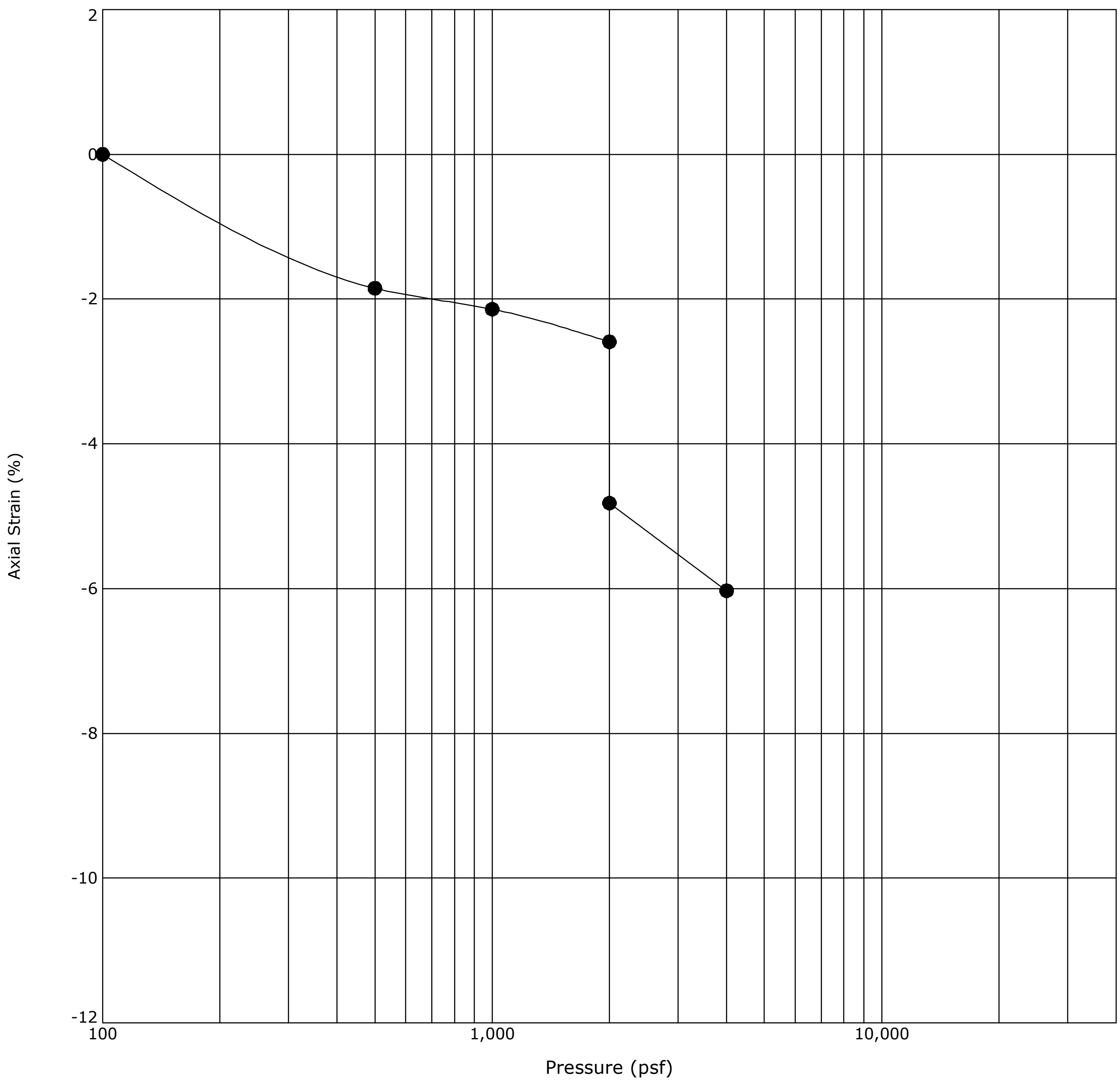
PROJECT NUMBER: 60225173

CLIENT: Terra-Gen Development Company LLC
San Diego, CA

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Swell Consolidation Test

ASTM D2435



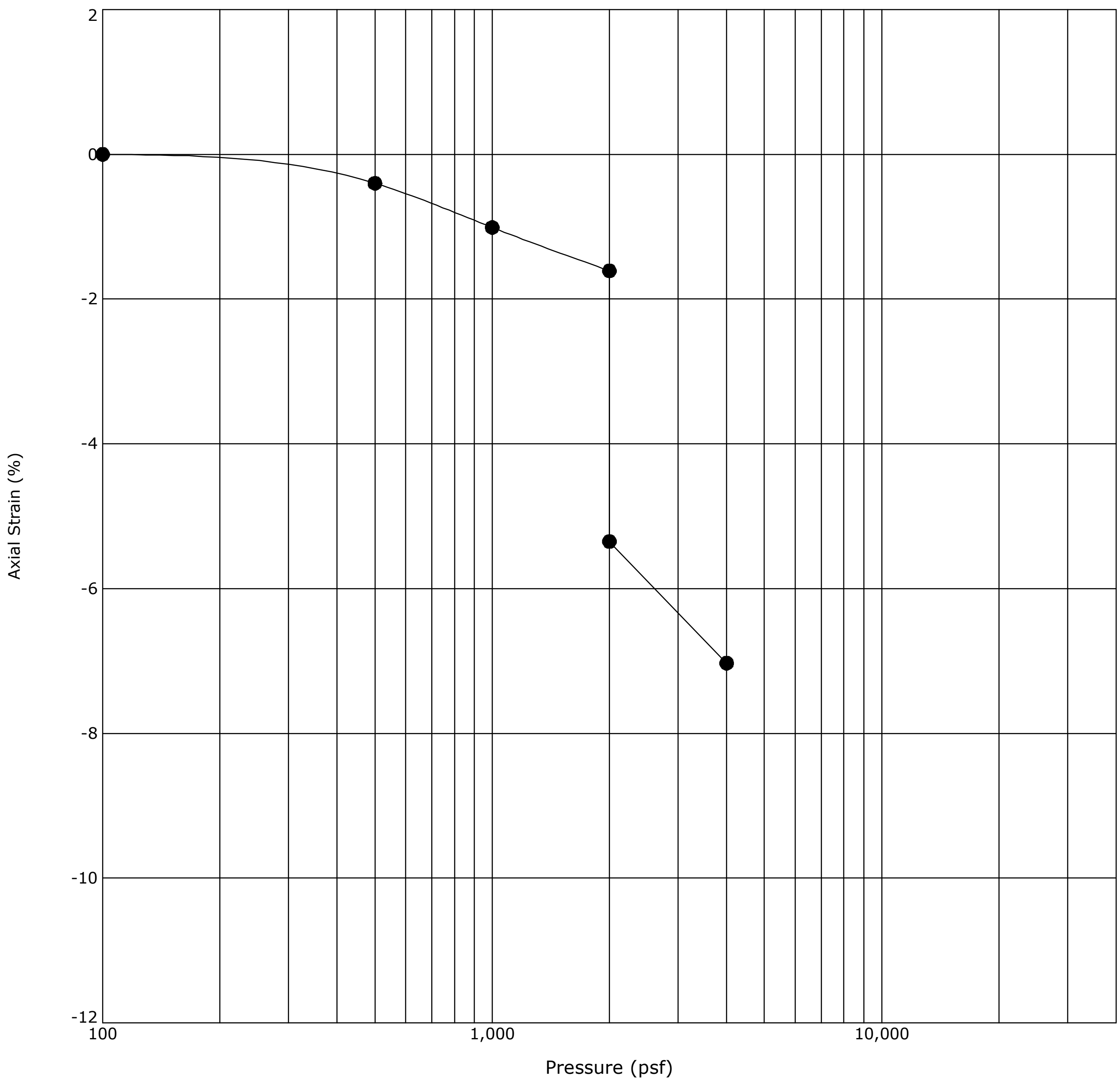
	Boring ID	Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	BESS-2	2.5 - 4	Silty Sand	SM	116	9.1

Notes: water added at 2,000 psf.

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Swell Consolidation Test

ASTM D2435



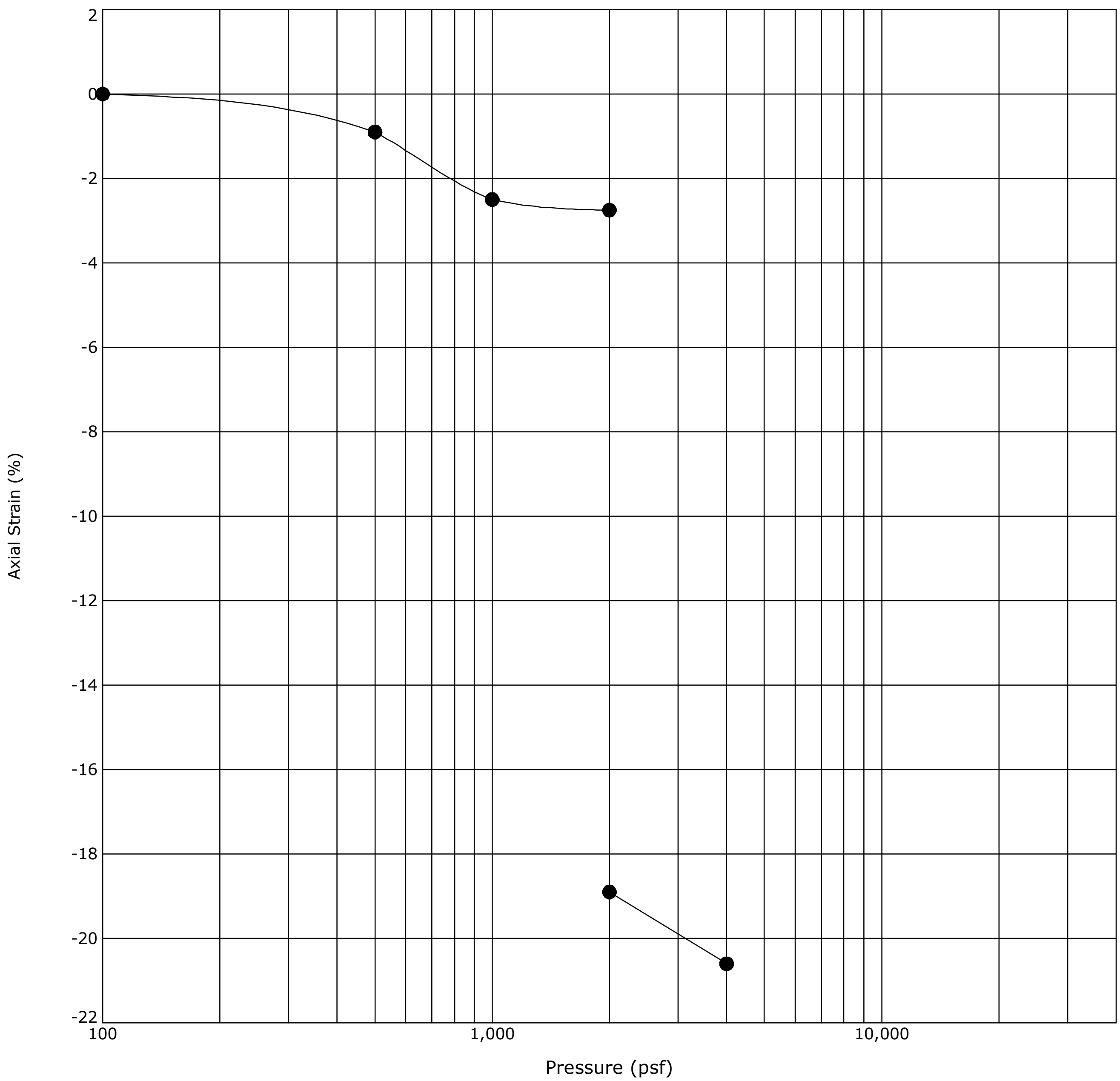
	Boring ID	Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	BESS-7	5 - 6.5	Silty Sand	SM	118	5.6

Notes: water added at 2,000 psf.

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Swell Consolidation Test

ASTM D2435



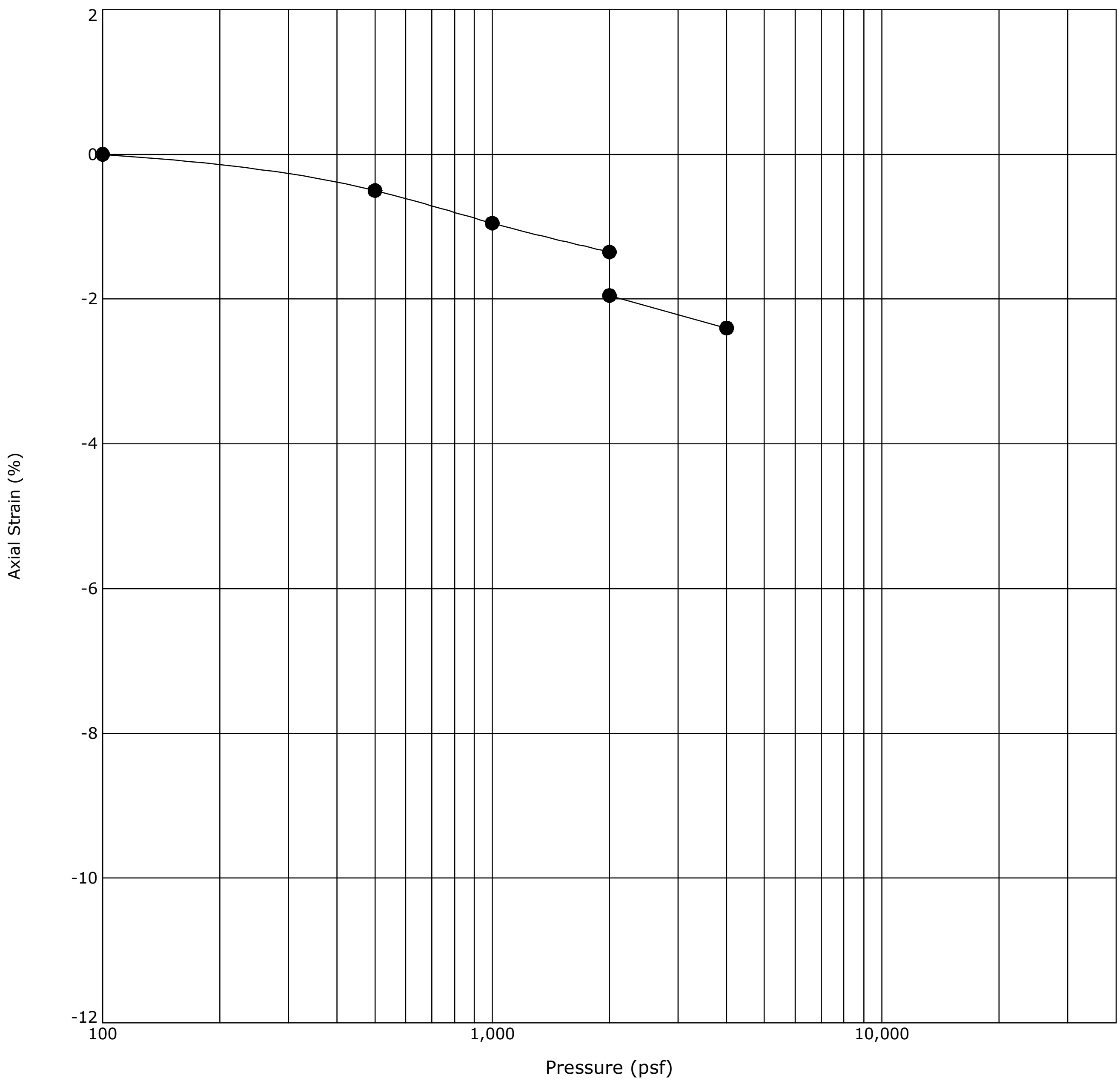
Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	SUB-2	2.5 - 4	Silty Sand	SM	94	5.4

Notes: water added at 2,000 psf.

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Swell Consolidation Test

ASTM D2435



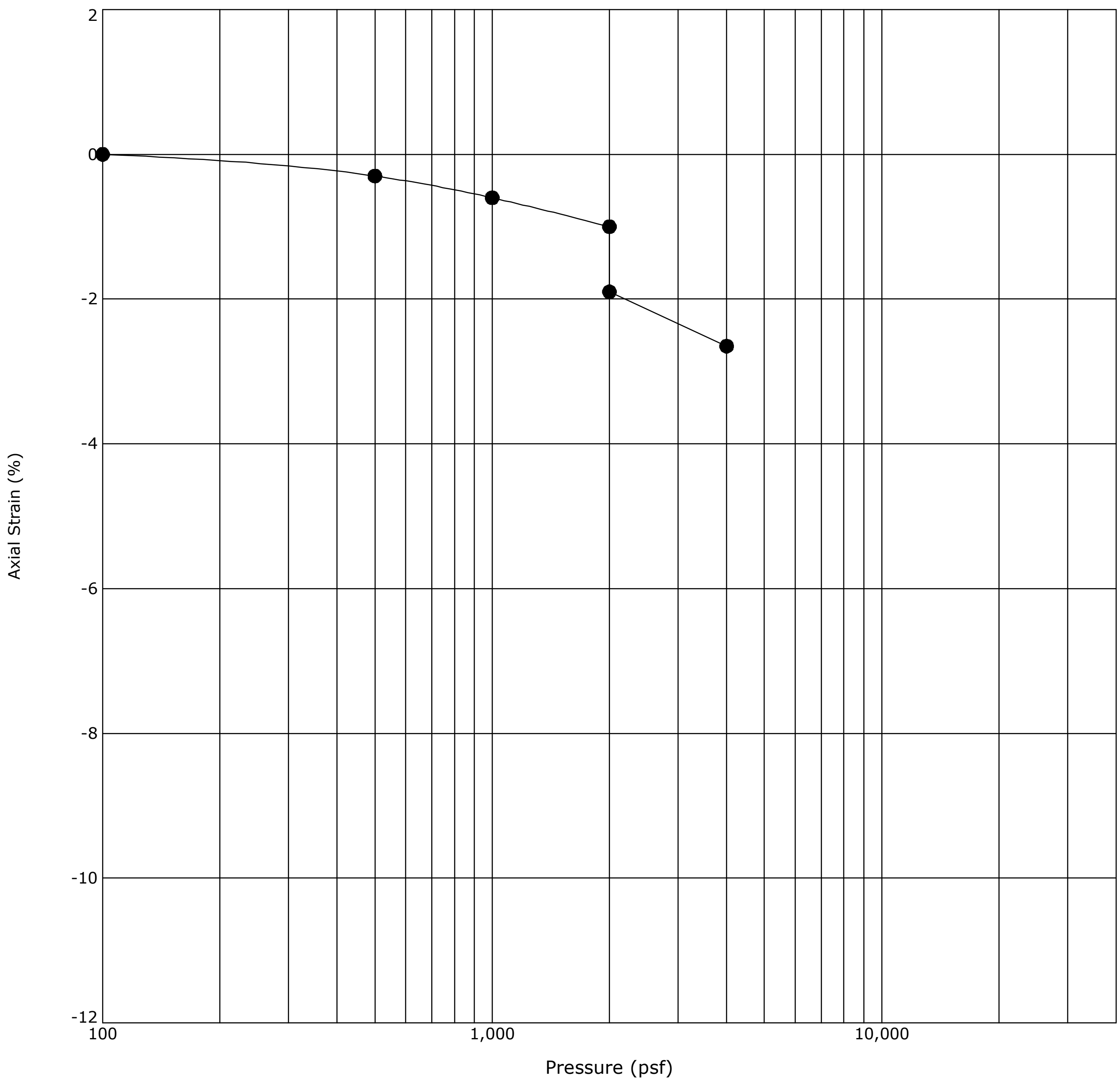
	Boring ID	Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	SUB-2	5 - 6.5	Poorly graded sand with silt (SP-SM)		112	2.4

Notes: water added at 2,000 psf.

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Swell Consolidation Test

ASTM D2435



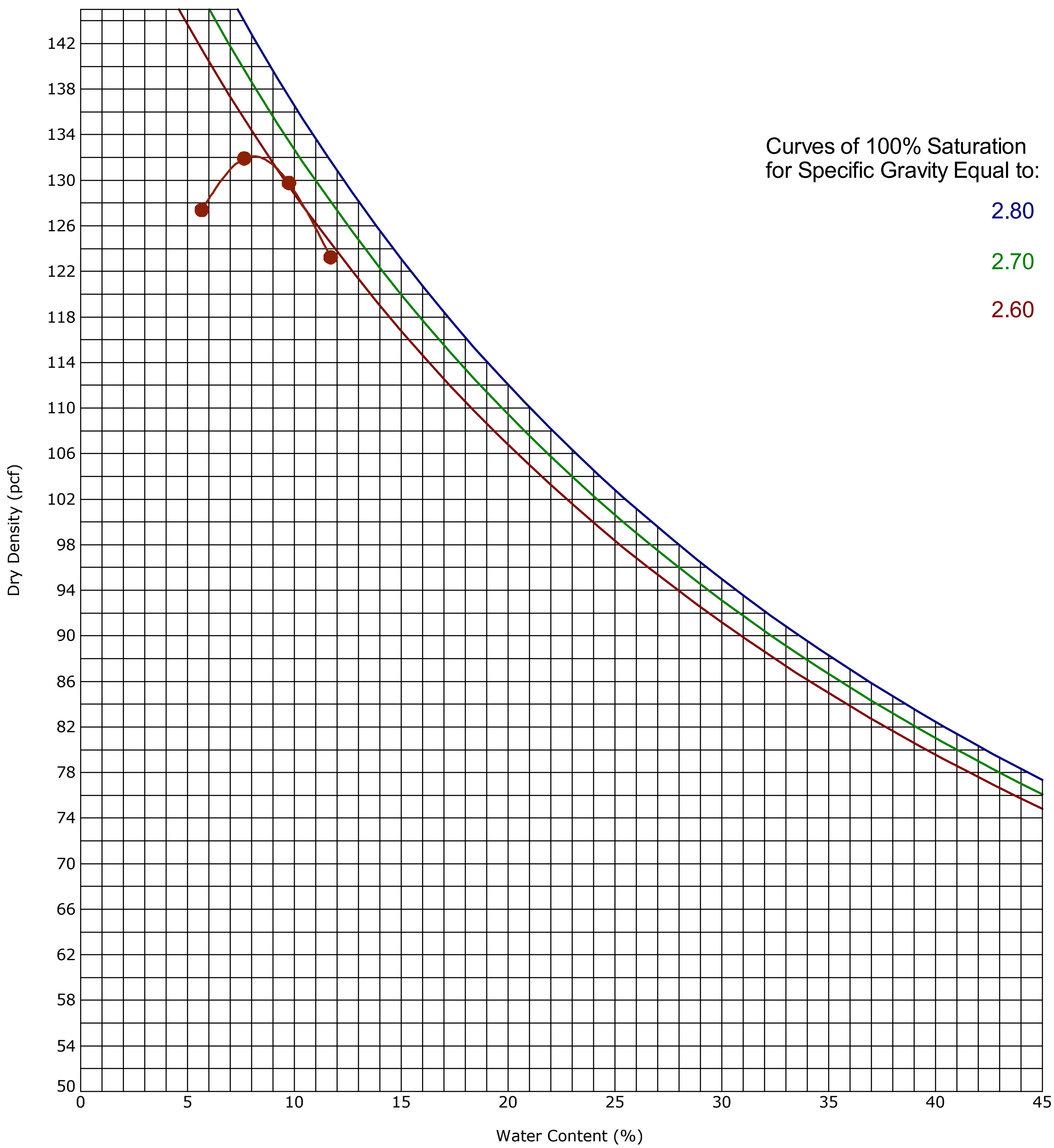
Boring ID		Depth (Ft)	Description	USCS	γ_d(pcf)	WC (%)
●	SUB-2	7.5 - 9	Poorly graded sand with silt (SP-SM)		104	2.7

Notes: water added at 2,000 psf.

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Moisture-Density Relationship

ASTM D698/D1557



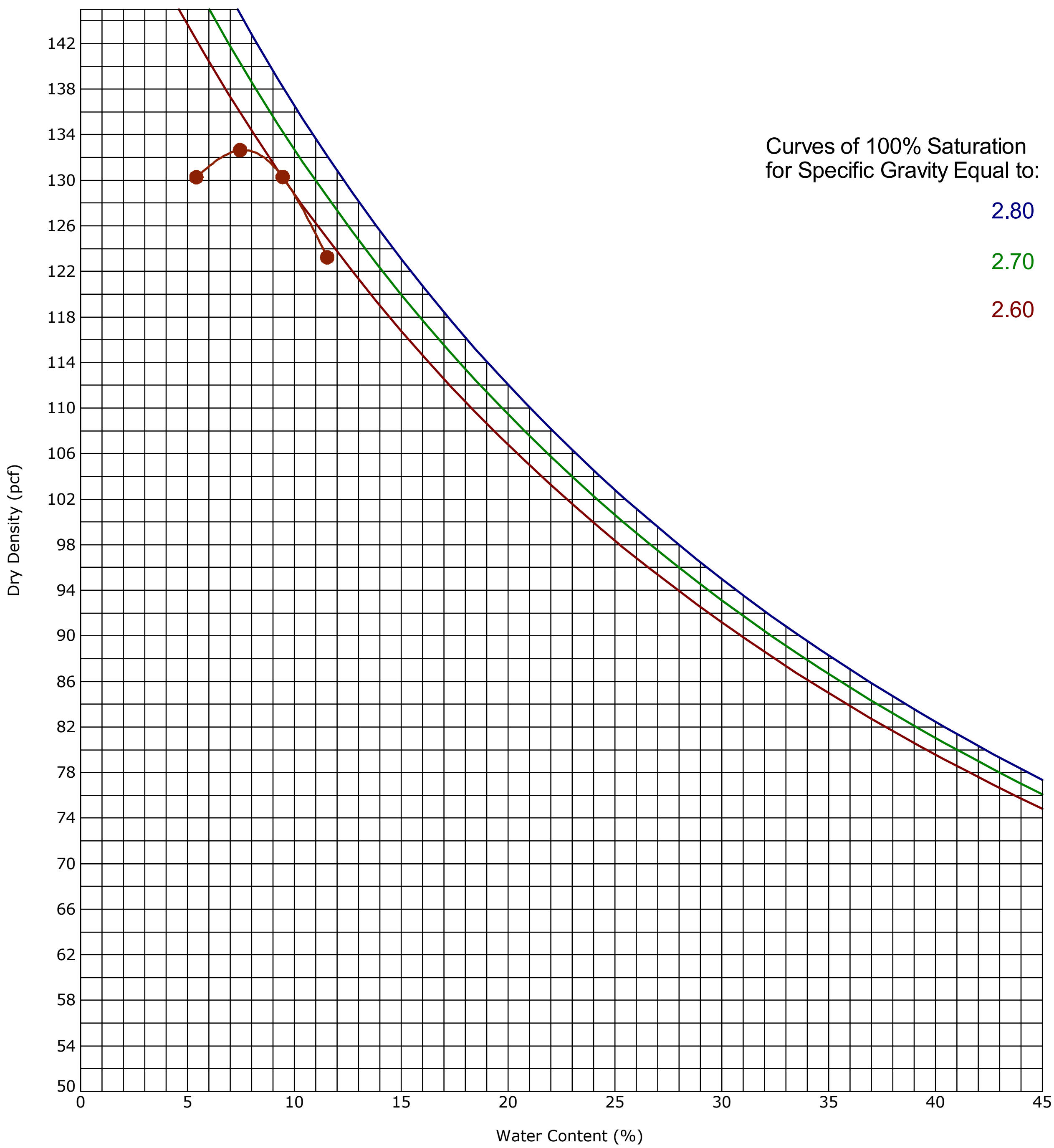
Boring ID	Depth (Ft)	Description of Materials
BESS-6	0 - 5	SILTY SAND

Fines (%)	Fraction >19mm size (%)	LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
					ASTM D1557 Method A	132.1	8.1

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Moisture-Density Relationship

ASTM D698/D1557



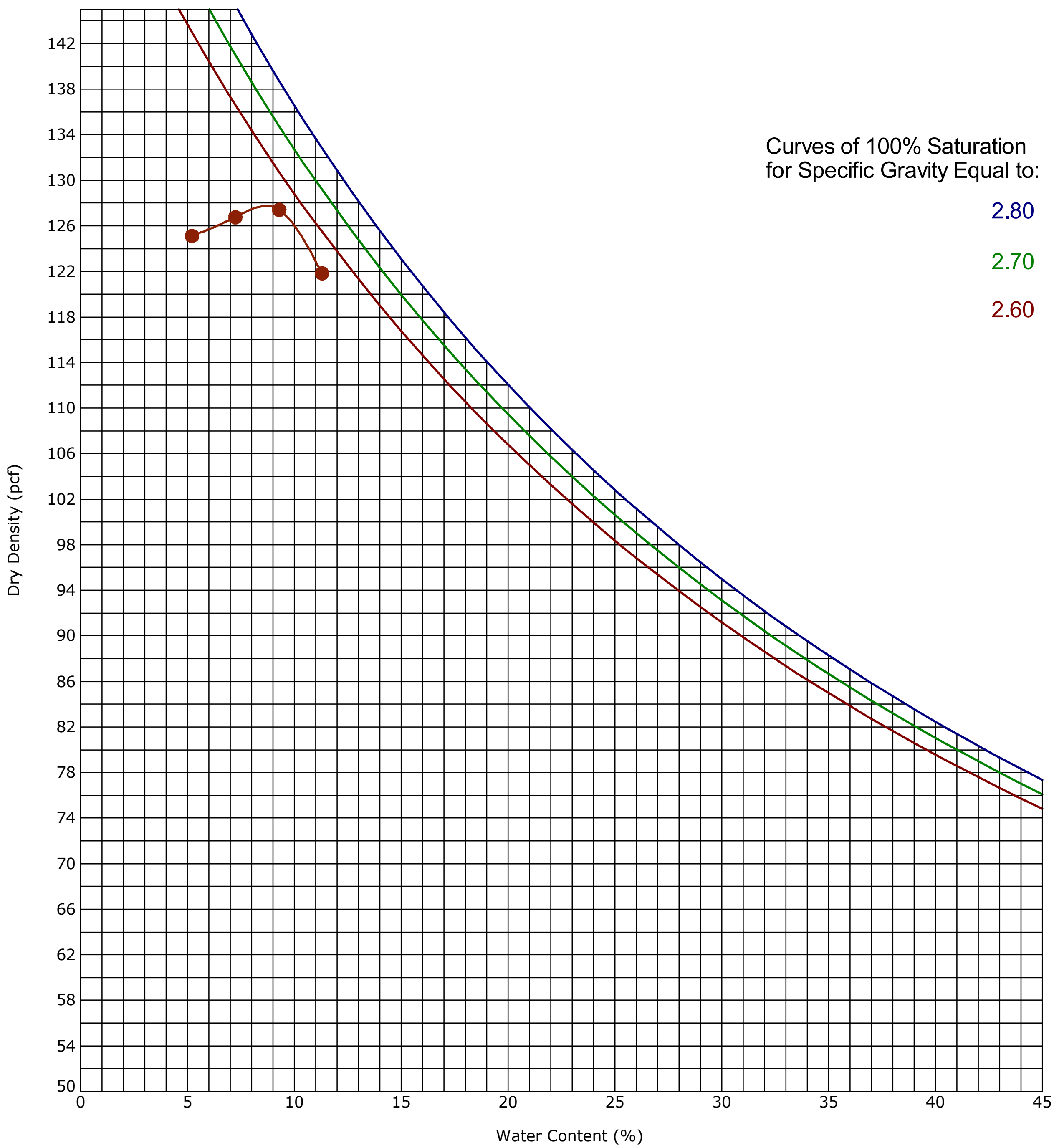
Boring ID	Depth (Ft)	Description of Materials
SUB-2	0 - 5	SILTY SAND

Fines (%)	Fraction >19mm size (%)	LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
16	84				ASTM D1557 Method A	132.7	7.6

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Moisture-Density Relationship

ASTM D698/D1557



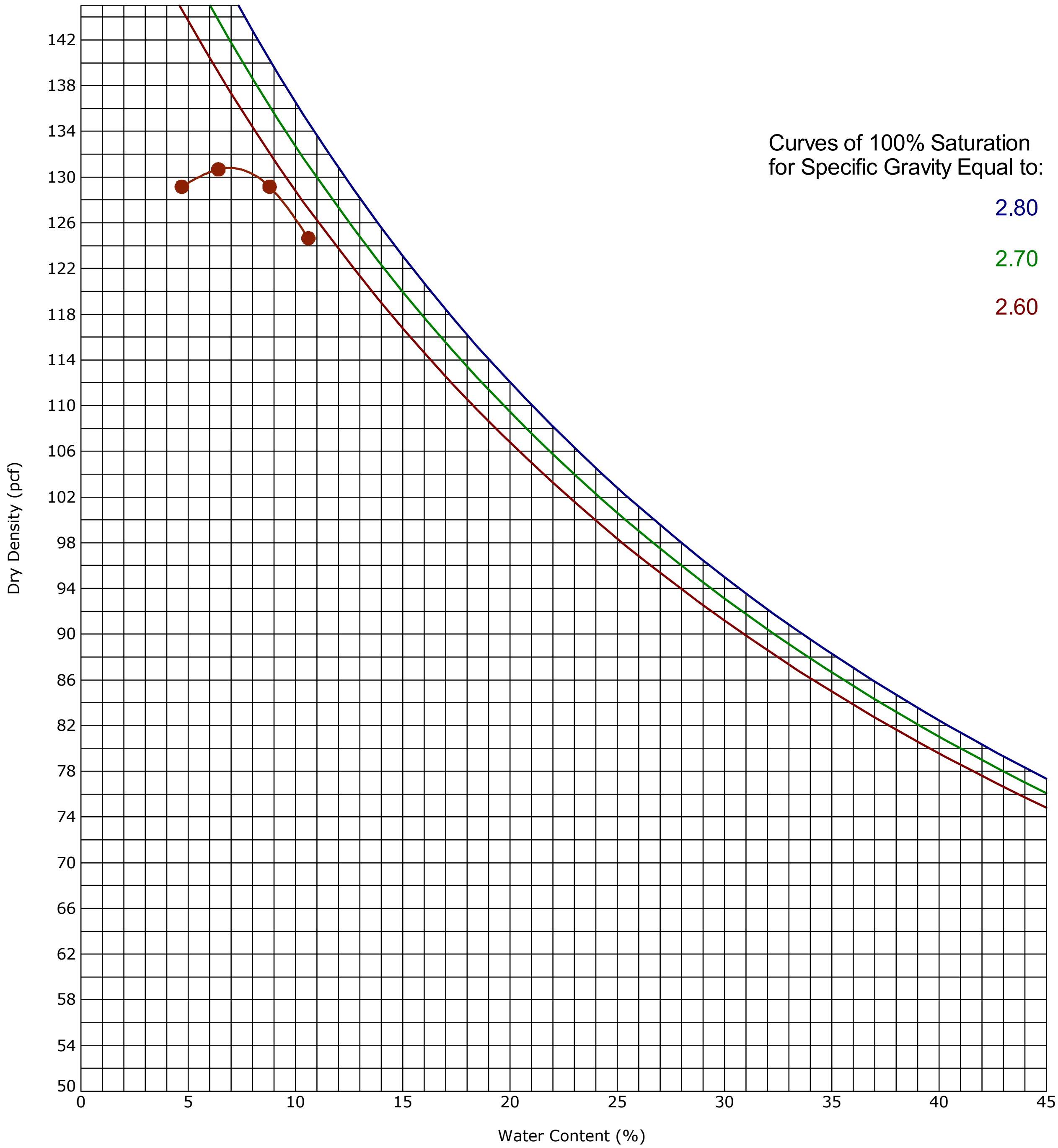
Boring ID	Depth (Ft)	Description of Materials
B-3	0 - 5	SILTY SAND

Fines (%)	Fraction >19mm size (%)	LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
		NP	NP	NP	ASTM D1557 Method A	127.7	8.6

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Moisture-Density Relationship

ASTM D698/D1557



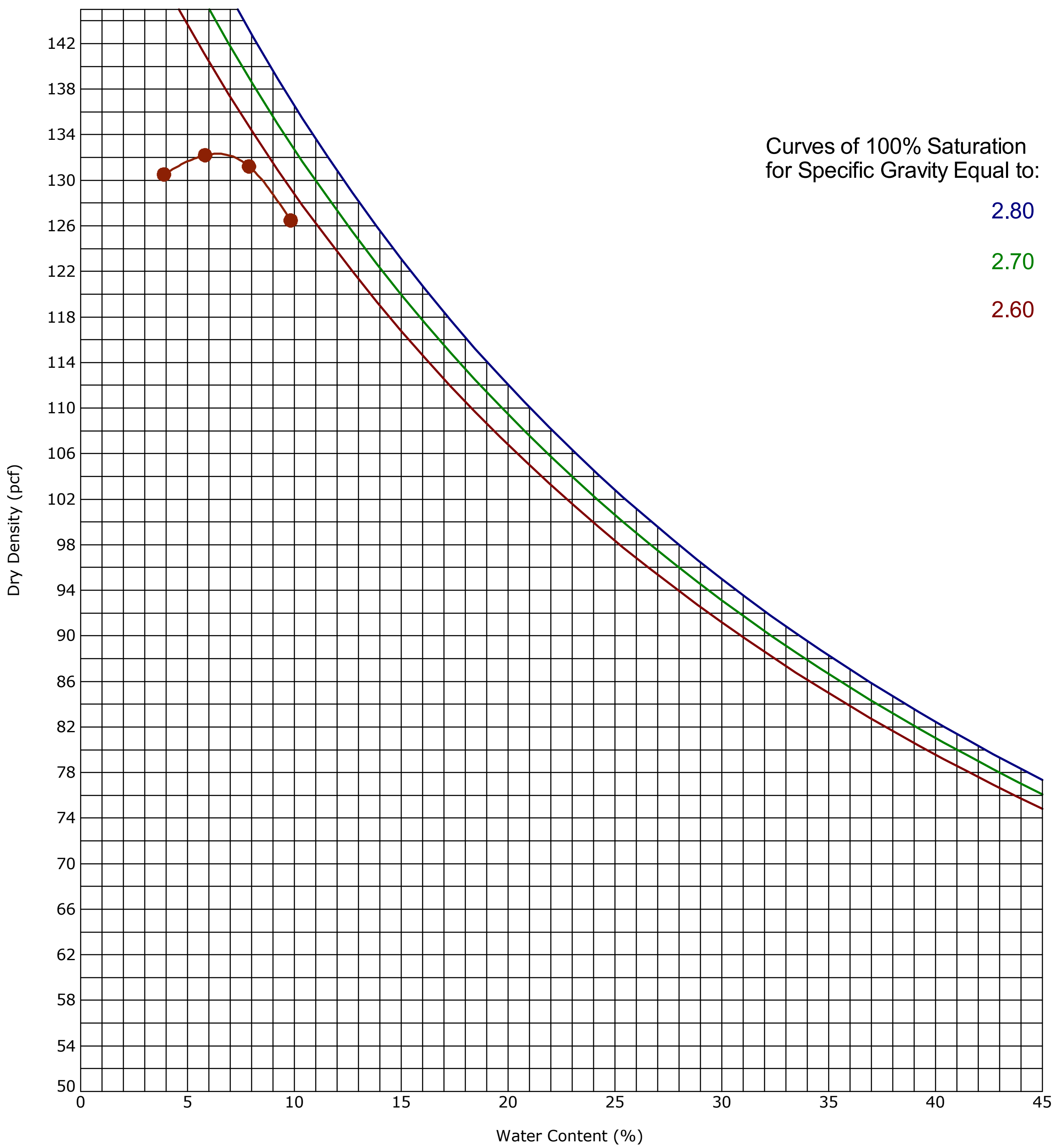
Boring ID	Depth (Ft)	Description of Materials
B-4	0 - 5	SILTY SAND

Fines (%)	Fraction >19mm size (%)	LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
24	76				ASTM D1557 Method C	130.8	6.9

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Moisture-Density Relationship

ASTM D698/D1557



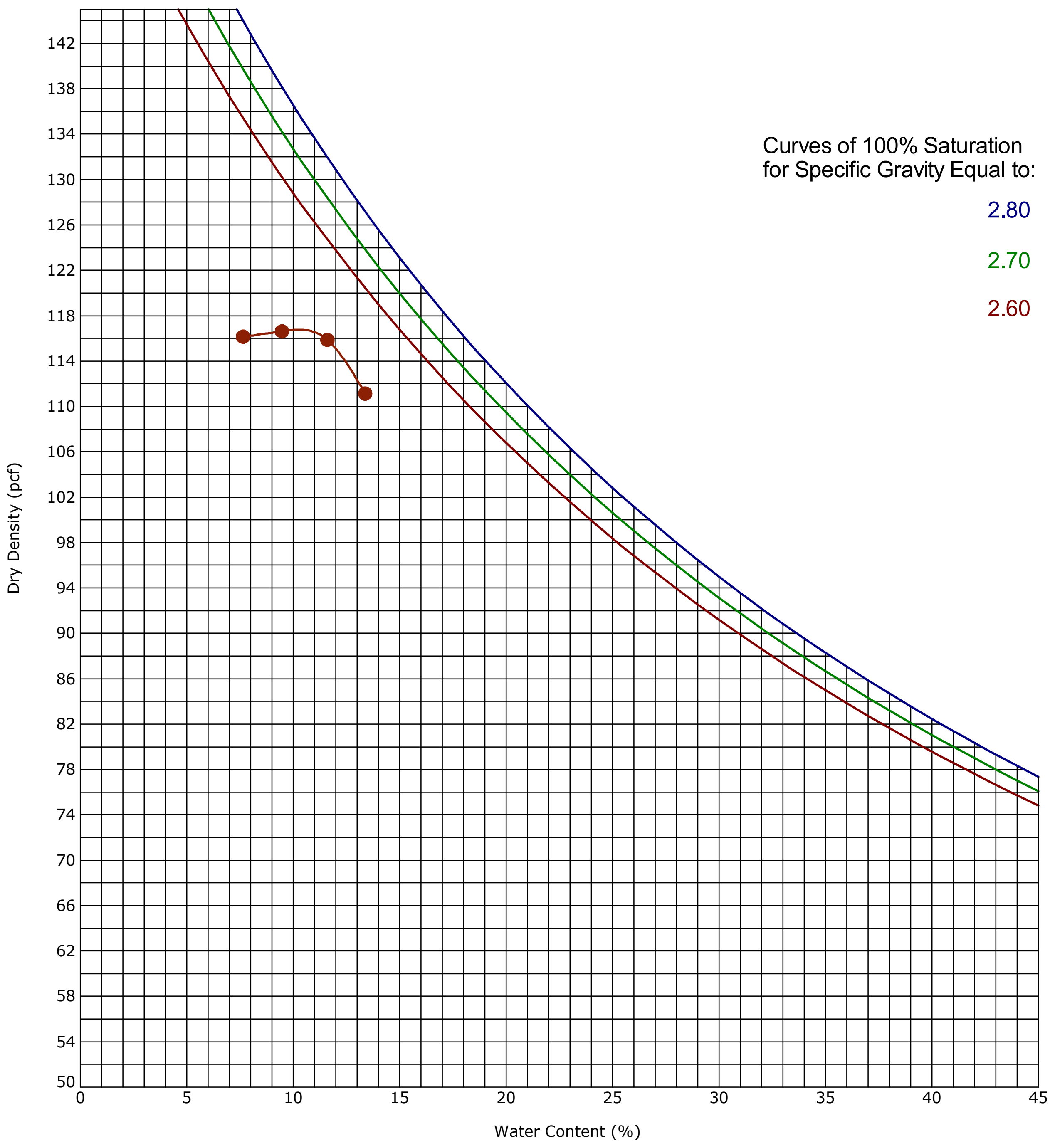
Boring ID	Depth (Ft)	Description of Materials
B-7	0 - 5	SILTY SAND

Fines (%)	Fraction >19mm size (%)	LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
		NP	NP	NP	ASTM D1557 Method A	132.3	6.4

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Moisture-Density Relationship

ASTM D698/D1557



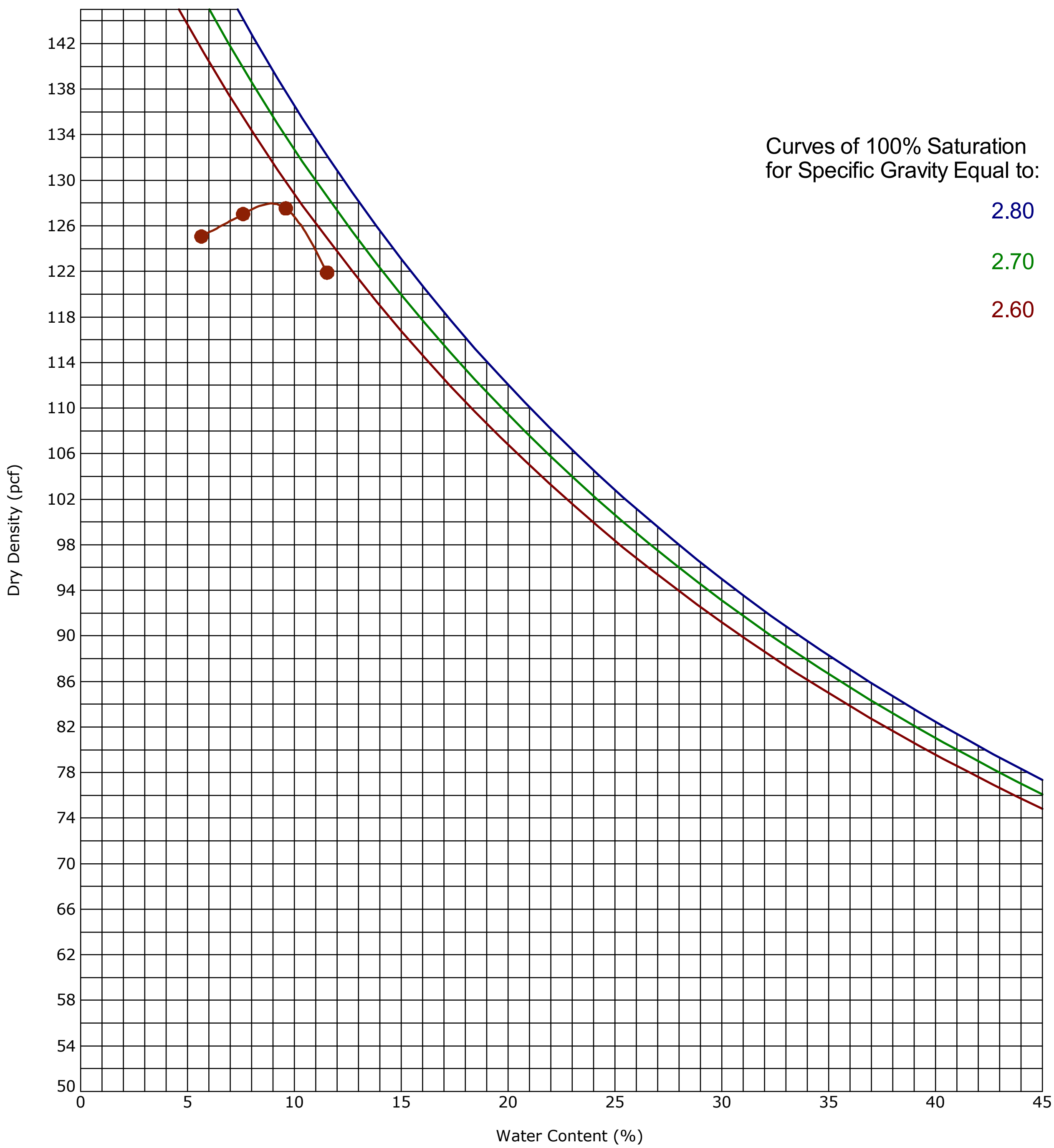
Boring ID	Depth (Ft)	Description of Materials
B-11	0 - 5	POORLY GRADED SAND with SILT

Fines (%)	Fraction >19mm size (%)	LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
8	92				ASTM D1557 Method A	116.8	10.3

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Moisture-Density Relationship

ASTM D698/D1557



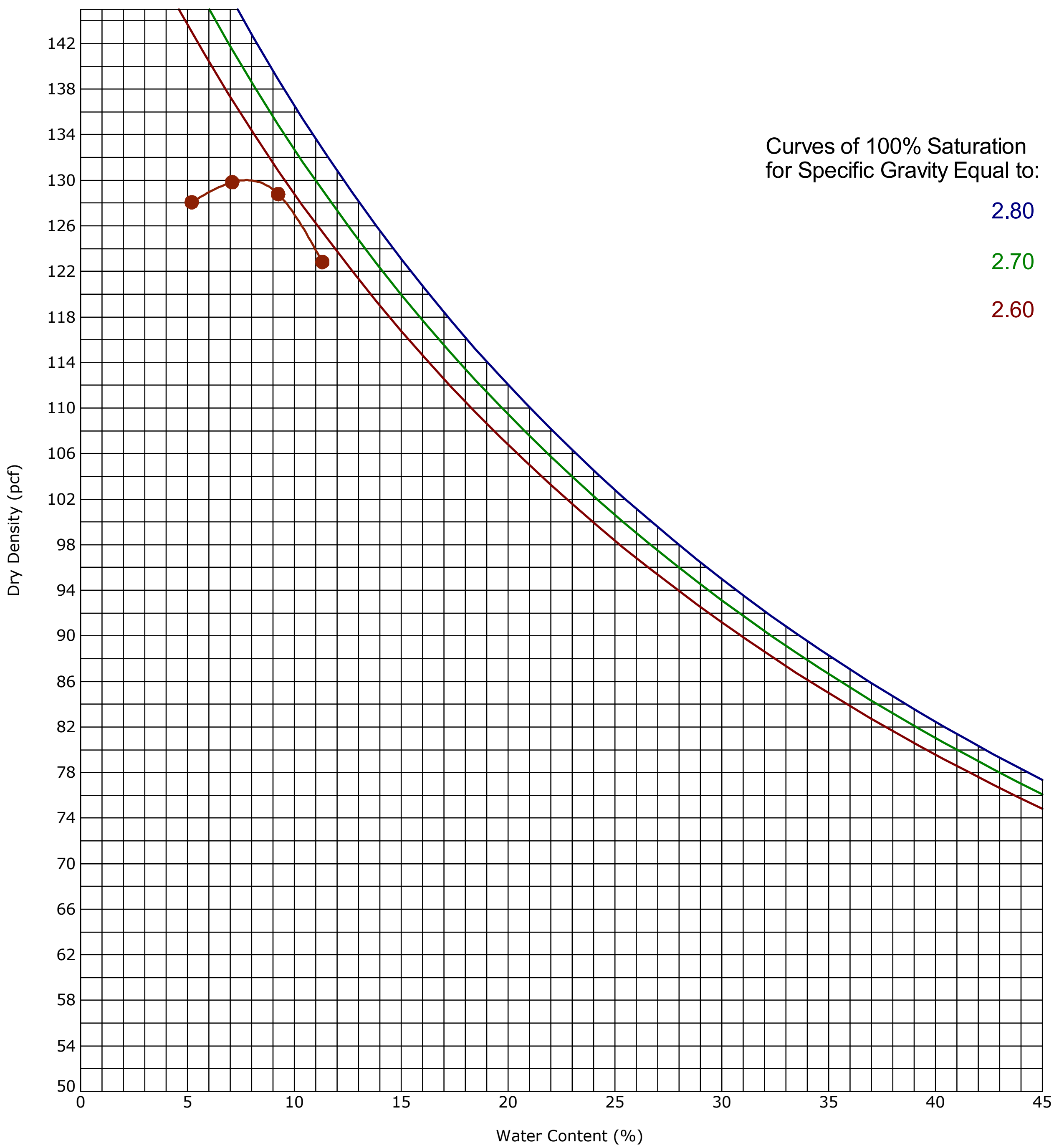
Boring ID	Depth (Ft)	Description of Materials
B-13	0 - 5	SILTY SAND

Fines (%)	Fraction >19mm size (%)	LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
		NP	NP	NP	ASTM D1557 Method C	128.0	9.0

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Moisture-Density Relationship

ASTM D698/D1557



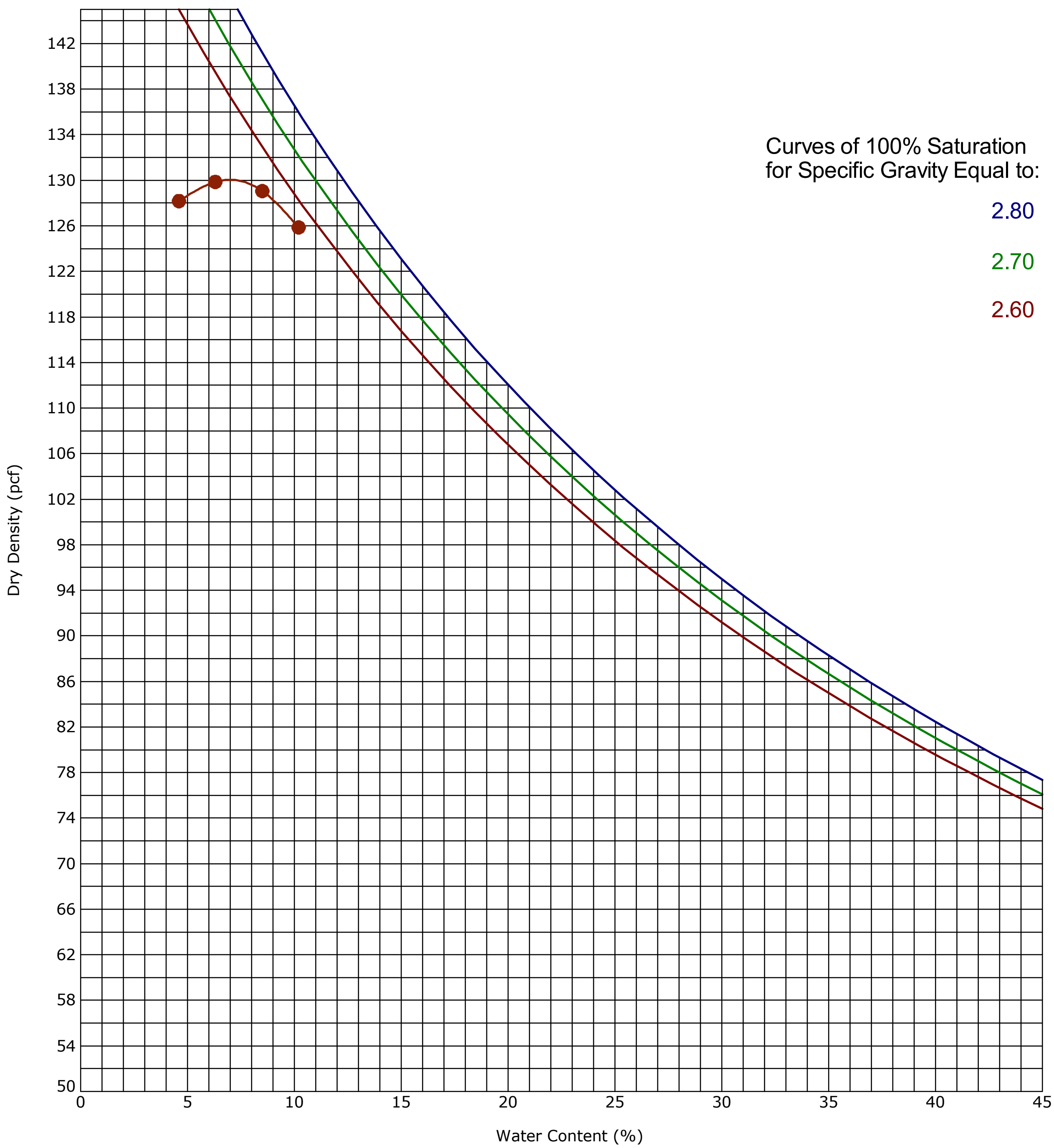
Boring ID	Depth (Ft)	Description of Materials
B-14	0 - 5	SILTY SAND

Fines (%)	Fraction >19mm size (%)	LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
					ASTM D1557 Method B	130.0	7.8

Terracon
23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Moisture-Density Relationship

ASTM D698/D1557



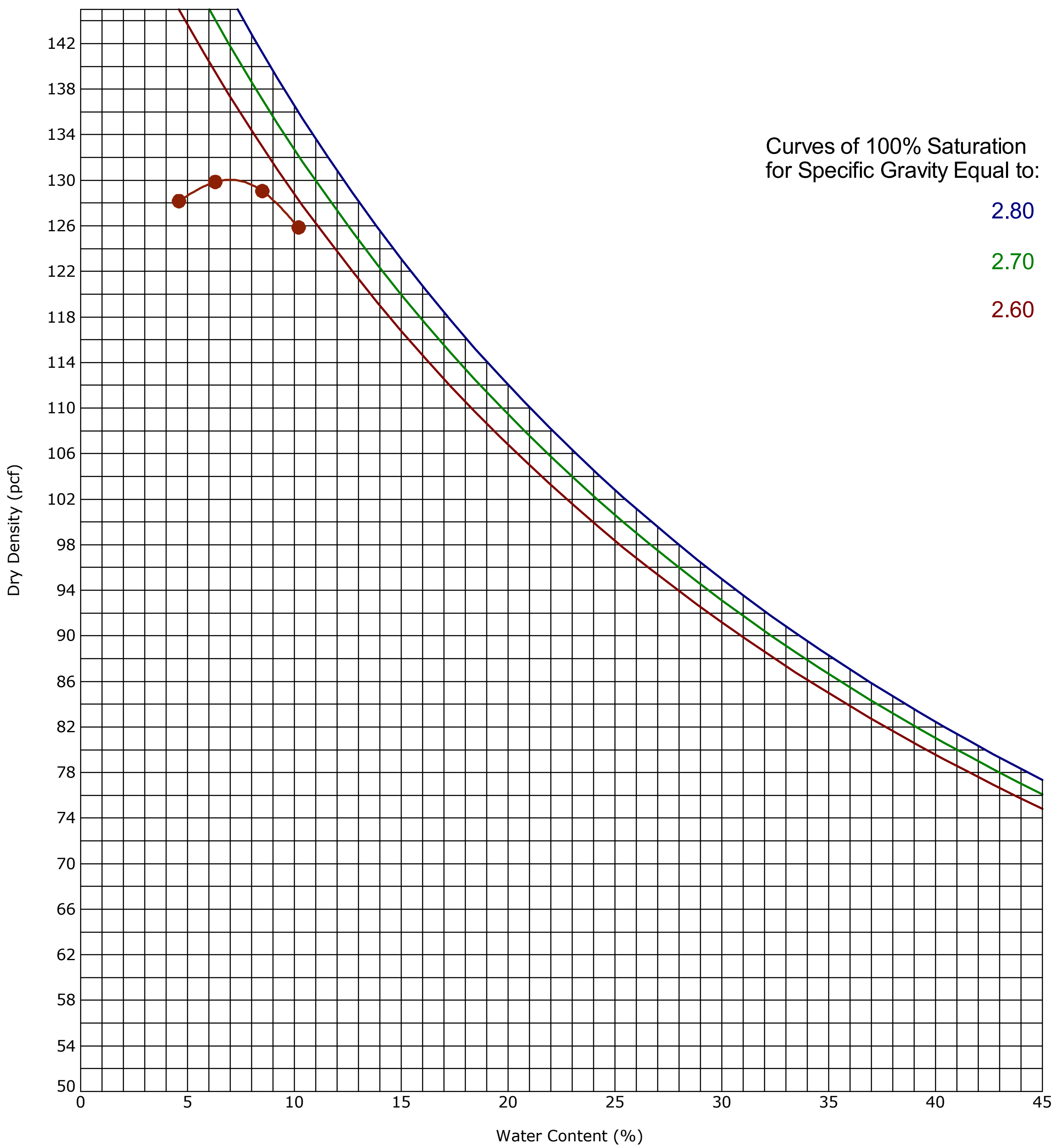
Boring ID	Depth (Ft)	Description of Materials
B-16	0 - 5	SILTY SAND

Fines (%)	Fraction >19mm size (%)	LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
21	79				ASTM D1557 Method B	130.0	7.0

23041 Avenida De La Carlota
Ste 350
Laguna Hills, CA

Moisture-Density Relationship

ASTM D698/D1557



Boring ID	Depth (Ft)	Description of Materials
B-19	0 - 5	SILTY SAND

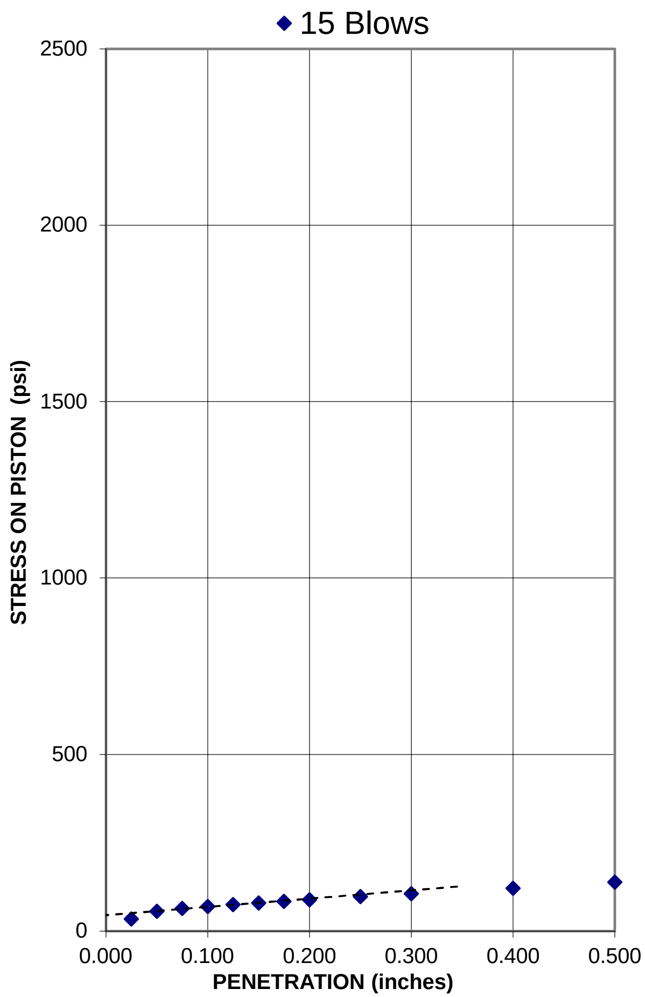
Fines (%)	Fraction >19mm size (%)	LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
		NP	NP	NP	ASTM D1557 Method A	130.0	7.0

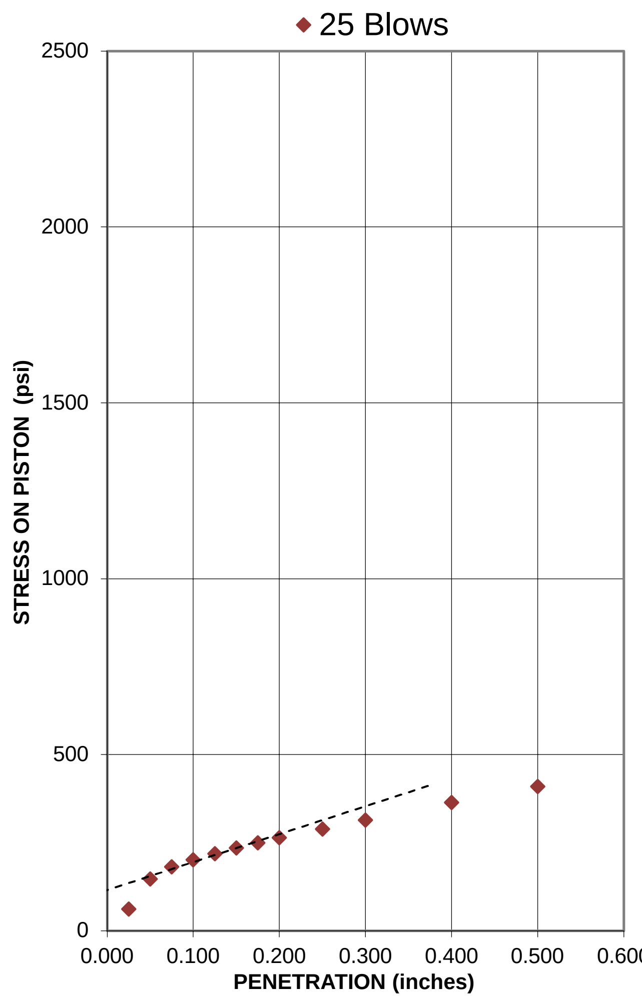
CBR(CALIFORNIA BEARING RATIO) OF LABORATORY-COMPACTED SOILS
ASTM D1883 (SOAKED)

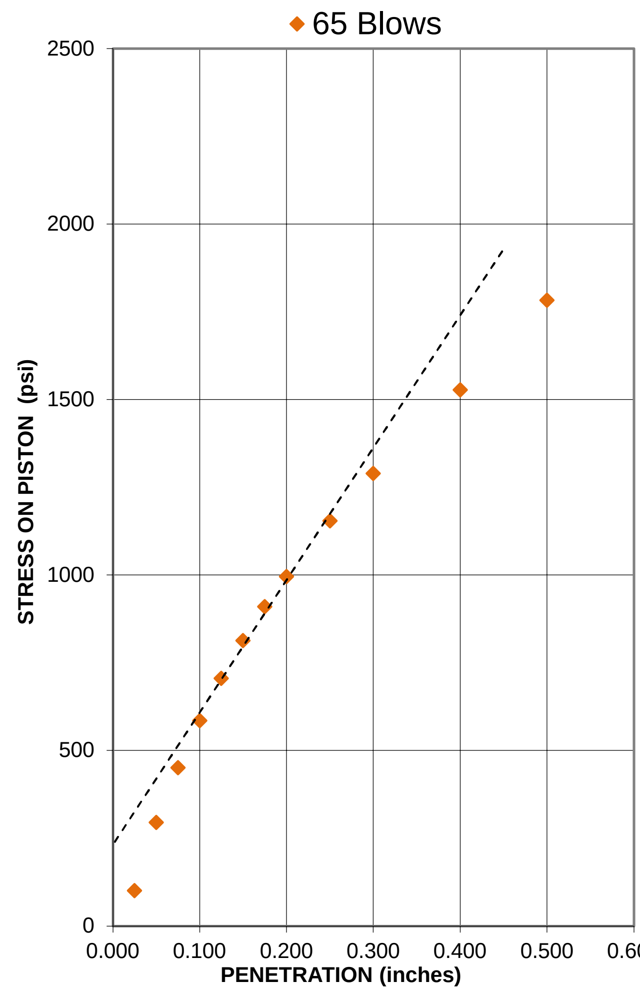
Terracon

PROJECT:	Desert Breeze Solar	**JOB NO:**	60225173
LOCATION:	43880 Harper Lake Road, Hinkley CA	**WORK ORDER NO:**	
MATERIAL:	Sand	**LAB NO:**	
SAMPLE SOURCE:	B-4 from 0 to 5 feet	**DATE SAMPLED:**	

	Blows per Lift	Compaction %	Compaction Method	Surcharge Weight (Lb.)	Sample Condition	Percent Swell	Before Soak		After Soak	
							Dry Density	Moisture %	Dry Density	Moisture %
Point 1	15	90.9	ASTM D1557	10	Soak	0.02	118.9	7.2	111.9	13.8
Point 2	25	95.6	ASTM D1557	10	Soak	0.00	125.1	7.4	120.0	12.0
Point 3	65	100	ASTM D1557	10	Soak	0.04	131.0	7.4	129.7	9.1







REVIEWED BY VN

CBR(CALIFORNIA BEARING RATIO) OF LABORATORY-COMPACTED SOILS
ASTM D1883 (SOAKED)

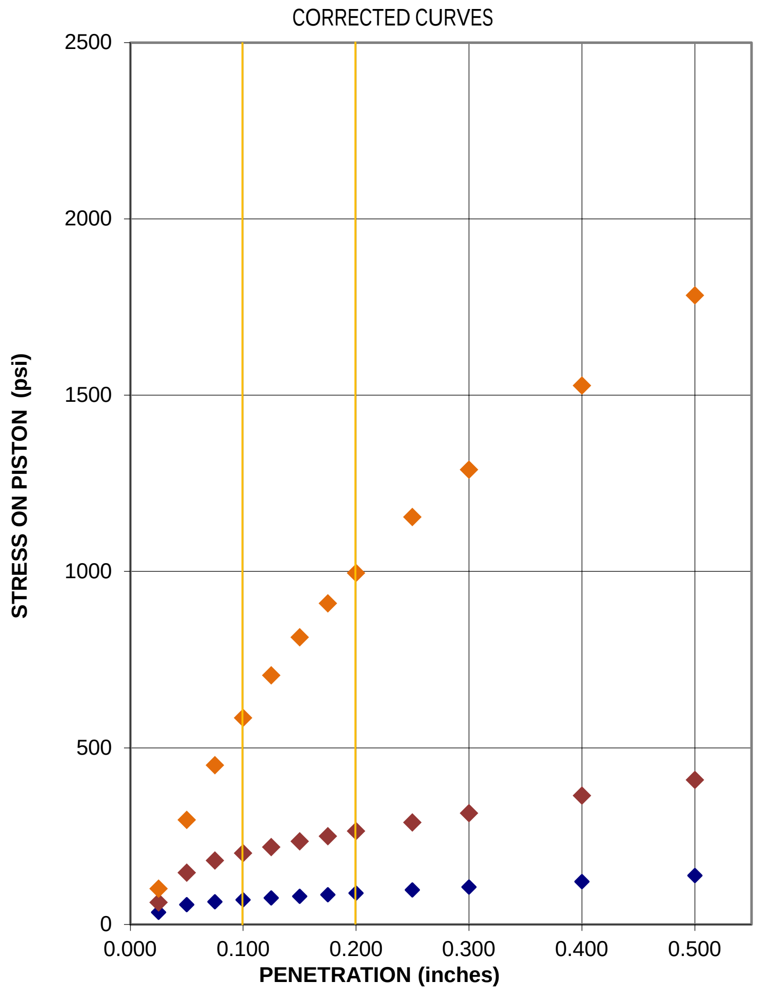
PROJECT:	**Desert Breeze Solar**	**JOB NO:**	**60225173**
LOCATION:	**43880 Harper Lake Road, Hinkley CA**	**WORK ORDER NO:**	
MATERIAL:	**Sand**	**LAB NO:**	
SAMPLE SOURCE:	**B-4 from 0 to 5 feet**	**DATE SAMPLED:**	

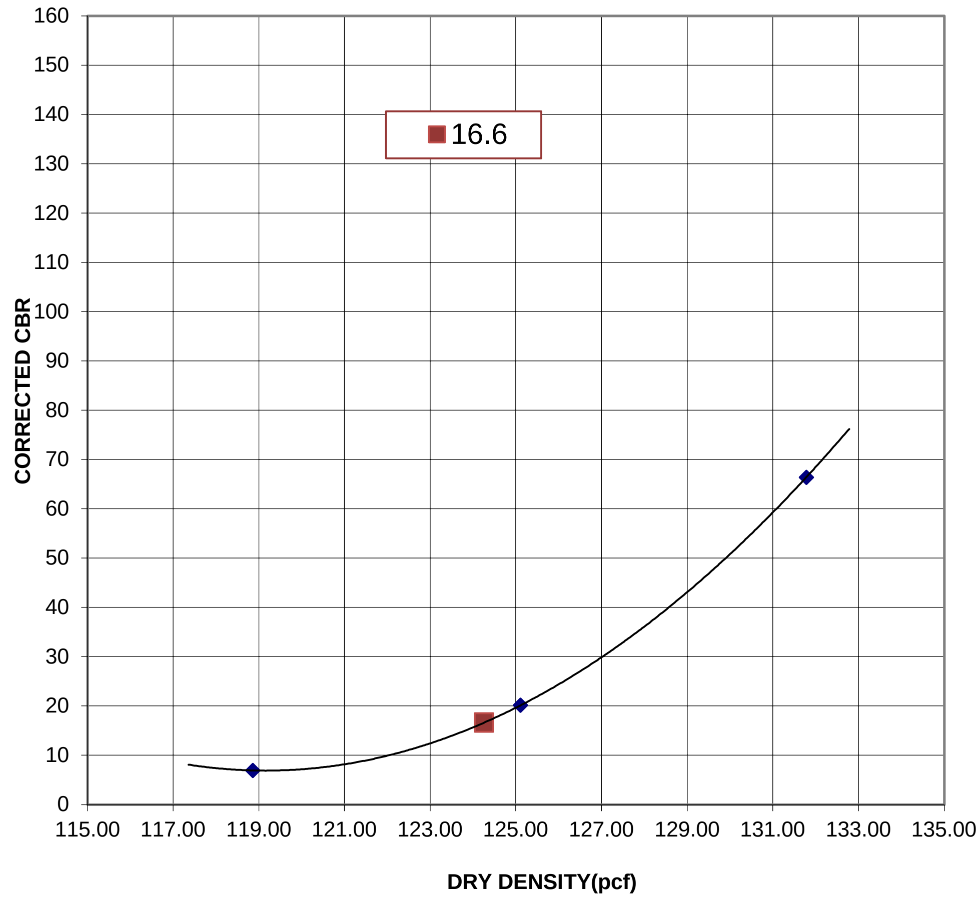
	Correction Factor		Corrected CBR		
	0.1"	0.2"	0.1"	0.2"	CBR
Point 1	0.00	0.00	6.9	5.9	6.9
Point 2	0.00	0.00	20.1	17.6	20.1
Point 3	0.00	0.00	58.5	66.4	66.4

ASTM D1557			
Moisture	Dry Density (pcf)		
%	100%	95%	90%
6.9	130.8	124.3	117.7

95% COMPACTION CBR

16.6





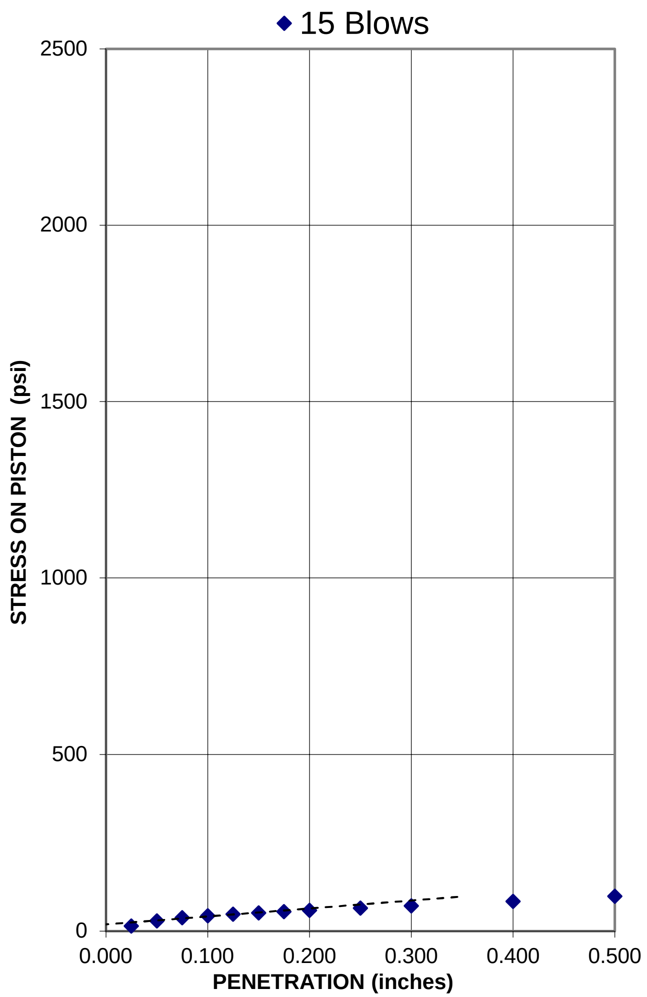
REVIEWED BY VN

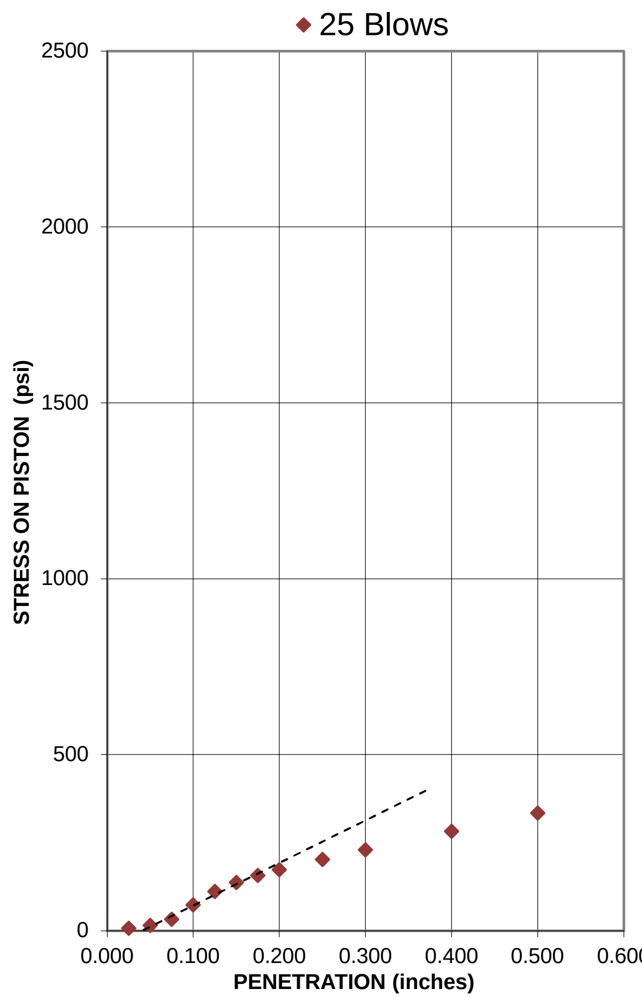
CBR(CALIFORNIA BEARING RATIO) OF LABORATORY-COMPACTED SOILS
ASTM D1883 (SOAKED)

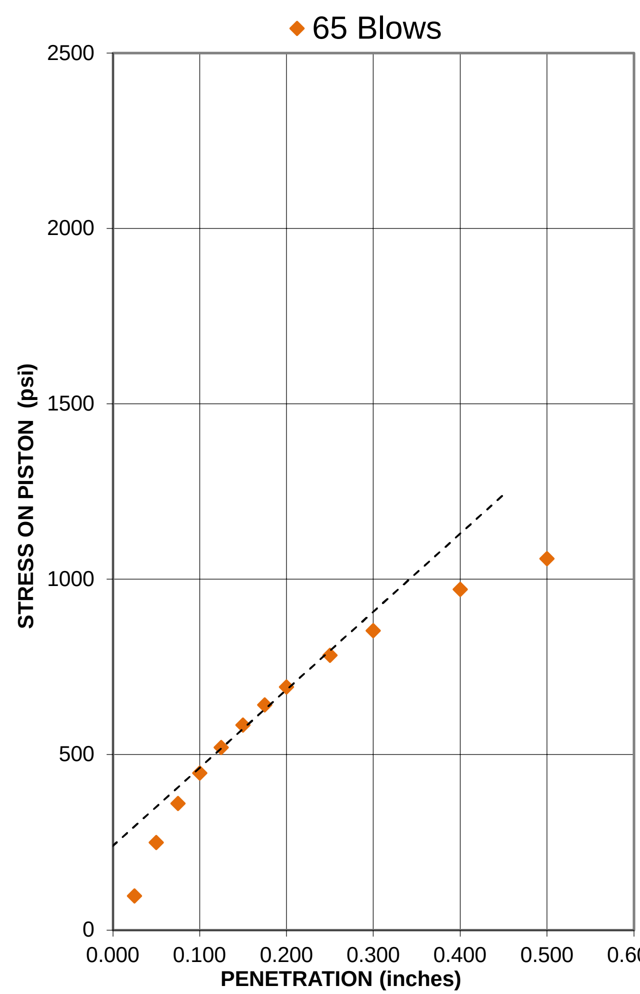
Terracon

PROJECT:	Desert Breeze Solar	**JOB NO:**	60225173
LOCATION:	43880 Harper Lake Road, Hinkley CA	**WORK ORDER NO:**	
MATERIAL:	Sand	**LAB NO:**	
SAMPLE SOURCE:	B-13 from 0 to 5 feet	**DATE SAMPLED:**	

	Blows per Lift	Compaction %	Compaction Method	Surcharge Weight (Lb.)	Sample Condition	Percent Swell	Before Soak Dry Density	Before Soak Moisture %	After Soak Dry Density	After Soak Moisture %
Point 1	15	90.5	ASTM D1557	10	Soak	0.11	115.8	8.4	113.0	11.2
Point 2	25	95.4	ASTM D1557	10	Soak	0.11	122.1	8.5	116.3	13.9
Point 3	65	100	ASTM D1557	10	Soak	0.09	128.0	8.4	125.2	11.4







REVIEWED BY VN

CBR(CALIFORNIA BEARING RATIO) OF LABORATORY-COMPACTED SOILS
ASTM D1883 (SOAKED)

Terracon

PROJECT: Desert Breeze Solar
LOCATION: 43880 Harper Lake Road, Hinkley CA
MATERIAL: Sand
SAMPLE SOURCE: B-13 from 0 to 5 feet

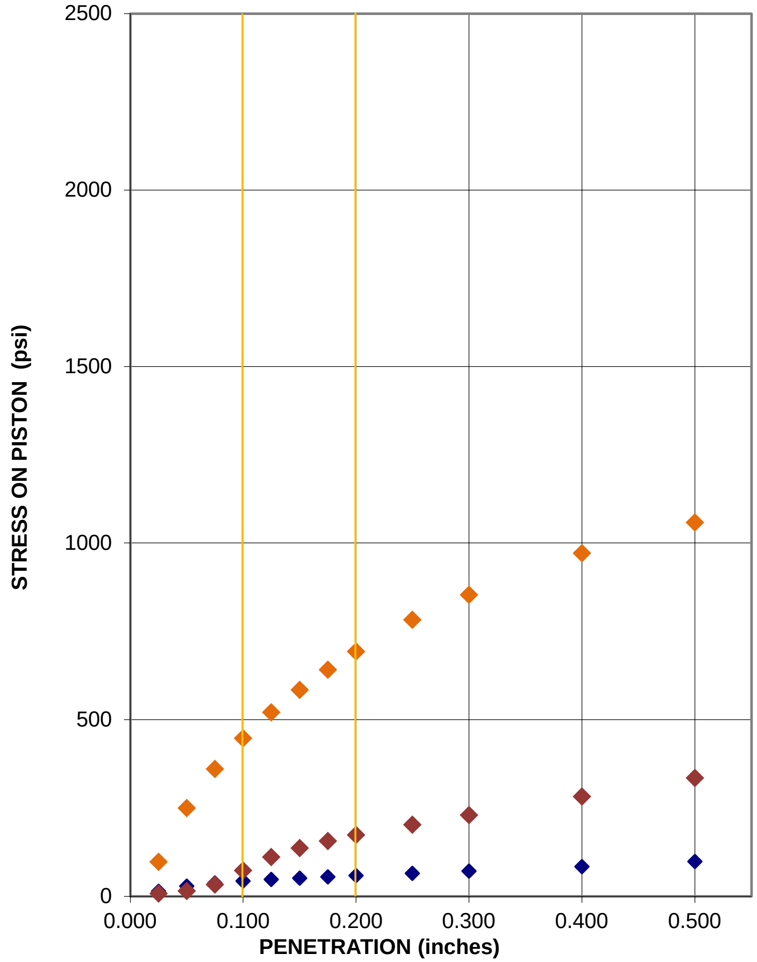
JOB NO: 60225173
WORK ORDER NO:
LAB NO:
DATE SAMPLED:

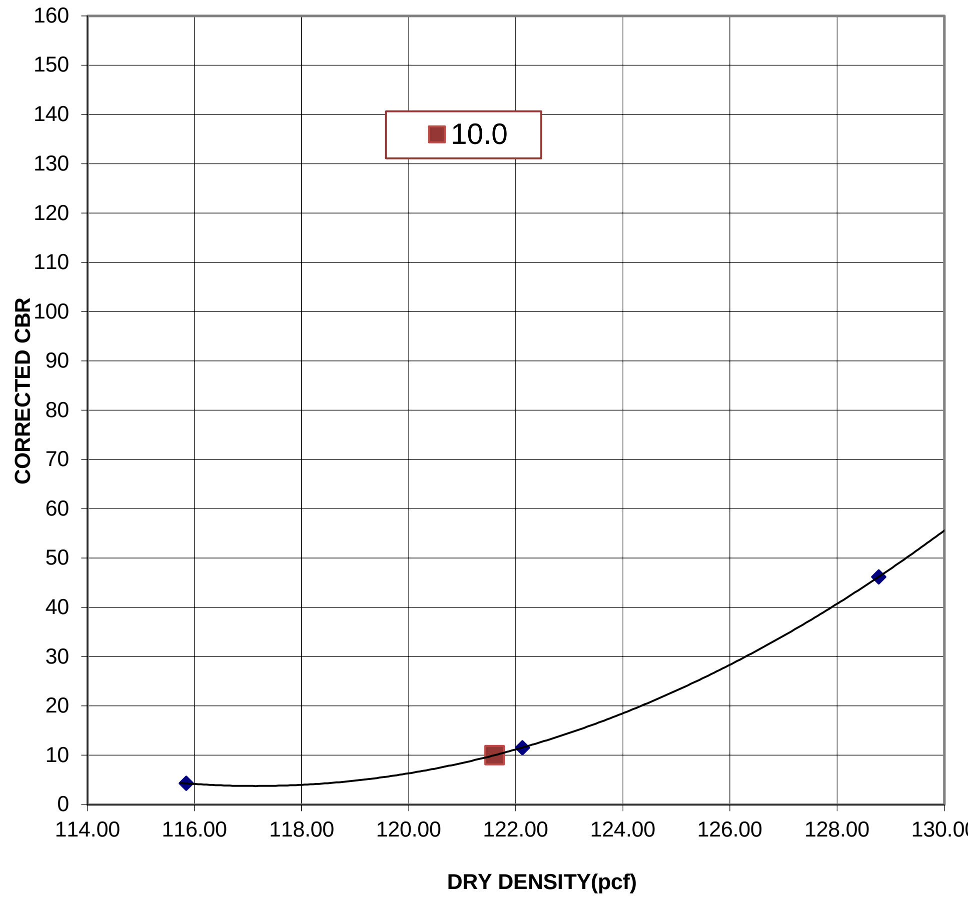
	Correction Factor		Corrected CBR		
	0.1"	0.2"	0.1"	0.2"	CBR
Point 1	0.00	0.00	4.3	3.9	4.3
Point 2	0.00	0.00	7.3	11.6	11.6
Point 3	0.00	0.00	44.7	46.2	46.2

ASTM D1557			
Moisture	Dry Density (pcf)		
%	100%	95%	90%
9.0	128.0	121.6	115.2

95% COMPACTION CBR
10.0

CORRECTED CURVES





REVIEWED BY VN

750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Terracon

Client
Terra-Gen Development Company LLC

Project
Desert Breeze Solar

Sample Submitted By: Terracon (60) **Date Received:** 1/17/2023 **Lab No.: 23-0049**

Results of Corrosion Analysis

Sample Number	--	--	--	--
Sample Location	B-2	B-3	B-5	B-7
Sample Depth (ft.)	0.0-4.0	0.0-4.0	0.0-4.0	0.0-4.0
pH Analysis, ASTM G 51	9.52	9.19	9.72	9.16
Water Soluble Sulfate (SO4), ASTM C 1580 (percent %)	<0.01	0.01	0.01	0.01
Sulfides, AWWA 4500-S D, (mg/kg)	Nil	Nil	Nil	Nil
Chlorides, ASTM D 512, (mg/kg)	192	52	167	60
Red-Ox, ASTM G 200, (mV)	+722	+729	+729	+734
Total Salts, AWWA 2540, (mg/kg)	1008	364	445	215
Saturated Minimum Resistivity, ASTM G 187, (ohm-cm)	737	2134	1358	6693

Analyzed By N. Campo
Nathan Campo
Engineering Technician II

750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Client
Terra-Gen Development Company LLC

Project
Desert Breeze Solar

Sample Submitted By: Terracon (60) **Date Received:** 1/17/2023 **Lab No.: 23-0049**

Results of Corrosion Analysis

Sample Number	--	--	--	--
Sample Location	B-9	B-10A	B-13	B-14
Sample Depth (ft.)	0.0-4.0	0.0-4.0	0.0-4.0	0.0-4.0
pH Analysis, ASTM G 51	9.87	8.95	8.61	9.57
Water Soluble Sulfate (SO4), ASTM C 1580 (percent %)	0.01	0.02	0.07	0.01
Sulfides, AWWA 4500-S D, (mg/kg)	Nil	Nil	Nil	Nil
Chlorides, ASTM D 512, (mg/kg)	32	62	2545	387
Red-Ox, ASTM G 200, (mV)	+727	+734	+691	+720
Total Salts, AWWA 2540, (mg/kg)	561	190	5174	1321
Saturated Minimum Resistivity, ASTM G 187, (ohm-cm)	2613	11640	106	523

Analyzed By N. Campo
Nathan Campo
Engineering Technician II

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Las Vegas, Nevada 89119
(702) 597-9393

Client
Terra-Gen Development Company LLC

Project
Desert Breeze Solar

Sample Submitted By: Terracon (60) **Date Received:** 2/1/2023 **Lab No.: 23-0077**

Results of Corrosion Analysis

Sample Number	--	--	--	--
Sample Location	B-19	B-20	B-22	BESS-3
Sample Depth (ft.)	0.0-4.0	0.0-4.0	0.0-4.0	0.0-4.0
pH Analysis, ASTM G 51	9.12	9.72	9.48	8.31
Water Soluble Sulfate (SO4), ASTM C 1580 (percent %)	<0.01	0.01	<0.01	0.01
Sulfides, AWWA 4500-S D, (mg/kg)	Nil	Nil	Nil	Nil
Chlorides, ASTM D 512, (mg/kg)	72	447	72	170
Red-Ox, ASTM G 200, (mV)	+728	+714	+732	+728
Total Salts, AWWA 2540, (mg/kg)	547	1859	352	677
Saturated Minimum Resistivity, ASTM G 187, (ohm-cm)	679	310	2037	3104

Analyzed By N. Campo
Nathan Campo
Engineering Technician II

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Client
Terra-Gen Development Company LLC

Project
Desert Breeze Solar

Sample Submitted By: Terracon (60) **Date Received:** 1/17/2023 **Lab No.: 23-0049**

Results of Corrosion Analysis

Sample Number	--
Sample Location	SUB-3
Sample Depth (ft.)	0.0-5.0
pH Analysis, ASTM G 51	8.42
Water Soluble Sulfate (SO4), ASTM C 1580 (percent %)	0.02
Sulfides, AWWA 4500-S D, (mg/kg)	Nil
Chlorides, ASTM D 512, (mg/kg)	495
Red-Ox, ASTM G 200, (mV)	+715
Total Salts, AWWA 2540, (mg/kg)	2301
Saturated Minimum Resistivity, ASTM G 187, (ohm-cm)	582

Analyzed By N. Campo
Nathan Campo
Engineering Technician II

The tests were performed in general accordance with applicable ASTM and AWWA test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently

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http://www.geothermusa.com

February 15, 2023

Terracon
23041 Avenida de la Carlota, Suite 350
Laguna Hills, CA 92653
Attn: Victor V. Nguyen, P.E.

Re: Thermal Analysis of Native Soil Samples
Desert Breeze Solar – Hinkley, CA (Project No. 60225173)

The following is the report of thermal dryout characterization tests conducted on eight (8) samples of native soil from the referenced project sent to our laboratory.

Thermal Resistivity Tests: The bulk samples were tested at either the optimum or in-situ moisture content, whichever was greater, and at 85% or 95% of the modified Proctor dry density **provided by Terracon.** The tests were conducted in accordance with the IEEE standard 442-2017. The results are tabulated below and the thermal dryout curves are presented in **Figures 1 to 8.**

Sample ID, Description, Thermal Resistivity, Moisture Content and Density

Sample ID	Depth (ft)	Description (*Terracon*)	Thermal Resistivity (°C-cm/W)		Moisture Content (%)	Dry Density (lb/ft^3)
			Wet	Dry		
B-3	0-5’	Silty sand	58	169	9	109
B-7	0-5’	Silty sand	55	159	6	113
B-11	0-5’	Silty sand	62	203	10	99
B-14	0-5’	Silty sand	59	160	8	111
B-16A	0-5’	Silty sand	57	165	8	112
B-19A	0-5’	Silty sand	63	175	11	107

Geotherm USA

Sample ID, Description, Thermal Resistivity, Moisture Content and Density

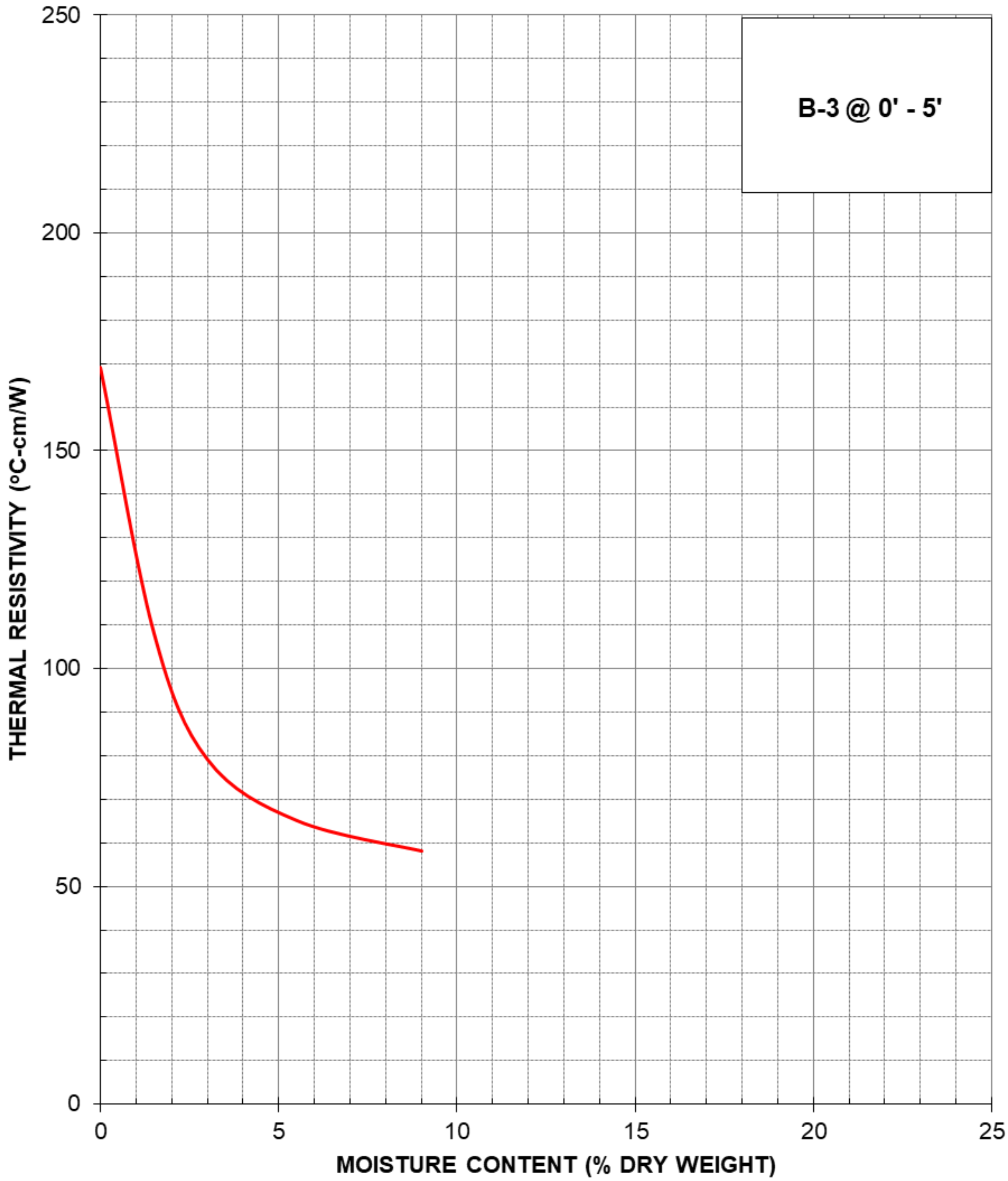
Sample ID	Depth (ft)	Description (*Terracon*)	Thermal Resistivity (°C-cm/W)		Moisture Content (%)	Dry Density (lb/ft^3)
			Wet	Dry		
BESS 6	0-5’	(SM) Silty f-c sand trace of clay, brown	43	100	8	126
Sub 2	0-5’	(SM) Silty f-c sand trace of clay, brown	42	104	8	125

Please contact us if you have any questions or if we can be of further assistance.

Geotherm USA

Nimesh Patel

THERMAL DRYOUT CURVE



Terracon (Project No. 60225173)

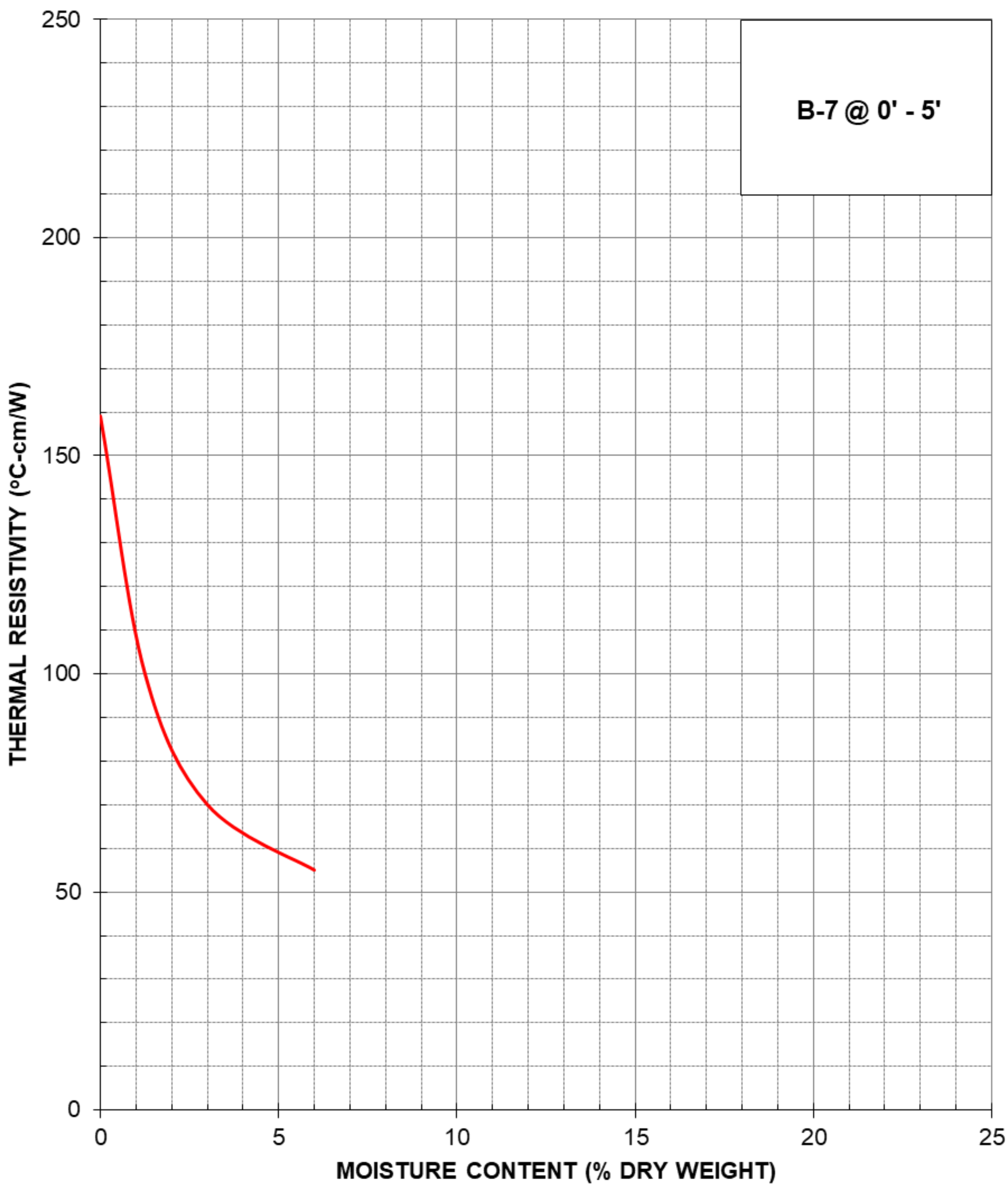
Desert Breeze Solar – Hinkley, CA

Thermal Analysis of Native Soil Samples

February 2023 **Figure 1**

Geotherm USA

THERMAL DRYOUT CURVE

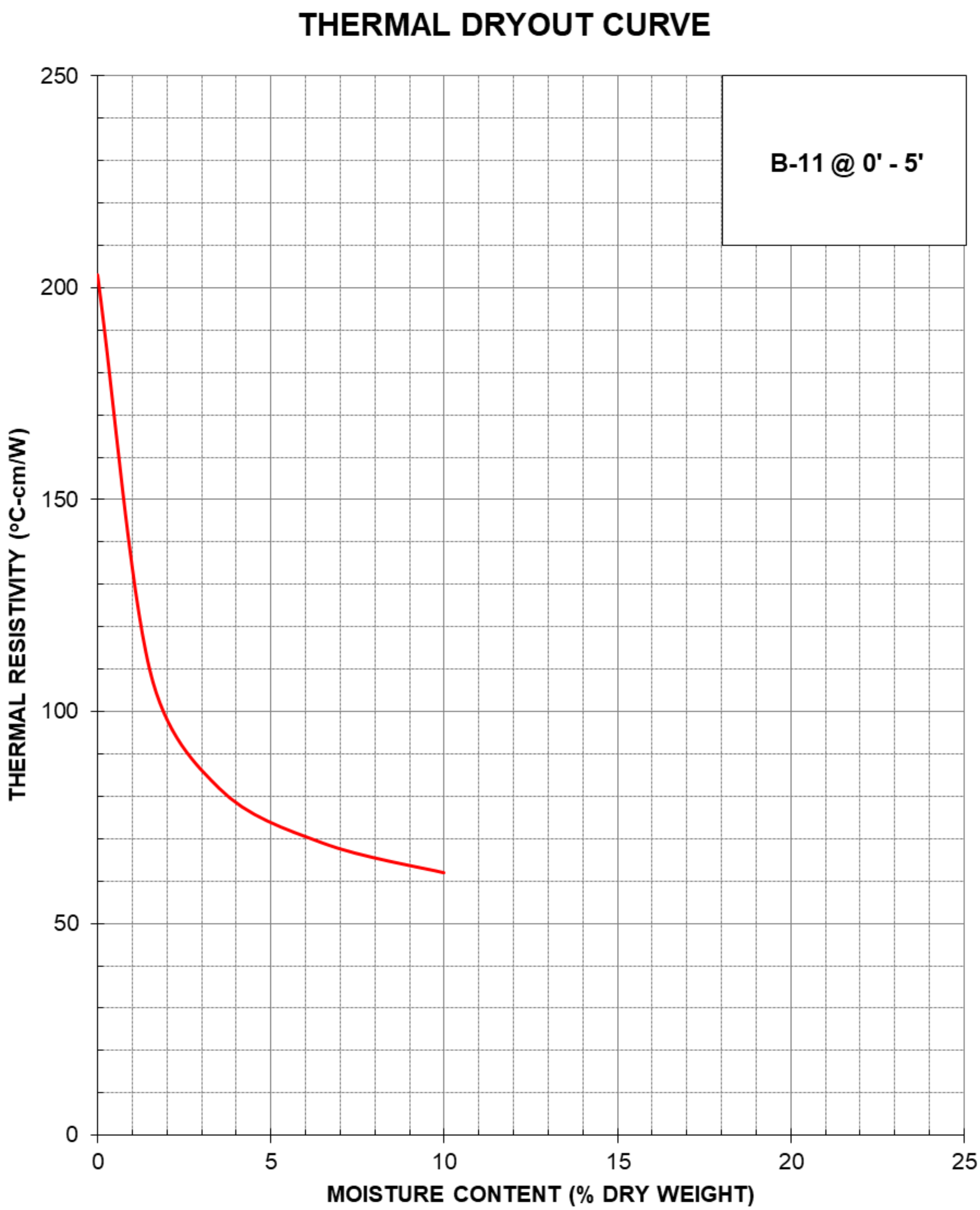


Terracon (Project No. 60225173)

Desert Breeze Solar – Hinkley, CA

Thermal Analysis of Native Soil Samples

February 2023 **Figure 2**



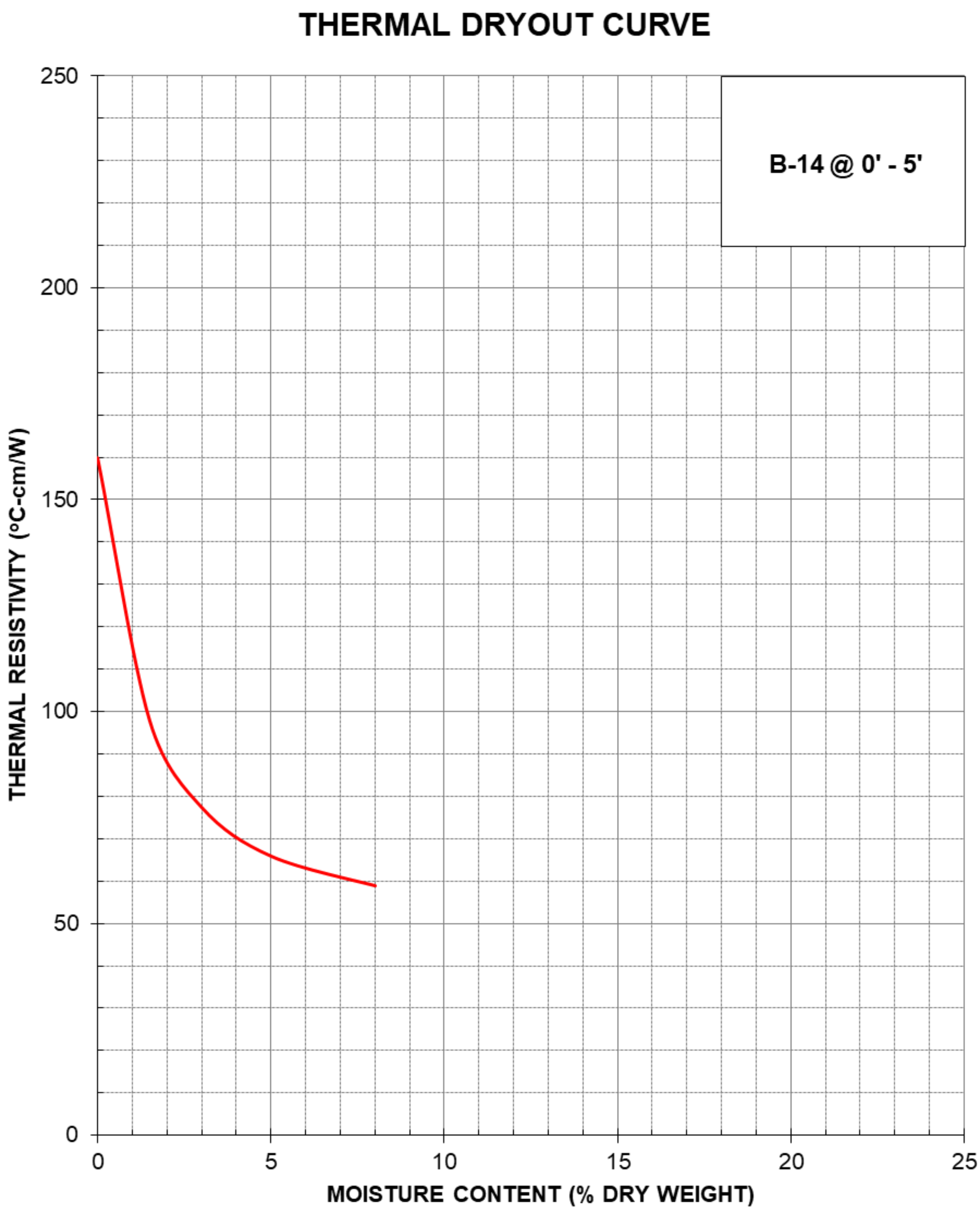
Terracon (Project No. 60225173)

Desert Breeze Solar – Hinkley, CA

Thermal Analysis of Native Soil Samples

February 2023

Figure 3



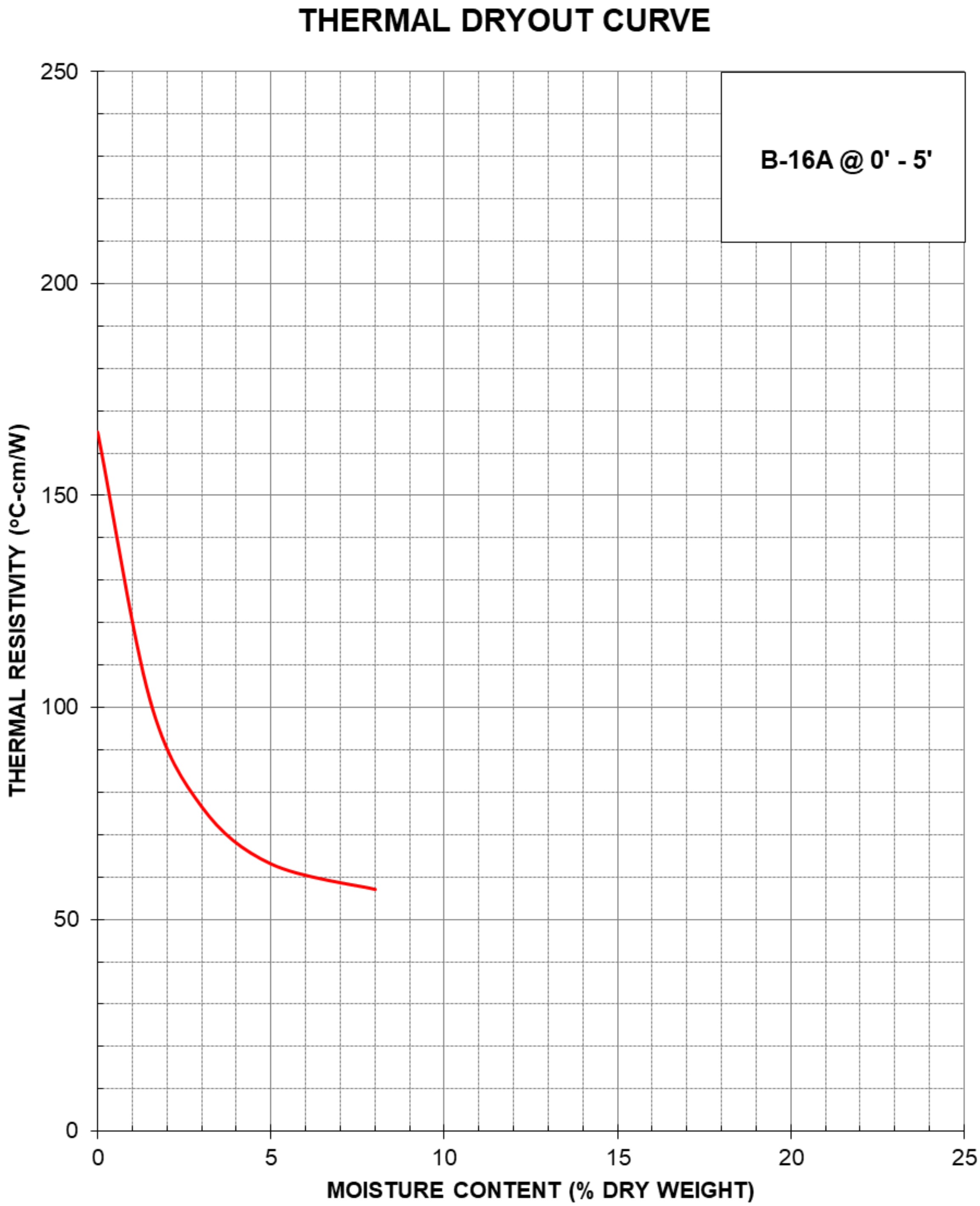
Terracon (Project No. 60225173)

Desert Breeze Solar – Hinkley, CA

Thermal Analysis of Native Soil Samples

February 2023 **Figure 4**

Geotherm USA



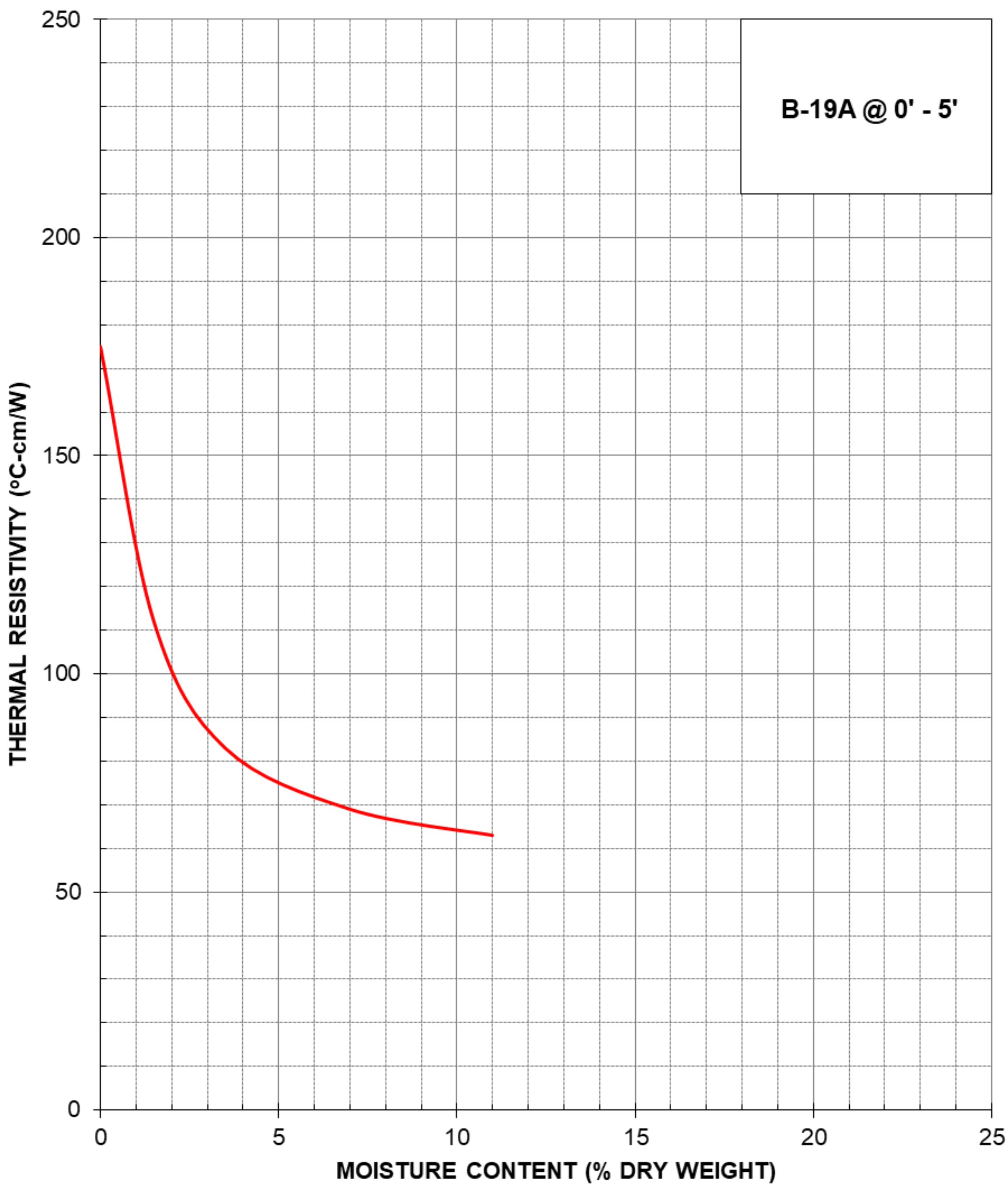
Terracon (Project No. 60225173)

Desert Breeze Solar – Hinkley, CA

Thermal Analysis of Native Soil Samples

February 2023 **Figure 5**

THERMAL DRYOUT CURVE



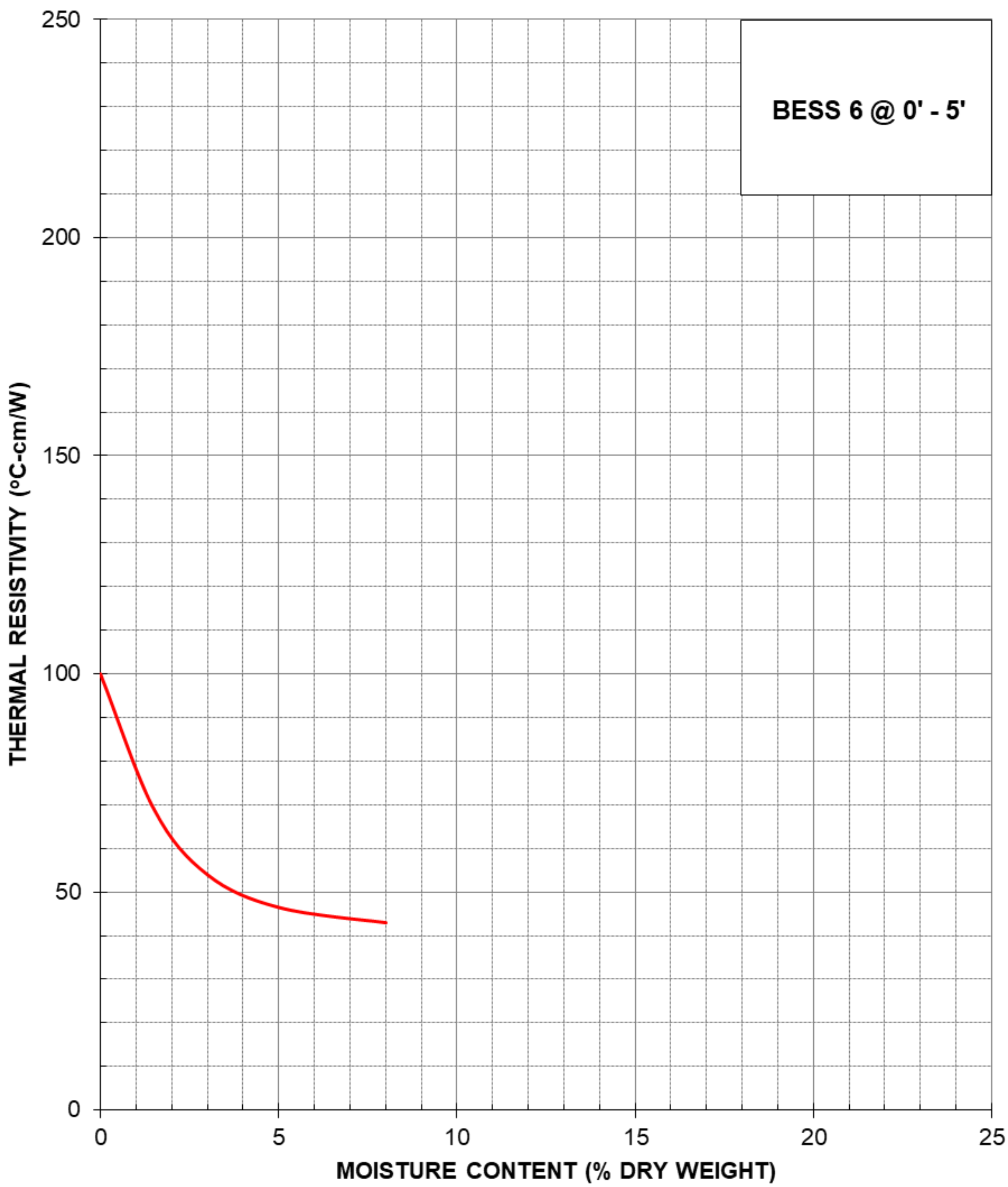
Terracon (Project No. 60225173)

Desert Breeze Solar – Hinkley, CA

Thermal Analysis of Native Soil Samples

February 2023 **Figure 6**

THERMAL DRYOUT CURVE



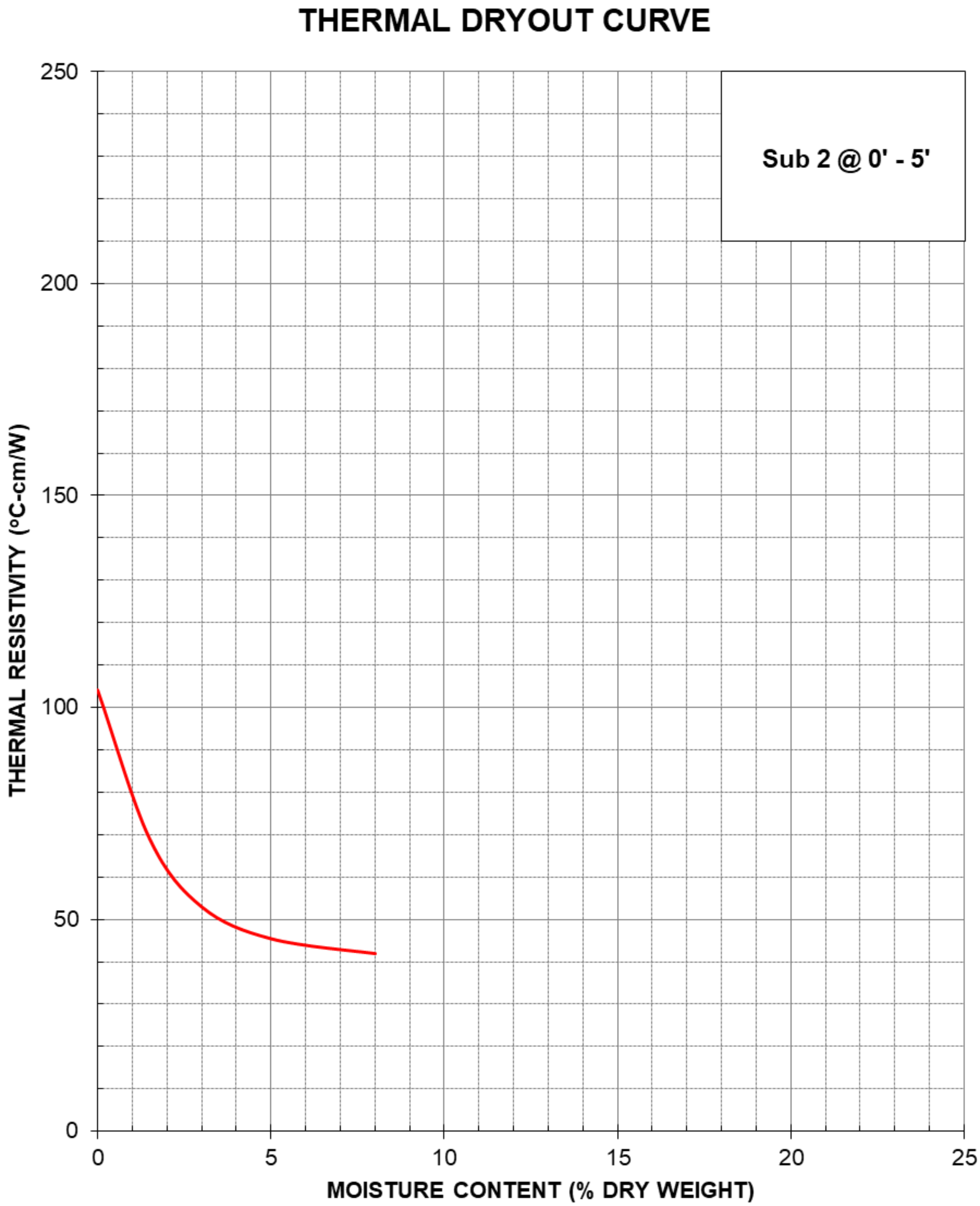
Terracon (Project No. 60225173)

Desert Breeze Solar – Hinkley, CA

Thermal Analysis of Native Soil Samples

February 2023 **Figure 7**

Geotherm USA



Terracon (Project No. 60225173)

Desert Breeze Solar – Hinkley, CA

Thermal Analysis of Native Soil Samples

February 2023 **Figure 8**

FIELD ELECTRICAL RESISTIVITY TEST DATA

Desert Breeze ■ Hinkley, CA
March 16, 2023 ■ Terracon Project No. 60225173

Array Loc. ER-1, (35.0268, -117.3653)

Instrument MiniSting R1 **Weather** Sunny

Serial # S2107129 **Ground Cond.** Exposed Soils

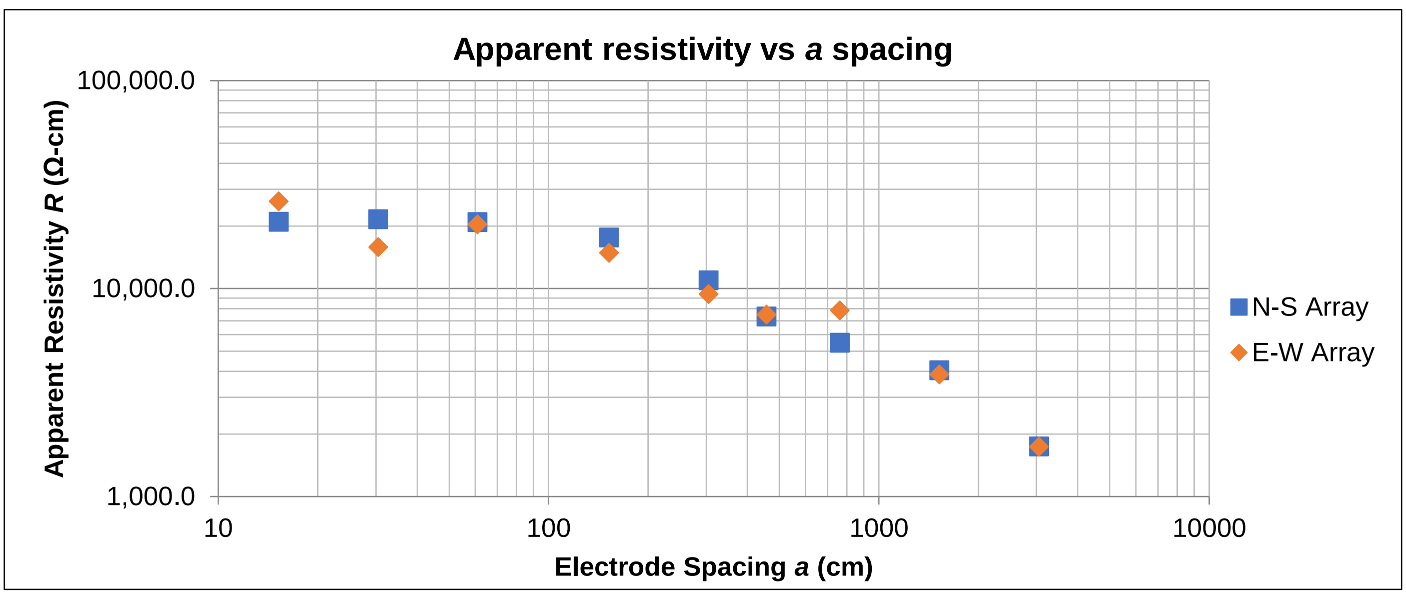
Cal. Check **Tested By** AL/JB

Test Date February 1, 2023 **Method** Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)

Notes & Conflicts

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2 + 4b^2}} - \dfrac{a}{\sqrt{a^2 + b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R*	Apparent Resistivity ρ	Measured Resistance *R*	Apparent Resistivity ρ
				Ω	(Ω-cm)	Ω	(Ω-cm)
0.5	15	2	5	188	20930	236	26290
1	30	2	5	107	21510	79	15840
2	61	2	5	54	20820	52	20330
5	152	2	5	18	17590	15	14860
10	305	2	5	6	10940	5	9380
15	457	3	8	3	7330	3	7480
25	762	4	10	1	5480	2	7840
50	1524	6	15	0.4	4040	0.4	3860
100	3048	6	15	0.1	1740	0.1	1730



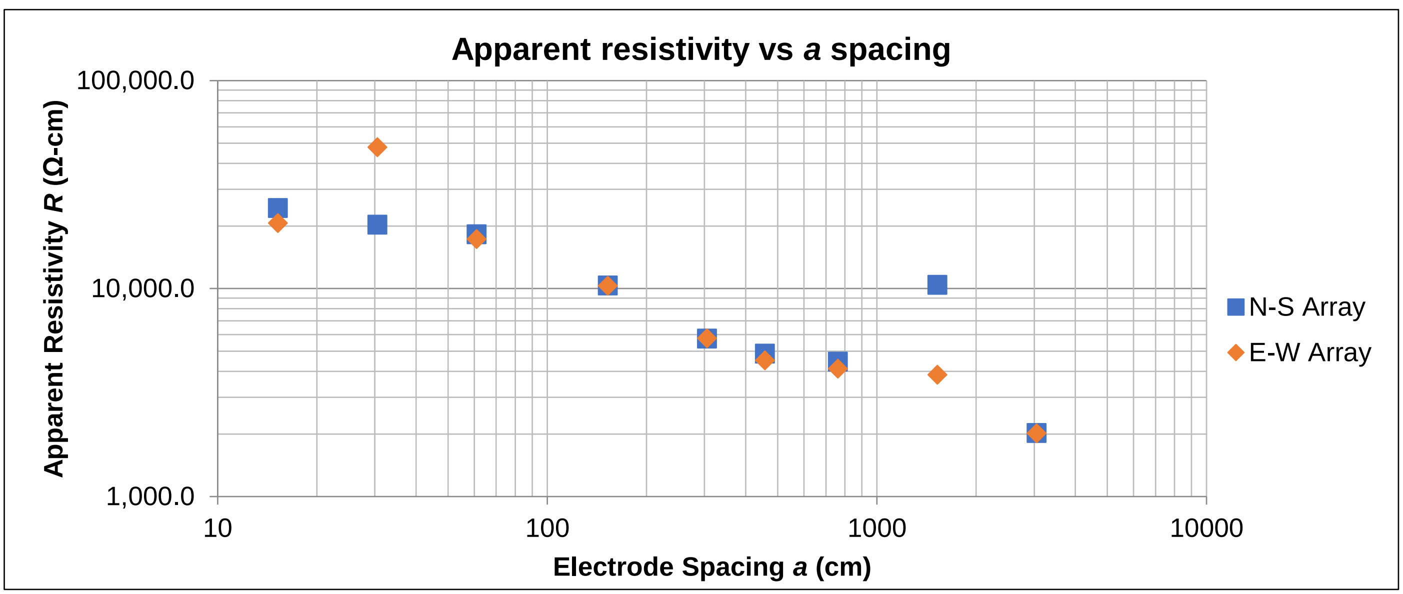
FIELD ELECTRICAL RESISTIVITY TEST DATA

Desert Breeze ■ Hinkley, CA
March 16, 2023 ■ Terracon Project No. 60225173

Array Loc.	ER-2, (35.0348, -117.3657)		
Instrument	MiniSting R1	**Weather**	Sunny
Serial #	S2107129	**Ground Cond.**	Exposed Soils
Cal. Check		**Tested By**	AL/JB
Test Date	February 2, 2023	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $$\rho = \frac{4\pi a R}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
0.5	15	2	5	218	24350	185	20660
1	30	2	5	101	20260	238	47700
2	61	2	5	47	18250	44	17250
5	152	2	5	11	10330	11	10290
10	305	2	5	3	5740	3	5770
15	457	3	8	2	4860	2	4510
25	762	4	10	0.9	4440	0.9	4120
50	1524	6	15	1	10400	0.4	3850
100	3048	6	15	0.1	2020	0.1	2010



FIELD ELECTRICAL RESISTIVITY TEST DATA

Desert Breeze ■ Hinkley, CA

March 16, 2023 ■ Terracon Project No. 60225173

Array Loc. ER-3, (35.0439,-117.3622)

Instrument MiniSting R1 **Weather** Sunny

Serial # S2107129 **Ground Cond.** Exposed Soils

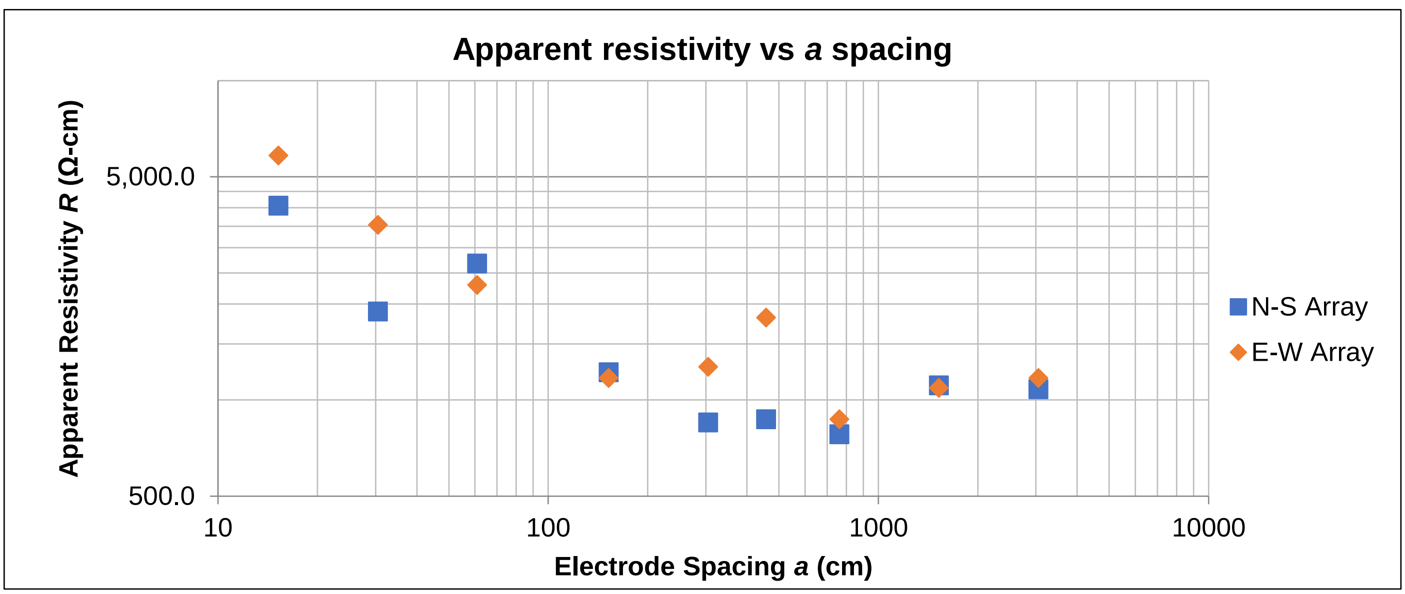
Cal. Check **Tested By** AL/JB

Test Date February 2, 2023 **Method** Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)

Notes & Conflicts

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2 + 4b^2}} - \dfrac{a}{\sqrt{a^2 + b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
0.5	15	2	5	36	4060	52	5830
1	30	2	5	9	1890	18	3530
2	61	2	5	7	2670	6	2290
5	152	2	5	1	1220	1	1170
10	305	2	5	0.4	850	0.7	1270
15	457	3	8	0.3	870	0.6	1810
25	762	4	10	0.2	780	0.2	870
50	1524	6	15	0.1	1110	0.1	1090
100	3048	6	15	0.1	1080	0.1	1170



FIELD ELECTRICAL RESISTIVITY TEST DATA

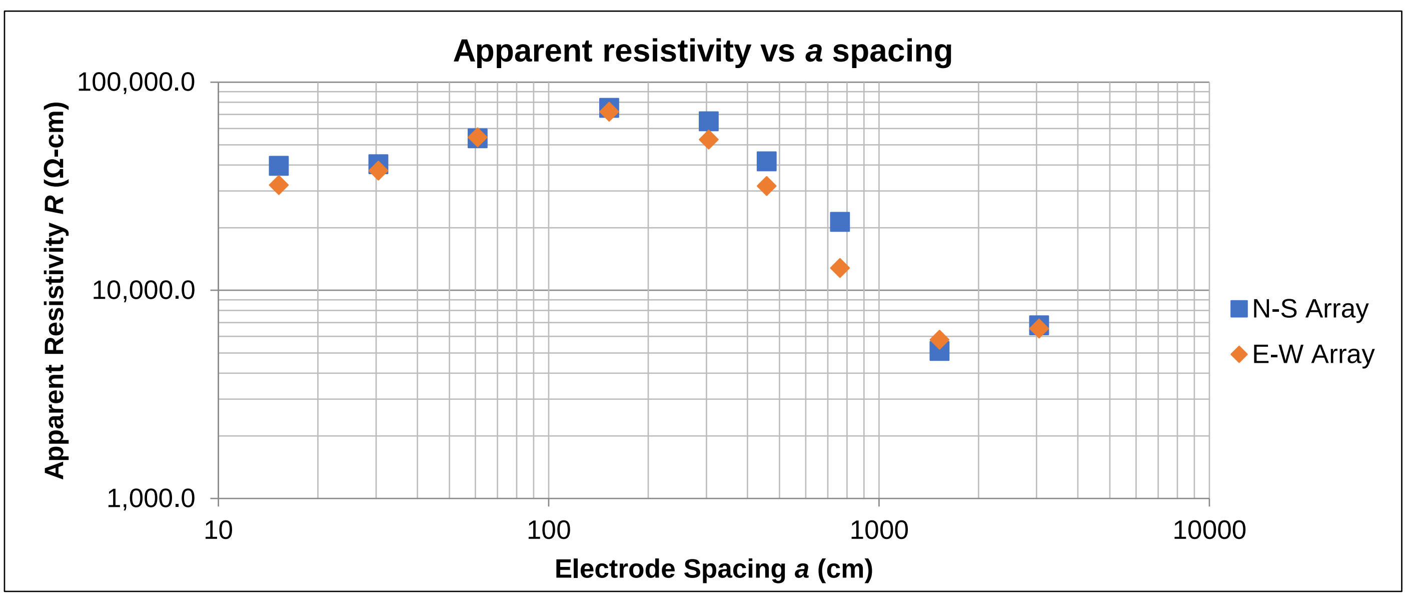
Desert Breeze ■ Hinkley, CA

March 16, 2023 ■ Terracon Project No. 60225173

Array Loc.	ER-4, (35.0513, -117.3661)		
Instrument	MiniSting R1	**Weather**	Sunny
Serial #	S2107129	**Ground Cond.**	Exposed Soils
Cal. Check		**Tested By**	AL/JB
Test Date	February 2, 2023	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $$\rho = \frac{4\pi a R}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
0.5	15	2	5	354	39570	287	32060
1	30	2	5	201	40310	187	37480
2	61	2	5	138	53650	140	54270
5	152	2	5	78	75280	75	72100
10	305	2	5	34	64820	28	52940
15	457	3	8	14	41530	11	31640
25	762	4	10	4	21280	3	12790
50	1524	6	15	0.5	5100	0.6	5780
100	3048	6	15	0.4	6790	0.3	6540

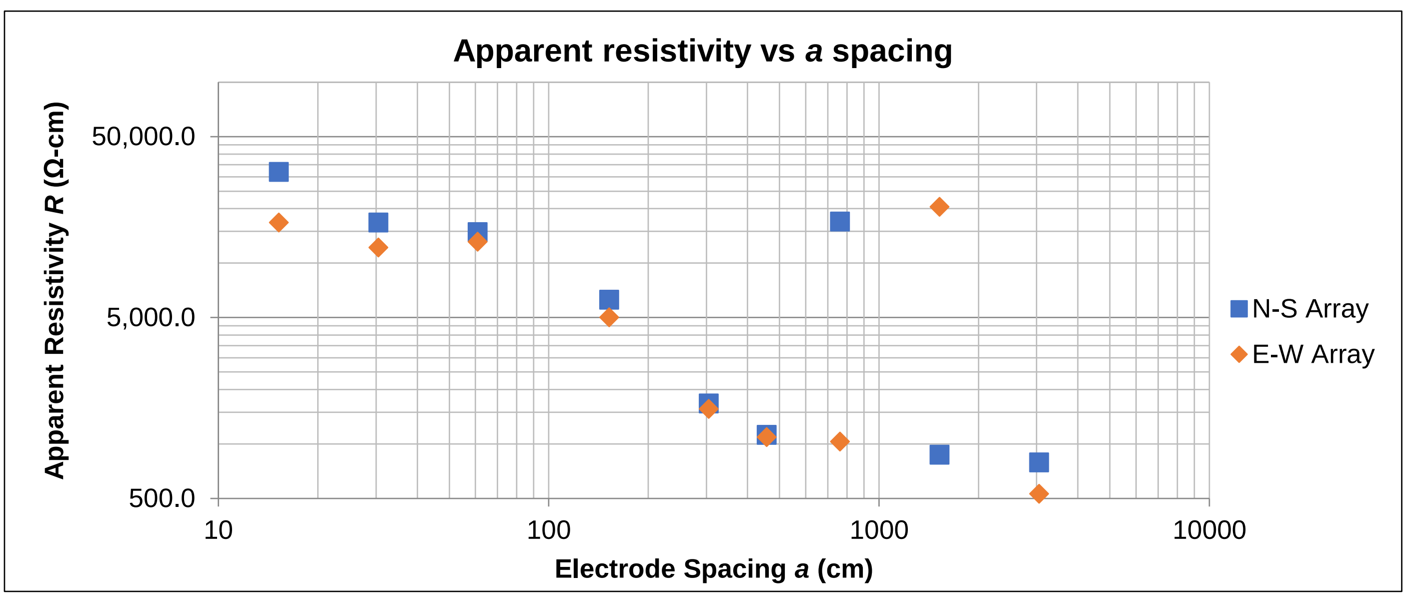


FIELD ELECTRICAL RESISTIVITY TEST DATA
Desert Breeze ■ Hinkley, CA
March 16, 2023 ■ Terracon Project No. 60225173

Array Loc. ER-5, (35.0504, -117.3521)
Instrument MiniSting R1 **Weather** Sunny
Serial # S2107129 **Ground Cond.** Exposed Soils
Cal. Check **Tested By** AL/JB
Test Date February 2, 2023 **Method** Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)
Notes & Conflicts

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
0.5	15	2	5	286	31900	150	16720
1	30	2	5	84	16760	61	12160
2	61	2	5	38	14800	34	13080
5	152	2	5	7	6260	5	5010
10	305	2	5	1	1670	1	1560
15	457	3	8	0.4	1120	0.4	1090
25	762	4	10	4	16910	0.2	1030
50	1524	6	15	0.1	870	2	20420
100	3048	6	15	0.04	790	0.03	530



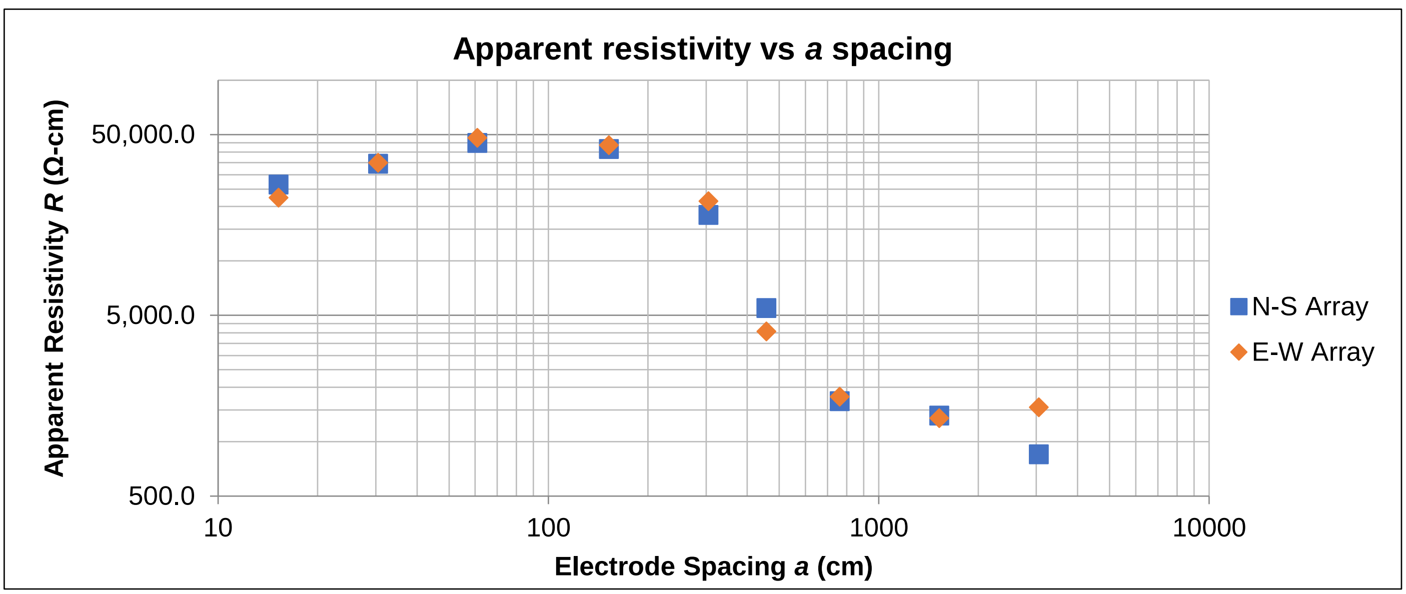
FIELD ELECTRICAL RESISTIVITY TEST DATA

Desert Breeze ■ Hinkley, CA
March 16, 2023 ■ Terracon Project No. 60225173

Array Loc.	ER-6, (35.0543, -117.3566)		
Instrument	MiniSting R1	**Weather**	Sunny
Serial #	S2107129	**Ground Cond.**	Exposed Soils
Cal. Check		**Tested By**	AL/JB
Test Date	February 2, 2023	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $$\rho = \frac{4\pi a R}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
0.5	15	2	5	237	26410	200	22360
1	30	2	5	172	34390	174	34920
2	61	2	5	116	44810	124	47950
5	152	2	5	43	41450	45	43620
10	305	2	5	9	17940	11	21380
15	457	3	8	2	5480	1	4060
25	762	4	10	0.3	1670	0.4	1770
50	1524	6	15	0.1	1390	0.1	1350
100	3048	6	15	0.04	850	0.1	1550



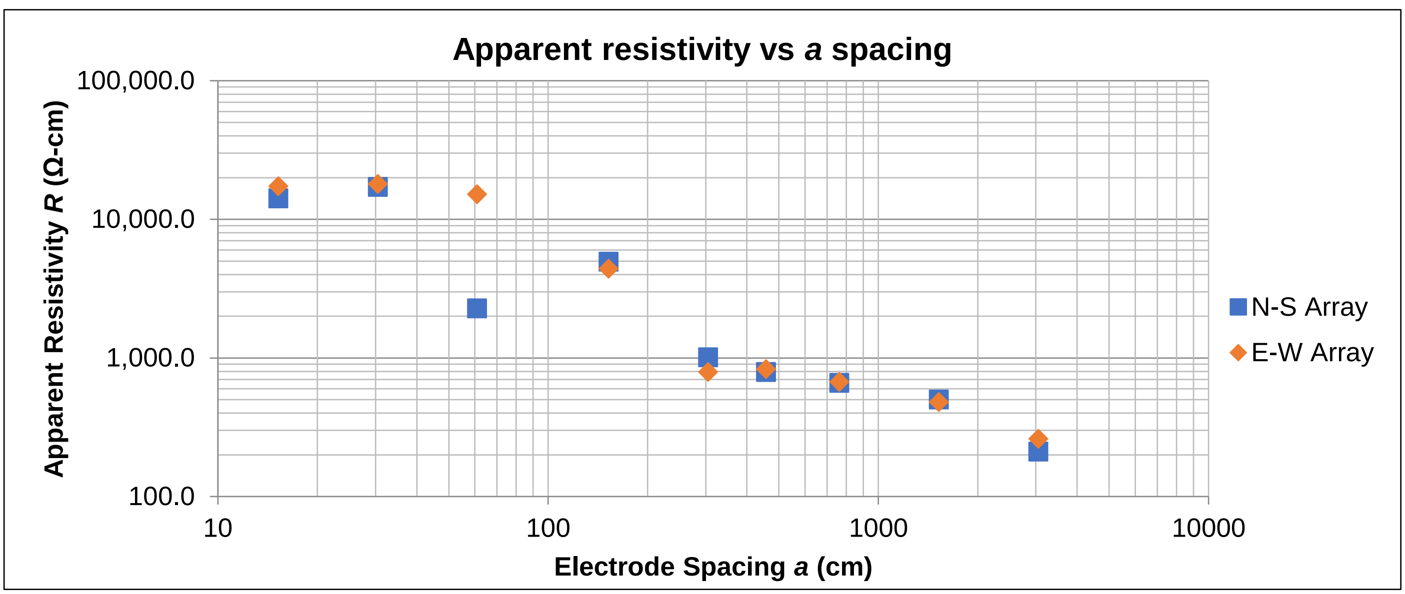
FIELD ELECTRICAL RESISTIVITY TEST DATA

Desert Breeze ■ Hinkley, CA
March 16, 2023 ■ Terracon Project No. 60225173

Array Loc.	ER-7, (35.0526, -117.3421)		
Instrument	MiniSting R1	**Weather**	Sunny
Serial #	S2107129	**Ground Cond.**	Exposed Soils
Cal. Check		**Tested By**	AL/JB
Test Date	February 2, 2023	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)
Notes & Conflicts			

Apparent resistivity ρ is calculated as : $$\rho = \frac{4\pi a R}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R*	Apparent Resistivity *ρ*	Measured Resistance *R*	Apparent Resistivity *ρ*
				Ω	(Ω-cm)	Ω	(Ω-cm)
0.5	15	2	5	127	14120	155	17260
1	30	2	5	85	17080	89	17900
2	61	2	5	6	2270	39	15120
5	152	2	5	5	4930	5	4390
10	305	2	5	0.5	1010	0.4	790
15	457	3	8	0.3	790	0.3	830
25	762	4	10	0.1	660	0.1	670
50	1524	6	15	0.1	500	0.05	480
100	3048	6	15	0.01	210	0.01	260



FIELD ELECTRICAL RESISTIVITY TEST DATA

Desert Breeze ■ Hinkley, CA
March 16, 2023 ■ Terracon Project No. 60225173

Array Loc. ER-8, (35.0473, -117.3399)

Instrument MiniSting R1 **Weather** Sunny

Serial # S2107129 **Ground Cond.** Exposed Soils

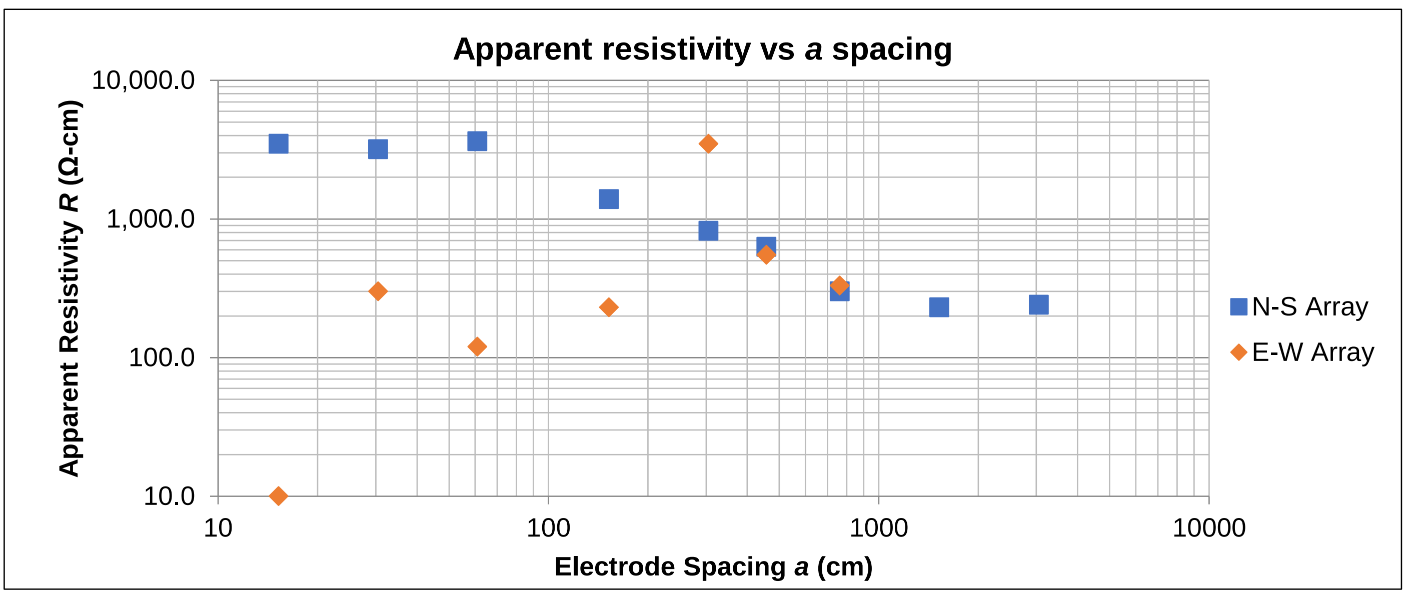
Cal. Check **Tested By** AL/JB

Test Date February 2, 2023 **Method** Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)

Notes & Conflicts Issues with test results due to potential equipment malfunction or unidentified source of interference. Locations will be retested.

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2 + 4b^2}} - \dfrac{a}{\sqrt{a^2 + b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
0.5	15	2	5	31	3490	0.1	10
1	30	2	5	16	3180	2	300
2	61	2	5	9	3640	0.3	120
5	152	2	5	1	1390	0.2	230
10	305	2	5	0.4	820	2	3480
15	457	3	8	0.2	630	0.2	550
25	762	4	10	0.1	300	0.1	330
50	1524	6	15	0.02	230		
100	3048	6	15	0.01	240		



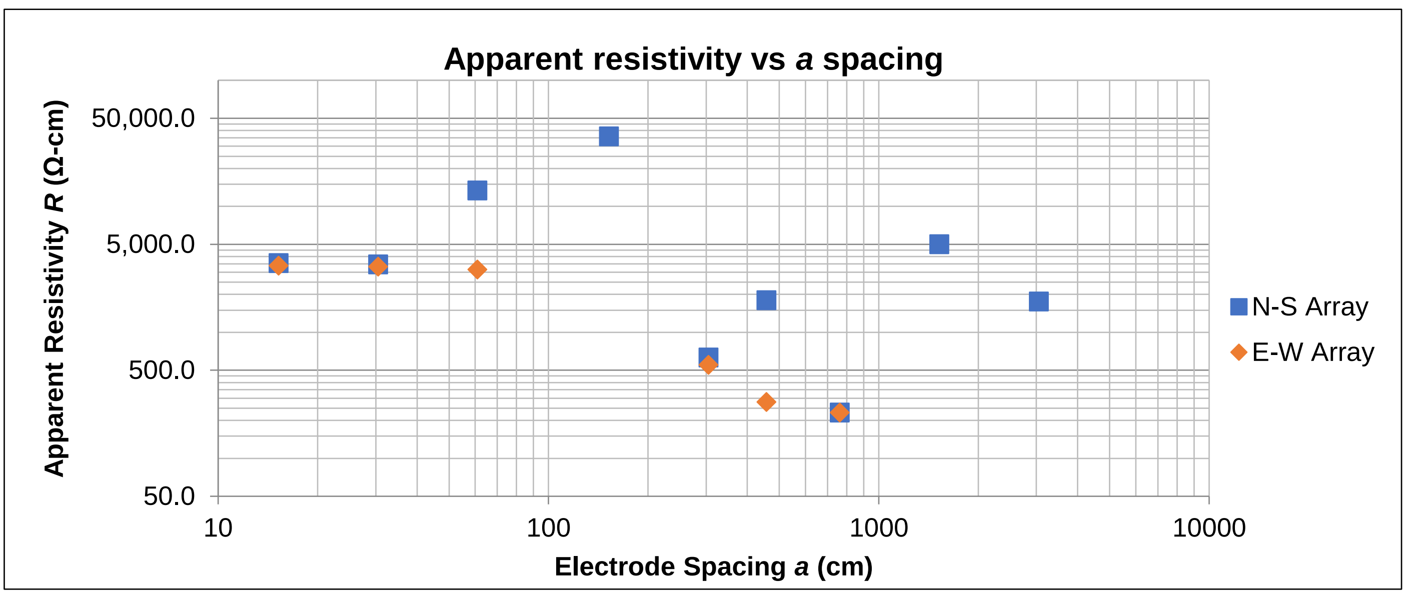
FIELD ELECTRICAL RESISTIVITY TEST DATA

Desert Breeze ■ Hinkley, CA
March 16, 2023 ■ Terracon Project No. 60225173

Array Loc.	ER-9, (35.0448, -117.3343)		
Instrument	MiniSting R1	**Weather**	Sunny
Serial #	S2107129	**Ground Cond.**	Exposed Soils
Cal. Check		**Tested By**	AL/JB
Test Date	February 3, 2023	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)
Notes & Conflicts	Issues with test results due to potential equipment malfunction or unidentified source of interference. Locations will be retested.		

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2 + 4b^2}} - \dfrac{a}{\sqrt{a^2 + b^2}}}$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity ρ (Ω-cm)
0.5	15	2	5	32	3540	30	3370
1	30	2	5	17	3460	17	3310
2	61	2	5	34	13310	8	3140
5	152	2	5	37	35920	0.002	0
10	305	2	5	0.3	630	0.3	550
15	457	3	8	0.6	1790	0.1	280
25	762	4	10	0.05	230	0.05	230
50	1524	6	15	0.5	4990		
100	3048	6	15	0.1	1750		



FIELD ELECTRICAL RESISTIVITY TEST DATA

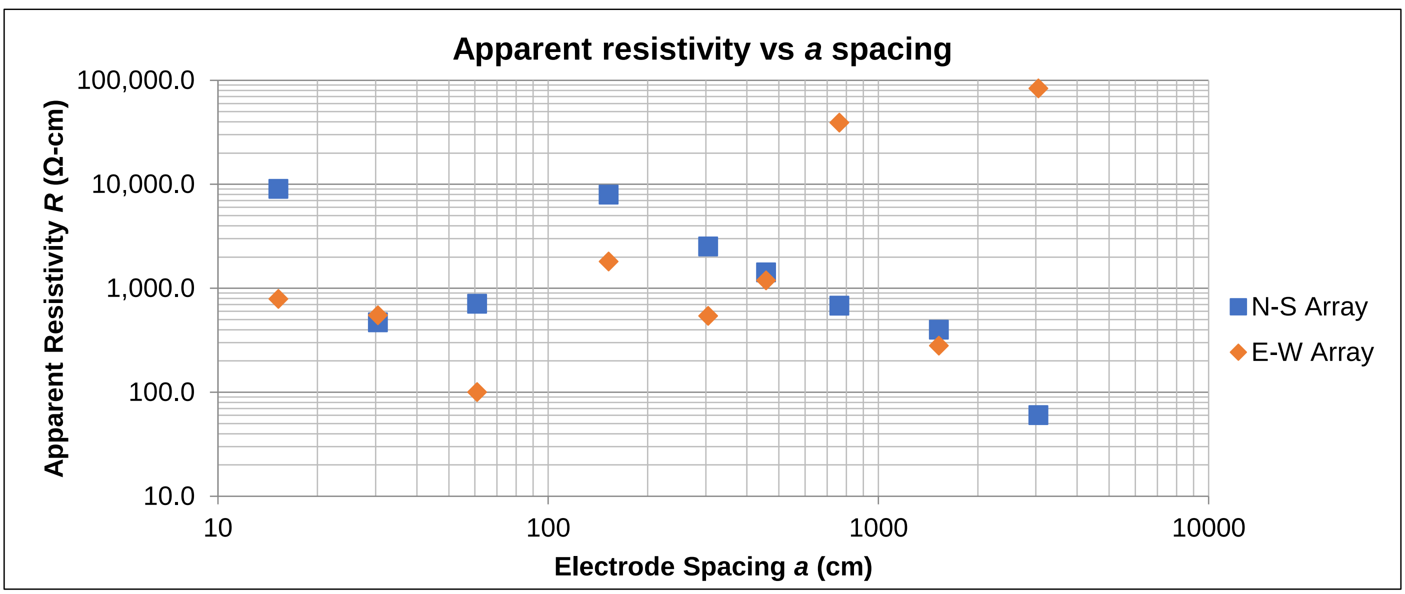
Desert Breeze ■ Hinkley, CA

March 16, 2023■ Terracon Project No. 60225173

Array Loc.	ER-10, (35.0415, -117.3397)		
Instrument	MiniSting R1	**Weather**	Sunny
Serial #	S2107129	**Ground Cond.**	Exposed Soils
Cal. Check		**Tested By**	AL/JB
Test Date	February 3, 2023	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)
Notes & Conflicts	Issues with test results due to potential equipment malfunction or unidentified source of interference. Locations will be retested.		

Apparent resistivity ρ is calculated as : $$\rho = \frac{4\pi a R}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R*	Apparent Resistivity *ρ*	Measured Resistance *R*	Apparent Resistivity *ρ*
				Ω	(Ω-cm)	Ω	(Ω-cm)
0.5	15	2	5	81	9020	7	790
1	30	2	5	2	470	3	550
2	61	2	5	2	710	0.3	100
5	152	2	5	8	7950	2	1800
10	305	2	5	1	2520	0.3	540
15	457	3	8	0.5	1420	0.4	1190
25	762	4	10	0.1	680	8	39150
50	1524	6	15	0.04	400	0.03	280
100	3048	6	15	0.003	60	4	83330



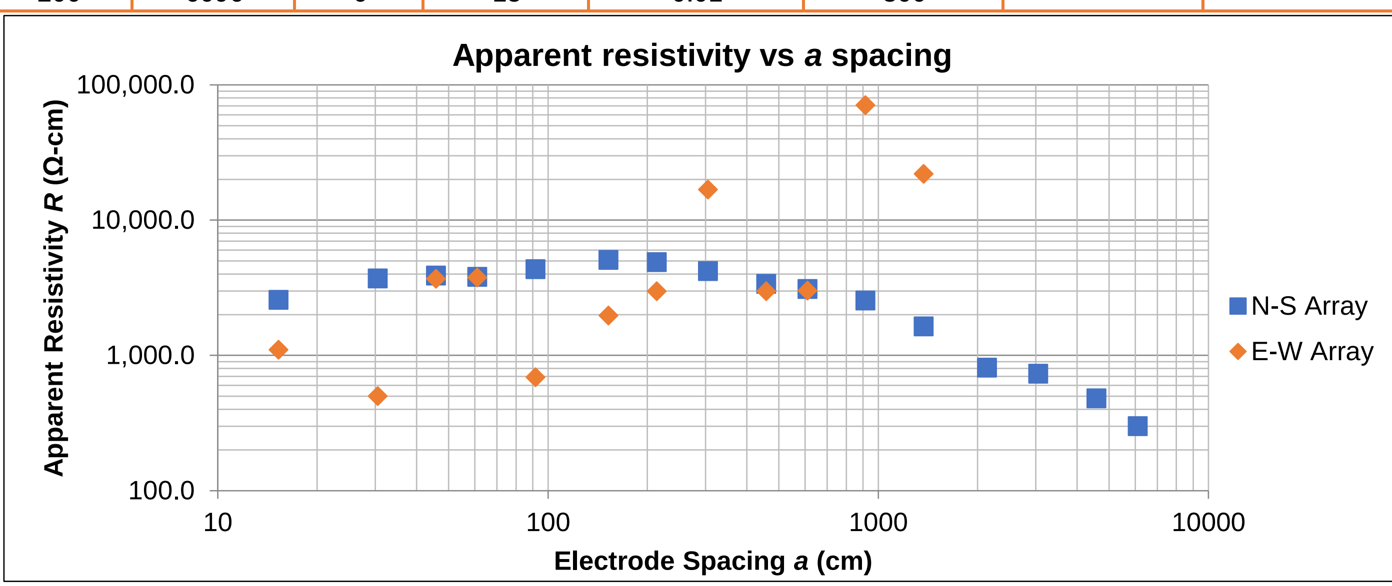
FIELD ELECTRICAL RESISTIVITY TEST DATA

Desert Breeze ■ Hinkley, CA
March 16, 2023 ■ Terracon Project No. 60225173

Array Loc.	ER-11, (35.03108, -117.34590)		
Instrument	MiniSting R1	**Weather**	Sunny
Serial #	S2107129	**Ground Cond.**	Exposed Soils
Cal. Check		**Tested By**	AL/JB
Test Date	February 3, 2023	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)
Notes & Conflicts	Possible interference on test readings due to proximity to power lines and existing switchyard.		

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2 + 4b^2}} - \dfrac{a}{\sqrt{a^2 + b^2}}}$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)	Measured Resistance *R* Ω	Apparent Resistivity *ρ* (Ω-cm)
0.5	15	2	5	23	2570	10	1100
1	30	2	5	18	3700	3	500
1.5	46	2	5	13	3890	13	3680
2	61	2	5	10	3800	10	3760
3	91	2	5	8	4330	1	690
5	152	2	5	5	5080	2	1970
7	213	3	8	4	4880	2	2970
10	305	3	8	2	4190	9	16850
15	457	3	8	1	3370	1	2970
20	610	4	10	0.8	3100	1	3010
30	914	6	15	0.4	2540	12	70680
45	1372	6	15	0.2	1640	3	21960
70	2134	6	15	0.1	810		
100	3048	6	15	0.04	730		
150	4572	6	15	0.02	480		
200	6096	6	15	0.01	300		



FIELD ELECTRICAL RESISTIVITY TEST DATA

Desert Breeze ■ Hinkley, CA
March 16, 2023 ■ Terracon Project No. 60225173

Array Loc. ER-12, (35.0275, -117.3479)

Instrument MiniSting R1 **Weather** Sunny

Serial # S2107129 **Ground Cond.** Exposed Soils

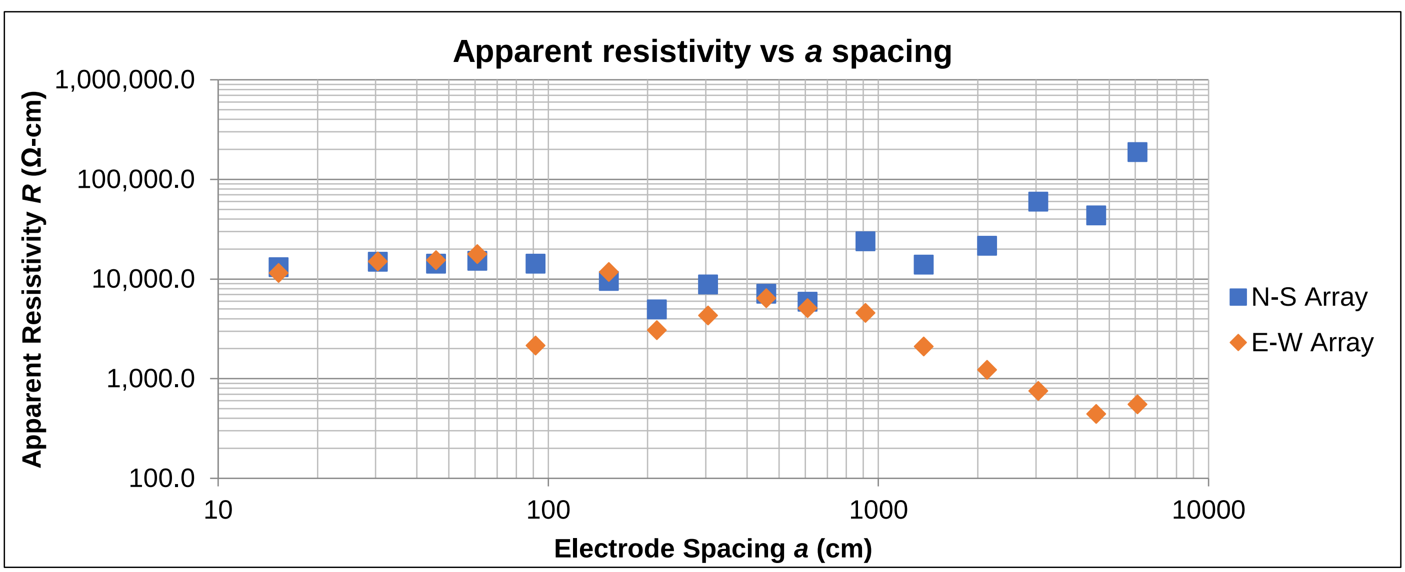
Cal. Check **Tested By** AL/JB

Test Date February 3, 2023 **Method** Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)

Notes & Conflicts Possible interference on test readings due to proximity to power lines and existing switchyard.

Apparent resistivity ρ is calculated as : $$\rho = \frac{4\pi aR}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode Spacing *a*		Electrode Depth *b*		N-S Test		E-W Test	
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R*	Apparent Resistivity *ρ*	Measured Resistance *R*	Apparent Resistivity *ρ*
				Ω	(Ω-cm)	Ω	(Ω-cm)
0.5	15	2	5	117.50	13120	103.10	11510
1	30	2	5	74.01	14830	74.94	15020
1.5	46	2	5	48.40	14200	52.48	15400
2	61	2	5	39.21	15200	45.82	17760
3	91	2	5	24.61	14220	3.71	2140
5	152	2	5	9.94	9540	12.22	11720
7	213	3	8	3.69	4960	2.28	3060
10	305	3	8	4.59	8800	2.23	4280
15	457	3	8	2.48	7120	2.23	6420
20	610	4	10	1.54	5910	1.33	5110
30	914	6	15	4.15	23880	0.79	4560
45	1372	6	15	1.61	13870	0.24	2100
70	2134	6	15	1.61	21550	0.09	1220
100	3048	6	15	3.11	59510	0.04	750
150	4572	6	15	1.51	43320	0.02	440
200	6096	6	15	4.89	187420	0.01	550

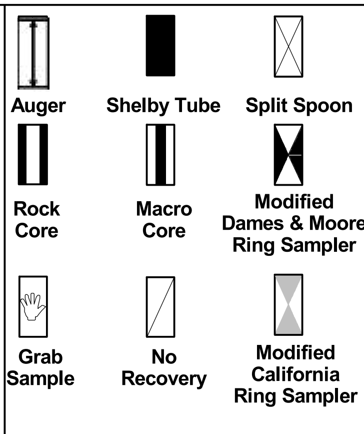


SUPPORTING INFORMATION

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING



WATER LEVEL

- **Water Initially Encountered**
- **Water Level After a Specified Period of Time**
- **Water Level After a Specified Period of Time**

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

(HP)	**Hand Penetrometer**
(T)	**Torvane**
(b/f)	**Standard Penetration Test (blows per foot)**
N	**N value**
(PID)	**Photo-Ionization Detector**
(OVA)	**Organic Vapor Analyzer**
(WOH)	Weight of Hammer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts.			**CONSISTENCY OF FINE-GRAINED SOILS** (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance			
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength, Qu, psf**	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**
Very Loose	0 - 3	0 - 6	Very Soft	less than 500	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	500 to 1,000	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	1,000 to 2,000	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	2,000 to 4,000	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	4,000 to 8,000	15 - 30	19 - 42
			Hard	> 8,000	> 30	> 42

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm
Silt or Clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

UNIFIED SOIL CLASSIFICATION SYSTEM

Terracon GeoReport

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]				Soil Classification	
				Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]	GW	Well-graded gravel [F]
			$Cu < 4$ and/or [Cc<1 or Cc>3.0] [E]	GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH	GM	Silty gravel [F, G, H]
			Fines classify as CL or CH	GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]	SW	Well-graded sand [I]
			$Cu < 6$ and/or [Cc<1 or Cc>3.0] [E]	SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH	SM	Silty sand [G, H, I]
			Fines classify as CL or CH	SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A"	CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]	ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OL	Organic clay [K, L, M, N]
					Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line	CH	Fat clay [K, L, M]
			PI plots below "A" line	MH	Elastic Silt [K, L, M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OH	Organic clay [K, L, M, P]
					Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.