# Revised Geotechnical Engineering Report

## Rancho Viejo Solar Array, Substation, BESS, and Transmission Line

## Near NM 599 and NM 14, Santa Fe, New Mexico

April 16, 2024

Terracon Project No. 66225093

**Prepared for:**

AES Clean Energy
282 Century Place, Suite 2000
Louisville, Colorado 80027

**Prepared by:**

Terracon Consultants. Inc.
6805 Academy Parkway West NE
Albuquerque, New Mexico 87109

Terracon

6805 Academy Parkway West NE
Albuquerque, New Mexico 87109
P (505) 797-4287
Terracon.com

April 16, 2024

AES Clean Energy
282 Century Place, Suite 2000
Louisville, Colorado 80027

Attn: Mr. Jourdan Labonte, P.E., M.Eng.
P: (737) 239-9060
E: Jourdan.Labonte@aes.com

Re: Geotechnical Engineering Report
Rancho Viejo Solar Facility
Santa Fe County, New Mexico
Terracon Project No. 66225093

Dear Mr. Labonte,

Terracon Consultants, Inc. (Terracon) has completed the Design-Level Geotechnical Engineering services for the above referenced project. This study was performed in general accordance with our proposal number P66225093 – Revision No. 2 dated June 6, 2023. This geotechnical engineering report presents the results of the subsurface exploration, laboratory testing, pile load testing, engineering analyses and design-level geotechnical engineering recommendations with regard to the design and construction of the proposed Rancho Viejo Solar Array, Substation, BESS, and Transmission Line.

We appreciate the opportunity to continue 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

Stenson D. Lee
Staff Professional

BRANDI L. BUTTS
NEW MEXICO
23284
PROFESSIONAL ENGINEER
04/16/2024

Brandi Butts, P.E. (NM)
Senior Engineer

Charles V. Molthen, P.E.
Department Manager II

SME Review by: Rachel Pott, P.E. (CO)

## TABLE OF CONTENTS

# 1.0 Introduction

Terracon Consultants, Inc. (Terracon) is pleased to submit this geotechnical engineering report detailing the completed pile load testing and design-level geotechnical engineering services performed for the proposed Rancho Viejo Solar Array, Substation, BESS, and Transmission Line to be located in Santa Fe County, New Mexico. The Site Location (Exhibit A-1) is included in Appendix A of this report. The purpose of these services is to provide subsurface information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Site preparation and earthwork
- Thermal resistivity of trench/backfill
- Pile load test results
- Unpaved access roads
- Groundwater conditions
- Seismic considerations
- Electrical resistivity for grounding design
- Foundation design and construction
- Corrosion considerations

Our geotechnical engineering scope of work for this project included the following:

- A total of 35 test borings drilled to approximate depths from 6 to 41½ feet below the existing ground surface (bgs);
- A total of 17 test pits excavated approximate depths from 1 to 10 feet;
- Field electrical resistivity testing at 22 locations;
- Pile load testing at 10 locations that includes 1 axial compression load tests, 9 axial tensile load tests, and 9 lateral load tests;
- Thirteen (13) laboratory thermal resistivity dry-out curves tested by Geotherm USA;
- Corrosion testing performed on bulk samples obtained at 6 locations;
- Laboratory testing of soil samples;
- Geotechnical engineering analysis; and
- Preparation of this report.

Terracon previously performed a preliminary geotechnical engineering report, dated December 21, 2022, for the project which included the following scope of work, portions of which have been incorporated into this report:

- Field electrical resistivity testing at 4 locations;
- A total of 16 test borings drilled to an approximate depth of approximately 16½ to 31½ feet bgs;
- Pile Load testing at 6 locations that included 6 axial compression tests, 12 axial tensile load tests, and 12 lateral load tests;
- Corrosion testing performed on bulk samples obtained at 16 locations; and
- Laboratory testing of soil samples

The locations of the borings and test pits are shown on the Exploration Plans (Exhibits A-2 and A-5) in Appendix A. A log of each boring and test pit is included in Appendix A (Exhibits A-10 thru A-81) of this report. 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 in Appendix B (Exhibits B-1 through B-64) of this report. The location of the thermal resistivity tests is shown on the Thermal Resistivity Test Plan (Exhibit C-1) in Appendix C. The thermal resistivity test results are included in Appendix C of this report. The location of the field electrical resistivity tests is shown on the Field Electrical Resistivity Testing Map (Exhibit D-1) in Appendix D. The field electrical resistivity test results are included in Appendix D of this report. The pile load testing locations are shown on the Pile Load Test Zoning Plan (Exhibit E-1) in Appendix E, along with the pile drive times as shown on Exhibits E-2 through E-8. The pile load testing results are included in Appendices F, G and H.

# 2.0 Project Information

## 2.1 Project Description

| Item | Description |
|---|---|
| Project Description | The project consists of providing site and subsurface conditions for a proposed solar project. The size of the project in acres is estimated to be about 762 acres and will include a Battery Energy Storage System (BESS) and substation. We also understand a 2.3-mile-long gen-tie alignment is planned to tie the project substation to an existing off-site substation. Services associated with the substation and gen-tie have been provided under a separate report. |
| Proposed Construction | We understand the solar structures will be supported by driven steel piles, and equipment structures will be supported by driven steel piles or mat foundations. |
| Maximum Loads | Structural loads were not provided, but have been estimated based on our experience on projects using single axis tracking rack systems:<br>▪ Downward: 1 to 7 kips<br>▪ Lateral 1 to 3.5 kips<br>▪ Uplift: 0.5 to 3 kips<br>▪ Moments: 0.1 to 30 kip-ft. |
| Grading/Slopes | The site is relatively flat, and we understand the arrays will generally follow the existing topography, therefore, minimal site grading is anticipated. |
| Access Roads | Unpaved access roads are planned for the site as described below: |

| Item | Description |
|---|---|
| | ▪ Interior access roads are to support post-construction traffic which we understand will be primarily light maintenance vehicles. The roads will be required to support a maximum vehicle load of 80,000 pounds for emergency vehicle and/or fire truck access. Additionally, the substation access road should be able to support heavy vehicle delivery (HS-20 loading) up to two times per year throughout the design life.<br>▪ We understand it is acceptable for the access roads to require ongoing maintenance throughout their design life. |
| Storm Water Management | Terracon understands that up to 2 retention basins are planned as part of the storm water management system for the site. Our scope of services included performing percolation testing within the proposed basin areas. |

## 2.2 Site Location and Description

| Item | Description |
|---|---|
| Parcel Information | The proposed solar facility is located near the intersection of NM 599 and NM 14 in Santa Fe County, New Mexico.<br>Coordinates near the approximate center of the site are: 35.5445°N latitude and -106.0111°W longitude.<br>Total Area: Approximately 1,000 acres<br>Buildable array area: Approximately 762 Acres<br>See Exhibit D for site location. |
| Existing Improvements | The project site is currently an undeveloped parcel consisting of ranch and farmland with unimproved trails. |
| Current Ground Cover | Soil and vegetation |
| Existing Topography | The site is relatively flat with a slight slope going down from west and southwest.<br>Based on review of topographic map information, the elevation across the site varies from approximately 6,340 to 6,490 feet MSL. |

# 3.0 Exploration and Testing Procedures

## 3.1 Field Exploration

The field exploration on the project consisted of the following exploration plan. The approximate exploration locations are shown on the Exploration Plans (Exhibits A-2 and A-3) in Appendix A.

| Number of Explorations | Type of Exploration | ID Nos. | Approximate Depth (feet) | Location |
|---|---|---|---|---|
| 30 | Borings | A-01 through A-15<br>B-01 through B-15[1] | 16½ to 21½ | Proposed Array Areas |
| 14 | Test Pits | TP-1 through TP-15 | 10 | |
| 3 | Borings | BESS-01 and BESS-03 | 36½ to 41½ | Proposed BESS Area |
| 1 | Test Pit | TP-BESS | 10 | |
| 3 | Borings | B-Sub[1], Sub-01, Sub-02 | 31½ to 41½ | Proposed Substation Area |
| 1 | Test Pit | TP-SUB | 10 | |
| 3 | Borings | BW-01 through BW-03 | 31½ | Proposed Switching Station |
| 1 | Test Pit | TP-SW | 10 | |
| 4 | Borings | T-01 through T-04 | 31½ | Proposed T Line Overhead |
| 8 | Borings | P-01 through P-08 | 6 to 6½ | Proposed Access Road |

1. Performed as part of the preliminary phase.

Additionally, 2 double ring infiltrometer tests (DRI-01 and DRI-02) were performed in proposed retention basin areas across the site. The approximate infiltration test locations are shown on the Infiltration Test Location Plan (Exhibit I-1) in Appendix I. The infiltration testing was performed in general accordance with ASTM D3385. The infiltration testing consisted of two cylinders that are driven into the soil with the smaller cylinder inside the larger. Both the outside ring and the inside cylinder are filled with water and measurements are obtained from the inside ring. This method of determining infiltration rates of the soil substantially prevents lateral flow of the water and therefore a more accurate infiltration rate of downward flow. Subsequently, a Terracon geotechnical field geologist/engineer performed the infiltration tests. The field measurements of the infiltration testing in inches per hour are summarized on Exhibits I-2 through I-3 in Appendix I.

The infiltration test field measurements are provided to aid with the design of the proposed storm-water retention basins. We understand the storm-water retention basin design will be performed by others. The field infiltration rates measured are based on the soil conditions encountered at the particular location of the infiltration tests, and the actual infiltration rates may vary from the values reported here. It should be noted that siltation and vegetation growth along with other factors may affect the infiltration rates of the on-site areas. The infiltration rates presented in this addendum are unfactored field measurements, and appropriate de-rating factors should be applied to these infiltration rates during the design of the proposed storm-water retention basins (performed by others).

We recommend the proposed retention basins be constructed/excavated with light weight equipment to help reduce compaction of the basin bottom surface, which will ultimately be used for infiltration of storm water. Once constructed, no traffic should be allowed to travel across the basin bottom. It should be noted that compaction of the basin bottom will result in reduced infiltration rates. If compaction of the basin bottom does occur, the exposed surface should be scarified to a minimum depth of 8 inches and left uncompacted.

Exploration Layout and Elevations: Terracon provided the exploration layout. Exploration points in the field were located with a handheld GPS unit (estimated horizontal accuracy of about ±15 feet). Approximate elevations were obtained from Google Earth Pro. If a more precise layout or elevations are desired, we recommend the explorations be surveyed.

Boring Procedures: We advanced the borings with a truck-mounted CME-75 and CME-55 drill rig utilizing 7 to 8-inch outside diameter hollow-stem augers. At selected intervals, samples of the subsurface materials were taken at each boring location by driving split-spoon (SPT) or ring-lined barrel samplers in general accordance with ASTM Standards. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon is 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 is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. A 3-inch O.D. split-barrel sampling spoon with 2.5-inch I.D. ring lined sampler was used for sampling in the upper ten feet in the soil borings. Ring-lined, split-barrel sampling procedures are similar to standard split spoon sampling procedure; however, blow counts are typically recorded for 6-inch intervals for a total of 12 inches of penetration. Bulk samples of subsurface materials were obtained from all the borings. For safety purposes, all borings were backfilled with auger cuttings after their completion.

Test Pit Procedures: The test pits were excavated using a Komatsu PC170 excavator equipped with a 36-inch-wide bucket. Continuous lithologic logs of each test pit were recorded by our field engineer during the field exploration. Samples were collected from the test pits and then transported to our laboratory for further observations, testing, and classifications. The test pits were backfilled with the excavated soils upon completion. Groundwater was not encountered in any of the test pits at the time of the field exploration.

## 3.2 Laboratory Testing

Samples retrieved during the field exploration were taken to the laboratory for further observation by the project geotechnical engineer and were classified in accordance with the Unified Soil Classification System (USCS) and Rock Classification described in Exhibits A-5 and A-6 in Appendix A. At that time, the field descriptions were confirmed or modified as necessary, and an applicable laboratory testing program was formulated to determine engineering properties of the subsurface materials.

Laboratory tests were conducted on selected soil samples and the test results are presented in Appendix B (Exhibits B-1 through B-64) of this report. These results were used for the geotechnical engineering analyses, and the development of foundation recommendations. Laboratory tests were performed in general accordance with the applicable ASTM, local or other accepted standards. Selected soil samples obtained from the site were tested for the following engineering properties:

- Atterberg Limits
- Moisture Content
- One-Dimensional Consolidation
- Soluble Sulfate
- Soluble Chloride
- Total Salts
- Oxidation-Reduction Potential
- Sieve Analysis
- Dry Density
- R-Value
- Moisture Density Relationship
- pH
- Minimum Electrical Resistivity
- Thermal Resistivity

# 4.0 Subsurface Profile

## 4.1 Typical Subsurface Profile

Specific conditions encountered at each boring and test pit location are indicated on the individual logs presented in Appendix A (Exhibits A-7 thru A-81) section of this report. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; in-situ, the transition between materials may be gradual. Based on conditions encountered in the borings, subsurface conditions on the project site can be generalized as follows:

Array Area

| Description [1] | Approximate Depth to Bottom of Stratum (feet) | Material Description | Consistency / Relative Density / Strength |
|---|---|---|---|
| Stratum 1 | 2 to 21½ (maximum depth explored) | Silty Sand, Clayey Sand, Silty Clayey Sand, Poorly Graded Sand with Silt, Well Graded Sand with Silt | Loose to Very Dense |

Array Area

| Description [1] | Approximate Depth to Bottom of Stratum (feet) | Material Description | Consistency / Relative Density / Strength |
|---|---|---|---|
| Stratum 2 | 2 to 21½ (maximum depth explored) | Sandy Lean Clay, Lean Clay with Sand, Silt and Sandy Silt | Soft to Hard |

1. Topsoil thickness in array area noted at 2” to 4” with an average depth of approximately 3".

BESS and Substation Area

| Description [1, 2] | Approximate Depth to Bottom of Stratum (feet) | Material Description | Consistency / Relative Density / Strength |
|---|---|---|---|
| Stratum 1 | 2 to 6½ | Silty Sand, Clayey Sand, Well Graded Sand with Silt, Poorly Graded Sand with Silt | Loose to Dense |
| Stratum 2 | 2½ to 41½ (maximum depth explored) | Sandy Lean Clay and Lean Clay with Sand | Very Stiff to Hard |

1. Topsoil thickness in BESS and Substation area noted at 3” to 4” with an average depth of approximately 3.40”.
2. Weak to moderate calcium carbonate cementation was observed in Stratum 1 soils and weak to strong calcium carbonate cementation was observed in the Stratum 2 soils.

Transmission Line Overhead Area

| Description [1, 2] | Approximate Depth to Bottom of Stratum (feet) | Material Description | Consistency / Relative Density / Strength |
|---|---|---|---|
| Stratum 1 | 2 to 31½ (maximum depth explored) | Silty Sand, Clayey Sand and Silty Clayey Sand | Loose to Very Dense |
| Stratum 2 | 2 to 31½ (maximum depth explored) | Sandy Lean Clay, Lean Clay with Sand and Sandy Silt | Soft to Hard |

1. Topsoil thickness in Transmission Line Overhead Area noted at 2” to 4” with an average depth of approximately 3”.
2. Weak to moderate calcium carbonate cementation was observed in Stratum 1 soils and weak to strong calcium carbonate cementation was observed in the Stratum 2 soils.

Switching Station Area

| Description 1, 2 | Approximate Depth to Bottom of Stratum (feet) | Material Description | Consistency / Relative Density / Strength |
|---|---|---|---|
| Stratum 1 | 2 to 31½ (maximum depth explored) | Silty Sand, Clayey Sand, Poorly Graded Sand with Silt | Loose to Very Dense |
| Stratum 2 | 2 to 31½ (maximum depth explored) | Lean Clay with Sand, Sandy Silt | Soft to Hard |

1. Topsoil thickness in Switching Station Area noted at 4” to 5” with an average depth of approximately 4.33”.
2. Weak to moderate calcium carbonate cementation was observed in Stratum 1 soils and weak to strong calcium carbonate cementation was observed in the Stratum 2 soils.

Access Road Area

| Description 1, 2 | Approximate Depth to Bottom of Stratum (feet) | Material Description | Consistency / Relative Density / Strength |
|---|---|---|---|
| Stratum 1a | 1 to 6½ (maximum depth explored) | Silty Sand, Clayey Sand | Loose to Very Dense |
| Stratum 1b | 1 to 6½ (maximum depth explored) | Sandy Lean Clay and Sandy Silt | Soft to Hard |

1. Topsoil thickness in Access Road Area noted at 3” to 4” with an average depth of approximately 3.40”.
2. Weak to moderate calcium carbonate cementation was observed in Stratum 1 soils

In response to wetting of relatively undisturbed samples while supporting typical foundation pressures, the near surface soils exhibited low to moderate hydro-compaction (collapse) potential at in-situ moisture content and density. Hydro-compactive soils, sometimes referred to as collapsible soils, are capable of supporting typical building loads at natural moisture contents, these same materials however, undergo volume decrease (settlement/consolidation) when subjected to increases in moisture content under constant load. These same soils indicate low to moderate compression under typical foundation pressures.

## 4.2 Groundwater

Groundwater was not observed in the borings while drilling, or for the short duration the borings could remain open. 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 structure 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.

Based on information obtained from the USGS Groundwater database (USGS Groundwater for USA: Water Levels -- 1 sites), the depth to regional groundwater was measured in July 1977 to be approximately 262 feet below the ground surface (approximate elevation of 6,508 feet above mean sea level) at an USGS monitored well site (Local I.D.: USGS 353427105570701) located approximately ¾-mile northeast of the site.

## 4.3 Thermal Resistivity Laboratory Testing

Thermal resistivity testing was performed by Geotherm USA on 16 soil samples obtained at 16 test locations. Tests were conducted on 16 bulk samples from depths of 1 to 5 feet below the existing ground surface. The thermal resistivity testing was performed in general accordance with the Institute of Electrical and Electronics Engineers (IEEE) standard. The dry-out curves were developed from the bulk samples compacted to 85% and 90% of the maximum density determined in accordance with Standard Proctor criteria (ASTM D698) at the optimum moisture content and dried to 0% moisture while obtaining intermediate moisture contents to develop the dry-out curves. Thermal samples compacted to 95% were not completed. Additional samples will be gathered and tested to be included in the final report. The results of the thermal resistivity testing are presented in Appendix C.

## 4.4 Field Electrical Resistivity Test Results

Field measurements of soil resistivity were performed at 22 locations across the site in general accordance with ASTM Test Method G57, and IEEE Standard 81, using the Wenner Four-Electrode Method. The approximate soil electrical resistivity test locations are shown on Exhibit D-1 in Appendix D. The soil resistivity measurements were performed using a MiniRes Ultra manufactured by L & R Instruments, Inc. The Wenner arrangement (equal electrode spacing) was used with the “a” spacing of 1, 2, 3, 5, 10, 20, and 50 feet at 17 locations (FER-A-01 through FER-A-12, FER-T-01 through FER-T-05) spread throughout the solar array and t-line overhead area. Additionally, five test locations (FER-Sub-01, FER-Bess-01 and FER-Bess-02, FER-BW-01 and FER-BW-02 ) using “a” spacings of 1, 2, 3, 5, 10, 20, 50, 100, 200, and 300 feet was also performed within the Substation, Switching Station, and BESS area. The testing was performed in both north-south and east-west orientations at each location.

Tests were also performed for the preliminary phase of the project at 3 locations throughout the array area using “a” spacings of 1, 2, 3, 5, 10, 20, 50, and 100 feet. One test was also completed in the substation area using "a" spacings of 1, 2, 3, 5, 10, 20, 50, 100, 200, and 300 feet. The "a" spacing is generally considered to be the depth of influence of the test. Results of the field soil resistivity measurements are presented in tabular and graphical format in Appendix D (Exhibits D-4 through D-29).

## 4.5 Corrosivity

The table below lists the corrosivity test results performed on samples collected from the borings. These 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.

Corrosivity Test Results Summary

| Boring | Sample Depth (feet BGS) | pH | Sulfate (mg/kg) | Sulfides (mg/kg)[1] | Chlorides (mg/kg) | Red-Ox (mV) | Total Salts (mg/kg)[1] | Minimum Electrical Resistivity (Ω-cm)[2] |
|---|---|---|---|---|---|---|---|---|
| B-01[3] | 0 – 4 | 7.55 | 94 | -[4] | 97 | +734 | -[4] | 6,700 |
| B-02[3] | 0 – 4 | 8.16 | 113 | - | 120 | +733 | - | 2,345 |
| B-03[3] | 0 – 4 | 8.35 | 129 | - | 155 | +726 | - | 1,340 |
| B-04[3] | 0 – 4 | 7.55 | 76 | - | 37 | +735 | - | 3,350 |
| B-05[3] | 0 – 4 | 7.52 | 107 | - | 65 | +735 | - | 3,484 |
| B-06[3] | 0 – 4 | 7.17 | 94 | - | 75 | +735 | - | 4,556 |
| B-07[3] | 0 – 4 | 6.84 | 120 | - | 80 | +734 | - | 3,551 |
| B-08[3] | 0 – 4 | 7.08 | 94 | - | 70 | +735 | - | 5,427 |
| B-09[3] | 0 – 4 | 6.80 | 92 | - | 90 | +732 | - | 3,350 |
| B-10[3] | 0 – 4 | 7.22 | 127 | - | 65 | +734 | - | 4,221 |
| B-11[3] | 0 – 4 | 6.66 | 72 | - | 47 | +728 | - | 1,474 |
| B-12[3] | 0 – 4 | 6.60 | 75 | - | 50 | +735 | - | 5,962 |
| B-13[3] | 0 – 4 | 6.58 | 95 | - | 47 | +734 | - | 6,633 |
| B-14[3] | 0 – 4 | 6.84 | 133 | - | 102 | +732 | - | 4,891 |
| B-15[3] | 0 – 4 | 7.38 | 88 | - | 57 | +723 | - | 1,943 |
| B-16/B-Sub[3] | 0 – 4 | 7.69 | 103 | - | 50 | +731 | - | 2,278 |
| A-7 | 0 – 4 | 6.35 | 85 | Nil | 87 | +733 | 280 | 3,417 |

Corrosivity Test Results Summary

| Boring | Sample Depth (feet BGS) | pH | Sulfate (mg/kg) | Sulfides (mg/kg)[1] | Chlorides (mg/kg) | Red-Ox (mV) | Total Salts (mg/kg)[1] | Minimum Electrical Resistivity (Ω-cm)[2] |
|---|---|---|---|---|---|---|---|---|
| BW-2 | 0 – 4 | 8.29 | 74 | Nil | 62 | +725 | 780 | 2,144 |
| BW-3 | 0 – 4 | 8.26 | 68 | Nil | 125 | +720 | 1304 | 1,273 |
| Sub-1 | 0 – 4 | 7.10 | 24 | Nil | 75 | +733 | 269 | 5,896 |
| Bess-1 | 0 – 4 | 6.38 | 27 | Nil | 87 | +732 | 341 | 3,350 |
| Bess-2 | 0 – 4 | 7.19 | 52 | Nil | 100 | +733 | 264 | 4,087 |
| MINIMUM | | 6.35 | 24 | --- | 37 | +720 | 264 | 1273 |
| MAXIMUM | | 8.35 | 133 | --- | 155 | +735 | 1304 | 6700 |
| AVERAGE | | 7.25 | 88 | --- | 79 | +731 | 540 | 3712 |

1. Tests not performed on preliminary phase
2. Laboratory electrical resistivity testing was performed on saturated samples.
3. Tests performed as part of preliminary phase
4. Tests not performed as part of preliminary phase

Results of soluble sulfate testing indicate that samples of the on-site soils tested classify as S0 according to Table 19.3.1.1 of Section 318 of the American Concrete Institute (ACI) Building Code Requirements for Structural Concrete. Therefore, the American Society for Testing and Materials (ASTM) Type I/II portland cement is considered suitable for concrete at the site in contact with similar soluble sulfate concentrations. Concrete should be designed in accordance with the provisions of the ACI Building Code Requirements for Structural Concrete, Section 318, Chapter 19.

These test results are provided to assist in determining the type and degree of corrosion protection that may be required. We recommend that a certified corrosion engineer be retained to analyze the need for corrosion protection and to design appropriate protective measures, if required. The test results indicate that some of the samples exhibit elevated levels of total salts and low minimum electrical resistivity values.

As discussed in Section 10.7.5 of the AASHTO LRFD Bridge Manual, 8th Edition, 2017, the following soil or site conditions should be considered as indicative of potential deterioration or corrosion situation for steel piles:

- Soil minimum electrical resistivity less than 2,000 ohm-cm
- pH less than 5.5
- pH between 5.5 and 8.5 with high organic content

- Sulfate concentration greater than 1,000 ppm (mg/kg)

## 4.6 Seismic Considerations

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Site Class is required to determine the Seismic Design Category for a structure. The Site Class is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC). Based on the soil properties encountered at the site and as described on the exploration logs and results, it is our professional opinion that the Seismic Site Class is D. Subsurface explorations at this site were extended to a maximum depth of 41½ feet. The site properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper borings or geophysical testing may be performed to confirm the conditions below the current boring depth. The values below must be verified by the structural engineer.

| Description | Value |
|---|---|
| Seismic Risk Category | II |
| 2021 International Building Code Site Classification (IBC) [1] | D [2] |
| Site Latitude | 39.56010° |
| Site Longitude | 110.67923°W |
| $S_S$ $MCE_R$ ground motion (for 0.2 second period) [3] | 0.86g |
| $S_1$ $MCE_R$ ground motion (for 0.1 second period) [3] | 0.128g |
| SDs | 0.384g |
| SD1 | 0.201g |
| SMs | 0.576 |
| SM1 | 0.301 |
| $PGA_M$ Site modified peak ground acceleration [3] | 0.25g |

1. Seismic site classification in general accordance with the *2018 International Building Code*, which refers to ASCE 7-16.
2. The 2021 International Building Code (IBC) uses a site profile extending to a depth of 100 feet for seismic site classification. Borings at this site were extended to a maximum depth of 41½ feet. The site properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper borings or geophysical testing may be performed to confirm the conditions below the current boring depth.
3. These values were obtained using online seismic design maps and tools provided by the ASCE 7 Hazard Tool (https://gis.asce.org/beta-7-22/).

### 4.7 Liquefaction

Liquefaction is the phenomenon where saturated soils develop high pore-water pressures during seismic shaking and lose their strength characteristics. This phenomenon generally occurs in areas of high seismicity, where groundwater is shallow and loose granular soils or relatively low- to non-plastic fine-grained soils are present. The project site generally exhibited medium dense to very dense granular soils, very stiff to hard cohesive soils, and a lack of shallow groundwater. Due to these factors, the risk of liquefaction is considered very low.

### 4.8 Slope Hazards

Slopes within the project site generally average between 0 and 5 percent, therefore, slope issues are not anticipated at the project site. Any slopes created by site grading should be placed at a minimum of 3H:1V for slopes less than 5 feet in height. Any slopes anticipated greater than 5 feet in height will require a stability analysis be performed.

### 4.9 Hydro-collapse

In response to wetting of relatively undisturbed samples while supporting typical foundation pressures, the near surface soils exhibited low to moderate hydro-compaction (collapse) potential at in-situ moisture content and density. Hydro-compactive soils, sometimes referred to as collapsible soils, are capable of supporting typical building loads at natural moisture contents, these same materials however, undergo volume decrease (settlement/consolidation) when subjected to increases in moisture content under constant load. These same soils indicate low to moderate compression under typical foundation pressures.

We recommend a minimum of 4 feet engineered fill placed within the geometric configurations and depths below foundations as outlined in Section 9.0 of this report.

## 5.0 Full-Scale Pile Load Testing (PLT) Program

We have performed a full-scale pile load testing program that included:

- Directing the installation of a group of two test piles at each of 16 locations (6 during the preliminary phase and 10 during the design-level phase).
- Performing full-scale testing under axial compressive loads for 1 test pile at each of the 7 locations with three test piles.
- Performing full-scale testing under axial tensile loads for 2 test piles in each group.
- Performing full-scale testing under lateral loads for 2 test piles in each group.

These activities are further described in the following sections.

## 5.1 Pile Location Procedures

The field-testing locations are indicated on the attached Pile Load Test Zoning Plan (Exhibit E-1) in Appendix E. These locations were established in the field by using a hand-held GPS (accurate to about 15 feet). The mapped test locations should be considered accurate only to the degree implied by the means and methods used to define them.

## 5.2 Test Pile Installation

Pile installation was performed initially in August of 2023 with additional piles installed in March of 2024, all piles were allowed to sit undisturbed for a minimum of 72 hours before testing began. The test piles consisted of wide-flange, bare steel W6x9 sections. A group of 2 test piles were installed at 16 locations across the project site. At 6 of the 16 locations, a third test pile was installed for compression testing with an additional location with just a lone compression test. The test piles have been identified using an alphanumeric system. The pile identification system for each location begins with "PLT-" and is followed by the number corresponding to the test pile group location while the assigned letters "A", "B", and "C" correspond to the embedment depth of the pile. The numeric portion of the identifier that follows the first digit "1" matches the boring location the PLT was performed at. For example, PLT-101 was performed at boring location B-001.

Two instances of refusal (defined as less than 1 foot of advancement in 120 seconds) were observed when driving piles at this site, at PLT-102AC and PLT-110AC, both before 5 feet below grade. Based on pile driving results, two out of 44 piles installed on the site experienced refusal, therefore, Terracon anticipates a small percentage of pile driving refusal may occur during construction.

The pile driving operation was performed with a track mounted GAYK Model HRE 1000 with an Atlas Copco PB420 hydraulic hammer. The pile driving hammer was set up to run at 100 percent of the full driving capacity. A summary of the time required to advance each pile to its specified embedment depth is summarized in the following table:

| Test Location | PILE (A) | | | PILE (B) | | | PILE (C) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Embedment Depth | Total Drive Time | Average Drive Time | Embedment Depth | Total Drive Time | Average Drive Time | Embedment Depth | Total Drive Time | Average Drive Time |
| | Ft. | Sec. | Sec./ft. | Ft. | Sec. | Sec./ft. | Ft. | Sec. | Sec./ft. |
| PLT-01[1] | 5 | 39.7 | 7.9 | 8 | 50.8 | 6.4 | 5 | 32.8 | 6.6 |
| PLT-02[1] | 5 | 35.4 | 7.1 | 8 | 37.1 | 4.6 | 5 | 6.8 | 1.4 |

| Test Location | PILE (A) | | | PILE (B) | | | PILE (C) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Embedment Depth | Total Drive Time | Average Drive Time | Embedment Depth | Total Drive Time | Average Drive Time | Embedment Depth | Total Drive Time | Average Drive Time |
| | Ft. | Sec. | Sec./ft. | Ft. | Sec. | Sec./ft. | Ft. | Sec. | Sec./ft. |
| PLT-03[1] | 5 | 97.2 | 19.4 | 8 | 239.4 | 29.9 | 5 | 61.2 | 12.2 |
| PLT-04[1] | 5 | 27.6 | 5.5 | 8 | 208.7 | 26.1 | 5 | 25.6 | 5.1 |
| PLT-05[1] | 5 | 15.0 | 3.0 | 8 | 27.3 | 3.4 | 5 | 10.0 | 2.0 |
| PLT-06[1] | 5 | 29.8 | 6.0 | 8 | 75.7 | 9.5 | 5 | 41.4 | 8.3 |
| PLT-101 | 5 | 26.1 | 5.2 | 8 | 14.6 | 2.9 | --- | --- | --- |
| PLT-103 | 5 | 5.9 | 1.2 | 8 | 11.3 | 1.4 | --- | --- | --- |
| PLT-104 | 5 | 5.3 | 1.1 | 8 | 15.9 | 2.0 | --- | --- | --- |
| PLT-105 | 5 | 20.8 | 4.2 | 8 | 56.9 | 7.1 | --- | --- | --- |
| PLT-106 | 5 | 14.6 | 2.9 | 8 | 39.0 | 4.9 | --- | --- | --- |
| PLT-107 | 5 | 12.9 | 2.6 | 8 | 23.9 | 3.0 | --- | --- | --- |
| PLT-108 | 5 | 8.1 | 1.6 | 8 | 9.2 | 1.2 | --- | --- | --- |
| PLT-109 | 5 | 16.7 | 3.3 | 8 | 37.6 | 4.7 | --- | --- | --- |
| PLT-110 | --- | --- | --- | --- | --- | --- | 5 | 7.5 | 1.5 |
| PLT-102A | 5 | 189 | 37.8 | 8 | 212 | 26.5 | 4.42 | 258 | 58.4 |
| PLT-110A | 5 | 52 | 10.4 | 8 | 136.0 | 17.0 | 3.83 | 154.0 | 40.2 |

1. Pile test location was performed as part of the preliminary phase.

Pile installation was performed initially in August of 2023 with additional piles installed in March of 2024, all piles were allowed to sit undisturbed for a minimum of 72 hours before testing began. Testing occurred during September and October of 2023 on the initial piles, with follow up testing in March 2024.

## 5.3 Testing Under Axial Compressive Load

A total of 7 piles were tested under axial compressive load. Please note that test piles with the designation “C” were tested under axial compressive load. Piles with the designation “C” were all embedded 5 feet below the ground surface.

We performed tests under axial compressive loads as generally described below. These procedures were developed with reference to ASTM D1143, *Test Methods for Deep Foundations under Static Axial Compressive Load.*

A Komatsu PC170 excavator was mobilized to the site to provide a reaction for the applied vertical compression test loads. A load cell was placed on the top of the pile, and a hydraulic cylinder (jack) was placed above the load cell and under the excavator counterweight.

The loads were applied in 500 lbs. increments up to a load of 15,000 lbs. or until the pile reached ¾-inch deflection. Each load increment was held for about 60 seconds and the stabilized deflection reading of both indicator gauges were recorded.

Deflections were measured with digital dial gauges and loads were measured with a digital weight indicator connected to a load cell. The gauges were read, and the data was recorded manually by Terracon field personnel.

## 5.4 Testing Under Axial Tensile (“pull-out”) Load

We performed testing under axial tensile load for the piles at each location using the procedures generally outlined below.

A total of 30 piles, two piles at 15 PLT locations, were tested under axial tensile (“pull-out”) load. Please note that test piles with the designations “A” and “B” were tested under axial tensile load. Piles with the designation “A” were all embedded 5 feet below the ground surface, and piles with the designation “B” were embedded to 8 feet below the ground surface.

The “pull-out” load reaction was supported using Terracon’s proprietary 20-kip tripod frame supported at an appropriate lateral distance from the post. A hydraulic jack and pump were used to apply the test loads using chains and other accessories all rated for at least a 10-ton safe working capacity. Deflections were measured with digital dial gauges with magnetic bases. Loads were measured with a electronic dynamometer.

The axial tension load was applied in load increments of 500 lbs. to a maximum of 10,000 lbs. or until the pile reached ¾-inch deflection. Deflection measurements were taken at the end of application of each load increment. Each load increment was sustained for about 60 seconds and the stabilized deflection readings of both indicator gauges were recorded.

## 5.5 Testing Under Lateral Load

After testing under axial tensile load, the piles at each location were then tested under lateral load as described below.

A total of 30 piles, two piles at 15 PLT locations, were tested under lateral load. Please note that test piles with the designations “A” and “B” were tested under lateral load. Piles with the designation "A" were all embedded 5 feet below the ground surface, and piles with the designation "B" were embedded to 8 feet below the ground surface. As the test piles were installed in-line with each other, the piles were connected together to provide a reaction for the opposite pile and tested simultaneously in the strong axis direction.

For lateral testing, the pair of piles were pulled toward each other, and deflections of each pile were measured. The load for the lateral tests was applied at about 3½ feet above the ground surface against the strong axis of the posts. The loads were applied in 500 lbs. increments in 5 cycles from 0 pounds to the ultimate lateral load of 7,000 lbs. or the limits of the soil capacity, whichever occurred first for each test pile. The limit of soil capacity during the lateral test is defined as movement in excess of 1-inch at 6 inches above the ground surface. Each load increment was held for at least 60 seconds and the stabilized deflection readings of both indicator gauges were recorded.

Deflections were measured with digital dial gauges and loads were measured with a electronic dynamometer. The gauges were read, and the data was recorded manually by Terracon field personnel.

## 5.6 Summary of Pile Load Test Results

In general, the axial compressive, tensile, and lateral loads were applied at approximately 500-pound increments. The maximum applied load during the axial compression test was 13,000 lbs. or until the deflection exceeded ¾ of an inch. The maximum applied load during the axial tension test was 10,000 lbs. or until the deflection exceeded ¾ of an inch. The maximum applied load during the lateral load test was 7,000 lbs. or until the deflection exceeded 1- inch when measured at 6 inches above the ground surface.

The following table provides a summary of the tension loads for vertical pile displacement of about ¼-inch.

| Pile Load Test Location | Embedment Depth | Tension Load at ¼" Disp. | Pile Load Test Location | Embedment Depth | Tension Load at ¼" Disp. |
|---|---|---|---|---|---|
| | ft. | lbs. | | ft. | lbs. |
| PLT-001A[1] | 5 | 10,000+ | PLT-001B[1] | 8 | 10,000+ |
| PLT-002A[1] | 5 | 10,000+ | PLT-002B[1] | 8 | 10,000+ |
| PLT-003A[1] | 5 | 10,000+ | PLT-003B[1] | 8 | 10,000+ |
| PLT-004A[1] | 5 | 10,000+ | PLT-004B[1] | 8 | 10,000+ |
| PLT-005A[1] | 5 | 4,530 | PLT-005B[1] | 8 | 5,350 |
| PLT-006A[1] | 5 | 10,000+ | PLT-006B[1] | 8 | 10,000+ |

| Pile Load Test Location | Embedment Depth | Tension Load at ¼" Disp. | Pile Load Test Location | Embedment Depth | Tension Load at ¼" Disp. |
|---|---|---|---|---|---|
| | ft. | lbs. | | ft. | lbs. |
| PLT-101A | 5 | 10,000+ | PLT-101B | 8 | 10,000+ |
| PLT-102A | 5 | 10,000+ | PLT-102B | 8 | 10,000+ |
| PLT-103A | 5 | 3,630 | PLT-103B | 8 | 6,080 |
| PLT-104A | 5 | 4,290 | PLT-104B | 8 | 10,000+ |
| PLT-105A | 5 | 10,000+ | PLT-105B | 8 | 10,000+ |
| PLT-106A | 5 | 10,000+ | PLT-106B[2] | 9 | 10,000+ |
| PLT-107A | 5 | 10,000+ | PLT-107B | 8 | 10,000+ |
| PLT-108A | 5 | 3,590 | PLT-108B | 8 | 4,360 |
| PLT-109A | 5 | 10,000+ | PLT-109B | 8 | 10,000+ |
| PLT-110A | 5 | 4,750 | PLT-110B | 8 | 10,000+ |

1. Pile test location was performed as part of the preliminary phase.
2. Pile accidentally driven an extra foot deep

The following table provides a summary of the pile embedment depth and lateral load at ½-inch lateral displacement at 6 inches above ground surface.

| Pile Load Test Location | Embedment Depth | Lateral Load at ½" Disp. | Pile Load Test Location | Embedment Depth | Lateral Load at ½" Disp. |
|---|---|---|---|---|---|
| | ft. | lbs. | | ft. | lbs. |
| PLT-01A[1] | 5 | 3,970 | PLT-01B[1] | 8 | 3,820 |
| PLT-02A[1] | 5 | 3,690 | PLT-02B[1] | 8 | 3,780 |
| PLT-03A[1] | 5 | 5,190 | PLT-03B[1] | 8 | 4,980 |
| PLT-04A[1] | 5 | 3,670 | PLT-04B[1] | 8 | 4,580 |
| PLT-05A[1] | 5 | 3,190 | PLT-05B[1] | 8 | 4,790 |
| PLT-06A[1] | 5 | 3,100 | PLT-06B[1] | 8 | 3,790 |
| PLT-101A | 5 | 4,590 | PLT-101B | 8 | 4,320 |
| PLT-102A | 5 | 5,000 | PLT-102B | 8 | 4,500 |
| PLT-103A | 5 | 3,370 | PLT-103B | 8 | 4,570 |
| PLT-104A | 5 | 2,450 | PLT-104B | 8 | 3,300 |
| PLT-105A | 5 | 3,930 | PLT-105B | 8 | 4,110 |

| Pile Load Test Location | Embedment Depth | Lateral Load at ½" Disp. | Pile Load Test Location | Embedment Depth | Lateral Load at ½" Disp. |
|---|---|---|---|---|---|
| | ft. | lbs. | | ft. | lbs. |
| PLT-106A | 5 | 5,120 | PLT-106B | 8 | 5,170 |
| PLT-107A | 5 | 3,840 | PLT-107B | 8 | 4,370 |
| PLT-108A | 5 | 2,820 | PLT-108B | 8 | 3,260 |
| PLT-109A | 5 | 3,740 | PLT-109B | 8 | 4,690 |
| PLT-110A | 5 | 4,000 | PLT-110B | 8 | 5,000 |

1. Pile test location was performed as part of the preliminary phase.
2. Test ended before reaching ½" lateral deflection due to excessive movement from "B" pile.

The following table provides a summary of the compression loads for vertical pile displacement of about ¼-inch.

| Pile Load Test Location | Embedment Depth | Compression Load at ¼" Disp. |
|---|---|---|
| | ft. | lbs. |
| PLT-01C[1] | 5 | 13,000+ |
| PLT-02C[1] | 5 | 7,410 |
| PLT-03C[1] | 5 | 13,000+ |
| PLT-04C[1] | 5 | 13,000+ |
| PLT-05C[1] | 5 | 8,930 |
| PLT-06C[1] | 5 | 13,000+ |
| PLT-102C[2] | 4.42 | 10,000+ |
| PLT-110C[3] | 3.83 | 7,000+ |

1. Pile test location was performed as part of the preliminary phase.
2. Field staff stopped test at 10,000.
3. Test stopped at 7000 due to lateral deflection of the pile.

The compression test load vs. deflection graphs are shown as Exhibits F-1 through F-7 in Appendix F.

The tension test load vs. deflection graphs are shown as Exhibits G-1 through G-29 in Appendix G.

The lateral test load vs. deflection graphs are shown as Exhibits H-1 through H-29 in Appendix H.

# 6.0 PV Solar Array Field – Recommendations For Design And Construction

## 6.1 Geotechnical Considerations

We would expect the PV panels to be supported by driven piles, while inverters could be supported on mat foundations and/or driven piles. The proposed structure types and loading information was not available at the time of this report. Settlement and strength parameters were analyzed using soil compressibility properties derived from the SPT borings along with the results of pile load testing program.

Results of the pile load tests indicate that driven steel piles should be suitable for support of the planned solar panels. Piles with embedment depths between 5 and 8 feet or greater should be suitable for support of PV array panels. We have provided geotechnical engineering parameters in this report to assist the designers of production piles. Subsurface conditions that could hinder pile driving were generally not encountered within the borings and test pits, and no pile refusals occurred during the pile load testing to a maximum depth of 8 feet.

Based on the results of the axial and lateral pile load testing program, we have partitioned the site into two (2) zones for axial parameters and two (2) zones for lateral parameters. Each pile load test (PLT) location was assigned into either Zone 1, or 2 based on the axial test performance/results, and into either Zone A or B based on the lateral test performance/results. The project site was then zoned by matching test locations by their axial and lateral group. The resulting zones are then designated as A1, A2, B1, and B2 where the zone numbers correspond to the axial parameter zone and the zone letter corresponds to the lateral parameter zone. The following table presents the results of the designated zones determined on the site:

| | Zone A1 | Zone A2 | Zone B1 | Zone B2 |
|---|---|---|---|---|
| Preliminary Phase PTL | PLT-005 | PLT-006 | | PLT-001, PLT-002, PLT-003. PLT-004 |
| Design Phase PLT | PLT-104, PLT-108 | -- | PLT-103, PLT-110 | PLT-101, PLT-102, PLT-105, PLT-106, PLT-107, PLT-109 |

A map of these zones is provided on the attached Pile Load Test Zoning Plan (Exhibit E-1) in Appendix E.

It should be noted that the axial tension performance varied significantly across the site, and while an attempt has been made to quantify this variability, isolated areas of lower strength soils within zones of relatively high strength soils may exist, and vice versa. When carrying out the quality control program of testing production piles across the site, some of these relatively weaker soil areas may be encountered.

As part of the overall quality control program, the time rate of installation (seconds per foot of embedment) should be recorded during production post driving. As a direct extension of the design process, additional "proof" testing should be performed on a representative number of production posts that do not meet the minimum installation rate criteria outlined in this report.

Geotechnical engineering recommendations for foundation systems and other earth connected phases of the project are outlined in this report. The recommendations contained in this report are based upon the results of field and laboratory testing, engineering analyses, and our current understanding of the proposed project.

## 6.2 Solar Panel Support Pile Design Recommendations

### 6.2.1 Adfreeze Stress and Depth To Which Adfreeze Applies

In cold weather climates, design to resist frost heave forces exerted on foundations is often a significant factor in the foundation design. Specifically, pile lengths will need to be long enough to counteract potential heave forces in the seasonal frost zone. As the frost penetrates deeper into the soil and the ground swells due to freezing, a portion of the soil profile and ground surface will rise due to frost heaving. The upward displacement is due to freezing water contained in the soil voids along with the formation of ice lenses in the soil. The freezing material grips the steel pile and exerts an uplift force due to the adfreeze stress developed around the surface area of the pile. The amount of upward force depends on the following:

- the thickness of ice lenses formed in the seasonal frozen ground
- the bond between the steel pile surface and the frozen ground
- the surface area of the steel pile in the seasonally frozen ground

Adfreeze on pile foundations may be significant. If the anchorage of the foundations and the deadweight of the pile are not sufficient to resist these upward forces, adfreeze load can cause uplift to structures.

Based on the soil type and laboratory data, it is Terracon's professional opinion that the near-surface soils encountered in the borings drilled at this site are frost susceptible to a depth of 24 inches below ground surface. However, due to the lack of shallow groundwater, we believe the risk of frost heave due to adfreeze stress is negligible.

### 6.2.2 Axial Capacity Recommendations

The axial uplift capacity of driven piles may be estimated based on skin friction developed along the perimeter of the pile, while the compression capacity may be estimated using the skin friction and end bearing. When determining embedment depths, the perimeter of a wide flange beam should be taken as twice the sum of the flange width and section depth. Terracon assumes the Ultimate End Bearing values provided below are appliable for comparable W6 and W8 piles. The upper 12 inches of soil for each pile should be neglected in the axial capacity analyses due to considerations of strength losses that can occur due to soil moisture variations, shrinkage, and other potential surface disturbances.

The ultimate axial capacity of driven steel piles may be calculated using skin friction and end bearing values as presented in the following table. Based on the results of the axial pile load testing program, we recommend the site be broken into two zones as follows:

Axial Design Parameters

| Axial Zone | Minimum Embedment Depth (feet-bgs) | Ultimate Uplift and Compression Unit Skin Friction (psf) | Ultimate End Bearing (lbs.)[4] |
|---|---|---|---|
| 1 | 5 [1] | 450[2] | 1,000[2] |
| | 5.1 to 8 | | |
| | 8.1 to 20 | 450[3] | 1,000[3] |
| 2 | 5 [1] | 1,150[2] | 2,000[2] |
| | 5.1 to 8 | | |
| | 8.1 to 20 | 1,150[3] | 2,000[3] |

1. The minimum embedment depth for the pile is 5 feet, and the uppermost 1 foot of pile embedment should be ignored when considering the axial capacity of driven steel piles.
2. The minimum factor of safety to be applied for embedment depths up to 8 ft. should be 1.5.
3. The minimum factor of safety to be applied for embedment depths greater than 8 ft. should be 2.0.
4. Ultimate end bearing was determined by taking the difference between compression values at ¼ inch deflection and axial tension values at ¼ inch deflection.

The above values are to be used in the following equations to obtain the allowable uplift or compression load capacity of a pile:

$$Q_{\text{all (compressive)}} = ((Q_{\text{ult (end)}}) / FS) + ((H \times P \times q_s) / FS)*$$

$$Q_{all\ (uplift)} = (H \times P \times q_s)\ /\ FS^*$$

$Q_{ult}$ = Ultimate uplift or compression capacity of pile (lbs.)
$Q_{ult\ (end)}$ = Ultimate end bearing per table above (lbs.)
H = Depth of embedment of pile (ft)
P = Box perimeter of pile. (ex., W6x9 = 1.64 ft.)
$q_s$ = Ultimate skin friction per table above (psf)
*Note, the upper 1 foot should be subtracted from the layer thickness (H) for the first layer.

An example calculation to determine the allowable capacity for a W6x9 pile in tension and founded at a depth of 9 feet in the area of Axial Zone 2 would be as follows:

$$\boldsymbol{Q_{all\ (up)}} = \mathbf{(5-1)}\ \boldsymbol{x}\ \mathbf{1.64}\ \boldsymbol{x}\frac{\mathbf{450}}{\mathbf{1.5}} + \mathbf{(8-5)}\boldsymbol{x}\ \mathbf{1.64}\ \boldsymbol{x}\frac{\mathbf{1,150}}{\mathbf{1.5}} + \mathbf{(9-8)}\boldsymbol{x}\ \mathbf{1.64}\ \boldsymbol{x}\frac{\mathbf{1,150}}{\mathbf{2.0}} = \mathbf{6,683}$$

The above ultimate skin friction and end bearing values are applicable for piles that are driven for a minimum of 2 seconds per foot for a 5-foot embedment using equipment similar to a GAYK Model HRE 4000 equipped with a hydraulic hammer. If a smaller or larger drive hammer is used, we recommend Terracon be consulted to determine the minimum drive time based on the proposed equipment to be used for driving of the piles.

Piles should have a minimum center-to-center spacing of at least 5 times their largest cross-sectional dimension to prevent reduction in the axial capacities due to group effects.

### 6.2.3 Lateral Capacity Recommendations

Lateral load response of pile foundations was calculated using the computer program LPILE 2022, by Ensoft, Inc. The stiffness of the pile and the stress-strain properties of the surrounding soils determine the lateral resistance of the foundation. We modeled the lateral response of the tested piles to evaluate L-Pile input parameters for each zone. Recommended L-Pile input parameters lateral load analysis for driven pile foundations are shown in the following table:

| **LPILE Parameters** | | | | | |
|---|---|---|---|---|---|
| Depth Range of Layer (feet) | Soil Type [1] | Effective Unit Weight (pcf) | Friction Angle (°) | Cohesion (psf) | K or $\varepsilon_{50}$ [2] |
| 0 – 4 | Sand (Reese) | 115 | 36 | --- | Allow LPILE to choose this value |
| 4 – 20 | Sand (Reese) | 120 | 40 | --- | |

1. See Subsurface Profile in Geotechnical Characterization for more details on Stratigraphy.
2. LPILE estimates values of static lateral subgrade modulus (K) and strain modulus (ε50) based on soil properties. We recommend using LPILE spring stiffness default values for both K and ε50 because the p-multiplier presented in the table below was determined with the software default values.

The lateral load test results were varied between the different locations and embedment depths at the site. Therefore, we are providing the following table of p-multiplier values that should be used for the corresponding zone and embedment depth:

P-Multipliers

| Lateral Group | Minimum Embedment Depth | P-Multiplier[1, 2, 3] |
|---|---|---|
| A | 5 | 2.7 |
|  | 8 | 3.8 |
| B | 5 | 5.0 |
|  | 8 | 5.0 |

1. For embedment depths between 5 and 8 feet, linearly interpolate between the values provided. The calculated value should then be applied to the entire pile depth.
2. The *p*-multiplier values provided in this table are only applicable to piles installed to a depth of at least 5 feet.
3. The *p*-multiplier value for the 8-foot-deep piles may be used for piles installed deeper than 8 feet.

Lateral analyses were performed using LPILE to generate a load versus deflection curve that generally matched the results of the field load tests for each group and each embedment depth. The shear load was applied at approximately 3.5 feet above the ground surface. The effective unit weights, cohesions, and friction angles were based on the subsurface conditions observed from the borings. The cohesions, friction angles, effective unit weights, and p-multipliers were then adjusted (by trial-and-error method) such that the applied load resulted in a deflection value that matched the load test results. Please note that this procedure was based on only one discrete set of data determined at about six inches from the ground surface during the field load testing. These results should be used for LPILE analysis only using the 2022 version of LPILE. These parameters are only applicable to piles installed a minimum of 5 feet below grade. In our evaluation, the piles were modeled as a Steel AISC Section Strong Axis with a yield stress of 50 ksi.

The structural engineer should evaluate the moment capacity of the pile as part of their structural evaluation. Piles should have a minimum center-to-center spacing of at least five times their largest cross-sectional dimension in the direction of the lateral loads, or the lateral capacities should be reduced due to group effects. If piles will be spaced closer than five times their largest cross-sectional dimension, we should be notified to provide supplemental recommendations regarding resistance to lateral loads.

### 6.2.4 Construction Considerations

Based on the field exploration and laboratory testing, it is our opinion that the soils on the site are suitable for pile installation. Possible obstructions (very dense soils, gravel, and cobbles) that could impede the installation of the piles were generally not observed within typical pile driving depths within the borings, and no pile driving refusal was encountered during pile installation.

## 6.3 Pile Design Recommendations for Other Structures

Some structures may require piles to be driven to greater depths than 8 feet in order to achieve the required axial capacities.

For allowable strength design, we recommend the allowable skin friction and end bearing be determined by applying a factor of safety of at least 2 to the ultimate values provided in this section for piles embedded greater than 8 feet. Recommended ultimate skin friction, end bearing, and factor of safety are presented below:

| Pile Embedment Depth (ft) | Ultimate Skin Friction $q_s$ (psf) | Ultimate End Bearing $Q_{ult\text{-}(end)}$ (lbs) | Factor of Safety |
|---|---|---|---|
| Zone 1 | | | |
| 0 to 1 | --- | --- | --- |
| 1 to 5 | 450 | --- | 1.5 |
| 5 to 8 | 450 | 1,000 | 1.5 |
| 8+ | 450 | 1,000 | 2.0 |
| Zone 2 | | | |
| 0 to 1 | --- | --- | --- |
| 1 to 5 | 1,150 | 2,000 | 1.5 |
| 5 to 8 | 1,150 | 2,000 | 1.5 |
| 8+ | 1,150 | 2,000 | 2.0 |

For piles embedded between depths of 8 and 16½ feet throughout the site: When determining embedment depths, the perimeter of a wide flange beam should be taken as twice the sum of the flange width and web depth, and the upper 12 inches of soil for each pile should be neglected.

For W6x9 piles or larger pile sections with embedment depths between 8 and 16½ feet: The ultimate unit end bearing for alternate pile sections should be assumed to be the same as the W6x9 piles tested for this project.

We recommend Terracon be consulted to determine the minimum drive time based on the proposed equipment to be used for driving of the piles.

Piles should have a minimum center-to-center spacing of at least five times their largest cross-sectional dimension to prevent reduction in the axial capacities due to group effects.

## 6.4 Mat Slab Foundations

If the site has been prepared in accordance with the requirements noted in Section 9.0, the following design parameters are applicable for mat foundations for inverters throughout the Array area.

### 6.4.1 Frost Susceptible Soils

The frost depth for local building code for the design of shallow spread footing and mat foundations for unheated structures is 24 inches (2 feet). If frost action needs to be accommodated for local building code, the use of non-frost susceptible (NFS) fill extending to the building code frost depth requirement of 2 feet could be implemented. Material commonly used as NFS fill consists of granular soils that are free draining and have a relatively high in-place permeability. It has been our experience that using NFS fill consisting of granular materials on sites with low permeable collapsible soils can create zones where water collects, and the underlying collapsible soils become wetted and settle rapidly. This can result in undesirable downward movement for foundations constructed on these materials. An alternative to a free draining NFS material, while not commonly used, is an appropriate low permeable Controlled Low Strength Material (CLSM).

If a low permeable NFS fill material cannot be obtained or is cost prohibitive, structural slabs (for instance, structural stoops in front of building doors), supported on frost-depth footings, should be used. Placement of low permeable NFS material in large areas may not be economically feasible; however, the following recommendations are provided to help reduce potential frost heave for grade supported structures:

- Provide surface drainage away from the structures and slabs, and toward the site storm drainage system.
- Install drains around the perimeter of the structures as well as below exterior slabs and access roadways and connect them to the storm drainage system.
- Grade clayey subgrades, so groundwater potentially perched in overlying more permeable subgrades, such as sand or aggregate base, slopes toward a site drainage system.

- Place low permeable CLSM fill as backfill beneath slabs and access roadways critical to the project.
- Consider structural slabs supported on frost-depth footings.
- Consider placing another type of Frost Protected Shallow Foundation (FPSF) system

### 6.4.2 Mat Foundations Design Recommendations

Reinforced mat foundations are considered suitable for the support of the proposed inverters on the project. Mat foundations should be designed based on the criteria outlined below:

| Design Item | Description/Recommendations |
|---|---|
| Foundation Type | Mat foundations |
| Maximum Design Contact Stress[1,2] | Any practical value up to a maximum of 1,500 psf |
| Minimum Embedment Depth Below finished grade [3] | 24 inches for frost protection<br>6 inches if underlain by 18 feet of NFS fill (mat/slab foundations)[2] |
| Bearing Material | A minimum of 4 feet engineered fill placed within the geometric configurations and depths below mat foundations as outlined in Section 9.0 of this report. |
| Design Modulus of Subgrade Reaction, k | 125 pci |
| Minimum Width | 4 feet |
| Maximum Width | 10 feet |
| Modulus Correction Factor[4] | $k_c=k((b+1)/2b)^2$ |
| Total Estimated Settlement[5,6] | 1 inch or less |
| Differential Settlement | ¾-inch over 40 feet |
| Coefficient of Base Friction | 0.35[7] |
| Passive Pressure | 300 pcf[8] |

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. The allowable bearing pressure may be increased by one-third when considering the alternative load combinations of Section 1605.3.2 of the 2015 International Building Code, however, it should not be increased when loads are determined by the basic allowable stress design load combinations of Section 1605.3.1. A factor of safety of 3 was utilized for bearing capacity and 1 inch service limit was utilized to determine capacity for settlement.

| Design Item | Description/Recommendations |
|---|---|

2. Finished grade is defined as the lowest adjacent grade within 5 feet of the foundation for perimeter (or exterior) footings and finished floor level for interior footings. The minimum embedment depth is recommended for frost protection. Shallower embedment depths can be considered with no changes to the allowable bearing capacity or estimated settlements outlined above. There is an inherent risk that scour and erosion of the soils beneath the slabs could lead to a partially unsupported mat and/or an increase in the settlements outlined above.
3. Embedment necessary to minimize the effects of frost and seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.
4. It is common to reduce the k-value to account for dimensional effects of large loaded areas. Where $k_c$ is the corrected or design modulus value and b is the mat width (short dimension) or tributary loaded area.
5. The foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of compacted fill, and the quality of the earthwork operations. Footings should be proportioned to relatively constant dead-load pressure in order to reduce differential movement between adjacent footings.
6. These design recommendations are applicable for maximum foundation dimensions of 20 feet.
7. Value should be reduced to 0.30 when used in conjunction with the passive pressure.
8. No factor of safety applied.

Additional foundation movements could occur if water from any source infiltrates the foundation soils; therefore, proper drainage should be provided in the final design and during construction. Drainage design is the responsibility of the Civil Designer.

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.

### 6.4.3 Foundation Construction Considerations

As noted in Section 9.0, the foundation excavations should be evaluated under the direction of the Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil, prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the foundation excavations should be removed/reconditioned before foundation concrete is placed.

# 7.0 Substation, BESS, Switching Station, And Overhead Transmission Line – Recommendations For Design And Construction

## 7.1 Geotechnical Considerations

We expect several small structures to house equipment and provide storage to be constructed as part of the substation portion of the project. The proposed structure types and loading information were not available at the time of this report. Settlement potential was analyzed using soil compressibility properties derived from the borings drilled in the planned substation and BESS areas and assumed structural loads. We estimate total settlements will be less than 1-inch provided column loads are less than 150 kips and the applied bearing pressure of small, isolated slabs or mats is less than about 2,000 psf. Shallow foundation systems for support of lightly-loaded buildings and equipment pads will be acceptable provided these maximum loads are not exceeded. Once loading for these ancillary structures is better known, detailed settlement analyses can be performed to confirm shallow foundation acceptability. As an alternative to shallow foundations, driven pile foundations may be utilized. Please refer to sections Section 6.2 for capacity.

Proposed substation structures may also be supported as direct embed poles or poles supported on drilled shaft foundations designed using the soil properties presented in this report. Drilled shafts and direct embed poles should be designed and constructed in accordance with Section 7.3 of this report.

The on-site soils exhibited low to moderate compressibility and hydro-collapse potential under typical foundation loads in their existing conditions; therefore, all building structure foundations should bear on a minimum of 4 feet of properly placed and compacted engineered fill material.

## 7.2 Spread Footing and Isolated Slab Foundations

### 7.2.1 General

We understand within the substation that some equipment may be supported on mat/slab foundations, while other building(s) may be supported on shallow footing foundations.

If the site has been prepared in accordance with the requirements noted in Section 9.0, the following design parameters are applicable for mat foundations for inverters throughout the Array area.
The following sections present design recommendations and construction considerations for the shallow foundations for proposed lightly loaded structures and related structural elements.

### 7.2.2 Spread Footing and Mat /Slab Foundation Design Recommendations

| Description | Columns | Walls | Mat/Slab |
|---|---|---|---|
| Net allowable bearing pressure[1,2] | 2,000 psf | 2,000 psf | 1,500 psf |
| Modulus of subgrade reaction for slab-on-grade design | 200 pounds per square inch per in (psi/in) for point loading conditions | | |
| Bearing material | Shallow footings and mat/slab foundations should be supported on a minimum of 4 feet engineered fill consisting of on-site soils as outlined in Section 9.0 | | |
| Minimum dimensions | 30 inches | 18 inches | 4 feet |
| Minimum embedment below finished grade[3] | 24 inches for frost protection<br>6 inches if underlain by 18 feet of NFS fill (mat/slab foundations)[2] | | |
| Approximate total settlement[4,5] | <1 inch | <1 inch | <1 inch |
| Estimated differential settlement | < ½ inch between columns | < ½ inch over 40 feet | < ½ inch over 40 feet |
| Coefficient of Base Friction | 0.35[6] | | |
| Passive Pressure | 300 pcf[7] | | |

1. The recommended net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. It assumes any unsuitable soils, if encountered, will be replaced with compacted structural fill.
2. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. The allowable bearing pressure may be increased by one-third when considering the alternative load combinations of Section 1605.3.2 of the 2012 International Building Code, however, it should not be increased when loads are determined by the basic allowable stress design load combinations of Section 1605.3.1.
3. Embedment necessary to minimize the effects of frost and seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.
4. The foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of compacted fill, and the quality of the earthwork operations. Footings should be proportioned

| Description | Columns | Walls | Mat/Slab |
|---|---|---|---|

to relatively constant dead-load pressure in order to reduce differential movement between adjacent footings.

5. These design recommendations are applicable for maximum foundation dimensions of 20 feet.
6. Value should be reduced to 0.30 when used in conjunction with the passive pressure.
7. No factor of safety applied.

Footings, foundations, and walls should be reinforced as necessary to reduce the potential for distress caused by differential foundation movement. The use of joints at openings or other discontinuities in walls is recommended.

Foundation excavations should be observed by the Geotechnical Engineer. If the soil conditions encountered differ significantly from those presented in this report, Terracon should be contacted to provide additional evaluation and supplemental recommendations.

### 7.2.3 Spread Footing and Mat/Slab Construction Considerations

The foundation excavations should be evaluated under the direction of the Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil, prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the foundation excavations should be removed/reconditioned before foundation concrete is placed.

## 7.3 Drilled Shaft Foundation Design

### 7.3.1 Drilled Shaft Design Parameters

Straight sided drilled shaft foundations drilled into natural soils are also considered suitable for support of the proposed substation, switching station, and transmission line structures. Soil design parameters are provided below in the Drilled Shaft Design Summary table for the design of drilled shaft foundations. The values presented for allowable side friction and end bearing include a factor of safety.

Drilled Shaft Design Summary[1]

| Location | Depth (feet-bgs) | Stratigraphy [2] | Allowable Skin Friction (ksf) [3,4] | Allowable End Bearing Pressure (ksf) [4,5] |
|---|---|---|---|---|
|  | 0 to 3[6] | IGNORE | --- | --- |

Drilled Shaft Design Summary[1]

| Location | Depth (feet-bgs) | Stratigraphy [2] | Allowable Skin Friction (ksf) [3,4] | Allowable End Bearing Pressure (ksf) [4,5] |
|---|---|---|---|---|
| Substation /Bess Area | 3 to 7 | Silty Sand; Loose | 0.20 | 2.0 |
| | 7 to 14 | Clayey Sand; Loose | 0.40 | 10.0 |
| | 14 to 29 | Well Graded Sand; Dense | 0.75 | 13.0 |
| | 29 to 39 | Clayey Sand; Medium Dense | 0.90 | 7.0 |
| | 39 to 41.5 | Silty Sand; Very Dense | 1.05 | 40.0 |
| T-01 | 0 to 3[6] | IGNORE | --- | --- |
| | 3 to 7 | Lean Clay; Very Stiff to Hard | 0.75 | 12.0 |
| | 7 to 14 | Clayey Sand; Medium Dense | 0.35 | 5.0 |
| | 14 to 24 | Lean Clay; Stiff | 0.35 | 6.0 |
| | 24 to 29 | Silty Sand; Dense | 0.75 | 12.5 |
| | 29 to 31.5 | Lean Clay; Very Stiff | 0.55 | 9.0 |
| T-02 | 0 to 3[6] | IGNORE | --- | --- |
| | 3 to 7 | Sandy Silt; Hard | 0.20 | 24.0 |
| | 7 to 14 | Sandy Silt; Very Stiff | 0.35 | 11.0 |
| | 14 to 24 | Lean Clay; Very Stiff | 0.55 | 9.0 |
| | 24 to 29 | Silty Sand; Medium Dense | 0.55 | 9.0 |
| | 29 to 31.5 | Silty Sand; Dense | 0.75 | 12.5 |
| T-03 | 0 to 3[6] | IGNORE | --- | --- |
| | 3 to 9 | Lean Clay; Medium Stiff | 0.20 | 3.0 |
| | 9 to 14 | Silty Sand; Medium Dense | 0.40 | 5.0 |
| | 14 to 19 | Silty Clayey Sand; Loose | 0.50 | 3.5 |
| | 19 to 24 | Silty Sand; Loose | 0.60 | 1.5 |

Drilled Shaft Design Summary[1]

| Location | Depth (feet-bgs) | Stratigraphy [2] | Allowable Skin Friction (ksf) [3,4] | Allowable End Bearing Pressure (ksf) [4,5] |
|---|---|---|---|---|
|  | 24 to 31.5 | Silty Sand; Dense | 0.75 | 10.5 |
| T-04, Switching Station Area | 0 to 3[6] | IGNORE | --- | --- |
|  | 3 to 9 | Silty Sand; Medium Dense | 0.25 | 4.5 |
|  | 9 to 15 | Sandy Silt; Stiff | 0.45 | 9.0 |
|  | 15 to 20 | Sandy Silt; Very Stiff | 0.60 | 8.5 |
|  | 20 to 25 | Sandy Silt; Hard | 0.70 | 14.5 |
|  | 25 to 31.5 | Clayey Sand; Medium Dense | 0.85 | 10.5 |

1. Design capacities are dependent upon the method of installation and quality control parameters. The values provided are estimates and should be verified when installation protocol have been finalized.
2. See Subsurface Profile in Typical Subsurface Profile for more details on stratigraphy.
3. The effective weight of the shaft can be added to uplift load resistance to the extent permitted by IBC.
4. Values presented include a factor of safety of 2.0 for skin friction and 3.0 for end-bearing. Skin frictions should be neglected for direct embed poles.
5. The full end bearing pressure is applicable for drilled shafts embedded a minimum of one shaft diameter into the bearing stratum. For example, to use the full end bearing pressure below a depth of 10 feet, the bottom of a 3-foot diameter shaft must be founded at 13 ft. or greater.
6. Not recommended to be used due to potential ground disturbance and frost depth.

### 7.3.2 Drilled Shaft Lateral Loading

LPILE: The following table lists input values for use in LPILE analyses. Recommended geotechnical parameters for lateral load analysis of the drilled shaft foundations have been developed for use in the computer program LPILE that utilizes P-y curve analyses, and they are presented in the following table. Modern versions of LPILE provide estimated default values of $k_h$ and $E_{50}$ based on strength and are recommended for the project. Since deflection or a service limit criterion will most likely control lateral capacity design, no safety/resistance factor is included with the parameters.

| Stratigraphy | | LPILE Soil Model | Total Unit Weight (pcf) | Friction Angle ° | Cohesion (psf) | $\varepsilon_{50}$ | Soil Modulus, k (pci) |
|---|---|---|---|---|---|---|---|
| Boring No. | Depth | | | | | | |
| Substation, BESS Area | 3 to 7 | Sand (Reese) | 100 | 28 | --- | Allow LPILE to use Default Values based on other parameters listed in this table. | |
| | 7 to 14 | Sand (Reese) | 125 | 35 | --- | | |
| | 14 to 29 | Sand (Reese) | 125 | 37 | --- | | |
| | 29 to 39 | Sand (Reese) | 120 | 32 | --- | | |
| | 39 to 41.5 | Sand (Reese) | 125 | 40 | --- | | |
| T-01 | 3 to 7 | Stiff Clay w/o Free Water | 110 | --- | 6000 | | |
| | 7 to 14 | Sand (Reese) | 100 | 37 | --- | | |
| | 14 to 24 | Stiff Clay w/o Free Water | 100 | --- | 3500 | | |
| | 24 to 29 | Sand (Reese) | 110 | 33 | --- | | |
| | 29 to 31.5 | Stiff Clay w/o Free Water | 110 | --- | 4000 | | |
| T-02 | 3 to 7 | Sand (Reese) | 95 | 28 | --- | | |
| | 7 to 14 | Sand (Reese) | 100 | 31 | --- | | |
| | 14 to 19 | Stiff Clay w/o Free Water | 100 | --- | 3000 | | |
| | 19 to 24 | Stiff Clay w/o Free Water | 100 | --- | 3000 | | |
| | 24 to 31.5 | Sand (Reese) | 110 | 34 | --- | | |
| T-03 | 3 to 7 | Stiff Clay w/o Free Water | 95 | --- | 1500 | | |
| | 7 to 14 | Stiff Clay w/o Free Water | 95 | --- | 2500 | | |
| | 14 to 19 | Sand (Reese) | 100 | 35 | --- | | |
| | 19 to 24 | Sand (Reese) | 100 | 28 | --- | | |
| | 24 to 31.5 | Sand (Reese) | 105 | 34 | --- | | |
| T-04, Switching Station Area | 3 to 9 | Sand (Reese) | 105 | 30.5 | --- | | |
| | 9 to 15 | Sand (Reese) | 125 | 32 | --- | | |
| | 15 to 20 | Sand (Reese) | 125 | 35 | --- | | |

| Stratigraphy | | LPILE Soil Model | Total Unit Weight (pcf) | Friction Angle ° | Cohesion (psf) | $\varepsilon_{50}$ | Soil Modulus, k (pci) |
|---|---|---|---|---|---|---|---|
| Boring No. | Depth | | | | | | |
| | 20 to 25 | Sand (Reese) | 115 | 36 | --- | | |
| | 25 to 31.5 | Sand (Reese) | 120 | 35 | --- | | |

MFAD: The following table lists input values for use in Moment Foundation Analysis and Design (MFAD). Since deflection or a service limit criterion will most likely control lateral capacity design, no safety/resistance factor is included with the parameters.

| Stratigraphy | | Soil Type | Total Unit Weight (pcf) | Friction Angle ° | Cohesion (psf) | Modulus of Deformation, $E_p$ (ksi) |
|---|---|---|---|---|---|---|
| Boring No. | Depth | | | | | |
| Substation, BESS Area | 3 to 7 | Granular | 100 | 28 | --- | 0.5 |
| | 7 to 14 | Granular | 125 | 35 | --- | 1.5 |
| | 14 to 29 | Granular | 125 | 37 | --- | 3.2 |
| | 29 to 39 | Granular | 120 | 32 | --- | 1.0 |
| | 39 to 41.5 | Granular | 125 | 40 | --- | 10 |
| T-01 | 3 to 7 | Cohesive | 110 | --- | 6000 | 4.9 |
| | 7 to 14 | Granular | 100 | 37 | --- | 0.6 |
| | 14 to 24 | Cohesive | 100 | --- | 3500 | 0.9 |
| | 24 to 29 | Granular | 110 | 33 | --- | 3.1 |
| | 29 to 31.5 | Cohesive | 110 | --- | 4000 | 1.9 |
| T-02 | 3 to 7 | Granular | 95 | 28 | --- | 3.5 |
| | 7 to 14 | Granular | 100 | 31 | --- | 1.7 |
| | 14 to 19 | Cohesive | 100 | --- | 3000 | 2.1 |
| | 19 to 24 | Cohesive | 100 | --- | 3000 | 1.7 |
| | 24 to 31.5 | Granular | 110 | 34 | --- | 3.1 |
| T-03 | 3 to 7 | Cohesive | 95 | --- | 1500 | 0.3 |

| Stratigraphy | | Soil Type | Total Unit Weight (pcf) | Friction Angle ° | Cohesion (psf) | Modulus of Deformation, $E_p$ (ksi) |
|---|---|---|---|---|---|---|
| Boring No. | Depth | | | | | |
| | 7 to 14 | Cohesive | 95 | --- | 2500 | 1.2 |
| | 14 to 19 | Granular | 100 | 35 | --- | 0.9 |
| | 19 to 24 | Granular | 100 | 28 | --- | 0.2 |
| | 24 to 31.5 | Granular | 105 | 34 | --- | 2.6 |
| T-04, Switching Station Area | 3 to 9 | Granular | 105 | 30.5 | --- | 1.1 |
| | 9 to 15 | Granular | 125 | 32 | --- | 1.3 |
| | 15 to 20 | Granular | 125 | 35 | --- | 1.2 |
| | 20 to 25 | Granular | 115 | 36 | --- | 2.0 |
| | 25 to 31.5 | Granular | 120 | 35 | --- | 1.7 |

Lateral load design parameters are valid for maximum soil strain of 5 percent acting over a distance of one shaft diameter. All shafts should be reinforced full-depth for the applied axial and lateral stresses imposed.

### 7.3.3 Drilled Shaft Construction Considerations

Based on the subsurface conditions encountered during the field exploration, drilled shaft excavations for the proposed structures will be advanced into loose to very dense sand soils and soft to hard clay soils with various amounts of gravel and cementation.

Caving materials (particularly within the upper 5 feet) could be encountered during drilled shaft excavation requiring the use of temporary casing. If temporary casing is used for drilled shaft construction, it should be withdrawn in a slow continuous manner maintaining a sufficient head of concrete to prevent the creation of voids in pier concrete. Drilled shaft concrete should have a relatively high fluidity when placed in cased pier holes or through a tremie. Concrete with a slump in the range of 6 to 8 inches is recommended.

Drilled shaft concrete should be placed upon completion of drilling and cleaning. Free-fall concrete placement in drilled shaft excavations will only be acceptable if provisions are taken to prevent aggregate segregation and 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.
Shaft bearing surfaces should be cleaned prior to concrete placement. A representative of the geotechnical engineer should inspect the bearing surface and shaft configuration. If the soil

conditions encountered differ significantly from those presented in this report, supplemental recommendations will be required.

# 8.0 Access Roadways

### 8.1.1 Aggregate Surface Roadway Design Recommendations

We understand that new roadways for postconstruction traffic within the proposed substation area site will consist of aggregate-surfaced roadways. Design truck load frequencies postconstruction have not been provided. Therefore, we have assumed one pickup truck per day and one fully loaded truck per week with a maximum weight of 80,000 pounds for fire truck loading. Aggregate sections based on a more detailed design could be provided.

Subgrade soils beneath aggregate surfaced roadways should be prepared and constructed as outlined in Section 9.0 of this report. An analysis of the proposed pavement section was performed as outlined in the 1993 AASHTO Design of Pavement Structures for aggregate-surfaced roads (Section 4.1.2). The design analysis evaluates the allowable rutting depth, traffic loading, and subgrade strength as design considerations. The unpaved road sections for postconstruction use have been developed under the following assumptions:

Gravel-Surfaced Roadway Design Parameters

| Parameter | Design Value | Comments |
|---|---|---|
| Traffic Loading | up to 10,000 ESALs[1] | Provided by AES |
| Design Life | 35 years | Assumed |
| Design R-Value | 7 | Based on lab testing |
| Resilient Modulus | 2,000 psi (saturated) | Based on correlations to R-Value |
| | 5,250 psi (wet) | |
| | 8,000 psi (dry) | |
| Chemically Treated Subgrade Resilient Modulus | 10,000 psi (wet/saturated) | Assumed |
| | 12,000 psi (dry) | |
| | 20,000 psi (frozen) | |
| Aggregate Base Elastic Modulus | 30,000 psi | Assumed |
| Allowable Rut Depth | 2 inches | Assumed |
| Design Serviceability Loss | 2.0 | Assumed |
| Vehicle Tire Pressure | 80 psi | Assumed |

1. ESAL = 18 kips Equivalent Single Axle Load

As a minimum, we recommend the following for gravel-surfaced access roads:

| Typical Gravel-Surfaced Road Section (Non Cement Treated) – Post Construction Traffic | | | |
|---|---|---|---|
| Traffic Area | Base Course Thickness (in)[1] | Subbase Type | Geogrid Stabilization |
| Up to 500 ESALs | 4 | 10 inches of compacted on-site soil | No |
| Up to 1,000 ESALs | 4.5 | | |
| Up to 5,000 ESALs | 7 | | |
| Up to 10,000 ESALs | 10 | | |

1. Base materials should meet NMDOT specifications

| Typical Gravel-Surfaced Road Section (Treated) – Post Construction Traffic | | | |
|---|---|---|---|
| Traffic Area | Base Course Thickness (in)[1] | Treated Subbase Type | Geogrid Stabilization |
| Up to 500 ESALs | 4 | 6 inches of compacted treated on-site soil (5% cement)[2] | No |
| Up to 1,000 ESALs | 4.5 | | |
| Up to 5,000 ESALs | 5 | | |
| Up to 10,000 ESALs | 6 | | |

1. Base materials should meet NMDOT specifications.
2. Preliminary based on design experience.

Note that whichever type of road is chosen, there will be a need for an ongoing maintenance program. Ruts or potholes that develop should be filled with additional aggregate base rather than by re-grading.

A concern regarding the use of permeable aggregate materials in large pavement areas is that surface water cannot be drained over the surface before it permeates through the aggregate surfacing, which would create a condition where the subgrade soils in moisture content. If the subgrade soils do become elevated in moisture content, the overall performance of the aggregate surfaced pavement areas will be reduced and could result in excessive rutting and may require maintenance or reconstruction of the gravel surface pavement. To help direct surface water over the aggregate surface, we suggest minimum surface slopes of 2% to 3% be constructed and maintained. Surface drainage should be directed away from the pavement areas, and no ponding of water should be allowed on the paved surface or adjacent to the edges of the pavement areas. Drainage design should be completed by the Civil Designer. If site stripping lowers site grades, equivalent fill volumes should be utilized to bring roadway back up to original grade.

### 8.1.2 Compacted Native Soils Access Road Design Recommendations

It is our understanding that AES is considering using compacted native soils for the surface of some interior roadways on the project.

Due to the relatively infrequent rain and minimal traffic in the vicinity of the project, it is our opinion that such unsurfaced roadways are anticipated to perform with periodic maintenance under the anticipated light and temporary traffic loading provided the roadways are compacted and prepared in conformance with the compaction requirements in Section 9.0 to a minimum depth of 10 inches.

Compacted native soils roads could pump and yield, increase in rut depth, and unstable conditions could develop during construction operations particularly if the soils increase in moisture content and/or are subjected to repetitive construction traffic. If pumping and 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 roads when the subgrade is relatively high in moisture content 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. To help direct surface water over the aggregate surface, we suggest minimum surface slopes of 2% be constructed and maintained. Surface drainage should be directed away from the access road areas, and ponding of water should not be allowed on the access road surfaces or adjacent to the edges of the roadways areas. Drainage design is the responsibility of the Civil Engineer. If site stripping lowers site grades, equivalent fill volumes should be utilized to bring roadway back up to original grade.

### 8.1.3 Access Roadway Design and Construction Considerations

The roadway subgrade, if prepared early in the project, should be carefully evaluated as the time for construction approaches. We recommend the roadway area be stripped of existing topsoil/organic subsoil, or otherwise unsuitable material, rough graded, and compacted with a heavy roller compactor with vibration, before being proof-rolled with a loaded tandem-axle dump truck. To reduce the potential of development of low spots, an equivalent volume of material to what was removed during stripping should be replaced. Particular attention should be paid to high traffic areas that were rutted and disturbed during construction, and areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by replacing the materials with properly compacted fill.

Aggregate and native surfaced drives, regardless of the section thickness or subgrade preparation measures, will require on-going maintenance and repairs to keep them in a serviceable condition. It is not practical to design a gravel section of sufficient thickness that on-going maintenance will not be required. This is due to the porous nature of the gravel that will allow precipitation and surface water to infiltrate and soften the subgrade soils, and the limited near surface strength of unconfined gravel that makes it susceptible to rutting. When potholes, ruts, depressions or yielding subgrades develop, they must be addressed as soon as possible in order to avoid major repairs.

Maintenance should consist of periodic grading with a road grader. Typical repairs could consist of placing additional gravel in ruts or depressed areas. Potholes and depressions should not be filled by blading adjacent ridges or high areas into the depression areas. New material should be added to the depressed areas as they develop.

Adequate drainage should be provided at the site to reduce the likelihood of an increase in moisture content of the foundation soils. The site should be graded to shed water and avoid ponding over the subgrade. Water should not be allowed to pool against foundations (including driven piles) or within roadways. Drainage design is the responsibility of the Civil Designer.

# 9.0 Earthwork

## 9.1.1 General

The site work conditions will be largely dependent on the weather conditions and the contractor’s means and methods in controlling surface drainage and protecting the subgrade. The near surface soils encountered across the majority of the project site are anticipated to remain relatively stable; however, they may become unstable with increases in moisture content or due to repetitive traffic. Site preparation where inverter mat foundations will be installed should include clearing and grubbing, installation of a site drainage system (if necessary), and subgrade preparation. Site preparation is not necessary in the PV Array field or where inverters will be supported on driven piles except to improve site drainage where necessary. The following paragraphs present our considerations and recommendations for the PV Array Field portion of the site and subgrade preparation.

The following presents recommendations for site preparation, excavation, subgrade preparation and placement of engineered fills on the project. The recommendations presented for design and construction of earth supported elements including foundations and roadways 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.

### 9.1.2 Site Preparation

Strip and remove existing vegetation, debris, and other deleterious materials from proposed access road areas, and any proposed mat foundations supporting invertors. Native trees, tree stumps and large vegetation should be cleared from the site at the location of mat foundations supporting invertors and roadway areas. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction in proposed array panel, invertor and access road areas.

Stripped materials consisting of vegetation and organic materials should be wasted from the site. If it is necessary to dispose of organic materials on-site, they should be placed in non-structural areas.

Where proposed inverters will be located, the area should be initially graded to create a relatively level surface to receive fill or be constructed upon, and to provide for a relatively uniform thickness of fill beneath structures (if applicable).

### 9.1.3 Subgrade Preparation

To mitigate hydro collapse potential in proposed mat/slab foundation areas, the upper 4 feet of subgrade soils beneath existing grade should be removed and recompacted as engineered fill material to mitigate the collapse and compression potential of the native soils. The lateral extents should be 2/3 the depth of replacement. The moisture content and compaction of subgrade soils should be maintained until slab construction. If new mat/slab foundations are in close proximity of each other, the subgrade preparation for the entire footprint that covers the new mat/slab foundations should be completed at the same time.

Subgrade soils beneath roadways should be scarified, moisture conditioned and compacted to a minimum depth of 10 inches. The moisture content and compaction of subgrade soils should be maintained until pavement construction.

Subgrade soils beneath any new interior floor slabs should be scarified, moisture conditioned and compacted to a minimum depth of 12 inches. On-site medium and high plasticity clay soils should be excluded from within the upper 16 inches of subgrade soils beneath any proposed interior floor slabs. The moisture content and compaction of subgrade soils should be maintained until floor slab construction.

Exposed areas which will receive fill, once properly cleared and benched where necessary, including at the base of the recommended over-excavation below foundations, should be scarified to a minimum depth of 10 inches, moisture conditioned, and compacted. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction.

### 9.1.4 Fill Material Type

All fill materials should be inorganic soils free of vegetation, debris, and fragments larger than 4 inches in size. Pea gravel or other similar non-cementitious, poorly-graded materials should not be used as fill or backfill without the prior approval of the geotechnical engineer.

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

| Fill Type[1] | USCS Classification | Acceptable Location for Placement |
|---|---|---|
| On-Site Medium Plasticity Clay Soils | CL | The near-surface on-site clay soils with Plasticity Index (PI) greater than 15 are not considered suitable for use as engineered fill beneath lightly loaded structures such as mat slabs supporting inverters and BESS structures. These soils may be utilized in non structural areas and as landscaping fill. |
| On-Site Sand Soils | SM, SC-SM, SC, CL | The on-site low plasticity and non-plastic sand soils with Plasticity Index (PI) less than 15 are considered suitable for use as engineered fill at all locations and elevations. |
| Imported Material | Varies | All locations and elevations |
| Non-Frost Susceptible (NFS) | GW, GP, SW and SP | Maximum particle size of 2 inches<br>Maximum of 3 percent passing the No. 200 US sieve size. Below foundations to a depth of at least 24 inches. |

1. Controlled, compacted fill should consist of approved materials that are free of organic matter, debris, and oversized materials. A sample of each material type should be submitted to the geotechnical engineer for evaluation.

Imported soils (if required) for use as fill material in foundation and slab areas should conform to low volume change materials as indicated in the following specifications:

| Gradation | Percent Finer by Weight (ASTM C 136) |
|---|---|
| 4" | 100 |
| No. 4 Sieve | 50-100 |
| No. 200 Sieve | 15 (min) to 45 (max) |
| ■ Liquid Limit | 30 (max) |
| ■ Plasticity Index | 10 (max) |
| ■ Maximum expansive potential (%)* | 1.5 |

*Measured on a sample compacted to approximately 95 percent of the ASTM D698 maximum dry density at about 2 percent below optimum water content. The sample is confined under a 100 psf surcharge and submerged/inundated.

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. The EPC is responsible for selecting appropriate compaction equipment, and loose lift thickness (up to a maximum of 10 inches), to ensure the recommendations in this report are achieved and verifiable. Corrosion properties of all imported soils should be determined and verified to be in agreement with construction material design.

### 9.1.5 Compaction Requirements

Engineered fill should meet the following compaction and moisture requirements:

| Material Type and Location | Per the Standard Proctor Test (ASTM D698) | | |
|---|---|---|---|
| | Minimum Compaction Requirement (%)[1] | Range of Moisture Contents for Compaction (referenced from optimum moisture content)[1] | |
| | | Minimum | Maximum |
| On-site and imported soils: | | | |
| Beneath foundations | 95 | -2% | +3% |
| PV Array Pile Areas | 96 | -2% | +2% |
| Compacted Native and Aggregate Surfaced Roadways (subgrade) | 92 | -2% | +2% |
| Aggregate base[2] | 95 | -2% | +3% |
| Cable Trench Backfill (non-structural areas) | 85 | -2% | +2% |
| Cable Trench Backfill (structural areas and roadways) | 95 | -2% | +2% |

| Material Type and Location | Per the Standard Proctor Test (ASTM D698) | | |
|---|---|---|---|
| | Minimum Compaction Requirement (%)[1] | Range of Moisture Contents for Compaction (referenced from optimum moisture content)[1] | |
| | | Minimum | Maximum |
| Miscellaneous backfill | 95 | -2% | +3% |

1. The moisture content and compaction should be measured for each lift of engineered fill during placement. Should the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved.
2. Moisture percentage is not a pass/fail criteria for aggregate base course.

### 9.1.6 Earthwork Factors

The earthwork factors are based on a comparison of the in-situ dry densities from ring samples to the density of bulk samples compacted to 98, 95, 90, and 85 percent of the maximum dry density as determined by ASTM D698. The estimated shrinkage of the upper roughly 2 feet of the site soils when used as compacted fill is presented in the table below:

| Percent Compaction (%) | Shrink/Swell (%)[1] | | |
|---|---|---|---|
| | Minimum | Maximum | Average |
| 98 | -4 | 34 | 18 |
| 95 | -7 | 32 | 15 |
| 90 | -13 | 28 | 10 |
| 85 | -20 | 24 | 5 |

1. Positive numbers are shrink, while negative numbers are swell. All values are in percent.

These estimates are general in nature, and are based on our experience, limited data from our field exploration, and the soil conditions we encountered at the site. Earthwork factors may vary dependent upon the actual subsurface conditions, which may include variations in soil gradations and gravel contents.

### 9.1.7 Grading and Drainage

Adequate drainage should be provided at the site to reduce the likelihood of an increase in moisture content of the foundation soils. The site should be graded to shed water and avoid ponding over the subgrade.

### 9.1.8 Earthwork Construction Considerations

Shallow excavations up to 10 feet for the proposed construction are anticipated to be accomplished with conventional construction equipment. However, if excavations penetrate into very dense soils, some additional effort may be need for excavation of these materials. Consideration should be given to obtaining a unit price for difficult excavation in the contract documents for the project.

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of the access roads. 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 re-compacted prior to access road construction.

The individual contractors are responsible for designing and constructing stable, temporary excavations (including utility trenches) 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 OSHA excavation and trench safety standards.

Terracon 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.

### 9.1.9 Construction Observation and Testing

The exposed subgrade and the full extend of each lift of compacted fill should be tested, evaluated and reworked, as necessary, until approved by the geotechnical engineer's representative prior to placement of additional lifts of fill. We recommend each lift of fill be tested for density and moisture content at a minimum frequency of at least one test for every 15,000 square feet of compacted fill in the structure areas. We recommend at a minimum at least one density and moisture content test for every 500 linear feet of compacted roadway and utility trench backfill. If engineered fill is placed beneath individual structures, we recommend at least one density and moisture content test per each vertical lift per structure.

Terracon should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation; proofrolling; placement and compaction of controlled compacted fills; and backfilling of excavations into the completed subgrade.

# 10.0 General Comments

Terracon should be retained to review the final design plans and specifications, so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the borings, test pits, and pile load testing performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur across the site, or due to the modifying effects of weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The results of the test pile program should be interpreted in consideration of the subsurface conditions at the time when and locations where testing was performed. Inherent variations within near surface soil layers, seasonal groundwater fluctuations, seasonal wet and dry season effects, and site disturbance (due to construction activities including clearing, grubbing, grading, or modifications to site drainage) can significantly affect the geotechnical capacity of short pile foundations. The results of the test pile program should also be interpreted in consideration of the test pile connection method and test pile characteristics including the section properties, surface texture, and installation methods.

The scope of services for this project 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.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

# APPENDIX A

# FIELD EXPLORATION

## Site Location

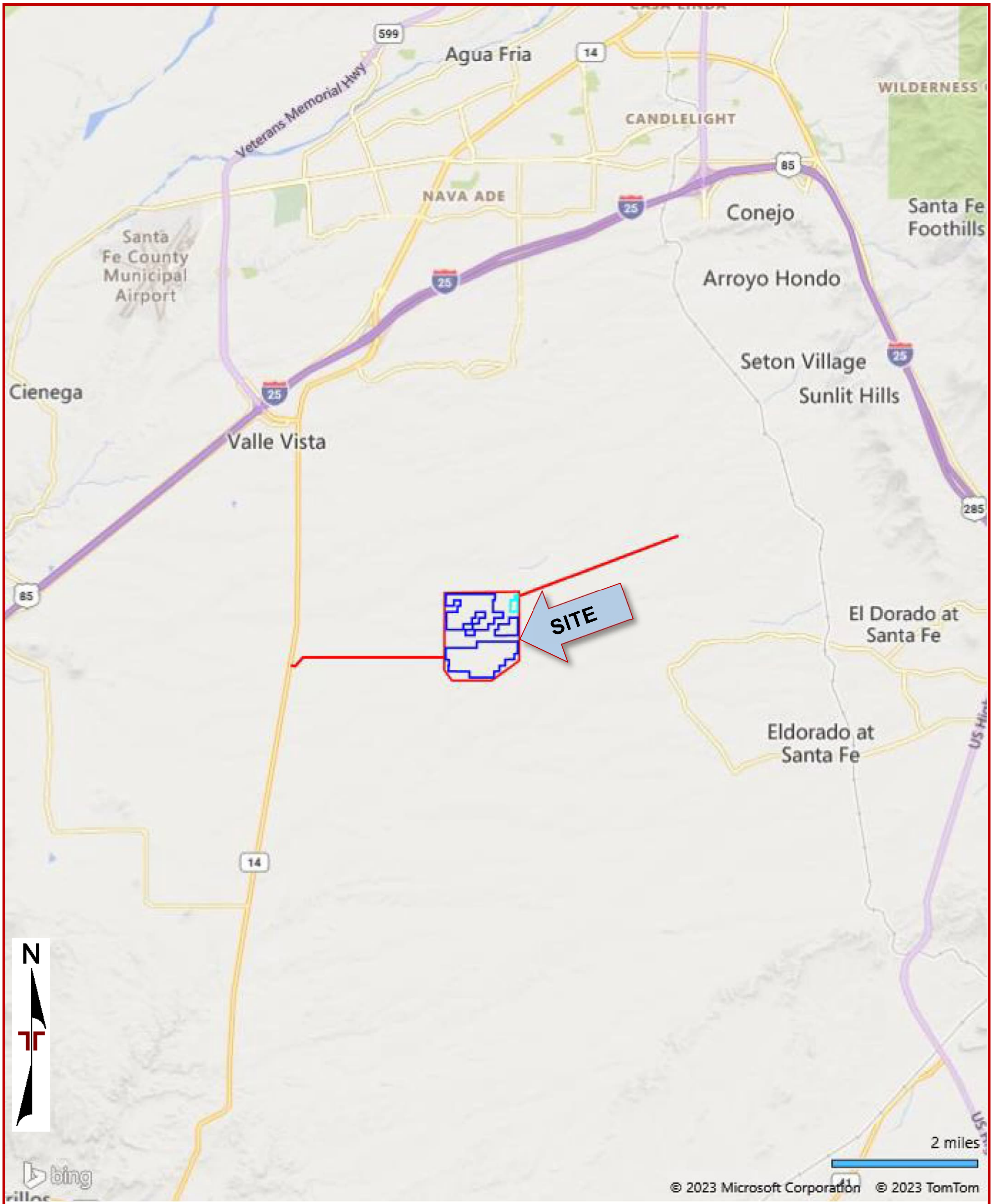


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES MAP PROVIDED BY MICROSOFT BING MAPS

Exhibit A-1

# Exploration Plan – Solar Array, BESS, and Substation Borings

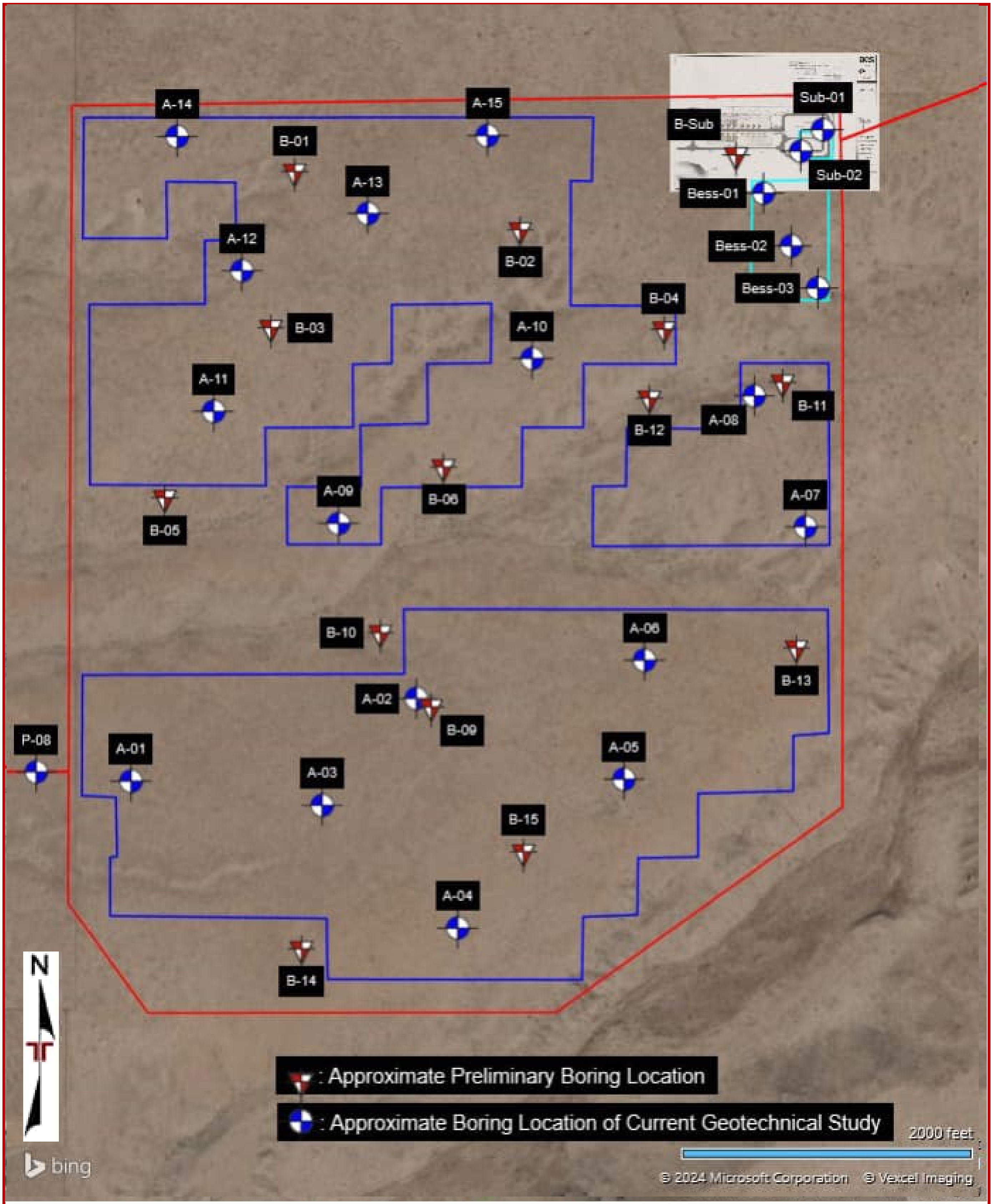


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exhibit A-2

# Exploration Plan – Access Road Borings

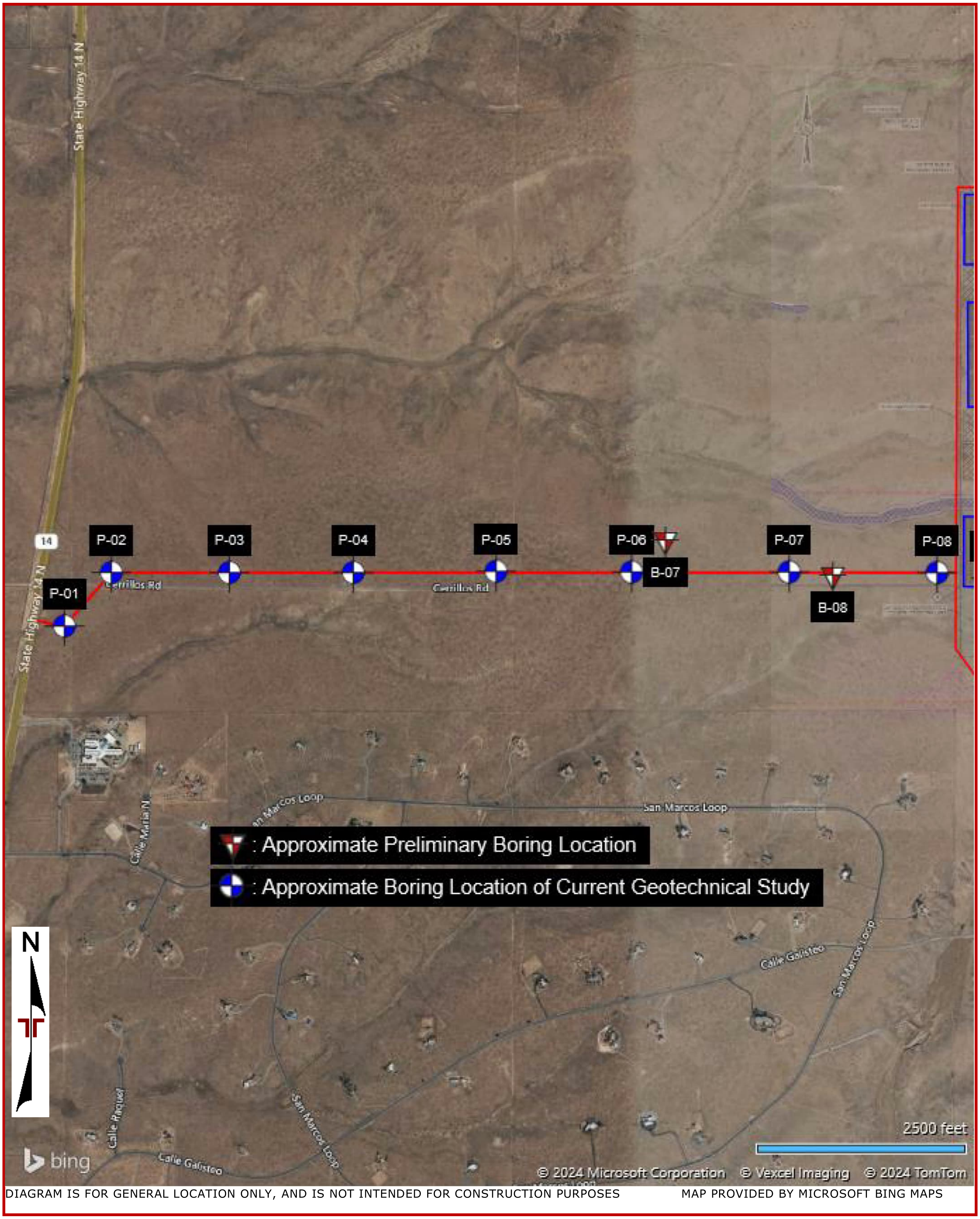


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exhibit A-3

## Exploration Plan – Transmission Line Borings

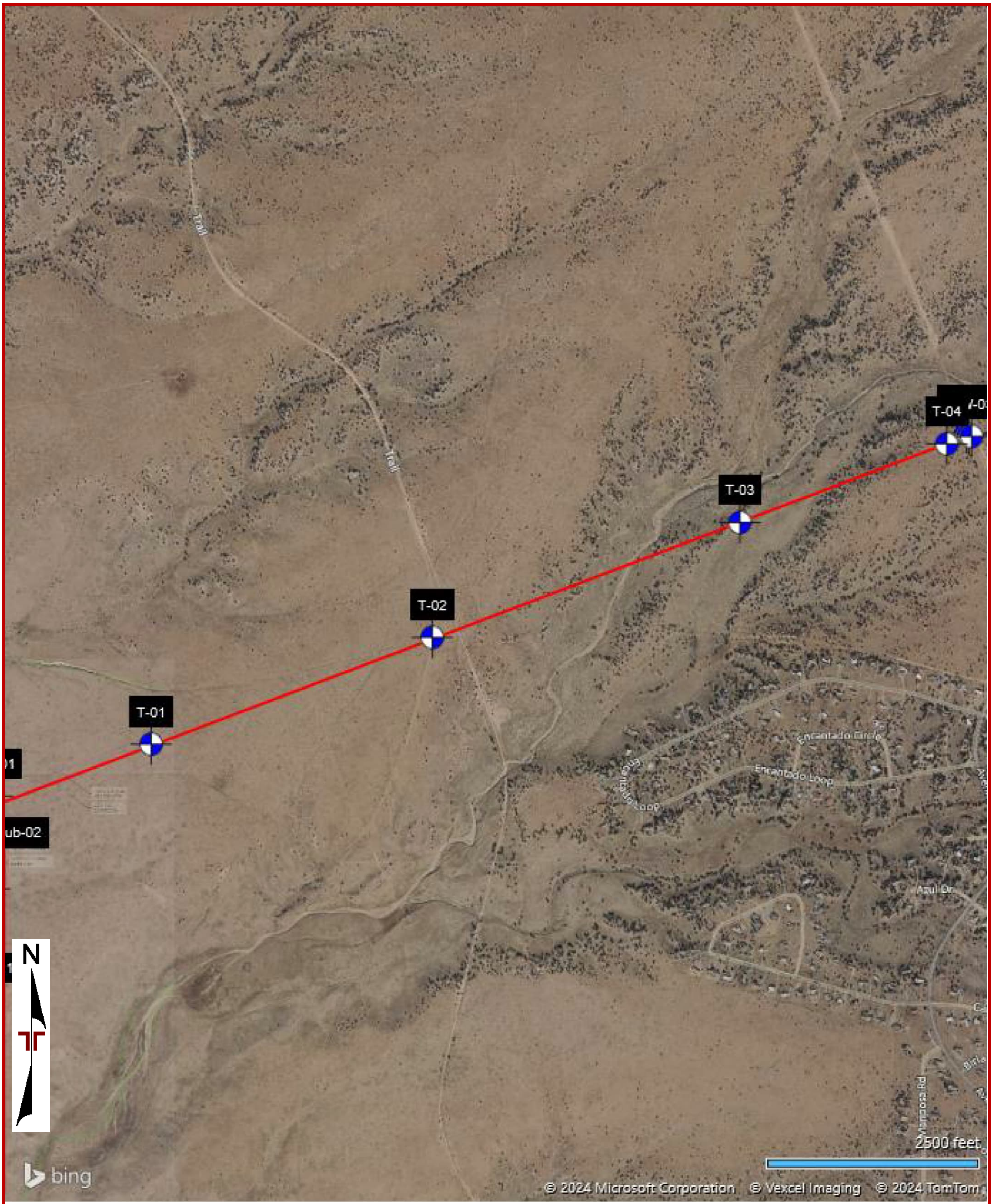


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exhibit A-4

## Exploration Plan – Switching Station Borings

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

MAP PROVIDED BY MICROSOFT BING MAPS

Exhibit A-5

## Exploration Plan – Test Pits

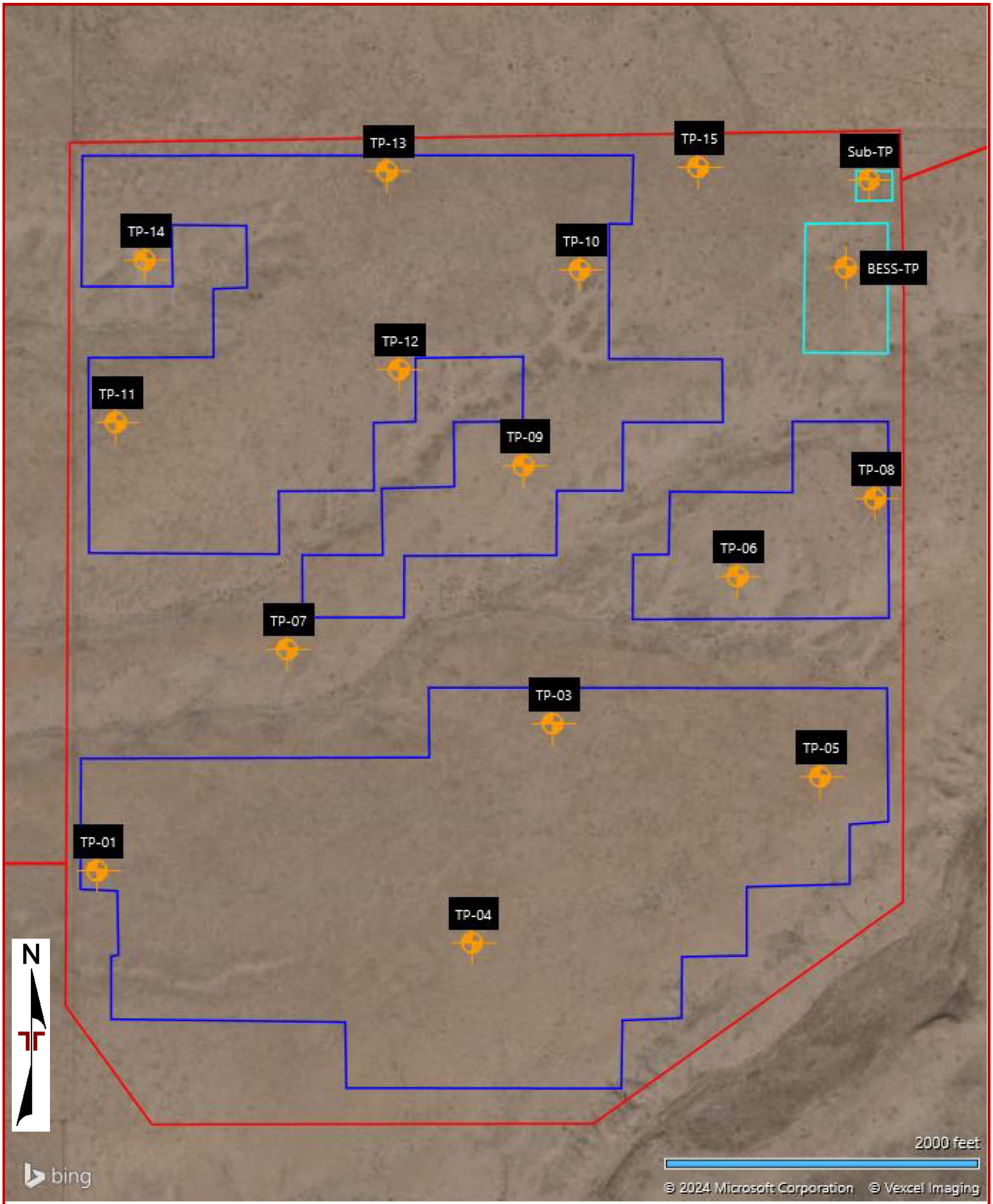


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES MAP PROVIDED BY MICROSOFT BING MAPS

Exhibit A-6

## Exploration Plan – Test Pits

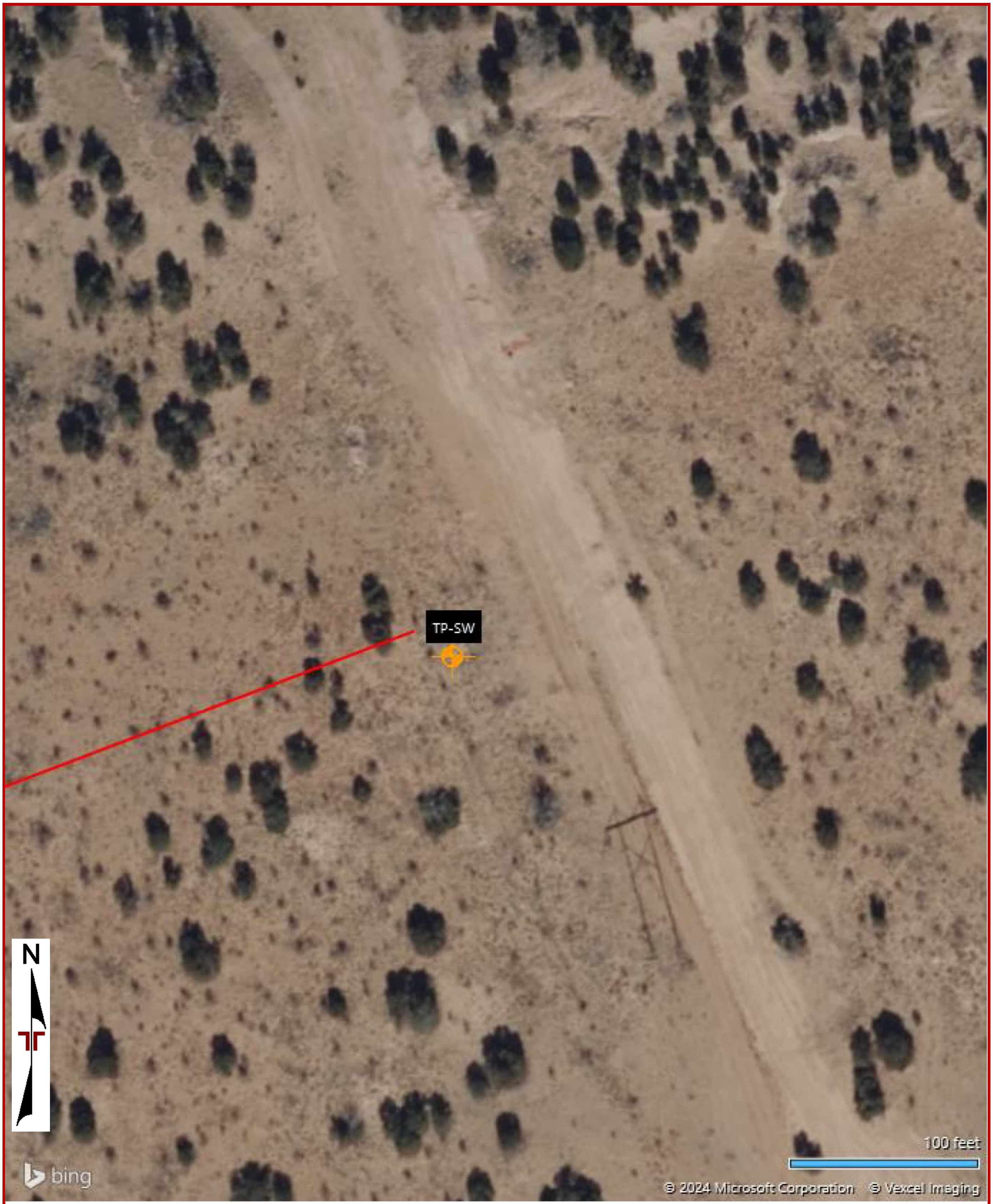


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exhibit A-7

# General Notes

## Sampling

▯ Auger Cuttings

▮ Rock Core

⊠ Ring Sampler

⊠ Standard Penetration Test

## Water Level

▽ Water Initially Encountered

▽ Water Level After a Specified Period of Time

▼ Water Level After a Specified Period of Time

▨ Cave In Encountered

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

| | |
|---|---|
| N | Standard Penetration Test Resistance (Blows/Ft.) |
| (HP) | Hand Penetrometer |
| (T) | Torvane |
| (DCP) | Dynamic Cone Penetrometer |
| UC | Unconfined Compressive Strength |
| (PID) | Photo-Ionization Detector |
| (OVA) | Organic Vapor Analyzer |

## Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

## Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. 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**<br>(More than 50% retained on No. 200 sieve.)<br>Density determined by Standard Penetration Resistance | | | **Consistency of Fine-Grained Soils**<br>(50% or more passing the No. 200 sieve.)<br>Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance | | | | **Bedrock** | | |
|---|---|---|---|---|---|---|---|---|---|
| **Relative Density** | **Standard Penetration or N-Value (Blows/Ft.)** | **Ring Sampler (Blows/Ft.)** | **Consistency** | **Unconfined Compressive Strength Qu (tsf)** | **Standard Penetration or N-Value (Blows/Ft.)** | **Ring Sampler (Blows/Ft.)** | **Ring Sampler (Blows/Ft.)** | **Standard Penetration or N-Value (Blows/Ft.)** | **Consistency** |
| Very Loose | 0 - 3 | 0 - 6 | Very Soft | less than 0.25 | 0 - 1 | < 3 | < 30 | < 20 | Weathered |
| Loose | 4 - 9 | 7 - 18 | Soft | 0.25 to 0.50 | 2 - 4 | 3 - 4 | 30 - 49 | 20 - 29 | Firm |
| Medium Dense | 10 - 29 | 19 - 58 | Medium Stiff | 0.50 to 1.00 | 4 - 8 | 5 - 9 | 50 - 89 | 30 - 49 | Medium Hard |
| Dense | 30 - 50 | 59 - 98 | Stiff | 1.00 to 2.00 | 8 - 15 | 10 - 18 | 90 - 119 | 50 - 79 | Hard |
| Very Dense | > 50 | > 99 | Very Stiff | 2.00 to 4.00 | 15 - 30 | 19 - 42 | > 119 | >79 | Very Hard |
| | | | Hard | > 4.00 | > 30 | > 42 | | | |

## Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.

## Unified Soil Classification System

| 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≥4 and 1≤Cc≤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≥6 and 1≤Cc≤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 above "A" line [J] | CL | Lean clay [K, L, M] |
| | | | PI < 4 or plots below "A" line [J] | ML | Silt [K, L, M] |
| | | **Organic:** | $\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$ | 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:** | $\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$ | 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] $Cu = D_{60}/D_{10}$ $\quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

[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.

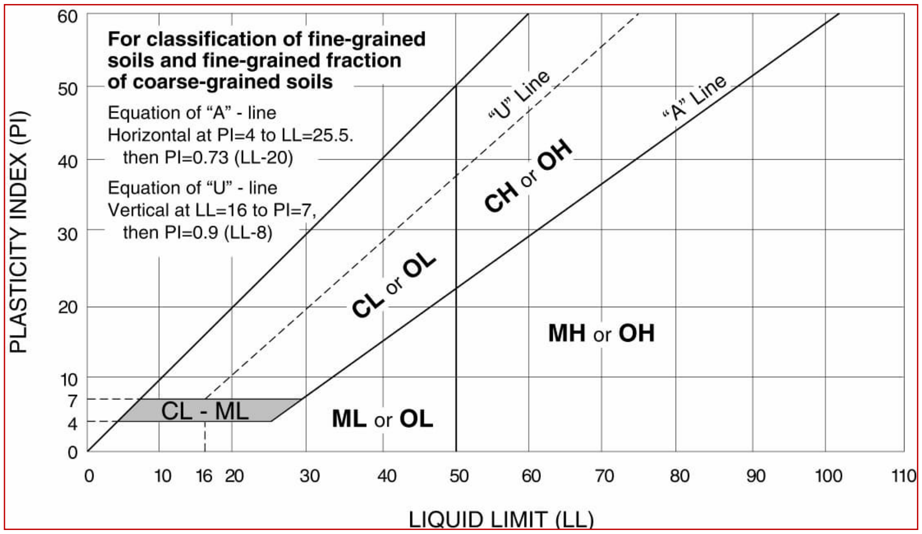


Exhibit A-5

Exhibit A-9

Rancho Viejo Solar
NM 599 and NM 14 | Santa Fe, NM
Terracon Project No. 66225093

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

# Boring Log No. A-01

Location: See Exploration Plan

Latitude: 35.5416° Longitude: -106.0171°

Depth (Ft.) Elevation.: 6411 (Ft.)

| Model Layer | Graphic Log | Description | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | | 0.2 **TOPSOIL**, approximately 2" thick 6410.83<br>**SILTY SAND (SM)**, fine to coarse grained, brown, medium dense<br>2.0 6409 | | | ☒ | 4-8-6<br>N=14 | | 6.6 | | | |
| 3 | | **SANDY LEAN CLAY (CL)**, light brown, very stiff to hard | | | ☒ | 6-10-11<br>N=21 | | 8.5 | | 39-19-20 | 62 |
| | | | 5 | | ☒ | 17-29/0" | | 6.7 | 104 | | |
| | | 8.0 6403 | | | | | | | | | |
| 2 | | **SILTY SAND (SM)**, fine to coarse grained, brown, very loose | | | ☒ | 6-8-8<br>N=16 | | 7.9 | | | |
| | | | 10 | | ☒ | 2-2-1<br>N=3 | | 7.3 | | | |
| | | 12.0 6399 | | | | | | | | | |
| | | **POORLY GRADED SAND (SP)**, fine to coarse grained, brown, medium dense | | | ☒ | 5-6-5<br>N=11 | | 1.2 | | | |
| | | 14.0 6397 | | | | | | | | | |
| 4 | | **POORLY GRADED SAND WITH SILT (SP-SM)**, trace gravel, fine to coarse grained, brown, medium dense to dense | 15 | | ☒ | 5-11-13<br>N=24 | | 1.4 | | | |
| | | 20.9 6390.08 | 20 | | ☒ | 16-50/5" | | | | | |

***Boring Terminated at 20.92 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
ED

**Boring Started**
08-01-2023

**Boring Completed**
08-01-2023

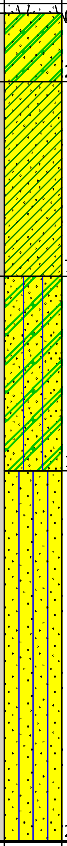
Rancho Viejo Solar
NM 599 and NM 14 | Santa Fe, NM
Terracon Project No. 66225093

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

# Boring Log No. A-02

Location: See Exploration Plan

Latitude: 35.5432° Longitude: -106.0105°



| Model Layer | Depth (Ft.) | Description | Elevation.: 6434 (Ft.) |
|---|---|---|---|
|  | 0.3 | **TOPSOIL**, approximately 3" thick | 6433.75 |
| 2 | 2.0 | **CLAYEY SAND (SC)**, fine to coarse grained, brown to light brown, medium dense | 6432 |
| 3 | 7.0 | **SANDY LEAN CLAY (CL)**, trace gravel, brown, hard, moderate cementation | 6427 |
| 2 | 12.0 | **SILTY CLAYEY SAND (SC-SM)**, fine to coarse grained, reddish brown, medium dense | 6422 |
|  | 21.5 | **SILTY SAND (SM)**, trace gravel, fine to coarse grained, brown, medium dense | 6412.5 |

***Boring Terminated at 21.5 Feet***

| Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|
| 3-4-9<br>N=13 |  | 6.7 |  |  |  |
| 12-17-22<br>N=39 |  | 9.4 |  |  |  |
| 24-43/0" |  | 8.3 | 100 | 38-18-20 | 56 |
| 6-5-5<br>N=10 |  | 7.2 |  |  |  |
| 5-7-7<br>N=14 |  | 4.7 |  |  |  |
| 6-5-6<br>N=11 |  | 1.7 |  |  |  |
| 6-7-7<br>N=14 |  | 2.4 |  |  |  |
| 6-9-18<br>N=27 |  | 1.9 |  |  |  |

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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
SS

**Boring Started**
08-24-2023

**Boring Completed**
08-24-2023

# Boring Log No. A-03

Location: See Exploration Plan

Latitude: 35.5412° Longitude: -106.0127°

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation.: 6426 (Ft.) |
|---|---|---|---|---|
| | | 0.3 | **TOPSOIL**, approximately 4" thick | 6425.67 |
| 2 | | 2.0 | **SILTY SAND (SM)**, fine to coarse grained, brown, medium dense | 6424 |
| 3 | | 9.0 | **SANDY LEAN CLAY (CL)**, trace gravel, light brown, stiff to hard | 6417 |
| 4 | | 21.5 | **SILTY SAND (SM)**, fine to coarse grained, brown, medium dense to very dense | 6404.5 |

***Boring Terminated at 21.5 Feet***

| Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|
| | | 5-6-8<br>N=14 | | 6.6 | | | |
| | | 6-7/0" | | 10.2 | 88 | | |
| | | 16-17-15<br>N=32 | | 7.4 | | | |
| | | 6-6-10<br>N=16 | | 6.8 | | 30-16-14 | 65 |
| | | 16-50/5" | | 8.1 | | | |
| | | 6-15-16<br>N=31 | | 5.9 | | | |
| | | 3-6-8<br>N=14 | | 4.0 | | | |
| | | 9-9-12<br>N=21 | | 6.2 | | | |

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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Notes**

**Water Level Observations**
Groundwater not encountered

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Logged by**
ED

**Boring Started**
08-01-2023

**Boring Completed**
08-01-2023

# Boring Log No. A-04

Location: See Exploration Plan

Latitude: 35.5388° Longitude: -106.0095°

Depth (Ft.) Elevation.: 6427 (Ft.)

| Model Layer | Depth (Ft.) | Description | Elevation (Ft.) |
|---|---|---|---|
| | 0.3 | **TOPSOIL**, approximately 4" thick | 6426.67 |
| 4 | 7.0 | **SILTY SAND (SM)**, trace calcareous nodules, trace gravel, fine to coarse grained, brown to light brown, medium dense to very dense, moderate cementation | 6420 |
| 2 | 9.0 | **SILTY CLAYEY SAND (SC-SM)**, trace gravel, fine to coarse grained, brown, medium dense | 6418 |
| | 12.0 | **POORLY GRADED SAND (SP)**, trace gravel, fine to coarse grained, brown to brown, medium dense | 6415 |
| | 14.0 | **WELL GRADED SAND (SW)**, trace gravel, fine to coarse grained, brown, medium dense | 6413 |
| | 19.0 | **POORLY GRADED SAND (SP)**, trace gravel, fine to coarse grained, brown, medium dense | 6408 |
| 4 | 21.5 | **CLAYEY SAND (SC)**, fine to coarse grained, brown, dense | 6405.5 |

***Boring Terminated at 21.5 Feet***

| Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|
| | | ☒ | 4-8-8<br>N=16 | | 5.8 | | | |
| | | ☒ | 3-6-11<br>N=17 | | 9.3 | | | |
| 5 | | ☒ | 30-37/0" | | 6.0 | 101 | NP | 39 |
| | | ☒ | 6-11-15<br>N=26 | | 1.7 | | | |
| 10 | | ☒ | 10-13/0" | | 1.7 | 113 | | |
| | | ☒ | 5-7-10<br>N=17 | | 0.9 | | | |
| 15 | | ☒ | 7-11-11<br>N=22 | | 1.0 | | | |
| 20 | | ☒ | 4-14-22<br>N=36 | | 5.5 | | | |

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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
ED

**Boring Started**
08-01-2023

**Boring Completed**
08-01-2023

# Boring Log No. A-05

Location: See Exploration Plan

Latitude: 35.5417° Longitude: -106.0057°

| Model Layer | Depth (Ft.) | Description | Elevation.: 6449 (Ft.) |
|---|---|---|---|
| 1 | 0.2 | **TOPSOIL**, approximately 2" thick | 6448.83 |
| | 2.0 | **SANDY SILT (SM)**, brown, stiff | 6447 |
| 3 | 12.0 | **SANDY LEAN CLAY (CL)**, trace gravel, brown to dark brown, very stiff to hard | 6437 |
| 2 | 14.0 | **POORLY GRADED SAND WITH SILT (SP-SM)**, fine to coarse grained, brown, medium dense | 6435 |
| 4 | 19.0 | **WELL GRADED SAND WITH SILT (SW-SM)**, trace gravel, fine to coarse grained, tan to light brown, dense | 6430 |
| 2 | 21.5 | **SILTY SAND (SM)**, fine to coarse grained, brown, medium dense | 6427.5 |

***Boring Terminated at 21.5 Feet***

| Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|
| | | ☒ | 3-6-6<br>N=12 | | 5.4 | | | |
| | | ☒ | 29 | | 12.3 | 94 | | |
| 5 | | ☒ | 7-16-29<br>N=45 | | 6.0 | | | |
| | | ☒ | 7-17-14<br>N=31 | | 5.4 | | 31-15-16 | 56 |
| 10 | | ☒ | 7-10-15<br>N=25 | | 3.4 | | | |
| | | ☒ | 5-11-15<br>N=26 | | 1.7 | | | |
| 15 | | ☒ | 6-17-16<br>N=33 | | 1.1 | | | |
| 20 | | ☒ | 8-11-11<br>N=22 | | 3.0 | | | |

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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
ED

**Boring Started**
08-01-2023

**Boring Completed**
08-01-2023

# Boring Log No. A-06

Location: See Exploration Plan

Latitude: 35.5439° Longitude: -106.0052°

| Model Layer | Depth (Ft.) | Description | Elevation.: 6456 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.3 | **TOPSOIL**, approximately 3" thick | 6455.75 | | | ☒ | 3-4-7<br>N=11 | | 5.4 | | | |
| 2 | 2.0 | **SILTY SAND (SM)**, fine to coarse grained, brown, medium dense | 6454 | | | | | | | | | |
| 3 | | **SILT WITH SAND (ML)**, trace caliche, trace gravel, tan to white, very stiff to hard, moderate cementation | | | | ☒ | 4-16-24<br>N=40 | | 4.8 | | | |
| | | | | 5 | | ☒ | 10-9-10<br>N=19 | | 6.2 | | NP | 71 |
| | | | | | | ☒ | 9-11/0" | | 6.5 | 92 | | |
| | 10.0 | | 6446 | | | | | | | | | |
| 4 | | **CLAYEY SAND (SC)**, fine to coarse grained, brown to dark brown, very dense | | 10 | | ☒ | 14-28-36<br>N=64 | | 6.2 | | | |
| | 14.0 | | 6442 | | | | | | | | | |
| 3 | | **LEAN CLAY WITH SAND (CL)**, brown to dark brown, hard | | 15 | | ☒ | 9-22-30<br>N=52 | | 6.6 | | | |
| | 21.5 | | 6434.5 | 20 | | ☒ | 12-14-16<br>N=30 | | 9.0 | | | |

***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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
ED

**Boring Started**
08-01-2023

**Boring Completed**
08-01-2023

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

# Boring Log No. A-07

Location: See Exploration Plan

Latitude: 35.5464° Longitude: -106.0014°

Depth (Ft.) Elevation.: 6470 (Ft.)

| Model Layer | Depth (Ft.) | Description | Elevation (Ft.) |
|---|---|---|---|
| 3 | 0.3 | **TOPSOIL**, approximately 3" thick | 6469.75 |
| 3 | 19.0 | **LEAN CLAY WITH SAND (CL)**, trace gravel, brown, stiff to very stiff | 6451 |
| 3 | 21.5 | **SILT (ML)**, tan, hard | 6448.5 |

***Boring Terminated at 21.5 Feet***

| Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|
| 0 | | ☒ | 3-5-7<br>N=12 | | | | | |
| 2.5 | | ☒ | 4-7-7<br>N=14 | | 6.9 | | 32-17-15 | 80 |
| 5 | | ☒ | 4-3-6<br>N=9 | | 7.2 | | | |
| 7.5 | | ☒ | 10-15/0" | | 7.6 | 90 | | |
| 10 | | ☒ | 8-13-12<br>N=25 | | 8.8 | | | |
| 12.5 | | ☒ | 4-3-5<br>N=8 | | 8.9 | | | |
| 15 | | ☒ | 4-4-7<br>N=11 | | 8.4 | | | |
| 20 | | ☒ | 10-32-50/4" | | 8.5 | | | |

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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
ED

**Boring Started**
08-02-2023

**Boring Completed**
08-02-2023

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

# Boring Log No. A-08

Location: See Exploration Plan

Latitude: 35.5489° Longitude: -106.0026°

Depth (Ft.) Elevation.: 6477 (Ft.)

| Model Layer | Graphic Log | Description | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0.2 **TOPSOIL**, approximately 2" thick 6476.83<br>**LEAN CLAY (CL)**, fine to coarse grained, light brown to brown, stiff<br>2.0 6475 | | | ☒ | 3-5-6<br>N=11 | | 7.7 | | | |
| | | **SILT (ML)**, tan, stiff<br>4.0 6473 | | | ☒ | 3-3-6<br>N=9 | | 6.2 | | | |
| 3 | | **SILTY CLAY (CL-ML)**, tan, very stiff<br>7.0 6470 | 5 | | ☒ | 8-14/0" | | 6.4 | 95 | | |
| 1 | | **SANDY SILT (ML)**, trace gravel, light tan, stiff<br>9.0 6468 | | | ☒ | 4-4-5<br>N=9 | | 4.8 | | NP | 57 |
| 3 | | **LEAN CLAY (CL)**, tan to light brown, hard<br>14.0 6463 | 10 | | ☒ | 9-15-22<br>N=37 | | 6.6 | | | |
| 2 | | **CLAYEY SAND (CL)**, fine to coarse grained, brown, medium dense<br>19.0 6458 | 15 | | ☒ | 15-19-15<br>N=34 | | 10.3 | | | |
| 3 | | **LEAN CLAY (CL)**, brown, hard<br>21.5 6455.5 | 20 | | ☒ | 6-18-19<br>N=37 | | 8.2 | | | |
| | | ***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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Notes**

**Water Level Observations**
Groundwater not encountered

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Logged by**
ED

**Boring Started**
08-02-2023

**Boring Completed**
08-02-2023

# Boring Log No. A-09

Location: See Exploration Plan

Latitude: 35.5465° Longitude: -106.0123°

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation.: 6430 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 | **TOPSOIL**, approximately 4" thick | 6429.67 | | | ☒ | 5-7-6<br>N=13 | | 6.1 | | | |
| 3 | ▨ | | **LEAN CLAY (CL)**, trace calcareous nodules, brown to light brown, stiff to hard | | | | ☒ | 10-12-14<br>N=26 | | 6.9 | | | |
| | | | | | 5 | | ☒ | 9-18/0" | | | | | |
| | | 6.0 | | 6424 | | | | | | | | | |
| 4 | ▨ | | **SILTY SAND (SM)**, trace gravel, brown, very dense | | | | ☒ | 31-43-24<br>N=67 | | 4.7 | | NP | 45 |
| | | 9.0 | | 6421 | | | | | | | | | |
| 3 | ▨ | | **SANDY LEAN CLAY (CL)**, brown to dark brown, hard | | 10 | | ☒ | 12-21-26<br>N=47 | | 6.5 | | | |
| | | 12.0 | | 6418 | | | | | | | | | |
| | ▨ | | **LEAN CLAY (CL)**, brown, very stiff | | | | ☒ | 8-9-11<br>N=20 | | 9.0 | | | |
| | | 14.0 | | 6416 | | | | | | | | | |
| 4 | ▨ | | **SILTY SAND (SM)**, brown to light brown, medium dense to very dense | | 15 | | ☒ | 4-7-12<br>N=19 | | 5.2 | | | |
| | | | | | 20 | | ☒ | 8-25-28<br>N=53 | | 6.0 | | | |
| | | 21.5 | | 6408.5 | | | | | | | | | |
| | | | ***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.

Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
ED

**Boring Started**
08-02-2023

**Boring Completed**
08-02-2023

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

# Boring Log No. A-10

Location: See Exploration Plan

Latitude: 35.5496° Longitude: -106.0078°

Depth (Ft.) Elevation.: 6464 (Ft.)

| Model Layer | Graphic Log | Description | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | | 0.3 **TOPSOIL**, approximately 4" thick 6463.67<br>**SANDY LEAN CLAY (CL)**, trace calcareous nodules, trace gravels, brown to light brown, soft to very stiff | | | ☒ | 3-5-7<br>N=12 | | 5.4 | | | |
| | | | | | ☒ | 3-6-11<br>N=17 | | 9.8 | | | |
| | | | 5 | | ☒ | 6-6-7<br>N=13 | | 7.7 | | 34-16-18 | 57 |
| | | | | | ☒ | 5-4 | | 6.8 | 92 | | |
| | | | 10 | | ☒ | 3-2-2<br>N=4 | | 4.7 | | | |
| | | | | | ☒ | 3-8-8<br>N=16 | | 8.8 | | | |
| | | | 15 | | ☒ | 5-9-8<br>N=17 | | 9.9 | | | |
| | | 21.5 6442.5 | 20 | | ☒ | 8-12-13<br>N=25 | | 9.9 | | | |

***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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
ED

**Boring Started**
08-02-2023

**Boring Completed**
08-02-2023

# Boring Log No. A-11

Location: See Exploration Plan

Latitude: 35.5486° Longitude: -106.0152°

Depth (Ft.) Elevation.: 6431 (Ft.)

| Model Layer | Depth (Ft.) | Description | Elevation (Ft.) |
|---|---|---|---|
| | 0.3 | **TOPSOIL**, approximately 4" thick | 6430.67 |
| 1 | 12.0 | **SANDY LEAN CLAY (CL)**, trace calcareous nodules, trace gravel, brown to light brown, soft to very stiff | 6419 |
| 2 | 21.5 | **SILTY SAND (SM)**, trace gravel, fine to coarse grained, light brown, medium dense | 6409.5 |

***Boring Terminated at 21.5 Feet***

| Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|
| 4-9-8<br>N=17 | | 6.5 | | | |
| 7-11-16<br>N=27 | | 6.6 | | | |
| 17-16/0" | | 7.0 | 81 | 32-18-14 | 66 |
| 4-2-2<br>N=4 | | 8.3 | | | |
| 4-8-9<br>N=17 | | 6.3 | | | |
| 5-6-15<br>N=21 | | 7.4 | | | |
| 7-7-6<br>N=13 | | 5.1 | | | |
| 10-9-10<br>N=19 | | 4.6 | | | |

Depth (Ft.): 5, 10, 15, 20

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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
ED

**Boring Started**
08-02-2023

**Boring Completed**
08-02-2023

# Boring Log No. A-12

Location: See Exploration Plan

Latitude: 35.5513° Longitude: -106.0145°

| Model Layer | Graphic Log | Depth (Ft.) / Elevation.: 6443 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 **TOPSOIL**, approximately 3" thick 6442.75 | | | | | | | | | |
| 3 | | **LEAN CLAY (CL)**, brown, very stiff | | | ☒ | 3-6-13<br>N=19 | | 3.5 | | | |
| | | | | | ☒ | 9-15-12<br>N=27 | | 5.0 | | | |
| | | 4.0 6439 | | | | | | | | | |
| 4 | | **SILTY SAND (SM)**, trace gravel, fine to coarse grained, tan to brown, medium dense to dense | 5 | | ☒ | 13-12 | | 2.8 | 100 | | |
| | | | | | ☒ | 10-12-18<br>N=30 | | 4.3 | | NP | 42 |
| | | | 10 | | ☒ | 9-10-11<br>N=21 | | 7.3 | | | |
| | | 12.0 6431 | | | | | | | | | |
| 3 | | **LEAN CLAY (CL)**, brown to dark brown, hard | | | ☒ | 15-25-30<br>N=55 | | 7.8 | | | |
| | | | 15 | | ☒ | 14-17-19<br>N=36 | | 9.7 | | | |
| | | | 20 | | ☒ | 12-18-20<br>N=38 | | 9.2 | | | |
| | | 21.5 6421.5 | | | | | | | | | |

***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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
ED

**Boring Started**
08-02-2023

**Boring Completed**
08-02-2023

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

# Boring Log No. A-13

Location: See Exploration Plan

Latitude: 35.5523° Longitude: -106.0116°

Depth (Ft.) Elevation.: 6461 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | 0.2 | **TOPSOIL**, approximately 2" thick | 6460.83 |  |  |  |  |  |  |  |  |  |
| 2 | ▨ | 2.0 | **CLAYEY SAND (SC)**, fine to coarse grained, brown, medium dense | 6459 |  |  | ☒ | 5-7-3<br>N=10 |  | 6.4 |  |  |  |
| 4 | ▨ | 4.0 | **SILTY CLAYEY SAND (SC-SM)**, fine to coarse grained, brown to white, medium dense | 6457 |  |  | ☒ | 13-17 |  | 5.7 | 84 |  |  |
| 3 | ▨ | 12.0 | **SANDY LEAN CLAY (CL)**, trace gravel, brown to beige, very stiff to hard | 6449 | 5 |  | ☒ | 19-21-15<br>N=36 |  | 8.4 |  | 35-16-19 | 59 |
|  |  |  |  |  |  |  | ☒ | 5-31-15<br>N=46 |  | 6.8 |  |  |  |
|  |  |  |  |  | 10 |  | ☒ | 4-7-11<br>N=18 |  | 7.4 |  |  |  |
| 4 | ▨ | 21.5 | **CLAYEY SAND (SC)**, fine to coarse grained, brown to tan, medium dense to very dense | 6439.5 |  |  | ☒ | 7-11-17<br>N=28 |  | 7.2 |  |  |  |
|  |  |  |  |  | 15 |  | ☒ | 33-50/5" |  | 6.9 |  |  |  |
|  |  |  |  |  | 20 |  | ☒ | 19-19-13<br>N=32 |  | 6.9 |  |  |  |

***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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
CME 75

**Hammer Type**
Automatic

**Driller**
EDI

**Notes**

**Advancement Method**
8" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-18-2023

**Boring Completed**
08-18-2023

Rancho Viejo Solar
NM 599 and NM 14 | Santa Fe, NM
Terracon Project No. 66225093

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

# Boring Log No. A-14

Location: See Exploration Plan

Latitude: 35.5538° Longitude: -106.0160°

Depth (Ft.) Elevation.: 6438 (Ft.)

| Model Layer | Graphic Log | Description | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 **TOPSOIL**, approximately 3" thick 6437.75 | | | | | | | | | |
| 2 | ▨ | **CLAYEY SAND (SC)**, fine to coarse grained, brown, medium dense<br>2.0 6436 | | | ☒ | 7-7-6<br>N=13 | | 7.5 | | | |
| 3 | ▨ | **SANDY SILT (ML)**, trace clay, sandy silt, white to light brown, stiff to hard | | | ☒ | 18-32 | | 10.7 | 83 | | |
| | | | 5 | | ☒ | 7-7-5<br>N=12 | | 9.0 | | NP | 60 |
| | | | | | ☒ | 11-12-10<br>N=22 | | 10.0 | | | |
| | | | 10 | | ☒ | 15-24-39<br>N=63 | | 39.0 | | | |
| | | | | | ☒ | 13-16-16<br>N=32 | | 8.9 | | | |
| | | 19.0 6419 | 15 | | ☒ | 16-21-24<br>N=45 | | 7.8 | | | |
| 4 | ▨ | **SILTY SAND (SM)**, fine to coarse grained, beige, dense<br>21.5 6416.5 | 20 | | ☒ | 21-16-15<br>N=31 | | 4.0 | | | |

***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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
CME 75

**Hammer Type**
Automatic

**Driller**
EDI

**Notes**

**Advancement Method**
8" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-16-2023

**Boring Completed**
08-16-2023

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

# Boring Log No. A-15

Location: See Exploration Plan

Latitude: 35.5538° Longitude: -106.0088°

Depth (Ft.) Elevation.: 6474 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 | **TOPSOIL**, approximately 3" thick | 6473.75 | | | ☒ | 2-2-2<br>N=4 | | | | | |
| 2 | | | **SILTY SAND (SM)**, trace clay, silty sand, fine to coarse grained, light brown to brown, loose to medium dense | | | | ☒ | 8-9-12<br>N=21 | | 6.7 | | NP | 48 |
| | | | | | 5 | | ☒ | 5-6 | | | | | |
| | | | | | | | ☒ | 5-10-14<br>N=24 | | 5.9 | | | |
| | | | | | 10 | | ☒ | 5-14-13<br>N=27 | | 7.2 | | | |
| | | 13.0 | | 6461 | | | ☒ | 12-12-10<br>N=22 | | 10.0 | | | |
| 4 | | | **CLAYEY SAND (SC)**, fine to coarse grained, light brown, medium dense to dense | | 15 | | ☒ | 29-20-23<br>N=43 | | 8.1 | | | |
| | | 21.5 | | 6452.5 | 20 | | ☒ | 4-9-8<br>N=17 | | 4.8 | | | |

***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.

Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
CME 75

**Hammer Type**
Automatic

**Driller**
EDI

**Notes**

**Advancement Method**
8" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-16-2023

**Boring Completed**
08-16-2023

# Boring Log No. Bess-01

Location: See Exploration Plan

Latitude: 35.5527° Longitude: -106.0024°

| Model Layer | Graphic Log | Depth (Ft.) / Elevation.: 6493 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 **TOPSOIL**, approximately 4" thick — 6492.67 | | | ☒ | 4-5-7<br>N=12 | | | | | |
| 2 | | **CLAYEY SAND (SC)**, fine to coarse grained, brown, medium dense<br>2.0 — 6491 | | | | | | | | | |
| 3 | | **LEAN CLAY WITH SAND (CL)**, trace gravel, brown, hard | | | ☒ | 10-19-28<br>N=47 | | 7.4 | | 30-14-16 | 77 |
| | | | 5 | | ☒ | 25-50/4" | | 7.9 | 105 | | |
| | | 7.0 — 6486 | | | | | | | | | |
| | | **SANDY SILT (ML)**, trace gravel, beige, stiff to very stiff | | | ☒ | 4-5-8<br>N=13 | | 8.0 | | | |
| | | | 10 | | ☒ | 6-6-11<br>N=17 | | 6.6 | | NP | 67 |
| | | 12.0 — 6481 | | | | | | | | | |
| 2 | | **POORLY GRADED SAND WITH SILT (SP-SM)**, fine to coarse grained, beige, medium dense | | | ☒ | 5-10-11<br>N=21 | | 4.7 | | | |
| | | 14.0 — 6479 | | | | | | | | | |
| 4 | | **SILTY SAND (SM)**, fine to coarse grained, beige, medium dense to dense | 15 | | ☒ | 15-17-14<br>N=31 | | 5.3 | | | |
| | | | 20 | | ☒ | 10-12-13<br>N=25 | | 4.4 | | | |
| | | 24.0 — 6469 | | | | | | | | | |
| | | **POORLY GRADED SAND WITH SILT (SP-SM)**, trace gravel, fine to coarse grained, beige, medium dense to very dense | 25 | | ☒ | 13-14-14<br>N=28 | | 1.3 | | | |
| | | | 30 | | ☒ | 7-11-19<br>N=30 | | 2.5 | | | |

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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
CME 75

**Hammer Type**
Automatic

**Driller**
EDI

**Notes**

**Advancement Method**
8" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-18-2023

**Boring Completed**
08-18-2023

# Boring Log No. Bess-01

| Model Layer | Graphic Log | Location: See Exploration Plan<br>Latitude: 35.5527° Longitude: -106.0024°<br>Depth (Ft.) Elevation.: 6493 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits<br>LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | ▨ | **POORLY GRADED SAND WITH SILT (SP-SM)**, trace gravel, fine to coarse grained, beige, medium dense to very dense *(continued)* | 35 | | ☒ | 21-25-50/5" | | 8.0 | | | |
| | | | 40 | | ☒ | 25-50/4" | | 8.3 | | | |
| | | 41.5 6451.5 | | | | | | | | | |
| | | ***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.

Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
CME 75

**Hammer Type**
Automatic

**Driller**
EDI

**Notes**

**Advancement Method**
8" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-18-2023

**Boring Completed**
08-18-2023

6805 Academy Pkwy West NE
Albuquerque, NM

# Boring Log No. Bess-02

Location: See Exploration Plan

Latitude: 35.5517° Longitude: -106.0018°

| Model Layer | Depth (Ft.) | Description | Elevation.: 6492 (Ft.) |
|---|---|---|---|
| | 0.3 | **TOPSOIL**, approximately 4" thick | 6491.67 |
| 2 | 2.0 | **CLAYEY SAND (SC)**, fine to coarse grained, brown, loose | 6490 |
| | 14.0 | **SILTY SAND (SM)**, trace clay, trace gravel, fine to coarse grained, light brown to white, loose to very dense, weak to moderate cementation | 6478 |
| 3 | 23.0 | **SANDY LEAN CLAY (CL)**, trace gravel, very stiff | 6469 |
| 2 | | **POORLY GRADED SAND WITH SILT (SP-SM)**, trace gravel, fine to coarse grained, beige to brown, loose to dense | |

| Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|
| | | ☒ | 6-5-3<br>N=8 | | | | | |
| | | ☒ | 3-15 | | 12.7 | 76 | | |
| 5 | | ☒ | 28-29-23<br>N=52 | | 9.8 | | | |
| | | ☒ | 2-3-2<br>N=5 | | 6.8 | | NP | 46 |
| 10 | | ☒ | 6-5-1<br>N=6 | | 7.7 | | | |
| | | ☒ | 6-3-4<br>N=7 | | 6.4 | | | |
| 15 | | ☒ | 16-13-9<br>N=22 | | 7.7 | | 26-16-10 | 62 |
| 20 | | ☒ | 8-9-8<br>N=17 | | 9.0 | | | |
| 25 | | ☒ | 12-11-10<br>N=21 | | 9.3 | | | |
| 30 | | ☒ | 7-4-4<br>N=8 | | | | | |

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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
CME 75

**Hammer Type**
Automatic

**Driller**
EDI

**Notes**

**Advancement Method**
8" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-18-2023

**Boring Completed**
08-18-2023

# Boring Log No. Bess-02

| Model Layer | Graphic Log | Location: See Exploration Plan<br>Latitude: 35.5517° Longitude: -106.0018°<br>Depth (Ft.) Elevation.: 6492 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | | **POORLY GRADED SAND WITH SILT (SP-SM)**, trace gravel, fine to coarse grained, beige to brown, loose to dense *(continued)*<br>36.5 6455.5 | 35 | | ☒ | 11-17-18<br>N=35 | | 3.0 | | | |
| | | ***Boring Terminated at 36.5 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
CME 75

**Hammer Type**
Automatic

**Driller**
EDI

**Notes**

**Advancement Method**
8" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-18-2023

**Boring Completed**
08-18-2023

# Boring Log No. Bess-03

Location: See Exploration Plan

Latitude: 35.5509° Longitude: -106.0012°

| Model Layer | Graphic Log | Depth (Ft.) / Elevation.: 6480 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | 0.3 **TOPSOIL**, approximately 3" thick 6479.75 |  |  |  |  |  |  |  |  |  |
| 2 | ▨ | **CLAYEY SAND (SC)**, fine to coarse grained, brown, medium dense |  |  | ☒ | 11-7-10<br>N=17 |  | 5.9 |  |  |  |
|  |  |  |  |  | ☒ | 18-10 |  | 5.4 | 102 |  |  |
|  | ▥ | 4.0 6476<br>**SILTY SAND (SC)**, fine to coarse grained, brown, loose | 5 |  | ☒ | 4-4-4<br>N=8 |  | 5.1 |  |  |  |
|  | ▨ | 7.0 6473<br>**CLAYEY SAND (SC)**, fine to coarse grained, brown, medium dense |  |  | ☒ | 7-10-8<br>N=18 |  | 11.5 |  |  |  |
|  |  |  | 10 |  | ☒ | 10-14-13<br>N=27 |  | 11.8 |  |  |  |
|  |  |  |  |  | ☒ | 10-13-16<br>N=29 |  | 6.8 |  |  |  |
| 4 | ⁘ | 14.0 6466<br>**WELL GRADED SAND WITH SILT (SW-SM)**, trace gravel, fine to coarse grained, brown to tan, medium dense to dense | 15 |  | ☒ | 17-18-14<br>N=32 |  | 6.8 |  |  |  |
|  |  |  | 20 |  | ☒ | 10-14-24<br>N=38 |  | 1.6 |  | NP | 8 |
|  |  |  | 25 |  | ☒ | 6-13-13<br>N=26 |  | 2.5 |  |  |  |
| 2 | ▨ | 29.0 6451<br>**CLAYEY SAND (SC)**, fine to coarse grained, brown, medium dense | 30 |  | ☒ | 4-8-7<br>N=15 |  | 8.5 |  |  |  |

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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Notes**

**Water Level Observations**
Groundwater not encountered

**Advancement Method**
8" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Drill Rig**
CME 75

**Hammer Type**
Automatic

**Driller**
EDI

**Logged by**
MBG

**Boring Started**
08-18-2023

**Boring Completed**
08-18-2023

# Boring Log No. Bess-03

| Model Layer | Graphic Log | Location: See Exploration Plan<br>Latitude: 35.5509° Longitude: -106.0012°<br>Depth (Ft.) Elevation.: 6480 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits<br>LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | ▨ | **CLAYEY SAND (SC)**, fine to coarse grained, brown, medium dense *(continued)* | 35 | | ☒ | 2-6-5<br>N=11 | | 9.2 | | | |
| | | 39.0 6441 | | | | | | | | | |
| 4 | ▨ | **SILTY SAND (SM)**, fine to coarse grained, brown, very dense | 40 | | ☒ | 12-29-50/5" | | 5.9 | | | |
| | | 41.5 6438.5 | | | | | | | | | |
| | | ***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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
CME 75

**Hammer Type**
Automatic

**Driller**
EDI

**Notes**

**Advancement Method**
8" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-18-2023

**Boring Completed**
08-18-2023

# Boring Log No. BW-01

Location: See Exploration Plan

Latitude: 35.5656° Longitude: -105.9625°

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation.: 6662 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.4 | **TOPSOIL**, approximately 5" thick | 6661.58 | | | | | | | | | |
| 2 | | | **SILTY SAND (SM)**, trace gravel, fine grained, brown, loose to medium dense | | | | ☒ | 2-2-6<br>N=8 | | 4.5 | | NP | 50 |
| | | | | | 5 | | ☒ | 18-21 | | 7.4 | 100 | | |
| | | | | | | | ☒ | 10-12-14<br>N=26 | | 7.0 | | | |
| | | | | | 10 | | ☒ | 11-9-13<br>N=22 | | 6.9 | | | |
| | | 15.0 | | 6647 | | | | | | | | | |
| 3 | | | **SANDY SILT (ML)**, trace gravel, brown, very stiff | | 15 | | ☒ | 15-14-11<br>N=25 | | 7.3 | | | |
| | | | | | 20 | | ☒ | 16-9-10<br>N=19 | | 6.1 | | NP | 60 |
| | | 23.0 | | 6639 | | | | | | | | | |
| | | | **LEAN CLAY WITH SAND (CL)**, brown, medium stiff to hard, moderate cementation | | 25 | | ☒ | 16-14-19<br>N=33 | | 6.1 | | | |
| | | 29.0 | | 6633 | | | | | | | | | |
| 4 | | | **CLAYEY SAND (SC)**, fine to coarse grained, brown, dense | | 30 | | ☒ | 11-14-16<br>N=30 | | 3.2 | | | |
| | | 31.5 | | 6630.5 | | | | | | | | | |
| | | | ***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.

Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
SS

**Boring Started**
08-25-2023

**Boring Completed**
08-25-2023

# Boring Log No. BW-02

Location: See Exploration Plan

Latitude: 35.5656° Longitude: -105.9624°

Depth (Ft.) Elevation.: 6661 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) / Description | Elevation (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | 0.3 **TOPSOIL**, approximately 4" thick | 6660.67 |  |  |  |  |  |  |  |  |  |
| 3 |  | **LEAN CLAY WITH SAND (CL)**, brown, very stiff |  |  |  | ☒ | 9-14 |  | 2.5 | 90 |  |  |
|  |  | 4.0 | 6657 |  |  |  |  |  |  |  |  |  |
| 2 |  | **SILTY SAND (SM)**, trace gravel, fine to coarse grained, brown, medium dense |  | 5 |  | ☒ | 6-12-16<br>N=28 |  | 4.0 |  | NP | 35 |
|  |  | 7.0 | 6654 |  |  |  |  |  |  |  |  |  |
| 4 |  | **POORLY GRADED SAND WITH SILT (SP-SM)**, fine to coarse grained, brown to gray, medium dense to dense |  |  |  | ☒ | 16-18-20<br>N=38 |  | 2.2 |  |  |  |
|  |  |  |  | 10 |  | ☒ | 10-13-15<br>N=28 |  | 2.3 |  |  |  |
|  |  | 14.0 | 6647 |  |  |  |  |  |  |  |  |  |
| 2 |  | **SILTY SAND (SM)**, trace gravel, fine to coarse grained, brown to gray, medium dense |  | 15 |  | ☒ | 6-7-10<br>N=17 |  | 4.5 |  |  |  |
|  |  |  |  | 20 |  | ☒ | 6-9-9<br>N=18 |  | 1.7 |  |  |  |
|  |  |  |  | 25 |  | ☒ | 7-8-10<br>N=18 |  | 4.8 |  | NP | 40 |
|  |  | 29.0 | 6632 |  |  |  |  |  |  |  |  |  |
| 3 |  | **LEAN CLAY WITH SAND (CL)**, fine to coarse grained, brown, very stiff |  | 30 |  | ☒ | 7-9-11<br>N=20 |  | 8.8 |  |  |  |
|  |  | 31.5 | 6629.5 |  |  |  |  |  |  |  |  |  |
|  |  | ***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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
SS

**Boring Started**
08-25-2023

**Boring Completed**
08-25-2023

# Boring Log No. BW-03

Location: See Exploration Plan

Latitude: 35.5655° Longitude: -105.9622°

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation.: 6660 (Ft.) |
|---|---|---|---|---|
| | | 0.3 | **TOPSOIL**, approximately 4" thick | 6659.67 |
| 3 | | 4.0 | **LEAN CLAY WITH SAND (CL)**, brown, very stiff, moderate cementation | 6656 |
| 3 | | 9.0 | **SANDY SILT (ML)**, trace gravel, brown, very stiff | 6651 |
| 4 | | 24.0 | **SILTY SAND (SM)**, trace gravel, fine to coarse grained, light brown to brown, loose to medium dense | 6636 |
| 3 | | 31.5 | **LEAN CLAY WITH SAND (CL)**, light brown, very stiff | 6628.5 |

***Boring Terminated at 31.5 Feet***

| Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|
| | | ☒ | 10-11-12<br>N=23 | | | | | |
| 5 | | ☒ | 7-11 | | 4.2 | 97 | NP | 56 |
| | | ☒ | 3-7-10<br>N=17 | | 6.8 | | | |
| 10 | | ☒ | 5-8-12<br>N=20 | | 5.4 | | | |
| 15 | | ☒ | 6-6-9<br>N=15 | | 2.3 | | NP | 20 |
| 20 | | ☒ | 6-12-17<br>N=29 | | 2.9 | | | |
| 25 | | ☒ | 13-12-14<br>N=26 | | 3.5 | | | |
| 30 | | ☒ | 11-11-14<br>N=25 | | 8.5 | | | |

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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
SS

**Boring Started**
08-25-2023

**Boring Completed**
08-25-2023

# Boring Log No. P-01

| Model Layer | Graphic Log | Location: See Exploration Plan<br>Latitude: 35.5400° Longitude: -106.0543°<br>Depth (Ft.) Elevation.: 6303 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 **TOPSOIL**, approximately 3" thick 6302.75 | | | ☒ | 4-4-4<br>N=8 | | 7.3 | | | |
| 2 | ▨ | **CLAYEY SAND (SC)**, fine to coarse grained, brown, loose to very dense, moderate cementation | | | ☒ | 4-10 | | 7.3 | 90 | | |
| | | | 5 | | ☒ | 10-15-15<br>N=30 | | 6.9 | | | |
| | | 6.5 6296.5 | | | | | | | | | |

***Boring Terminated at 6.5 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-23-2023

**Boring Completed**
08-23-2023

# Boring Log No. P-02

Location: See Exploration Plan

Latitude: 35.5418° Longitude: -106.0524°

Elevation.: 6313 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) / Description / Elevation | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | 0.3 **TOPSOIL**, approximately 3" thick — 6312.75 |  |  |  |  |  |  |  |  |  |
| 2 |  | **CLAYEY SAND (SC)**, fine to coarse grained, brown, medium dense<br>2.0 — 6311 |  |  | ☒ | 4-5-5<br>N=10 |  | 5.5 |  |  |  |
| 3 |  | **SANDY LEAN CLAY (CL)**, trace gravel, light brown, very stiff to hard, moderate cementation |  |  | ☒ | 8-9-23<br>N=32 |  | 10.2 |  | 39-24-15 | 61 |
|  |  | 6.0 — 6307 | 5 |  | ☒ | 9-27 |  | 7.8 | 95 |  |  |

***Boring Terminated at 6 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-23-2023

**Boring Completed**
08-23-2023

# Boring Log No. P-03

| Model Layer | Graphic Log | Location: See Exploration Plan<br>Latitude: 35.5418° Longitude: -106.0477°<br>Depth (Ft.) Elevation.: 6326 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | ▨ | 0.3 **TOPSOIL**, approximately 3" thick 6325.75<br>**CLAYEY SAND (SC)**, fine to coarse grained, brown, medium dense, weak cementation | | | ☒ | 4-5-6<br>N=11 | | 6.6 | | | |
| | | | | | ☒ | 7-16 | | 6.6 | 95 | | |
| | | 6.5 6319.5 | 5 | | ☒ | 16-10-10<br>N=20 | | 6.6 | | NP | |

***Boring Terminated at 6.5 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-23-2023

**Boring Completed**
08-23-2023

Rancho Viejo Solar
NM 599 and NM 14 | Santa Fe, NM
Terracon Project No. 66225093

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

# Boring Log No. P-04

Location: See Exploration Plan

Latitude: 35.5418° Longitude: -106.0427°

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation.: 6336 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | 0.3 | **TOPSOIL**, approximately 4" thick | 6335.67 |  |  | ☒ | 3-4-7<br>N=11 |  | 6.9 |  |  |  |
| 2 | ▨ | 2.0 | **CLAYEY SAND (SC)**, fine to coarse grained, brown, medium dense | 6334 |  |  |  |  |  |  |  |  |  |
| 3 | ▥ |  | **SANDY SILT (ML)**, trace clay, trace gravel, brown to beige, medium stiff to hard, moderate cementation |  |  |  | ☒ | 2-3-4<br>N=7 |  | 7.4 |  | NP | 65 |
|  |  | 6.0 |  | 6330 | 5 |  | ☒ | 8-50/3" |  | 8.3 | 92 |  |  |

***Boring Terminated at 6 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-23-2023

**Boring Completed**
08-23-2023

# Boring Log No. P-05

Location: See Exploration Plan

Latitude: 35.5418° Longitude: -106.0370°

Depth (Ft.) Elevation.: 6354 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 | **TOPSOIL**, approximately 4" thick | 6353.67 | | | | | | | | | |
| 2 | | | **CLAYEY SAND (SC)**, fine grained, brown, medium dense | | | | ☒ | 3-6-10<br>N=16 | | 7.4 | | | |
| | | | | | | | ☒ | 3-19 | | 8.3 | 81 | | |
| | | 4.0 | | 6350 | | | | | | | | | |
| 1 | | | **SANDY LEAN CLAY (CL)**, beige, medium stiff | | 5 | | ☒ | 2-3-3<br>N=6 | | 20.6 | | 28-17-11 | 62 |
| | | 6.5 | | 6347.5 | | | | | | | | | |

***Boring Terminated at 6.5 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-23-2023

**Boring Completed**
08-23-2023

# Boring Log No. P-06

Location: See Exploration Plan

Latitude: 35.5418° Longitude: -106.0316°

Depth (Ft.) Elevation.: 6367 (Ft.)

| Model Layer | Graphic Log | Depth (Ft.) / Description / Elevation (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 **TOPSOIL**, approximately 3" thick 6366.75 | | | | | | | | | |
| 2 | ▨ | **CLAYEY SAND (SC)**, fine to coarse grained, brown, medium dense<br>2.0 6365 | | | ☒ | 4-6-9<br>N=15 | | 7.4 | | | |
| 4 | ▨ | **SILTY SAND (SM)**, trace clay and gravel, fine to coarse grained, brown to beige, loose to very dense | | | ☒ | 6-35-29<br>N=64 | | 5.9 | | | |
| | | 6.0 6361 | 5 | | ☒ | 5-9 | | 5.5 | 91 | NP | 41 |
| | | ***Boring Terminated at 6 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.

Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-23-2023

**Boring Completed**
08-23-2023

# Boring Log No. P-07

| Model Layer | Graphic Log | Location: See Exploration Plan<br>Latitude: 35.5418° Longitude: -106.0252°<br>Depth (Ft.) Elevation.: 6385 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | ▨ | 0.3 **TOPSOIL**, approximately 3" thick 6384.75<br>**SILTY SAND (SM)**, trace gravel, fine to coarse grained, brown, loose to medium dense, moderate cementation | | | ☒ | 3-8-8<br>N=16 | | 6.6 | | | |
| | | | | | ☒ | 3-5 | | 6.1 | 76 | NP | 36 |
| | | 6.5 6378.5 | 5 | | ☒ | 2-7-9<br>N=16 | | 6.1 | | | |

***Boring Terminated at 6.5 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
SS

**Boring Started**
08-24-2023

**Boring Completed**
08-24-2023

# Boring Log No. P-08

Location: See Exploration Plan

Latitude: 35.5418° Longitude: -106.0193°

Depth (Ft.) Elevation.: 6402 (Ft.)

| Model Layer | Graphic Log | Description | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | | 0.3 **TOPSOIL**, approximately 4" thick 6401.67<br>**SANDY LEAN CLAY (CL)**, trace gravel, brown, stiff to hard | | | ☒ | 5-6-7<br>N=13 | | 5.6 | | | |
| | | | | | ☒ | 8-19-19<br>N=38 | | 7.2 | | 35-24-11 | 64 |
| | | 6.0 6396 | 5 | | ☒ | 8-16 | | 7.8 | 83 | | |

***Boring Terminated at 6 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
SS

**Boring Started**
08-24-2023

**Boring Completed**
08-24-2023

# Boring Log No. Sub-01

Location: See Exploration Plan

Latitude: 35.5539° Longitude: -106.0010°

| Model Layer | Graphic Log | Depth (Ft.) / Elevation.: 6500 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | 0.3 **TOPSOIL**, approximately 3" thick 6499.75 |  |  |  |  |  |  |  |  |  |
| 2 | ▨ | **CLAYEY SAND (SC)**, fine to coarse grained, brown, medium dense |  |  | ☒ | 8-11-9<br>N=20 |  |  |  |  |  |
|  |  | 2.0 6498 |  |  |  |  |  |  |  |  |  |
| 3 | ▨ | **SANDY LEAN CLAY (CL)**, beige to white, very stiff |  |  | ☒ | 20 |  | 9.1 | 93 | 30-17-13 | 58 |
|  |  | 4.0 6496 |  |  |  |  |  |  |  |  |  |
| 2 | ▨ | **CLAYEY SAND (SC)**, with silt, fine to coarse grained, brown to beige, loose | 5 |  | ☒ | 7-5-4<br>N=9 |  | 8.4 |  |  |  |
|  |  |  |  |  | ☒ | 3-2-4<br>N=6 |  | 8.2 |  |  |  |
|  |  |  | 10 |  | ☒ | 4-3-4<br>N=7 |  | 7.6 |  |  |  |
|  |  | 12.0 6488 |  |  |  |  |  |  |  |  |  |
|  | ▥ | **SILTY SAND (SM)**, trace clay, fine to coarse grained, brown to beige, medium dense |  |  | ☒ | 4-5-6<br>N=11 |  | 8.7 |  |  |  |
|  |  |  | 15 |  | ☒ | 5-6-9<br>N=15 |  | 7.1 |  |  |  |
|  |  | 17.0 6483 |  |  |  |  |  |  |  |  |  |
| 3 | ▨ | **SANDY LEAN CLAY (CL)**, brown to beige, hard, moderate cementation | 20 |  | ☒ | 17-27-50/1" |  | 8.3 |  | 29-16-13 | 69 |
|  |  |  | 25 |  | ☒ | 6-8-50/1" |  | 7.6 |  |  |  |
|  |  | 29.0 6471 |  |  |  |  |  |  |  |  |  |
|  | ▥ | **SILTY SAND (SM)**, fine to coarse grained, beige to brown, medium dense to dense | 30 |  | ☒ | 27-15-10<br>N=25 |  | 6.0 |  |  |  |

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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
CME 75

**Hammer Type**
Automatic

**Driller**
EDI

**Notes**

**Advancement Method**
8" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-16-2023

**Boring Completed**
08-16-2023

# Boring Log No. Sub-01

| Model Layer | Graphic Log | Location: See Exploration Plan<br>Latitude: 35.5539° Longitude: -106.0010°<br>Depth (Ft.) Elevation.: 6500 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | ▨ | **SILTY SAND (SM)**, fine to coarse grained, beige to brown, medium dense to dense *(continued)* | | | | | | | | | |
| | | | 35 | | ☒ | 9-13-19<br>N=32 | | 5.9 | | | |
| | | | 40 | | ☒ | 10-14-17<br>N=31 | | 5.9 | | | |
| | | 41.5 6458.5 | | | | | | | | | |
| | | ***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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
CME 75

**Hammer Type**
Automatic

**Driller**
EDI

**Notes**

**Advancement Method**
8" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-16-2023

**Boring Completed**
08-16-2023

# Boring Log No. Sub-02

Location: See Exploration Plan

Latitude: 35.5535° Longitude: -106.0016°

Elevation.: 6499 (Ft.)

| Model Layer | Depth (Ft.) | Description | Elevation (Ft.) |
|---|---|---|---|
| | 0.3 | **TOPSOIL**, approximately 3" thick | 6498.75 |
| 2 | 2.0 | **CLAYEY SAND (SC)**, fine to coarse grained, brown to beige, medium dense | 6497 |
| 3 | 7.0 | **SANDY LEAN CLAY (CL)**, brown to beige, very stiff to hard | 6492 |
| 2 | 10.0 | **CLAYEY SAND (SC)**, fine to coarse grained, brown to beige, medium dense | 6489 |
| 4 | | **SILTY SAND (SM)**, trace clay, trace gravel, fine to coarse grained, brown to beige, medium dense to very dense | |

| Depth (Ft.) | Water Level Observations | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|
| | | 6-7-4<br>N=11 | | 7.3 | | | |
| | | 11-18-22<br>N=40 | | 8.9 | | 30-22-8 | 62 |
| 5 | | 8-12 | | 9.6 | 90 | | |
| | | 8-8-5<br>N=13 | | 8.8 | | | |
| 10 | | 6-6-8<br>N=14 | | 8.6 | | | |
| | | 6-6-7<br>N=13 | | 7.5 | | | |
| 15 | | 11-6-5<br>N=11 | | 5.2 | | | |
| 20 | | 19-14-16<br>N=30 | | 3.2 | | NP | 22 |
| 25 | | 17-18-15<br>N=33 | | 6.7 | | | |
| 30 | | 17-19-50/2" | | 6.4 | | | |

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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
CME 75

**Hammer Type**
Automatic

**Driller**
EDI

**Notes**

**Advancement Method**
8" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-16-2023

**Boring Completed**
08-16-2023

# Boring Log No. Sub-02

| Model Layer | Graphic Log | Location: See Exploration Plan<br>Latitude: 35.5535° Longitude: -106.0016°<br>Depth (Ft.) Elevation.: 6499 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits<br>LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | ▨ | **SILTY SAND (SM)**, trace clay, trace gravel, fine to coarse grained, brown to beige, medium dense to very dense *(continued)* | 35 | | ☒ | 10-11-17<br>N=28 | | 6.7 | | | |
| | | | 40 | | ☒ | 19-24-19<br>N=43 | | 5.6 | | | |
| | | 41.5 6457.5 | | | | | | | | | |
| | | ***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.

Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
CME 75

**Hammer Type**
Automatic

**Driller**
EDI

**Notes**

**Advancement Method**
8" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
MBG

**Boring Started**
08-16-2023

**Boring Completed**
08-16-2023

# Boring Log No. T-01

Location: See Exploration Plan

Latitude: 35.5556° Longitude: -105.9948°

Depth (Ft.) Elevation.: 6521 (Ft.)

| Model Layer | Graphic Log | Description | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 **TOPSOIL**, approximately 3" thick 6520.75 | | | | | | | | | |
| 3 | | **SANDY LEAN CLAY (CL)**, brown, very stiff to hard | | | | 3-5-14<br>N=19 | | 10.2 | | | |
| | | | 5 | | | 30-50/4" | | 6.6 | 103 | 31-12-19 | 64 |
| | | 7.0 6514 | | | | | | | | | |
| 2 | | **CLAYEY SAND (SC)**, fine to coarse grained, tan to red brown, medium dense | | | | 5-7-6<br>N=13 | | 5.8 | | | |
| | | | 10 | | | 3-6-7<br>N=13 | | 6.6 | | | |
| | | 14.0 6507 | | | | | | | | | |
| 1 | | **SANDY LEAN CLAY (CL)**, brown, stiff | 15 | | | 6-7-8<br>N=15 | | 6.7 | | | |
| | | | 20 | | | 13-6-5<br>N=11 | | 5.0 | | | |
| | | 24.0 6497 | | | | | | | | | |
| 4 | | **SILTY SAND (SM)**, trace gravel, fine to coarse grained, brown, dense | 25 | | | 26-16-15<br>N=31 | | 4.2 | | NP | 38 |
| | | 29.0 6492 | | | | | | | | | |
| 3 | | **SANDY LEAN CLAY (CL)**, brown to red brown, very stiff, moderate cementation | 30 | | | 26-12-14<br>N=26 | | 7.9 | | | |
| | | 31.5 6489.5 | | | | | | | | | |
| | | ***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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
SS

**Boring Started**
08-24-2023

**Boring Completed**
08-24-2023

# Boring Log No. T-02

| Model Layer | Graphic Log | Location: See Exploration Plan<br>Latitude: 35.5590° Longitude: -105.9836°<br>Depth (Ft.) Elevation.: 6553 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | | 0.2 **TOPSOIL**, approximately 2" thick 6552.83<br>**CLAYEY SAND (SC)**, with silt, fine grained, brown to beige, very dense, moderate cementation | | | | 7-20-33<br>N=53 | | | | | |
| 3 | | 5.0 6548<br>**SANDY SILT (ML)**, brown, very stiff to hard | 5 | | | 50/4" | | 6.3 | 91 | | |
| | | | | | | 7-10-19<br>N=29 | | 5.5 | | NP | 63 |
| | | | 10 | | | 10-14-13<br>N=27 | | 7.8 | | | |
| | | 14.0 6539<br>**SANDY LEAN CLAY (CL)**, brown, very stiff | 15 | | | 10-12-15<br>N=27 | | 5.7 | | | |
| | | | 20 | | | 8-9-11<br>N=20 | | 7.5 | | 26-16-10 | 58 |
| 4 | | 24.0 6529<br>**SILTY SAND (SM)**, fine to coarse grained, tan to beige, medium dense to dense | 25 | | | 10-8-8<br>N=16 | | 6.9 | | | |
| | | | 30 | | | 6-24-22<br>N=46 | | 7.4 | | | |
| | | 31.5 6521.5<br>***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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
SS

**Boring Started**
08-24-2023

**Boring Completed**
08-24-2023

# Boring Log No. T-03

Location: See Exploration Plan

Latitude: 35.5627° Longitude: -105.9714°

Elevation.: 6580 (Ft.)

| Model Layer | Depth (Ft.) | Description | Elevation (Ft.) |
|---|---|---|---|
|  | 0.3 | **TOPSOIL**, approximately 3" thick | 6579.75 |
| 1 | 9.0 | **LEAN CLAY WITH SAND (CL)**, brown, soft to medium stiff | 6571 |
| 2 | 19.0 | **SILTY SAND (SM)**, trace gravel, fine to coarse grained, brown, loose to medium dense | 6561 |
| 2 | 24.0 | **SILTY CLAYEY SAND (SC-SM)**, trace gravel, fine to coarse grained, brown, loose | 6556 |
| 4 | 31.5 | **SILTY SAND (SM)**, fine to coarse grained, brown, medium dense to very dense | 6548.5 |

***Boring Terminated at 31.5 Feet***

| Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|
| 5-3-3<br>N=6 |  | 4.6 |  |  |  |
| 6-3 |  | 4.5 | 89 |  |  |
| 3-2-1<br>N=3 |  | 3.3 |  |  |  |
| 3-5-7<br>N=12 |  | 2.1 |  | NP | 23 |
| 3-4-5<br>N=9 |  | 5.4 |  |  |  |
| 3-2-2<br>N=4 |  | 3.9 |  |  |  |
| 6-4-6<br>N=10 |  | 2.7 |  |  |  |
| 8-24-18<br>N=42 |  | 1.6 |  |  |  |

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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
SS

**Boring Started**
08-25-2023

**Boring Completed**
08-25-2023

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

# Boring Log No. T-04

Location: See Exploration Plan

Latitude: 35.5653° Longitude: -105.9632°

| Model Layer | Graphic Log | Depth (Ft.) / Description / Elevation.: 6654 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | | 0.3 **TOPSOIL**, approximately 4" thick 6653.67 | | | | | | | | | |
| | | 2.0 **CLAYEY SAND (SC)**, fine grained, brown, medium dense, moderate cementation 6652 | | | | 8-13 | | 3.7 | 101 | | |
| | | 7.0 **SILTY SAND (SM)**, fine grained, brown, medium dense 6647 | 5 | | | 7-9-10<br>N=19 | | 1.3 | | | |
| | | 9.0 **SILTY CLAYEY SAND (SC-SM)**, fine grained, brown, medium dense 6645 | | | | 2-6-7<br>N=13 | | 3.4 | | | |
| | | 24.0 **SANDY SILT (ML)**, brown, medium dense 6630 | 10 | | | 6-9-13<br>N=22 | | 3.8 | | | |
| | | | 15 | | | 6-8-13<br>N=21 | | 5.8 | | NP | 61 |
| | | | 20 | | | 8-13-23<br>N=36 | | 4.0 | | | |
| 4 | | 31.5 **CLAYEY SAND (SC)**, fine grained, brown, medium dense to dense 6622.5 | 25 | | | 29-14-16<br>N=30 | | 11.3 | | | |
| | | | 30 | | | 10-12-11<br>N=23 | | 4.3 | | | |
| | | ***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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
D-50

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
7" Hollow Stem Auger

**Abandonment Method**
Boring backfilled with auger cuttings upon completion.

**Logged by**
SS

**Boring Started**
08-25-2023

**Boring Completed**
08-25-2023

# BORING LOG NO. B-01

Page 1 of 1

**PROJECT: Rancho Viejo Solar Facility**

**CLIENT: AES Clean Energy Development LLC**
**Boulder, CO**

**SITE: NM 599 and NM 14**
**Santa Fe, NM**

LOCATION See Exploration Plan

Latitude: 35.5531° Longitude: -106.0133°

Surface Elev.: 6455 (Ft.)

| MODEL LAYER | DEPTH | ELEVATION (Ft.) | Description |
|---|---|---|---|
| 1 | 16.5 | 6438.5 | **SANDY SILT (ML)**, brown, medium stiff to very stiff |
| | | | ***Boring Terminated at 16.5 Feet*** |

| DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | FIELD TEST RESULTS | SWELL (%) | WATER CONTENT (%) | DRY UNIT WEIGHT (pcf) | ATTERBERG LIMITS LL-PL-PI | PERCENT FINES |
|---|---|---|---|---|---|---|---|---|
| | | ☒ | 1-5-7<br>N=12 | | 5.2 | | NP | 57 |
| | | ⧗ | 11-17 | | 7.6 | 86 | | |
| 5 | | ☒ | 5-6-8<br>N=14 | | 4.9 | | | |
| | | ☒ | 1-2-4<br>N=6 | | 4.7 | | | |
| 10 | | ☒ | 4-9-17<br>N=26 | | 7.6 | | | |
| | | ☒ | 14-16-13<br>N=29 | | 4.8 | | | |
| 15 | | ☒ | 7-9-11<br>N=20 | | 7.7 | | | |

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.5" Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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.

Elevations measured in the field

Notes:

**WATER LEVEL OBSERVATIONS**

*Not encountered*

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

Boring Started: 07-25-2022
Boring Completed: 07-25-2022
Drill Rig: CME 55
Driller: Terracon
Project No.: 66225093

Exhibit A-50

# BORING LOG NO. B-02

**PROJECT: Rancho Viejo Solar Facility**

**CLIENT: AES Clean Energy Development LLC**
**Boulder, CO**

**SITE:**
**NM 599 and NM 14**
**Santa Fe, NM**

LOCATION See Exploration Plan

Latitude: 35.5520° Longitude: -106.0081°

Surface Elev.: 6478 (Ft.)

| MODEL LAYER | DEPTH | | ELEVATION (Ft.) |
|---|---|---|---|
| 1 | | **SILT WITH SAND (ML)**, brown, soft to very stiff | |
| | 16.5 | | 6461.5 |
| | | ***Boring Terminated at 16.5 Feet*** | |

| DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | FIELD TEST RESULTS | SWELL (%) | WATER CONTENT (%) | DRY UNIT WEIGHT (pcf) | ATTERBERG LIMITS LL-PL-PI | PERCENT FINES |
|---|---|---|---|---|---|---|---|---|
| | | ☒ | 1-2-4<br>N=6 | | 5.1 | | | |
| | | ☒ | 6-3-4<br>N=7 | | 5.8 | | | |
| 5 | | ⧗ | 3-3 | | 8.7 | 86 | NP | 75 |
| | | ☒ | 1-2-2<br>N=4 | | 8.0 | | | |
| 10 | | ☒ | 2-4-4<br>N=8 | | 7.0 | | | |
| | | ☒ | 4-10-11<br>N=21 | | 9.7 | | | |
| 15 | | ☒ | 5-9-12<br>N=21 | | 7.0 | | | |

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.5" Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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.

Elevations measured in the field

Notes:

**WATER LEVEL OBSERVATIONS**

*Not encountered*

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

Boring Started: 07-25-2022
Boring Completed: 07-25-2022
Drill Rig: CME 55
Driller: Terracon
Project No.: 66225093

Exhibit A-51

# BORING LOG NO. B-03

Page 1 of 1

**PROJECT: Rancho Viejo Solar Facility**

**CLIENT: AES Clean Energy Development LLC**
**Boulder, CO**

**SITE:**
**NM 599 and NM 14**
**Santa Fe, NM**

LOCATION See Exploration Plan

Latitude: 35.5502° Longitude: -106.0139°

Surface Elev.: 6441 (Ft.)

| MODEL LAYER | GRAPHIC LOG | DEPTH | | ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | FIELD TEST RESULTS | SWELL (%) | WATER CONTENT (%) | DRY UNIT WEIGHT (pcf) | ATTERBERG LIMITS LL-PL-PI | PERCENT FINES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | | | **SANDY SILT (ML)**, brown, very stiff to hard | | | | ☒ | 4-11-16<br>N=27 | | 9.4 | | | |
| | | | | | | | ☒ | 10-19-27<br>N=46 | | 8.8 | | | |
| | | 5.0 | | 6436 | 5 | | | | | | | | |
| 2 | | | **SILTY SAND (SM)**, light brown, loose | | | | ⧗ | 8-6 | | 7.6 | 93 | | |
| | | | | | | | ☒ | 2-4-5<br>N=9 | | 6.7 | | | |
| | | 10.0 | | 6431 | 10 | | | | | | | | |
| 3 | | | **SANDY SILT (ML)**, light brown, very stiff to hard, none to moderate cementation | | | | ☒ | 3-7-8<br>N=15 | | 7.0 | | NP | 61 |
| | | | | | | | ☒ | 11-15-16<br>N=31 | | 11.2 | | | |
| | | | | | 15 | | ☒ | 16-25-19<br>N=44 | | 6.8 | | | |
| | | 16.5 | | 6424.5 | | | | | | | | | |

***Boring Terminated at 16.5 Feet***

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.5" Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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.

Elevations measured in the field

Notes:

**WATER LEVEL OBSERVATIONS**

*Not encountered*

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

| | |
|---|---|
| Boring Started: 07-21-2022 | Boring Completed: 07-21-2022 |
| Drill Rig: CME 55 | Driller: Terracon |
| Project No.: 66225093 | |

Exhibit A-52

# BORING LOG NO. B-04

Page 1 of 1

**PROJECT: Rancho Viejo Solar Facility**

**CLIENT: AES Clean Energy Development LLC**
**Boulder, CO**

**SITE:** **NM 599 and NM 14**
**Santa Fe, NM**

LOCATION See Exploration Plan

Latitude: 35.5502° Longitude: -106.0047°

Surface Elev.: 6474 (Ft.)

| MODEL LAYER | GRAPHIC LOG | DEPTH / ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | FIELD TEST RESULTS | SWELL (%) | WATER CONTENT (%) | DRY UNIT WEIGHT (pcf) | ATTERBERG LIMITS LL-PL-PI | PERCENT FINES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | **SANDY SILT (ML)**, brown, medium stiff to very stiff | | | ☒ | 2-2-7<br>N=9 | | 4.1 | | | |
| | | | | | ⧗ | 13-19 | | 6.9 | 99 | NP | 75 |
| | | | 5 | | ☒ | 3-3-4<br>N=7 | | 6.8 | | | |
| | | | | | ☒ | 1-2-3<br>N=5 | | 6.0 | | | |
| | | 11.5 6462.5 | 10 | | ☒ | 4-9-11<br>N=20 | | 6.6 | | | |
| 4 | | **SILTY SAND (SM)**, brown, medium dense<br>13.5 6460.5 | | | ☒ | 7-10-12<br>N=22 | | 6.0 | | | |
| 1 | | **SANDY SILT (ML)**, brown, stiff<br>16.5 6457.5 | 15 | | ☒ | 6-4-7<br>N=11 | | 10.0 | | | |
| | | ***Boring Terminated at 16.5 Feet*** | | | | | | | | | |

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.5" Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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.

Elevations measured in the field

Notes:

**WATER LEVEL OBSERVATIONS**

*Not encountered*

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

| | |
|---|---|
| Boring Started: 07-25-2022 | Boring Completed: 07-25-2022 |
| Drill Rig: CME 55 | Driller: Terracon |
| Project No.: 66225093 | |

Exhibit A-53

# BORING LOG NO. B-05

Page 1 of 1

**PROJECT: Rancho Viejo Solar Facility**

**CLIENT: AES Clean Energy Development LLC**
**Boulder, CO**

**SITE: NM 599 and NM 14**
**Santa Fe, NM**

| MODEL LAYER | GRAPHIC LOG | LOCATION See Exploration Plan<br>Latitude: 35.5470° Longitude: -106.0163°<br>Surface Elev.: 6421 (Ft.)<br>DEPTH / ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | FIELD TEST RESULTS | SWELL (%) | WATER CONTENT (%) | DRY UNIT WEIGHT (pcf) | ATTERBERG LIMITS LL-PL-PI | PERCENT FINES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | ▨ | **SANDY SILT (ML)**, light brown, stiff to hard, none to strong cementation | | | ⧗ | 4-11 | | 10.7 | 82 | | |
| | | | | | ☒ | 16-36-39<br>N=75 | | 6.9 | | | |
| | | | 5 | | ☒ | 20-25-30<br>N=55 | | 6.5 | | NP | 61 |
| | | | | | ☒ | 13-16-16<br>N=32 | | 7.4 | | | |
| | | | 10 | | ☒ | 4-6-6<br>N=12 | | 5.9 | | | |
| | | | | | ☒ | 5-8-9<br>N=17 | | 3.8 | | | |
| | | 16.5 / 6404.5 | 15 | | ☒ | 4-6-10<br>N=16 | | 3.0 | | | |

***Boring Terminated at 16.5 Feet***

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.5" Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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.

Elevations measured in the field

Notes:

**WATER LEVEL OBSERVATIONS**

*Groundwater not encountered*

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

| | |
|---|---|
| Boring Started: 07-21-2022 | Boring Completed: 07-21-2022 |
| Drill Rig: CME 55 | Driller: Terracon |
| Project No.: 66225093 | |

Exhibit A-54

# BORING LOG NO. B-06

Page 1 of 1

**PROJECT: Rancho Viejo Solar Facility**

**CLIENT: AES Clean Energy Development LLC**
**Boulder, CO**

**SITE: NM 599 and NM 14**
**Santa Fe, NM**

LOCATION See Exploration Plan

Latitude: 35.5476° Longitude: -106.0099°

Surface Elev.: 6438 (Ft.)

| MODEL LAYER | GRAPHIC LOG | DEPTH / ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | FIELD TEST RESULTS | SWELL (%) | WATER CONTENT (%) | DRY UNIT WEIGHT (pcf) | ATTERBERG LIMITS LL-PL-PI | PERCENT FINES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | ▨ | **SANDY SILT (ML)**, brown, stiff to hard | | | ☒ | 2-6-9<br>N=15 | | 6.9 | | | |
| | | | | | ☒ | 9-11-11<br>N=22 | | 6.2 | | | |
| | | | 5 | | ⧗ | 17-26 | | 6.8 | 98 | | |
| | | | | | ☒ | 13-16-20<br>N=36 | | 9.6 | | | |
| | | | 10 | | ☒ | 10-13-16<br>N=29 | | 6.5 | | NP | 59 |
| | | | | | ☒ | 4-8-10<br>N=18 | | 8.5 | | | |
| | | 16.5 / 6421.5 | 15 | | ☒ | 7-7-6<br>N=13 | | 7.1 | | | |

***Boring Terminated at 16.5 Feet***

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.5" Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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.

Elevations measured in the field

Notes:

**WATER LEVEL OBSERVATIONS**

*Groundwater not encountered*

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

Boring Started: 07-25-2022

Boring Completed: 07-25-2022

Drill Rig: CME 55

Driller: Terracon

Project No.: 66225093

Exhibit A-55

# BORING LOG NO. B-07

Page 1 of 1

**PROJECT: Rancho Viejo Solar Facility**

**CLIENT: AES Clean Energy Development LLC**
**Boulder, CO**

**SITE:** **NM 599 and NM 14**
**Santa Fe, NM**

LOCATION See Exploration Plan

Latitude: 35.5429° Longitude: -106.0302°

Surface Elev.: 6361 (Ft.)

| MODEL LAYER | GRAPHIC LOG | DEPTH / ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | FIELD TEST RESULTS | SWELL (%) | WATER CONTENT (%) | DRY UNIT WEIGHT (pcf) | ATTERBERG LIMITS LL-PL-PI | PERCENT FINES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | | **SANDY SILT (ML)**, brown with black and white streaks, stiff to hard, none to strong cementation | | | ☒ | 2-4-5<br>N=9 | | 6.6 | | | |
| | | | | | | 10-11 | | 9.3 | 84 | NP | 70 |
| | | | 5 | | ☒ | 12-35-50<br>N=85 | | 7.8 | | | |
| | | | | | ☒ | 21-37-50<br>N=87 | | 8.4 | | | |
| | | | 10 | | ☒ | 16-18-19<br>N=37 | | 11.2 | | | |
| | | | | | ☒ | 13-14-15<br>N=29 | | 11.0 | | | |
| | | 16.5 / 6344.5 | 15 | | ☒ | 6-10-13<br>N=23 | | 7.7 | | | |
| | | ***Boring Terminated at 16.5 Feet*** | | | | | | | | | |

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.5" Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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.

Elevations measured in the field

Notes:

**WATER LEVEL OBSERVATIONS**

*Groundwater not encountered*

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

| | |
|---|---|
| Boring Started: 07-21-2022 | Boring Completed: 07-21-2022 |
| Drill Rig: CME 55 | Driller: Terracon |
| Project No.: 66225093 | |

Exhibit A-56

# BORING LOG NO. B-08

Page 1 of 1

**PROJECT: Rancho Viejo Solar Facility**

**CLIENT: AES Clean Energy Development LLC**
**Boulder, CO**

**SITE:** **NM 599 and NM 14**
**Santa Fe, NM**

| MODEL LAYER | GRAPHIC LOG | LOCATION See Exploration Plan<br>Latitude: 35.5417° Longitude: -106.0235°<br>Surface Elev.: 6389 (Ft.)<br>DEPTH ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | FIELD TEST RESULTS | SWELL (%) | WATER CONTENT (%) | DRY UNIT WEIGHT (pcf) | ATTERBERG LIMITS LL-PL-PI | PERCENT FINES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | ▨ | **SANDY SILT (ML)**, tan, stiff to hard | | | ☒ | 4-7-5<br>N=12 | | 9.1 | | | |
| | | | | | ☒ | 3-5-10<br>N=15 | | 8.9 | | | |
| | | 6.0 6383 | 5 | | ⧗ | 36-12 | | 7.1 | 96 | NP | 59 |
| 4 | ▨ | **SILTY SAND (SM)**, light brown, medium dense | | | ☒ | 4-5-5<br>N=10 | | 5.6 | | | |
| | | 11.0 6378 | 10 | | ☒ | 5-6-10<br>N=16 | | 8.6 | | | |
| 3 | ▨ | **SANDY SILT (ML)**, brown, stiff to hard, none to moderate cementation | | | ☒ | 2-6-6<br>N=12 | | 10.7 | | | |
| | | 16.5 6372.5 | 15 | | ☒ | 18-30-53<br>N=83 | | 9.3 | | | |
| | | ***Boring Terminated at 16.5 Feet*** | | | | | | | | | |

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.5" Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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.

Elevations measured in the field

Notes:

**WATER LEVEL OBSERVATIONS**

*Groundwater not encountered*

6805 Academy Pkwy West NE
Albuquerque, NM

| | |
|---|---|
| Boring Started: 07-21-2022 | Boring Completed: 07-21-2022 |
| Drill Rig: CME 55 | Driller: Terracon |
| Project No.: 66225093 | |

Exhibit A-57

# BORING LOG NO. B-09

Page 1 of 1

**PROJECT: Rancho Viejo Solar Facility**

**CLIENT: AES Clean Energy Development LLC**
**Boulder, CO**

**SITE: NM 599 and NM 14**
**Santa Fe, NM**

LOCATION See Exploration Plan

Latitude: 35.5430° Longitude: -106.0101°

Surface Elev.: 6414 (Ft.)

| MODEL LAYER | GRAPHIC LOG | DEPTH / ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | FIELD TEST RESULTS | SWELL (%) | WATER CONTENT (%) | DRY UNIT WEIGHT (pcf) | ATTERBERG LIMITS LL-PL-PI | PERCENT FINES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | ▨ | **SANDY SILT (ML)**, light brown and white, tan, stiff to hard, none to strong cementation | | | ☒ | 3-5-13<br>N=18 | | 9.5 | | | |
| | | | | | ⧗ | 23-24 | | 5.8 | 97 | | |
| | | | 5 | | ☒ | 14-21-36<br>N=57 | | 7.9 | | | |
| | | | | | ☒ | 50/4" | | 6.4 | | | |
| | | | 10 | | ☒ | 35-15-11<br>N=26 | | 6.4 | | | |
| | | | | | ☒ | 3-5-10<br>N=15 | | 6.5 | | | |
| | | 16.5 / 6397.5 | 15 | | ☒ | 10-10-9<br>N=19 | | 6.6 | | | |
| | | ***Boring Terminated at 16.5 Feet*** | | | | | | | | | |

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.5" Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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.

Elevations measured in the field

Notes:

**WATER LEVEL OBSERVATIONS**

*Groundwater not encountered*

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

Boring Started: 07-21-2022

Boring Completed: 07-21-2022

Drill Rig: CME 55

Driller: Terracon

Project No.: 66225093

Exhibit A-58

# BORING LOG NO. B-10

Page 1 of 1

**PROJECT: Rancho Viejo Solar Facility**

**CLIENT: AES Clean Energy Development LLC**
**Boulder, CO**

**SITE:** **NM 599 and NM 14**
**Santa Fe, NM**

LOCATION See Exploration Plan

Latitude: 35.5444° Longitude: -106.0113°

Surface Elev.: 6419 (Ft.)

| MODEL LAYER | GRAPHIC LOG | DEPTH / ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | FIELD TEST RESULTS | SWELL (%) | WATER CONTENT (%) | DRY UNIT WEIGHT (pcf) | ATTERBERG LIMITS LL-PL-PI | PERCENT FINES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | **SANDY SILT (ML)**, brown, stiff<br>1.0 6418 | | | | | | | | | |
| 2 | | **SILTY SAND (SM)**, light brown, loose to medium dense | | | | 4-3-9<br>N=12 | | 6.1 | | | |
| | | | | | | 10-14 | | 6.8 | 90 | | |
| | | 6.0 6413 | 5 | | | 2-3-1<br>N=4 | | 7.4 | | | |
| 3 | | **SILT (ML)**, brown, stiff to hard, none to moderate cementation | | | | 12-28-34<br>N=62 | | 7.3 | | | |
| | | | 10 | | | 10-15-12<br>N=27 | | 16.5 | | NP | 86 |
| | | | | | | 5-9-6<br>N=15 | | 9.5 | | | |
| | | 16.5 6402.5 | 15 | | | 5-14-37<br>N=51 | | 7.3 | | | |

***Boring Terminated at 16.5 Feet***

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.5" Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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.

Elevations measured in the field

Notes:

**WATER LEVEL OBSERVATIONS**

*Groundwater not encountered*

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

| | |
|---|---|
| Boring Started: 07-21-2022 | Boring Completed: 07-21-2022 |
| Drill Rig: CME 55 | Driller: Terracon |
| Project No.: 66225093 | |

Exhibit A-59

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 66225093 RANCHO VIEJO SOLA.GPJ TERRACON_DATATEMPLATE.GDT 9/28/22

# BORING LOG NO. B-11

Page 1 of 1

**PROJECT: Rancho Viejo Solar Facility**

**CLIENT: AES Clean Energy Development LLC**
**Boulder, CO**

**SITE: NM 599 and NM 14**
**Santa Fe, NM**

LOCATION See Exploration Plan

Latitude: 35.5492° Longitude: -106.0020°

Surface Elev.: 6478 (Ft.)

| MODEL LAYER | GRAPHIC LOG | DEPTH / ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | FIELD TEST RESULTS | SWELL (%) | WATER CONTENT (%) | DRY UNIT WEIGHT (pcf) | ATTERBERG LIMITS LL-PL-PI | PERCENT FINES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ▨ | **SANDY SILT (ML)**, brown, soft to very stiff | | | ☒ | 2-2-3<br>N=5 | | 4.7 | | | |
| | | | | | ☒ | 2-3-3<br>N=6 | | 5.2 | | NP | 61 |
| | | | 5 | | ⧗ | 4-15 | | 7.3 | 90 | | |
| | | | | | ☒ | 1-2-2<br>N=4 | | 7.7 | | | |
| | | | 10 | | ☒ | 9-11-12<br>N=23 | | 7.5 | | | |
| | | | | | ☒ | 6-7-8<br>N=15 | | 7.3 | | | |
| | | 16.5 / 6461.5 | 15 | | ☒ | 7-11-15<br>N=26 | | 8.4 | | | |
| | | ***Boring Terminated at 16.5 Feet*** | | | | | | | | | |

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.5" Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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.

Elevations measured in the field

Notes:

**WATER LEVEL OBSERVATIONS**

*Groundwater not encountered*

Exhibit A-60

6805 Academy Pkwy West NE
Albuquerque, NM

| | |
|---|---|
| Boring Started: 07-25-2022 | Boring Completed: 07-25-2022 |
| Drill Rig: CME 55 | Driller: Terracon |
| Project No.: 66225093 | |

# BORING LOG NO. B-12

Page 1 of 1

**PROJECT: Rancho Viejo Solar Facility**

**CLIENT: AES Clean Energy Development LLC**
**Boulder, CO**

**SITE:** **NM 599 and NM 14**
**Santa Fe, NM**

LOCATION See Exploration Plan

Latitude: 35.5489° Longitude: -106.0051°

Surface Elev.: 6462 (Ft.)

| MODEL LAYER | DEPTH | ELEVATION (Ft.) |
|---|---|---|
| 1 | **SANDY SILT (ML)**, brown, very soft to hard, none to moderate cementation<br>16.5 | 6445.5 |
| | ***Boring Terminated at 16.5 Feet*** | |

| DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | FIELD TEST RESULTS | SWELL (%) | WATER CONTENT (%) | DRY UNIT WEIGHT (pcf) | ATTERBERG LIMITS LL-PL-PI | PERCENT FINES |
|---|---|---|---|---|---|---|---|---|
| | | | -1 | | | | | |
| | | ☒ | 1-2-1<br>N=3 | | 7.5 | | | |
| | | ⧗ | 1-2 | | 7.7 | 84 | | |
| 5 | | ☒ | 2-2-2<br>N=4 | | 8.1 | | NP | 58 |
| | | ☒ | 5-14-50<br>N=64 | | 6.7 | | | |
| 10 | | ☒ | 11-10-8<br>N=18 | | 4.1 | | | |
| | | ☒ | 3-5-7<br>N=12 | | 4.9 | | | |
| 15 | | ☒ | 4-7-8<br>N=15 | | 6.0 | | | |

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.5" Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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.

Elevations measured in the field

Notes:

**WATER LEVEL OBSERVATIONS**

*Groundwater not encountered*

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

| | |
|---|---|
| Boring Started: 07-25-2022 | Boring Completed: 07-25-2022 |
| Drill Rig: CME 55 | Driller: Terracon |
| Project No.: 66225093 | |

Exhibit A-61

# BORING LOG NO. B-13

**PROJECT: Rancho Viejo Solar Facility**

**SITE:** **NM 599 and NM 14**
**Santa Fe, NM**

**CLIENT: AES Clean Energy Development LLC**
**Boulder, CO**

| MODEL LAYER | GRAPHIC LOG | LOCATION See Exploration Plan<br>Latitude: 35.5441° Longitude: -106.0017°<br>Surface Elev.: 6475 (Ft.)<br>DEPTH / ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | FIELD TEST RESULTS | SWELL (%) | WATER CONTENT (%) | DRY UNIT WEIGHT (pcf) | ATTERBERG LIMITS LL-PL-PI | PERCENT FINES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ▥ | **SANDY SILT (ML)**, brown, very soft to very stiff | | | ☒ | 4-6-9<br>N=15 | | 4.9 | | | |
| | | | | | ☒ | 7-8-8<br>N=16 | | 5.1 | | | |
| | | | 5 | | ⧗ | 1-1 | | 5.5 | | | |
| | | 8.0 6467 | | | ☒ | 2-3-5<br>N=8 | | 4.5 | | | |
| 2 | ▒ | **SILTY SAND (SM)**, trace gravel, brown, loose to medium dense | 10 | | ☒ | 8-6-12<br>N=18 | | 3.1 | | NP | 23 |
| | | | | | ☒ | 10-10-12<br>N=22 | | 2.0 | | | |
| | | 16.5 6458.5 | 15 | | ☒ | 8-9-15<br>N=24 | | 3.5 | | | |
| | | ***Boring Terminated at 16.5 Feet*** | | | | | | | | | |

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.5" Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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.

Elevations measured in the field

Notes:

**WATER LEVEL OBSERVATIONS**

*Groundwater not encountered*

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

Boring Started: 07-25-2022
Boring Completed: 07-25-2022
Drill Rig: CME 55
Driller: Terracon
Project No.: 66225093

Exhibit A-62

# BORING LOG NO. B-14

Page 1 of 1

**PROJECT: Rancho Viejo Solar Facility**

**CLIENT: AES Clean Energy Development LLC**
**Boulder, CO**

**SITE: NM 599 and NM 14**
**Santa Fe, NM**

LOCATION See Exploration Plan

Latitude: 35.5385° Longitude: -106.0131°

Surface Elev.: 6421 (Ft.)

| MODEL LAYER | GRAPHIC LOG | DEPTH / ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | FIELD TEST RESULTS | SWELL (%) | WATER CONTENT (%) | DRY UNIT WEIGHT (pcf) | ATTERBERG LIMITS LL-PL-PI | PERCENT FINES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ▨ | **SANDY SILT (ML)**, brown, stiff to very stiff | | | ☒ | 3-7-10<br>N=17 | | 3.4 | | | |
| | | | | | ⧗ | 10-22 | | 4.8 | 93 | NP | 51 |
| | | 6.0 / 6415 | 5 | | ☒ | 4-5-8<br>N=13 | | 5.0 | | | |
| 4 | ▨ | **SILTY SAND (SM)**, brown, medium dense to dense | | | ☒ | 4-5-6<br>N=11 | | 3.9 | | | |
| | | | 10 | | ☒ | 11-13-19<br>N=32 | | 1.4 | | | |
| | | | | | ☒ | 10-16-15<br>N=31 | | 1.4 | | | |
| | | 16.5 / 6404.5 | 15 | | ☒ | 12-13-14<br>N=27 | | 1.7 | | | |

***Boring Terminated at 16.5 Feet***

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.5" Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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.

Elevations measured in the field

Notes:

**WATER LEVEL OBSERVATIONS**

*Groundwater not encountered*

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

| | |
|---|---|
| Boring Started: 07-25-2022 | Boring Completed: 07-25-2022 |
| Drill Rig: CME 55 | Driller: Terracon |
| Project No.: 66225093 | |

Exhibit A-63

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 66225093 RANCHO VIEJO SOLA.GPJ TERRACON_DATATEMPLATE.GDT 9/28/22

# BORING LOG NO. B-15

Page 1 of 1

**PROJECT: Rancho Viejo Solar Facility**

**CLIENT: AES Clean Energy Development LLC**
**Boulder, CO**

**SITE:** **NM 599 and NM 14**
**Santa Fe, NM**

LOCATION See Exploration Plan

Latitude: 35.5403° Longitude: -106.0080°

Surface Elev.: 6435 (Ft.)

| MODEL LAYER | GRAPHIC LOG | DEPTH / ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | FIELD TEST RESULTS | SWELL (%) | WATER CONTENT (%) | DRY UNIT WEIGHT (pcf) | ATTERBERG LIMITS LL-PL-PI | PERCENT FINES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ▨ | **SANDY SILT (ML)**, brown, medium stiff to very stiff | | | ☒ | 2-5-11<br>N=16 | | 4.7 | | | |
| | | | | | Ⓢ | | | | | | |
| | | | | | ☒ | 5-8-9<br>N=17 | | 6.5 | | | |
| | | 6.0 / 6429 | 5 | | ⧗ | 3-4 | | 4.0 | 94 | NP | 41 |
| 2 | ▨ | **SILTY SAND**, light brown, medium dense | | | ☒ | 3-4-9<br>N=13 | | 2.9 | | | |
| | | | 10 | | ☒ | 7-14-15<br>N=29 | | 1.5 | | | |
| | | | | | ☒ | 7-13-14<br>N=27 | | 1.3 | | | |
| | | 16.5 / 6418.5 | 15 | | ☒ | 9-13-12<br>N=25 | | 2.8 | | | |

***Boring Terminated at 16.5 Feet***

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.5" Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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.

Elevations measured in the field

Notes:

**WATER LEVEL OBSERVATIONS**

*Groundwater not encountered*

Exhibit A-64

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

| | |
|---|---|
| Boring Started: 07-21-2022 | Boring Completed: 07-21-2022 |
| Drill Rig: CME 55 | Driller: Terracon |
| Project No.: 66225093 | |

# BORING LOG NO. B-Sub

Page 1 of 1

**PROJECT: Rancho Viejo Solar Facility**

**CLIENT: AES Clean Energy Development LLC**
**Boulder, CO**

**SITE:** **NM 599 and NM 14**
**Santa Fe, NM**

LOCATION See Exploration Plan

Latitude: 35.5534° Longitude: -106.0031°

Surface Elev.: 6493 (Ft.)

| MODEL LAYER | GRAPHIC LOG | DEPTH | ELEVATION (Ft.) | DEPTH (Ft.) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | FIELD TEST RESULTS | SWELL (%) | WATER CONTENT (%) | DRY UNIT WEIGHT (pcf) | ATTERBERG LIMITS LL-PL-PI | PERCENT FINES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | **SANDY SILT (ML)**, light brown, stiff | | | | ⧗ | 6-12 | -0.39 @ 500psf | 11.9 | 78 | | |
| | | 1.5 | 6491.5 | | | | | | | | | |
| 2 | | **SILTY SAND (SM)**, light brown, medium dense | | | | | | | | | | |
| | | 3.0 | 6490 | | | ☒ | 2-4-8<br>N=12 | | 9.8 | | NP | 59 |
| 3 | | **SANDY SILT (ML)**, tan, stiff to hard, none to moderate cementation | | 5 | | ☒ | 14-32-23<br>N=55 | | 7.3 | | | |
| | | 6.5 | 6486.5 | | | | | | | | | |
| 2 | | **SILTY SAND (SM)**, light brown, medium dense | | | | ☒ | 3-7-6<br>N=13 | | 6.4 | | | |
| | | | | 10 | | ☒ | 3-4-7<br>N=11 | | 4.5 | | NP | 33 |
| | | | | | | ☒ | 5-6-8<br>N=14 | | 3.3 | | | |
| | | | | 15 | | ☒ | 4-7-10<br>N=17 | | 2.4 | | | |
| | | | | | | ☒ | 6-10-22<br>N=32 | | 1.3 | | | |
| | | | | 20 | | ☒ | 8-17-20<br>N=37 | | 1.9 | | | |
| | | 21.5 | 6471.5 | | | | | | | | | |
| 3 | | **SILT (ML)**, trace gravel, light brown, very stiff to hard, none to moderate cementation | | | | ☒ | 6-10-11<br>N=21 | | | | | |
| | | | | 25 | | ☒ | 10-20-49<br>N=69 | | 8.2 | | NP | 71 |
| | | | | | | ☒ | 11-13-19<br>N=32 | | 7.6 | | | |
| | | | | 30 | | ☒ | 6-16-27<br>N=43 | | 8.8 | | | |
| | | 31.5 | 6461.5 | | | | | | | | | |
| | | ***Boring Terminated at 31.5 Feet*** | | | | | | | | | | |

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.5" Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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.

Elevations measured in the field

Notes:

**WATER LEVEL OBSERVATIONS**

*Groundwater not encountered*

6805 Academy Pkwy West NE
Albuquerque, NM

| | |
|---|---|
| Boring Started: 07-21-2022 | Boring Completed: 07-21-2022 |
| Drill Rig: CME 55 | Driller: Terracon |
| Project No.: 66225093 | |

Exhibit A-65

# Boring Log No. TP-01

Location: See Exploration Plan

Latitude: 35.5417° Longitude: -106.0178°

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation.: 6408 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 | **TOPSOIL**, approximately 3" thick | 6407.75 | | | | | | | | | |
| | | 2.5 | **SILTY SAND (SM)**, trace gravel, fine grained, brown, weak cementation | 6405.5 | | | | | | | | | |
| | | 6.5 | **SANDY LEAN CLAY (CL)**, fine grained, light brown to tan, moderate cementation | 6401.5 | 5 | | | | | | | | |
| | | 10.0 | **CLAYEY SAND (SC)**, fine to coarse grained, brown | 6398 | 10 | | | | | | | | |

***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
JD Backhoe

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

**Logged by**
ED

**Boring Started**
10-06-2024

**Boring Completed**
10-06-2024

# Boring Log No. TP-03

| Model Layer | Graphic Log | Location: See Exploration Plan<br>Latitude: 35.5442° Longitude: -106.0081°<br>Depth (Ft.) Elevation.: 6444 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits<br>LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 **TOPSOIL**, approximately 3" thick 6443.75 | | | | | | | | | |
| | | **CLAYEY SAND (SC)**, trace gravel, fine grained, brown, weak cementation<br>3.0 6441 | | | | | | | | | |
| | | **SANDY LEAN CLAY (CL)**, fine grained, light brown to tan, moderate cementation<br>8.0 6436 | 5 | | | | | | | | |
| | | **CLAYEY SAND (SC)**, fine to coarse grained, brown<br>10.0 6434 | 10 | | | | | | | | |

***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
JD Backhoe

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

**Logged by**
ED

**Boring Started**
10-06-2024

**Boring Completed**
10-06-2024

# Boring Log No. TP-04

Location: See Exploration Plan

Latitude: 35.5404° Longitude: -106.0098°

| Model Layer | Graphic Log | Depth (Ft.) | | Elevation.: 6434 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.2 | **TOPSOIL**, approximately 2" thick | 6433.83 | | | | | | | | | |
| | | 1.0 | **SILTY SAND (SM)**, trace gravel, fine grained, brown | 6433 | | | | | | | | | |
| | | 7.0 | **SANDY LEAN CLAY (CL)**, fine grained, light brown to tan, moderate cementation | 6427 | 5 | | | | | | | | |
| | | 10.0 | **CLAYEY SAND (SC)**, fine to coarse grained, brown | 6424 | 10 | | | | | | | | |

***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
JD Backhoe

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

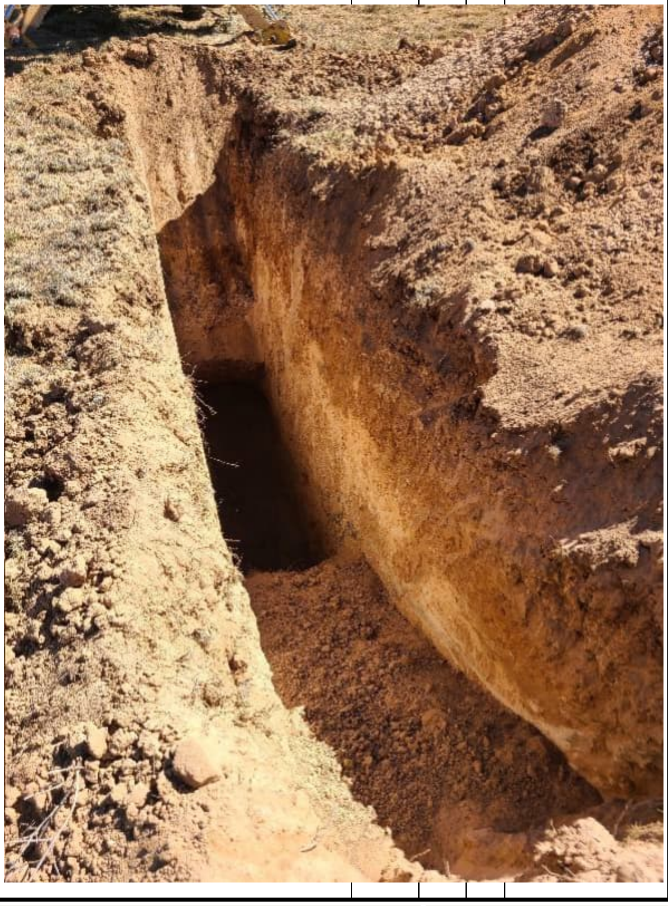
**Logged by**
ED

**Boring Started**
10-06-2024

**Boring Completed**
10-06-2024

# Boring Log No. TP-05

| Model Layer | Graphic Log | Location: See Exploration Plan<br>Latitude: 35.5433° Longitude: -106.0023°<br>Depth (Ft.) Elevation.: 6465 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits<br>LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.2 **TOPSOIL**, approximately 2" thick 6464.83 | | | | | | | | | |
| | | **SILTY SAND (SM)**, trace gravel, fine grained, brown<br>1.5 6463.5 | | | | | | | | | |
| | | **SANDY SILT (ML)**, trace clay, fine grained, light brown to tan, moderate cementation<br>6.5 6458.5 | 5 | | | | | | | | |
| | | **SANDY LEAN CLAY (CL)**, fine grained, light brown<br>10.0 6455 | 10 | | | | | | | | |
| | | ***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
JD Backhoe

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

**Logged by**
ED

**Boring Started**
10-06-2024

**Boring Completed**
10-06-2024

# Boring Log No. TP-06

Location: See Exploration Plan

Latitude: 35.5468° Longitude: -106.0041°

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation.: 6462 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 | **TOPSOIL**, approximately 3" thick | 6461.75 | | | | | | | | | |
| | | 4.0 | **CLAYEY SAND (SC)**, trace gravel, fine to coarse grained, brown, weak cementation | 6458 | | | | | | | | | |
| | | 8.0 | **SANDY LEAN CLAY (CL)**, fine grained, light brown to tan, moderate cementation | 6454 | 5 | | | | | | | | |
| | | 10.0 | **SILTY SAND (SM)**, trace gravel, fine grained, brown, weak cementation | 6452 | 10 | | | | | | | | |

***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
JD Backhoe

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

**Logged by**
ED

**Boring Started**
10-07-2024

**Boring Completed**
10-07-2024

# Boring Log No. TP-07

Location: See Exploration Plan

Latitude: 35.5455° Longitude: -106.0138°

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation.: 6424 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 | **TOPSOIL**, approximately 3" thick | 6423.75 | | | | | | | | | |
| | | 4.0 | **CLAYEY SAND (SC)**, trace gravel, fine to coarse grained, brown, weak cementation | 6420 | | | | | | | | | |
| | | 8.0 | **SANDY LEAN CLAY (CL)**, fine grained, light brown to tan, moderate cementation | 6416 | 5 | | | | | | | | |
| | | 10.0 | **SILTY SAND (SM)**, trace gravel, fine grained, brown, weak cementation | 6414 | 10 | | | | | | | | |

***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
JD Backhoe

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

**Logged by**
ED

**Boring Started**
10-09-2024

**Boring Completed**
10-09-2024

# Boring Log No. TP-08

Location: See Exploration Plan

Latitude: 35.5482° Longitude: -106.0012°

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation.: 6482 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 | **TOPSOIL**, approximately 4" thick | 6481.67 | | | | | | | | | |
| | | 2.0 | **CLAYEY SAND (SC)**, trace gravel, fine to coarse grained, light brown | 6480 | | | | | | | | | |
| | | 7.0 | **SANDY LEAN CLAY (CL)**, fine grained, tan, moderate cementation | 6475 | 5 | | | | | | | | |
| | | 10.0 | **SILTY SAND (SM)**, trace gravel, fine to coarse grained, brown, weak cementation | 6472 | 10 | | | | | | | | |

***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
Komatsu PC170

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

**Logged by**
ED

**Boring Started**
10-08-2024

**Boring Completed**
10-08-2024

# Boring Log No. TP-09

Location: See Exploration Plan

Latitude: 35.5487° Longitude: -106.0087°

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation.: 6453 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 | **TOPSOIL**, approximately 3" thick | 6452.75 | | | | | | | | | |
| | | 4.0 | **CLAYEY SAND (SC)**, trace gravel, fine to coarse grained, light brown | 6449 | | | | | | | | | |
| | | 5.0 | **SANDY LEAN CLAY (CL)**, trace gravel, fine grained, tan to white brown, moderate cementation | 6448 | 5 | | | | | | | | |
| | | 7.0 | **SILTY SAND (SM)**, trace gravel, fine grained, light brown | 6446 | | | | | | | | | |
| | | 10.0 | **CLAYEY SAND (SC)**, trace gravel, fine grained, brown | 6443 | 10 | | | | | | | | |

***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
Komatsu PC170

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

**Logged by**
ED

**Boring Started**
10-08-2024

**Boring Completed**
10-08-2024

# Boring Log No. TP-10

| Model Layer | Graphic Log | Location: See Exploration Plan<br>Latitude: 35.5522° Longitude: -106.0075°<br>Depth (Ft.) Elevation.: 6471 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits<br>LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 **TOPSOIL**, approximately 3" thick 6470.75 | | | | | | | | | |
| | | **CLAYEY SAND (SC)**, trace gravel, fine to coarse grained, brown<br>2.0 6469 | | | | | | | | | |
| | | **SANDY SILT (ML)**, trace gravel, fine grained, light brown to tan, moderate cementation<br>10.0 6461 | 5<br>10 | | | | | | | | |

***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
Komatsu PC170

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

**Logged by**
ED

**Boring Started**
10-08-2024

**Boring Completed**
10-08-2024

# Boring Log No. TP-11

Location: See Exploration Plan

Latitude: 35.5495° Longitude: -106.0174°

| Model Layer | Graphic Log | Depth (Ft.) | | Elevation.: 6422 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits<br>LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 | **TOPSOIL**, approximately 4" thick | 6421.67 | | | | | | | | | |
| | | 4.0 | **CLAYEY SAND (SC)**, trace gravel, light brown | 6418 | | | | | | | | | |
| | | 7.0 | **SANDY SILT (ML)**, trace clay, tan to white brown, weak to moderate cementation | 6415 | 5 | | | | | | | | |
| | | 10.0 | **CLAYEY SAND (SC)**, light brown | 6412 | 10 | | | | | | | | |

***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
Komatsu PC170

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

**Logged by**
ED

**Boring Started**
10-09-2024

**Boring Completed**
10-09-2024

# Boring Log No. TP-12

| Model Layer | Graphic Log | Location: See Exploration Plan<br>Latitude: 35.5504° Longitude: -106.0114°<br>Depth (Ft.) Elevation.: 6452 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits<br>LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 **TOPSOIL**, approximately 3" thick 6451.75 | | | | | | | | | |
| | | **SANDY SILT (ML)**, tan, weak cementation<br>5.0 6447 | 5 | | | | | | | | |
| | | **SILTY SAND (SM)**, trace gravel, light brown<br>10.0 6442 | 10 | | | | | | | | |

***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
Komatsu PC170

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

**Logged by**
ED

**Boring Started**
10-09-2024

**Boring Completed**
10-09-2024

# Boring Log No. TP-13

| Model Layer | Graphic Log | Location: See Exploration Plan<br>Latitude: 35.5539° Longitude: -106.0116° | | | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Depth (Ft.) | | Elevation.: 6461 (Ft.) | | | | | | | | | |
| | | 0.2 | **TOPSOIL**, approximately 2" thick | 6460.83 | | | | | | | | | |
| | | 1.5 | **SANDY SILT (ML)**, fine grained, brown | 6459.5 | | | | | | | | | |
| | | | **SANDY LEAN CLAY (CL)**, fine grained, white brown to brown, moderate cementation | | 5 | | | | | | | | |
| | | 10.0 | | 6451 | 10 | | | | | | | | |

***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
Komatsu PC170

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

**Logged by**
ED

**Boring Started**
10-09-2024

**Boring Completed**
10-09-2024

# Boring Log No. TP-14

Location: See Exploration Plan

Latitude: 35.5523° Longitude: -106.0168°

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation.: 6431 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits<br>LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.2 | **TOPSOIL**, approximately 2" thick | 6430.83 | | | | | | | | | |
| | | 5.0 | **SILTY SAND (SM)**, fine to coarse grained, brown | 6426 | 5 | | | | | | | | |
| | | 10.0 | **CLAYEY SAND (SC)**, fine grained, brown | 6421 | 10 | | | | | | | | |

***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
Komatsu PC170

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

**Logged by**
ED

**Boring Started**
10-09-2024

**Boring Completed**
10-09-2024

# Boring Log No. TP-15

Location: See Exploration Plan

Latitude: 35.5539° Longitude: -106.0050°

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation.: 6487 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 | **TOPSOIL**, approximately 3" thick | 6486.75 | | | | | | | | | |
| | | 1.0 | **SILTY SAND (SM)**, coarse grained, brown | 6486 | | | | | | | | | |
| | | 5.0 | **SANDY SILT (ML)**, fine grained, tan, weak cementation | 6482 | 5 | | | | | | | | |
| | | 10.0 | **CLAYEY SAND (SC)**, fine to coarse grained, light brown | 6477 | 10 | | | | | | | | |

***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
Komatsu PC170

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

**Logged by**
ED

**Boring Started**
10-08-2024

**Boring Completed**
10-08-2024

# Boring Log No. TP-BESS

| Model Layer | Graphic Log | Location: See Exploration Plan<br>Latitude: 35.5522° Longitude: -106.0018° | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits<br>LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|

Depth (Ft.) Elevation.: 6495 (Ft.)

| Depth (Ft.) | Description | Elevation (Ft.) |
|---|---|---|
| 0.3 | **TOPSOIL**, approximately 3" thick | 6494.75 |
|  | **SILTY SAND (SM)**, fine to coarse grained, brown |  |
| 2.0 |  | 6493 |
|  | **CLAYEY SAND (SC)**, trace gravel, fine to coarse grained, light brown, weak cementation |  |
| 10.0 |  | 6485 |

5

10

***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
Komatsu PC170

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

**Logged by**
ED

**Boring Started**
10-06-2024

**Boring Completed**
10-06-2024

# Boring Log No. TP-SUB

Location: See Exploration Plan

Latitude: 35.5537° Longitude: -106.0013°

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation.: 6500 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.3 | **TOPSOIL**, approximately 4" thick | 6499.67 | | | | | | | | | |
| | | 2.0 | **SANDY SILT (ML)**, brown | 6498 | | | | | | | | | |
| | | | | | 5 | | | | | | | | |
| | | 10.0 | **SILTY SAND (SM)**, trace gravel, light brown to tan, weak cementation | 6490 | 10 | | | | | | | | |

***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Notes**

**Water Level Observations**
Groundwater not encountered

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

**Drill Rig**
Komatsu PC170

**Hammer Type**
Automatic

**Driller**
Terracon

**Logged by**
ED

**Boring Started**
10-06-2024

**Boring Completed**
10-06-2024

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

# Boring Log No. TP-SW

Location: See Exploration Plan

Latitude: 35.5655° Longitude: -105.9624°

| Model Layer | Graphic Log | Depth (Ft.) | Description | Elevation.: 6684 (Ft.) | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results | SWELL (%) | Water Content (%) | Dry Unit Weight (pcf) | Atterberg Limits LL-PL-PI | Percent Fines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ▨ | 0.3 | **TOPSOIL**, approximately 4" thick | 6683.67 | | | | | | | | | |
| | ▥ | 2.0 | **SANDY SILT (ML)**, fine grained, brown | 6682 | | | | | | | | | |
| | ⁘ | 6.0 | **SILTY SAND (SM)**, trace gravel, fine to coarse grained, light brown | 6678 | 5 | | | | | | | | |
| | ▨ | 10.0 | **CLAYEY SAND (SC)**, fine to coarse grained, light brown | 6674 | 10 | | | | | | | | |
| | | | ***Boring Terminated at 10 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.
Elevation Reference: Elevations were provided by Google Earth Pro (2023).

**Water Level Observations**
Groundwater not encountered

**Drill Rig**
Komatsu PC170

**Hammer Type**
Automatic

**Driller**
Terracon

**Notes**

**Advancement Method**
36" Wide Bucket

**Abandonment Method**
Backfilled with soil cuttings upon completion.

**Logged by**
ED

**Boring Started**
10-08-2024

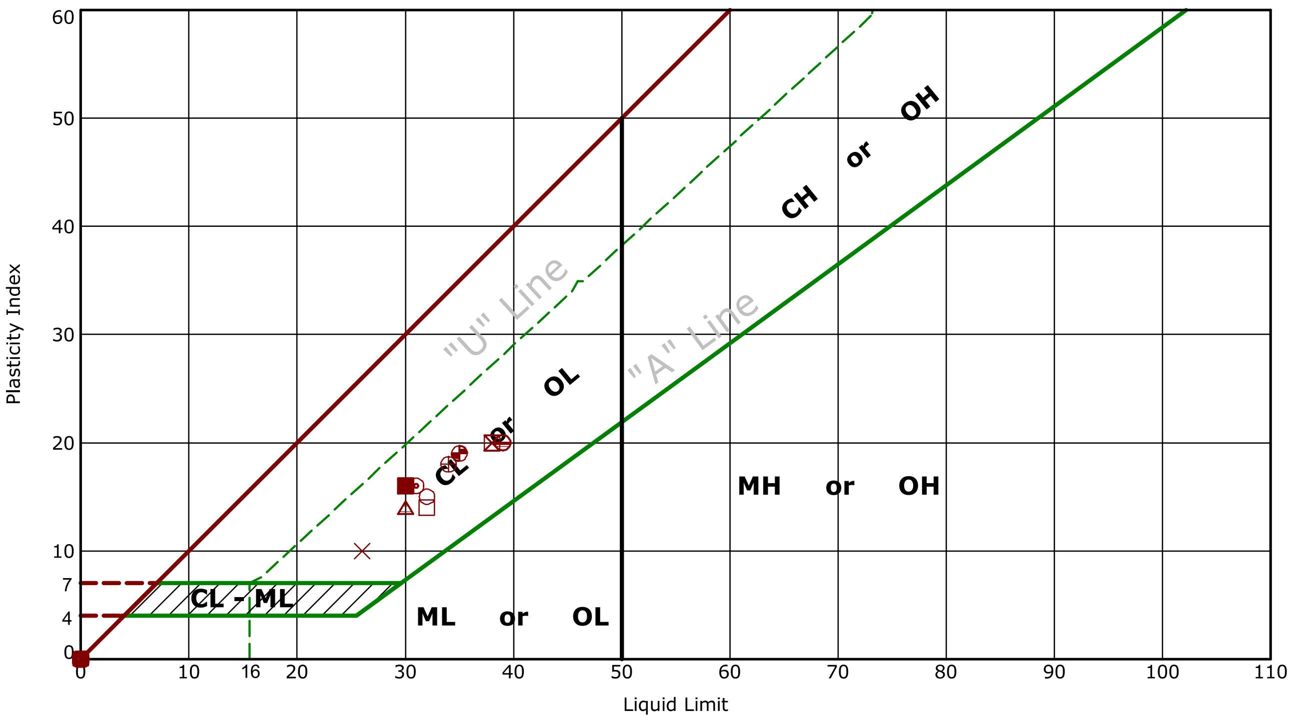
**Boring Completed**
10-08-2024

# APPENDIX B

# LABORATORY TESTING

# Atterberg Limit Results

## ASTM D4318



| | Boring ID | Depth (Ft) | LL | PL | PI | Fines | USCS | Description |
|---|---|---|---|---|---|---|---|---|
| ⊖ | A-01 | 2.5 - 4 | 39 | 19 | 20 | 61.9 | CL | SANDY LEAN CLAY |
| ⊠ | A-02 | 5 - 5.5 | 38 | 18 | 20 | 55.6 | CL | SANDY LEAN CLAY |
| △ | A-03 | 7.5 - 9 | 30 | 16 | 14 | 64.8 | CL | SANDY LEAN CLAY |
| ★ | A-04 | 5 - 5.5 | NP | NP | NP | 39.3 | SM | SILTY SAND |
| ⊙ | A-05 | 7.5 - 9 | 31 | 15 | 16 | 55.6 | CL | SANDY LEAN CLAY |
| ✚ | A-06 | 5 - 6.5 | NP | NP | NP | 70.7 | ML | SILT with SAND |
| ○ | A-07 | 2.5 - 4 | 32 | 17 | 15 | 79.5 | CL | LEAN CLAY with SAND |
| △ | A-08 | 7.5 - 9 | NP | NP | NP | 56.7 | ML | SANDY SILT |
| ⊗ | A-09 | 7.5 - 9 | NP | NP | NP | 45.3 | SM | SILTY SAND |
| ⊕ | A-10 | 5 - 6.5 | 34 | 16 | 18 | 56.6 | CL | SANDY LEAN CLAY |
| □ | A-11 | 5 - 5.5 | 32 | 18 | 14 | 66.2 | CL | SANDY LEAN CLAY |
| ⊗ | A-12 | 7.5 - 9 | NP | NP | NP | 41.9 | SM | SILTY SAND |
| ◕ | A-13 | 5 - 6.5 | 35 | 16 | 19 | 59.3 | CL | SANDY LEAN CLAY |
| ☆ | A-14 | 5 - 6.5 | NP | NP | NP | 59.8 | ML | SANDY SILT |
| ✿ | A-15 | 2.5 - 4 | NP | NP | NP | 48.2 | SM | SILTY SAND |
| ■ | Bess-01 | 2.5 - 4 | 30 | 14 | 16 | 77.3 | CL | LEAN CLAY with SAND |
| ◇ | Bess-01 | 10 - 11.5 | NP | NP | NP | 67.0 | ML | SANDY SILT |
| ◇ | Bess-02 | 7.5 - 9 | NP | NP | NP | 46.2 | SM | SILTY SAND |
| × | Bess-02 | 15 - 16.5 | 26 | 16 | 10 | 62.3 | CL | SANDY LEAN CLAY |
| ✿ | Bess-03 | 20 - 21.5 | NP | NP | NP | 7.7 | SW-SM | WELL-GRADED SAND with SILT |

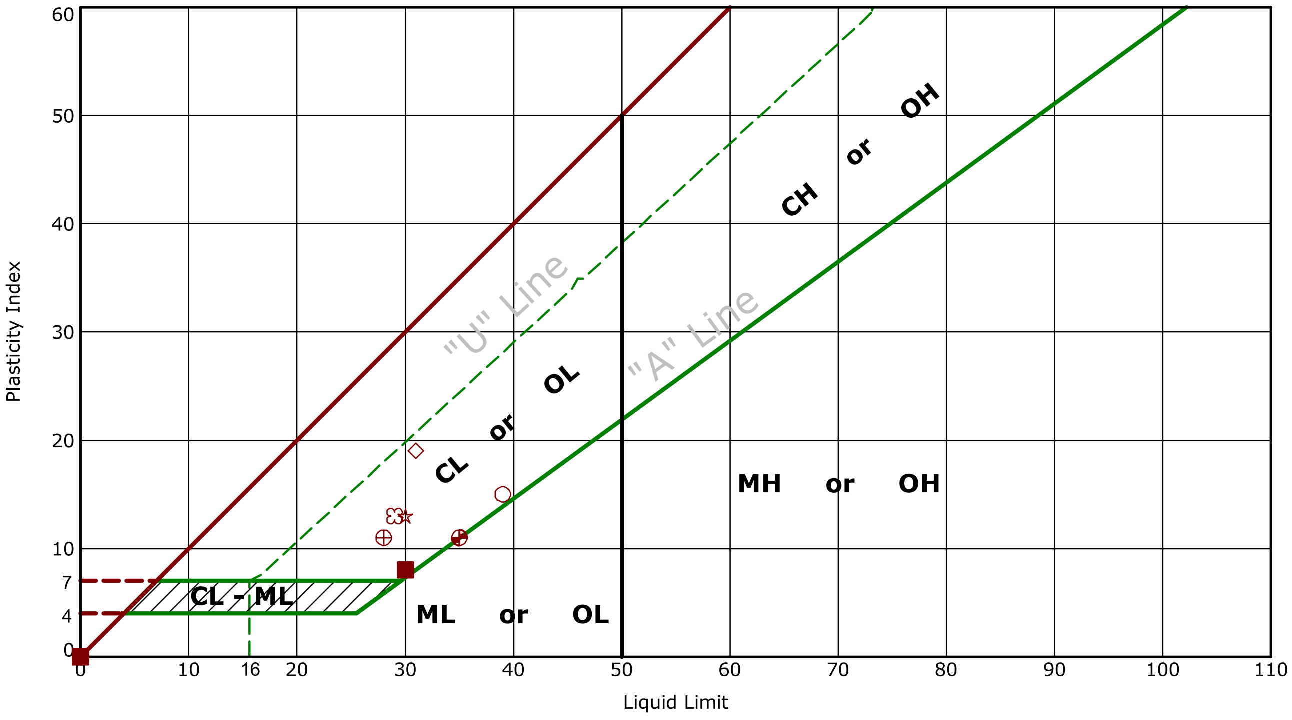
Exhibit B-1

Rancho Viejo Solar
NM 599 and NM 14 | Santa Fe, NM
Terracon Project No. 66225093

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

# Atterberg Limit Results

## ASTM D4318

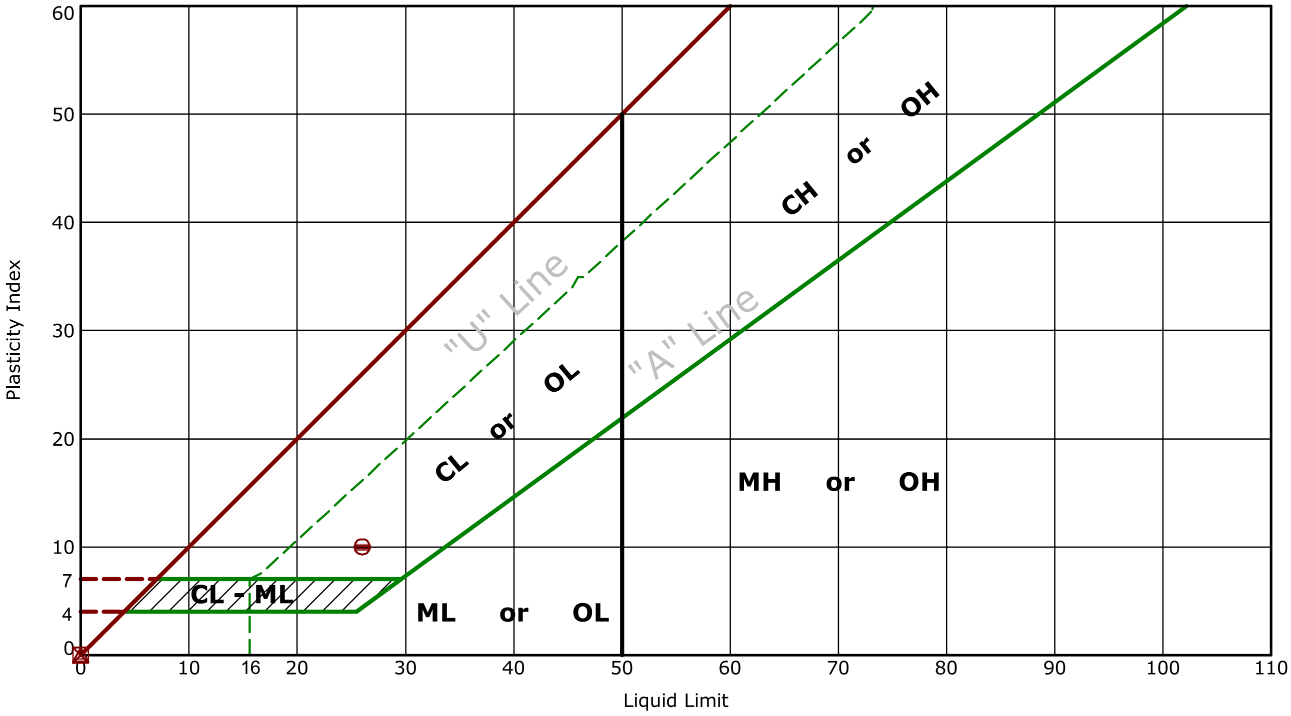


| | Boring ID | Depth (Ft) | LL | PL | PI | Fines | USCS | Description |
|---|---|---|---|---|---|---|---|---|
| ⊖ | BW-01 | 2.5 - 4 | NP | NP | NP | 50.0 | SM | SILTY SAND |
| ⊠ | BW-01 | 20 - 21.5 | NP | NP | NP | 59.5 | ML | SANDY SILT |
| △ | BW-02 | 5 - 6.5 | NP | NP | NP | 35.2 | SM | SILTY SAND |
| ★ | BW-02 | 25 - 26.5 | NP | NP | NP | 40.3 | SM | SILTY SAND |
| ⊙ | BW-03 | 5 - 6 | NP | NP | NP | 56.3 | ML | SANDY SILT |
| ✚ | BW-03 | 15 - 16.5 | NP | NP | NP | 20.3 | SM | SILTY SAND |
| ○ | P-02 | 2.5 - 4 | 39 | 24 | 15 | 61.2 | CL | SANDY LEAN CLAY |
| △ | P-03 | 5 - 6.5 | NP | NP | NP | | | |
| ⊗ | P-04 | 2.5 - 4 | NP | NP | NP | 64.9 | ML | SANDY SILT |
| ⊕ | P-05 | 5 - 6.5 | 28 | 17 | 11 | 62.5 | CL | SANDY LEAN CLAY |
| □ | P-06 | 5 - 6 | NP | NP | NP | 41.1 | SM | SILTY SAND |
| ⊗ | P-07 | 2.5 - 3.5 | NP | NP | NP | 35.6 | SM | SILTY SAND |
| ⊕ | P-08 | 2.5 - 4 | 35 | 24 | 11 | 63.6 | CL | SANDY LEAN CLAY |
| ☆ | Sub-01 | 2.5 - 3.5 | 30 | 17 | 13 | 58.5 | CL | SANDY LEAN CLAY |
| ✿ | Sub-01 | 20 - 21.5 | 29 | 16 | 13 | 69.1 | CL | SANDY LEAN CLAY |
| ■ | Sub-02 | 2.5 - 4 | 30 | 22 | 8 | 62.3 | CL | SANDY LEAN CLAY |
| ◇ | Sub-02 | 20 - 21.5 | NP | NP | NP | 22.2 | SM | SILTY SAND |
| ◇ | T-01 | 5 - 6 | 31 | 12 | 19 | 64.2 | CL | SANDY LEAN CLAY |
| × | T-01 | 25 - 26.5 | NP | NP | NP | 38.5 | SM | SILTY SAND |
| ✿ | T-02 | 7.5 - 9 | NP | NP | NP | 62.9 | ML | SANDY SILT |

Exhibit B-2

# Atterberg Limit Results

## ASTM D4318



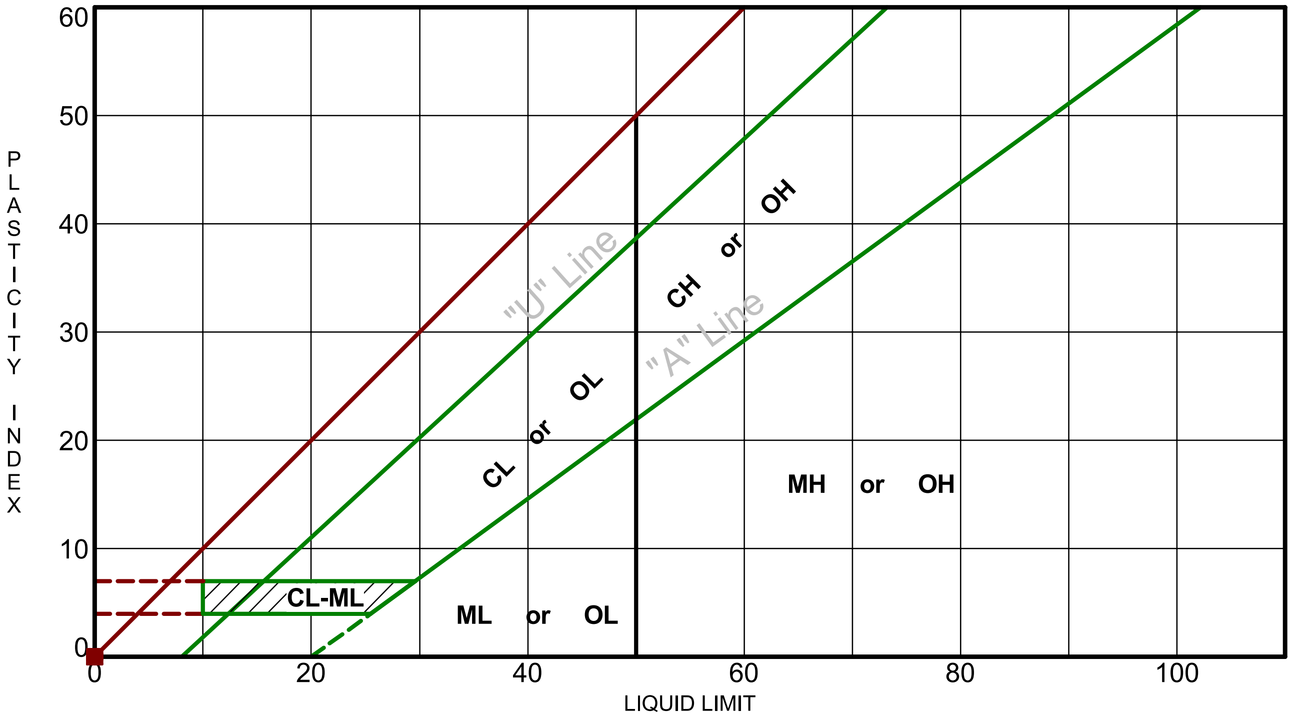
| | Boring ID | Depth (Ft) | LL | PL | PI | Fines | USCS | Description |
|---|---|---|---|---|---|---|---|---|
| ⊖ | T-02 | 20 - 21.5 | 26 | 16 | 10 | 58.3 | CL | SANDY LEAN CLAY |
| ☒ | T-03 | 10 - 11.5 | NP | NP | NP | 23.3 | SM | SILTY SAND |
| △ | T-04 | 15 - 16.5 | NP | NP | NP | 61.2 | ML | SANDY SILT |

Laboratory tests are not valid if separated from original report.

Exhibit B-3

# ATTERBERG LIMITS RESULTS

## ASTM D4318



| Boring ID | | Depth (Ft) | LL | PL | PI | Fines | USCS | Description |
|---|---|---|---|---|---|---|---|---|
| ⊖ | B-01 | 0.5 - 2 | NP | NP | NP | 57.2 | ML | SANDY SILT |
| ☒ | B-02 | 5 - 6 | NP | NP | NP | 74.9 | ML | SILT with SAND |
| △ | B-03 | 10 - 11.5 | NP | NP | NP | 61.1 | ML | SANDY SILT |
| ★ | B-04 | 2.5 - 3.5 | NP | NP | NP | 74.8 | ML | SILT with SAND |
| ⊙ | B-05 | 5 - 6.5 | NP | NP | NP | 61.0 | ML | SANDY SILT |
| ✿ | B-06 | 10 - 11.5 | NP | NP | NP | 59.3 | ML | SANDY SILT |
| ○ | B-07 | 2.5 - 3.5 | NP | NP | NP | 70.0 | ML | SILT with SAND |
| △ | B-08 | 5 - 6 | NP | NP | NP | 59.2 | ML | SANDY SILT |
| ⊗ | B-10 | 10 - 11.5 | NP | NP | NP | 85.5 | ML | SILT |
| ⊕ | B-11 | 2.5 - 4 | NP | NP | NP | 60.8 | ML | SANDY SILT |
| ☐ | B-12 | 5 - 6.5 | NP | NP | NP | 58.1 | ML | SANDY SILT |
| ⊗ | B-13 | 10 - 11.5 | NP | NP | NP | 22.8 | SM | SILTY SAND |
| ⊕ | B-14 | 2.5 - 3.5 | NP | NP | NP | 50.7 | ML | SANDY SILT |
| ☆ | B-15 | 5 - 6 | NP | NP | NP | 40.6 | SM | SILTY SAND |
| ✤ | B-Sub | 2.5 - 4 | NP | NP | NP | 59.1 | ML | SANDY SILT |
| ■ | B-Sub | 10 - 11.5 | NP | NP | NP | 32.7 | SM | SILTY SAND |
| ◇ | B-Sub | 25 - 26.5 | NP | NP | NP | 71.4 | ML | SILT with SAND |

PROJECT: Rancho Viejo Solar Facility

SITE: NM 599 and NM 14
Santa Fe, NM

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

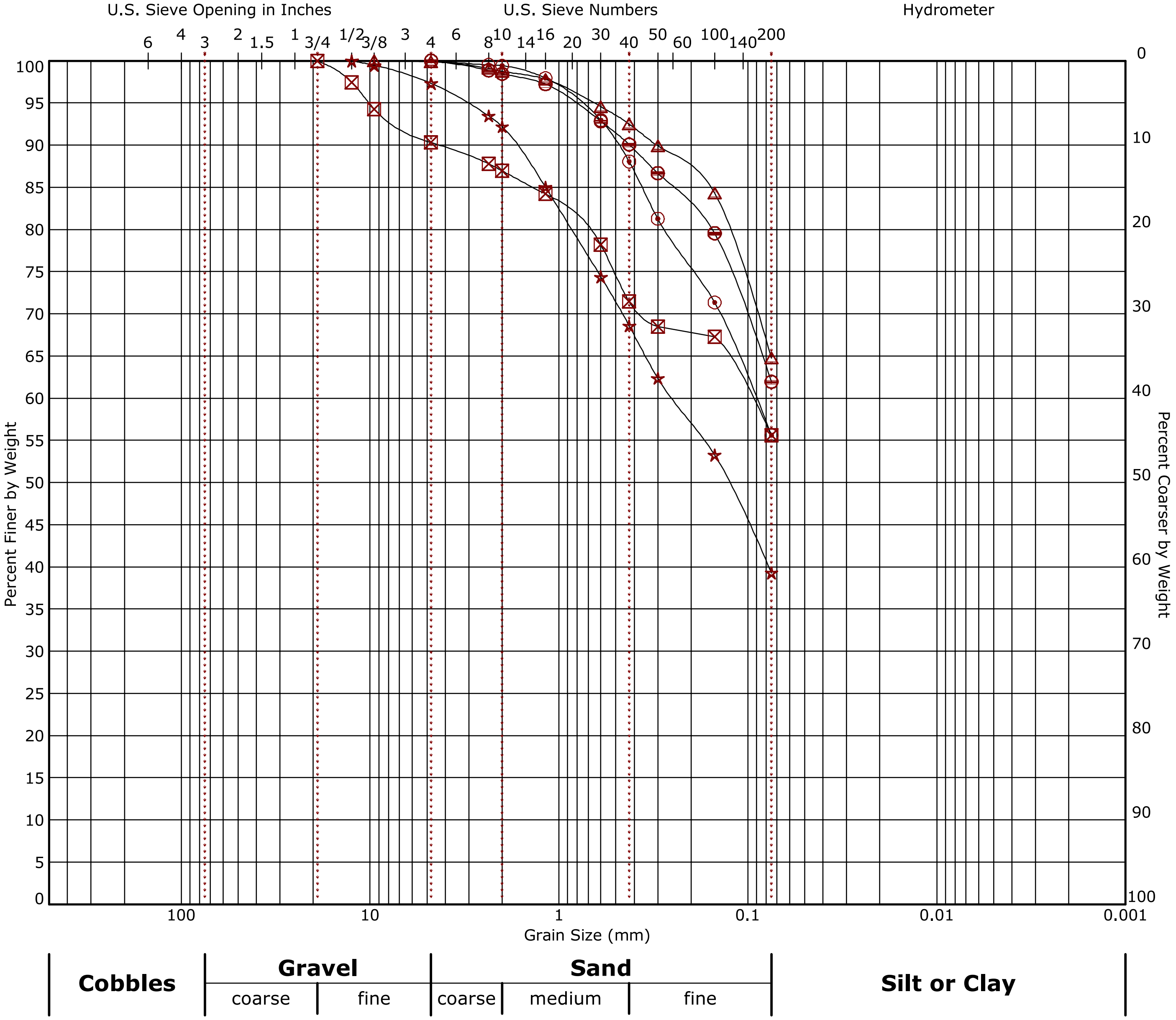
LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. ATTERBERG LIMITS 66225093 RANCHO VIEJO SOLA.GPJ TERRACON_DATATEMPLATE.GDT 9/26/22

Exhibit B-4

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

# Grain Size Distribution

## ASTM D422 / ASTM C136



| Boring ID | Depth (Ft) | Description | USCS | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|
| ⊖ A-01 | 2.5 - 4 | SANDY LEAN CLAY | CL | 39 | 19 | 20 | | |
| ⊠ A-02 | 5 - 5.5 | SANDY LEAN CLAY | CL | 38 | 18 | 20 | | |
| △ A-03 | 7.5 - 9 | SANDY LEAN CLAY | CL | 30 | 16 | 14 | | |
| ☆ A-04 | 5 - 5.5 | SILTY SAND | SM | NP | NP | NP | | |
| ⊙ A-05 | 7.5 - 9 | SANDY LEAN CLAY | CL | 31 | 15 | 16 | | |

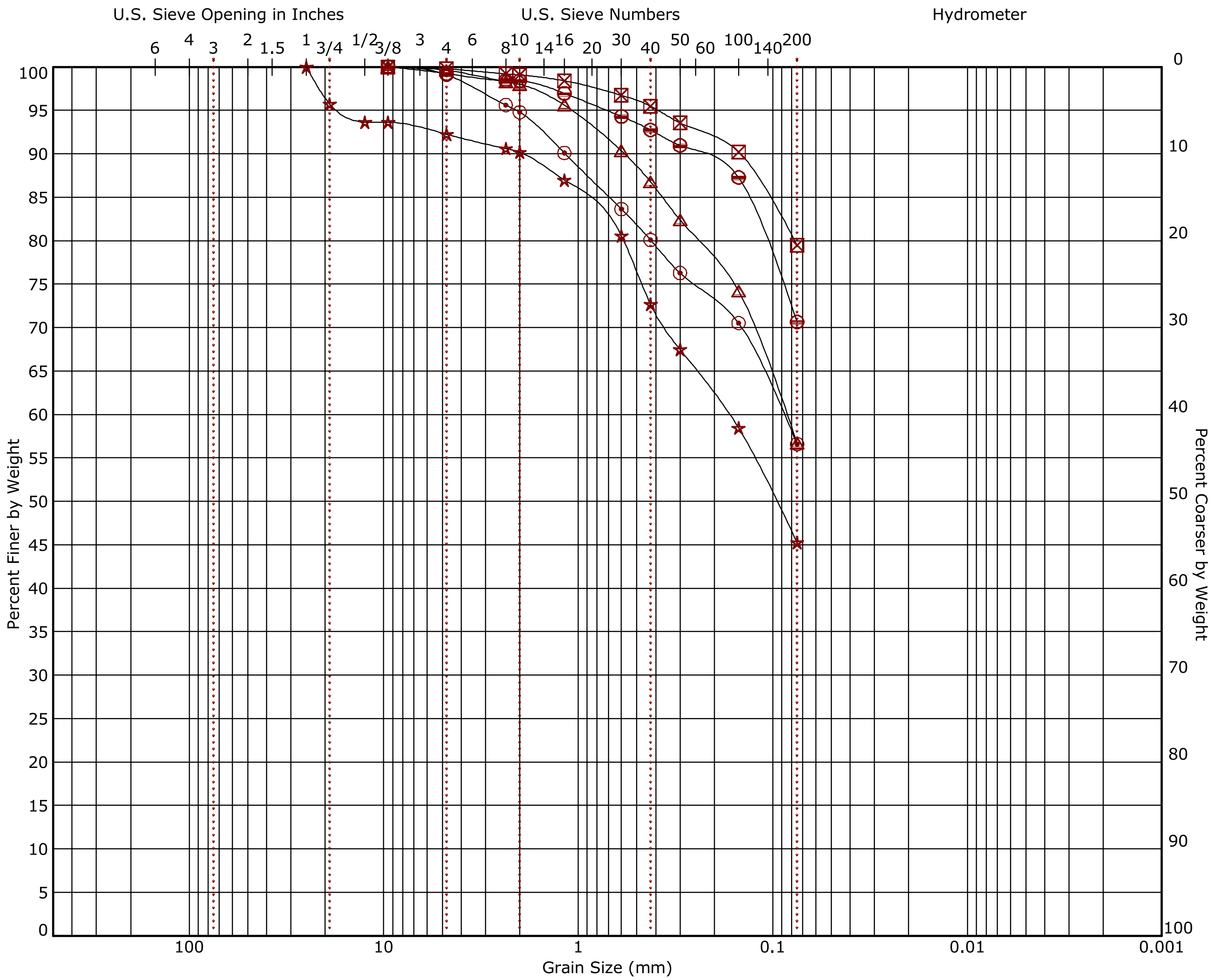
| Boring ID | Depth (Ft) | $D_{100}$ | $D_{60}$ | $D_{30}$ | $D_{10}$ | %Cobbles | %Gravel | %Sand | %Fines | %Silt | %Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ⊖ A-01 | 2.5 - 4 | 4.75 | | | | 0.0 | 0.0 | 38.1 | 61.9 | | |
| ⊠ A-02 | 5 - 5.5 | 19 | 0.097 | | | 0.0 | 9.7 | 34.7 | 55.6 | | |
| △ A-03 | 7.5 - 9 | 9.5 | | | | 0.0 | 0.1 | 35.1 | 64.8 | | |
| ☆ A-04 | 5 - 5.5 | 12.5 | 0.251 | | | 0.0 | 2.7 | 58.0 | 39.3 | | |
| ⊙ A-05 | 7.5 - 9 | 4.75 | 0.091 | | | 0.0 | 0.0 | 44.4 | 55.6 | | |

Laboratory tests are not valid if separated from original report.

Exhibit B-5

# Grain Size Distribution

## ASTM D422 / ASTM C136



| Cobbles | Gravel | | Sand | | | Silt or Clay |
|---|---|---|---|---|---|---|
| | coarse | fine | coarse | medium | fine | |

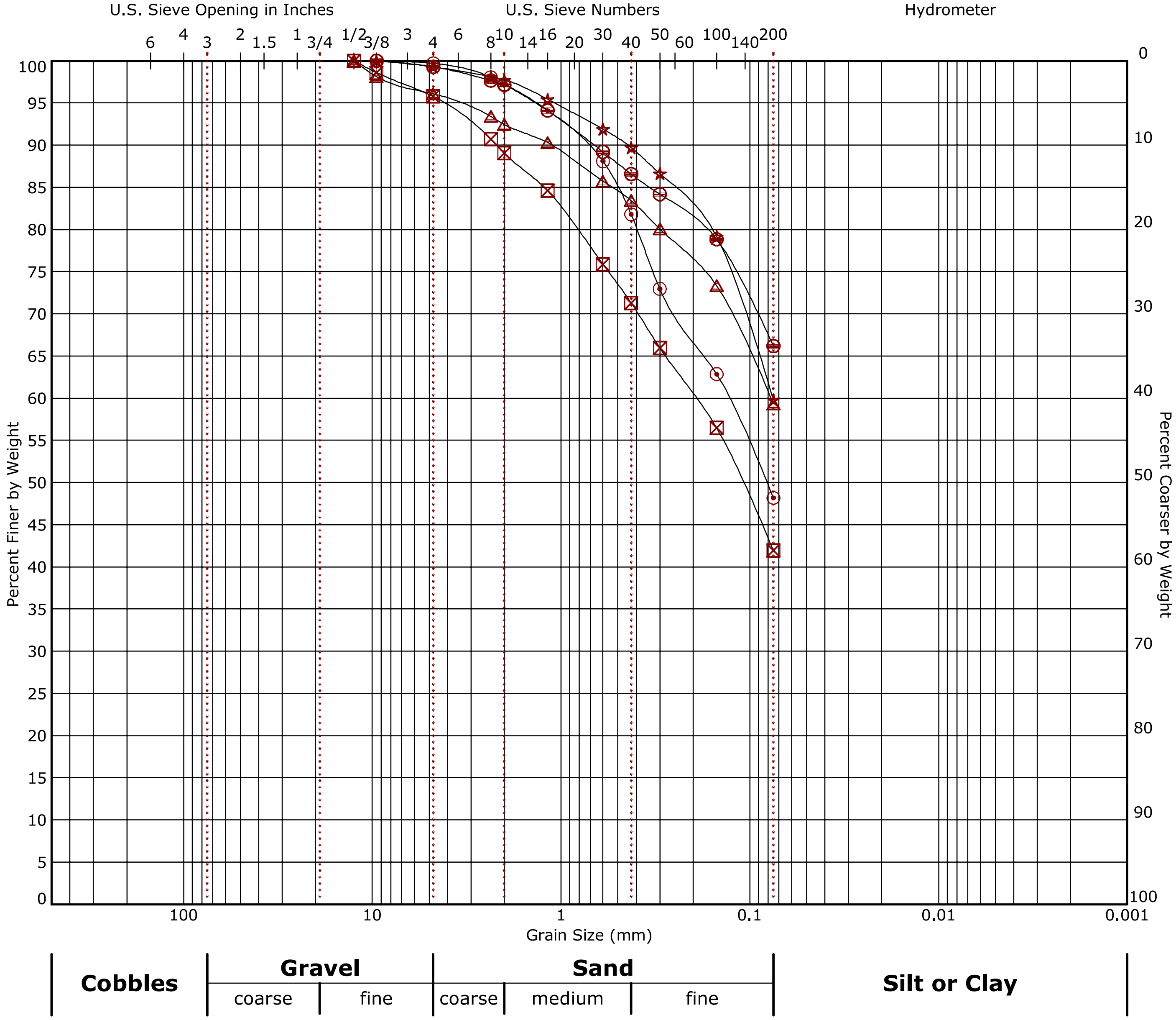
| | Boring ID | Depth (Ft) | Description | USCS | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|---|
| ⊖ | A-06 | 5 - 6.5 | SILT with SAND | ML | NP | NP | NP | | |
| ☒ | A-07 | 2.5 - 4 | LEAN CLAY with SAND | CL | 32 | 17 | 15 | | |
| △ | A-08 | 7.5 - 9 | SANDY SILT | ML | NP | NP | NP | | |
| ★ | A-09 | 7.5 - 9 | SILTY SAND | SM | NP | NP | NP | | |
| ⊙ | A-10 | 5 - 6.5 | SANDY LEAN CLAY | CL | 34 | 16 | 18 | | |

| | Boring ID | Depth (Ft) | $D_{100}$ | $D_{60}$ | $D_{30}$ | $D_{10}$ | %Cobbles | %Gravel | %Sand | %Fines | %Silt | %Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ⊖ | A-06 | 5 - 6.5 | 9.5 | | | | 0.0 | 0.8 | 28.6 | 70.7 | | |
| ☒ | A-07 | 2.5 - 4 | 9.5 | | | | 0.0 | 0.2 | 20.3 | 79.5 | | |
| △ | A-08 | 7.5 - 9 | 9.5 | 0.085 | | | 0.0 | 0.4 | 42.9 | 56.7 | | |
| ★ | A-09 | 7.5 - 9 | 25 | 0.169 | | | 0.0 | 7.7 | 47.0 | 45.3 | | |
| ⊙ | A-10 | 5 - 6.5 | 9.5 | 0.089 | | | 0.0 | 0.9 | 42.5 | 56.6 | | |

Exhibit B-6

# Grain Size Distribution

## ASTM D422 / ASTM C136



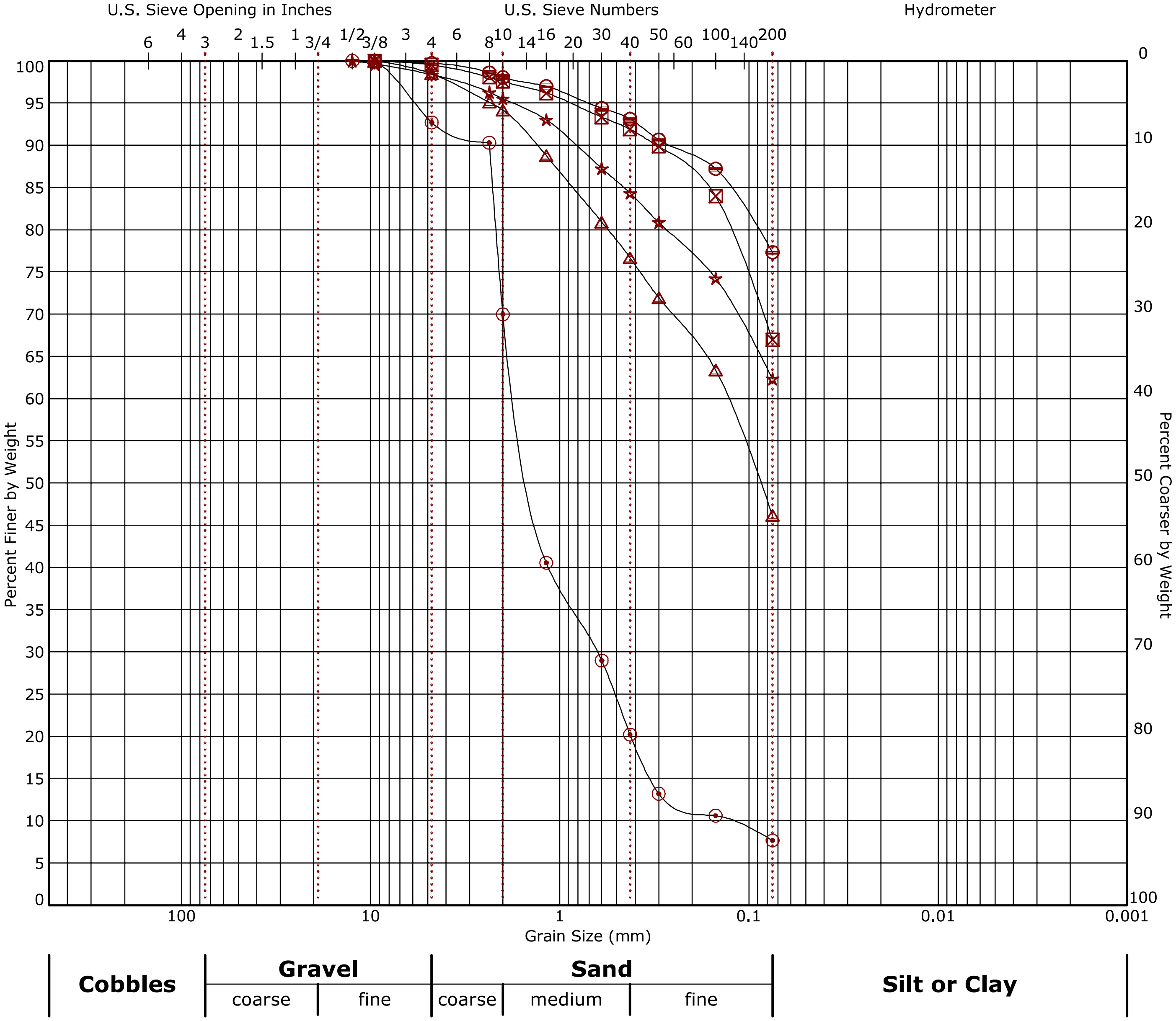
| | Boring ID | Depth (Ft) | Description | USCS | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|---|
| ⊖ | A-11 | 5 - 5.5 | SANDY LEAN CLAY | CL | 32 | 18 | 14 | | |
| ⊠ | A-12 | 7.5 - 9 | SILTY SAND | SM | NP | NP | NP | | |
| △ | A-13 | 5 - 6.5 | SANDY LEAN CLAY | CL | 35 | 16 | 19 | | |
| ☆ | A-14 | 5 - 6.5 | SANDY SILT | ML | NP | NP | NP | | |
| ⊙ | A-15 | 2.5 - 4 | SILTY SAND | SM | NP | NP | NP | | |

| | Boring ID | Depth (Ft) | $D_{100}$ | $D_{60}$ | $D_{30}$ | $D_{10}$ | %Cobbles | %Gravel | %Sand | %Fines | %Silt | %Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ⊖ | A-11 | 5 - 5.5 | 9.5 | | | | 0.0 | 0.7 | 33.1 | 66.2 | | |
| ⊠ | A-12 | 7.5 - 9 | 12.5 | 0.194 | | | 0.0 | 4.2 | 53.8 | 41.9 | | |
| △ | A-13 | 5 - 6.5 | 12.5 | 0.078 | | | 0.0 | 3.9 | 36.8 | 59.3 | | |
| ☆ | A-14 | 5 - 6.5 | 9.5 | 0.076 | | | 0.0 | 0.7 | 39.5 | 59.8 | | |
| ⊙ | A-15 | 2.5 - 4 | 9.5 | 0.131 | | | 0.0 | 0.3 | 51.5 | 48.2 | | |

Exhibit B-7

# Grain Size Distribution

## ASTM D422 / ASTM C136



| Boring ID | Depth (Ft) | Description | USCS | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|
| ⊖ Bess-01 | 2.5 - 4 | LEAN CLAY with SAND | CL | 30 | 14 | 16 | | |
| ☒ Bess-01 | 10 - 11.5 | SANDY SILT | ML | NP | NP | NP | | |
| △ Bess-02 | 7.5 - 9 | SILTY SAND | SM | NP | NP | NP | | |
| ☆ Bess-02 | 15 - 16.5 | SANDY LEAN CLAY | CL | 26 | 16 | 10 | | |
| ⊙ Bess-03 | 20 - 21.5 | WELL-GRADED SAND with SILT | SW-SM | NP | NP | NP | 1.86 | 12.85 |

| Boring ID | Depth (Ft) | $D_{100}$ | $D_{60}$ | $D_{30}$ | $D_{10}$ | %Cobbles | %Gravel | %Sand | %Fines | %Silt | %Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ⊖ Bess-01 | 2.5 - 4 | 9.5 | | | | 0.0 | 0.3 | 22.4 | 77.3 | | |
| ☒ Bess-01 | 10 - 11.5 | 9.5 | | | | 0.0 | 0.5 | 32.6 | 67.0 | | |
| △ Bess-02 | 7.5 - 9 | 9.5 | 0.131 | | | 0.0 | 1.5 | 52.3 | 46.2 | | |
| ☆ Bess-02 | 15 - 16.5 | 12.5 | | | | 0.0 | 1.6 | 36.0 | 62.3 | | |
| ⊙ Bess-03 | 20 - 21.5 | 12.5 | 1.672 | 0.637 | 0.13 | 0.0 | 7.3 | 85.0 | 7.7 | | |

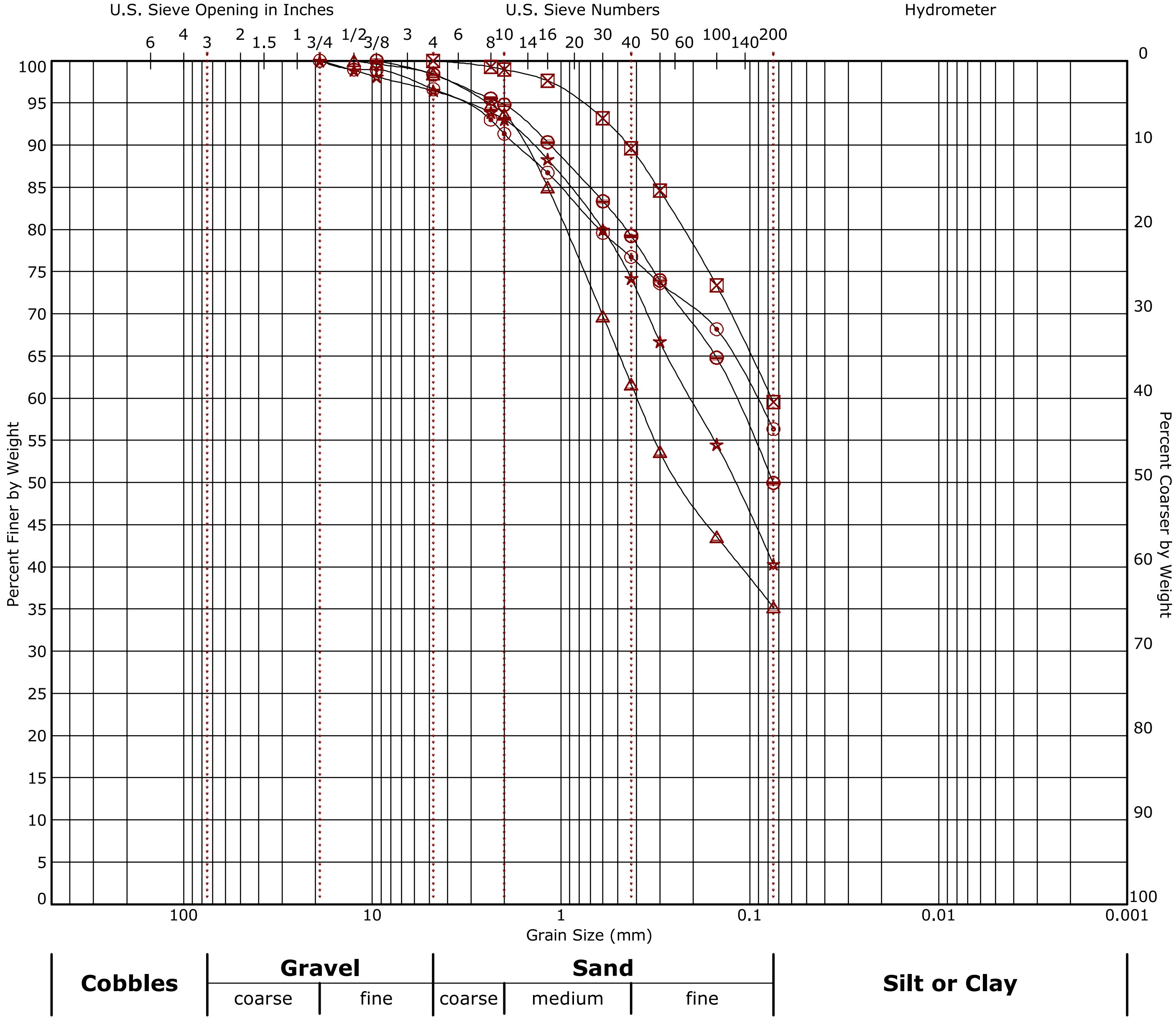
Exhibit B-8

Rancho Viejo Solar
NM 599 and NM 14 | Santa Fe, NM
Terracon Project No. 66225093

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

# Grain Size Distribution

## ASTM D422 / ASTM C136



| Boring ID | Depth (Ft) | Description | USCS | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|
| ⊖ BW-01 | 2.5 - 4 | SILTY SAND | SM | NP | NP | NP | | |
| ⊠ BW-01 | 20 - 21.5 | SANDY SILT | ML | NP | NP | NP | | |
| △ BW-02 | 5 - 6.5 | SILTY SAND | SM | NP | NP | NP | | |
| ★ BW-02 | 25 - 26.5 | SILTY SAND | SM | NP | NP | NP | | |
| ⊙ BW-03 | 5 - 6 | SANDY SILT | ML | NP | NP | NP | | |

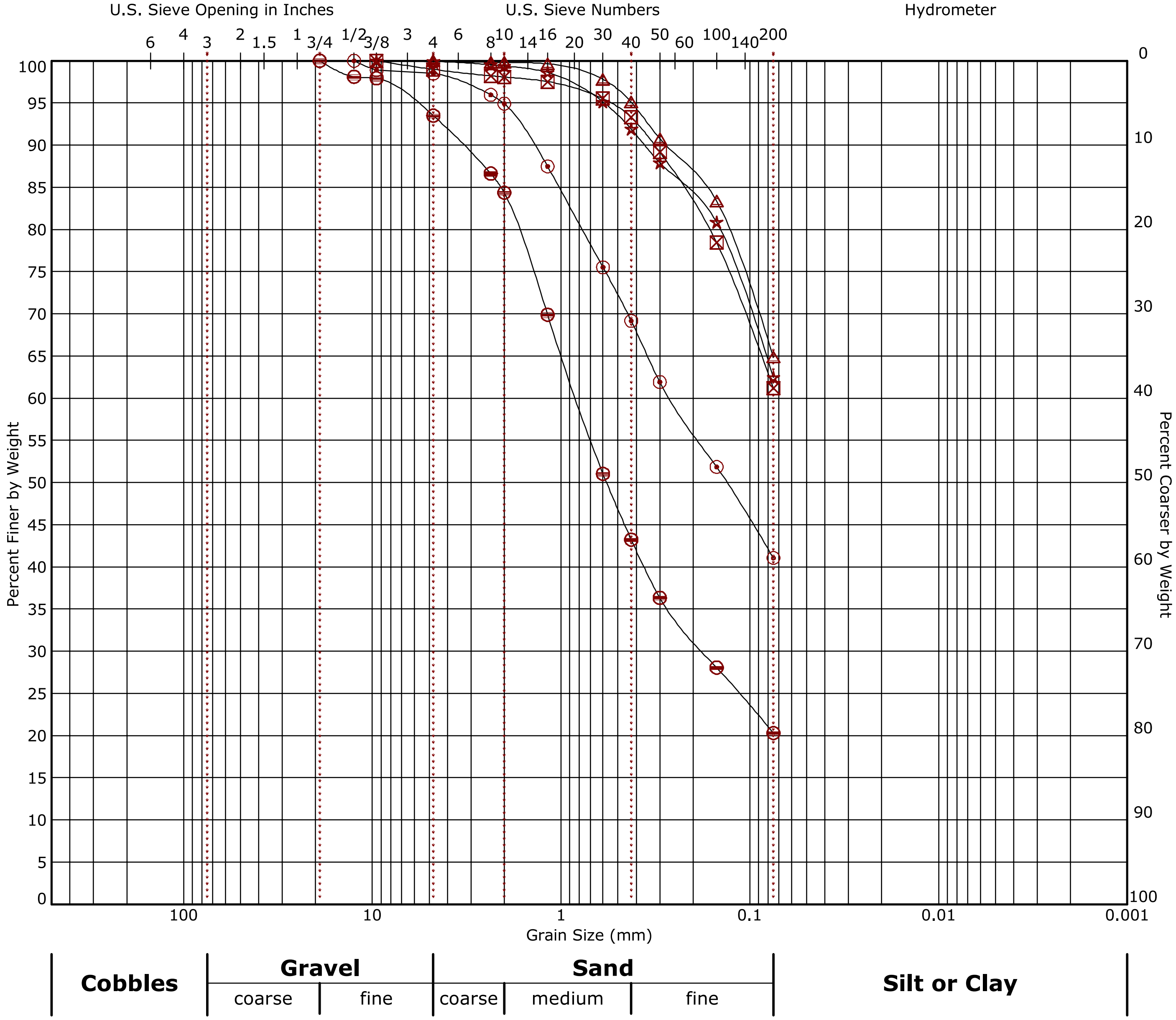
| Boring ID | Depth (Ft) | $D_{100}$ | $D_{60}$ | $D_{30}$ | $D_{10}$ | %Cobbles | %Gravel | %Sand | %Fines | %Silt | %Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ⊖ BW-01 | 2.5 - 4 | 9.5 | 0.12 | | | 0.0 | 1.6 | 48.4 | 50.0 | | |
| ⊠ BW-01 | 20 - 21.5 | 4.75 | 0.077 | | | 0.0 | 0.0 | 40.5 | 59.5 | | |
| △ BW-02 | 5 - 6.5 | 12.5 | 0.395 | | | 0.0 | 1.6 | 63.2 | 35.2 | | |
| ★ BW-02 | 25 - 26.5 | 19 | 0.205 | | | 0.0 | 3.5 | 56.1 | 40.3 | | |
| ⊙ BW-03 | 5 - 6 | 19 | 0.093 | | | 0.0 | 3.4 | 40.3 | 56.3 | | |

Laboratory tests are not valid if separated from original report.

Exhibit B-9

# Grain Size Distribution

## ASTM D422 / ASTM C136



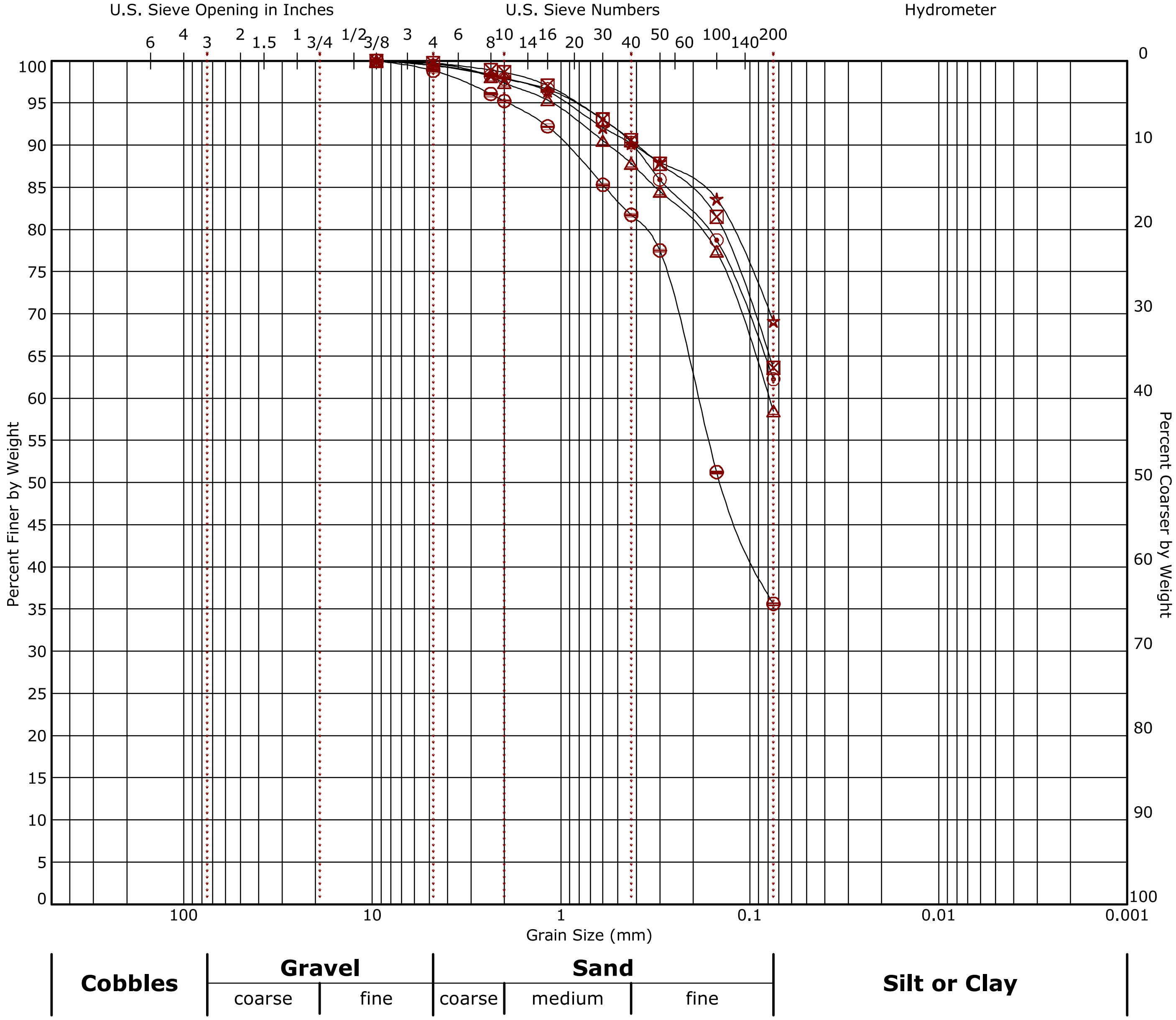
|  | Boring ID | Depth (Ft) | Description | USCS | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|---|
| ⊖ | BW-03 | 15 - 16.5 | SILTY SAND | SM | NP | NP | NP |  |  |
| ⊠ | P-02 | 2.5 - 4 | SANDY LEAN CLAY | CL | 39 | 24 | 15 |  |  |
| △ | P-04 | 2.5 - 4 | SANDY SILT | ML | NP | NP | NP |  |  |
| ☆ | P-05 | 5 - 6.5 | SANDY LEAN CLAY | CL | 28 | 17 | 11 |  |  |
| ⊙ | P-06 | 5 - 6 | SILTY SAND | SM | NP | NP | NP |  |  |

|  | Boring ID | Depth (Ft) | $D_{100}$ | $D_{60}$ | $D_{30}$ | $D_{10}$ | %Cobbles | %Gravel | %Sand | %Fines | %Silt | %Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ⊖ | BW-03 | 15 - 16.5 | 19 | 0.827 | 0.176 |  | 0.0 | 6.5 | 73.2 | 20.3 |  |  |
| ⊠ | P-02 | 2.5 - 4 | 9.5 |  |  |  | 0.0 | 1.0 | 37.8 | 61.2 |  |  |
| △ | P-04 | 2.5 - 4 | 4.75 |  |  |  | 0.0 | 0.0 | 35.1 | 64.9 |  |  |
| ☆ | P-05 | 5 - 6.5 | 9.5 |  |  |  | 0.0 | 0.1 | 37.5 | 62.5 |  |  |
| ⊙ | P-06 | 5 - 6 | 12.5 | 0.263 |  |  | 0.0 | 1.5 | 57.4 | 41.1 |  |  |

Exhibit B-10

# Grain Size Distribution

## ASTM D422 / ASTM C136



| Boring ID | Depth (Ft) | Description | USCS | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|
| ⊖ P-07 | 2.5 - 3.5 | SILTY SAND | SM | NP | NP | NP | | |
| ☒ P-08 | 2.5 - 4 | SANDY LEAN CLAY | CL | 35 | 24 | 11 | | |
| △ Sub-01 | 2.5 - 3.5 | SANDY LEAN CLAY | CL | 30 | 17 | 13 | | |
| ★ Sub-01 | 20 - 21.5 | SANDY LEAN CLAY | CL | 29 | 16 | 13 | | |
| ⊙ Sub-02 | 2.5 - 4 | SANDY LEAN CLAY | CL | 30 | 22 | 8 | | |

| Boring ID | Depth (Ft) | $D_{100}$ | $D_{60}$ | $D_{30}$ | $D_{10}$ | %Cobbles | %Gravel | %Sand | %Fines | %Silt | %Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ⊖ P-07 | 2.5 - 3.5 | 9.5 | 0.189 | | | 0.0 | 1.2 | 63.2 | 35.6 | | |
| ☒ P-08 | 2.5 - 4 | 9.5 | | | | 0.0 | 0.3 | 36.2 | 63.6 | | |
| △ Sub-01 | 2.5 - 3.5 | 9.5 | 0.079 | | | 0.0 | 0.4 | 41.2 | 58.5 | | |
| ★ Sub-01 | 20 - 21.5 | 9.5 | | | | 0.0 | 0.5 | 30.3 | 69.1 | | |
| ⊙ Sub-02 | 2.5 - 4 | 9.5 | | | | 0.0 | 0.5 | 37.2 | 62.3 | | |

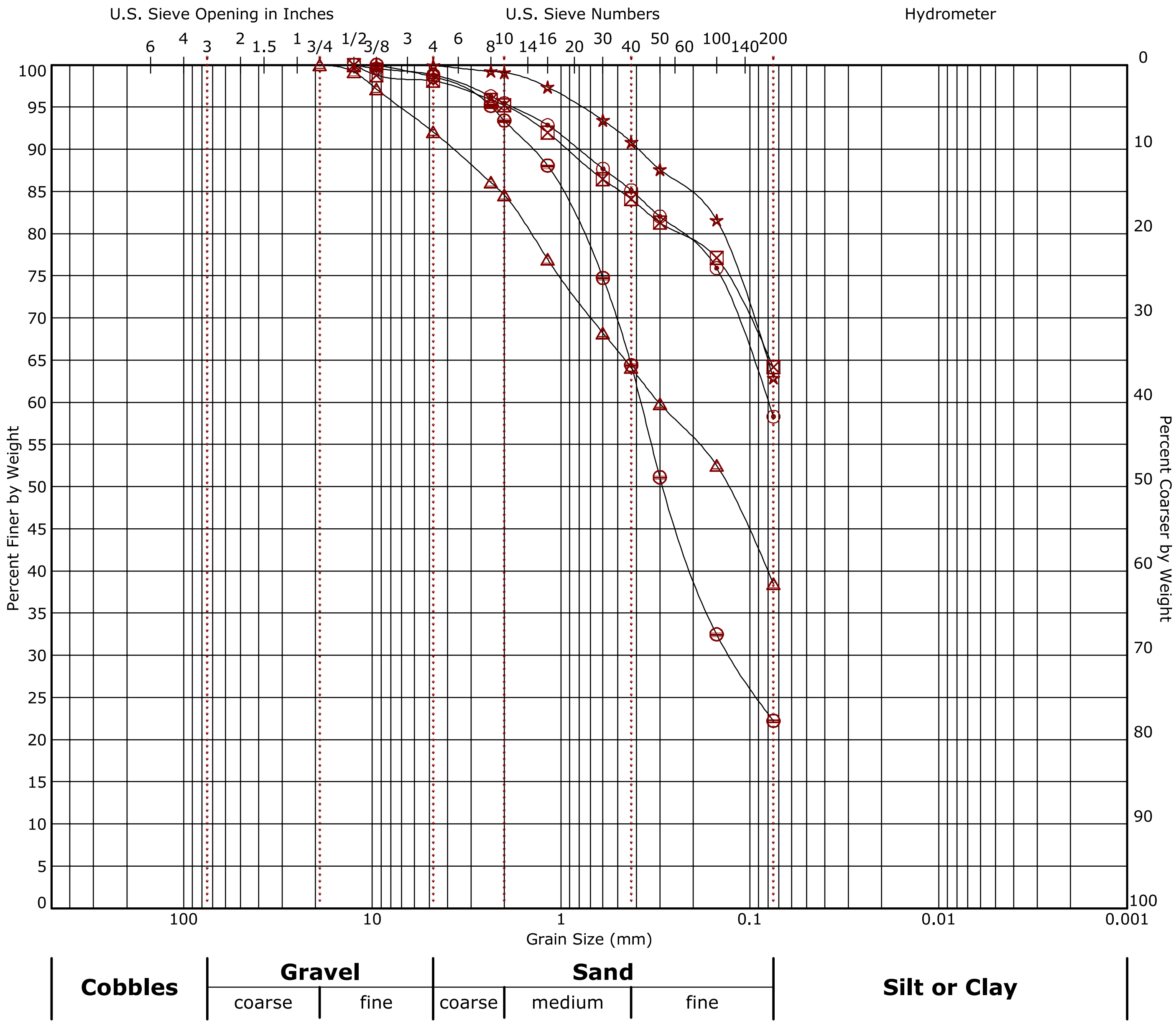
Exhibit B-11

Rancho Viejo Solar
NM 599 and NM 14 | Santa Fe, NM
Terracon Project No. 66225093

6805 Academy Pkwy West NE
Albuquerque, NM

# Grain Size Distribution

## ASTM D422 / ASTM C136



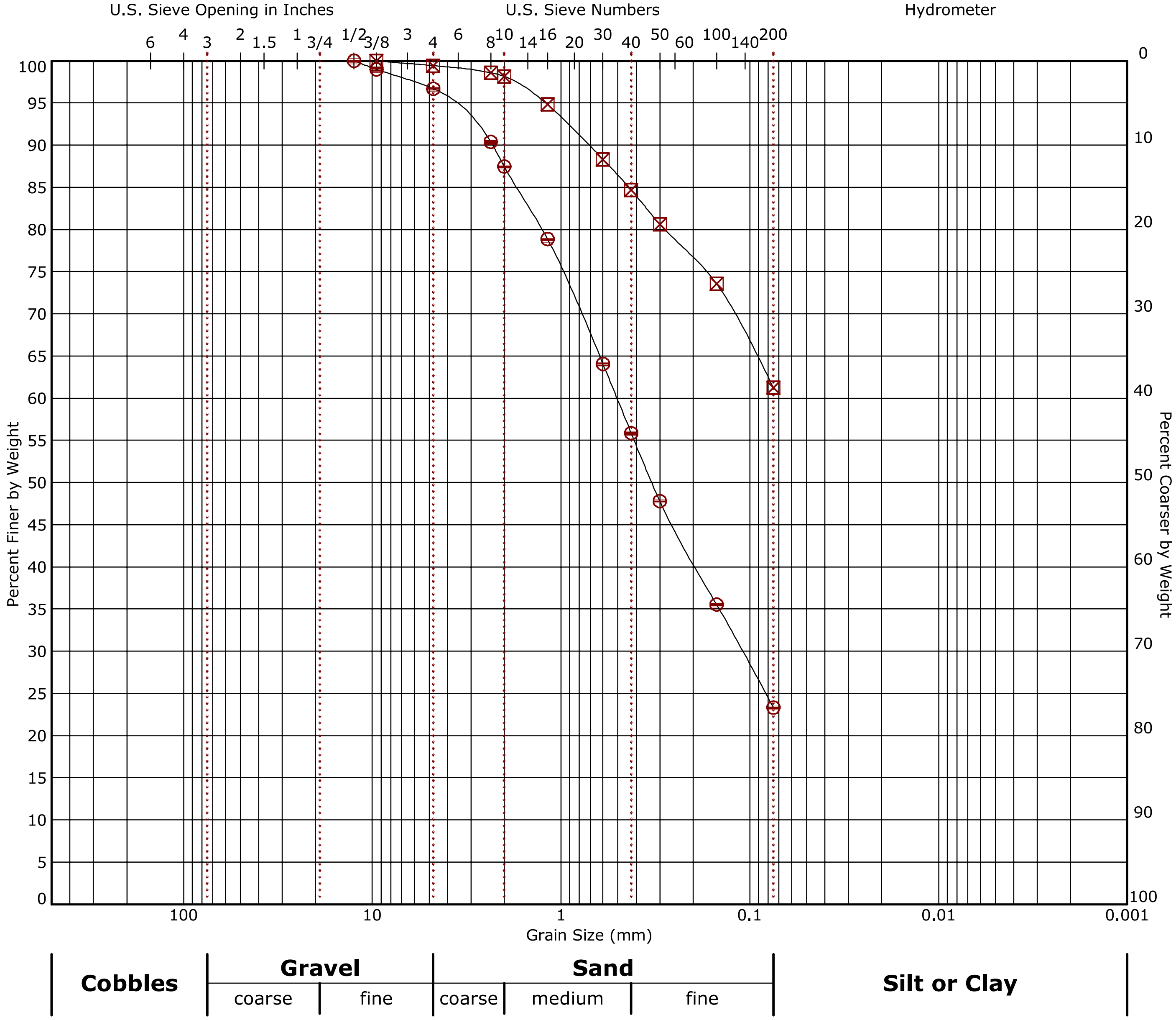
| Boring ID | | Depth (Ft) | Description | USCS | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|---|
| ⊖ | Sub-02 | 20 - 21.5 | SILTY SAND | SM | NP | NP | NP | | |
| ⊠ | T-01 | 5 - 6 | SANDY LEAN CLAY | CL | 31 | 12 | 19 | | |
| △ | T-01 | 25 - 26.5 | SILTY SAND | SM | NP | NP | NP | | |
| ★ | T-02 | 7.5 - 9 | SANDY SILT | ML | NP | NP | NP | | |
| ⊙ | T-02 | 20 - 21.5 | SANDY LEAN CLAY | CL | 26 | 16 | 10 | | |

| Boring ID | | Depth (Ft) | $D_{100}$ | $D_{60}$ | $D_{30}$ | $D_{10}$ | %Cobbles | %Gravel | %Sand | %Fines | %Silt | %Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ⊖ | Sub-02 | 20 - 21.5 | 9.5 | 0.379 | 0.127 | | 0.0 | 1.4 | 76.4 | 22.2 | | |
| ⊠ | T-01 | 5 - 6 | 12.5 | | | | 0.0 | 1.9 | 34.0 | 64.2 | | |
| △ | T-01 | 25 - 26.5 | 19 | 0.304 | | | 0.0 | 7.9 | 53.6 | 38.5 | | |
| ★ | T-02 | 7.5 - 9 | 9.5 | | | | 0.0 | 0.1 | 37.0 | 62.9 | | |
| ⊙ | T-02 | 20 - 21.5 | 12.5 | 0.08 | | | 0.0 | 1.2 | 40.5 | 58.3 | | |

Exhibit B-12

# Grain Size Distribution

## ASTM D422 / ASTM C136



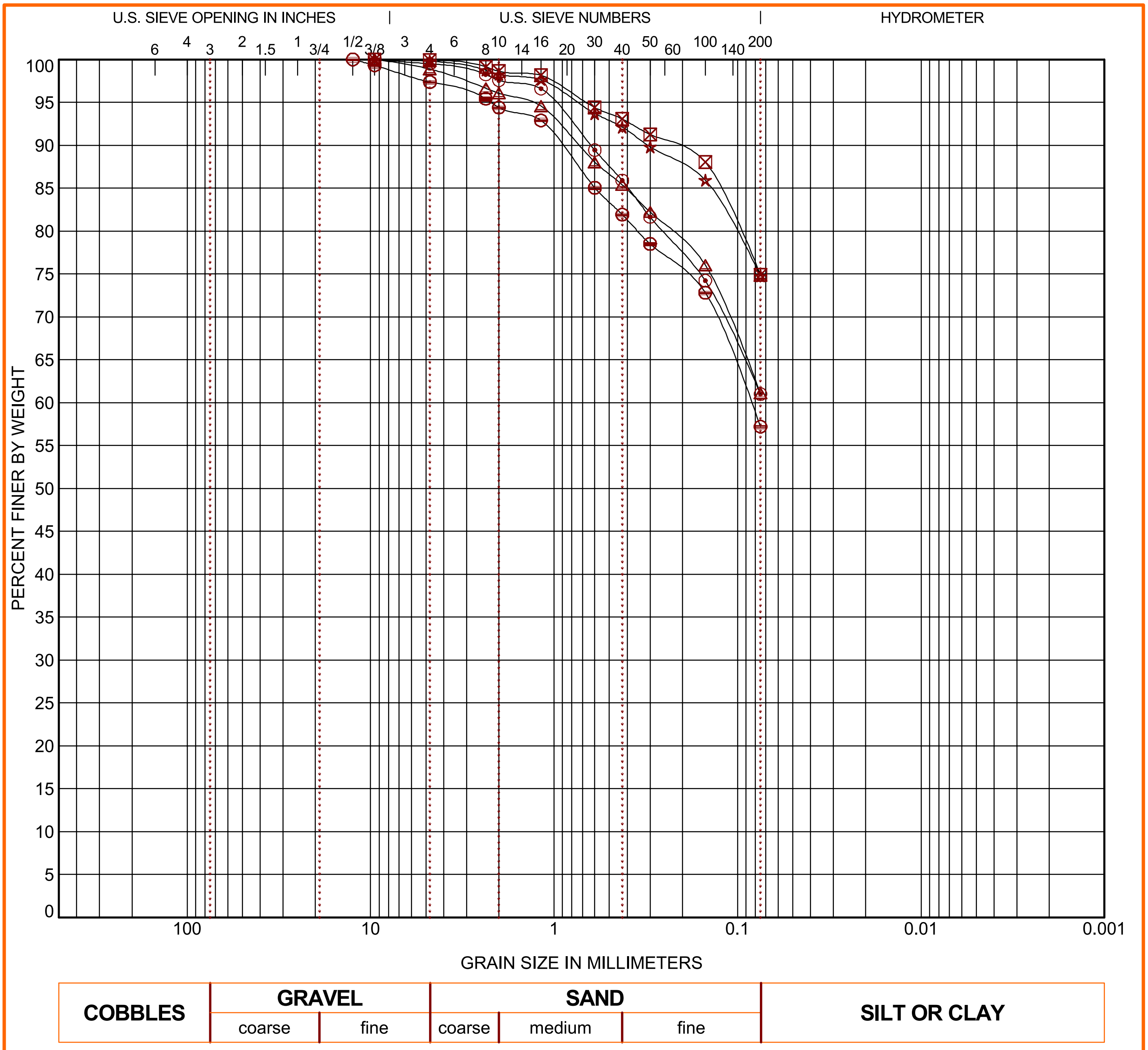
| Boring ID | Depth (Ft) | Description | USCS | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|
| ⊖ T-03 | 10 - 11.5 | SILTY SAND | SM | NP | NP | NP | | |
| ☒ T-04 | 15 - 16.5 | SANDY SILT | ML | NP | NP | NP | | |

| Boring ID | Depth (Ft) | $D_{100}$ | $D_{60}$ | $D_{30}$ | $D_{10}$ | %Cobbles | %Gravel | %Sand | %Fines | %Silt | %Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ⊖ T-03 | 10 - 11.5 | 12.5 | 0.506 | 0.11 | | 0.0 | 3.3 | 73.4 | 23.3 | | |
| ☒ T-04 | 15 - 16.5 | 9.5 | | | | 0.0 | 0.6 | 38.2 | 61.2 | | |

Exhibit B-13

# GRAIN SIZE DISTRIBUTION

## ASTM D422 / ASTM C136



| Boring ID | Depth (Ft) | USCS Classification | WC (%) | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|
| ⊖ B-01 | 0.5 - 2 | SANDY SILT (ML) | 5.2 | NP | NP | NP | | |
| ⊠ B-02 | 5 - 6 | SILT with SAND (ML) | 8.7 | NP | NP | NP | | |
| △ B-03 | 10 - 11.5 | SANDY SILT (ML) | 7.0 | NP | NP | NP | | |
| ☆ B-04 | 2.5 - 3.5 | SILT with SAND (ML) | 6.9 | NP | NP | NP | | |
| ⊙ B-05 | 5 - 6.5 | SANDY SILT (ML) | 6.5 | NP | NP | NP | | |

| Boring ID | Depth (Ft) | $D_{100}$ | $D_{60}$ | $D_{30}$ | $D_{10}$ | %Cobbles | %Gravel | %Sand | %Silt | %Fines | %Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ⊖ B-01 | 0.5 - 2 | 12.5 | 0.085 | | | 0.0 | 2.6 | 40.2 | | 57.2 | |
| ⊠ B-02 | 5 - 6 | 9.5 | | | | 0.0 | 0.1 | 25.0 | | 74.9 | |
| △ B-03 | 10 - 11.5 | 9.5 | | | | 0.0 | 1.1 | 37.8 | | 61.1 | |
| ☆ B-04 | 2.5 - 3.5 | 9.5 | | | | 0.0 | 0.2 | 25.0 | | 74.8 | |
| ⊙ B-05 | 5 - 6.5 | 9.5 | | | | 0.0 | 0.5 | 38.5 | | 61.0 | |

PROJECT: Rancho Viejo Solar Facility

SITE: NM 599 and NM 14
Santa Fe, NM

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

PROJECT NUMBER: 66225093

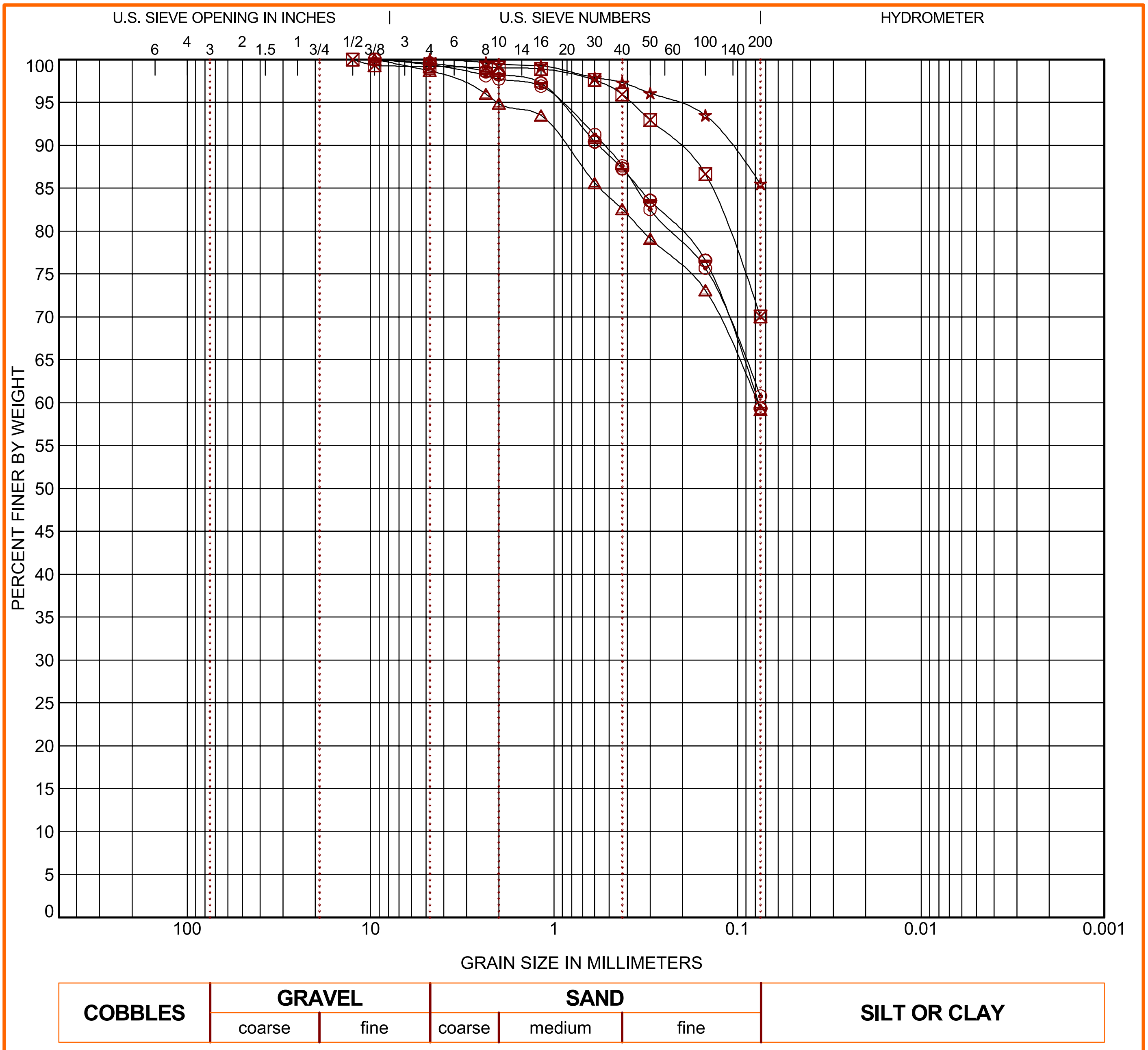
CLIENT: AES Clean Energy Development LLC
Boulder, CO

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT.   GRAIN SIZE: USCS-2  66225093 RANCHO VIEJO SOLA.GPJ  TERRACON_DATATEMPLATE.GDT  9/26/22

Exhibit B-14

# GRAIN SIZE DISTRIBUTION

## ASTM D422 / ASTM C136



| Boring ID | Depth (Ft) | USCS Classification | WC (%) | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|
| ⊖ B-06 | 10 - 11.5 | SANDY SILT (ML) | 6.5 | NP | NP | NP | | |
| ☒ B-07 | 2.5 - 3.5 | SILT with SAND (ML) | 9.3 | NP | NP | NP | | |
| △ B-08 | 5 - 6 | SANDY SILT (ML) | 7.1 | NP | NP | NP | | |
| ★ B-10 | 10 - 11.5 | SILT (ML) | 16.5 | NP | NP | NP | | |
| ⊙ B-11 | 2.5 - 4 | SANDY SILT (ML) | 5.2 | NP | NP | NP | | |

| Boring ID | Depth (Ft) | $D_{100}$ | $D_{60}$ | $D_{30}$ | $D_{10}$ | %Cobbles | %Gravel | %Sand | %Silt | %Fines | %Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ⊖ B-06 | 10 - 11.5 | 9.5 | 0.077 | | | 0.0 | 0.5 | 40.2 | | 59.3 | |
| ☒ B-07 | 2.5 - 3.5 | 12.5 | | | | 0.0 | 0.8 | 29.2 | | 70.0 | |
| △ B-08 | 5 - 6 | 9.5 | 0.078 | | | 0.0 | 1.3 | 39.5 | | 59.2 | |
| ★ B-10 | 10 - 11.5 | 4.75 | | | | 0.0 | 0.0 | 14.5 | | 85.5 | |
| ⊙ B-11 | 2.5 - 4 | 9.5 | | | | 0.0 | 0.6 | 38.6 | | 60.8 | |

PROJECT: Rancho Viejo Solar Facility

PROJECT NUMBER: 66225093

SITE: NM 599 and NM 14
Santa Fe, NM

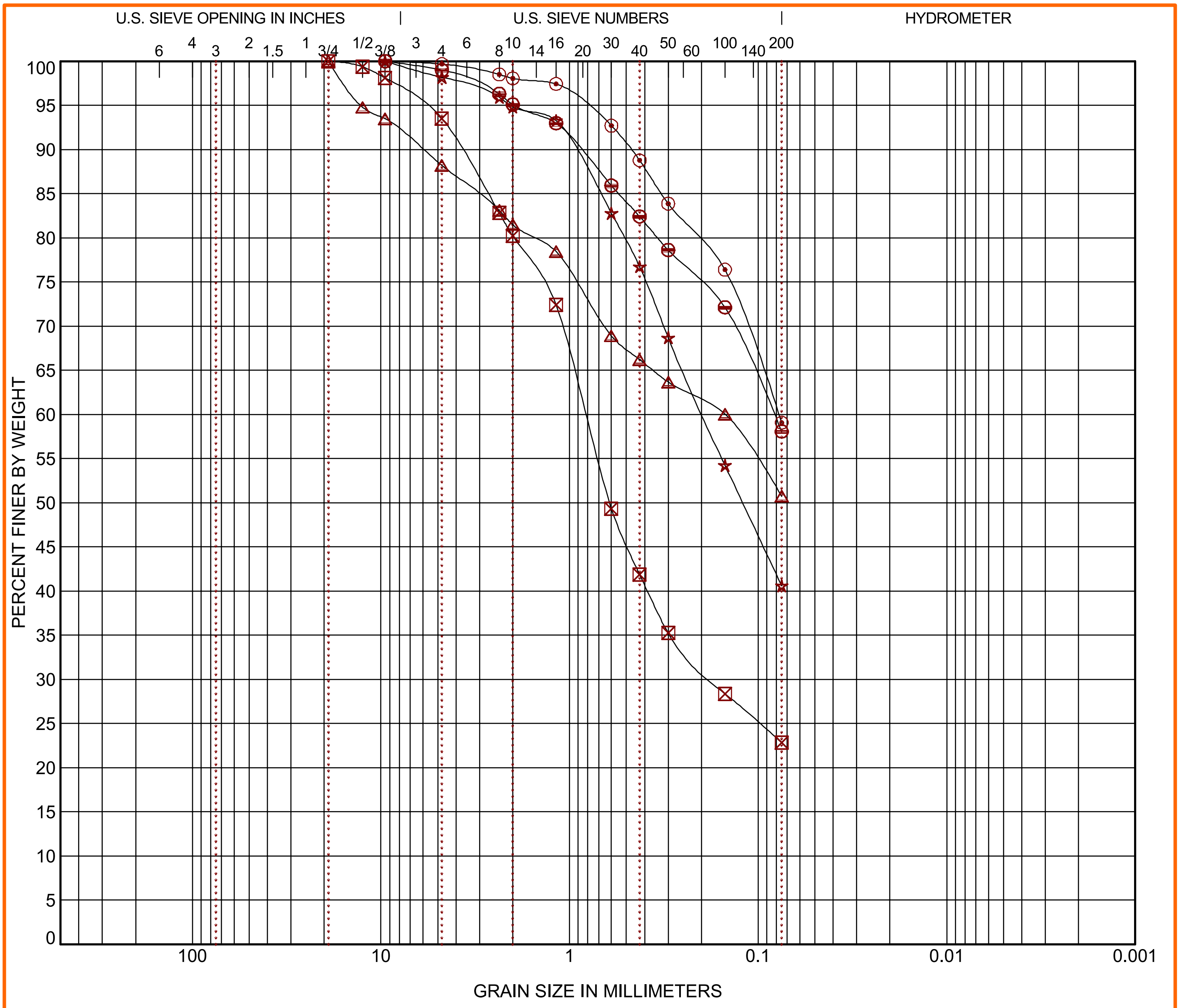
Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-15

# GRAIN SIZE DISTRIBUTION

## ASTM D422 / ASTM C136



| COBBLES | GRAVEL | | SAND | | | SILT OR CLAY |
|---|---|---|---|---|---|---|
| | coarse | fine | coarse | medium | fine | |

| | Boring ID | Depth (Ft) | USCS Classification | WC (%) | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|---|
| ⊖ | B-12 | 5 - 6.5 | SANDY SILT (ML) | 8.1 | NP | NP | NP | | |
| ⊠ | B-13 | 10 - 11.5 | SILTY SAND (SM) | 3.1 | NP | NP | NP | | |
| △ | B-14 | 2.5 - 3.5 | SANDY SILT (ML) | 4.8 | NP | NP | NP | | |
| ☆ | B-15 | 5 - 6 | SILTY SAND (SM) | 4.0 | NP | NP | NP | | |
| ⊙ | B-Sub | 2.5 - 4 | SANDY SILT (ML) | 9.8 | NP | NP | NP | | |

| | Boring ID | Depth (Ft) | $D_{100}$ | $D_{60}$ | $D_{30}$ | $D_{10}$ | %Cobbles | %Gravel | %Sand | %Silt | %Fines | %Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ⊖ | B-12 | 5 - 6.5 | 9.5 | 0.083 | | | 0.0 | 1.0 | 40.9 | | 58.1 | |
| ⊠ | B-13 | 10 - 11.5 | 19 | 0.82 | 0.177 | | 0.0 | 6.5 | 70.7 | | 22.8 | |
| △ | B-14 | 2.5 - 3.5 | 19 | 0.15 | | | 0.0 | 11.8 | 37.5 | | 50.7 | |
| ☆ | B-15 | 5 - 6 | 9.5 | 0.198 | | | 0.0 | 1.8 | 57.6 | | 40.6 | |
| ⊙ | B-Sub | 2.5 - 4 | 9.5 | 0.078 | | | 0.0 | 0.3 | 40.6 | | 59.1 | |

PROJECT: Rancho Viejo Solar Facility

SITE: NM 599 and NM 14
Santa Fe, NM

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

PROJECT NUMBER: 66225093

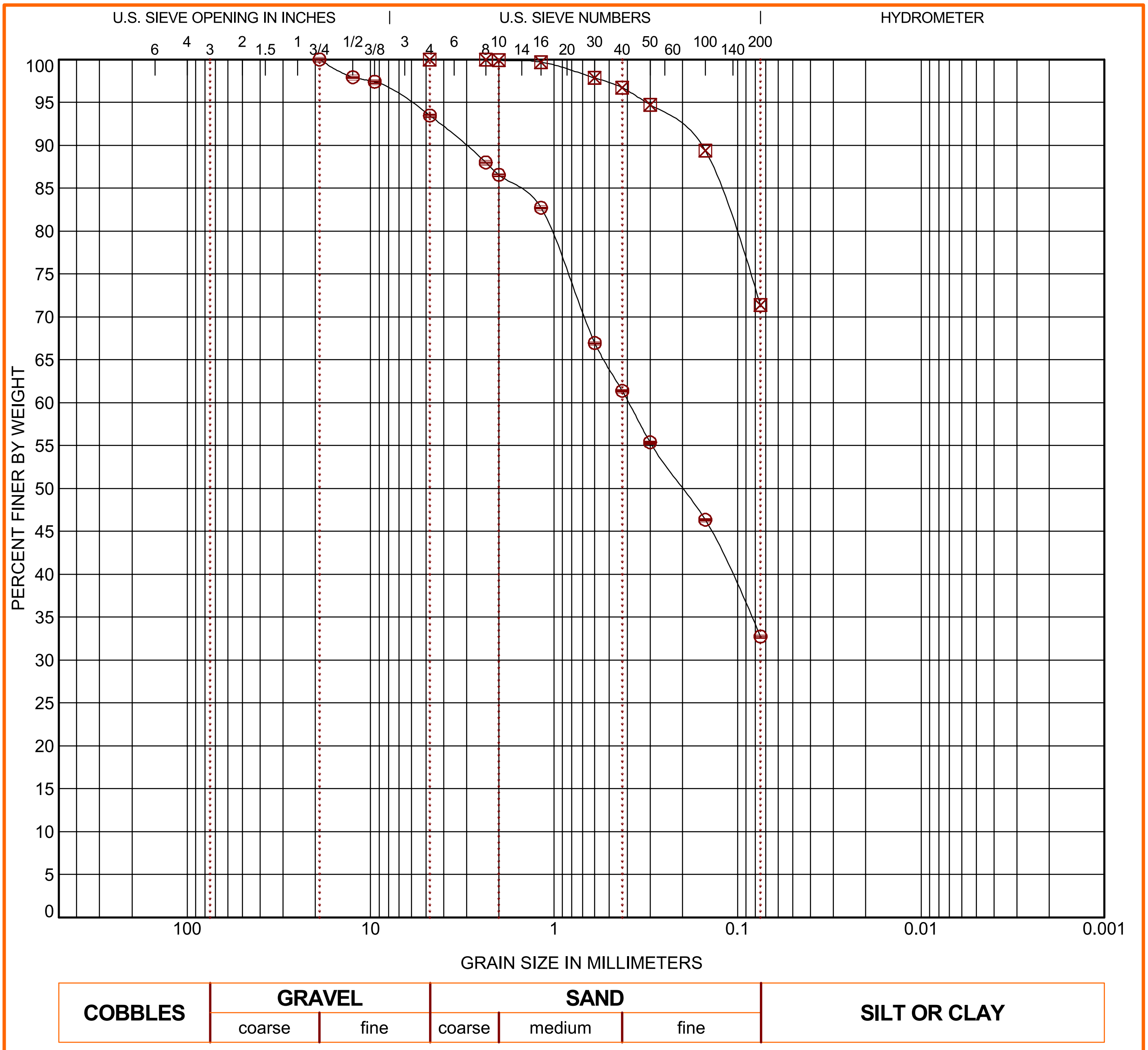
CLIENT: AES Clean Energy Development LLC
Boulder, CO

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 66225093 RANCHO VIEJO SOLA.GPJ TERRACON_DATATEMPLATE.GDT 9/26/22

Exhibit B-16

# GRAIN SIZE DISTRIBUTION

## ASTM D422 / ASTM C136



| Boring ID | | Depth (Ft) | USCS Classification | WC (%) | LL | PL | PI | Cc | Cu |
|---|---|---|---|---|---|---|---|---|---|
| ⊖ | B-Sub | 10 - 11.5 | SILTY SAND (SM) | 4.5 | NP | NP | NP | | |
| ☒ | B-Sub | 25 - 26.5 | SILT with SAND (ML) | 8.2 | NP | NP | NP | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

| Boring ID | | Depth (Ft) | $D_{100}$ | $D_{60}$ | $D_{30}$ | $D_{10}$ | %Cobbles | %Gravel | %Sand | %Silt | %Fines | %Clay |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ⊖ | B-Sub | 10 - 11.5 | 19 | 0.392 | | | 0.0 | 6.5 | 60.7 | | 32.7 | |
| ☒ | B-Sub | 25 - 26.5 | 4.75 | | | | 0.0 | 0.0 | 28.6 | | 71.4 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

PROJECT: Rancho Viejo Solar Facility

SITE: NM 599 and NM 14
Santa Fe, NM

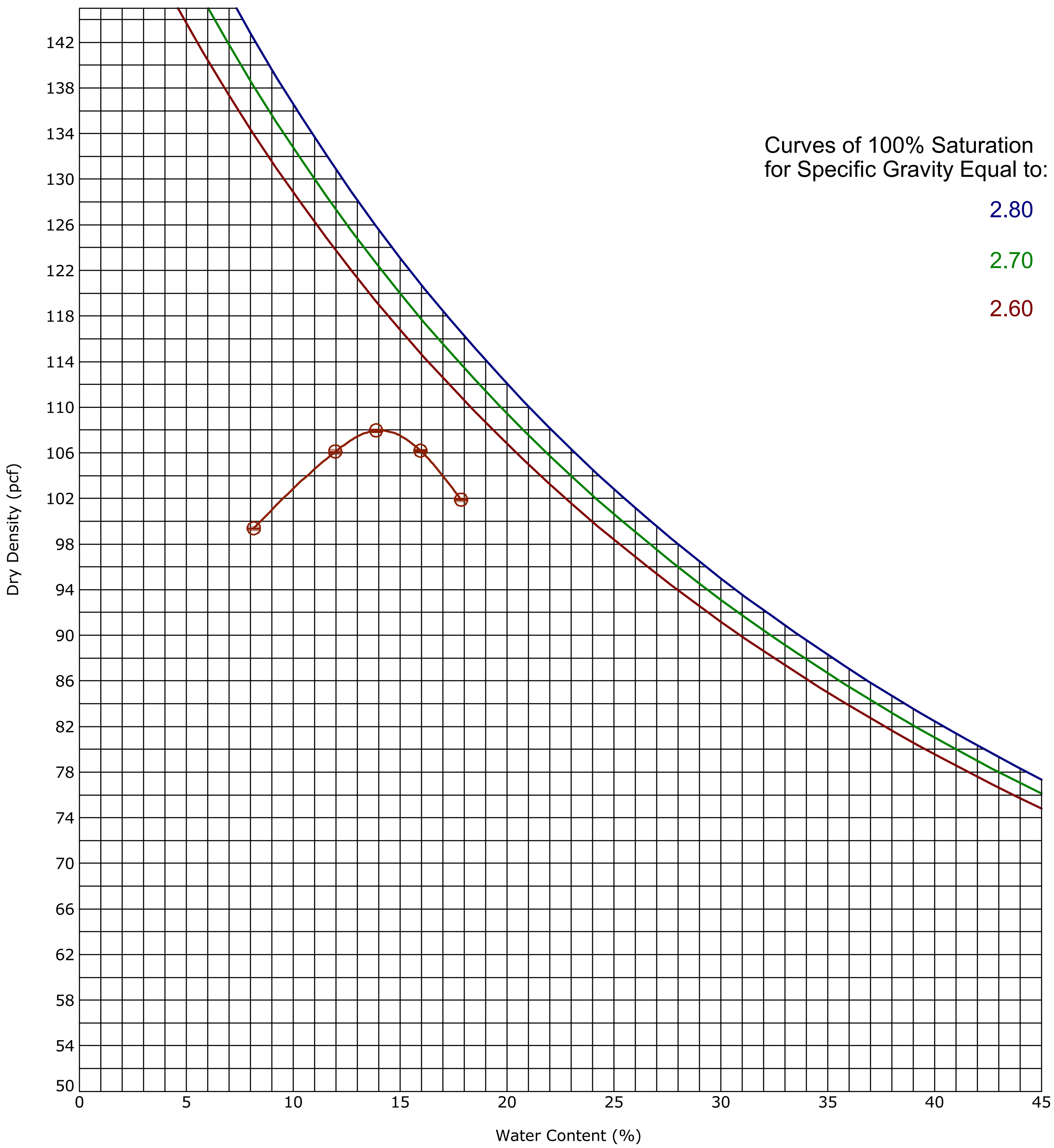
Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-17

# Moisture-Density Relationship

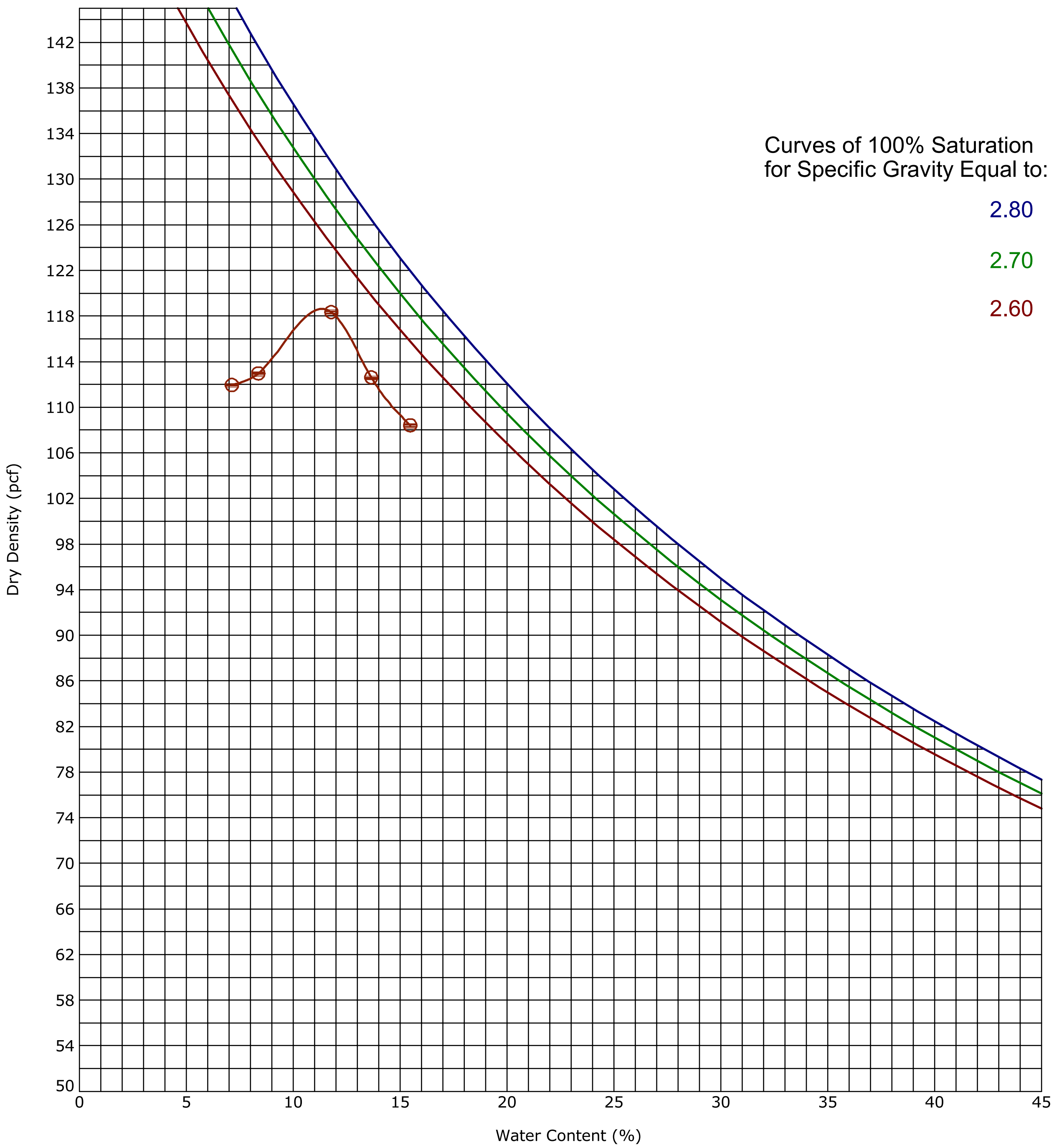


| Boring ID | Depth (Ft) | Description of Materials |
|---|---|---|
| A-01 | 1.0 - 5.0 | SANDY LEAN CLAY (CL) |

| Fines (%) | Fraction > mm size | LL | PL | PI | Test Method | Maximum Dry Density (pcf) | Optimum Water Content (%) |
|---|---|---|---|---|---|---|---|
| 61.9 | 0.0 | 39 | 19 | 20 | ASTM D4318-Method B | 108.0 | 14.0 |

6805 Academy Pkwy West NE
Albuquerque, NM

# Moisture-Density Relationship

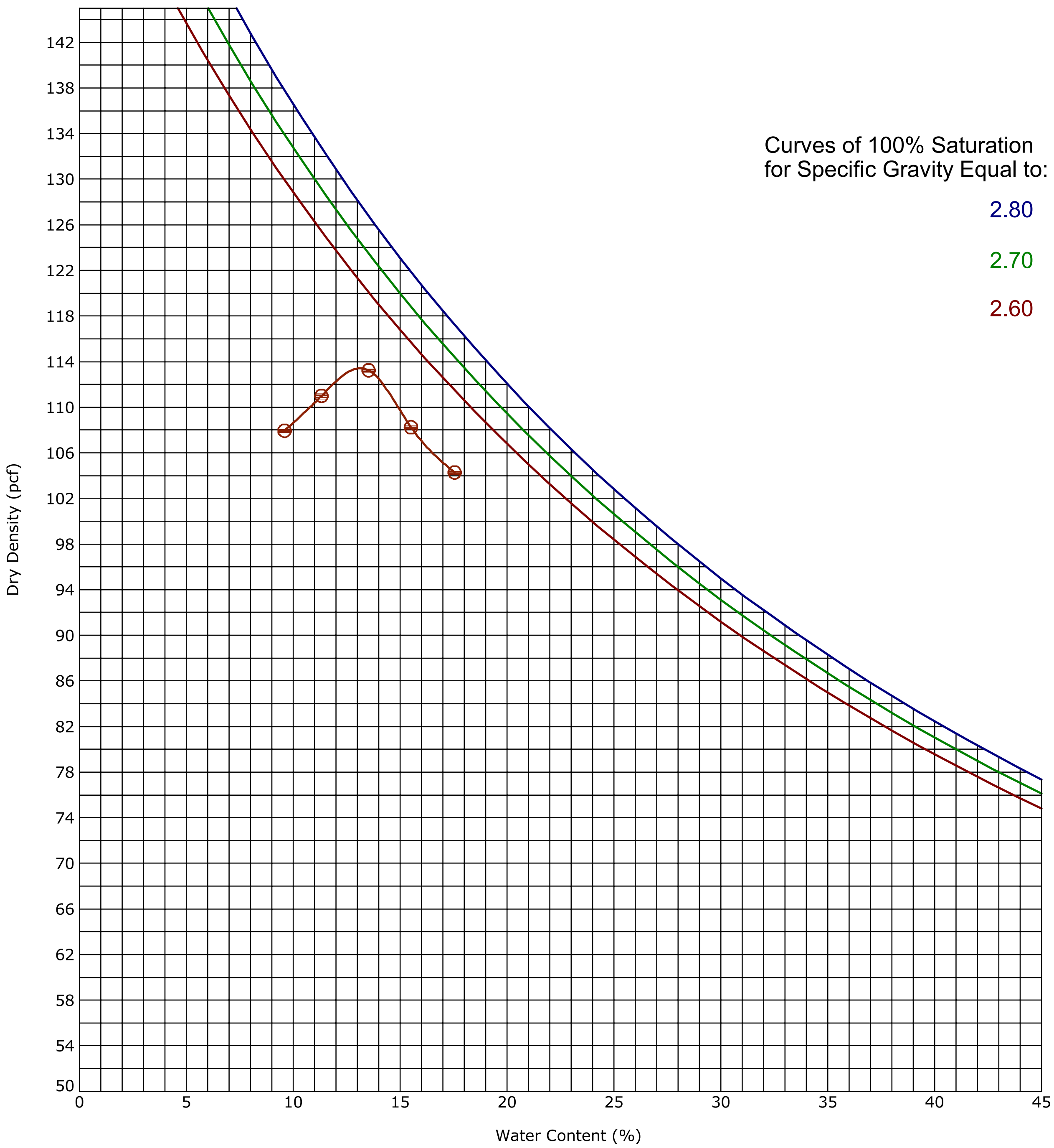


| Boring ID | Depth (Ft) | Description of Materials |
|---|---|---|
| A-06 | 1.0 - 5.0 | SILTY SAND (SM) |

| Fines (%) | Fraction > mm size | LL | PL | PI | Test Method | Maximum Dry Density (pcf) | Optimum Water Content (%) |
|---|---|---|---|---|---|---|---|
| | 0.0 | | | | ASTM D698-Method B | 118.6 | 11.4 |

Exhibit B-19

# Moisture-Density Relationship

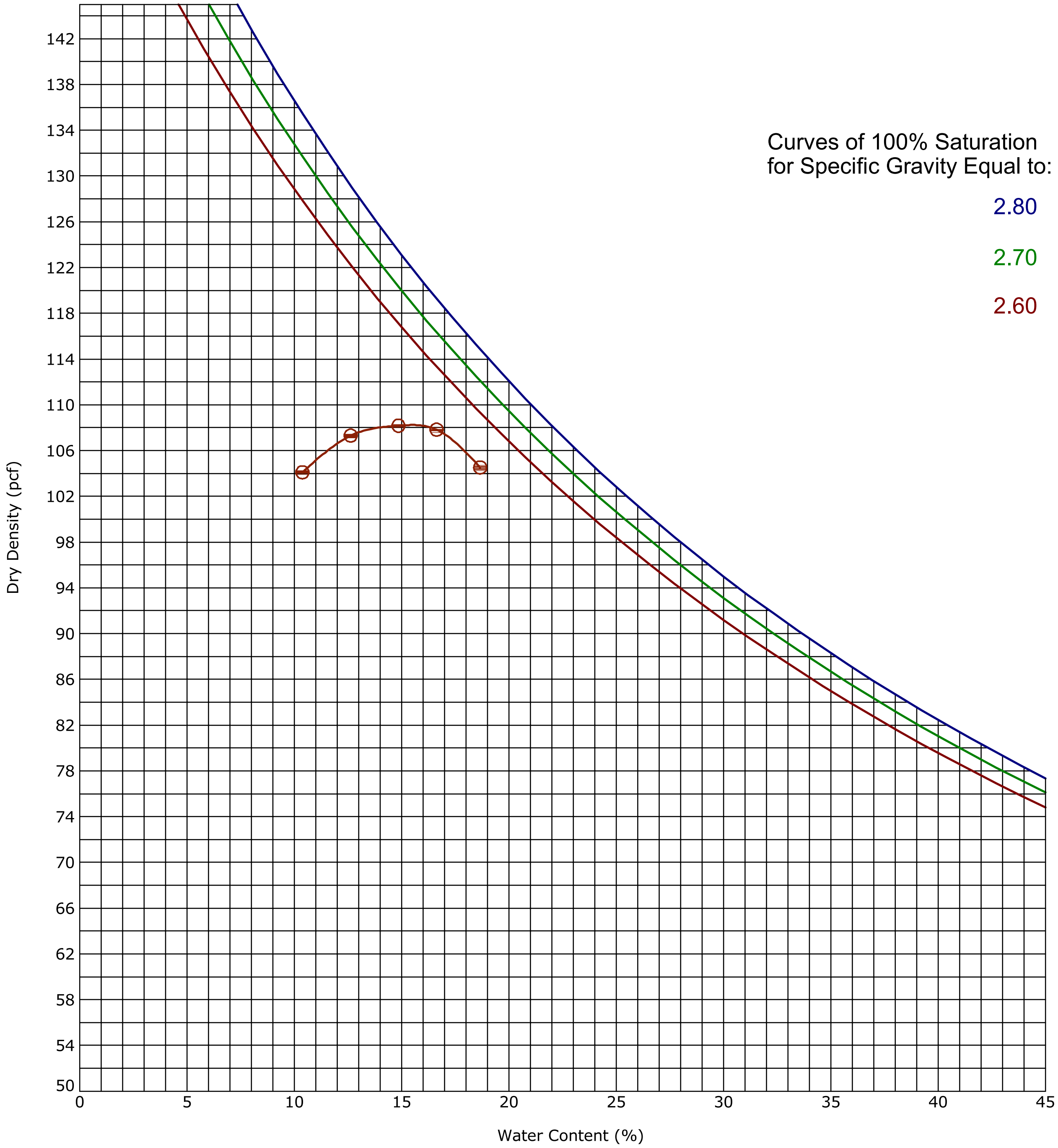


| Boring ID | Depth (Ft) | Description of Materials |
|---|---|---|
| A-08 | 1.0 - 5.0 | LEAN CLAY (CL) |

| Fines (%) | Fraction > mm size | LL | PL | PI | Test Method | Maximum Dry Density (pcf) | Optimum Water Content (%) |
|---|---|---|---|---|---|---|---|
|  | 0.0 |  |  |  | ASTM D698-Method B | 113.4 | 13.2 |

6805 Academy Pkwy West NE
Albuquerque, NM

# Moisture-Density Relationship

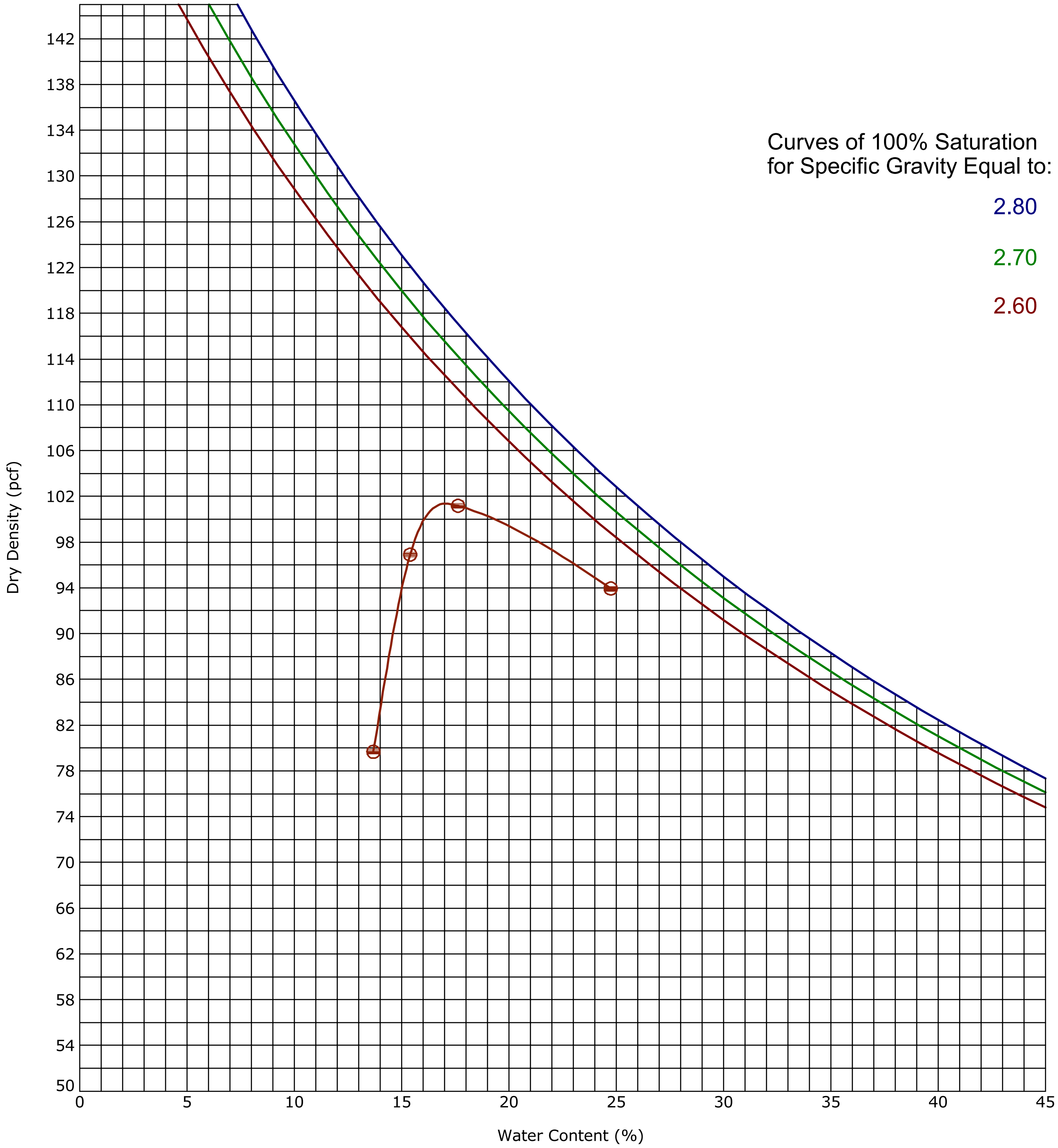


| Boring ID | Depth (Ft) | Description of Materials |
|---|---|---|
| A-11 | 1.0 - 5.0 | LEAN CLAY (CL) |

| Fines (%) | Fraction > mm size | LL | PL | PI | Test Method | Maximum Dry Density (pcf) | Optimum Water Content (%) |
|---|---|---|---|---|---|---|---|
|  | 0.0 |  |  |  | ASTM D698-Method B | 108.2 | 15.5 |

# Moisture-Density Relationship

## ASTM D698-Method B



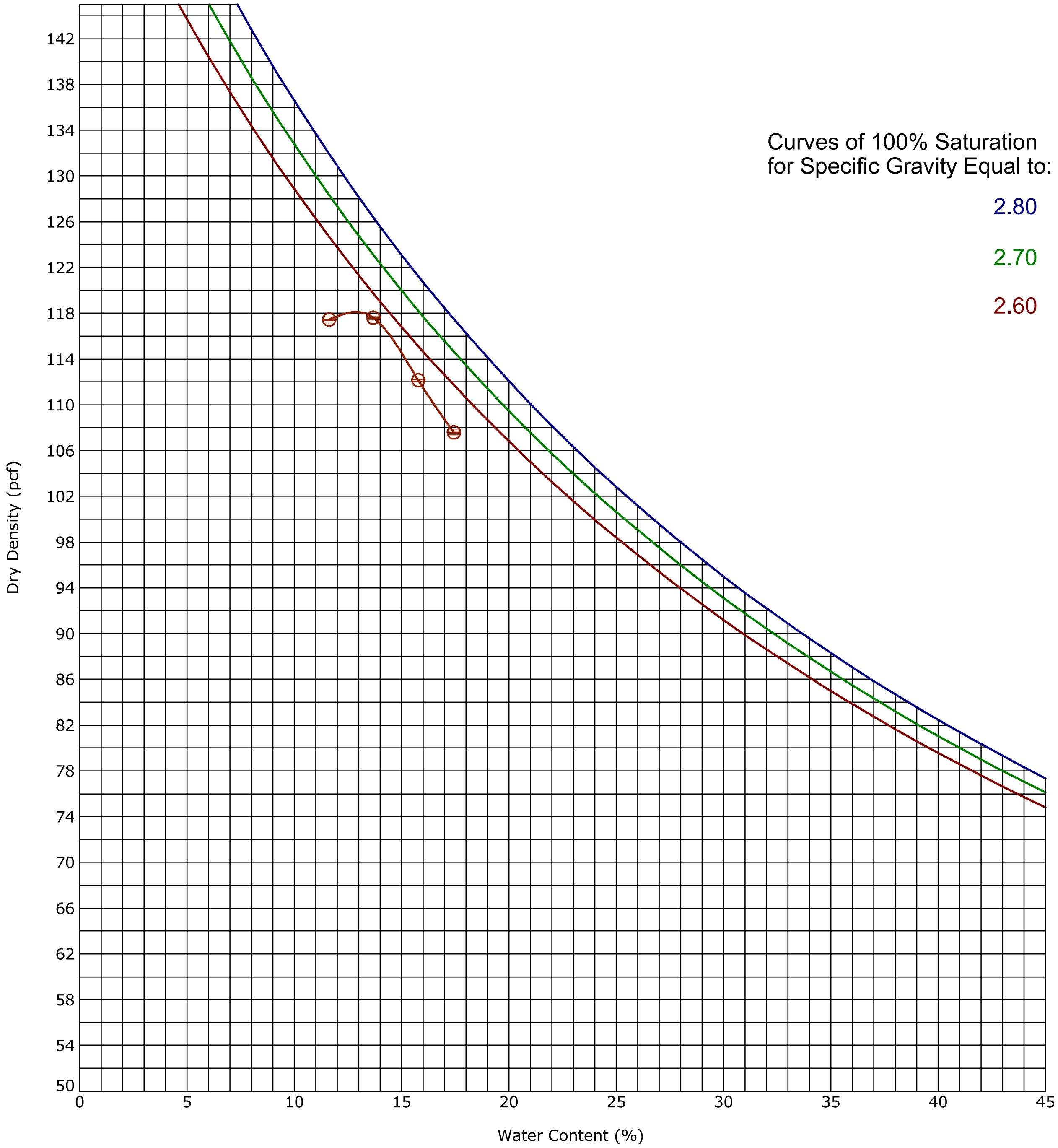
| Boring ID | Depth (Ft) | Description of Materials |
|---|---|---|
| A-14 | 1.0 - 5.0 | SILTY SAND |

| Fines (%) | Fraction > mm size | LL | PL | PI | Test Method | Maximum Dry Density (pcf) | Optimum Water Content (%) |
|---|---|---|---|---|---|---|---|
| | 0.0 | | | | ASTM D698-Method B | 101.4 | 17.0 |

6805 Academy Pkwy West NE
Albuquerque, NM

# Moisture-Density Relationship

## ASTM D698-Method B

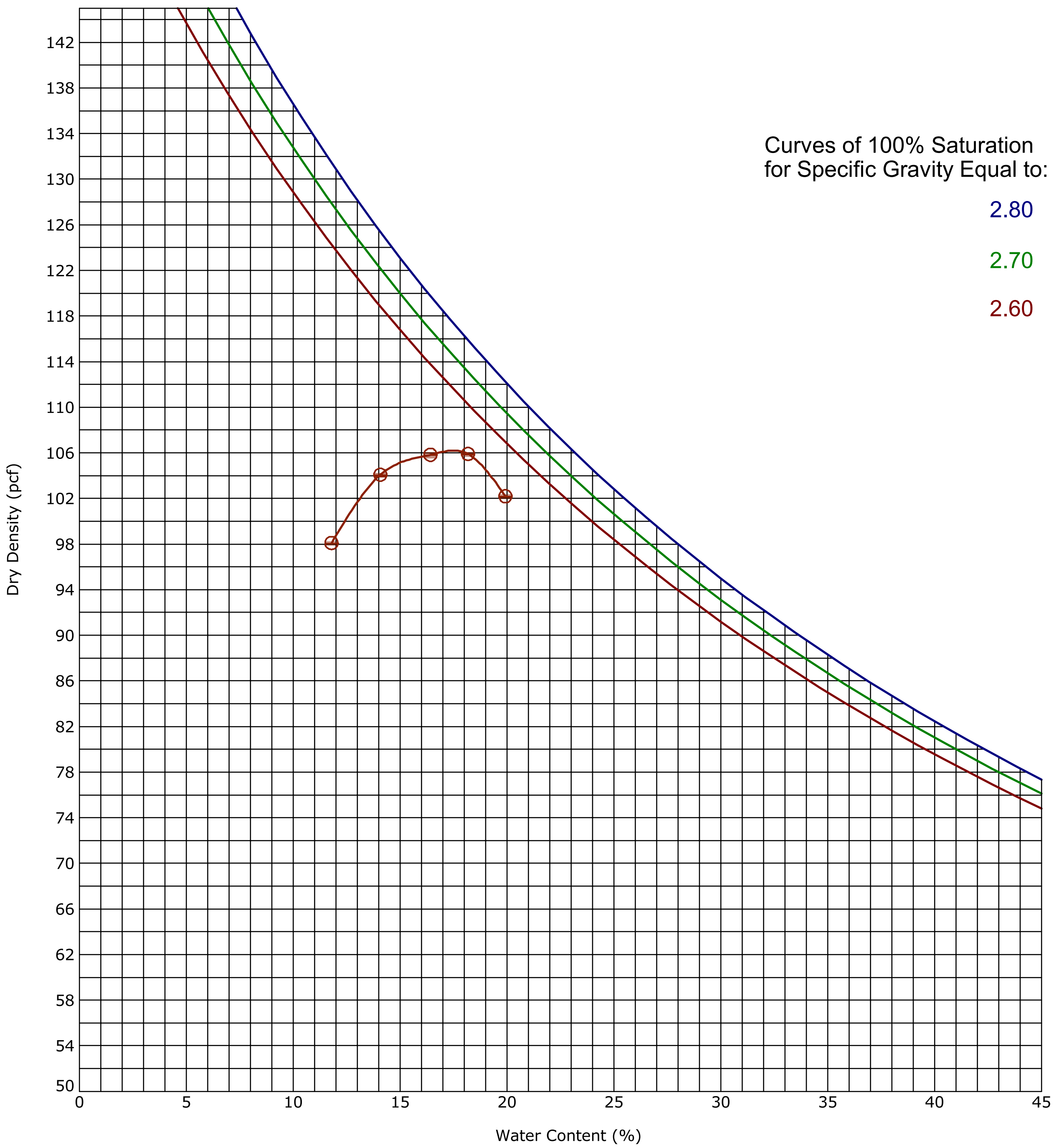


| Boring ID | Depth (Ft) | Description of Materials |
|---|---|---|
| BW-01 | 1.0 - 5.0 | LEAN CLAY W/SAND |

| Fines (%) | Fraction > mm size | LL | PL | PI | Test Method | Maximum Dry Density (pcf) | Optimum Water Content (%) |
|---|---|---|---|---|---|---|---|
| | 0.0 | | | | ASTM D698-Method B | 118.1 | 12.9 |

Exhibit B-23

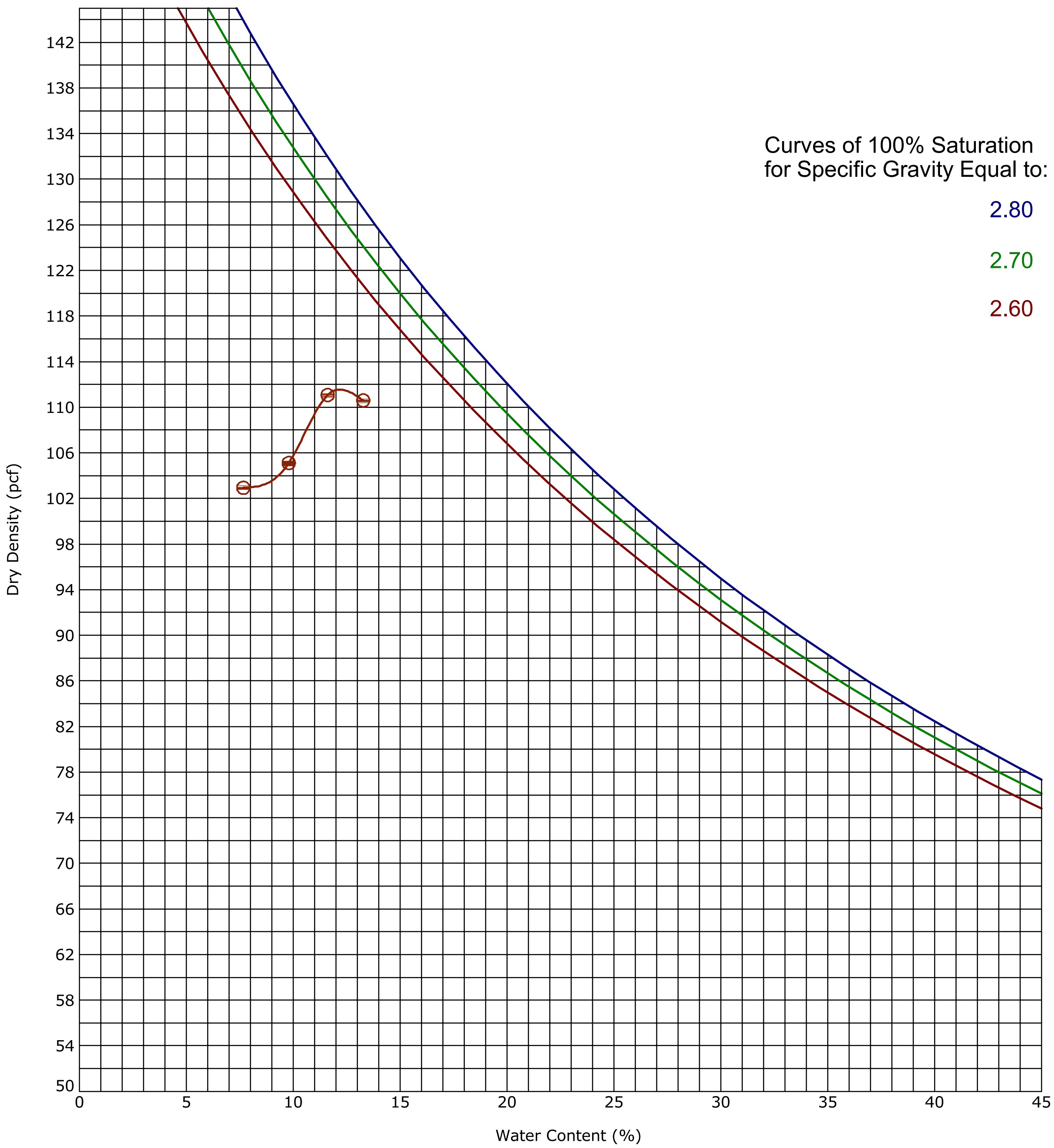
# Moisture-Density Relationship



| Boring ID | Depth (Ft) | Description of Materials |
|---|---|---|
| T-01 | 1.0 - 5.0 | CLAYEY SAND (SC) |

| Fines (%) | Fraction > mm size | LL | PL | PI | Test Method | Maximum Dry Density (pcf) | Optimum Water Content (%) |
|---|---|---|---|---|---|---|---|
|  | 0.0 |  |  |  | ASTM D698-Method B | 106.2 | 17.5 |

# Moisture-Density Relationship

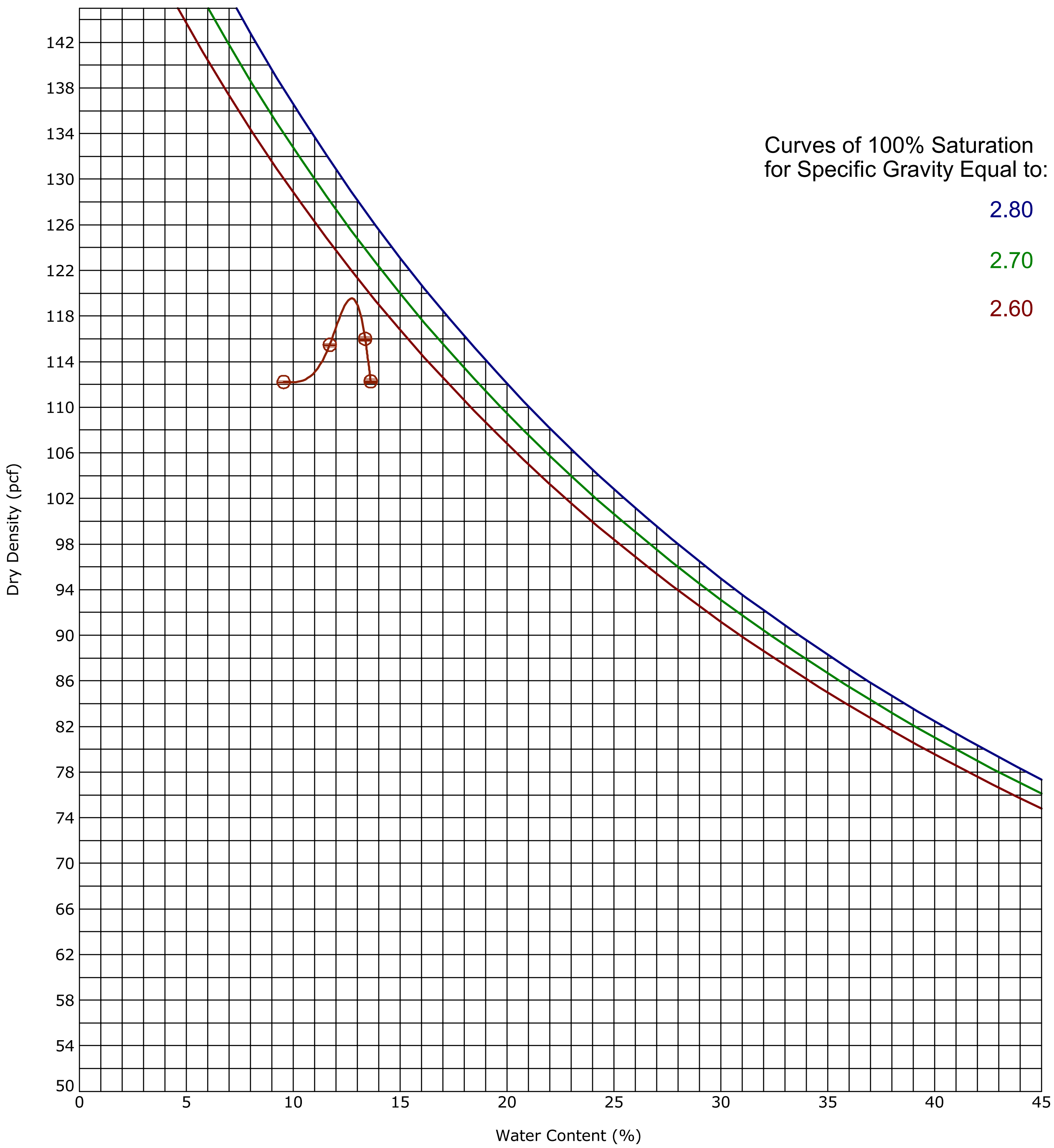


| Boring ID | Depth (Ft) | Description of Materials |
|---|---|---|
| T-02 | 1.0 - 5.0 | CLAYEY SAND (SC) |

| Fines (%) | Fraction > mm size | LL | PL | PI | Test Method | Maximum Dry Density (pcf) | Optimum Water Content (%) |
|---|---|---|---|---|---|---|---|
|  | 0.0 |  |  |  | ASTM D698-Method B | 111.5 | 12.2 |

Exhibit B-25

# Moisture-Density Relationship



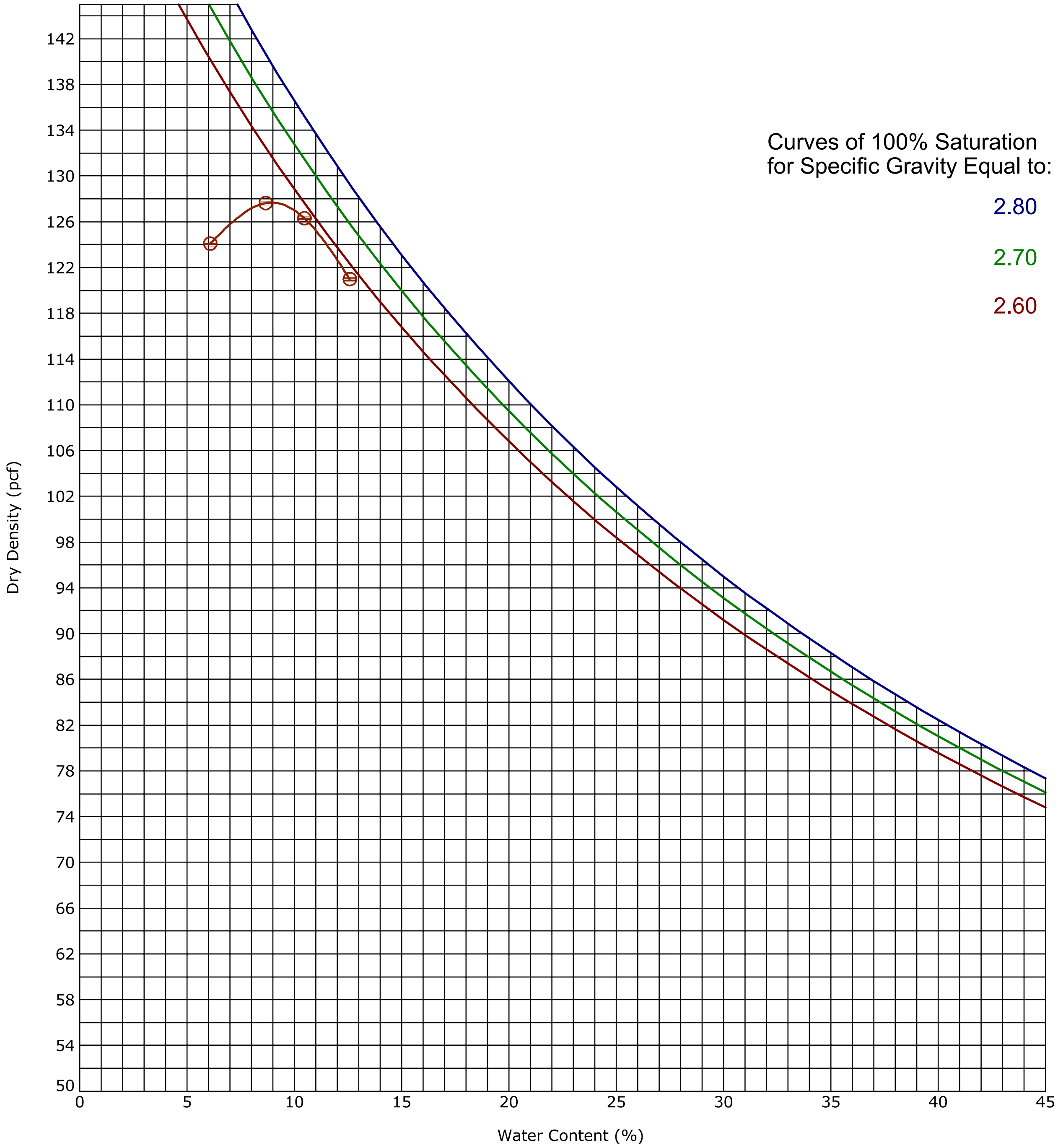
| Boring ID | Depth (Ft) | Description of Materials |
|---|---|---|
| T-03 | 1.0 - 5.0 | LEAN CLAY (CL) |

| Fines (%) | Fraction > mm size | LL | PL | PI | Test Method | Maximum Dry Density (pcf) | Optimum Water Content (%) |
|---|---|---|---|---|---|---|---|
|  | 0.0 |  |  |  | ASTM D698-Method B | 119.5 | 12.7 |

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

# Moisture-Density Relationship

## ASTM D698-Method B



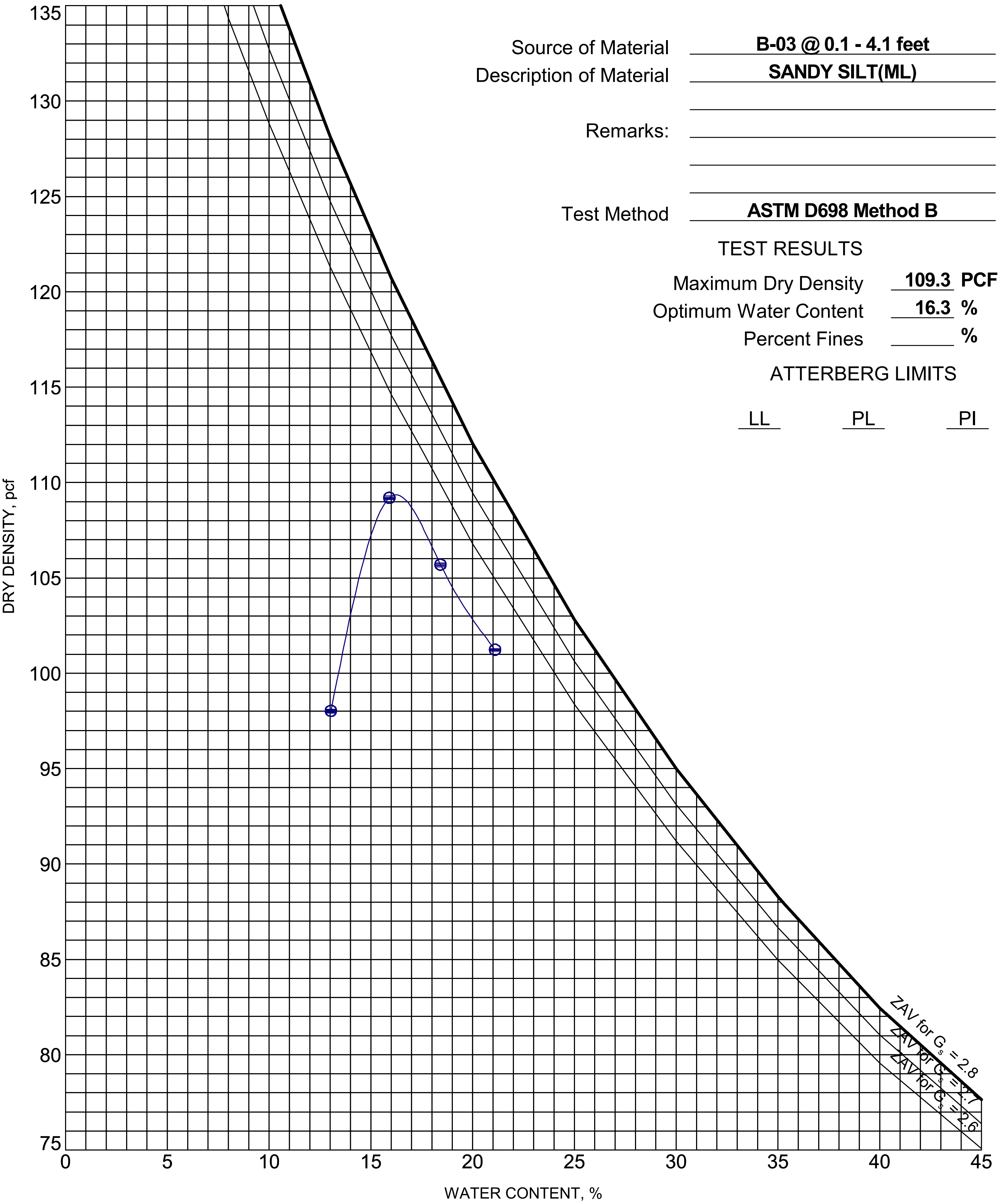
| Boring ID | Depth (Ft) | Description of Materials |
|---|---|---|
| T-04 | 1.0 - 5.0 | LEAN CLAY |

| Fines (%) | Fraction > mm size | LL | PL | PI | Test Method | Maximum Dry Density (pcf) | Optimum Water Content (%) |
|---|---|---|---|---|---|---|---|
|  | 0.0 |  |  |  | ASTM D698-Method B | 127.7 | 8.9 |

Exhibit B-27

# MOISTURE-DENSITY RELATIONSHIP

**ASTM D698/D1557**



Source of Material **B-03 @ 0.1 - 4.1 feet**

Description of Material **SANDY SILT(ML)**

Remarks:

Test Method **ASTM D698 Method B**

TEST RESULTS

Maximum Dry Density **109.3 PCF**

Optimum Water Content **16.3 %**

Percent Fines **%**

ATTERBERG LIMITS

| LL | PL | PI |
|---|---|---|

PROJECT: Rancho Viejo Solar Facility

SITE: NM 599 and NM 14
Santa Fe, NM

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

PROJECT NUMBER: 66225093

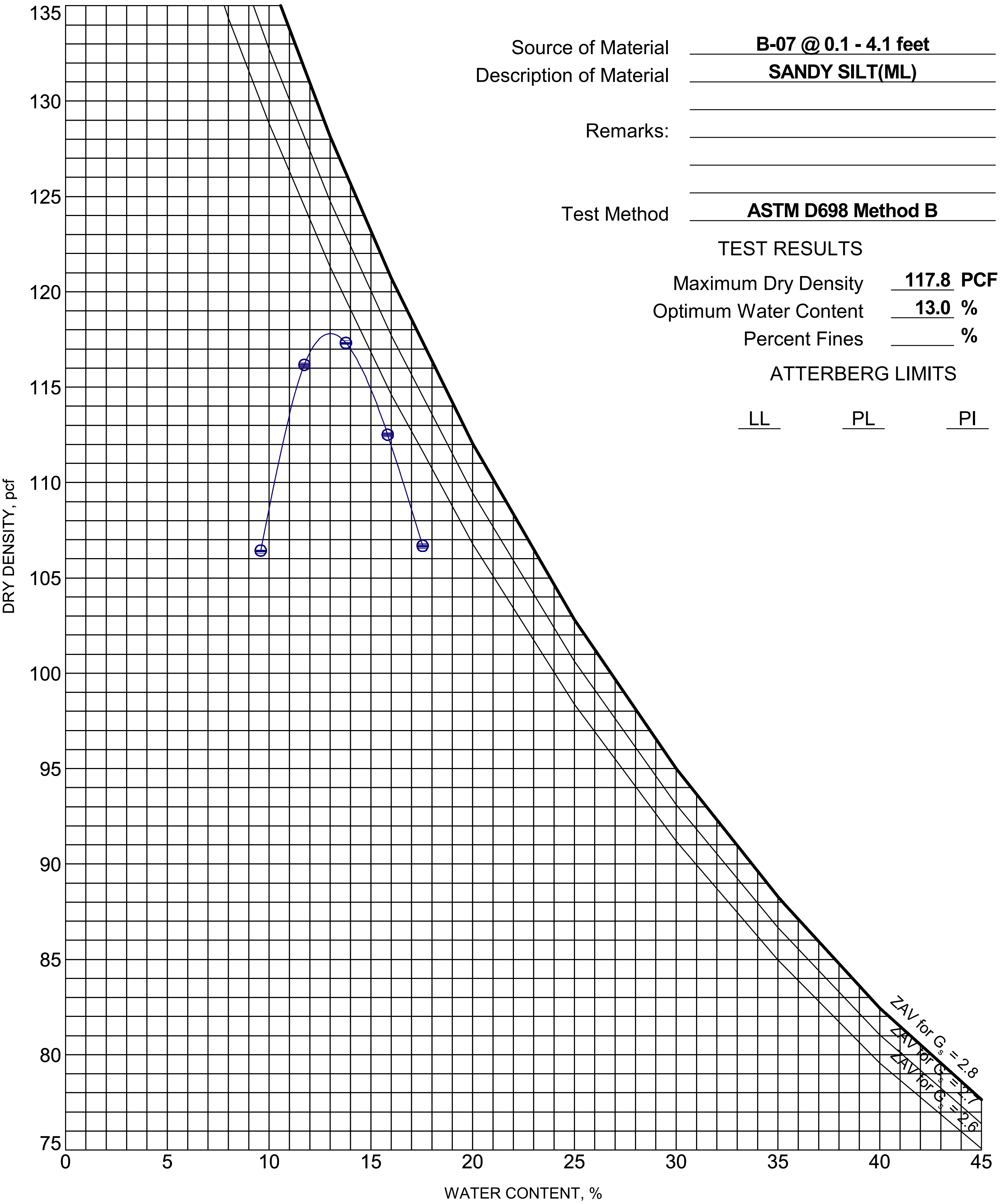
CLIENT: AES Clean Energy Development LLC
Boulder, CO

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 66225093 RANCHO VIEJO SOLA.GPJ TERRACON_DATATEMPLATE.GDT 9/26/22

Exhibit B-28

# MOISTURE-DENSITY RELATIONSHIP

**ASTM D698/D1557**



Source of Material **B-07 @ 0.1 - 4.1 feet**

Description of Material **SANDY SILT(ML)**

Remarks:

Test Method **ASTM D698 Method B**

TEST RESULTS

| | | |
|---|---|---|
| Maximum Dry Density | **117.8** | **PCF** |
| Optimum Water Content | **13.0** | **%** |
| Percent Fines | | **%** |

ATTERBERG LIMITS

| LL | PL | PI |
|---|---|---|
| | | |

PROJECT: Rancho Viejo Solar Facility

PROJECT NUMBER: 66225093

SITE: NM 599 and NM 14
Santa Fe, NM

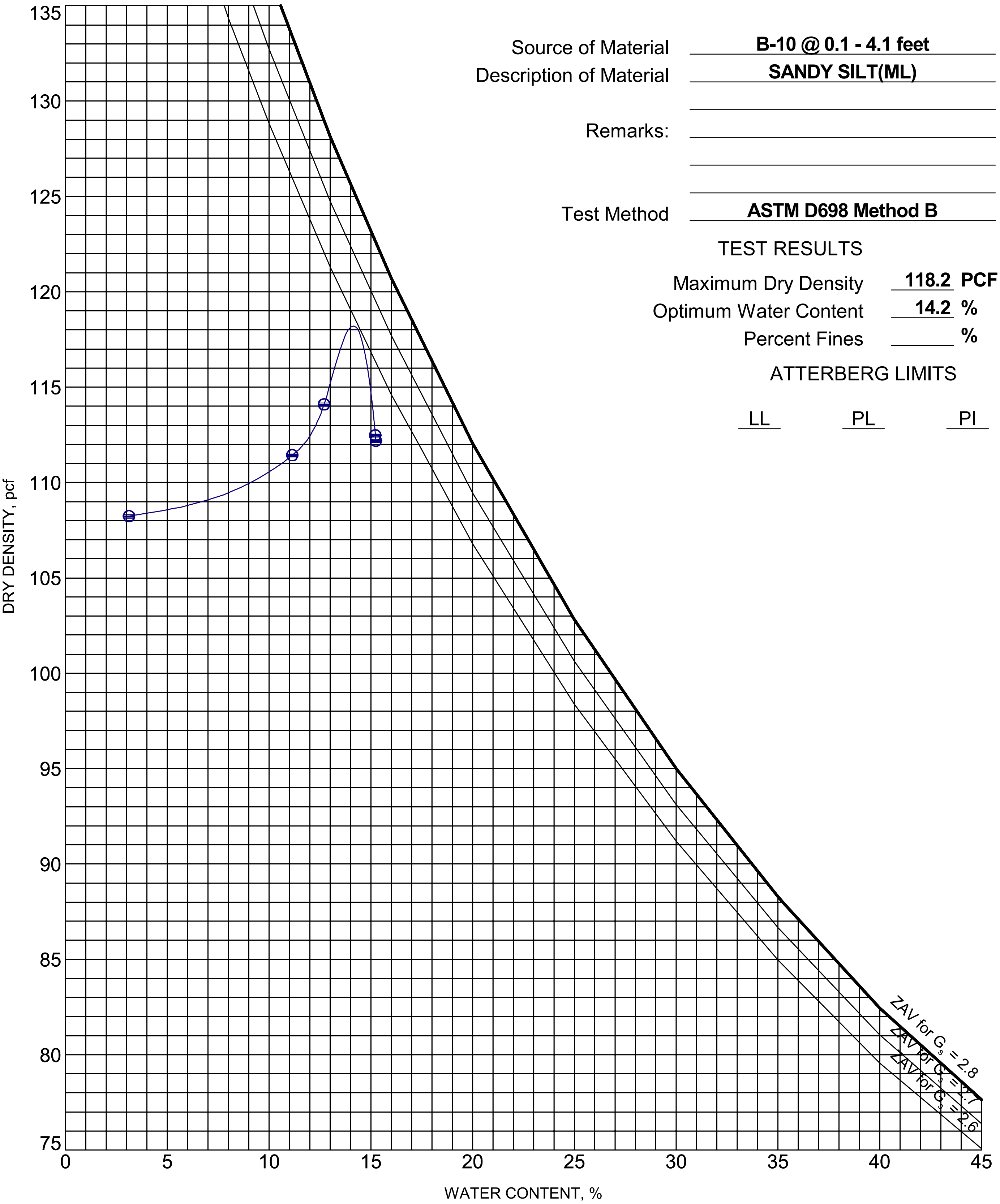
Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-29

# MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material **B-10 @ 0.1 - 4.1 feet**

Description of Material **SANDY SILT(ML)**

Remarks: ______

Test Method **ASTM D698 Method B**

TEST RESULTS

Maximum Dry Density **118.2** **PCF**

Optimum Water Content **14.2** **%**

Percent Fines ______ **%**

ATTERBERG LIMITS

| LL | PL | PI |
|---|---|---|
| | | |

PROJECT: Rancho Viejo Solar Facility

PROJECT NUMBER: 66225093

SITE: NM 599 and NM 14
Santa Fe, NM

6805 Academy Pkwy West NE
Albuquerque, NM

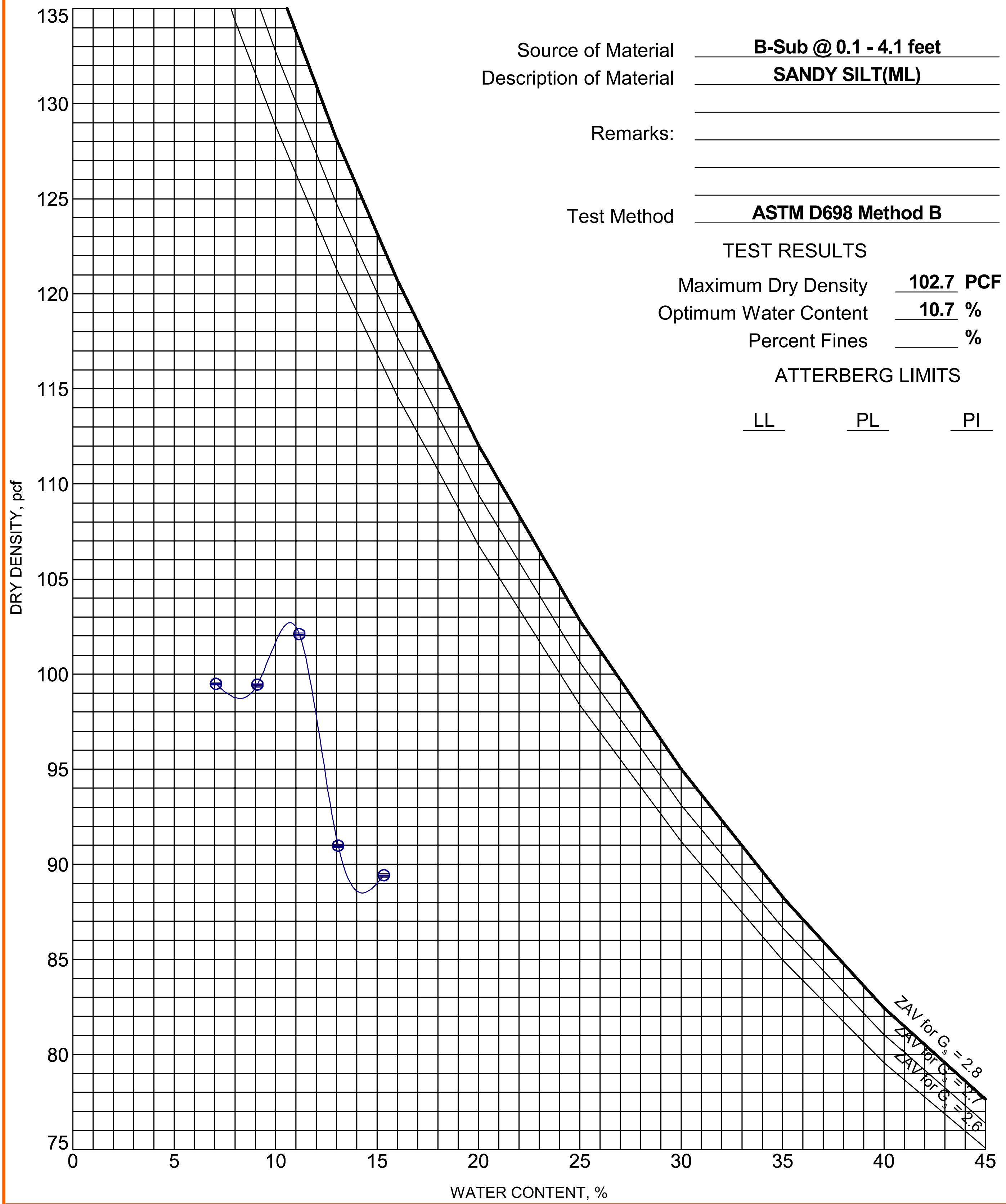
CLIENT: AES Clean Energy Development LLC
Boulder, CO

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 66225093 RANCHO VIEJO SOLA.GPJ TERRACON_DATATEMPLATE.GDT 9/26/22

Exhibit B-30

# MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material **B-Sub @ 0.1 - 4.1 feet**

Description of Material **SANDY SILT(ML)**

Remarks:

Test Method **ASTM D698 Method B**

TEST RESULTS

Maximum Dry Density **102.7** **PCF**

Optimum Water Content **10.7** **%**

Percent Fines **%**

ATTERBERG LIMITS

| LL | PL | PI |
|---|---|---|

PROJECT: Rancho Viejo Solar Facility

PROJECT NUMBER: 66225093

6805 Academy Pkwy West NE
Albuquerque, NM

SITE: NM 599 and NM 14
Santa Fe, NM

CLIENT: AES Clean Energy Development LLC
Boulder, CO

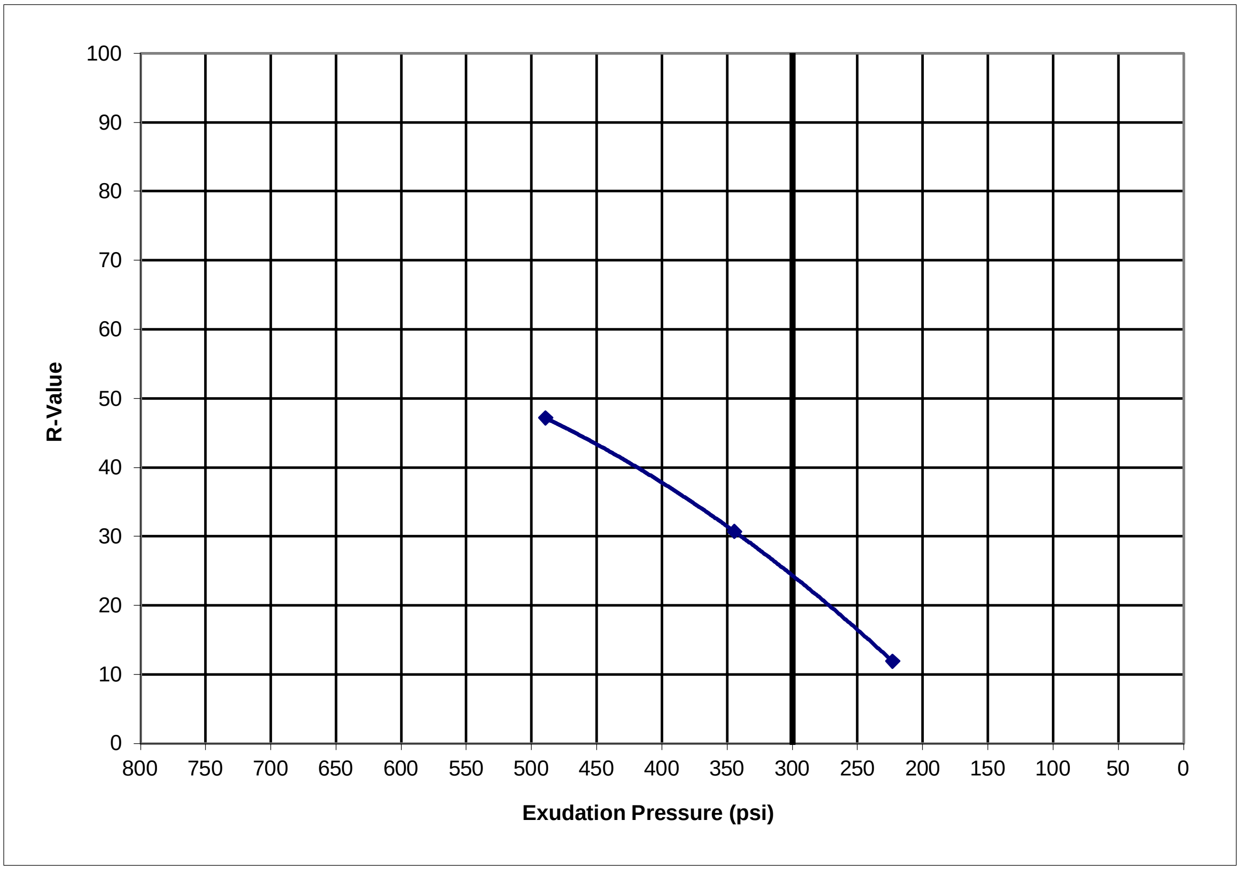
Exhibit B-31

| | |
|---|---|
| **PROJECT:** | Rancho Viejo Solar Facility |
| **JOB NO:** | 66225093 |
| **LOCATION:** | Santa Fe County, NM |
| **MATERIAL:** | Silty Clay |
| **SAMPLE SOURCE:** | P-03@0'-4' |

## RESISTANCE R-VALUE AND EXPANSION PRESSURE OF COMPACTED SOILS (ASTM D2844)

| **SPECIMEN I. D.** | **A** | **B** | **C** |
|---|---|---|---|
| Moisture Content | 21.1% | 18.5% | 17.2% |
| Compaction Pressure (psi) | * | 150 | 225 |
| Specimen Height (inches) | 2.54 | 2.50 | 2.49 |
| Dry Density (pcf) | 104.5 | 110.4 | 113.3 |
| Horiz. Pres. @ 1000lbs (psi) | 54.0 | 37.0 | 28.0 |
| Horiz. Pres. @ 2000lbs (psi) | 131.0 | 94.0 | 67.0 |
| Displacement | 4.10 | 3.96 | 3.89 |
| Expansion Pressure (psi) | 0.1 | 0.2 | 0.6 |
| Exudation Pressure (psi) | 223 | 344 | 489 |
| R Value | 12 | 31 | 47 |

* HAND TAMPED



**R Value at 300 PSI =** 24.3

Exhibit B-32

|  |  |
|---|---|
| **PROJECT:** | Rancho Viejo Solar Facility |
| **JOB NO:** | 66225093 |
| **LOCATION:** | Santa Fe County, NM |
| **MATERIAL:** | Silty Clay |
| **SAMPLE SOURCE:** | P-07@0'-4' |

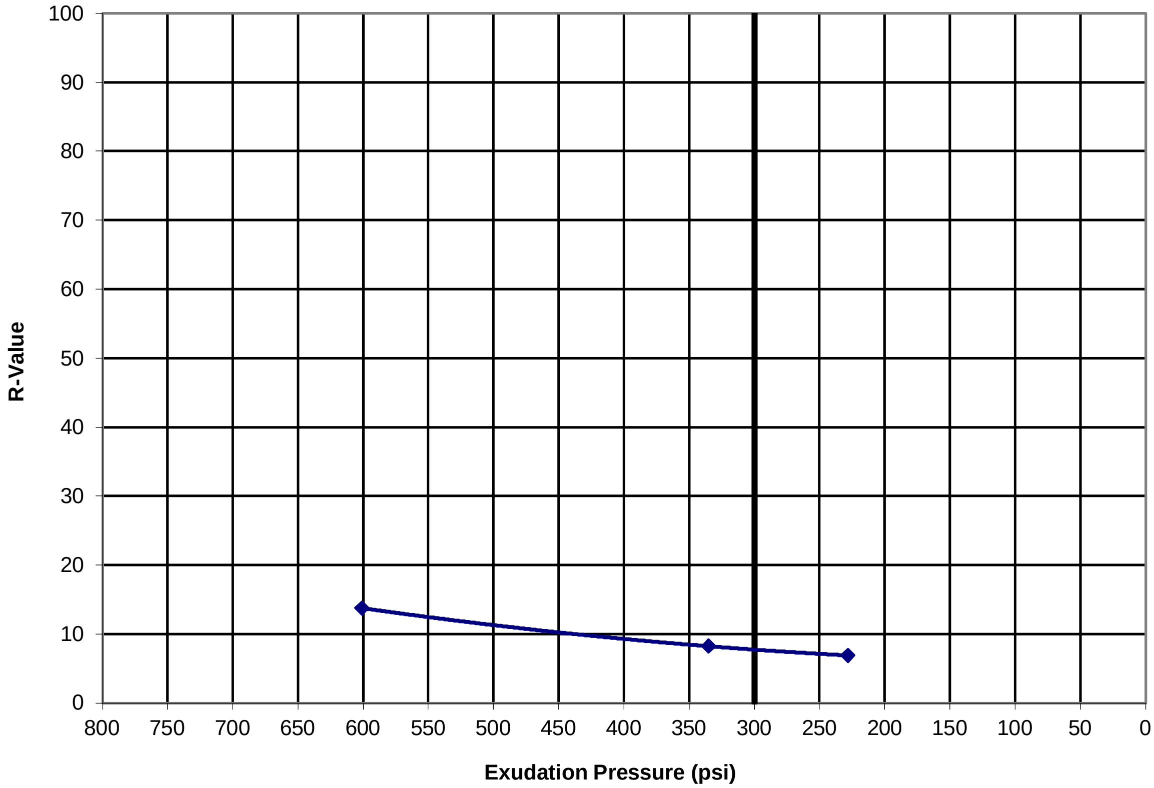
---

## RESISTANCE R-VALUE AND EXPANSION PRESSURE OF COMPACTED SOILS (ASTM D2844)

---

| **SPECIMEN I. D.** | **A** | **B** | **C** |
|---|---|---|---|
| Moisture Content | 27.8% | 25.2% | 22.6% |
| Compaction Pressure (psi) | * | * | 75 |
| Specimen Height (inches) | 2.56 | 2.49 | 2.52 |
| Dry Density (pcf) | 93.7 | 98.6 | 102.5 |
| Horiz. Pres. @ 1000lbs (psi) | 68.0 | 58.0 | 54.0 |
| Horiz. Pres. @ 2000lbs (psi) | 140.0 | 138.0 | 131.0 |
| Displacement | 5.12 | 4.45 | 3.47 |
| Expansion Pressure (psi) | 0.0 | 0.0 | 0.1 |
| Exudation Pressure (psi) | 228 | 335 | 601 |
| R Value | 7 | 8 | 14 |

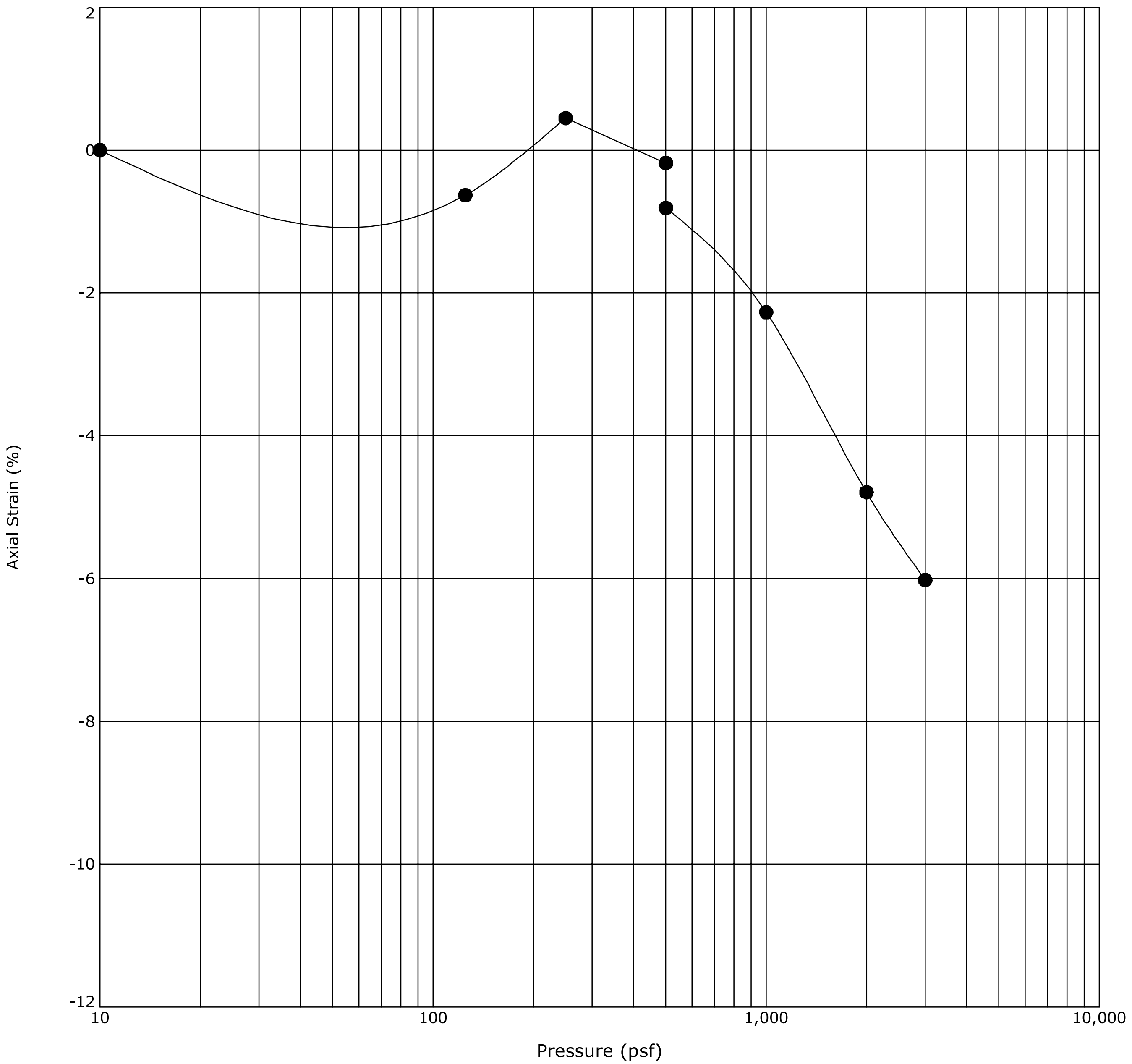
* HAND TAMPED



**R Value at 300 PSI =** 7.7

Exhibit B-33

# Swell Consolidation Test



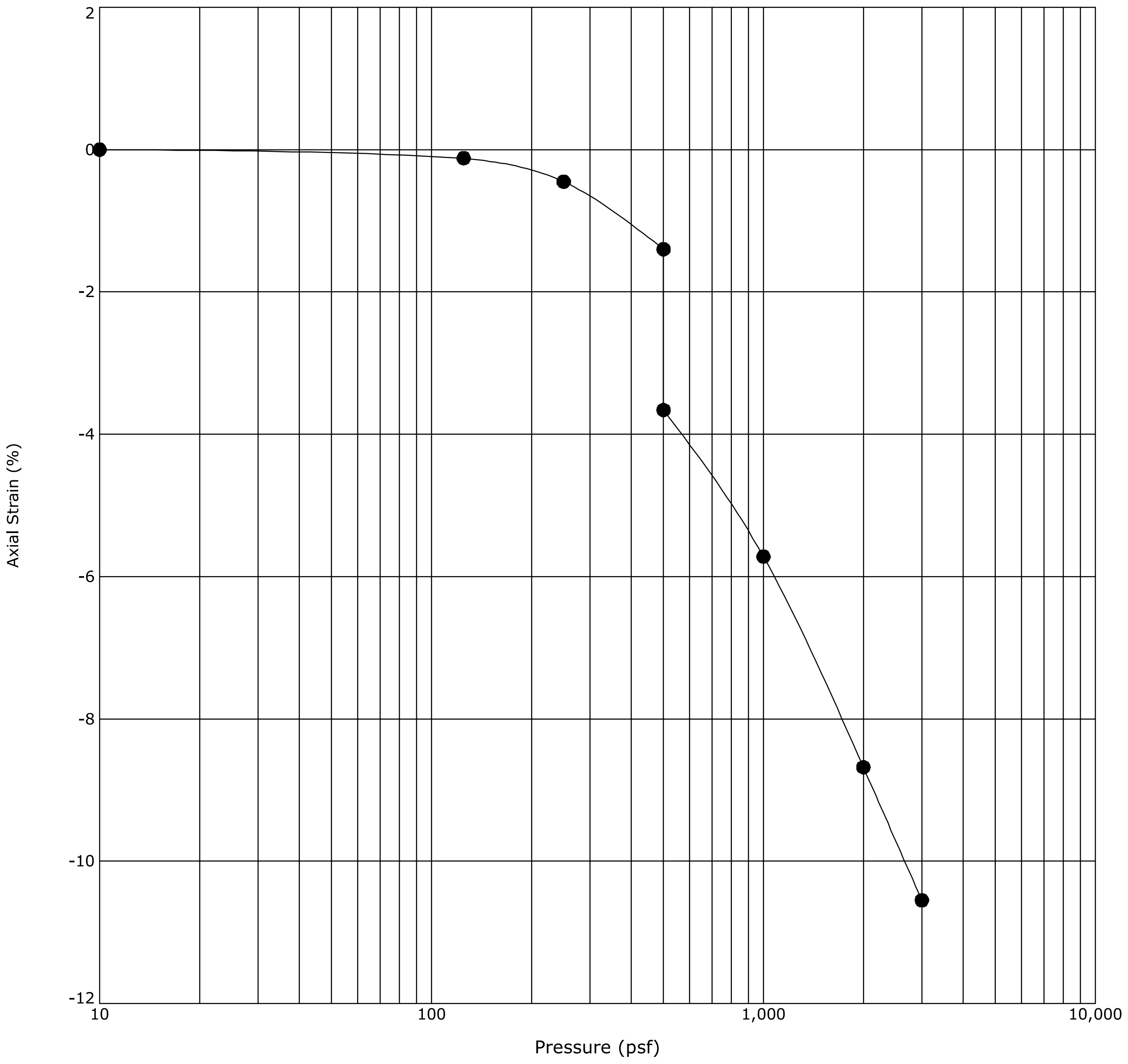
| Boring ID | | Depth (Ft) | Description | USCS | $\gamma_d$(pcf) | WC (%) |
|---|---|---|---|---|---|---|
| ● | A-03 | 2.5 - 3.5 | SANDY LEAN CLAY | CL | 88 | 10.2 |

Notes: Sample inundated with water at 500 pounds per square foot (psf).
Sample Disturbed.

Exhibit B-34

6805 Academy Pkwy West NE
Albuquerque, NM

# Swell Consolidation Test

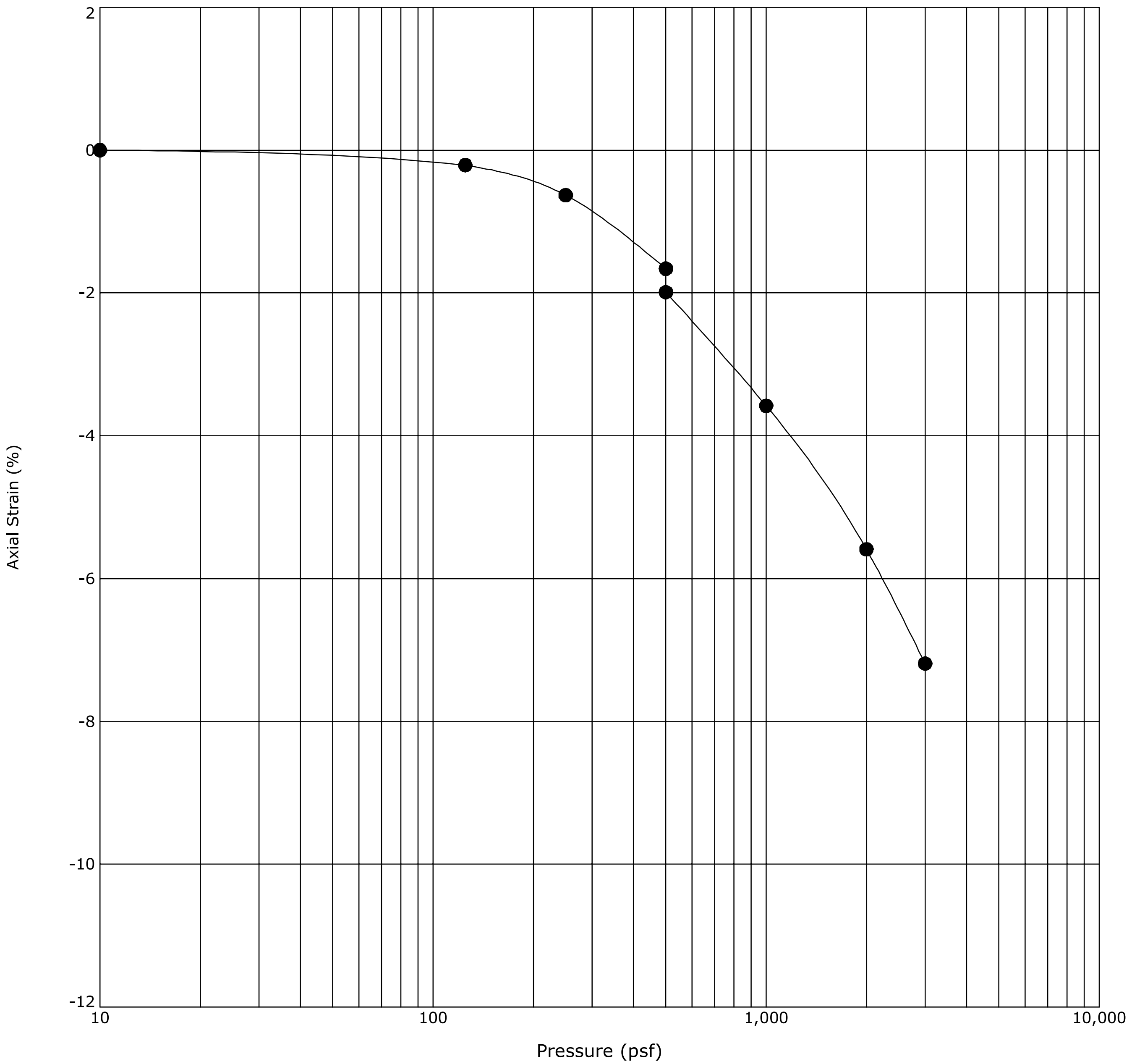


| Boring ID | | Depth (Ft) | Description | USCS | $\gamma_d$(pcf) | WC (%) |
|---|---|---|---|---|---|---|
| ● | A-06 | 7.5 - 8.5 | SANDY SILT | ML | 92 | 6.5 |

Notes: Sample inundated with water at 500 pounds per square foot (psf).

Exhibit B-35

# Swell Consolidation Test

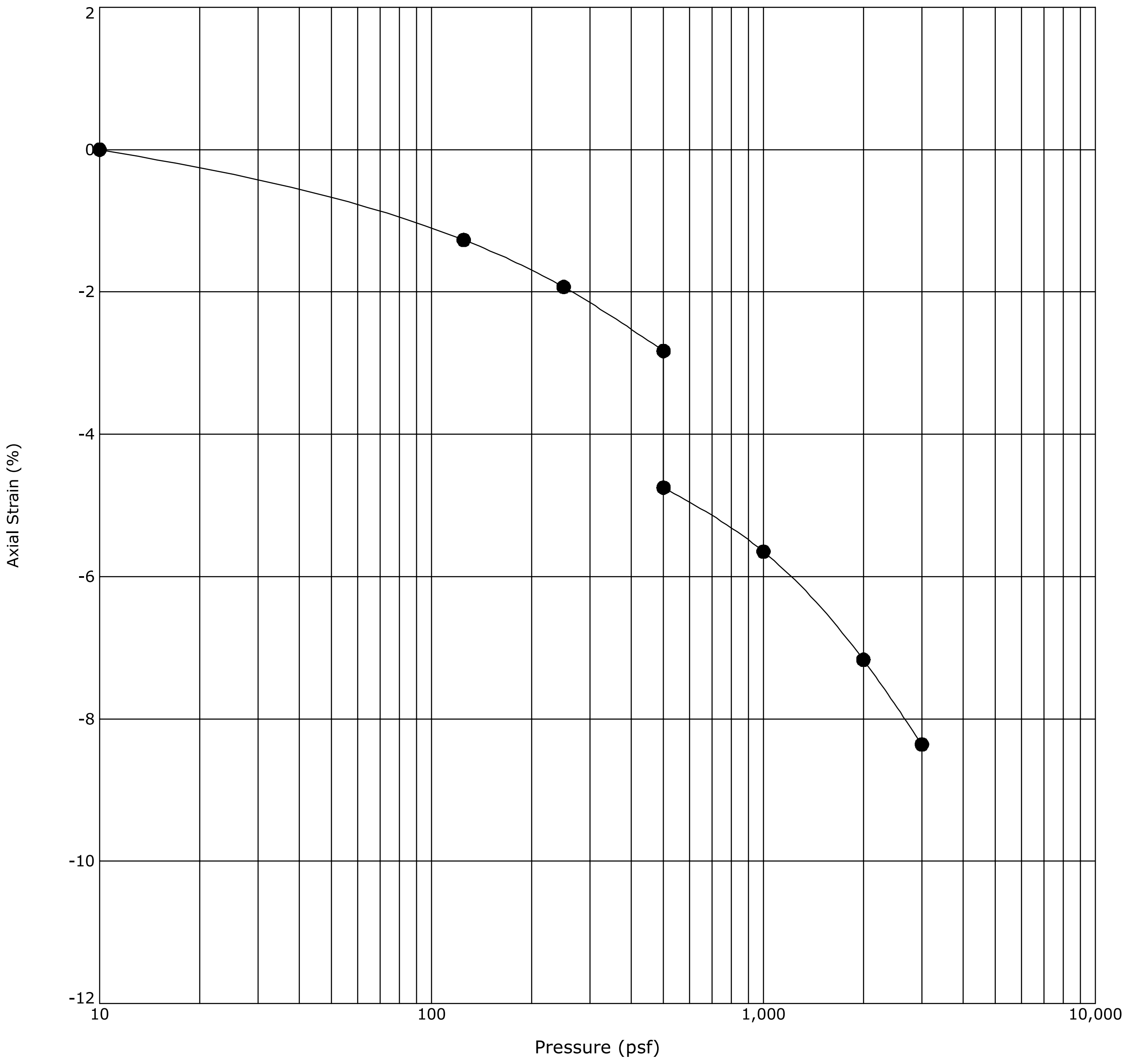


| Boring ID | | Depth (Ft) | Description | USCS | $\gamma_d$(pcf) | WC (%) |
|---|---|---|---|---|---|---|
| ● | A-08 | 5 - 6 | SILTY CLAY | CL-ML | 95 | 6.4 |

Notes: Sample inundated with water at 500 pounds per square foot (psf).

Exhibit B-36

# Swell Consolidation Test



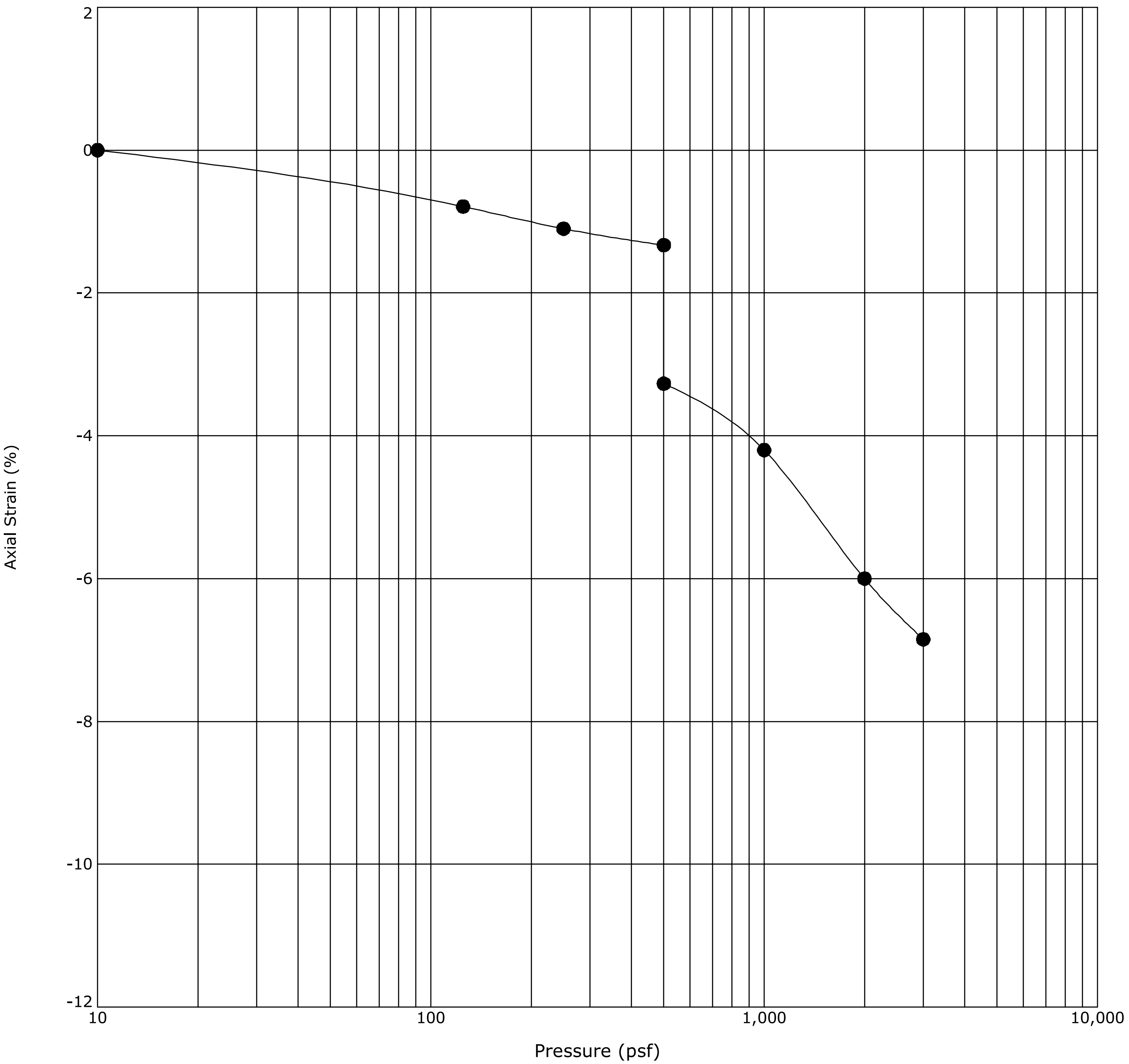
| Boring ID | | Depth (Ft) | Description | USCS | $\gamma_d$(pcf) | WC (%) |
|---|---|---|---|---|---|---|
| ● | A-10 | 7.5 - 8.5 | SANDY LEAN CLAY | CL | 92 | 6.8 |

Notes: Sample inundated with water at 500 pounds per square foot (psf).

Exhibit B-37

6805 Academy Pkwy West NE
Albuquerque, NM

# Swell Consolidation Test



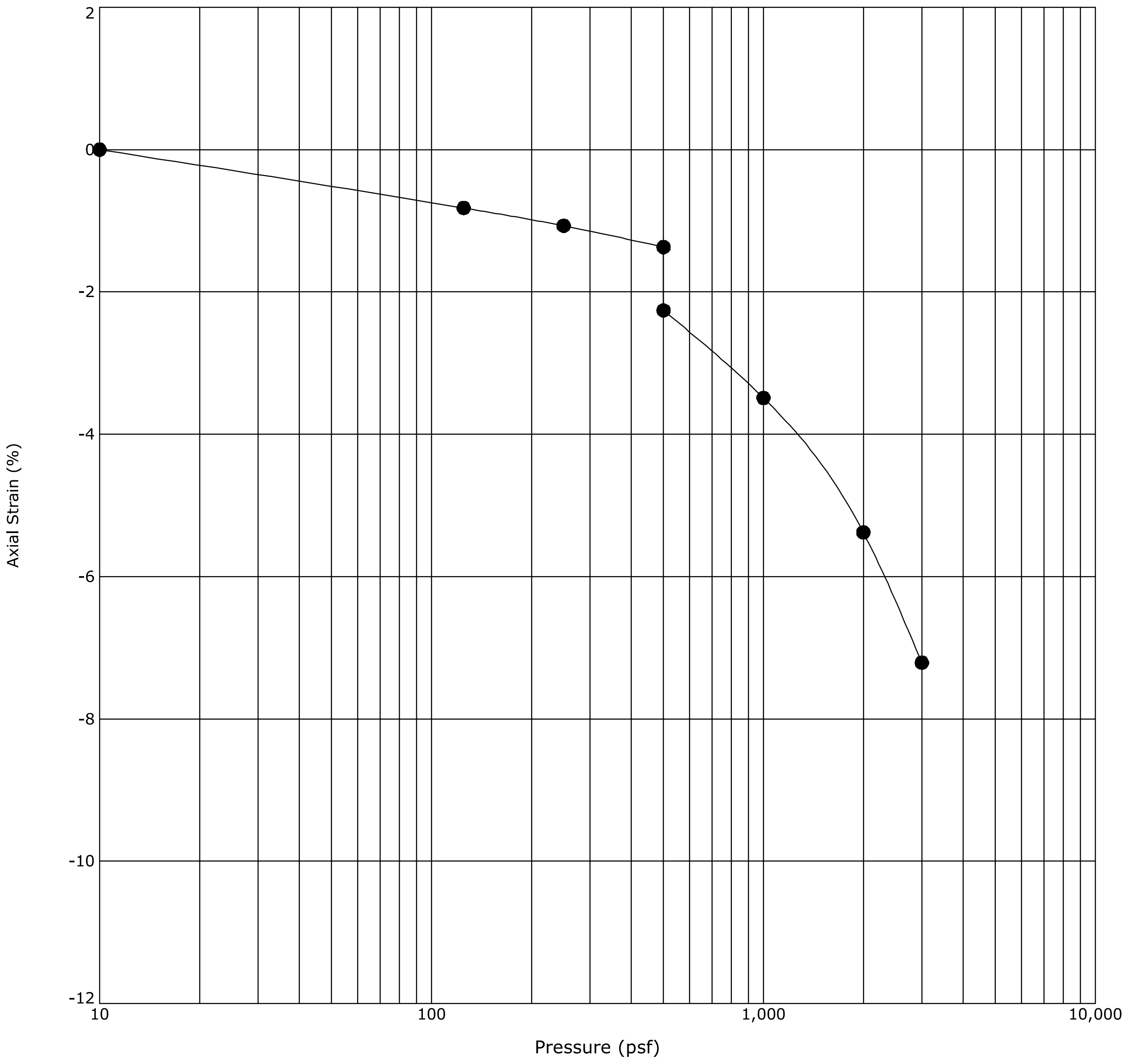
| Boring ID | | Depth (Ft) | Description | USCS | $\gamma_d$(pcf) | WC (%) |
|---|---|---|---|---|---|---|
| ● | Bess-02 | 2.5 - 3.5 | SILTY SAND | SM | 76 | 12.7 |

Notes: Sample inundated with water at 500 pounds per square foot (psf).

Exhibit B-38

6805 Academy Pkwy West NE
Albuquerque, NM

# Swell Consolidation Test

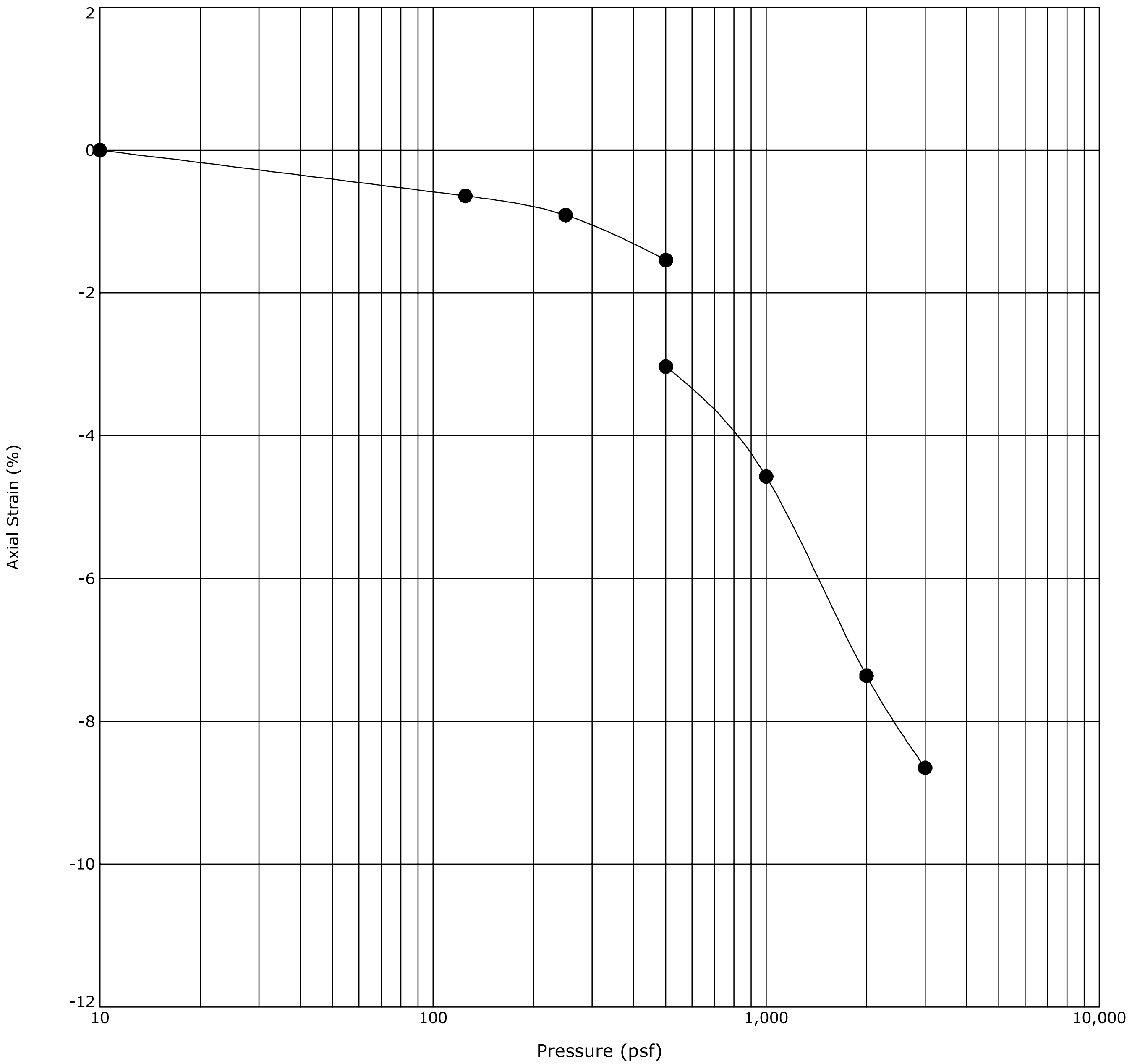


| Boring ID | | Depth (Ft) | Description | USCS | $\gamma_d$(pcf) | WC (%) |
|---|---|---|---|---|---|---|
| ● | Bess-03 | 2.5 - 3.5 | CLAYEY SAND | SC | 102 | 5.4 |

Notes: Sample inundated with water at 500 pounds per square foot (psf).

6805 Academy Pkwy West NE
Albuquerque, NM

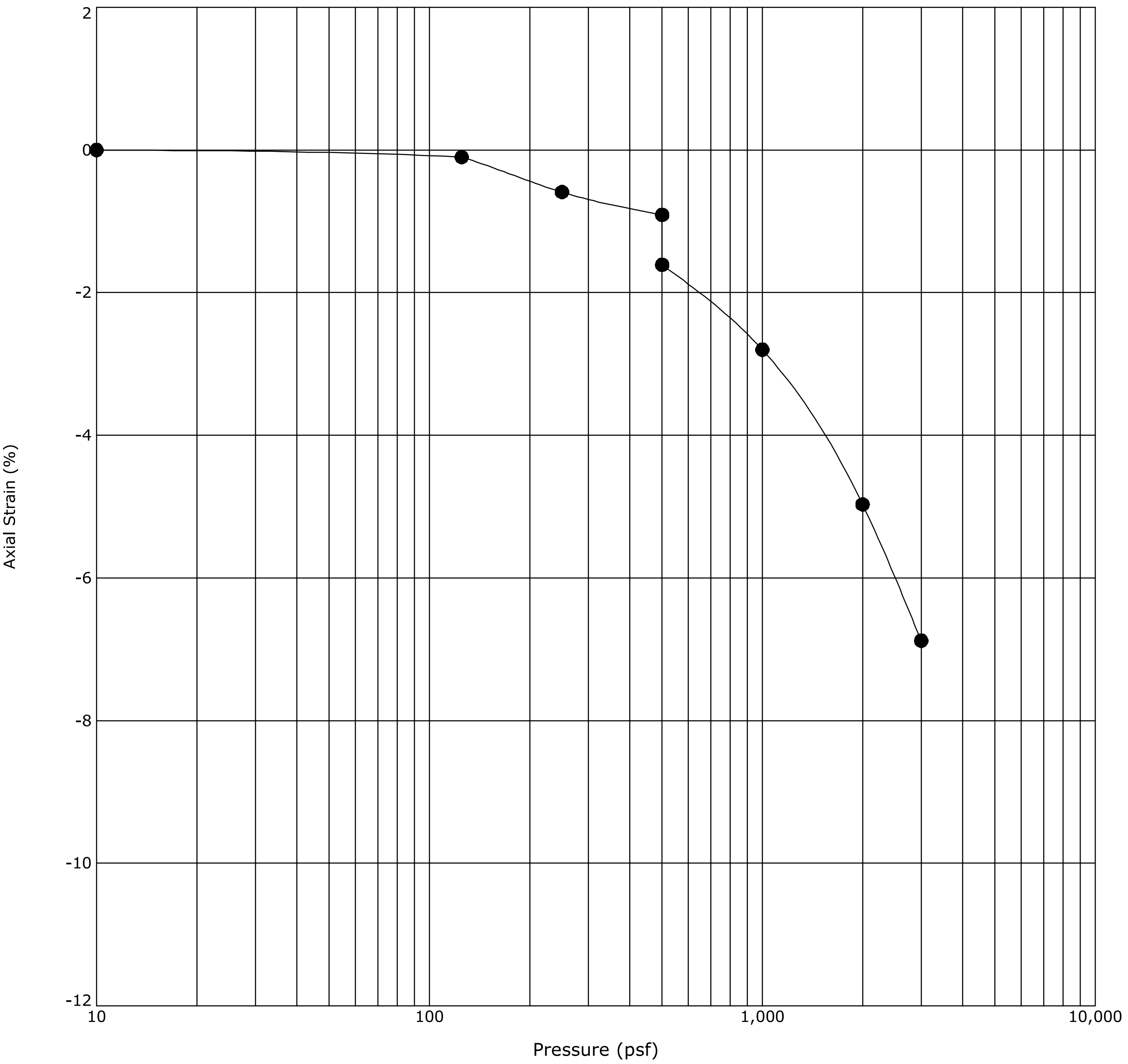
# Swell Consolidation Test



| | Boring ID | Depth (Ft) | Description | USCS | $\gamma_d$(pcf) | WC (%) |
|---|---|---|---|---|---|---|
| ● | Sub-01 | 2.5 - 3.5 | SANDY LEAN CLAY (CL) | CL | 93 | 9.1 |

Notes: Sample inudated with water at 500 pounds per square foot (psf).

# Swell Consolidation Test



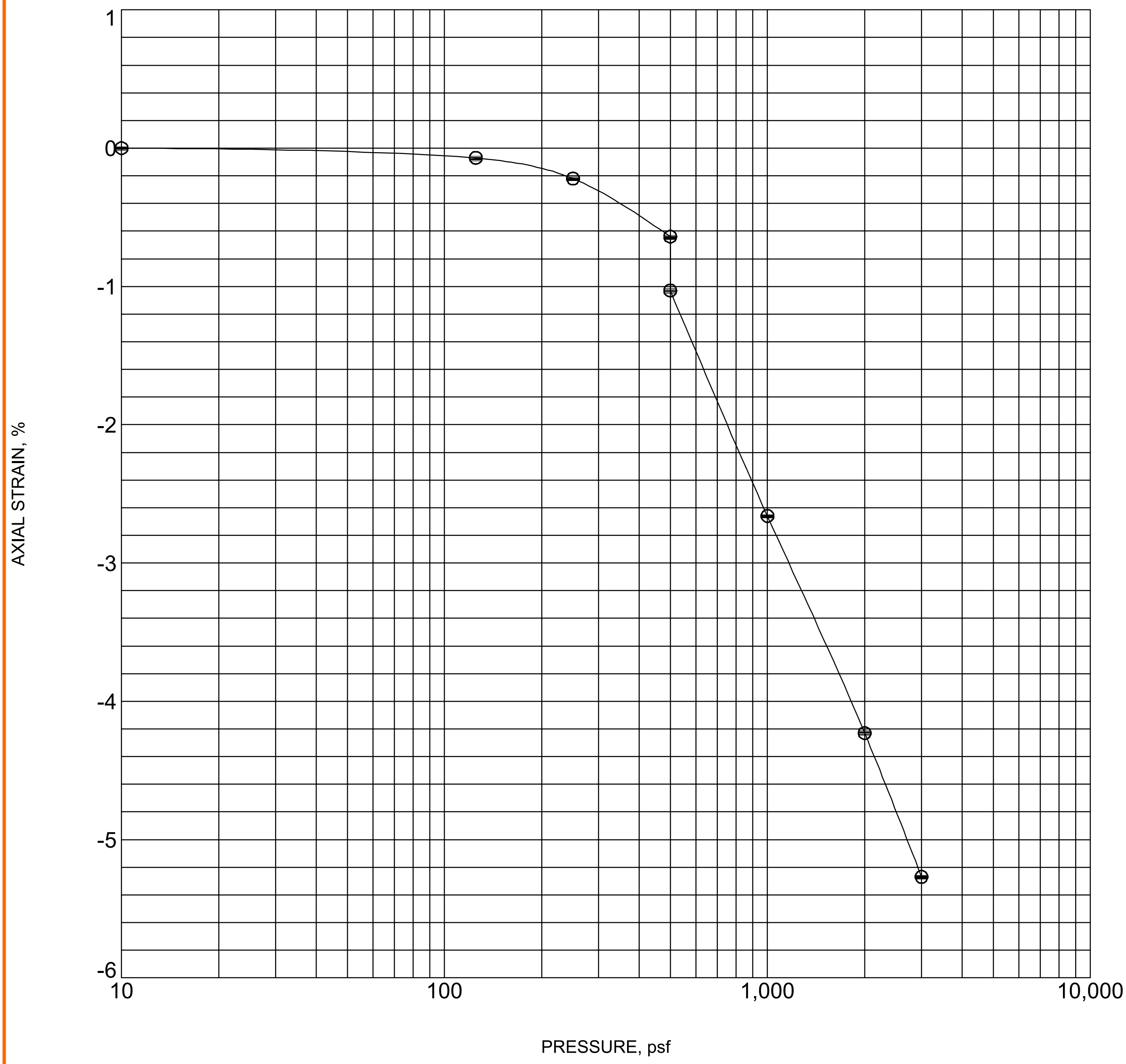
| Boring ID | | Depth (Ft) | Description | USCS | $\gamma_d$(pcf) | WC (%) |
|---|---|---|---|---|---|---|
| ● | Sub-02 | 5 - 6 | SANDY LEAN CLAY | CL | 90 | 9.6 |

Notes: Sample inudated with water at 500 pounds per square foot (psf).

Exhibit B-41

# SWELL CONSOLIDATION TEST

**ASTM D4546**



| Specimen Identification | | Classification | $\gamma_d$, pcf | WC, % |
|---|---|---|---|---|
| ⊖ | B-Sub 0.5 - 1.5 ft | SANDY SILT(ML) | 7 | 78.4 |

NOTES: Sample Inundated with water at 500 pounds per square foot (psf),

PROJECT: Rancho Viejo Solar Facility

SITE: NM 599 and NM 14
Santa Fe, NM

6805 Academy Pkwy West NE
Albuquerque, NM

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-42

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

Terracon

**Client**
AES Clean Energy Development LLC

**Project**
Rancho Viejo Solar Facility

Santa Fe County, NM

**Sample Submitted By:** Terracon (66)  **Date Received:** 10/16/2023  **Lab No.: 23-0567**

## Results of Corrosion Analysis

| | | | | |
|---|---|---|---|---|
| **Sample Number** | -- | -- | -- | -- |
| **Sample Location** | A-7 | BW-2 | BW-3 | Sub-1 |
| **Sample Depth (ft.)** | 0.0-1.5 | 5.0-6.5 | 2.5-4.0 | 0.0-1.5 |
| pH Analysis, ASTM G 51 | 6.35 | 8.29 | 8.26 | 7.10 |
| Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg) | 85 | 74 | 68 | 24 |
| Sulfides, AWWA 4500-S D, (mg/Kg) | Nil | Nil | Nil | Nil |
| Chlorides, ASTM D512, (mg/kg) | 87 | 62 | 125 | 75 |
| Red-Ox, AWWA 2580 B, (mV) | +733 | +725 | +720 | +733 |
| Total Salts, AWWA 2520 B, (mg/Kg) | 280 | 780 | 1304 | 269 |
| Saturated Minimum Resistivity, ASTM G-187, (ohm-cm) | 3417 | 2144 | 1273 | 5896 |

N. Campo

**Analyzed By** ______________________
Nathan Campo
Engineering Technician III

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 similar or identical materials.

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

**Client**
AES Clean Energy Development LLC

**Project**
Rancho Viejo Solar Facility

Santa Fe County, NM

**Sample Submitted By:** Terracon (66) **Date Received:** 10/16/2023 **Lab No.: 23-0567**

## Results of Corrosion Analysis

| | | |
|---|---|---|
| **Sample Number** | -- | -- |
| **Sample Location** | BESS-1 | BESS-2 |
| **Sample Depth (ft.)** | 0.0-1.5 | 0.0-1.5 |
| pH Analysis, ASTM G 51 | 6.38 | 7.19 |
| Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg) | 27 | 52 |
| Sulfides, AWWA 4500-S D, (mg/Kg) | Nil | Nil |
| Chlorides, ASTM D512, (mg/kg) | 87 | 100 |
| Red-Ox, AWWA 2580 B, (mV) | +732 | +733 |
| Total Salts, AWWA 2520 B, (mg/Kg) | 341 | 264 |
| Saturated Minimum Resistivity, ASTM G-187, (ohm-cm) | 3350 | 4087 |

**Analyzed By** N. Campo
Nathan Campo
Engineering Technician III

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

**Client**

AES Clean Energy Development LLC

**Project**

Rancho Viejo Solar Facility
Santa Fe County, NM

**Sample Submitted By:** Terracon (66)  **Date Received:** 8/5/2022  **Lab No.: 22-0541**

## Results of Corrosion Analysis

| | | | | |
|---|---|---|---|---|
| **Sample Number** | -- | -- | -- | -- |
| **Sample Location** | B-01 | B-02 | B-03 | B-04 |
| **Sample Depth (ft.)** | Grab | Grab | Grab | Grab |
| pH Analysis, AASHTO T 289 | 7.55 | 8.16 | 8.35 | 7.55 |
| Water Soluble Sulfate (SO4), AASHTO T 290 (mg/Kg) | 94 | 113 | 129 | 76 |
| Chlorides, AASHTO T 291 (mg/kg) | 97 | 120 | 155 | 37 |
| Red-Ox, AWWA 2580 B (mV) | +734 | +733 | +726 | +735 |
| Minimum Resistivity (Saturated), AASHTO T 288, (ohm-cm) | 6700 | 2345 | 1340 | 3350 |

**Analyzed By:** N. Campo

Nathan Campo
Engineering Technician II

Terracon GeoReport

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

**Client**

AES Clean Energy Development LLC

**Project**

Rancho Viejo Solar Facility
Santa Fe County, NM

**Sample Submitted By:** Terracon (66)    **Date Received:** 8/5/2022    **Lab No.: 22-0541**

## Results of Corrosion Analysis

| | | | | |
|---|---|---|---|---|
| **Sample Number** | -- | -- | -- | -- |
| **Sample Location** | B-05 | B-06 | B-07 | B-08 |
| **Sample Depth (ft.)** | Grab | Grab | Grab | Grab |
| pH Analysis, AASHTO T 289 | 7.52 | 7.17 | 6.84 | 7.08 |
| Water Soluble Sulfate (SO4), AASHTO T 290 (mg/Kg) | 107 | 94 | 120 | 94 |
| Chlorides, AASHTO T 291 (mg/kg) | 65 | 75 | 80 | 70 |
| Red-Ox, AWWA 2580 B (mV) | +735 | +735 | +734 | +735 |
| Minimum Resistivity (Saturated), AASHTO T 288, (ohm-cm) | 3484 | 4556 | 3551 | 5427 |

**Analyzed By:** N. Campo

Nathan Campo
Engineering Technician II

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

**Client**

AES Clean Energy Development LLC

**Project**

Rancho Viejo Solar Facility
Santa Fe County, NM

**Sample Submitted By:** Terracon (66) **Date Received:** 8/5/2022 **Lab No.: 22-0541**

## Results of Corrosion Analysis

| | | | | |
|---|---|---|---|---|
| **Sample Number** | -- | -- | -- | -- |
| **Sample Location** | B-09 | B-10 | B-11 | B-12 |
| **Sample Depth (ft.)** | Grab | Grab | Grab | Grab |
| pH Analysis, AASHTO T 289 | 6.80 | 7.22 | 6.66 | 6.60 |
| Water Soluble Sulfate (SO4), AASHTO T 290 (mg/Kg) | 92 | 127 | 72 | 75 |
| Chlorides, AASHTO T 291 (mg/kg) | 90 | 65 | 47 | 50 |
| Red-Ox, AWWA 2580 B (mV) | +732 | +734 | +728 | +735 |
| Minimum Resistivity (Saturated), AASHTO T 288, (ohm-cm) | 3350 | 4221 | 1474 | 5762 |

N. Campo

**Analyzed By:** 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 similar or identical materials.

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

Terracon GeoReport

**Client**

AES Clean Energy Development LLC

**Project**

Rancho Viejo Solar Facility
Santa Fe County, NM

**Sample Submitted By:** Terracon (66)    **Date Received:** 8/5/2022    **Lab No.: 22-0541**

## Results of Corrosion Analysis

| | | | | |
|---|---|---|---|---|
| **Sample Number** | -- | -- | -- | -- |
| **Sample Location** | B-13 | B-14 | B-15 | B-16/B-Sub |
| **Sample Depth (ft.)** | Grab | Grab | Grab | Grab |
| pH Analysis, AASHTO T 289 | 6.58 | 6.84 | 7.38 | 7.69 |
| Water Soluble Sulfate (SO4), AASHTO T 290 (mg/Kg) | 95 | 133 | 88 | 103 |
| Chlorides, AASHTO T 291 (mg/kg) | 47 | 102 | 57 | 50 |
| Red-Ox, AWWA 2580 B (mV) | +734 | +732 | +723 | +731 |
| Minimum Resistivity (Saturated), AASHTO T 288, (ohm-cm) | 6633 | 4891 | 1943 | 2278 |

N. Campo

**Analyzed By:**

Nathan Campo
Engineering Technician II

# SUMMARY OF LABORATORY RESULTS

| Borehole No. | Depth (ft.) | USCS Soil Class. | In-Situ Properties | | Classification | | | | Expansion Testing | | | | | Corrosivity | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Dry Density (pcf) | Water Content (%) | Passing #200 Sieve (%) | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | Dry Density (pcf) | Water Content (%) | Surcharge (psf) | Expansion (%) | Expansion Index $EI_{50}$ | pH | Resistivity (ohm-cm) | Sulfates (ppm) | Chlorides (ppm) | |
| A-01 | 0.0 - 1.5 | SM | | 7 | | | | | | | | | | | | | | 2 |
| A-01 | 2.5 - 4.0 | CL | | 9 | 62 | 39 | 19 | 20 | | | | | | | | | | |
| A-01 | 5.0 - 5.5 | | 104 | 7 | | | | | | | | | | | | | | 1, 2 |
| A-01 | 7.5 - 9.0 | | | 8 | | | | | | | | | | | | | | 2 |
| A-01 | 10.0 - 11.5 | | | 7 | | | | | | | | | | | | | | 2 |
| A-01 | 12.5 - 14.0 | | | 1 | | | | | | | | | | | | | | 2 |
| A-01 | 15.0 - 16.5 | | | 1 | | | | | | | | | | | | | | 2 |
| A-02 | 0.0 - 1.5 | SC | | 7 | | | | | | | | | | | | | | 2 |
| A-02 | 2.5 - 4.0 | | | 9 | | | | | | | | | | | | | | 2 |
| A-02 | 5.0 - 5.5 | CL | 100 | 8 | 56 | 38 | 18 | 20 | | | | | | | | | | 1 |
| A-02 | 7.5 - 9.0 | | | 7 | | | | | | | | | | | | | | 2 |
| A-02 | 10.0 - 11.5 | | | 5 | | | | | | | | | | | | | | 2 |
| A-02 | 12.5 - 14.0 | | | 2 | | | | | | | | | | | | | | 2 |
| A-02 | 15.0 - 16.5 | | | 2 | | | | | | | | | | | | | | 2 |
| A-02 | 20.0 - 21.5 | | | 2 | | | | | | | | | | | | | | 2 |
| A-03 | 0.0 - 1.5 | SM | | 7 | | | | | | | | | | | | | | 2 |
| A-03 | 2.5 - 3.0 | | 88 | 10 | | | | | | | | | | | | | | 1, 2 |
| A-03 | 5.0 - 6.5 | | | 7 | | | | | | | | | | | | | | 2 |
| A-03 | 7.5 - 9.0 | CL | | 7 | 65 | 30 | 16 | 14 | | | | | | | | | | |
| A-03 | 10.0 - 11.5 | | | 8 | | | | | | | | | | | | | | 2 |
| A-03 | 12.5 - 14.0 | | | 6 | | | | | | | | | | | | | | 2 |
| A-03 | 15.0 - 16.5 | | | 4 | | | | | | | | | | | | | | 2 |
| A-03 | 20.0 - 21.5 | | | 6 | | | | | | | | | | | | | | 2 |
| A-04 | 0.0 - 1.5 | SM | | 6 | | | | | | | | | | | | | | 2 |
| A-04 | 2.5 - 4.0 | | | 9 | | | | | | | | | | | | | | 2 |

**REMARKS**

1. Dry Density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Expansion Index in accordance with ASTM D4829-95.
5. Air-Dried Sample

PROJECT: Rancho Viejo Solar

SITE: NM 599 and NM 14
Santa Fe, NM

6805 Academy Pkwy West NE
Albuquerque, NM

PH. 505-797-4287 FAX. 505-797-4288

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-49

# SUMMARY OF LABORATORY RESULTS

| Borehole No. | Depth (ft.) | USCS Soil Class. | In-Situ Properties | | Classification | | | | Expansion Testing | | | | | Corrosivity | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Dry Density (pcf) | Water Content (%) | Passing #200 Sieve (%) | Atterberg Limits | | | Dry Density (pcf) | Water Content (%) | Surcharge (psf) | Expansion (%) | Expansion Index EI$_{50}$ | pH | Resistivity (ohm-cm) | Sulfates (ppm) | Chlorides (ppm) | |
| | | | | | | LL | PL | PI | | | | | | | | | | |
| A-04 | 5.0 - 5.5 | SM | 101 | 6 | 39 | NP | NP | NP | | | | | | | | | | 1 |
| A-04 | 7.5 - 9.0 | | | 2 | | | | | | | | | | | | | | 2 |
| A-04 | 10.0 - 10.5 | | 113 | 2 | | | | | | | | | | | | | | 1, 2 |
| A-04 | 12.5 - 14.0 | | | 1 | | | | | | | | | | | | | | 2 |
| A-04 | 15.0 - 16.5 | | | 1 | | | | | | | | | | | | | | 2 |
| A-04 | 20.0 - 21.5 | | | 5 | | | | | | | | | | | | | | 2 |
| A-05 | 0.0 - 1.5 | SM | | 5 | | | | | | | | | | | | | | 2 |
| A-05 | 2.5 - 3.0 | | 94 | 12 | | | | | | | | | | | | | | 1, 2 |
| A-05 | 5.0 - 6.5 | | | 6 | | | | | | | | | | | | | | 2 |
| A-05 | 7.5 - 9.0 | CL | | 5 | 56 | 31 | 15 | 16 | | | | | | | | | | |
| A-05 | 10.0 - 11.5 | | | 3 | | | | | | | | | | | | | | 2 |
| A-05 | 12.5 - 14.0 | | | 2 | | | | | | | | | | | | | | 2 |
| A-05 | 15.0 - 16.5 | | | 1 | | | | | | | | | | | | | | 2 |
| A-05 | 20.0 - 21.5 | | | 3 | | | | | | | | | | | | | | 2 |
| A-06 | 0.0 - 1.5 | SM | | 5 | | | | | | | | | | | | | | 2 |
| A-06 | 2.5 - 4.0 | | | 5 | | | | | | | | | | | | | | 2 |
| A-06 | 5.0 - 6.5 | ML | | 6 | 71 | NP | NP | NP | | | | | | | | | | |
| A-06 | 7.5 - 8.0 | | 92 | 7 | | | | | | | | | | | | | | 1, 2 |
| A-06 | 10.0 - 11.5 | SC | | 6 | | | | | | | | | | | | | | 2 |
| A-06 | 15.0 - 16.5 | | | 7 | | | | | | | | | | | | | | 2 |
| A-06 | 20.0 - 21.5 | | | 9 | | | | | | | | | | | | | | 2 |
| A-07 | 2.5 - 4.0 | CL | | 7 | 80 | 32 | 17 | 15 | | | | | | | | | | |
| A-07 | 5.0 - 6.5 | | | 7 | | | | | | | | | | | | | | 2 |
| A-07 | 7.5 - 8.0 | | 90 | 8 | | | | | | | | | | | | | | 1, 2 |
| A-07 | 10.0 - 11.5 | | | 9 | | | | | | | | | | | | | | 2 |

**REMARKS**

1. Dry Density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Expansion Index in accordance with ASTM D4829-95.
5. Air-Dried Sample

PROJECT: Rancho Viejo Solar

SITE: NM 599 and NM 14
Santa Fe, NM

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM
PH. 505-797-4287 FAX. 505-797-4288

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-50

# SUMMARY OF LABORATORY RESULTS

| Borehole No. | Depth (ft.) | USCS Soil Class. | In-Situ Properties | | Classification | | | | Expansion Testing | | | | | Corrosivity | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Dry Density (pcf) | Water Content (%) | Passing #200 Sieve (%) | Atterberg Limits | | | Dry Density (pcf) | Water Content (%) | Surcharge (psf) | Expansion (%) | Expansion Index $EI_{50}$ | pH | Resistivity (ohm-cm) | Sulfates (ppm) | Chlorides (ppm) | |
| | | | | | | LL | PL | PI | | | | | | | | | | |
| A-07 | 12.5 - 14.0 | | | 9 | | | | | | | | | | | | | | 2 |
| A-07 | 15.0 - 16.5 | | | 8 | | | | | | | | | | | | | | 2 |
| A-07 | 20.0 - 21.5 | | | 9 | | | | | | | | | | | | | | 2 |
| A-08 | 0.0 - 1.5 | CL | | 8 | | | | | | | | | | | | | | 2 |
| A-08 | 2.5 - 4.0 | | | 6 | | | | | | | | | | | | | | 2 |
| A-08 | 5.0 - 5.5 | | 95 | 6 | | | | | | | | | | | | | | 1, 2 |
| A-08 | 7.5 - 9.0 | ML | | 5 | 57 | NP | NP | NP | | | | | | | | | | |
| A-08 | 10.0 - 11.5 | | | 7 | | | | | | | | | | | | | | 2 |
| A-08 | 15.0 - 16.5 | | | 10 | | | | | | | | | | | | | | 2 |
| A-08 | 20.0 - 21.5 | | | 8 | | | | | | | | | | | | | | 2 |
| A-09 | 0.0 - 1.5 | CL | | 6 | | | | | | | | | | | | | | 2 |
| A-09 | 2.5 - 4.0 | | | 7 | | | | | | | | | | | | | | 2 |
| A-09 | 7.5 - 9.0 | SM | | 5 | 45 | NP | NP | NP | | | | | | | | | | |
| A-09 | 10.0 - 11.5 | | | 7 | | | | | | | | | | | | | | 2 |
| A-09 | 12.5 - 14.0 | | | 9 | | | | | | | | | | | | | | 2 |
| A-09 | 15.0 - 16.5 | | | 5 | | | | | | | | | | | | | | 2 |
| A-09 | 20.0 - 21.5 | | | 6 | | | | | | | | | | | | | | 2 |
| A-10 | 0.0 - 1.5 | CL | | 5 | | | | | | | | | | | | | | 2 |
| A-10 | 2.5 - 4.0 | | | 10 | | | | | | | | | | | | | | 2 |
| A-10 | 5.0 - 6.5 | CL | | 8 | 57 | 34 | 16 | 18 | | | | | | | | | | |
| A-10 | 7.5 - 8.5 | | 92 | 7 | | | | | | | | | | | | | | 1, 2 |
| A-10 | 10.0 - 11.5 | | | 5 | | | | | | | | | | | | | | 2 |
| A-10 | 12.5 - 14.0 | | | 9 | | | | | | | | | | | | | | 2 |
| A-10 | 15.0 - 16.5 | | | 10 | | | | | | | | | | | | | | 2 |
| A-10 | 20.0 - 21.5 | | | 10 | | | | | | | | | | | | | | 2 |

**REMARKS**

1. Dry Density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Expansion Index in accordance with ASTM D4829-95.
5. Air-Dried Sample

PROJECT: Rancho Viejo Solar

SITE: NM 599 and NM 14
Santa Fe, NM

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM
PH. 505-797-4287 FAX. 505-797-4288

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-51

# SUMMARY OF LABORATORY RESULTS

| Borehole No. | Depth (ft.) | USCS Soil Class. | In-Situ Properties | | Classification | | | | Expansion Testing | | | | | Corrosivity | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Dry Density (pcf) | Water Content (%) | Passing #200 Sieve (%) | Atterberg Limits | | | Dry Density (pcf) | Water Content (%) | Surcharge (psf) | Expansion (%) | Expansion Index $EI_{50}$ | pH | Resistivity (ohm-cm) | Sulfates (ppm) | Chlorides (ppm) | |
| | | | | | | LL | PL | PI | | | | | | | | | | |
| A-11 | 0.0 - 1.5 | CL | | 7 | | | | | | | | | | | | | | 2 |
| A-11 | 2.5 - 4.0 | | | 7 | | | | | | | | | | | | | | 2 |
| A-11 | 5.0 - 5.5 | CL | 81 | 7 | 66 | 32 | 18 | 14 | | | | | | | | | | 1 |
| A-11 | 7.5 - 9.0 | | | 8 | | | | | | | | | | | | | | 2 |
| A-11 | 10.0 - 11.5 | | | 6 | | | | | | | | | | | | | | 2 |
| A-11 | 12.5 - 14.0 | | | 7 | | | | | | | | | | | | | | 2 |
| A-11 | 15.0 - 16.5 | | | 5 | | | | | | | | | | | | | | 2 |
| A-11 | 20.0 - 21.5 | | | 5 | | | | | | | | | | | | | | 2 |
| A-12 | 0.0 - 1.5 | CL | | 3 | | | | | | | | | | | | | | 2 |
| A-12 | 2.5 - 4.0 | | | 5 | | | | | | | | | | | | | | 2 |
| A-12 | 5.0 - 6.0 | | 100 | 3 | | | | | | | | | | | | | | 1, 2 |
| A-12 | 7.5 - 9.0 | SM | | 4 | 42 | NP | NP | NP | | | | | | | | | | |
| A-12 | 10.0 - 11.5 | | | 7 | | | | | | | | | | | | | | 2 |
| A-12 | 12.5 - 14.0 | | | 8 | | | | | | | | | | | | | | 2 |
| A-12 | 15.0 - 16.5 | | | 10 | | | | | | | | | | | | | | 2 |
| A-12 | 20.0 - 21.5 | | | 9 | | | | | | | | | | | | | | 2 |
| A-13 | 0.0 - 1.5 | SC | | 6 | | | | | | | | | | | | | | 2 |
| A-13 | 2.5 - 3.5 | | 84 | 6 | | | | | | | | | | | | | | 1, 2 |
| A-13 | 5.0 - 6.5 | CL | | 8 | 59 | 35 | 16 | 19 | | | | | | | | | | |
| A-13 | 7.5 - 9.0 | | | 7 | | | | | | | | | | | | | | 2 |
| A-13 | 10.0 - 11.5 | | | 7 | | | | | | | | | | | | | | 2 |
| A-13 | 12.5 - 14.0 | | | 7 | | | | | | | | | | | | | | 2 |
| A-13 | 15.0 - 16.5 | | | 7 | | | | | | | | | | | | | | 2 |
| A-13 | 20.0 - 21.5 | | | 7 | | | | | | | | | | | | | | 2 |
| A-14 | 0.0 - 1.5 | SC | | 8 | | | | | | | | | | | | | | 2 |

**REMARKS**

1. Dry Density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Expansion Index in accordance with ASTM D4829-95.
5. Air-Dried Sample

PROJECT: Rancho Viejo Solar

SITE: NM 599 and NM 14
Santa Fe, NM

6805 Academy Pkwy West NE
Albuquerque, NM

PH. 505-797-4287 FAX. 505-797-4288

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-52

# SUMMARY OF LABORATORY RESULTS

| Borehole No. | Depth (ft.) | USCS Soil Class. | In-Situ Properties | | Classification | | | | Expansion Testing | | | | | Corrosivity | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Dry Density (pcf) | Water Content (%) | Passing #200 Sieve (%) | Atterberg Limits | | | Dry Density (pcf) | Water Content (%) | Surcharge (psf) | Expansion (%) | Expansion Index EI50 | pH | Resistivity (ohm-cm) | Sulfates (ppm) | Chlorides (ppm) | |
| | | | | | | LL | PL | PI | | | | | | | | | | |
| A-14 | 2.5 - 3.5 | | 83 | 11 | | | | | | | | | | | | | | 1, 2 |
| A-14 | 5.0 - 6.5 | ML | | 9 | 60 | NP | NP | NP | | | | | | | | | | |
| A-14 | 7.5 - 9.0 | | | 10 | | | | | | | | | | | | | | 2 |
| A-14 | 10.0 - 11.5 | | | 39 | | | | | | | | | | | | | | 2 |
| A-14 | 12.5 - 14.0 | | | 9 | | | | | | | | | | | | | | 2 |
| A-14 | 15.0 - 16.5 | | | 8 | | | | | | | | | | | | | | 2 |
| A-14 | 20.0 - 21.5 | | | 4 | | | | | | | | | | | | | | 2 |
| A-15 | 2.5 - 4.0 | SM | | 7 | 48 | NP | NP | NP | | | | | | | | | | |
| A-15 | 7.5 - 9.0 | | | 6 | | | | | | | | | | | | | | 2 |
| A-15 | 10.0 - 11.5 | | | 7 | | | | | | | | | | | | | | 2 |
| A-15 | 12.5 - 14.0 | | | 10 | | | | | | | | | | | | | | 2 |
| A-15 | 15.0 - 16.5 | SM | | 8 | | | | | | | | | | | | | | 2 |
| A-15 | 20.0 - 21.5 | | | 5 | | | | | | | | | | | | | | 2 |
| Bess-01 | 2.5 - 4.0 | CL | | 7 | 77 | 30 | 14 | 16 | | | | | | | | | | |
| Bess-01 | 5.0 - 6.0 | | 105 | 8 | | | | | | | | | | | | | | 1, 2 |
| Bess-01 | 7.5 - 9.0 | | | 8 | | | | | | | | | | | | | | 2 |
| Bess-01 | 10.0 - 11.5 | ML | | 7 | 67 | NP | NP | NP | | | | | | | | | | |
| Bess-01 | 12.5 - 14.0 | | | 5 | | | | | | | | | | | | | | 2 |
| Bess-01 | 15.0 - 16.5 | | | 5 | | | | | | | | | | | | | | 2 |
| Bess-01 | 20.0 - 21.5 | | | 4 | | | | | | | | | | | | | | 2 |
| Bess-01 | 25.0 - 26.5 | SP-SM | | 1 | | | | | | | | | | | | | | 2 |
| Bess-01 | 30.0 - 31.5 | | | 3 | | | | | | | | | | | | | | 2 |
| Bess-01 | 35.0 - 36.5 | | | 8 | | | | | | | | | | | | | | 2 |
| Bess-01 | 40.0 - 41.5 | | | 8 | | | | | | | | | | | | | | 2 |
| Bess-02 | 2.5 - 3.5 | | 76 | 13 | | | | | | | | | | | | | | 1, 2 |

**REMARKS**

1. Dry Density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Expansion Index in accordance with ASTM D4829-95.
5. Air-Dried Sample

PROJECT: Rancho Viejo Solar

SITE: NM 599 and NM 14
Santa Fe, NM

6805 Academy Pkwy West NE
Albuquerque, NM

PH. 505-797-4287 FAX. 505-797-4288

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-53

# SUMMARY OF LABORATORY RESULTS

| Borehole No. | Depth (ft.) | USCS Soil Class. | In-Situ Properties | | Classification | | | | Expansion Testing | | | | | Corrosivity | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Dry Density (pcf) | Water Content (%) | Passing #200 Sieve (%) | Atterberg Limits | | | Dry Density (pcf) | Water Content (%) | Surcharge (psf) | Expansion (%) | Expansion Index $EI_{50}$ | pH | Resistivity (ohm-cm) | Sulfates (ppm) | Chlorides (ppm) | |
| | | | | | | LL | PL | PI | | | | | | | | | | |
| Bess-02 | 5.0 - 6.5 | | | 10 | | | | | | | | | | | | | | 2 |
| Bess-02 | 7.5 - 9.0 | SM | | 7 | 46 | NP | NP | NP | | | | | | | | | | |
| Bess-02 | 10.0 - 11.5 | | | 8 | | | | | | | | | | | | | | 2 |
| Bess-02 | 12.5 - 14.0 | | | 6 | | | | | | | | | | | | | | 2 |
| Bess-02 | 15.0 - 16.5 | CL | | 8 | 62 | 26 | 16 | 10 | | | | | | | | | | |
| Bess-02 | 20.0 - 21.5 | | | 9 | | | | | | | | | | | | | | 2 |
| Bess-02 | 25.0 - 26.5 | | | 9 | | | | | | | | | | | | | | 2 |
| Bess-02 | 35.0 - 36.5 | | | 3 | | | | | | | | | | | | | | 2 |
| Bess-03 | 0.0 - 1.5 | SC | | 6 | | | | | | | | | | | | | | 2 |
| Bess-03 | 2.5 - 3.5 | | 102 | 5 | | | | | | | | | | | | | | 1, 2 |
| Bess-03 | 5.0 - 6.5 | | | 5 | | | | | | | | | | | | | | 2 |
| Bess-03 | 7.5 - 9.0 | | | 11 | | | | | | | | | | | | | | 2 |
| Bess-03 | 10.0 - 11.5 | | | 12 | | | | | | | | | | | | | | 2 |
| Bess-03 | 12.5 - 14.0 | | | 7 | | | | | | | | | | | | | | 2 |
| Bess-03 | 15.0 - 16.5 | | | 7 | | | | | | | | | | | | | | 2 |
| Bess-03 | 20.0 - 21.5 | SW-SM | | 2 | 8 | NP | NP | NP | | | | | | | | | | |
| Bess-03 | 25.0 - 26.5 | | | 2 | | | | | | | | | | | | | | 2 |
| Bess-03 | 30.0 - 31.5 | | | 9 | | | | | | | | | | | | | | 2 |
| Bess-03 | 35.0 - 36.5 | | | 9 | | | | | | | | | | | | | | 2 |
| Bess-03 | 40.0 - 41.5 | | | 6 | | | | | | | | | | | | | | 2 |
| BW-01 | 2.5 - 4.0 | SM | | 5 | 50 | NP | NP | NP | | | | | | | | | | |
| BW-01 | 5.0 - 6.0 | | 100 | 7 | | | | | | | | | | | | | | 1, 2 |
| BW-01 | 7.5 - 9.0 | | | 7 | | | | | | | | | | | | | | 2 |
| BW-01 | 10.0 - 11.5 | | | 7 | | | | | | | | | | | | | | 2 |
| BW-01 | 15.0 - 16.5 | | | 7 | | | | | | | | | | | | | | 2 |

**REMARKS**

1. Dry Density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Expansion Index in accordance with ASTM D4829-95.
5. Air-Dried Sample

PROJECT: Rancho Viejo Solar

SITE: NM 599 and NM 14
Santa Fe, NM

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM
PH. 505-797-4287 FAX. 505-797-4288

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-54

# SUMMARY OF LABORATORY RESULTS

| Borehole No. | Depth (ft.) | USCS Soil Class. | In-Situ Properties | | Classification | | | | Expansion Testing | | | | | Corrosivity | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Dry Density (pcf) | Water Content (%) | Passing #200 Sieve (%) | Atterberg Limits | | | Dry Density (pcf) | Water Content (%) | Surcharge (psf) | Expansion (%) | Expansion Index $EI_{50}$ | pH | Resistivity (ohm-cm) | Sulfates (ppm) | Chlorides (ppm) | |
| | | | | | | LL | PL | PI | | | | | | | | | | |
| BW-01 | 20.0 - 21.5 | ML | | 6 | 60 | NP | NP | NP | | | | | | | | | | |
| BW-01 | 25.0 - 26.5 | | | 6 | | | | | | | | | | | | | | 2 |
| BW-01 | 30.0 - 31.5 | | | 3 | | | | | | | | | | | | | | 2 |
| BW-02 | 2.5 - 3.5 | | 90 | 3 | | | | | | | | | | | | | | 1, 2 |
| BW-02 | 5.0 - 6.5 | SM | | 4 | 35 | NP | NP | NP | | | | | | | | | | |
| BW-02 | 7.5 - 9.0 | | | 2 | | | | | | | | | | | | | | 2 |
| BW-02 | 10.0 - 11.5 | | | 2 | | | | | | | | | | | | | | 2 |
| BW-02 | 15.0 - 16.5 | | | 4 | | | | | | | | | | | | | | 2 |
| BW-02 | 20.0 - 21.5 | | | 2 | | | | | | | | | | | | | | 2 |
| BW-02 | 25.0 - 26.5 | SM | | 5 | 40 | NP | NP | NP | | | | | | | | | | |
| BW-02 | 30.0 - 31.5 | | | 9 | | | | | | | | | | | | | | 2 |
| BW-03 | 5.0 - 6.0 | ML | 97 | 4 | 56 | NP | NP | NP | | | | | | | | | | 1 |
| BW-03 | 7.5 - 9.0 | | | 7 | | | | | | | | | | | | | | 2 |
| BW-03 | 10.0 - 11.5 | | | 5 | | | | | | | | | | | | | | 2 |
| BW-03 | 15.0 - 16.5 | SM | | 2 | 20 | NP | NP | NP | | | | | | | | | | |
| BW-03 | 20.0 - 21.5 | | | 3 | | | | | | | | | | | | | | 2 |
| BW-03 | 25.0 - 26.5 | | | 3 | | | | | | | | | | | | | | 2 |
| BW-03 | 30.0 - 31.5 | | | 8 | | | | | | | | | | | | | | 2 |
| P-01 | 0.0 - 1.5 | SC | | 7 | | | | | | | | | | | | | | 2 |
| P-01 | 2.5 - 3.5 | | 90 | 7 | | | | | | | | | | | | | | 1, 2 |
| P-01 | 5.0 - 6.5 | | | 7 | | | | | | | | | | | | | | 2 |
| P-02 | 0.0 - 1.5 | SC | | 6 | | | | | | | | | | | | | | 2 |
| P-02 | 2.5 - 4.0 | CL | | 10 | 61 | 39 | 24 | 15 | | | | | | | | | | |
| P-02 | 5.0 - 6.0 | | 95 | 8 | | | | | | | | | | | | | | 1, 2 |
| P-03 | 0.0 - 1.5 | SC | | 7 | | | | | | | | | | | | | | 2 |

**REMARKS**

1. Dry Density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Expansion Index in accordance with ASTM D4829-95.
5. Air-Dried Sample

PROJECT: Rancho Viejo Solar

SITE: NM 599 and NM 14
Santa Fe, NM

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM
PH. 505-797-4287 FAX. 505-797-4288

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-55

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 66225093 RANCHO VIEJO SOLAR FINAL DESIGN.GPJ TERRACON_DATATEMPLATE.GDT 11/30/23

# SUMMARY OF LABORATORY RESULTS

| Borehole No. | Depth (ft.) | USCS Soil Class. | In-Situ Properties | | Classification | | | | Expansion Testing | | | | | Corrosivity | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Dry Density (pcf) | Water Content (%) | Passing #200 Sieve (%) | Atterberg Limits | | | Dry Density (pcf) | Water Content (%) | Surcharge (psf) | Expansion (%) | Expansion Index $EI_{50}$ | pH | Resistivity (ohm-cm) | Sulfates (ppm) | Chlorides (ppm) | |
| | | | | | | LL | PL | PI | | | | | | | | | | |
| P-03 | 2.5 - 3.5 | | 95 | 7 | | | | | | | | | | | | | | 1, 2 |
| P-03 | 5.0 - 6.5 | | | 7 | | NP | NP | NP | | | | | | | | | | |
| P-04 | 0.0 - 1.5 | SC | | 7 | | | | | | | | | | | | | | 2 |
| P-04 | 2.5 - 4.0 | ML | | 7 | 65 | NP | NP | NP | | | | | | | | | | |
| P-04 | 5.0 - 6.0 | | 92 | 8 | | | | | | | | | | | | | | 1, 2 |
| P-05 | 0.0 - 1.5 | SC | | 7 | | | | | | | | | | | | | | 2 |
| P-05 | 2.5 - 3.5 | | 81 | 8 | | | | | | | | | | | | | | 1, 2 |
| P-05 | 5.0 - 6.5 | CL | | 21 | 62 | 28 | 17 | 11 | | | | | | | | | | |
| P-06 | 0.0 - 1.5 | SC | | 7 | | | | | | | | | | | | | | 2 |
| P-06 | 2.5 - 4.0 | | | 6 | | | | | | | | | | | | | | 2 |
| P-06 | 5.0 - 6.0 | SM | 91 | 6 | 41 | NP | NP | NP | | | | | | | | | | 1 |
| P-07 | 0.0 - 1.5 | SC | | 7 | | | | | | | | | | | | | | 2 |
| P-07 | 2.5 - 3.5 | SM | 76 | 6 | 36 | NP | NP | NP | | | | | | | | | | 1 |
| P-07 | 5.0 - 6.5 | | | 6 | | | | | | | | | | | | | | 2 |
| P-08 | 0.0 - 1.5 | SC | | 6 | | | | | | | | | | | | | | 2 |
| P-08 | 2.5 - 4.0 | CL | | 7 | 64 | 35 | 24 | 11 | | | | | | | | | | |
| P-08 | 5.0 - 6.0 | | 83 | 8 | | | | | | | | | | | | | | 1, 2 |
| Sub-01 | 2.5 - 3.5 | CL | 93 | 9 | 58 | 30 | 17 | 13 | | | | | | | | | | 1 |
| Sub-01 | 5.0 - 6.5 | | | 8 | | | | | | | | | | | | | | 2 |
| Sub-01 | 7.5 - 9.0 | | | 8 | | | | | | | | | | | | | | 2 |
| Sub-01 | 10.0 - 11.5 | | | 8 | | | | | | | | | | | | | | 2 |
| Sub-01 | 12.5 - 14.0 | | | 9 | | | | | | | | | | | | | | 2 |
| Sub-01 | 15.0 - 16.5 | | | 7 | | | | | | | | | | | | | | 2 |
| Sub-01 | 20.0 - 21.5 | CL | | 8 | 69 | 29 | 16 | 13 | | | | | | | | | | |
| Sub-01 | 25.0 - 26.5 | | | 8 | | | | | | | | | | | | | | 2 |

**REMARKS**

1. Dry Density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Expansion Index in accordance with ASTM D4829-95.
5. Air-Dried Sample

PROJECT: Rancho Viejo Solar

SITE: NM 599 and NM 14
Santa Fe, NM

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM
PH. 505-797-4287 FAX. 505-797-4288

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-56

# SUMMARY OF LABORATORY RESULTS

| Borehole No. | Depth (ft.) | USCS Soil Class. | In-Situ Properties | | Classification | | | | Expansion Testing | | | | | Corrosivity | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Dry Density (pcf) | Water Content (%) | Passing #200 Sieve (%) | Atterberg Limits | | | Dry Density (pcf) | Water Content (%) | Surcharge (psf) | Expansion (%) | Expansion Index $EI_{50}$ | pH | Resistivity (ohm-cm) | Sulfates (ppm) | Chlorides (ppm) | |
| | | | | | | LL | PL | PI | | | | | | | | | | |
| Sub-01 | 30.0 - 31.5 | | | 6 | | | | | | | | | | | | | | 2 |
| Sub-01 | 35.0 - 36.5 | | | 6 | | | | | | | | | | | | | | 2 |
| Sub-01 | 40.0 - 41.5 | | | 6 | | | | | | | | | | | | | | 2 |
| Sub-02 | 0.0 - 1.5 | SC | | 7 | | | | | | | | | | | | | | 2 |
| Sub-02 | 2.5 - 4.0 | CL | | 9 | 62 | 30 | 22 | 8 | | | | | | | | | | |
| Sub-02 | 5.0 - 6.0 | | 90 | 10 | | | | | | | | | | | | | | 1, 2 |
| Sub-02 | 7.5 - 9.0 | | | 9 | | | | | | | | | | | | | | 2 |
| Sub-02 | 10.0 - 11.5 | | | 9 | | | | | | | | | | | | | | 2 |
| Sub-02 | 12.5 - 14.0 | | | 7 | | | | | | | | | | | | | | 2 |
| Sub-02 | 15.0 - 16.5 | | | 5 | | | | | | | | | | | | | | 2 |
| Sub-02 | 20.0 - 21.5 | SM | | 3 | 22 | NP | NP | NP | | | | | | | | | | |
| Sub-02 | 25.0 - 26.5 | | | 7 | | | | | | | | | | | | | | 2 |
| Sub-02 | 30.0 - 31.5 | | | 6 | | | | | | | | | | | | | | 2 |
| Sub-02 | 35.0 - 36.5 | | | 7 | | | | | | | | | | | | | | 2 |
| Sub-02 | 40.0 - 41.5 | | | 6 | | | | | | | | | | | | | | 2 |
| T-01 | 2.5 - 4.0 | | | 10 | | | | | | | | | | | | | | 2 |
| T-01 | 5.0 - 6.0 | CL | 103 | 7 | 64 | 31 | 12 | 19 | | | | | | | | | | 1 |
| T-01 | 7.5 - 9.0 | | | 6 | | | | | | | | | | | | | | 2 |
| T-01 | 10.0 - 11.5 | | | 7 | | | | | | | | | | | | | | 2 |
| T-01 | 15.0 - 16.5 | | | 7 | | | | | | | | | | | | | | 2 |
| T-01 | 20.0 - 21.5 | | | 5 | | | | | | | | | | | | | | 2 |
| T-01 | 25.0 - 26.5 | SM | | 4 | 38 | NP | NP | NP | | | | | | | | | | |
| T-01 | 30.0 - 31.5 | | | 8 | | | | | | | | | | | | | | 2 |
| T-02 | 5.0 - 6.0 | | 91 | 6 | | | | | | | | | | | | | | 1, 2 |
| T-02 | 7.5 - 9.0 | ML | | 5 | 63 | NP | NP | NP | | | | | | | | | | |

**REMARKS**

1. Dry Density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Expansion Index in accordance with ASTM D4829-95.
5. Air-Dried Sample

PROJECT: Rancho Viejo Solar

SITE: NM 599 and NM 14
Santa Fe, NM

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM
PH. 505-797-4287 FAX. 505-797-4288

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-57

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 66225093 RANCHO VIEJO SOLAR FINAL DESIGN.GPJ TERRACON_DATATEMPLATE.GDT 11/30/23

# SUMMARY OF LABORATORY RESULTS

| Borehole No. | Depth (ft.) | USCS Soil Class. | In-Situ Properties | | Classification | | | | Expansion Testing | | | | | Corrosivity | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Dry Density (pcf) | Water Content (%) | Passing #200 Sieve (%) | Atterberg Limits | | | Dry Density (pcf) | Water Content (%) | Surcharge (psf) | Expansion (%) | Expansion Index $EI_{50}$ | pH | Resistivity (ohm-cm) | Sulfates (ppm) | Chlorides (ppm) | |
| | | | | | | LL | PL | PI | | | | | | | | | | |
| T-02 | 10.0 - 11.5 | | | 8 | | | | | | | | | | | | | | 2 |
| T-02 | 15.0 - 16.5 | | | 6 | | | | | | | | | | | | | | 2 |
| T-02 | 20.0 - 21.5 | CL | | 8 | 58 | 26 | 16 | 10 | | | | | | | | | | |
| T-02 | 25.0 - 26.5 | | | 7 | | | | | | | | | | | | | | 2 |
| T-02 | 30.0 - 31.5 | | | 7 | | | | | | | | | | | | | | 2 |
| T-03 | 2.5 - 4.0 | | | 5 | | | | | | | | | | | | | | 2 |
| T-03 | 5.0 - 6.0 | | 89 | 4 | | | | | | | | | | | | | | 1, 2 |
| T-03 | 7.5 - 9.0 | | | 3 | | | | | | | | | | | | | | 2 |
| T-03 | 10.0 - 11.5 | SM | | 2 | 23 | NP | NP | NP | | | | | | | | | | |
| T-03 | 15.0 - 16.5 | | | 5 | | | | | | | | | | | | | | 2 |
| T-03 | 20.0 - 21.5 | | | 4 | | | | | | | | | | | | | | 2 |
| T-03 | 25.0 - 26.5 | SM | | 3 | | | | | | | | | | | | | | 2 |
| T-03 | 30.0 - 31.5 | | | 2 | | | | | | | | | | | | | | 2 |
| T-04 | 2.5 - 3.5 | | 101 | 4 | | | | | | | | | | | | | | 1, 2 |
| T-04 | 5.0 - 6.5 | | | 1 | | | | | | | | | | | | | | 2 |
| T-04 | 7.5 - 9.0 | | | 3 | | | | | | | | | | | | | | 2 |
| T-04 | 10.0 - 11.5 | | | 4 | | | | | | | | | | | | | | 2 |
| T-04 | 15.0 - 16.5 | ML | | 6 | 61 | NP | NP | NP | | | | | | | | | | |
| T-04 | 20.0 - 21.5 | | | 4 | | | | | | | | | | | | | | 2 |
| T-04 | 25.0 - 26.5 | SC-SM | | 11 | | | | | | | | | | | | | | 2 |
| T-04 | 30.0 - 31.5 | | | 4 | | | | | | | | | | | | | | 2 |

**REMARKS**

1. Dry Density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Expansion Index in accordance with ASTM D4829-95.
5. Air-Dried Sample

PROJECT: Rancho Viejo Solar

SITE: NM 599 and NM 14
Santa Fe, NM

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM

PH. 505-797-4287 FAX. 505-797-4288

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-58

# SUMMARY OF LABORATORY RESULTS

| Borehole No. | Depth (ft.) | USCS Soil Class. | In-Situ Properties | | Classification | | | | Expansion Testing | | Corrosivity | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Dry Density (pcf) | Water Content (%) | Passing #200 Sieve (%) | Atterberg Limits | | | Swell (%) | Consolidation (%) 50 | pH | Resistivity (ohm-cm) | Sulfates (ppm) | Chlorides (ppm) | |
| | | | | | | LL | PL | PI | | | | | | | |
| B-01 | 0.0 - | ML | | | | | | | | | 7.6 | 6700 | 94 | 97 | 2 |
| B-01 | 0.5 - 2.0 | ML | | 5 | 57 | NP | NP | NP | | | | | | | |
| B-01 | 2.5 - 3.5 | ML | 86 | 8 | | | | | | | | | | | 1, 2 |
| B-01 | 5.0 - 6.5 | ML | | 5 | | | | | | | | | | | 2 |
| B-01 | 7.5 - 9.0 | ML | | 5 | | | | | | | | | | | 2 |
| B-01 | 10.0 - 11.5 | ML | | 8 | | | | | | | | | | | 2 |
| B-01 | 12.5 - 14.0 | ML | | 5 | | | | | | | | | | | 2 |
| B-01 | 15.0 - 16.5 | ML | | 8 | | | | | | | | | | | 2 |
| B-02 | 0.0 - | ML | | | | | | | | | 8.2 | 2345 | 113 | 120 | 2 |
| B-02 | 0.5 - 2.0 | ML | | 5 | | | | | | | | | | | 2 |
| B-02 | 2.5 - 4.0 | ML | | 6 | | | | | | | | | | | 2 |
| B-02 | 5.0 - 6.0 | ML | 86 | 9 | 75 | NP | NP | NP | | | | | | | 1 |
| B-02 | 7.5 - 9.0 | ML | | 8 | | | | | | | | | | | 2 |
| B-02 | 10.0 - 11.5 | ML | | 7 | | | | | | | | | | | 2 |
| B-02 | 12.5 - 14.0 | ML | | 10 | | | | | | | | | | | 2 |
| B-02 | 15.0 - 16.5 | ML | | 7 | | | | | | | | | | | 2 |
| B-03 | 0.0 - 0.0 | ML | | | | | | | | | 8.4 | 1340 | 129 | 155 | 2 |
| B-03 | 0.5 - 2.0 | ML | | 9 | | | | | | | | | | | 2 |
| B-03 | 2.5 - 4.0 | ML | | 9 | | | | | | | | | | | 2 |
| B-03 | 5.0 - 6.0 | ML | 93 | 8 | | | | | | | | | | | 1, 2 |
| B-03 | 7.5 - 9.0 | SM | | 7 | | | | | | | | | | | 2 |
| B-03 | 10.0 - 11.5 | SM | | 7 | 61 | NP | NP | NP | | | | | | | |
| B-03 | 12.5 - 14.0 | ML | | 11 | | | | | | | | | | | 2 |
| B-03 | 15.0 - 16.5 | ML | | 7 | | | | | | | | | | | 2 |
| B-04 | 0.0 - | ML | | | | | | | | | 7.6 | 3350 | 76 | 37 | 2 |

**REMARKS**

1. Dry Density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Expansion Index in accordance with ASTM D4829-95.
5. Air-Dried Sample

PROJECT: Rancho Viejo Solar Facility

SITE: NM 599 and NM 14
Santa Fe, NM

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM
PH. 505-797-4287 FAX. 505-797-4288

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-59

# SUMMARY OF LABORATORY RESULTS

| Borehole No. | Depth (ft.) | USCS Soil Class. | In-Situ Properties | | Classification | | | | Expansion Testing | | Corrosivity | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Dry Density (pcf) | Water Content (%) | Passing #200 Sieve (%) | Atterberg Limits | | | Swell (%) | Consolidation (%) 50 | pH | Resistivity (ohm-cm) | Sulfates (ppm) | Chlorides (ppm) | |
| | | | | | | LL | PL | PI | | | | | | | |
| B-04 | 0.5 - 2.0 | ML | | 4 | | | | | | | | | | | 2 |
| B-04 | 2.5 - 3.5 | ML | 99 | 7 | 75 | NP | NP | NP | | | | | | | 1 |
| B-04 | 5.0 - 6.5 | ML | | 7 | | | | | | | | | | | 2 |
| B-04 | 7.5 - 9.0 | ML | | 6 | | | | | | | | | | | 2 |
| B-04 | 10.0 - 11.5 | ML | | 7 | | | | | | | | | | | 2 |
| B-04 | 12.5 - 14.0 | SM | | 6 | | | | | | | | | | | 2 |
| B-04 | 15.0 - 16.5 | ML | | 10 | | | | | | | | | | | 2 |
| B-05 | 0.0 - | ML | | | | | | | | | 7.5 | 3484 | 107 | 65 | 2 |
| B-05 | 0.5 - 1.5 | ML | 82 | 11 | | | | | | | | | | | 1, 2 |
| B-05 | 2.5 - 4.0 | ML | | 7 | | | | | | | | | | | 2 |
| B-05 | 5.0 - 6.5 | ML | | 7 | 61 | NP | NP | NP | | | | | | | |
| B-05 | 7.5 - 9.0 | ML | | 7 | | | | | | | | | | | 2 |
| B-05 | 10.0 - 11.5 | ML | | 6 | | | | | | | | | | | 2 |
| B-05 | 12.5 - 14.0 | ML | | 4 | | | | | | | | | | | 2 |
| B-05 | 15.0 - 16.5 | ML | | 3 | | | | | | | | | | | 2 |
| B-06 | 0.0 - | ML | | | | | | | | | 7.2 | 4556 | 94 | 75 | 2 |
| B-06 | 0.5 - 2.0 | ML | | 7 | | | | | | | | | | | 2 |
| B-06 | 2.5 - 4.0 | ML | | 6 | | | | | | | | | | | 2 |
| B-06 | 5.0 - 6.0 | ML | 98 | 7 | | | | | | | | | | | 1, 2 |
| B-06 | 7.5 - 9.0 | ML | | 10 | | | | | | | | | | | 2 |
| B-06 | 10.0 - 11.5 | ML | | 6 | 59 | NP | NP | NP | | | | | | | |
| B-06 | 12.5 - 14.0 | ML | | 8 | | | | | | | | | | | 2 |
| B-06 | 15.0 - 16.5 | ML | | 7 | | | | | | | | | | | 2 |
| B-07 | 0.0 - 0.0 | ML | | | | | | | | | 6.8 | 3551 | 120 | 80 | 2 |
| B-07 | 0.5 - 2.0 | ML | | 7 | | | | | | | | | | | 2 |

**REMARKS**

1. Dry Density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Expansion Index in accordance with ASTM D4829-95.
5. Air-Dried Sample

PROJECT: Rancho Viejo Solar Facility

SITE: NM 599 and NM 14
Santa Fe, NM

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM
PH. 505-797-4287 FAX. 505-797-4288

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-60

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SOIL PROPERTIES 2 66225093 RANCHO VIEJO SOLA.GPJ TERRACON_DATATEMPLATE.GDT 9/26/22

# SUMMARY OF LABORATORY RESULTS

| Borehole No. | Depth (ft.) | USCS Soil Class. | In-Situ Properties | | Classification | | | | Expansion Testing | | Corrosivity | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Dry Density (pcf) | Water Content (%) | Passing #200 Sieve (%) | Atterberg Limits | | | Swell (%) | Consolidation (%)$_{50}$ | pH | Resistivity (ohm-cm) | Sulfates (ppm) | Chlorides (ppm) | |
| | | | | | | LL | PL | PI | | | | | | | |
| B-07 | 2.5 - 3.5 | ML | 84 | 9 | 70 | NP | NP | NP | | | | | | | 1 |
| B-07 | 5.0 - 6.5 | ML | | 8 | | | | | | | | | | | 2 |
| B-07 | 7.5 - 9.0 | ML | | 8 | | | | | | | | | | | 2 |
| B-07 | 10.0 - 11.5 | ML | | 11 | | | | | | | | | | | 2 |
| B-07 | 12.5 - 14.0 | ML | | 11 | | | | | | | | | | | 2 |
| B-07 | 15.0 - 16.5 | ML | | 8 | | | | | | | | | | | 2 |
| B-08 | 0.0 - 0.0 | ML | | | | | | | | | 7.1 | 5427 | 94 | 70 | 2 |
| B-08 | 0.5 - 2.0 | ML | | 9 | | | | | | | | | | | 2 |
| B-08 | 2.5 - 4.0 | ML | | 9 | | | | | | | | | | | 2 |
| B-08 | 5.0 - 6.0 | ML | 96 | 7 | 59 | NP | NP | NP | | | | | | | 1 |
| B-08 | 7.5 - 9.0 | SM | | 6 | | | | | | | | | | | 2 |
| B-08 | 10.0 - 11.5 | SM | | 9 | | | | | | | | | | | 2 |
| B-08 | 12.5 - 14.0 | ML | | 11 | | | | | | | | | | | 2 |
| B-08 | 15.0 - 16.5 | ML | | 9 | | | | | | | | | | | 2 |
| B-09 | 0.0 - 0.0 | ML | | | | | | | | | 6.8 | 3350 | 92 | 90 | 2 |
| B-09 | 0.5 - 2.0 | ML | | 9 | | | | | | | | | | | 2 |
| B-09 | 2.5 - 3.5 | ML | 97 | 6 | | | | | | | | | | | 1, 2 |
| B-09 | 5.0 - 6.5 | ML | | 8 | | | | | | | | | | | 2 |
| B-09 | 7.5 - 9.0 | ML | | 6 | | | | | | | | | | | 2 |
| B-09 | 10.0 - 11.5 | ML | | 6 | | | | | | | | | | | 2 |
| B-09 | 12.5 - 14.0 | ML | | 7 | | | | | | | | | | | 2 |
| B-09 | 15.0 - 16.5 | ML | | 7 | | | | | | | | | | | 2 |
| B-10 | 0.0 - 0.0 | ML | | | | | | | | | 7.2 | 4221 | 127 | 65 | 2 |
| B-10 | 0.5 - 2.0 | ML | | 6 | | | | | | | | | | | 2 |
| B-10 | 2.5 - 3.5 | SM | 90 | 7 | | | | | | | | | | | 1, 2 |

**REMARKS**

1. Dry Density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Expansion Index in accordance with ASTM D4829-95.
5. Air-Dried Sample

PROJECT: Rancho Viejo Solar Facility

SITE: NM 599 and NM 14
Santa Fe, NM

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM
PH. 505-797-4287 FAX. 505-797-4288

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-61

# SUMMARY OF LABORATORY RESULTS

| Borehole No. | Depth (ft.) | USCS Soil Class. | In-Situ Properties | | Classification | | | | Expansion Testing | | Corrosivity | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Dry Density (pcf) | Water Content (%) | Passing #200 Sieve (%) | Atterberg Limits | | | Swell (%) | Consolidation (%) $_{50}$ | pH | Resistivity (ohm-cm) | Sulfates (ppm) | Chlorides (ppm) | |
| | | | | | | LL | PL | PI | | | | | | | |
| B-10 | 5.0 - 6.0 | SM | | 7 | | | | | | | | | | | 2 |
| B-10 | 7.5 - 9.0 | ML | | 7 | | | | | | | | | | | 2 |
| B-10 | 10.0 - 11.5 | ML | | 17 | 86 | NP | NP | NP | | | | | | | |
| B-10 | 12.5 - 14.0 | ML | | 9 | | | | | | | | | | | 2 |
| B-10 | 15.0 - 16.5 | ML | | 7 | | | | | | | | | | | 2 |
| B-11 | 0.0 - | ML | | | | | | | | | 6.7 | 1474 | 72 | 47 | 2 |
| B-11 | 0.5 - 2.0 | ML | | 5 | | | | | | | | | | | 2 |
| B-11 | 2.5 - 4.0 | ML | | 5 | 61 | NP | NP | NP | | | | | | | |
| B-11 | 5.0 - 6.0 | ML | 90 | 7 | | | | | | | | | | | 1, 2 |
| B-11 | 7.5 - 9.0 | ML | | 8 | | | | | | | | | | | 2 |
| B-11 | 10.0 - 11.5 | ML | | 8 | | | | | | | | | | | 2 |
| B-11 | 12.5 - 14.0 | ML | | 7 | | | | | | | | | | | 2 |
| B-11 | 15.0 - 16.5 | ML | | 8 | | | | | | | | | | | 2 |
| B-12 | 0.0 - | ML | | | | | | | | | 6.6 | 5762 | 75 | 50 | 2 |
| B-12 | 0.5 - 2.0 | ML | | 7 | | | | | | | | | | | 2 |
| B-12 | 2.5 - 3.5 | ML | 84 | 8 | | | | | | | | | | | 1, 2 |
| B-12 | 5.0 - 6.5 | ML | | 8 | 58 | NP | NP | NP | | | | | | | |
| B-12 | 7.5 - 9.0 | ML | | 7 | | | | | | | | | | | 2 |
| B-12 | 10.0 - 11.5 | ML | | 4 | | | | | | | | | | | 2 |
| B-12 | 12.5 - 14.0 | ML | | 5 | | | | | | | | | | | 2 |
| B-12 | 15.0 - 16.5 | ML | | 6 | | | | | | | | | | | 2 |
| B-13 | 0.0 - | ML | | | | | | | | | 6.6 | 6633 | 95 | 47 | 2 |
| B-13 | 0.5 - 2.0 | ML | | 5 | | | | | | | | | | | 2 |
| B-13 | 2.5 - 4.0 | ML | | 5 | | | | | | | | | | | 2 |
| B-13 | 5.0 - 6.0 | ML | | 6 | | | | | | | | | | | 2 |

**REMARKS**
1. Dry Density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Expansion Index in accordance with ASTM D4829-95.
5. Air-Dried Sample

PROJECT: Rancho Viejo Solar Facility

SITE: NM 599 and NM 14
Santa Fe, NM

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM
PH. 505-797-4287 FAX. 505-797-4288

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

Exhibit B-62

# SUMMARY OF LABORATORY RESULTS

| Borehole No. | Depth (ft.) | USCS Soil Class. | In-Situ Properties | | Classification | | | | Expansion Testing | | Corrosivity | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Dry Density (pcf) | Water Content (%) | Passing #200 Sieve (%) | Atterberg Limits | | | Swell (%) | Consolidation (%) 50 | pH | Resistivity (ohm-cm) | Sulfates (ppm) | Chlorides (ppm) | |
| | | | | | | LL | PL | PI | | | | | | | |
| B-13 | 7.5 - 9.0 | ML | | 5 | | | | | | | | | | | 2 |
| B-13 | 10.0 - 11.5 | SM | | 3 | 23 | NP | NP | NP | | | | | | | |
| B-13 | 12.5 - 14.0 | SM | | 2 | | | | | | | | | | | 2 |
| B-13 | 15.0 - 16.5 | SM | | 4 | | | | | | | | | | | 2 |
| B-14 | 0.0 - | ML | | | | | | | | | 6.8 | 4891 | 133 | 102 | 2 |
| B-14 | 0.5 - 2.0 | ML | | 3 | | | | | | | | | | | 2 |
| B-14 | 2.5 - 3.5 | ML | 93 | 5 | 51 | NP | NP | NP | | | | | | | 1 |
| B-14 | 5.0 - 6.5 | ML | | 5 | | | | | | | | | | | 2 |
| B-14 | 7.5 - 9.0 | SM | | 4 | | | | | | | | | | | 2 |
| B-14 | 10.0 - 11.5 | SM | | 1 | | | | | | | | | | | 2 |
| B-14 | 12.5 - 14.0 | SM | | 1 | | | | | | | | | | | 2 |
| B-14 | 15.0 - 16.5 | SM | | 2 | | | | | | | | | | | 2 |
| B-15 | 0.0 - 0.0 | ML | | | | | | | | | 7.4 | 1943 | 88 | 57 | 2 |
| B-15 | 0.5 - 2.0 | ML | | 5 | | | | | | | | | | | 2 |
| B-15 | 2.5 - 4.0 | ML | | 6 | | | | | | | | | | | 2 |
| B-15 | 5.0 - 6.0 | ML | 94 | 4 | 41 | NP | NP | NP | | | | | | | 1 |
| B-15 | 7.5 - 9.0 | SM | | 3 | | | | | | | | | | | 2 |
| B-15 | 10.0 - 11.5 | SM | | 2 | | | | | | | | | | | 2 |
| B-15 | 12.5 - 14.0 | SM | | 1 | | | | | | | | | | | 2 |
| B-15 | 15.0 - 16.5 | SM | | 3 | | | | | | | | | | | 2 |
| B-Sub | 0.0 - 0.0 | ML | | | | | | | | | 7.7 | 6633 | 103 | 50 | 2 |
| B-Sub | 0.5 - 1.5 | ML | 78 | 12 | | | | | | | | | | | 1, 2 |
| B-Sub | 2.5 - 4.0 | SM | | 10 | 59 | NP | NP | NP | | | | | | | |
| B-Sub | 5.0 - 6.5 | ML | | 7 | | | | | | | | | | | 2 |
| B-Sub | 7.5 - 9.0 | SM | | 6 | | | | | | | | | | | 2 |

**REMARKS**
1. Dry Density and/or moisture determined from one or more rings of a multi-ring sample.
2. Visual Classification.
3. Submerged to approximate saturation.
4. Expansion Index in accordance with ASTM D4829-95.
5. Air-Dried Sample

PROJECT: Rancho Viejo Solar Facility

SITE: NM 599 and NM 14
Santa Fe, NM

Terracon
6805 Academy Pkwy West NE
Albuquerque, NM
PH. 505-797-4287 FAX. 505-797-4288

PROJECT NUMBER: 66225093

CLIENT: AES Clean Energy Development LLC
Boulder, CO

# APPENDIX C

# THERMAL RESISTIVITY TESTING

# Exploration Plan – Thermal Resistivity Locations

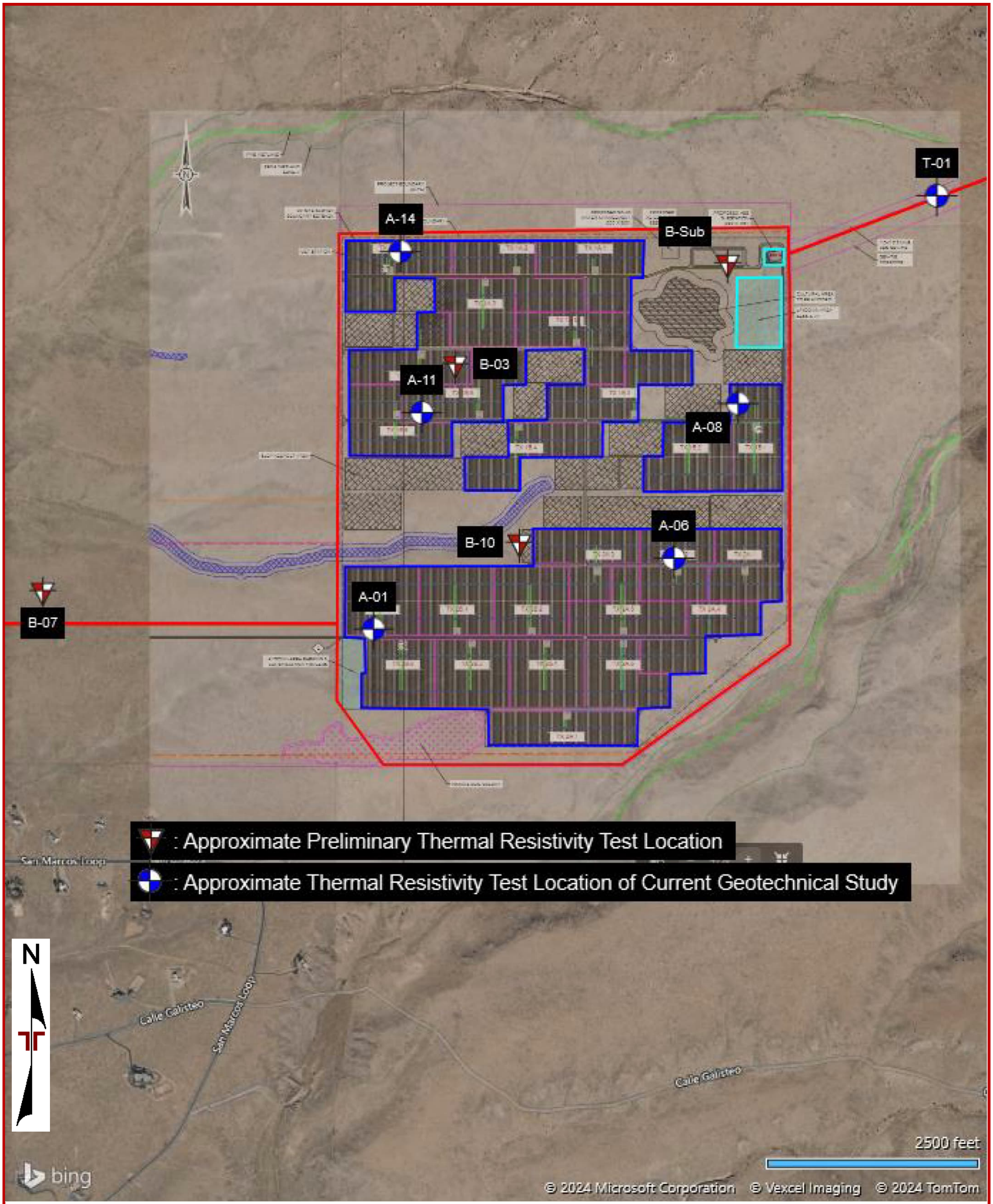


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES MAP PROVIDED BY MICROSOFT BING MAPS

Exhibit C-1

# Exploration Plan – Field Electrical Resistivity Locations

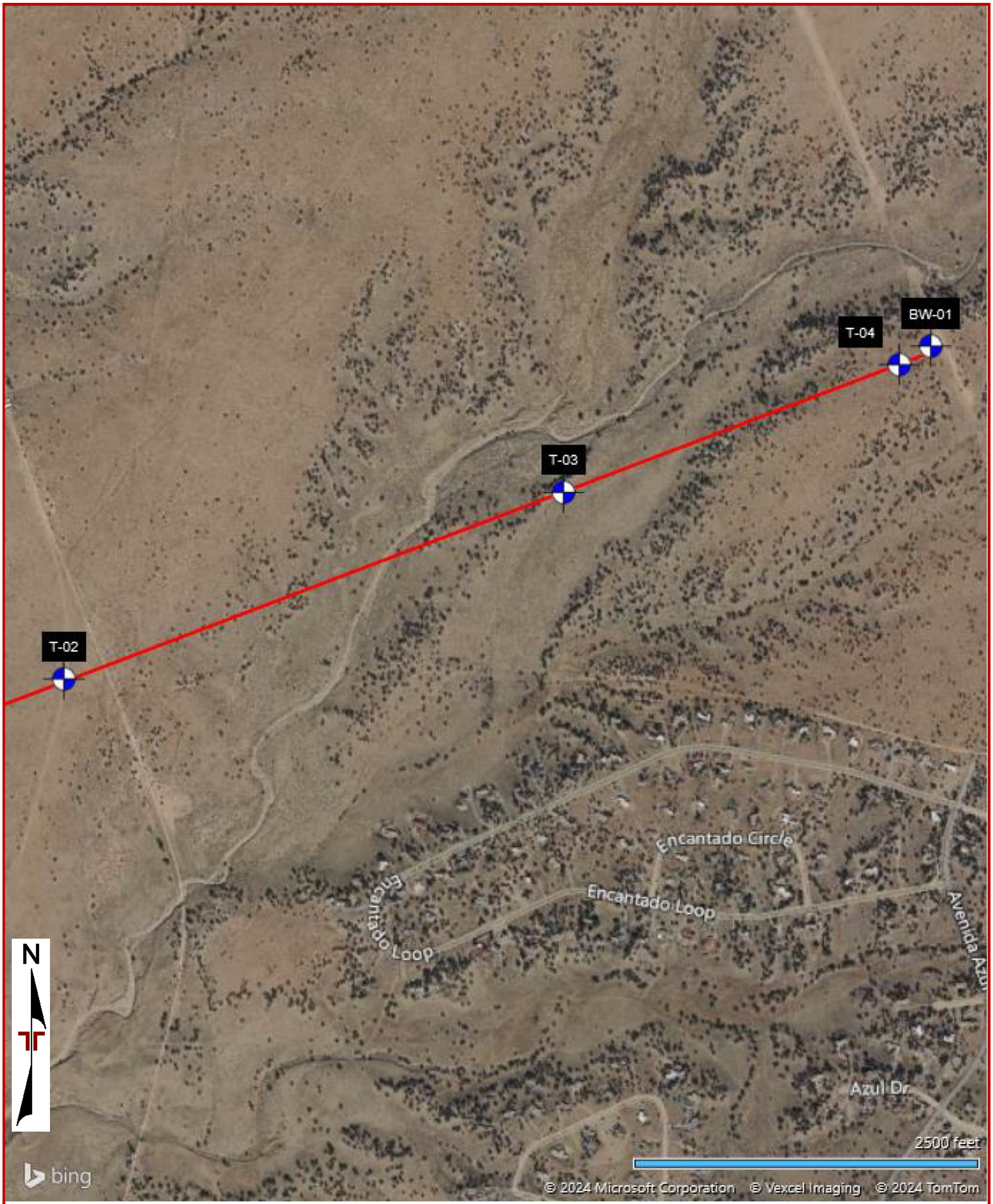


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exhibit C-2

Geotherm USA

21239 FM529 Rd., Bldg. F
Cypress, TX 77433
Tel: 281-985-9344
Fax: 832-427-1752
info@geothermusa.com
http://www.geothermusa.com

**December 21, 2023**

**Terracon**
6805 Academy Parkway West NE
Albuquerque, New Mexico 87109
**Attn: Stenson Lee**

## Re: Thermal Analysis of Native Soil Samples
## Rancho Viejo Solar – Santa Fe, NM (Project No. 66225093)

The following is the report of thermal dryout characterization tests conducted on ten (10) bulk samples of native soil from the referenced project sent to our laboratory.

**Thermal Resistivity Tests:** The samples were tested at the 'optimum' moisture content and at 85% of the standard 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 10.**

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

| Sample ID | Depth (ft) | Effort (%) | Description (Terracon) | Thermal Resistivity (°C-cm/W) | | Moisture Content (%) | Dry Density (lb/ft$^3$) |
|---|---|---|---|---|---|---|---|
| | | | | Wet | Dry | | |
| A-01 | 1.0 - 5.0 | 85 | Silty Sand (SM) | 97 | 236 | 14 | 92 |
| A-06 | 1.0 - 5.0 | 85 | Silty Sand (SM) | 69 | 157 | 11 | 101 |
| A-08 | 1.0 - 5.0 | 85 | Lean Clay (CL) | 89 | 205 | 13 | 96 |
| A-11 | 1.0 - 5.0 | 85 | Lean Clay (CL) | 92 | 218 | 16 | 92 |
| A-14 | 1.0 - 5.0 | 85 | Silty Sand (SM) | 95 | 306 | 17 | 86 |
| BW-01 | 1.0 - 5.0 | 85 | Lean Clay w/ Sand | 78 | 186 | 13 | 100 |
| T-01 | 1.0 - 5.0 | 85 | Clayey Sand (SC) | 94 | 239 | 18 | 90 |

Exhibit C-3

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

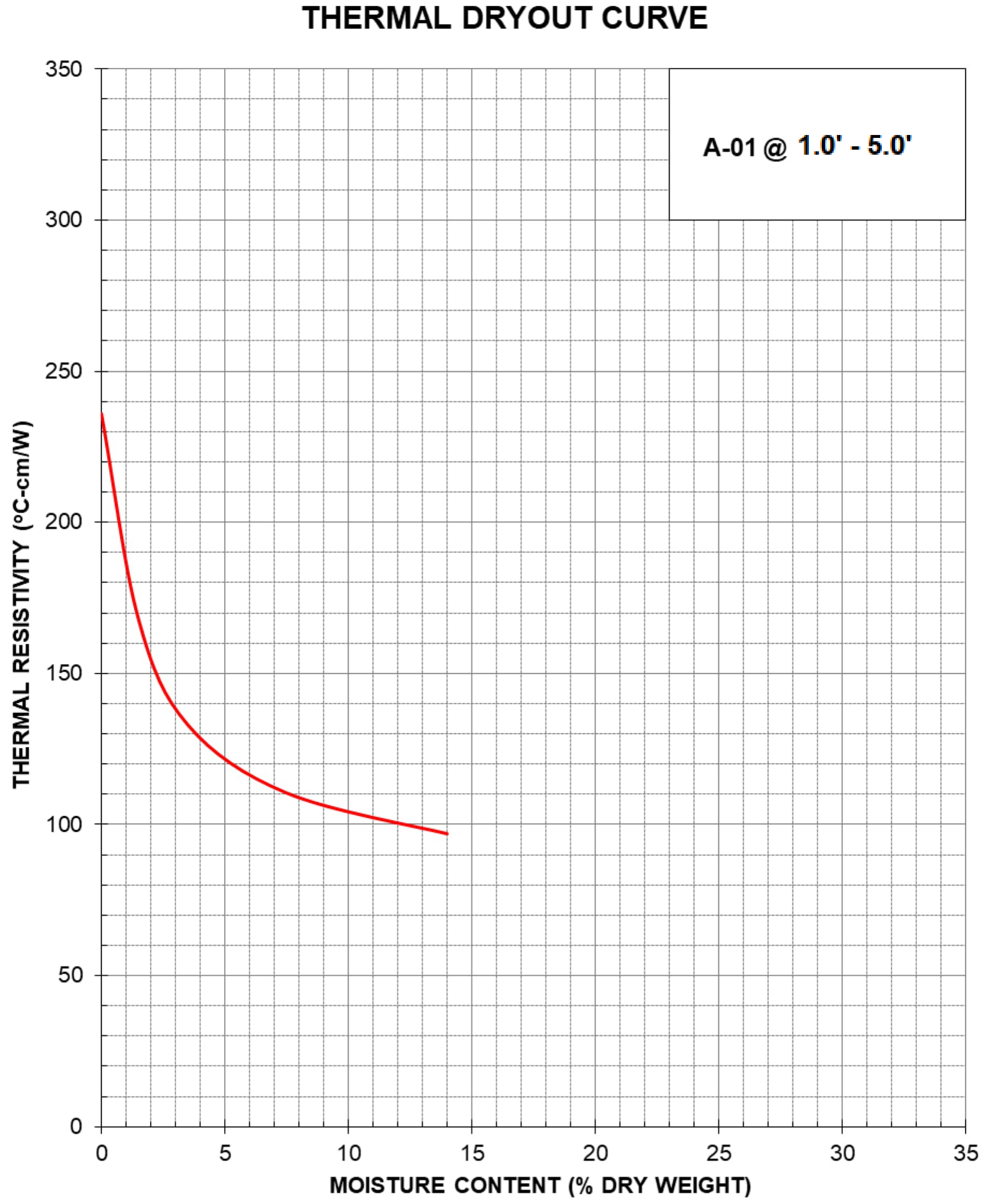
| Sample ID | Depth (ft) | Effort (%) | Description (Terracon) | Thermal Resistivity (°C-cm/W) | | Moisture Content (%) | Dry Density (lb/ft³) |
|---|---|---|---|---|---|---|---|
| | | | | Wet | Dry | | |
| T-02 | 1.0 - 5.0 | 85 | Clayey Sand (SC) | 90 | 239 | 12 | 95 |
| T-03 | 1.0 - 5.0 | 85 | Lean Clay (CL) | 80 | 168 | 13 | 102 |
| T-04 | 1.0 - 5.0 | 85 | Lean Clay (CL) | 67 | 137 | 9 | 109 |

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

***Geotherm USA***

Deepak Parmar

1.0' - 5.0'



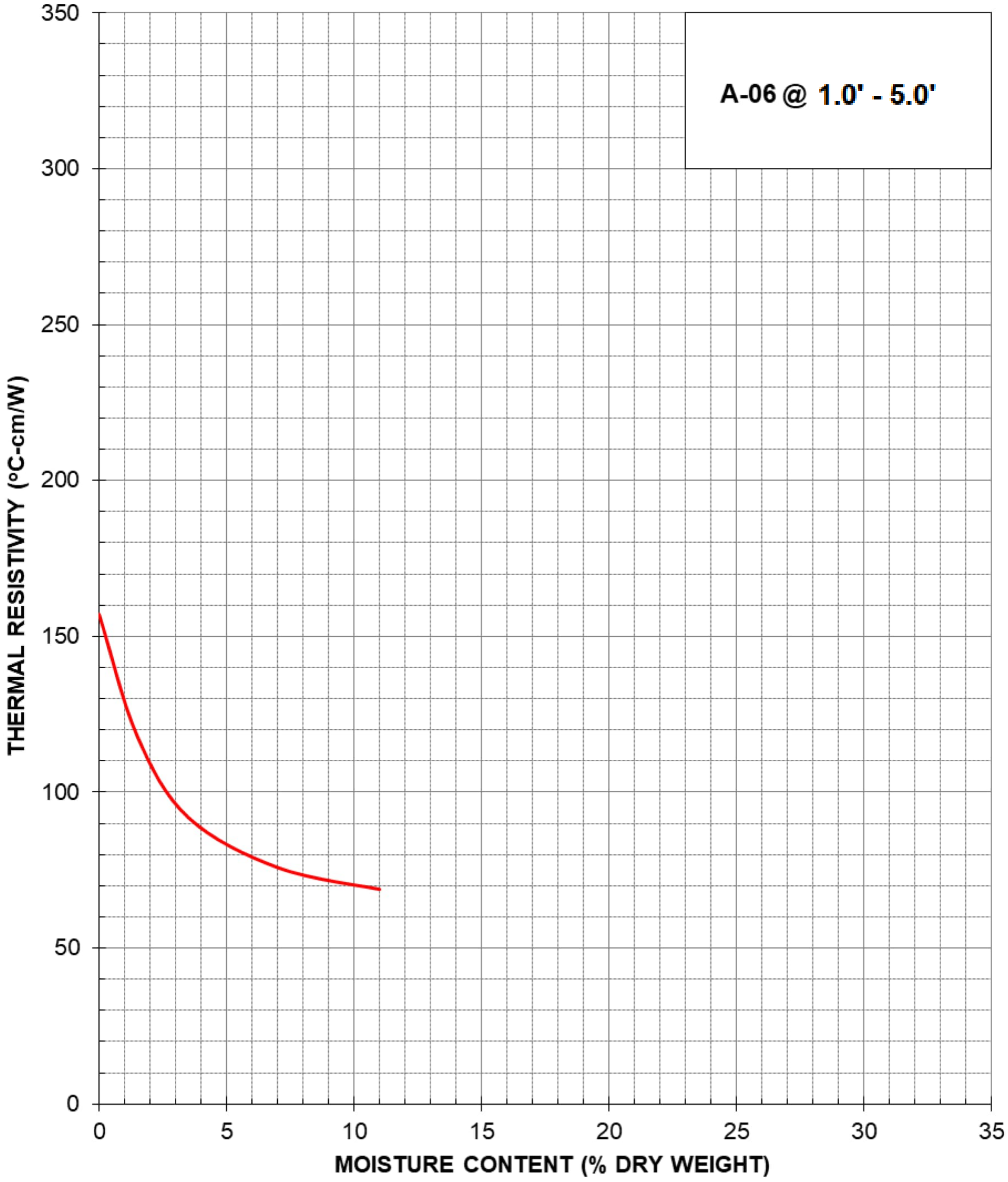
**Terracon (Project No. 66225093)**

**Rancho Viejo Solar – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**December 2023** **Figure 1**

## THERMAL DRYOUT CURVE



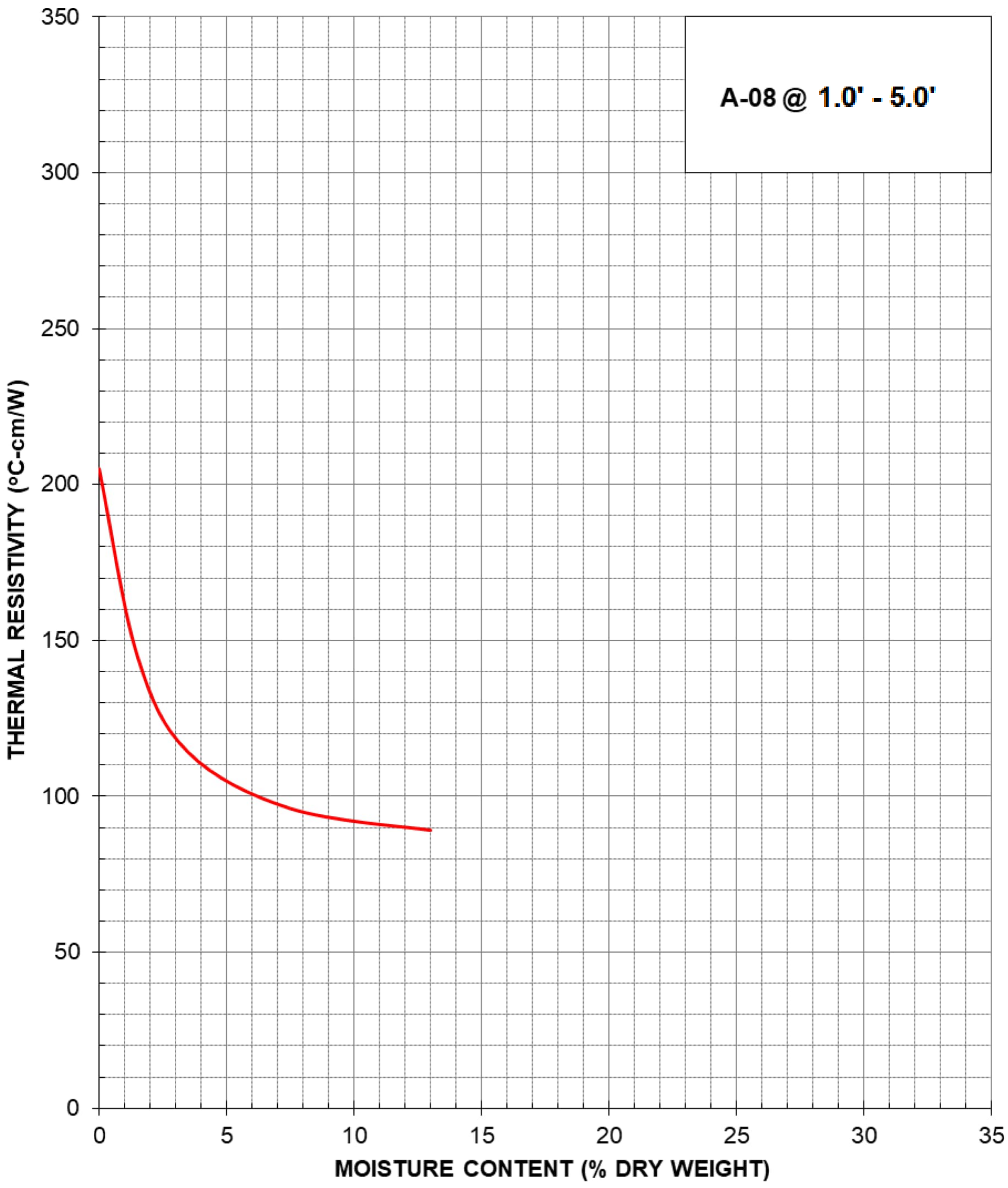
**Terracon (Project No. 66225093)**

**Rancho Viejo Solar – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**December 2023** **Figure 2**

## THERMAL DRYOUT CURVE



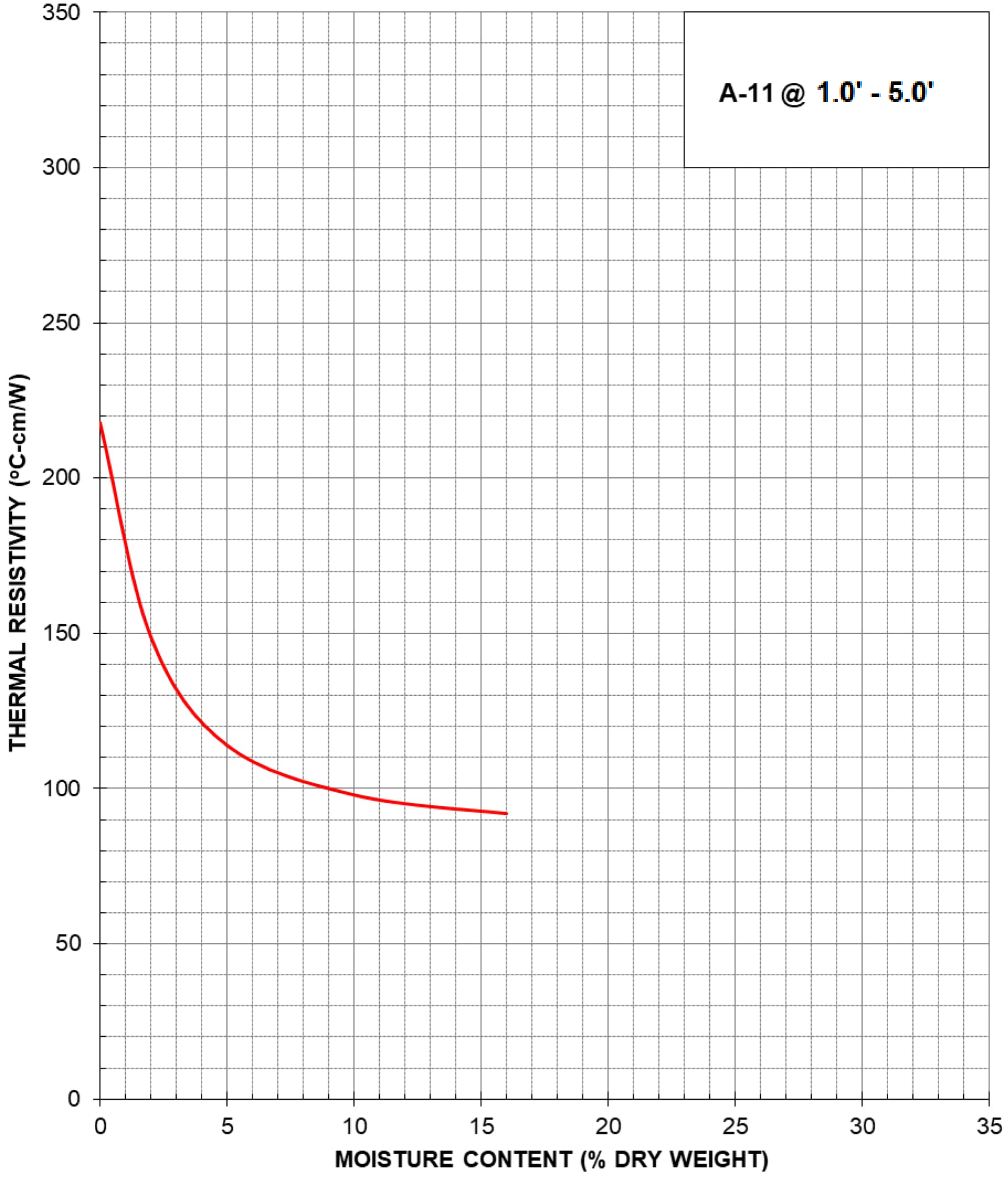
**Terracon (Project No. 66225093)**

**Rancho Viejo Solar – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**December 2023** **Figure 3**

# THERMAL DRYOUT CURVE



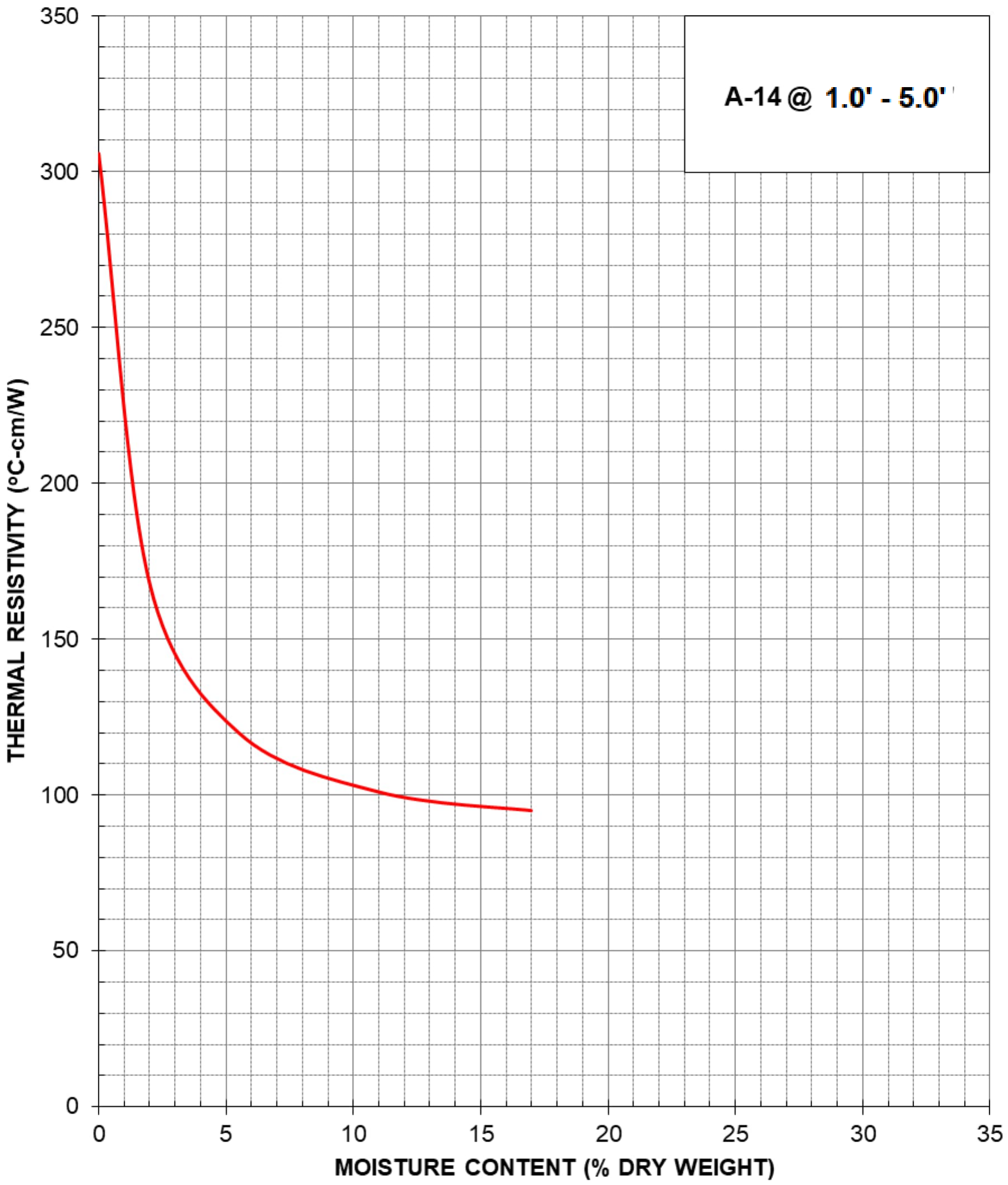
**Terracon (Project No. 66225093)**

**Rancho Viejo Solar – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**December 2023** **Figure 4**

# THERMAL DRYOUT CURVE



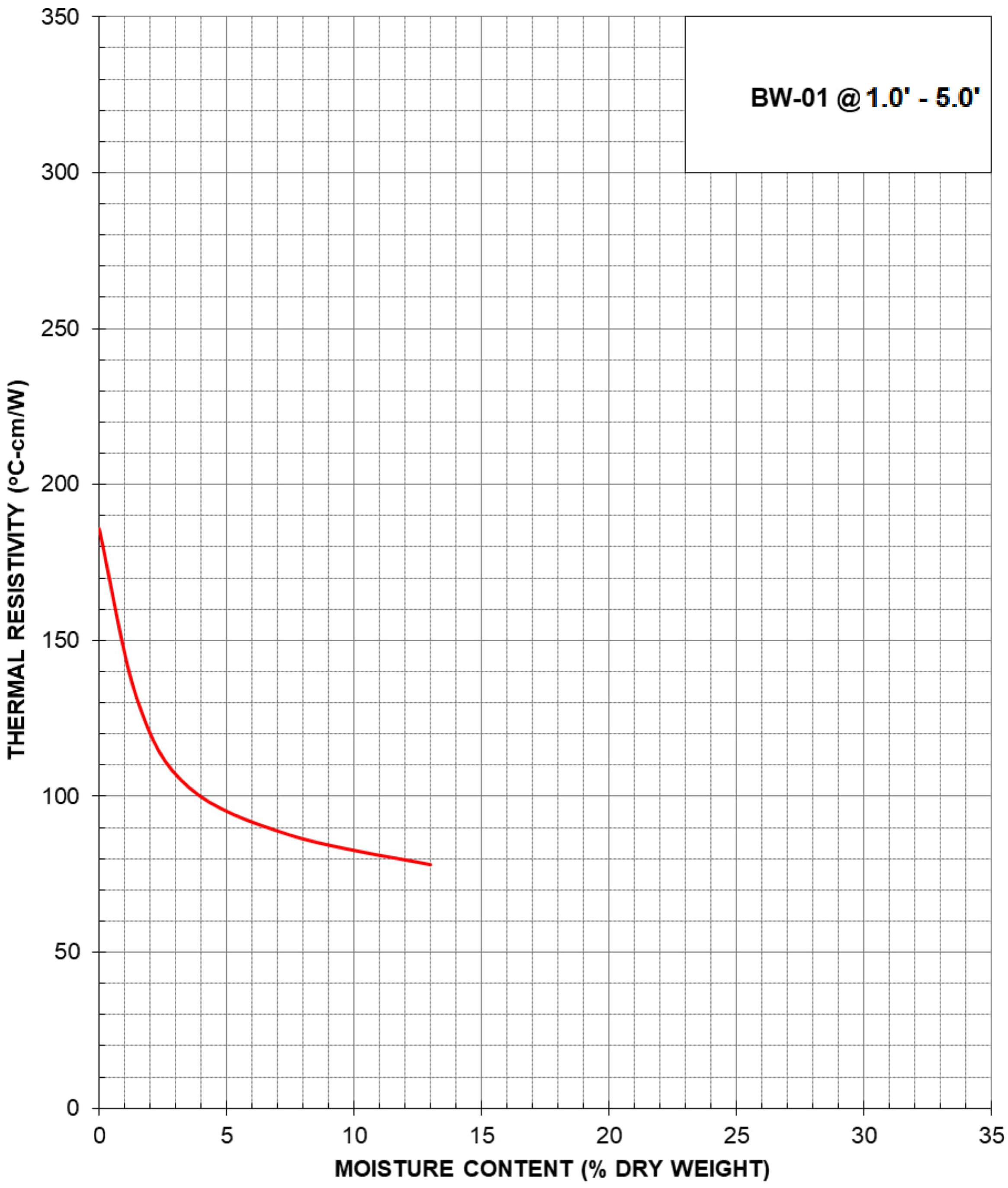
**Terracon (Project No. 66225093)**

**Rancho Viejo Solar – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**December 2023** **Figure 5**

## THERMAL DRYOUT CURVE



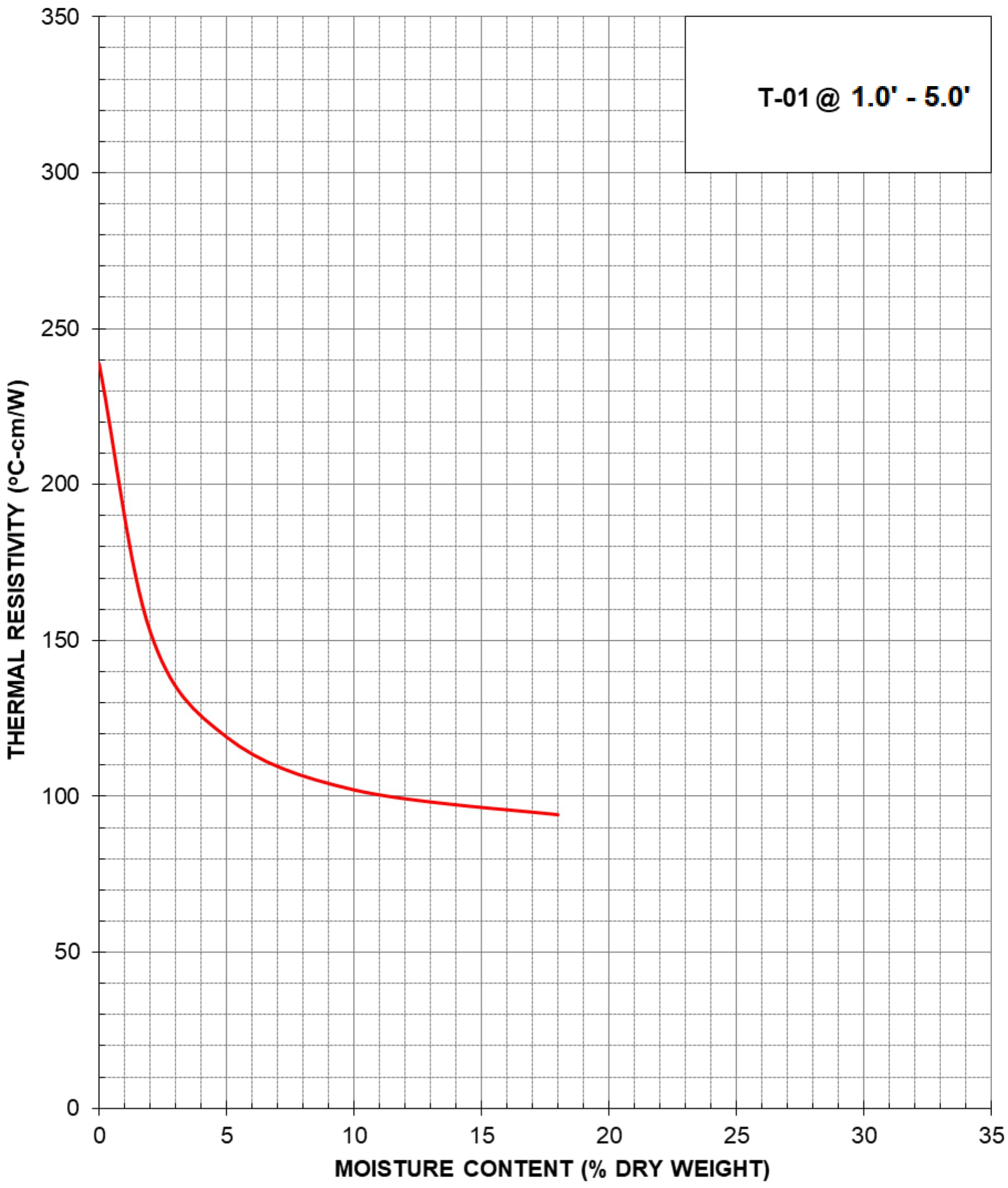
**Terracon (Project No. 66225093)**

**Rancho Viejo Solar – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**December 2023** **Figure 6**

# THERMAL DRYOUT CURVE



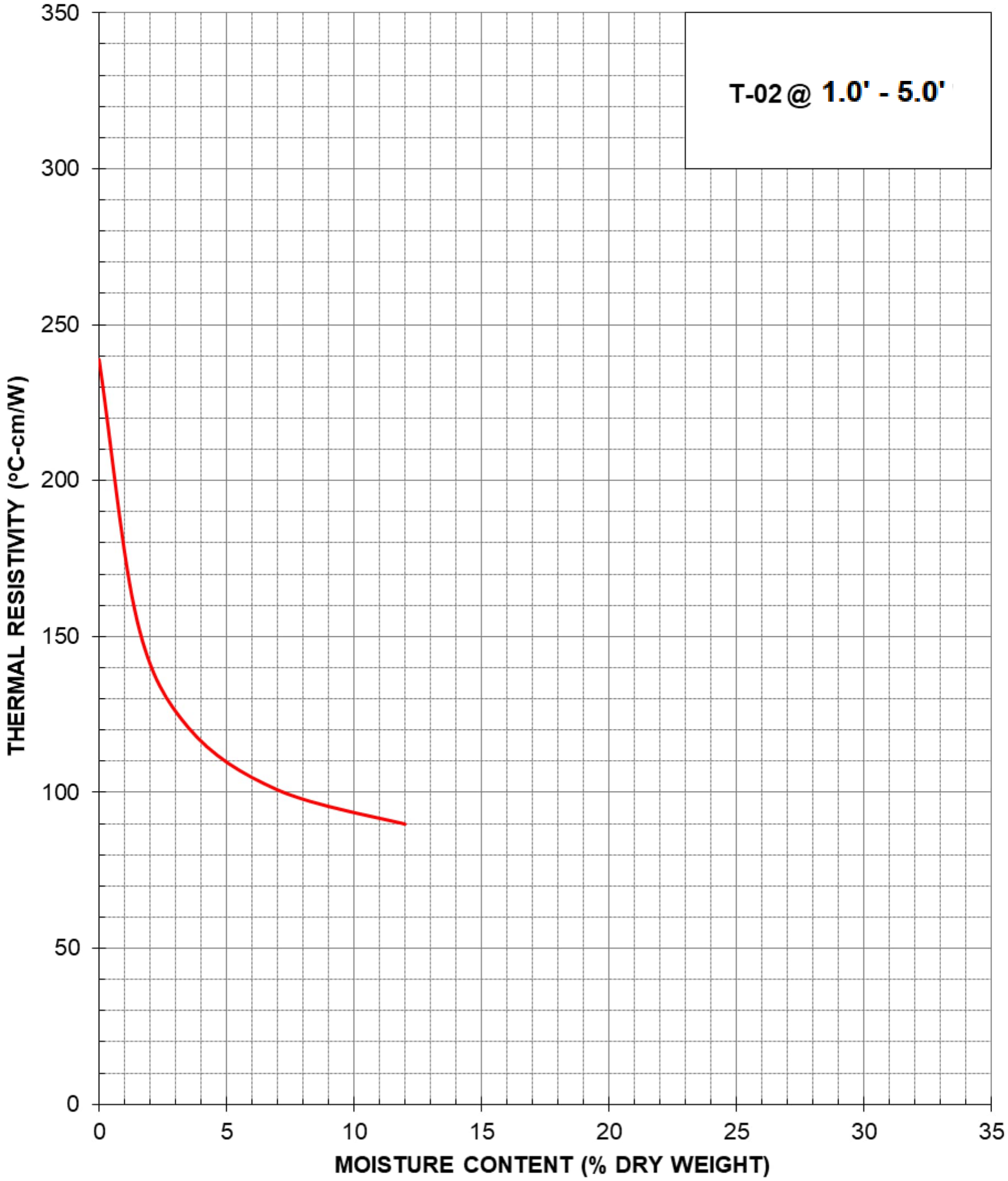
**Terracon (Project No. 66225093)**

**Rancho Viejo Solar – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**December 2023** **Figure 7**

# THERMAL DRYOUT CURVE



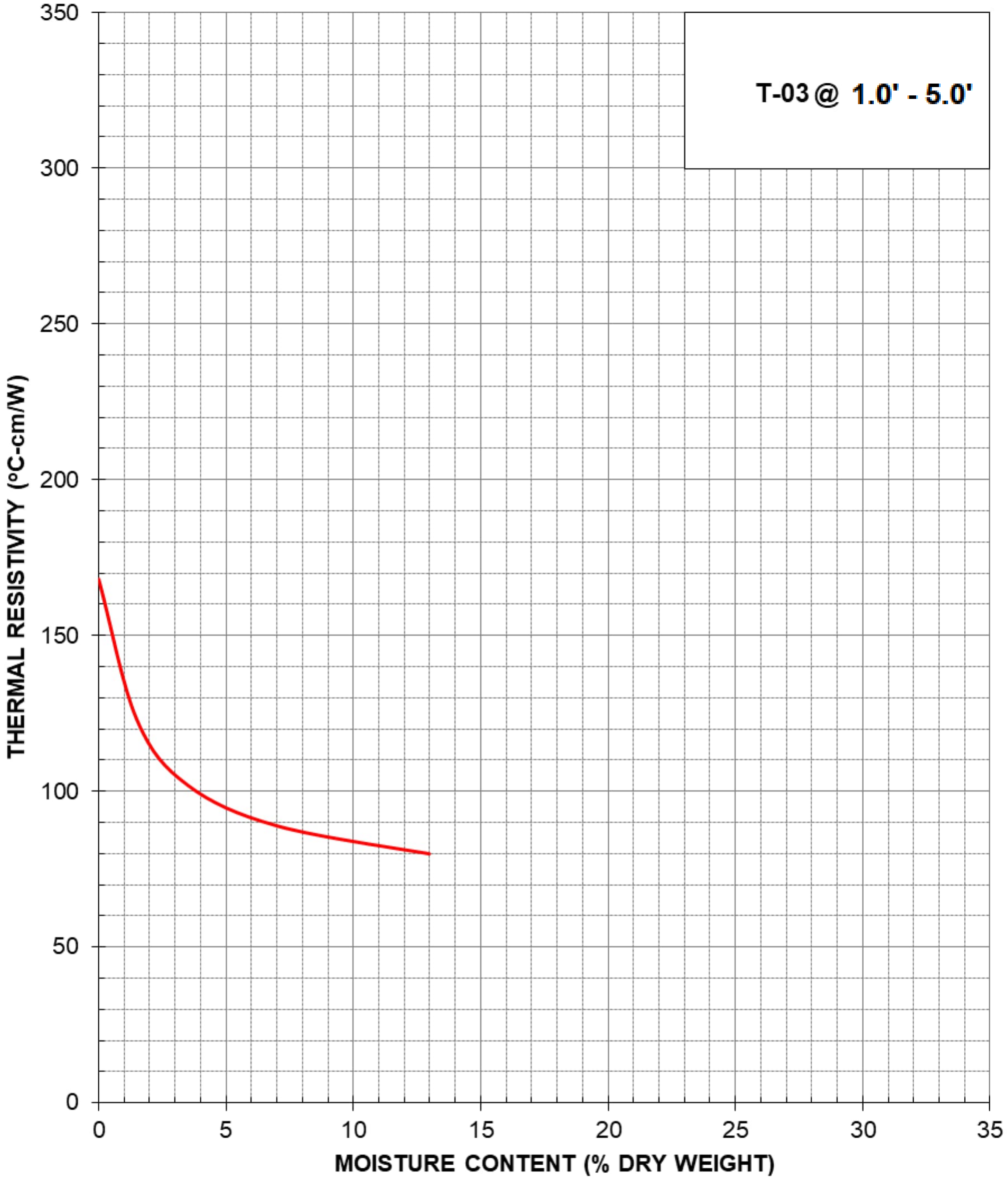
**Terracon (Project No. 66225093)**

**Rancho Viejo Solar – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**December 2023** **Figure 8**

# THERMAL DRYOUT CURVE



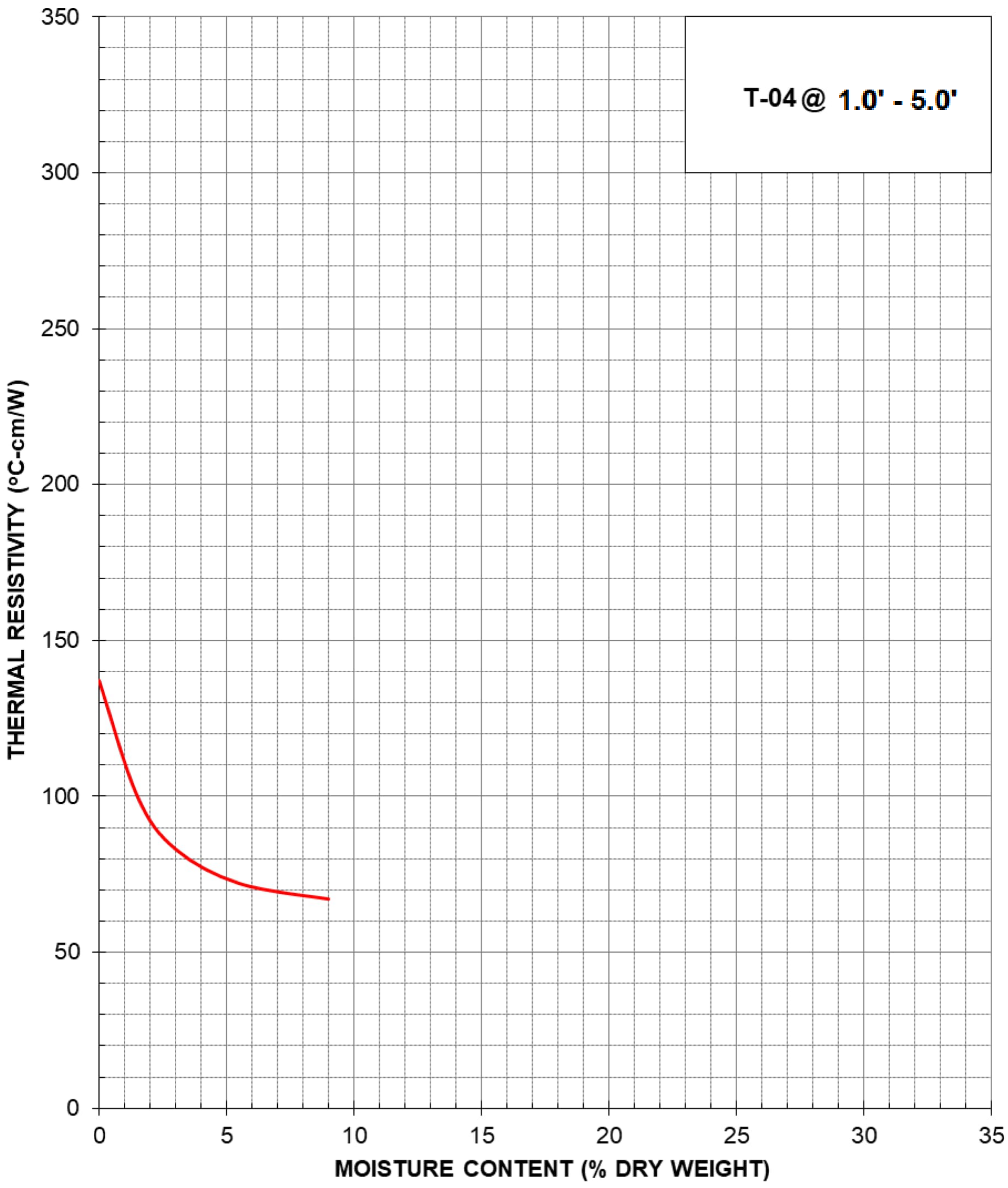
**Terracon (Project No. 66225093)**

**Rancho Viejo Solar – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**December 2023** **Figure 9**

## THERMAL DRYOUT CURVE



**Terracon (Project No. 66225093)**

**Rancho Viejo Solar – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**December 2023** **Figure 10**

21239 FM529 Rd., Bldg. F
Cypress, TX 77433
Tel: 281-985-9344
Fax: 832-427-1752
info@geothermusa.com
http://www.geothermusa.com

**September 2, 2022**

**Terracon**
6805 Academy Parkway West NE
Albuquerque, New Mexico 87109
**Attn: Stenson Lee**

**Re: Thermal Analysis of Native Soil Samples**
**Rancho Viejo Solar – Santa Fe County, NM (PO No. 66225093)**

The following is the report of thermal dryout characterization tests conducted on four (4) samples of native soil from the referenced project sent to our laboratory.

**Thermal Resistivity Tests:** The samples were tested at the 'optimum' moisture content and at 90% and 95% of the standard 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 4.**

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

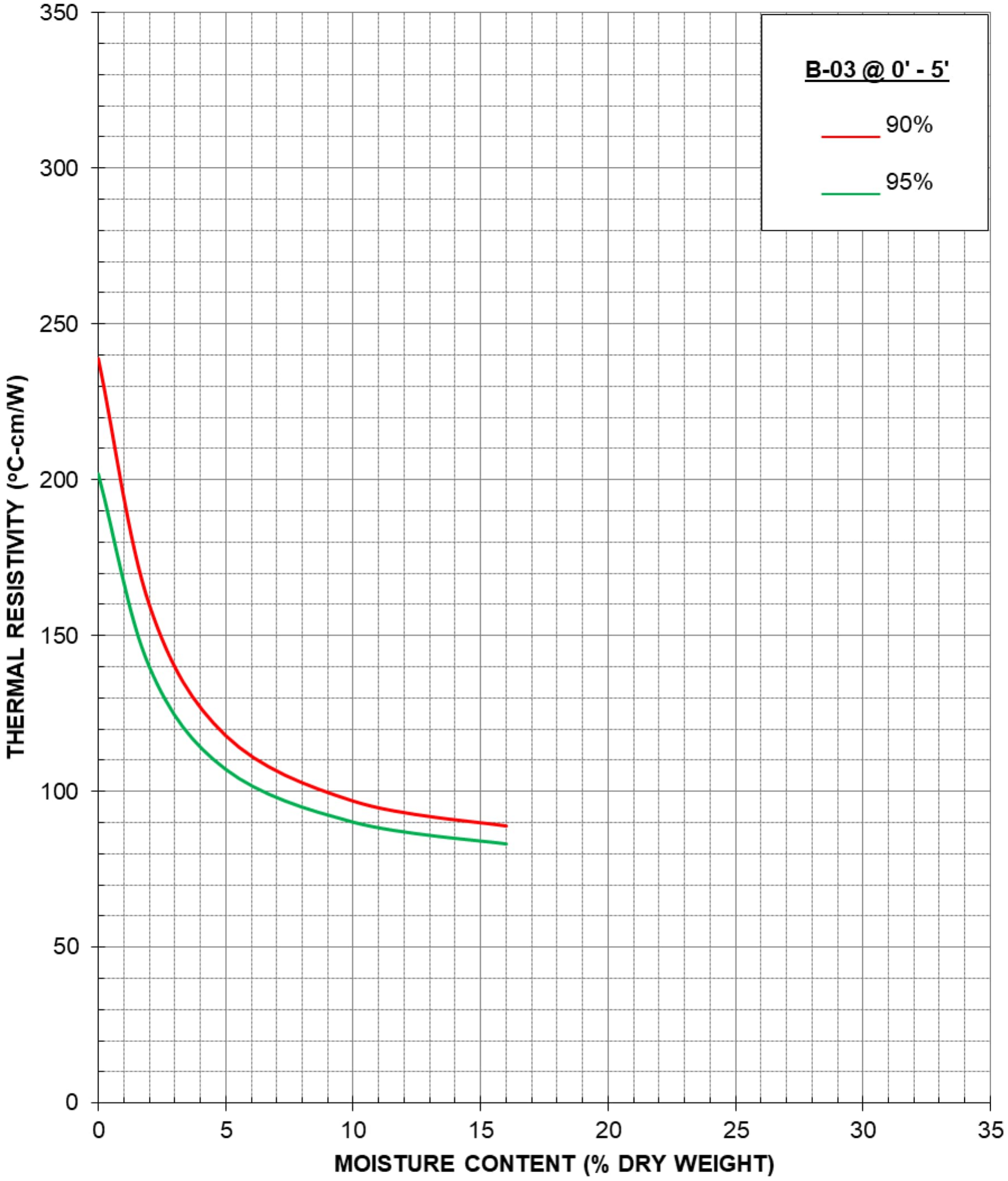
| Sample ID | Effort (%) | Description (Terracon) | Thermal Resistivity (°C-cm/W) | | Moisture Content (%) | Dry Density (lb/ft$^3$) |
|---|---|---|---|---|---|---|
| | | | Wet | Dry | | |
| B-03 | 90 | Sandy silt (ML) | 89 | 239 | 16 | 98 |
| | 95 | | 83 | 202 | | 104 |
| B-07 | 90 | Silt with sand (ML) | 82 | 207 | 13 | 106 |
| | 95 | | 76 | 173 | | 112 |
| B-10 | 90 | Sandy silt (ML) | 74 | 194 | 14 | 106 |
| | 95 | | 69 | 163 | | 112 |
| B-Sub | 90 | Sandy silt (ML) | 103 | 303 | 11 | 92 |
| | 95 | | 92 | 262 | | 98 |

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

***Geotherm USA***

Nimesh Patel

## THERMAL DRYOUT CURVES



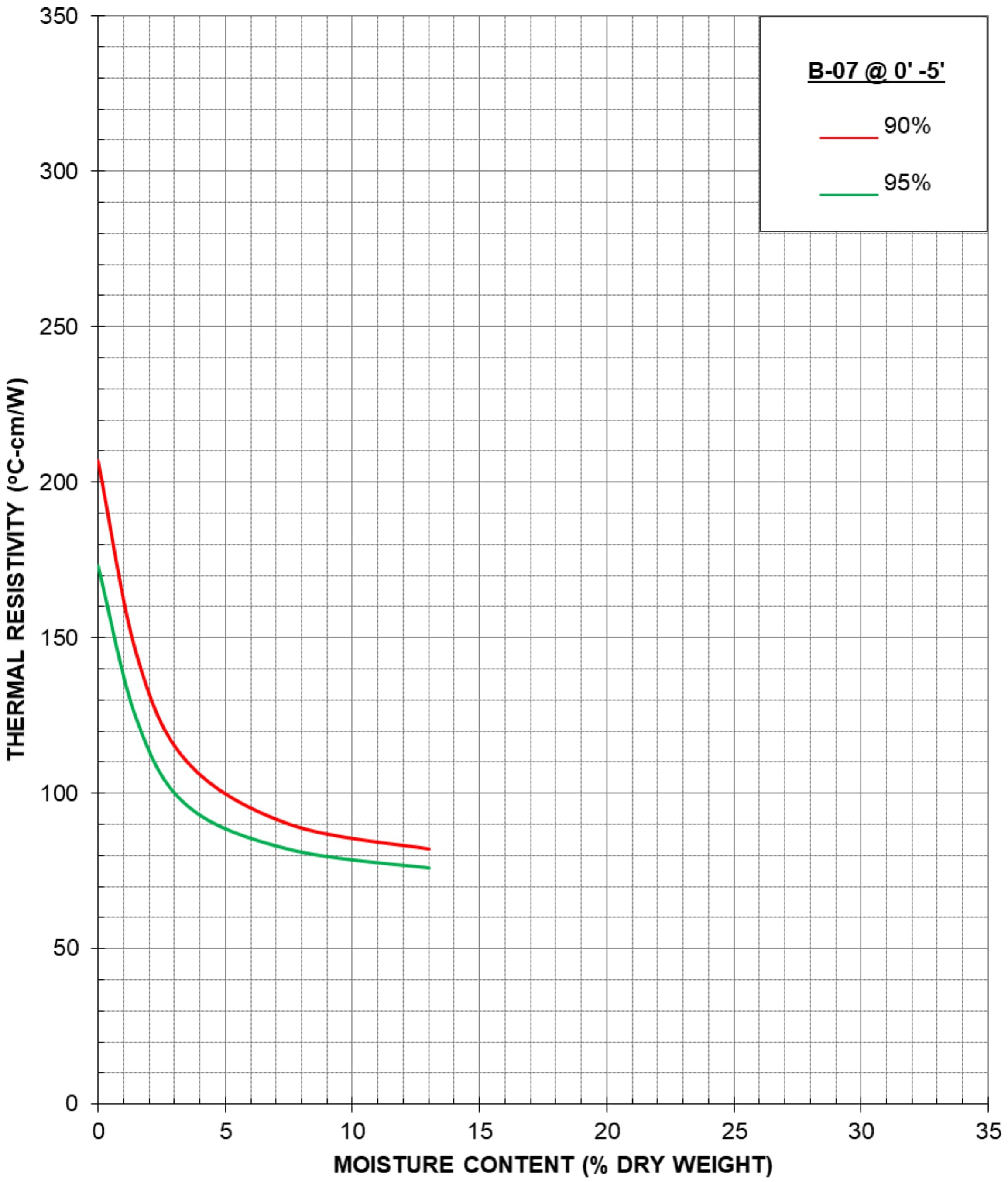
**Terracon (PO No. 66225093)**

**Rancho Viejo Solar – Santa Fe County, NM**

**Thermal Analysis of Native Soil Samples**

**September 2022** **Figure 1**

## THERMAL DRYOUT CURVES



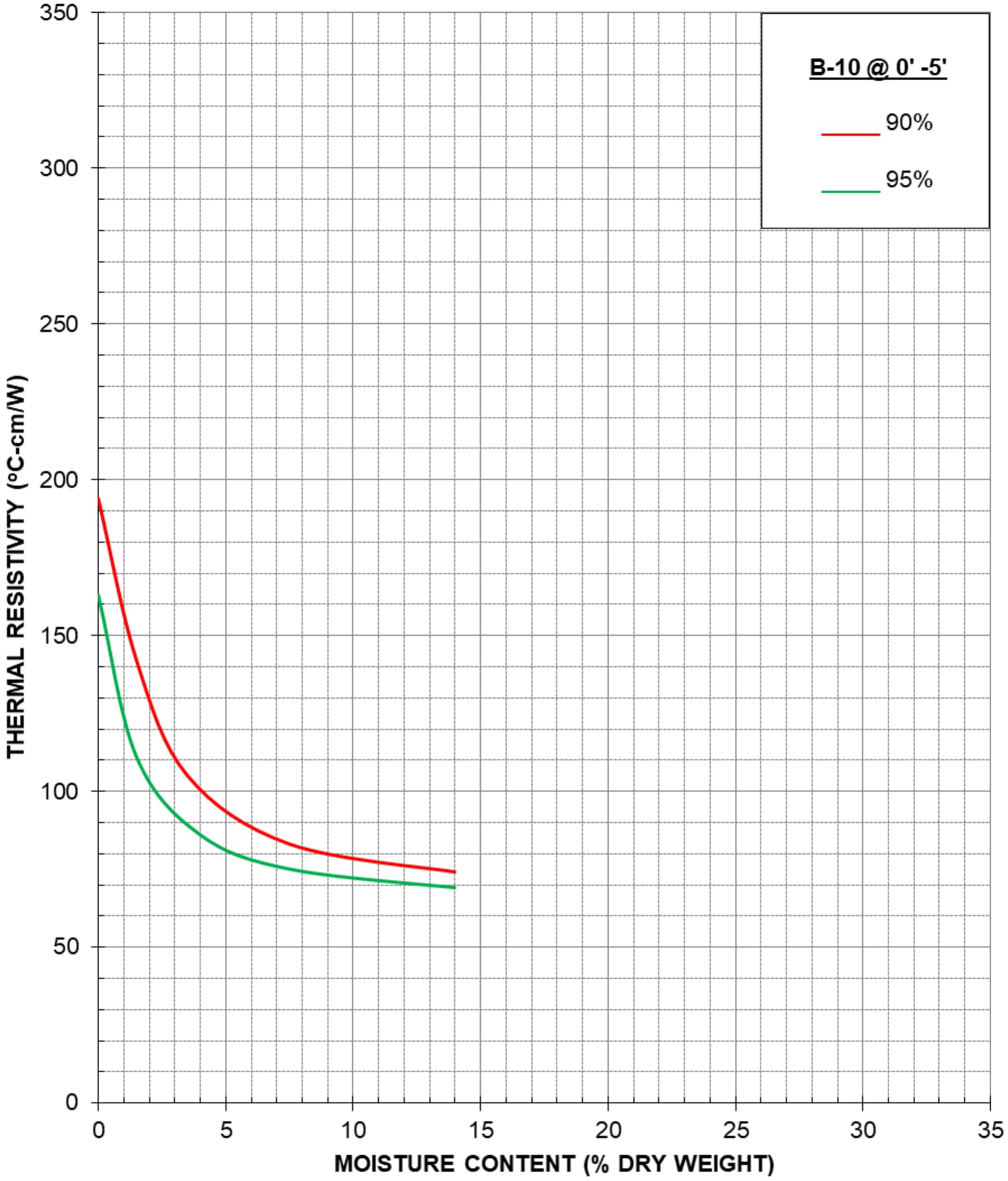
**Terracon (PO No. 66225093)**

**Rancho Viejo Solar – Santa Fe County, NM**

**Thermal Analysis of Native Soil Samples**

**September 2022** **Figure 2**

## THERMAL DRYOUT CURVES



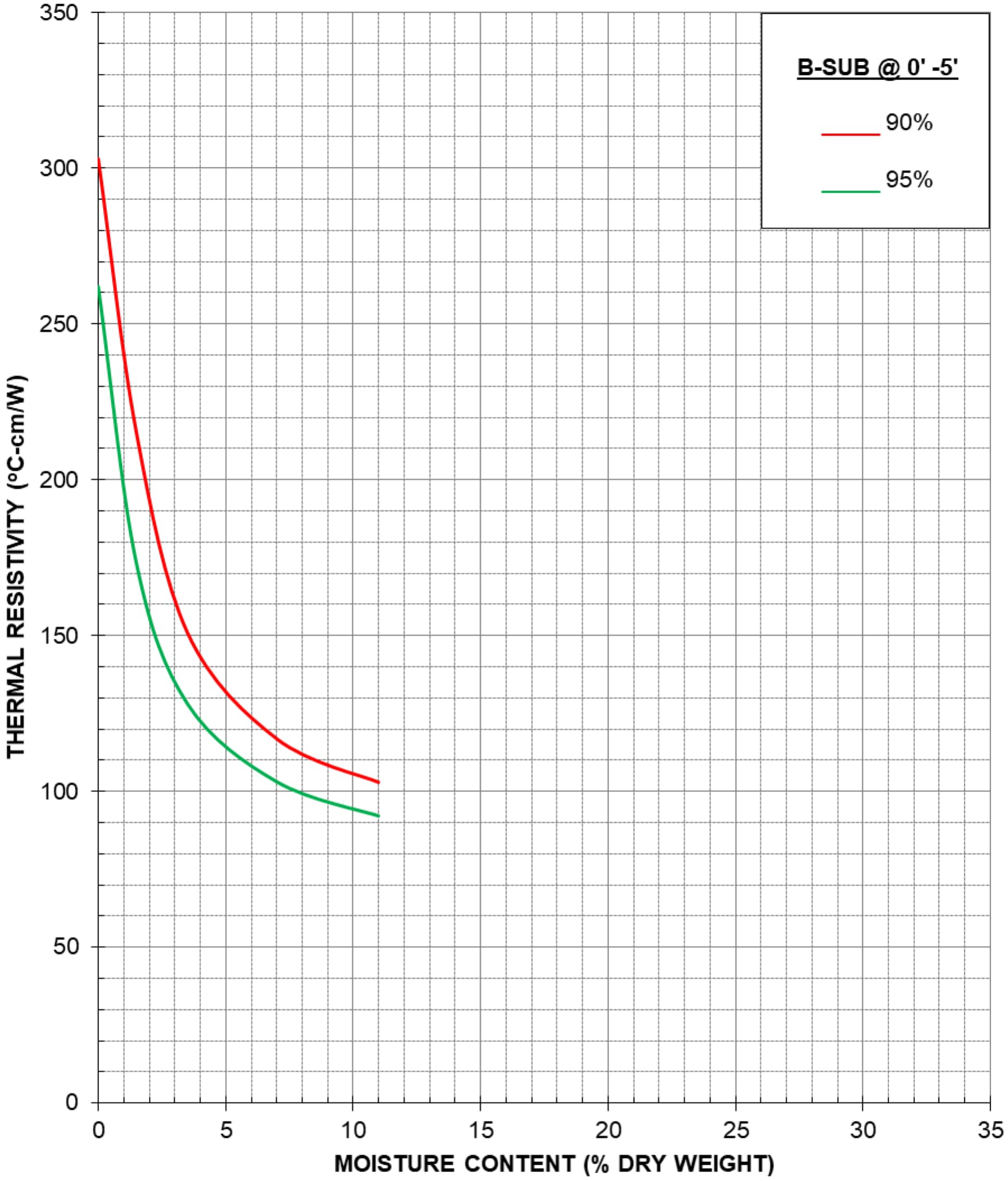
**Terracon (PO No. 66225093)**

**Rancho Viejo Solar – Santa Fe County, NM**

**Thermal Analysis of Native Soil Samples**

**September 2022** **Figure 3**

## THERMAL DRYOUT CURVES



**Terracon (PO No. 66225093)**

**Rancho Viejo Solar – Santa Fe County, NM**

**Thermal Analysis of Native Soil Samples**

**September 2022** **Figure 4**

21239 FM529 Rd., Bldg. F
Cypress, TX 77433
Tel: 281-985-9344
Fax: 832-427-1752
info@geothermusa.com
http://www.geothermusa.com

**March 19, 2024**

**Terracon**
6805 Academy Parkway West NE
Albuquerque, New Mexico 87109
**Attn: Stenson Lee**

## Re: Thermal Analysis of Native Soil Samples
## Rancho Viejo Solar Part 2– Santa Fe, NM (Project No. 66225093)

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

**Thermal Resistivity Tests:** The samples were tested at the 'optimum' moisture content and at 85% and 90% of the standard 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) | Effort (%) | Description (Terracon) | Thermal Resistivity (°C-cm/W) | | Moisture Content (%) | Dry Density (lb/ft$^3$) |
|---|---|---|---|---|---|---|---|
| | | | | Wet | Dry | | |
| A-01A | 1 - 5 | 85 | Lean Clay | 99 | 209 | 14 | 93 |
| A-01A | 1 - 5 | 90 | Lean Clay | 94 | 182 | 14 | 98 |
| A-06A | 1 - 5 | 85 | Lean Clay | 92 | 178 | 11 | 100 |
| A-06A | 1 - 5 | 90 | Lean Clay | 87 | 155 | 11 | 106 |
| A-08A | 1 - 5 | 85 | Lean Clay | 108 | 266 | 17 | 87 |
| A-08A | 1 - 5 | 90 | Lean Clay | 103 | 231 | 17 | 93 |
| A-11A | 1 - 5 | 85 | Lean Clay | 89 | 200 | 14 | 96 |
| A-11A | 1 - 5 | 90 | Lean Clay | 85 | 174 | 14 | 101 |

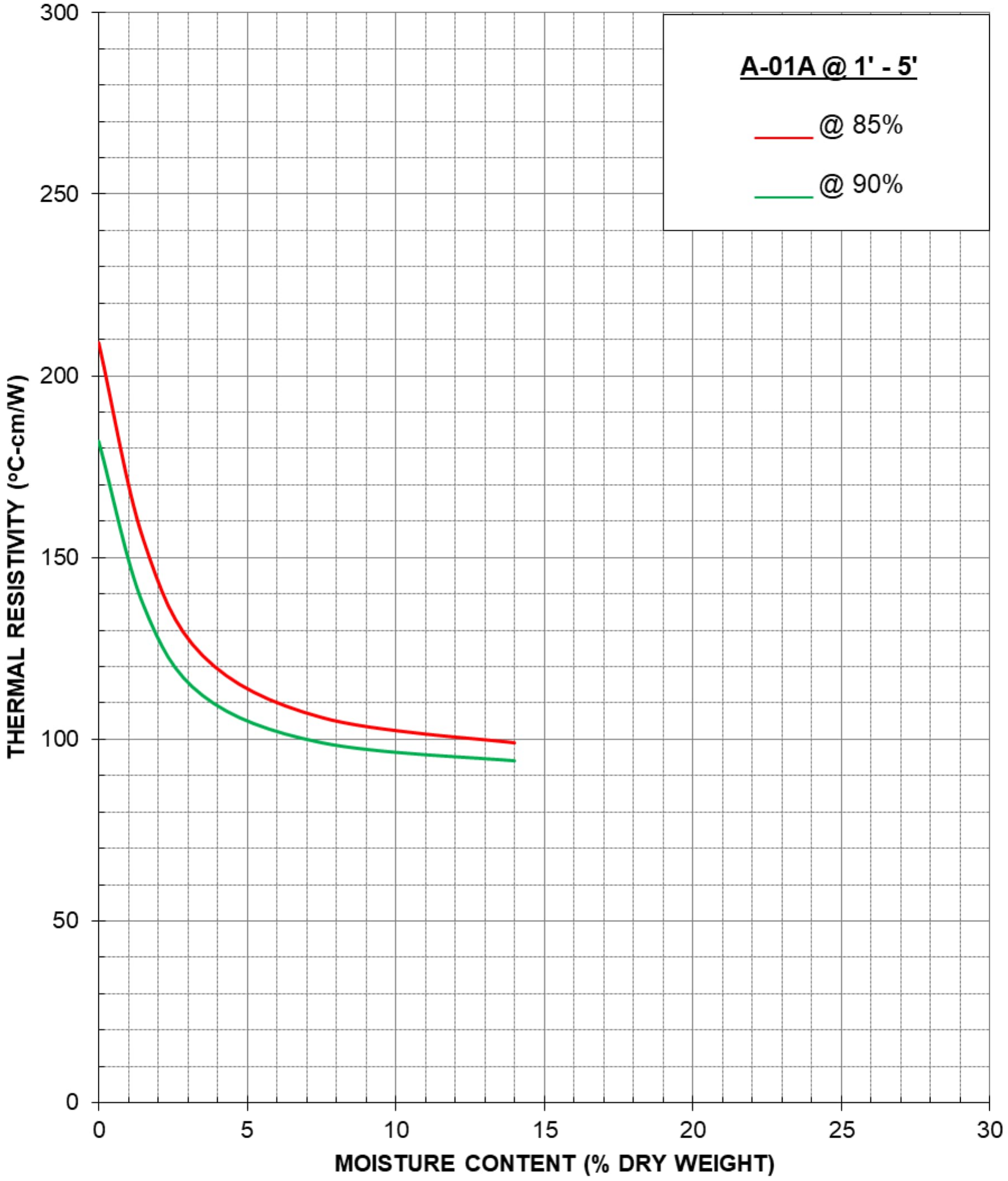
## Sample ID, Description, Thermal Resistivity, Moisture Content and Density

| Sample ID | Depth (ft) | Effort (%) | Description (Terracon) | Thermal Resistivity (°C-cm/W) | | Moisture Content (%) | Dry Density (lb/ft$^3$) |
|---|---|---|---|---|---|---|---|
| | | | | Wet | Dry | | |
| A-14A | 1 - 5 | 85 | Lean Clay | 109 | 269 | 20 | 86 |
| A-14A | 1 - 5 | 90 | Lean Clay | 104 | 234 | 20 | 91 |
| Sub-02A | 1 - 5 | 85 | Lean Clay | 96 | 260 | 18 | 88 |
| Sub-02A | 1 - 5 | 90 | Lean Clay | 91 | 226 | 18 | 93 |
| T-01A | 1 - 5 | 85 | Lean Clay | 110 | 289 | 22 | 82 |
| T-01A | 1 - 5 | 90 | Lean Clay | 105 | 251 | 22 | 86 |
| T-03A | 1 - 5 | 85 | Silty Sand | 69 | 139 | 10 | 105 |
| T-03A | 1 - 5 | 90 | Silty Sand | 66 | 121 | 10 | 111 |

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

***Geotherm USA***

Deepak Parmar



**THERMAL DRYOUT CURVES**

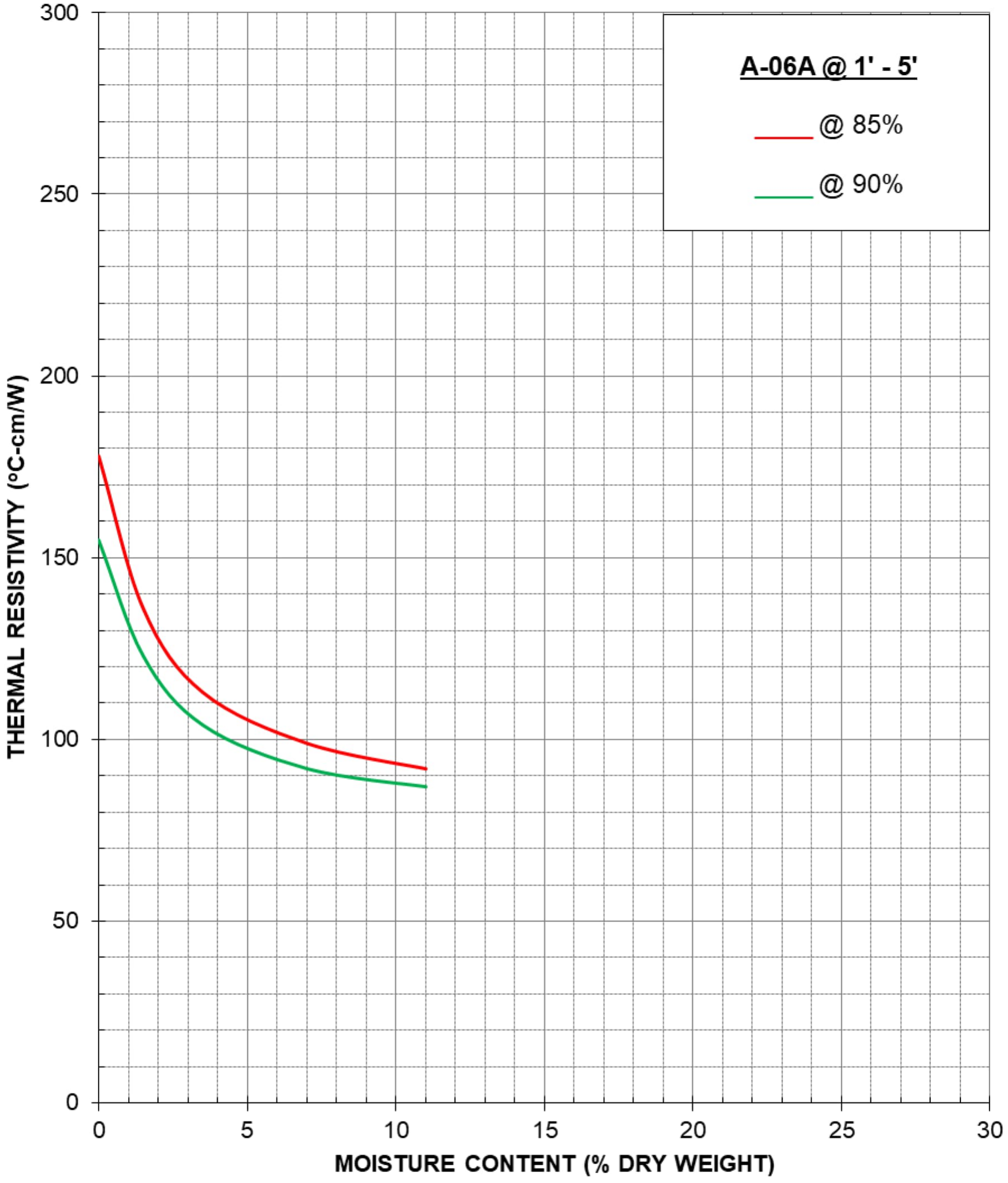
**Terracon (Project No. 66225093)**

**Rancho Viejo Solar Part 2 – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**March 2024** **Figure 1**

# THERMAL DRYOUT CURVES



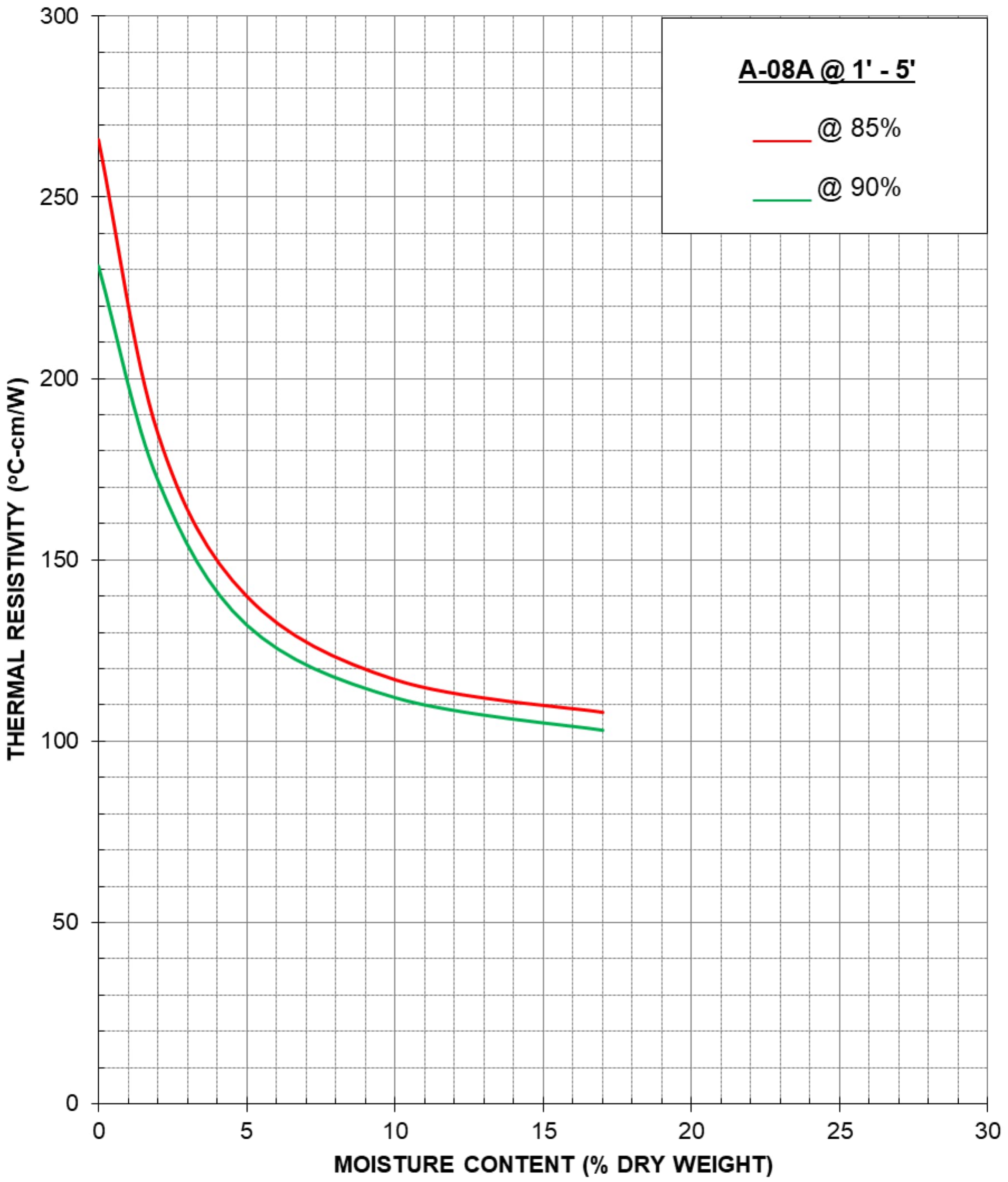
**Terracon (Project No. 66225093)**

**Rancho Viejo Solar Part 2 – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**March 2024** **Figure 2**

## THERMAL DRYOUT CURVES



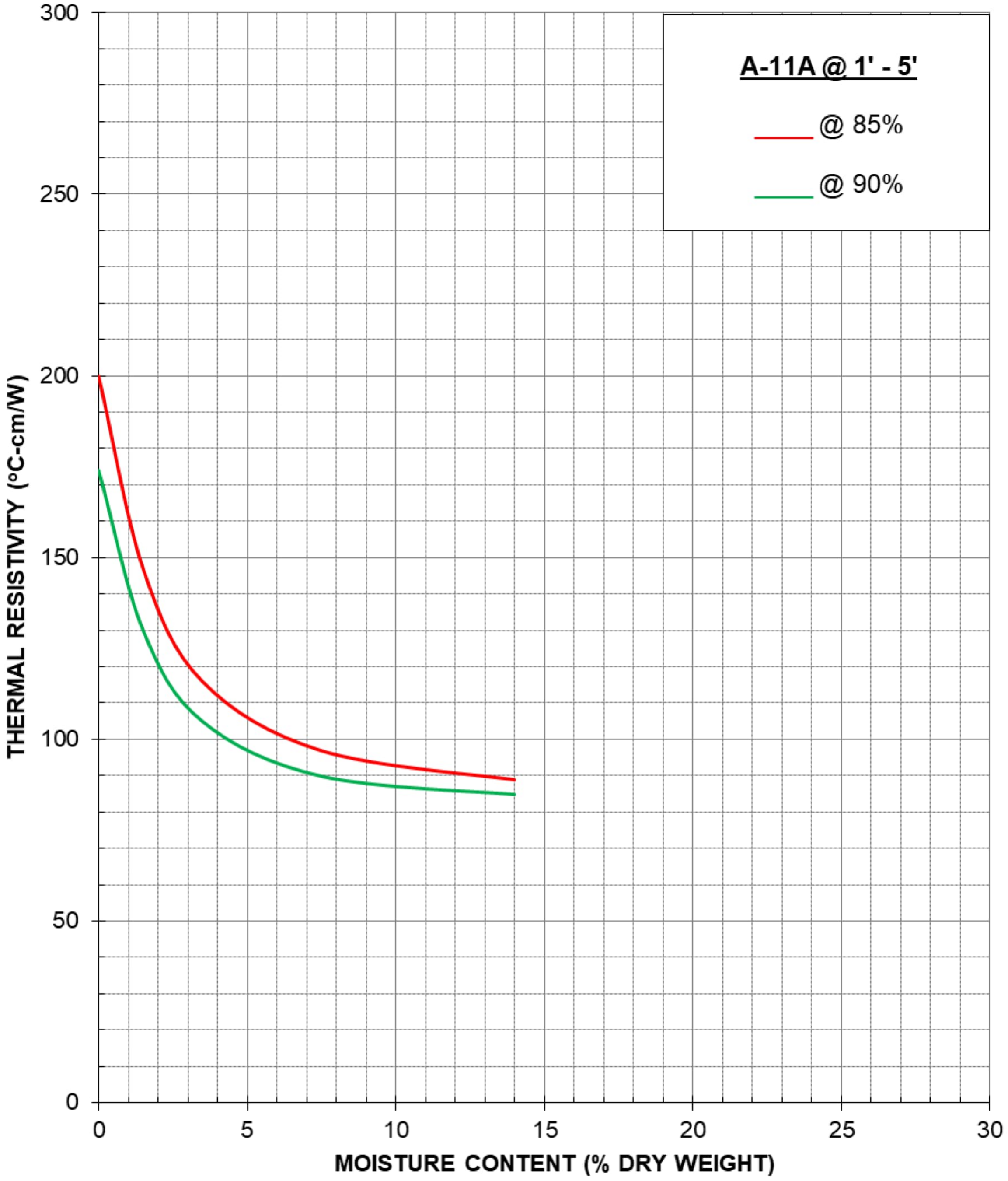
**Terracon (Project No. 66225093)**

**Rancho Viejo Solar Part 2 – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**March 2024** **Figure 3**

## THERMAL DRYOUT CURVES



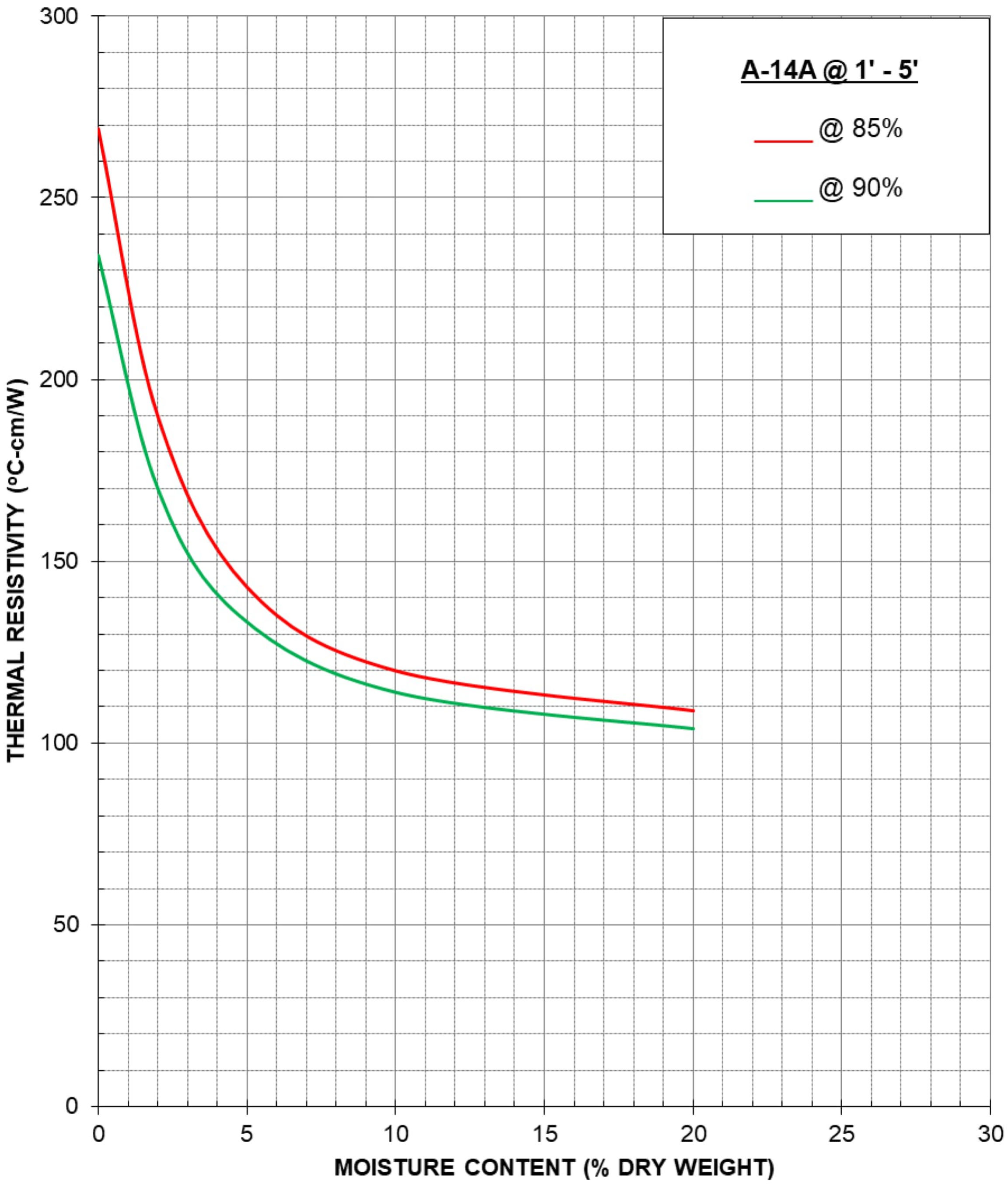
**Terracon (Project No. 66225093)**

**Rancho Viejo Solar Part 2 – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**March 2024** **Figure 4**

# THERMAL DRYOUT CURVES



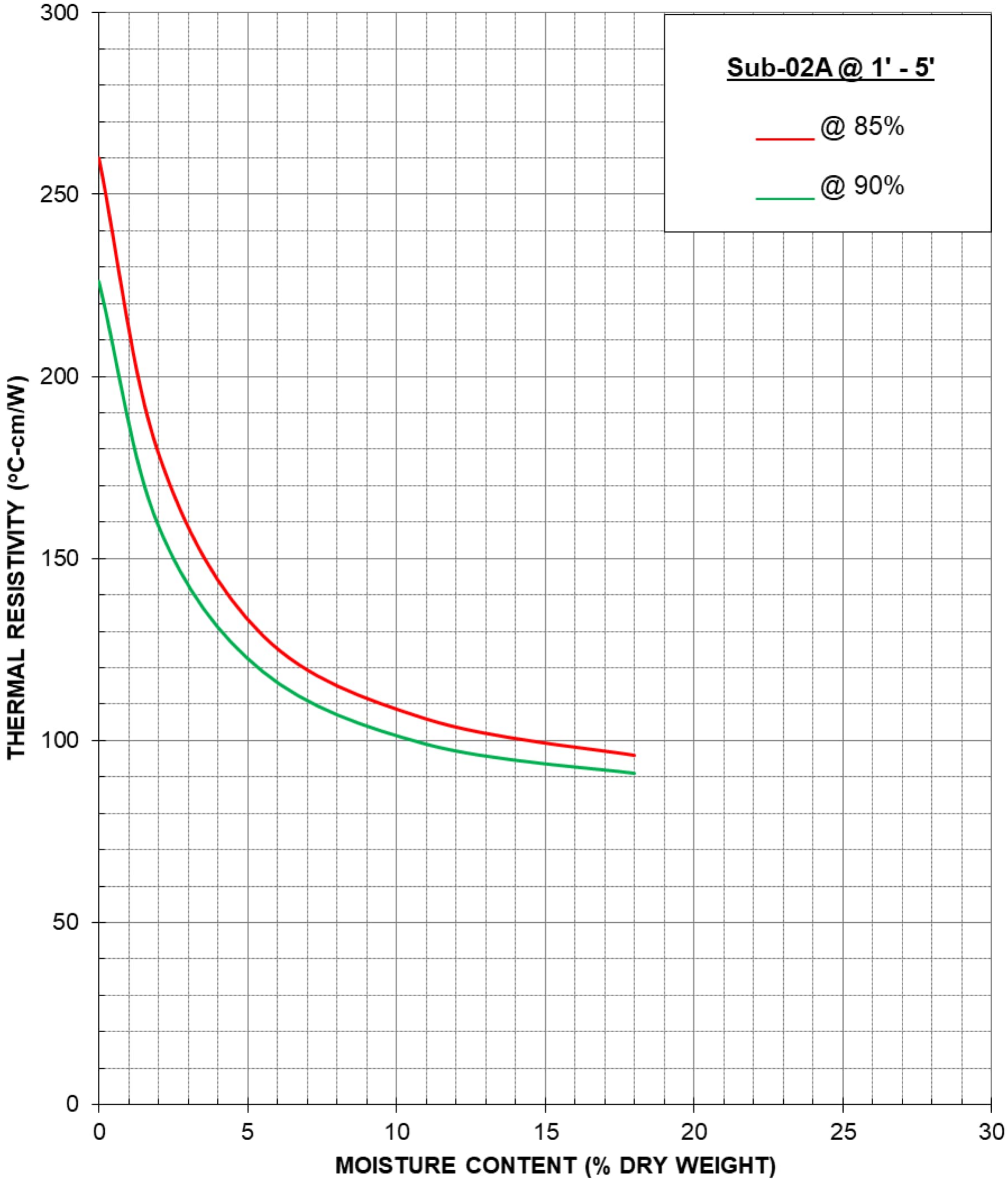
**Terracon (Project No. 66225093)**

**Rancho Viejo Solar Part 2 – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**March 2024** **Figure 5**

## THERMAL DRYOUT CURVES



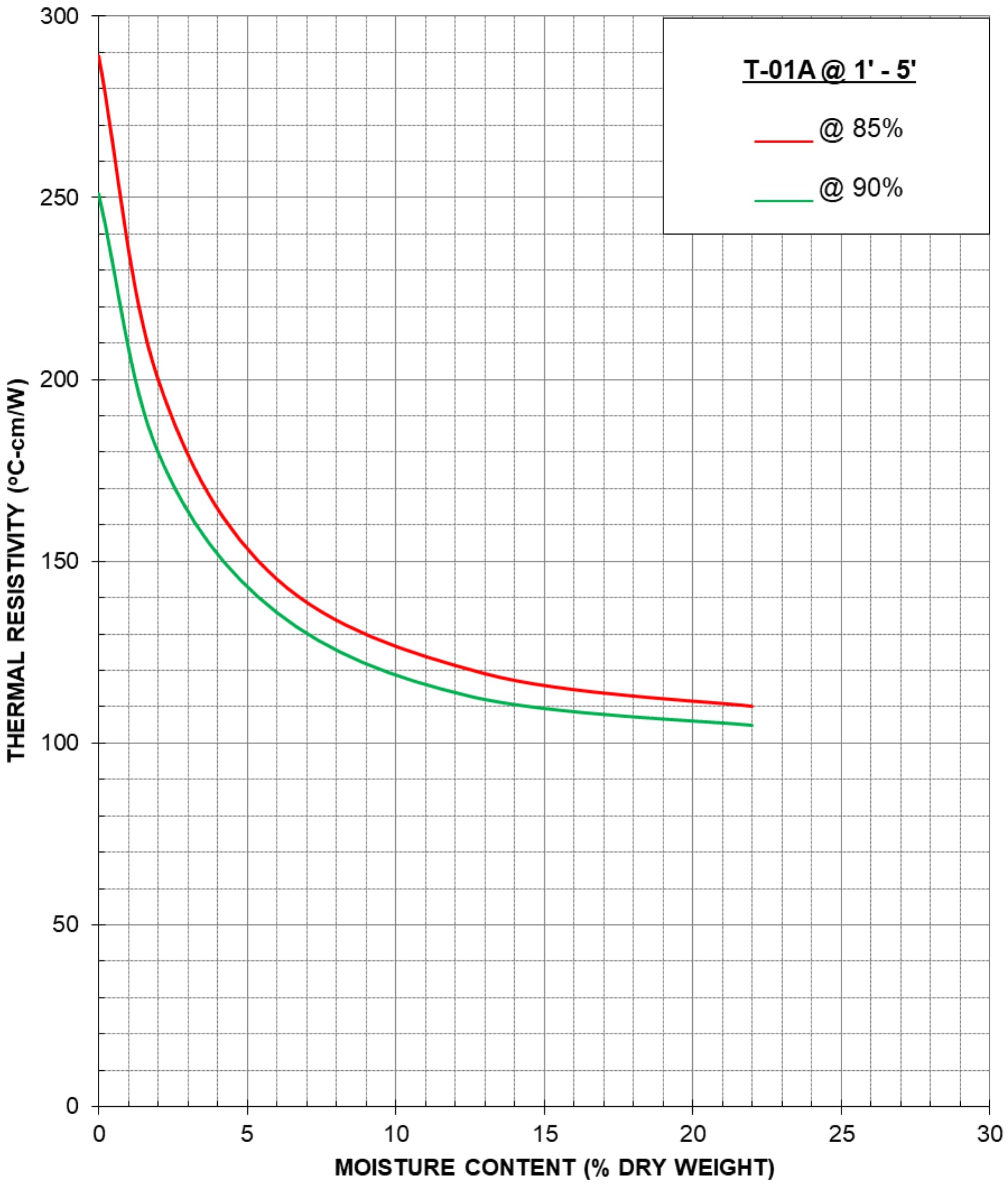
**Terracon (Project No. 66225093)**

**Rancho Viejo Solar Part 2 – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**March 2024** **Figure 6**

# THERMAL DRYOUT CURVES



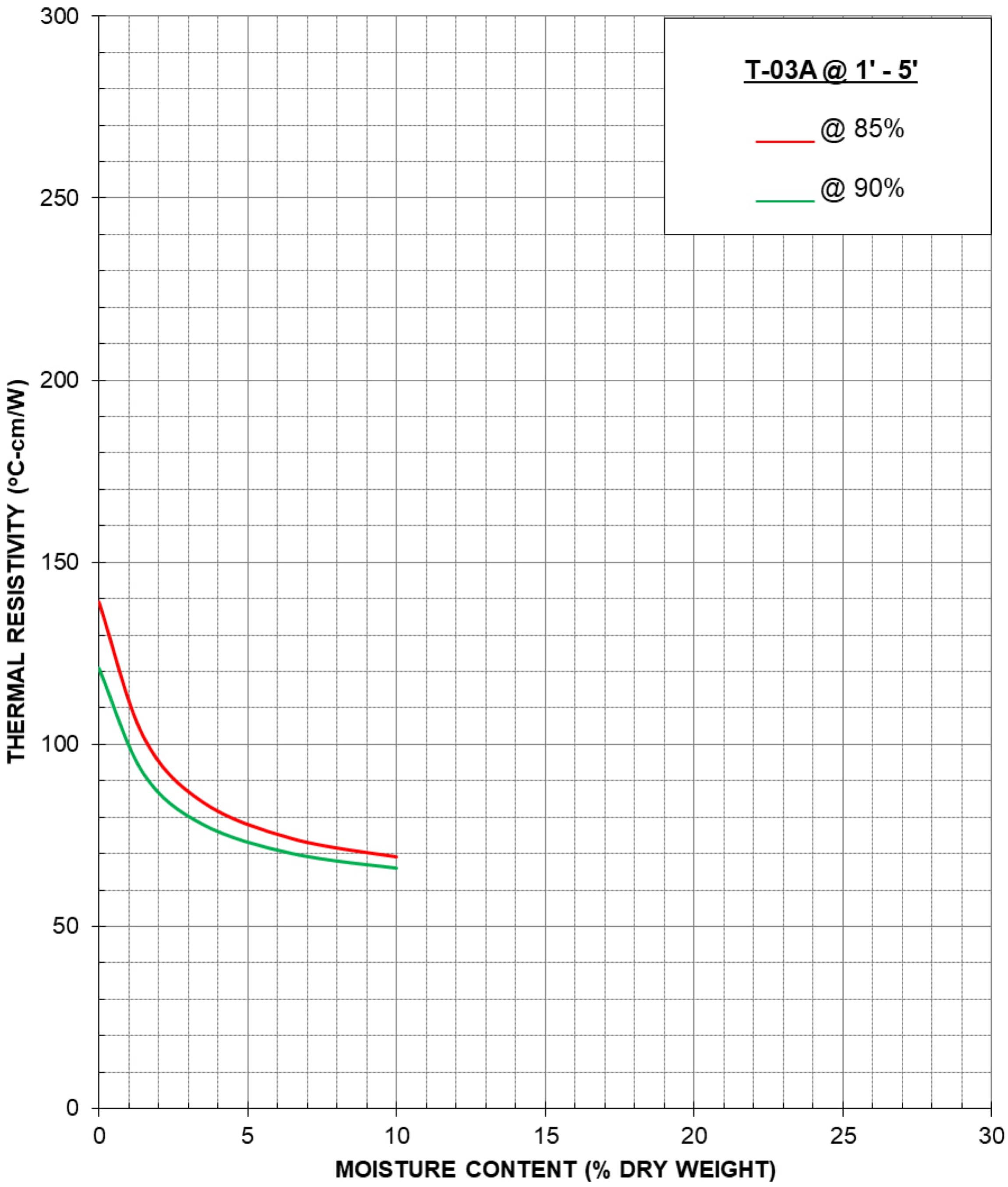
**Terracon (Project No. 66225093)**

**Rancho Viejo Solar Part 2 – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**March 2024** **Figure 7**

## THERMAL DRYOUT CURVES



**Terracon (Project No. 66225093)**

**Rancho Viejo Solar Part 2 – Santa Fe, NM**

**Thermal Analysis of Native Soil Samples**

**March 2024** **Figure 8**

# APPENDIX D

# FIELD ELECTRICAL RESISTIVITY TESTING

## Exploration Plan – Field Electrical Resistivity Locations

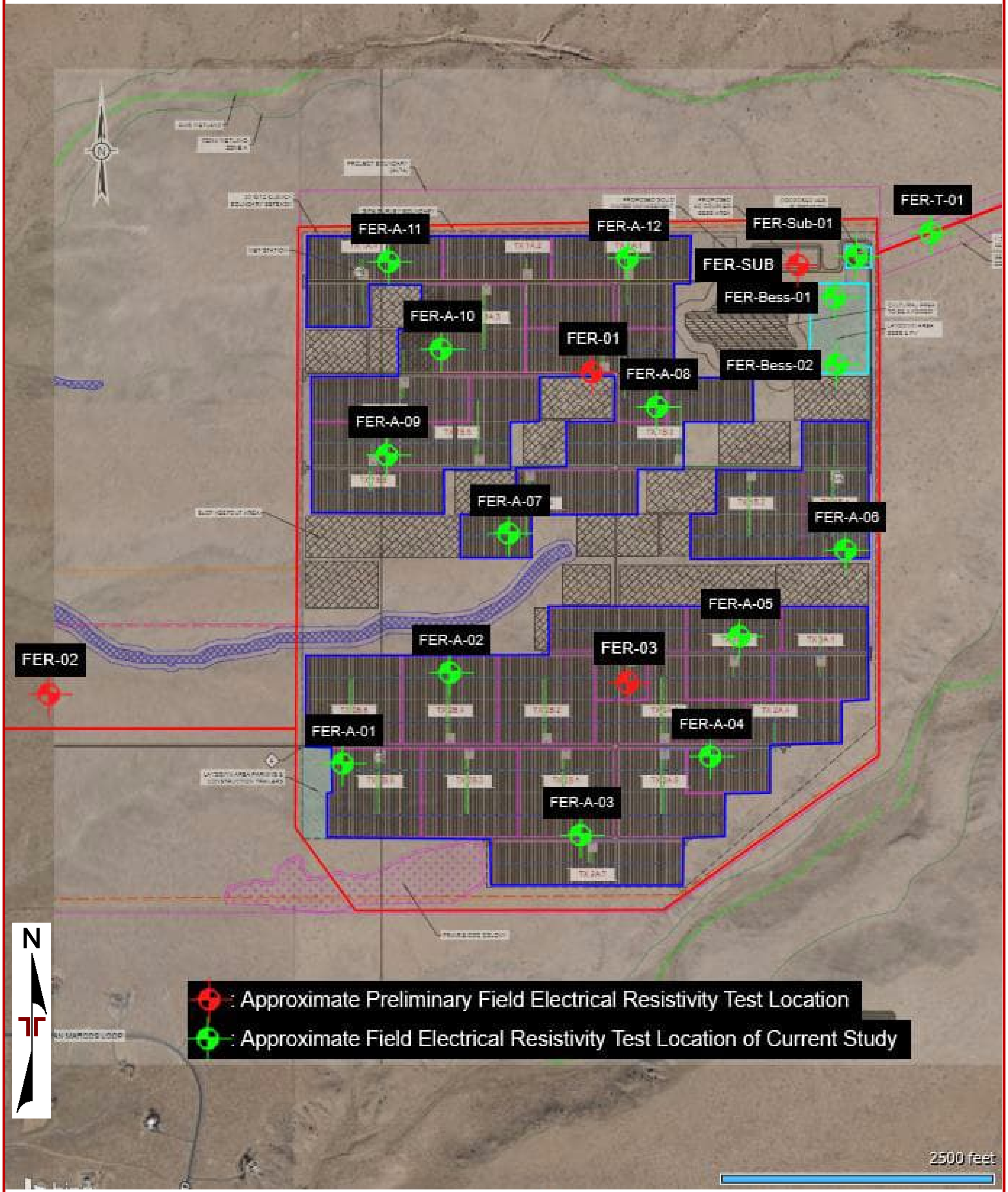


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exhibit D-1

## Exploration Plan – Field Electrical Resistivity Locations

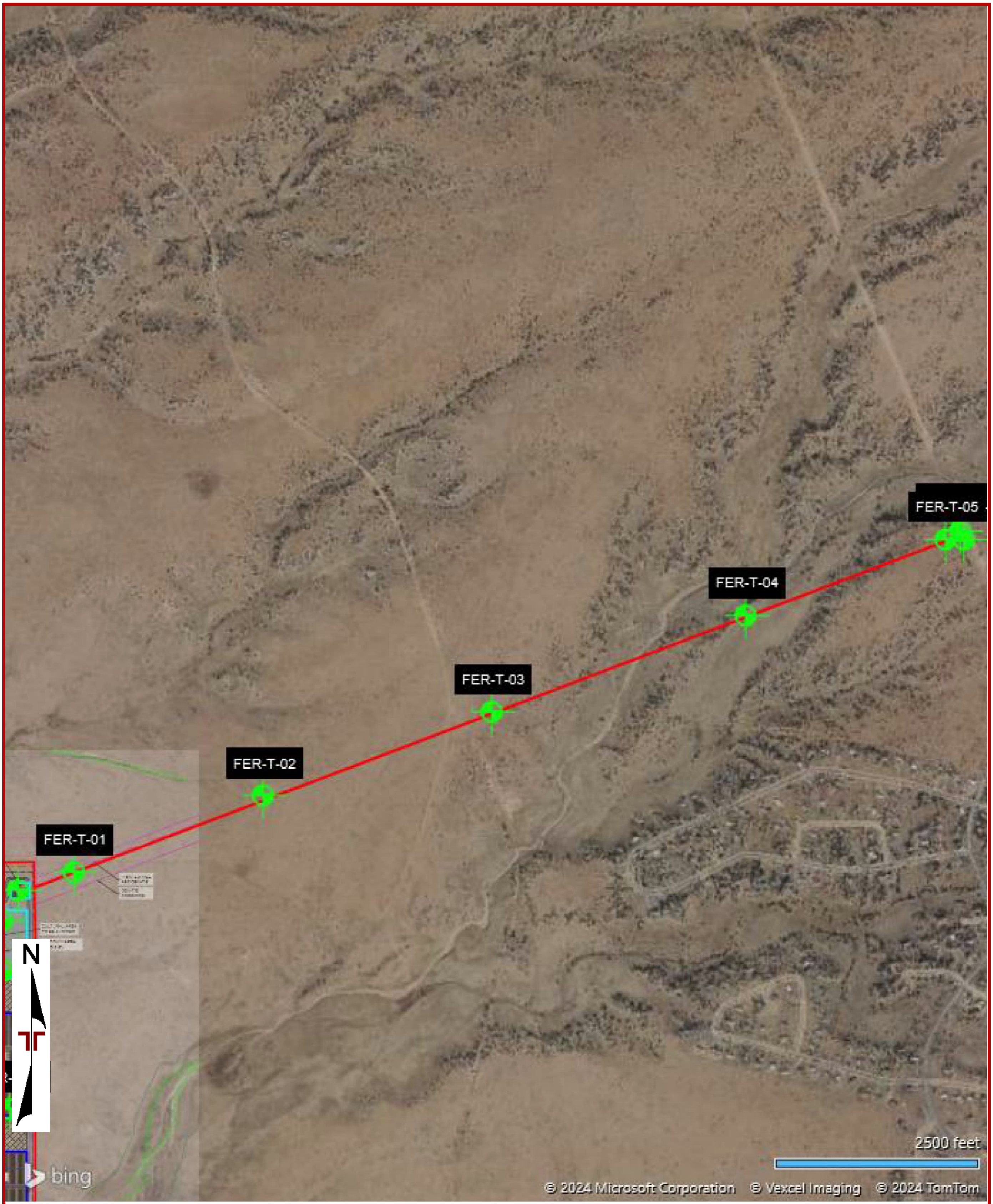


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES MAP PROVIDED BY MICROSOFT BING MAPS

Exhibit D-2

# Exploration Plan – Field Electrical Resistivity Locations

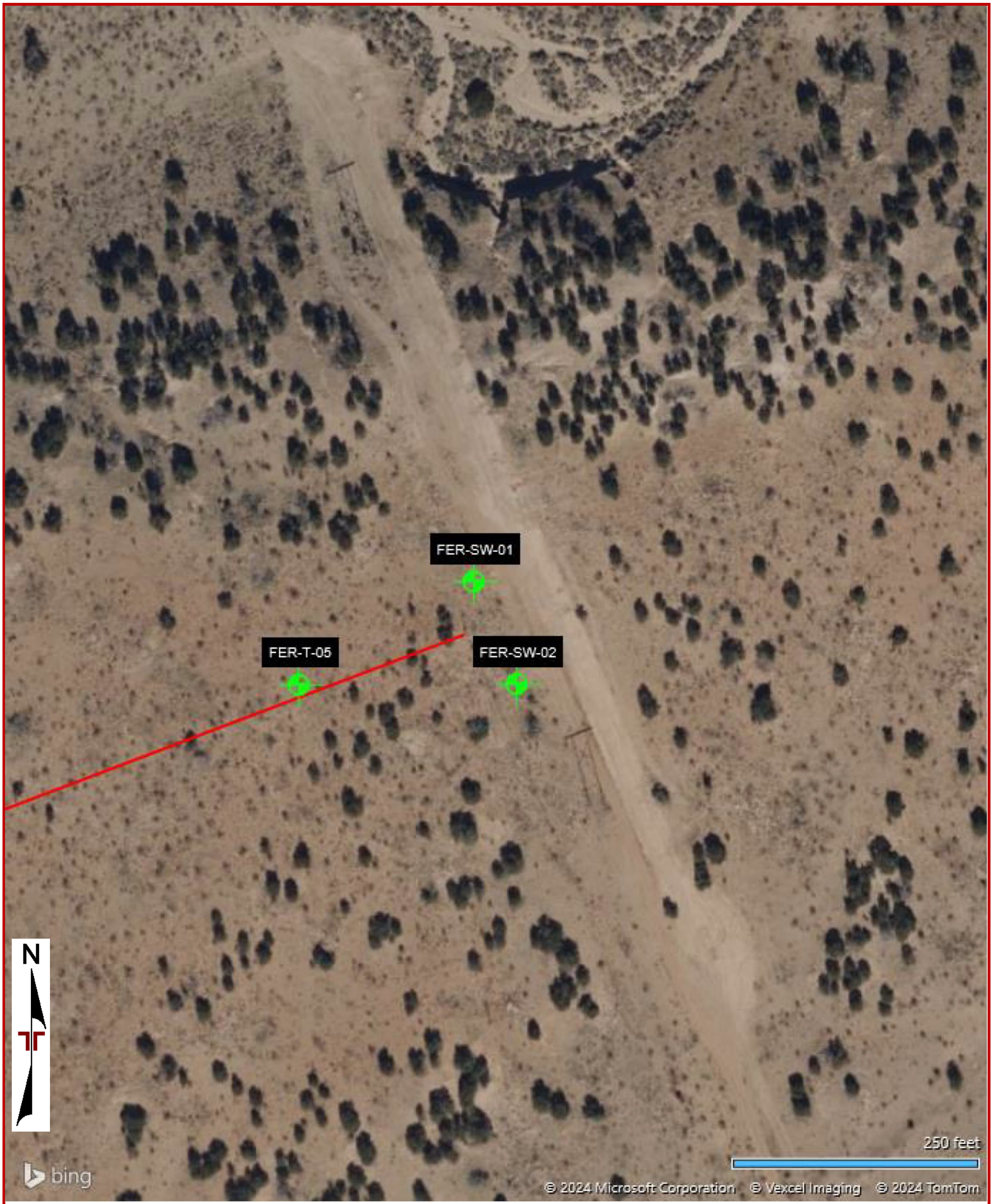


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES MAP PROVIDED BY MICROSOFT BING MAPS

Exhibit D-3

# FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

| | | | |
|---|---|---|---|
| **Array Loc.** | FER-A-01: 35.540916, -106.017053 | | |
| **Instrument** | LRI MiniRes Ultra | **Weather** | Sunny |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 1-Apr | **Tested By** | LA |
| **Test Date** | August 9, 2023 | **Method** | Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |
| **Notes & Conflicts** | | | |

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

| **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) |
| 1 | 30 | 6 | 15 | 81.15 | 20130 | 77.16 | 19140 |
| 2 | 61 | 6 | 15 | 25.15 | 10570 | 22.18 | 9320 |
| 3 | 91 | 6 | 15 | 11.16 | 6670 | 10.20 | 6100 |
| 5 | 152 | 6 | 15 | 6.16 | 5980 | 6.83 | 6630 |
| 10 | 305 | 13 | 33 | 3.65 | 7140 | 3.15 | 6160 |
| 20 | 610 | 13 | 33 | 2.26 | 8710 | 2.15 | 8280 |
| 50 | 1524 | 13 | 33 | 1.55 | 14890 | 1.35 | 12940 |

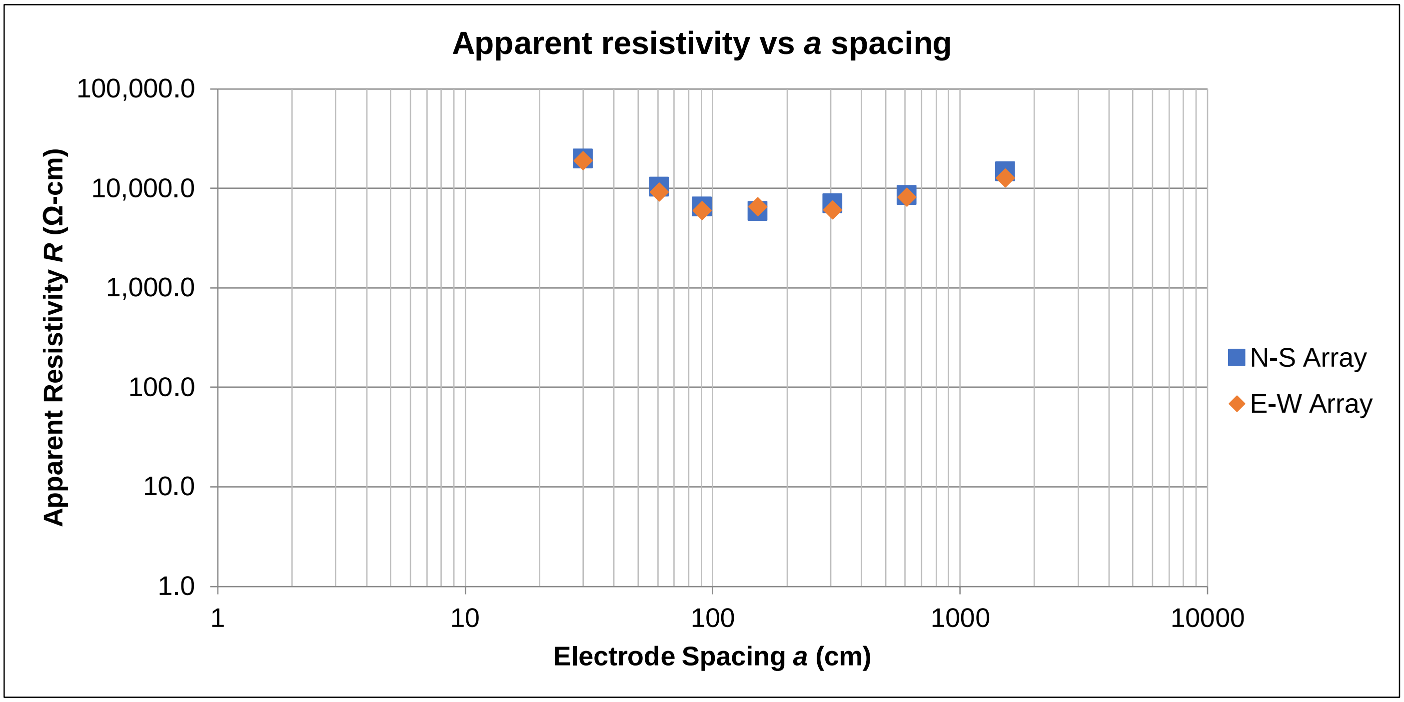


Exhibit D-4

**FIELD ELECTRICAL RESISTIVITY TEST DATA**
Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

| | | | |
|---|---|---|---|
| **Array Loc.** | **FER-A-02: 35.543195, -106.01375** | | |
| **Instrument** | LRI MiniRes Ultra | **Weather** | Sunny |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 1-Apr | **Tested By** | LA |
| **Test Date** | August 9, 2023 | **Method** | Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |
| **Notes & Conflicts** | | | |

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 81.80 | 20290 | 96.00 | 23810 |
| 2 | 61 | 6 | 15 | 25.70 | 10800 | 28.70 | 12060 |
| 3 | 91 | 6 | 15 | 12.50 | 7470 | 13.90 | 8310 |
| 5 | 152 | 6 | 15 | 7.24 | 7030 | 7.69 | 7470 |
| 10 | 305 | 13 | 33 | 4.17 | 8160 | 4.33 | 8460 |
| 20 | 610 | 13 | 33 | 2.39 | 9210 | 2.19 | 8420 |
| 50 | 1524 | 13 | 33 | 0.89 | 8540 | 0.85 | 8120 |

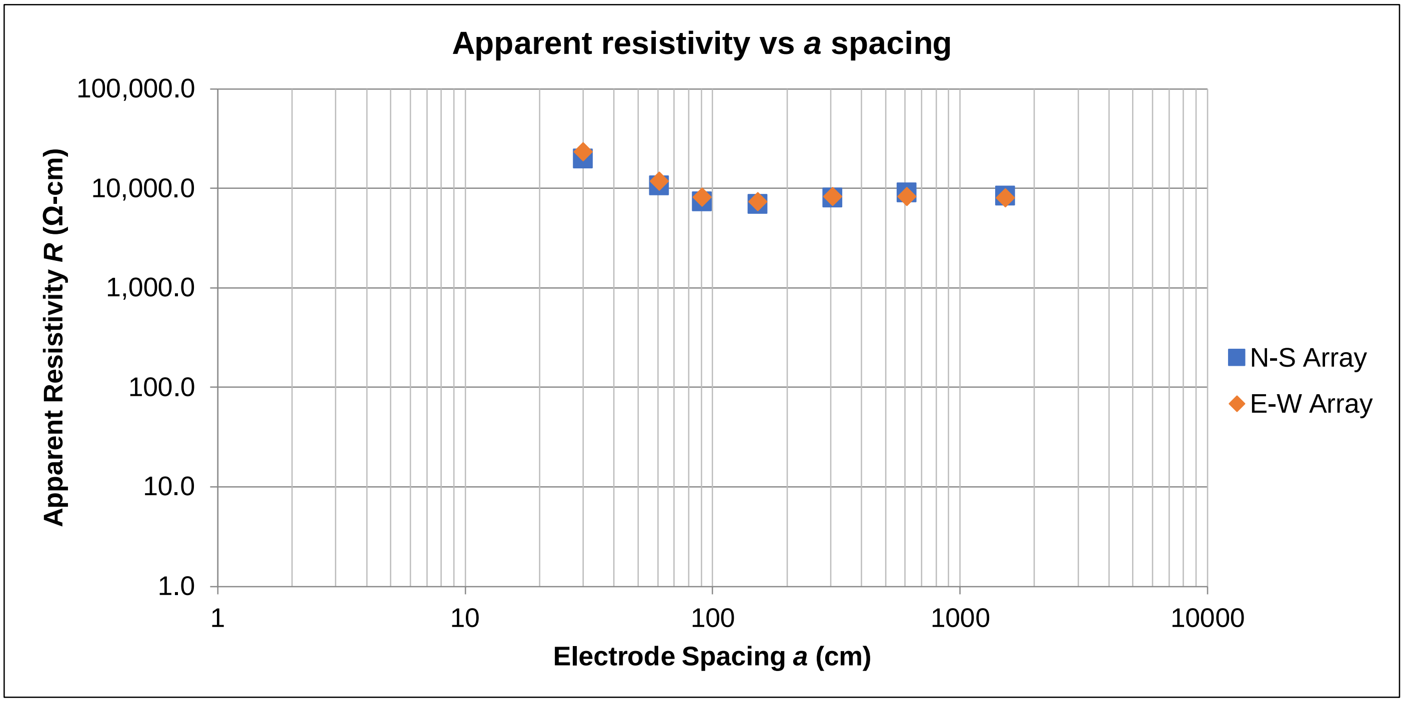


Exhibit D-5

# FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

**Array Loc.** **FER-A-03: 35.539119, -106.009735**

**Instrument** LRI MiniRes Ultra

**Weather** Sunny

**Serial #** SN-332

**Ground Cond.** Dry, moderate vegetation

**Cal. Check** 1-Apr

**Tested By** LA

**Test Date** August 12, 2023

**Method** Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012

**Notes & Conflicts**

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 68.10 | 16890 | 56.80 | 14090 |
| 2 | 61 | 6 | 15 | 9.70 | 4080 | 15.10 | 6350 |
| 3 | 91 | 6 | 15 | 7.54 | 4510 | 9.53 | 5700 |
| 5 | 152 | 6 | 15 | 5.88 | 5710 | 5.73 | 5570 |
| 10 | 305 | 13 | 33 | 4.58 | 8950 | 3.67 | 7180 |
| 20 | 610 | 13 | 33 | 2.94 | 11310 | 2.44 | 9410 |
| 50 | 1524 | 13 | 33 | 1.15 | 10990 | 1.34 | 12830 |

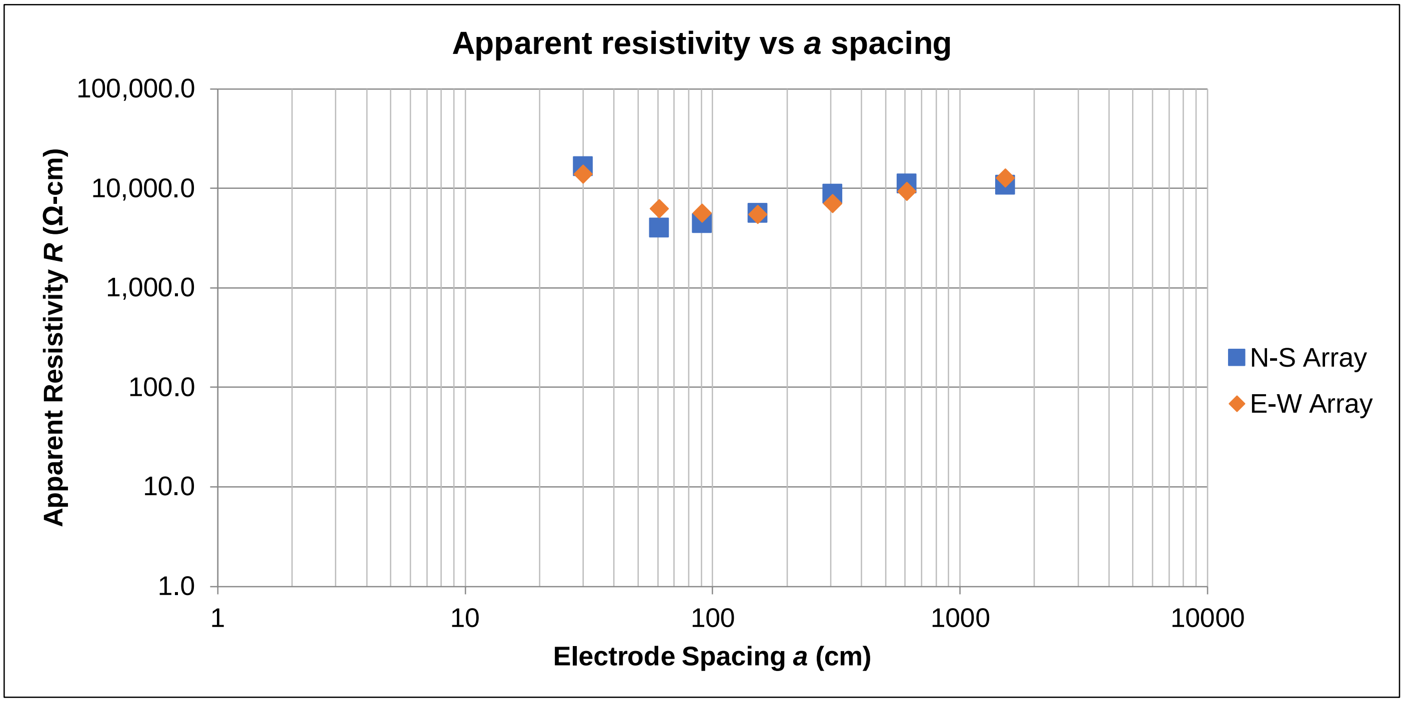

**Apparent resistivity vs *a* spacing**

Exhibit D-6

# FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

**Array Loc.** FER-A-04: 35.541095, -106.00573

**Instrument** LRI MiniRes Ultra

**Serial #** SN-332

**Cal. Check** 1-Apr

**Test Date** August 12, 2023

**Weather** Sunny

**Ground Cond.** Dry, moderate vegetation

**Tested By** LA

**Method** Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012

**Notes & Conflicts**

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 120.20 | 29820 | 93.30 | 23140 |
| 2 | 61 | 6 | 15 | 20.70 | 8700 | 27.50 | 11560 |
| 3 | 91 | 6 | 15 | 10.50 | 6280 | 14.90 | 8910 |
| 5 | 152 | 6 | 15 | 6.85 | 6650 | 7.68 | 7460 |
| 10 | 305 | 13 | 33 | 4.26 | 8320 | 4.15 | 8110 |
| 20 | 610 | 13 | 33 | 2.95 | 11370 | 3.24 | 12500 |
| 50 | 1524 | 13 | 33 | 1.39 | 13290 | 1.36 | 13050 |

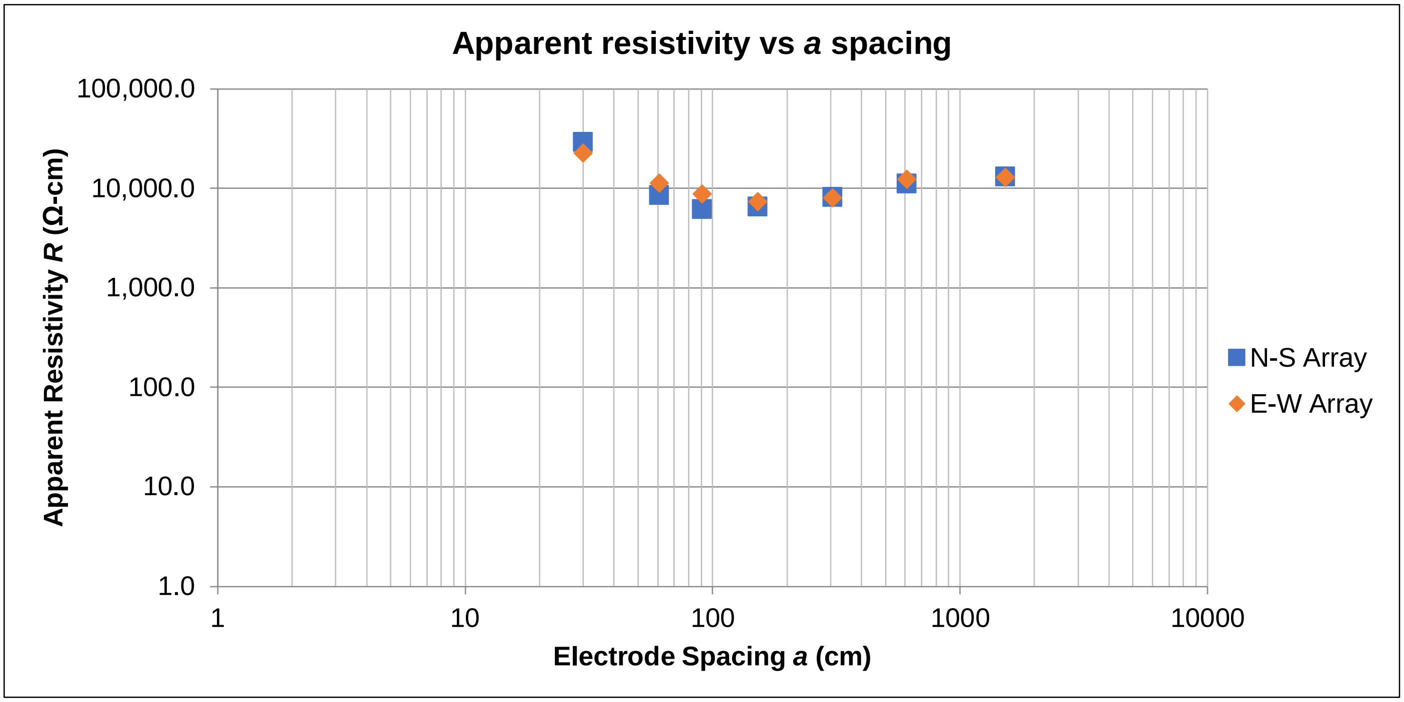


Exhibit D-7

# FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

| | | | |
|---|---|---|---|
| **Array Loc.** | **FER-A-05: 35.544106, -106.004845** | | |
| **Instrument** | LRI MiniRes Ultra | **Weather** | Sunny |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 1-Apr | **Tested By** | LA |
| **Test Date** | August 12, 2023 | **Method** | Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |
| **Notes & Conflicts** | | | |

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 32.00 | 7940 | 52.20 | 12950 |
| 2 | 61 | 6 | 15 | 12.90 | 5420 | 12.10 | 5090 |
| 3 | 91 | 6 | 15 | 7.68 | 4590 | 7.31 | 4370 |
| 5 | 152 | 6 | 15 | 4.37 | 4250 | 4.37 | 4240 |
| 10 | 305 | 13 | 33 | 3.08 | 6010 | 3.02 | 5900 |
| 20 | 610 | 13 | 33 | 2.49 | 9600 | 2.51 | 9670 |
| 50 | 1524 | 13 | 33 | 1.62 | 15530 | 1.62 | 15480 |

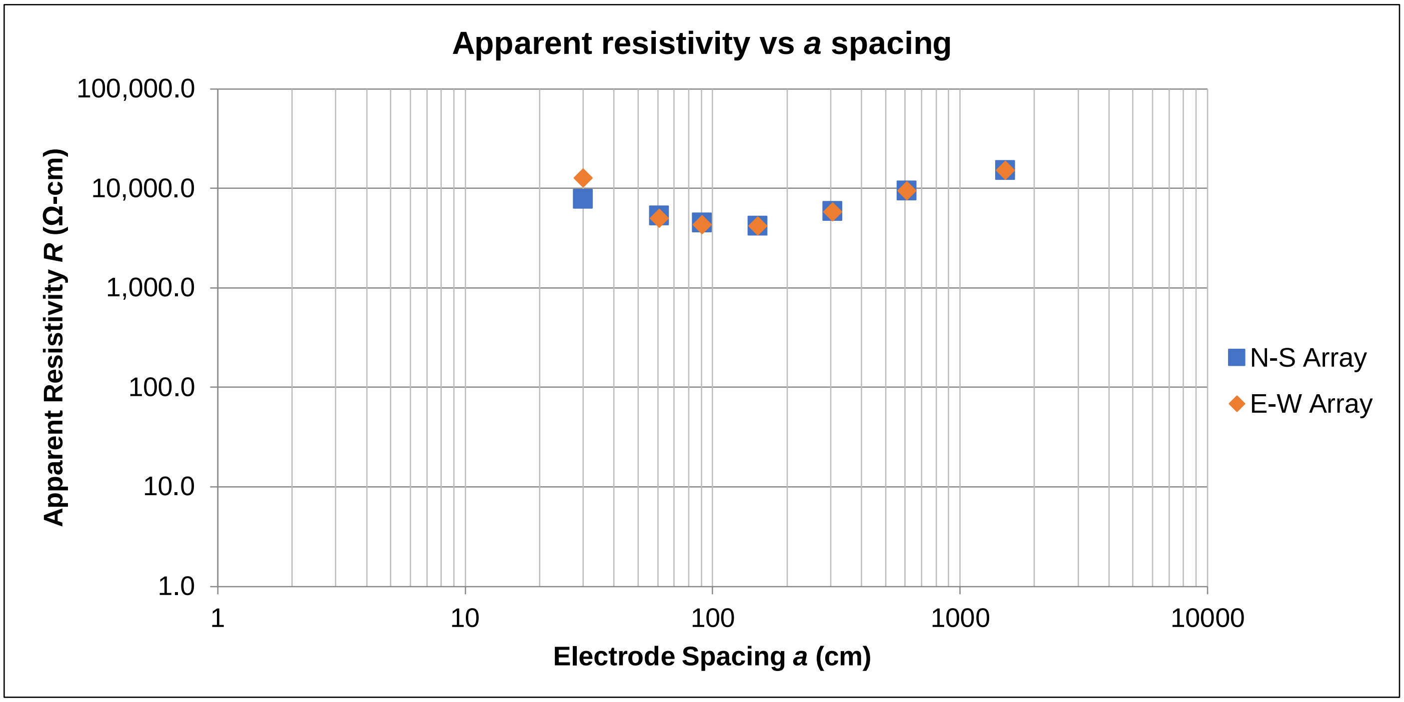


Exhibit D-8

**FIELD ELECTRICAL RESISTIVITY TEST DATA**

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

| | | | |
|---|---|---|---|
| **Array Loc.** | **FER-A-06: 35.546276, -106.00157** | | |
| **Instrument** | LRI MiniRes Ultra | **Weather** | Sunny |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 1-Apr | **Tested By** | LA |
| **Test Date** | August 12, 2023 | **Method** | Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |
| **Notes & Conflicts** | | | |

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 153.00 | 37950 | 129.90 | 32220 |
| 2 | 61 | 6 | 15 | 42.50 | 17860 | 35.80 | 15050 |
| 3 | 91 | 6 | 15 | 20.90 | 12500 | 21.90 | 13090 |
| 5 | 152 | 6 | 15 | 9.82 | 9540 | 9.68 | 9400 |
| 10 | 305 | 13 | 33 | 3.57 | 6980 | 3.38 | 6600 |
| 20 | 610 | 13 | 33 | 1.99 | 7660 | 1.90 | 7310 |
| 50 | 1524 | 13 | 33 | 1.02 | 9730 | 1.10 | 10510 |

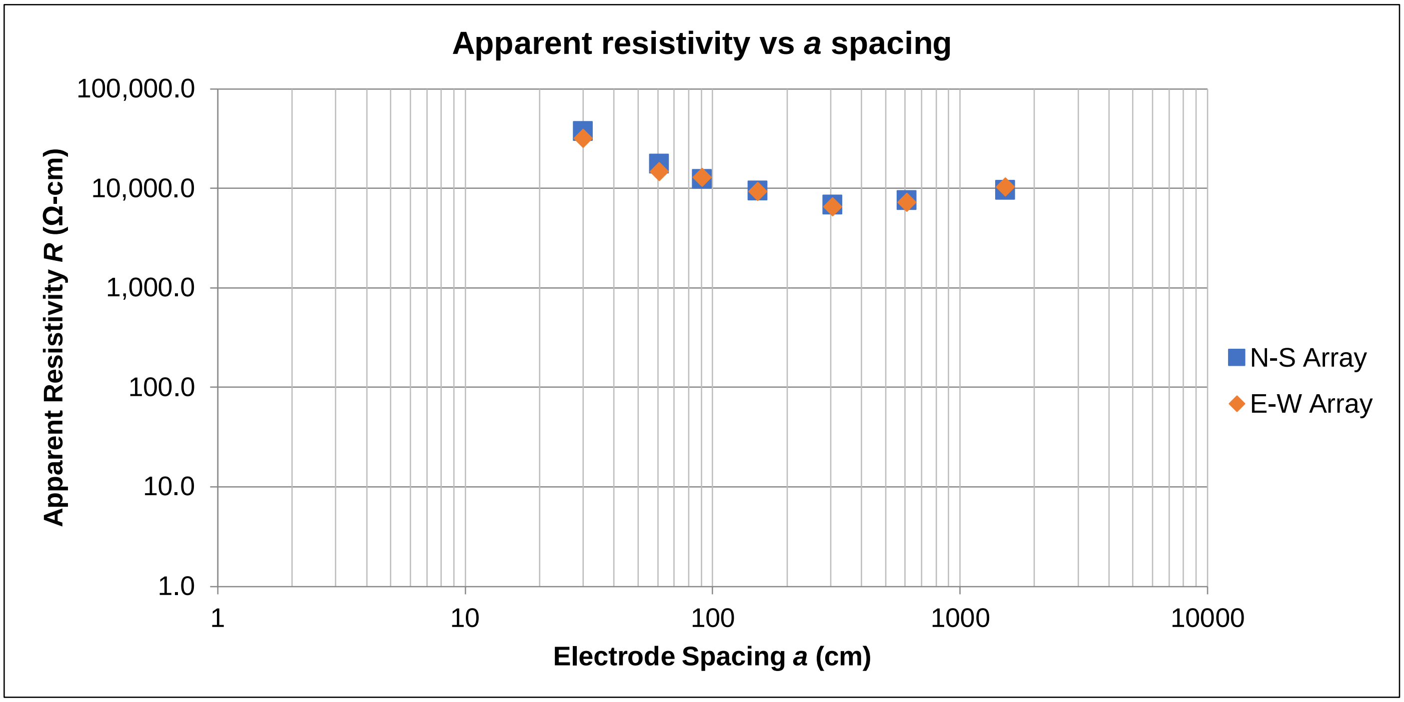


Exhibit D-9

## FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

| | | | |
|---|---|---|---|
| **Array Loc.** | **FER-A-07: 35.546692, -106.01195** | | |
| **Instrument** | LRI MiniRes Ultra | **Weather** | Sunny |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 1-Apr | **Tested By** | LA |
| **Test Date** | August 9, 2023 | **Method** | Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |
| **Notes & Conflicts** | | | |

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 99.70 | 24730 | 96.80 | 24010 |
| 2 | 61 | 6 | 15 | 22.60 | 9500 | 22.70 | 9540 |
| 3 | 91 | 6 | 15 | 11.90 | 7110 | 11.50 | 6880 |
| 5 | 152 | 6 | 15 | 5.65 | 5490 | 6.60 | 6400 |
| 10 | 305 | 13 | 33 | 2.58 | 5050 | 2.85 | 5580 |
| 20 | 610 | 13 | 33 | 1.47 | 5660 | 1.49 | 5720 |
| 50 | 1524 | 13 | 33 | 0.85 | 8100 | 0.80 | 7700 |

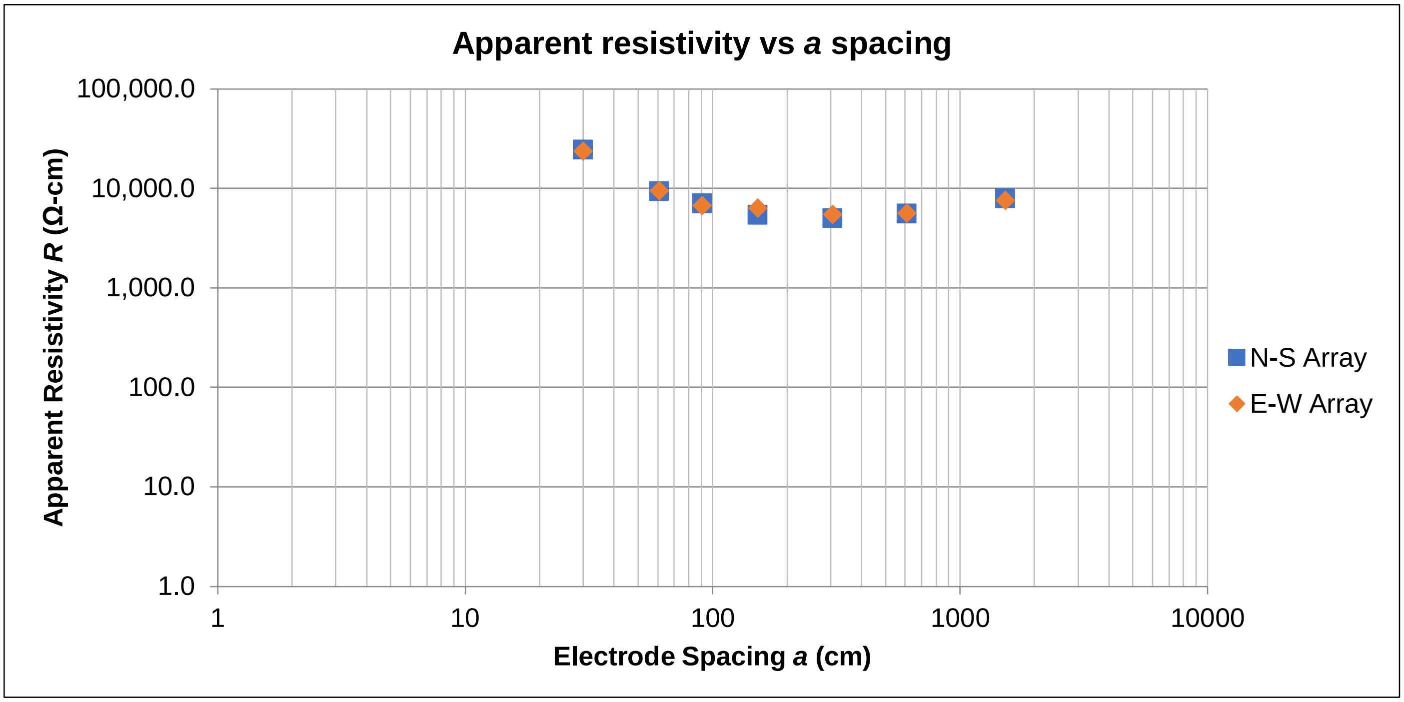


Exhibit D-10

## FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

| | | | |
|---|---|---|---|
| **Array Loc.** | FER-A-08: 35.549863, -106.00737 | | |
| **Instrument** | LRI MiniRes Ultra | **Weather** | Sunny |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 1-Apr | **Tested By** | LA |
| **Test Date** | August 9, 2023 | **Method** | Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |
| **Notes & Conflicts** | | | |

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 32.00 | 7940 | 39.10 | 9700 |
| 2 | 61 | 6 | 15 | 11.90 | 5000 | 14.30 | 6010 |
| 3 | 91 | 6 | 15 | 7.54 | 4510 | 8.63 | 5160 |
| 5 | 152 | 6 | 15 | 4.37 | 4250 | 4.63 | 4490 |
| 10 | 305 | 13 | 33 | 2.97 | 5810 | 2.68 | 5240 |
| 20 | 610 | 13 | 33 | 1.52 | 5870 | 1.58 | 6100 |
| 50 | 1524 | 13 | 33 | 0.86 | 8210 | 0.87 | 8330 |

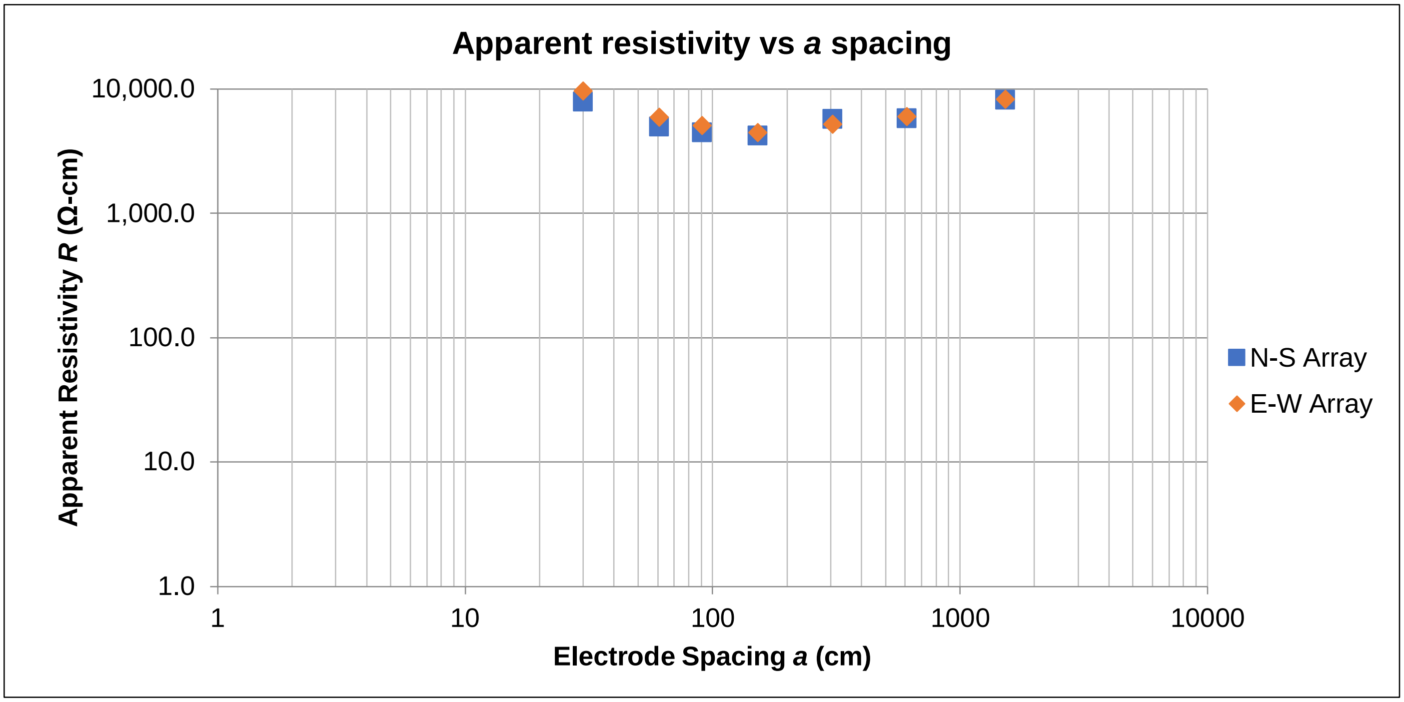


Exhibit D-11

**FIELD ELECTRICAL RESISTIVITY TEST DATA**

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

**Array Loc.** FER-A-09: 35.548657, -106.015689

| | | | |
|---|---|---|---|
| **Instrument** | LRI MiniRes Ultra | **Weather** | Sunny |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 1-Apr | **Tested By** | LA |
| **Test Date** | August 9, 2023 | **Method** | Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |

**Notes & Conflicts**

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 103.40 | 25650 | 141.90 | 35200 |
| 2 | 61 | 6 | 15 | 23.90 | 10050 | 24.70 | 10380 |
| 3 | 91 | 6 | 15 | 14.70 | 8790 | 15.10 | 9030 |
| 5 | 152 | 6 | 15 | 8.28 | 8040 | 8.35 | 8110 |
| 10 | 305 | 13 | 33 | 3.64 | 7110 | 3.97 | 7760 |
| 20 | 610 | 13 | 33 | 1.78 | 6840 | 1.70 | 6530 |
| 50 | 1524 | 13 | 33 | 0.58 | 5550 | 0.55 | 5240 |

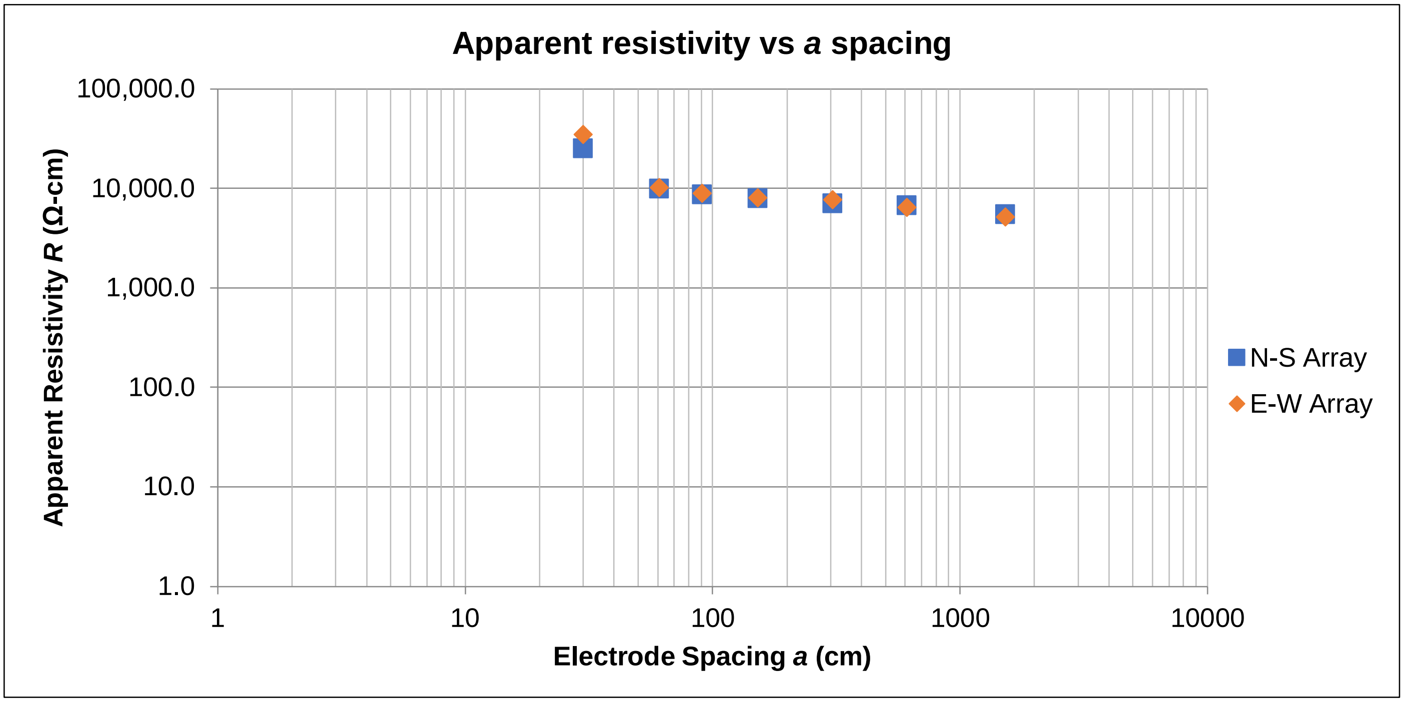


Exhibit D-12

## FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

| | | | |
|---|---|---|---|
| **Array Loc.** | **FER-A-10: 35.551307, -106.014021** | | |
| **Instrument** | LRI MiniRes Ultra | **Weather** | Sunny |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 1-Apr | **Tested By** | LA |
| **Test Date** | August 9, 2023 | **Method** | Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |
| **Notes & Conflicts** | | | |

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

| **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) |
| 1 | 30 | 6 | 15 | 163.80 | 40630 | 85.10 | 21110 |
| 2 | 61 | 6 | 15 | 22.30 | 9370 | 22.00 | 9250 |
| 3 | 91 | 6 | 15 | 10.20 | 6100 | 12.40 | 7410 |
| 5 | 152 | 6 | 15 | 6.39 | 6200 | 7.13 | 6930 |
| 10 | 305 | 13 | 33 | 4.20 | 8200 | 4.13 | 8070 |
| 20 | 610 | 13 | 33 | 2.59 | 9990 | 2.60 | 10010 |
| 50 | 1524 | 13 | 33 | 0.79 | 7570 | 0.86 | 8250 |

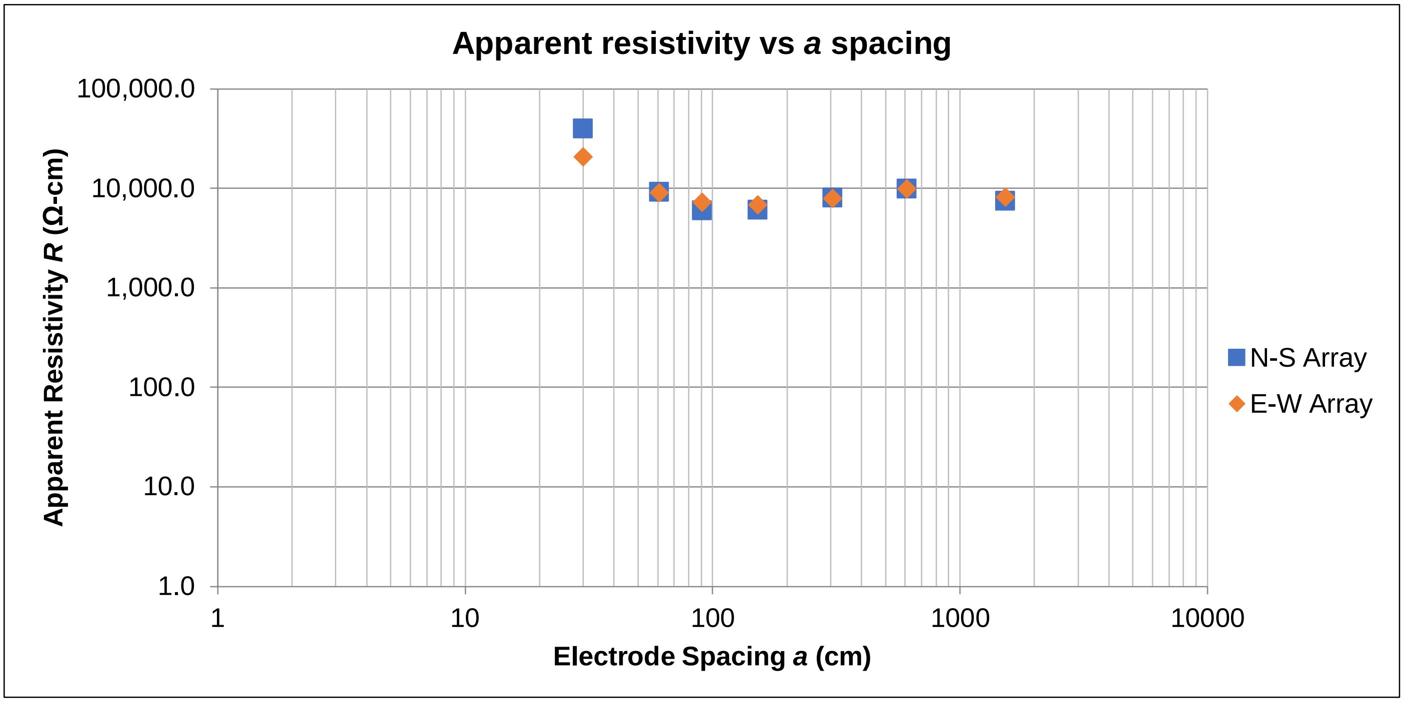


Exhibit D-13

## FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

**Array Loc.** FER-A-11: 35.553501, -106.015633

| | | | |
|---|---|---|---|
| **Instrument** | LRI MiniRes Ultra | **Weather** | Sunny |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 1-Apr | **Tested By** | LA |
| **Test Date** | August 9, 2023 | **Method** | Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |

**Notes & Conflicts**

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 69.60 | 17260 | 70.90 | 17590 |
| 2 | 61 | 6 | 15 | 17.70 | 7440 | 39.30 | 16520 |
| 3 | 91 | 6 | 15 | 10.40 | 6220 | 10.90 | 6520 |
| 5 | 152 | 6 | 15 | 5.42 | 5260 | 5.74 | 5570 |
| 10 | 305 | 13 | 33 | 3.35 | 6540 | 3.39 | 6630 |
| 20 | 610 | 13 | 33 | 2.25 | 8670 | 2.42 | 9320 |
| 50 | 1524 | 13 | 33 | 0.97 | 9310 | 1.13 | 10870 |

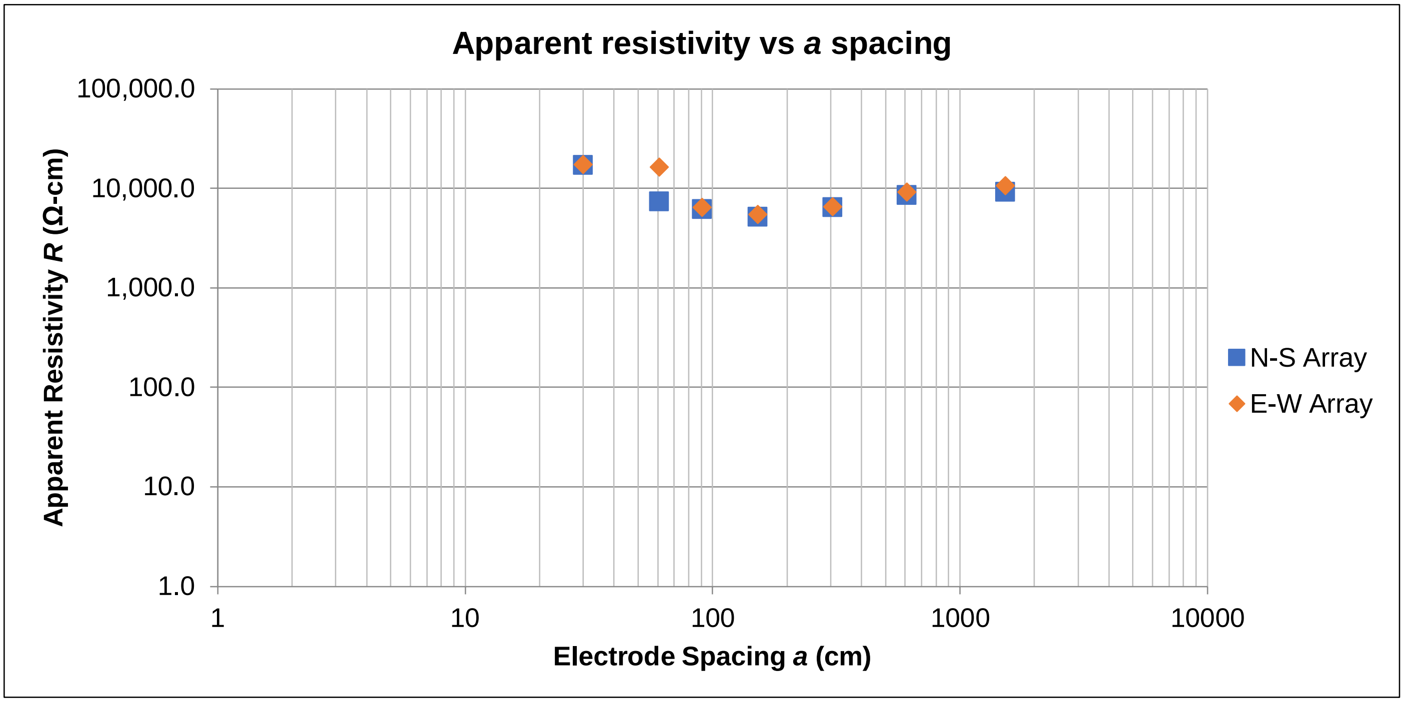


Exhibit D-14

# FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

**Array Loc.** FER-A-12: 35.553592, -106.00828

| | | | |
|---|---|---|---|
| **Instrument** | LRI MiniRes Ultra | **Weather** | Sunny |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 1-Apr | **Tested By** | LA |
| **Test Date** | August 9, 2023 | **Method** | Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |

**Notes & Conflicts**

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 75.10 | 18630 | 73.90 | 18330 |
| 2 | 61 | 6 | 15 | 26.90 | 11310 | 21.40 | 9000 |
| 3 | 91 | 6 | 15 | 14.50 | 8670 | 12.60 | 7530 |
| 5 | 152 | 6 | 15 | 7.20 | 6990 | 6.84 | 6640 |
| 10 | 305 | 13 | 33 | 3.77 | 7370 | 3.73 | 7300 |
| 20 | 610 | 13 | 33 | 1.86 | 7150 | 1.85 | 7130 |
| 50 | 1524 | 13 | 33 | 0.85 | 8100 | 0.83 | 7950 |

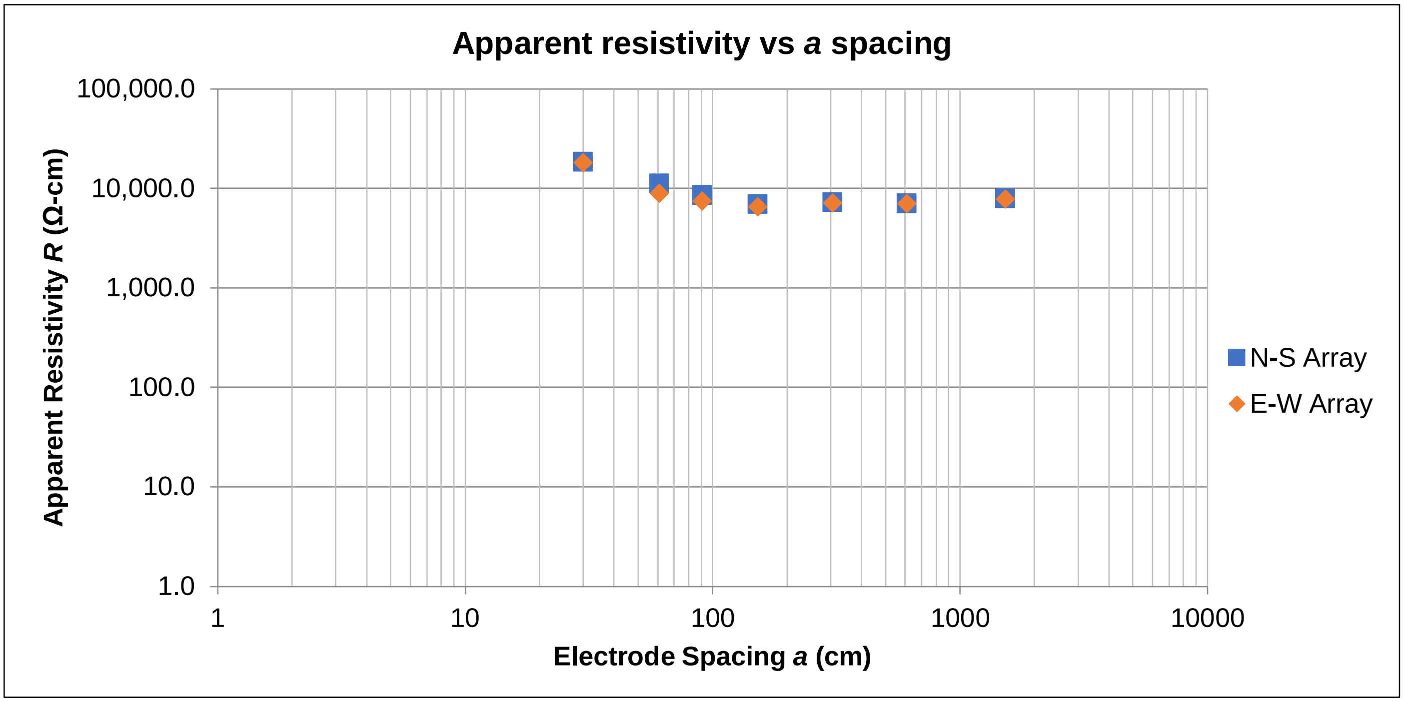


Exhibit D-15

## FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

| | | | |
|---|---|---|---|
| **Array Loc.** | **FER-T-01: 35.553920, -106.000314** | | |
| **Instrument** | LRI MiniRes Ultra | **Weather** | Sunny |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 1-Apr | **Tested By** | LA |
| **Test Date** | September 19, 2023 | **Method** | Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |
| **Notes & Conflicts** | | | |

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

| **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) |
| 1 | 30 | 6 | 15 | 60.20 | 14930 | 53.60 | 13300 |
| 2 | 61 | 6 | 15 | 18.50 | 7780 | 24.50 | 10300 |
| 3 | 91 | 6 | 15 | 10.81 | 6460 | 12.90 | 7710 |
| 5 | 152 | 6 | 15 | 6.17 | 5990 | 6.08 | 5900 |
| 10 | 305 | 13 | 33 | 3.02 | 5910 | 3.19 | 6240 |
| 20 | 610 | 13 | 33 | 1.97 | 7570 | 2.06 | 7940 |
| 50 | 1524 | 13 | 33 | 1.32 | 12660 | 1.24 | 11880 |

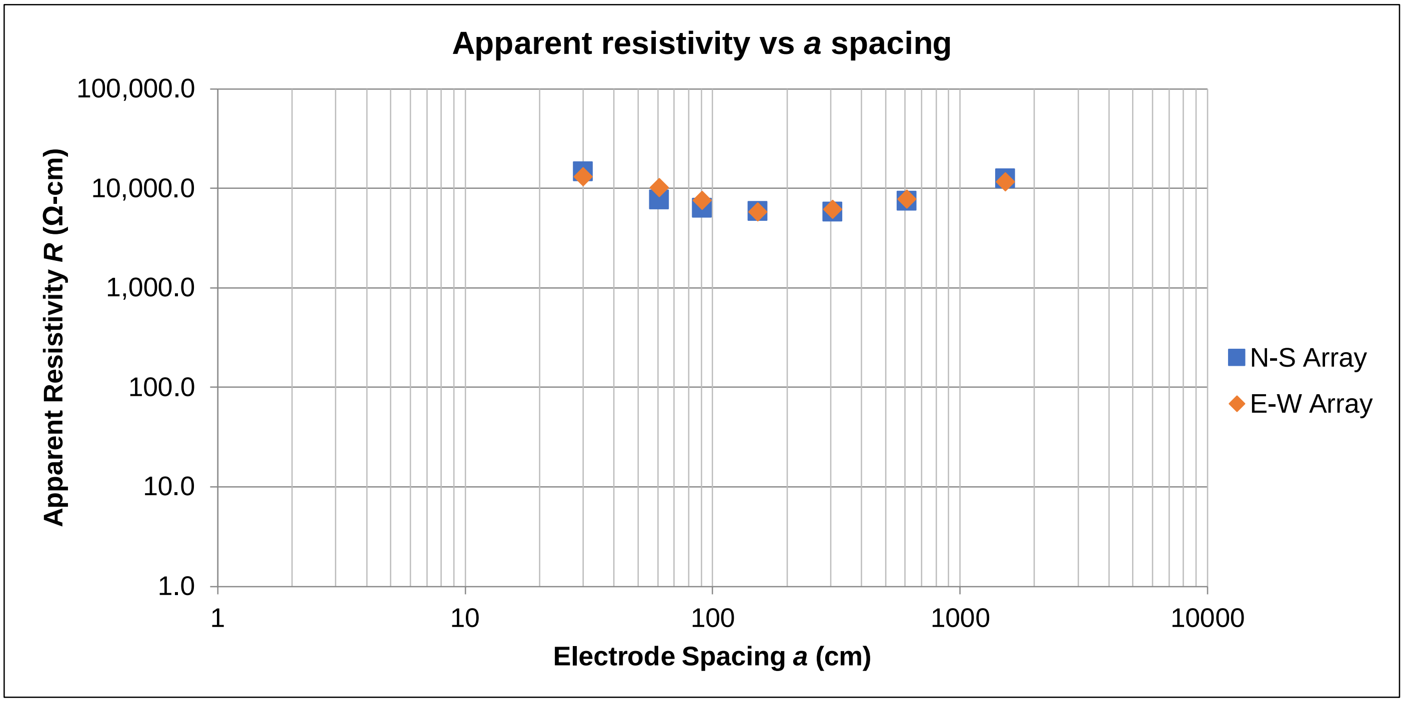


Exhibit D-16

# FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

| | | | |
|---|---|---|---|
| **Array Loc.** | FER-T-02: 35.556813, -105.991131 | | |
| **Instrument** | LRI MiniRes Ultra | **Weather** | Sunny |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 1-Apr | **Tested By** | LA |
| **Test Date** | September 19, 2023 | **Method** | Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |
| **Notes & Conflicts** | | | |

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 79.80 | 19790 | 85.00 | 21080 |
| 2 | 61 | 6 | 15 | 39.80 | 16730 | 40.20 | 16900 |
| 3 | 91 | 6 | 15 | 22.10 | 13210 | 20.90 | 12500 |
| 5 | 152 | 6 | 15 | 9.69 | 9410 | 9.51 | 9230 |
| 10 | 305 | 13 | 33 | 3.52 | 6870 | 3.64 | 7110 |
| 20 | 610 | 13 | 33 | 1.86 | 7170 | 1.87 | 7200 |
| 50 | 1524 | 13 | 33 | 1.10 | 10560 | 1.04 | 9960 |

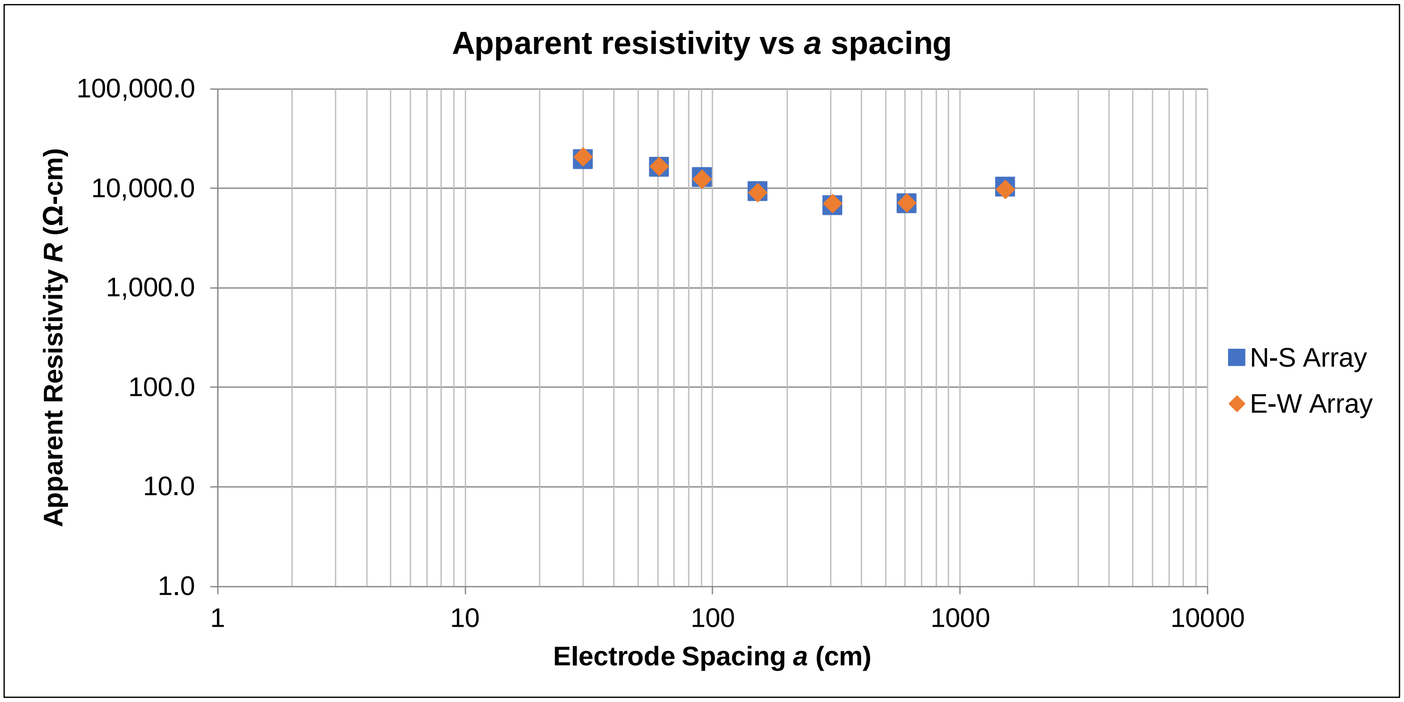


Exhibit D-17

## FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

**Array Loc.** FER-T-03: 35.559615, -105.98170

**Instrument** LRI MiniRes Ultra

**Serial #** SN-332

**Cal. Check** 1-Apr

**Test Date** September 19, 2023

**Weather** Sunny

**Ground Cond.** Dry, moderate vegetation

**Tested By** ED, MG

**Method** Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012

**Notes & Conflicts**

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 64.50 | 16000 | 70.80 | 17560 |
| 2 | 61 | 6 | 15 | 61.70 | 25940 | 47.60 | 20010 |
| 3 | 91 | 6 | 15 | 36.20 | 21640 | 33.00 | 19730 |
| 5 | 152 | 6 | 15 | 18.50 | 17960 | 19.60 | 19030 |
| 10 | 305 | 13 | 33 | 8.10 | 15830 | 7.60 | 14860 |
| 20 | 610 | 13 | 33 | 4.20 | 16180 | 4.00 | 15410 |
| 50 | 1524 | 13 | 33 | 1.40 | 13420 | 1.30 | 12460 |

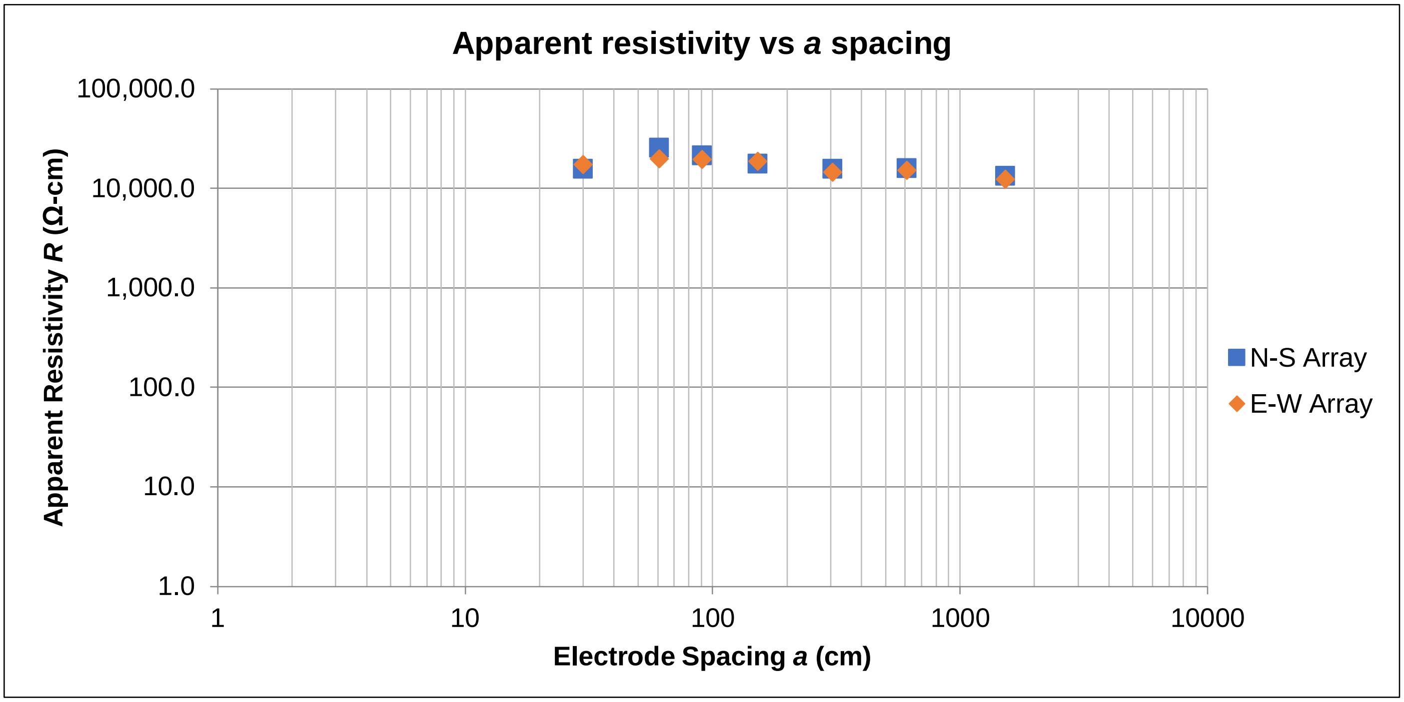


Exhibit D-18

# FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

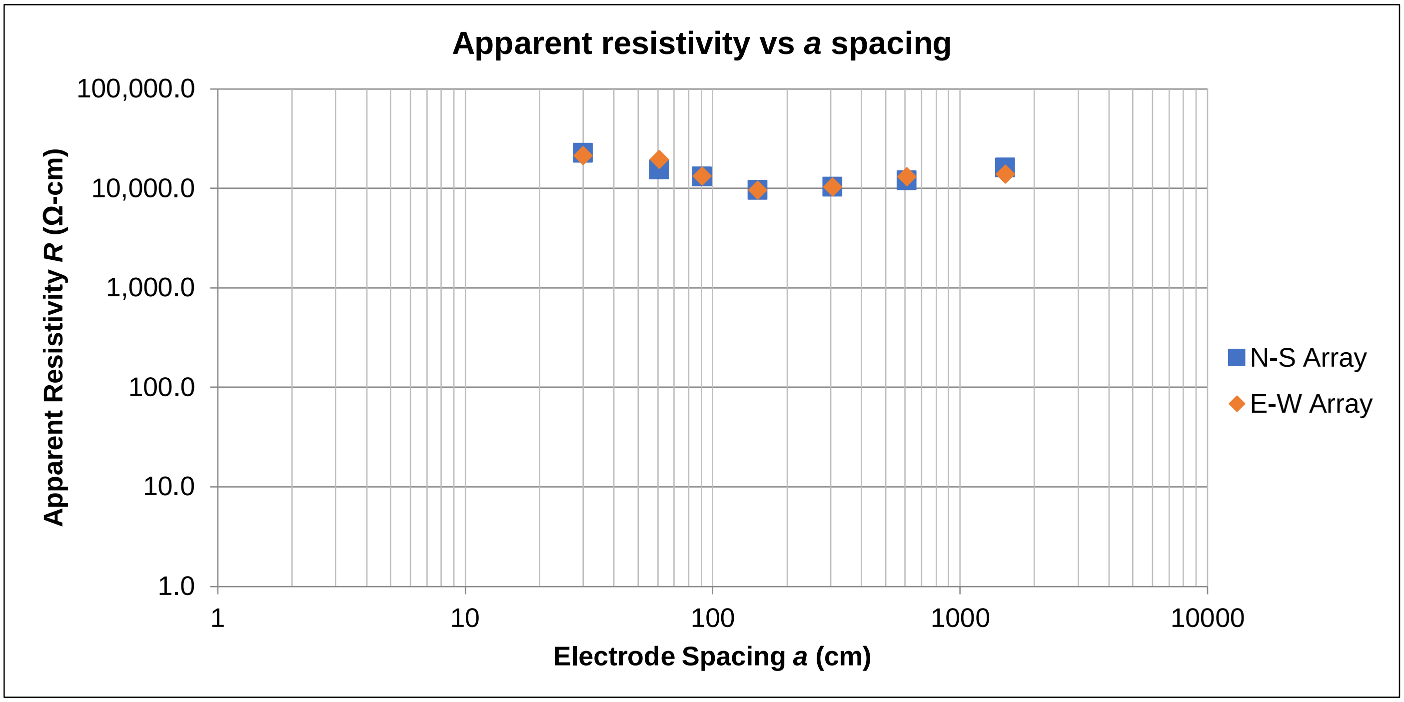
**Array Loc.** FER-T-04: 35.562850, -105.971233

| | | | |
|---|---|---|---|
| **Instrument** | LRI MiniRes Ultra | **Weather** | Sunny |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 1-Apr | **Tested By** | LA |
| **Test Date** | September 19, 2023 | **Method** | Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |

**Notes & Conflicts**

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 92.30 | 22900 | 87.00 | 21580 |
| 2 | 61 | 6 | 15 | 37.20 | 15640 | 47.00 | 19760 |
| 3 | 91 | 6 | 15 | 22.20 | 13270 | 22.50 | 13450 |
| 5 | 152 | 6 | 15 | 10.10 | 9810 | 10.00 | 9710 |
| 10 | 305 | 13 | 33 | 5.40 | 10560 | 5.38 | 10520 |
| 20 | 610 | 13 | 33 | 3.17 | 12210 | 3.47 | 13370 |
| 50 | 1524 | 13 | 33 | 1.70 | 16290 | 1.47 | 14090 |



## FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

**Array Loc.** FER-T-05: 35.565560, -105.963141

**Instrument** LRI MiniRes Ultra

**Weather** Sunny

**Serial #** SN-332

**Ground Cond.** Dry, moderate vegetation

**Cal. Check** 1-Apr

**Tested By** MG, SS

**Test Date** September 19, 2023

**Method** Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012

**Notes & Conflicts**

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

| **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) |
| 1 | 30 | 6 | 15 | 50.50 | 12530 | 55.70 | 13820 |
| 2 | 61 | 6 | 15 | 21.80 | 9160 | 18.10 | 7610 |
| 3 | 91 | 6 | 15 | 10.30 | 6160 | 10.10 | 6040 |
| 5 | 152 | 6 | 15 | 6.20 | 6020 | 5.80 | 5630 |
| 10 | 305 | 13 | 33 | 4.50 | 8800 | 4.50 | 8800 |
| 20 | 610 | 13 | 33 | 3.30 | 12710 | 3.10 | 11940 |
| 50 | 1524 | 13 | 33 | 1.30 | 12460 | 1.48 | 14180 |

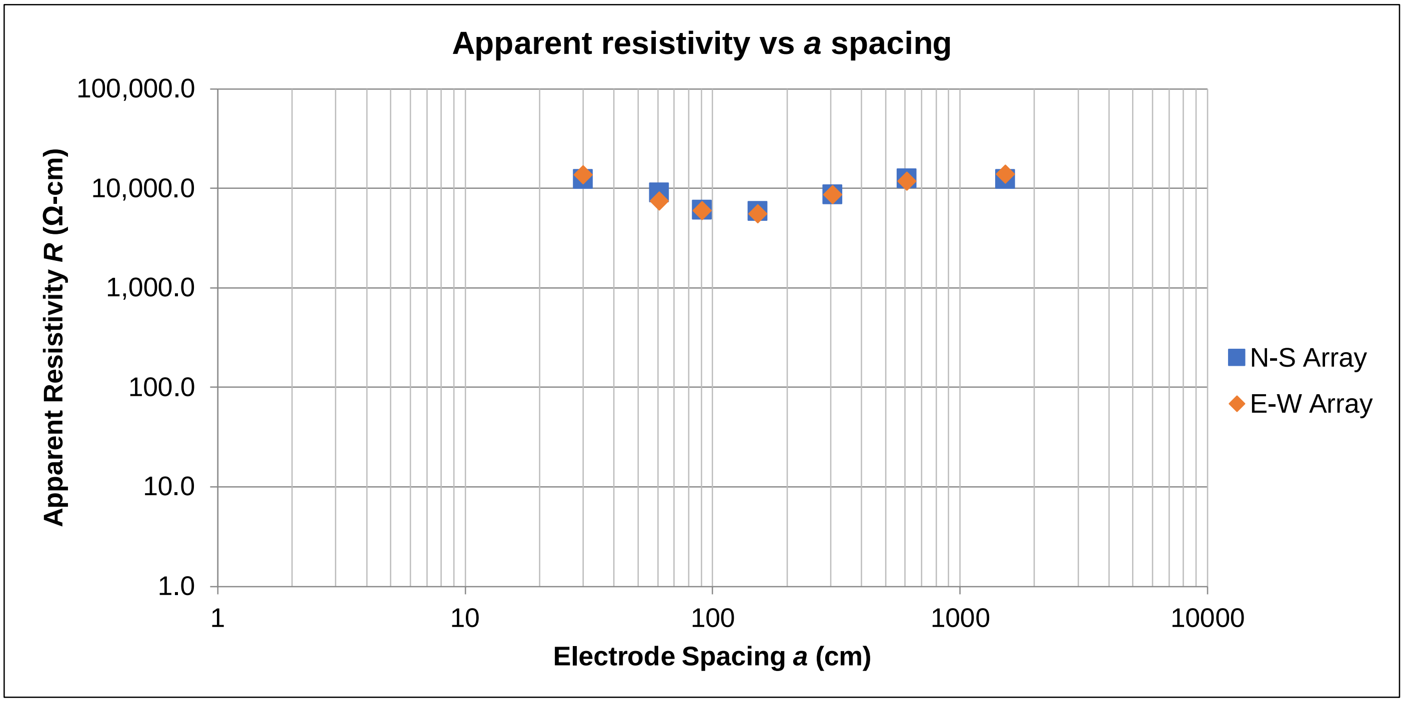

**Apparent resistivity vs *a* spacing**

Exhibit D-20

## FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

**Array Loc.** **FER-BESS-01: 35.552320, -106.001746**

| | | | |
|---|---|---|---|
| **Instrument** | LRI MiniRes Ultra | **Weather** | Cloudy |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 10-Jul | **Tested By** | SL |
| **Test Date** | September 20, 2023 | **Method** | Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |

**Notes & Conflicts**

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 55.10 | 13670 | 59.10 | 14660 |
| 2 | 61 | 6 | 15 | 28.10 | 11810 | 31.50 | 13240 |
| 3 | 91 | 6 | 15 | 19.80 | 11840 | 25.10 | 15010 |
| 5 | 152 | 6 | 15 | 9.18 | 8920 | 8.87 | 8620 |
| 10 | 305 | 13 | 33 | 3.81 | 7450 | 4.12 | 8060 |
| 20 | 610 | 13 | 33 | 2.22 | 8540 | 2.46 | 9460 |
| 50 | 1524 | 13 | 33 | 1.358 | 13010 | 1.215 | 11640 |
| 100 | 3048 | 14 | 36 | 0.468 | 8960 | 0.518 | 9920 |
| 200 | 6096 | 15 | 38 | 0.251 | 9610 | 0.218 | 8350 |
| 300 | 9144 | 16 | 41 | 0.135 | 7760 | 0.115 | 6610 |

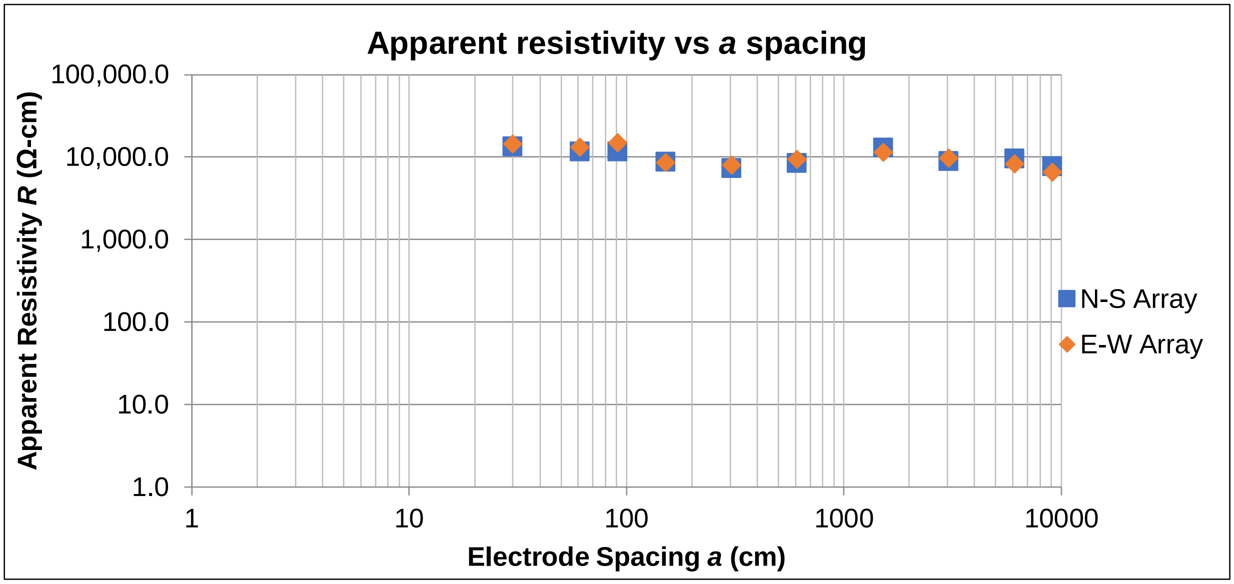


Exhibit D-21

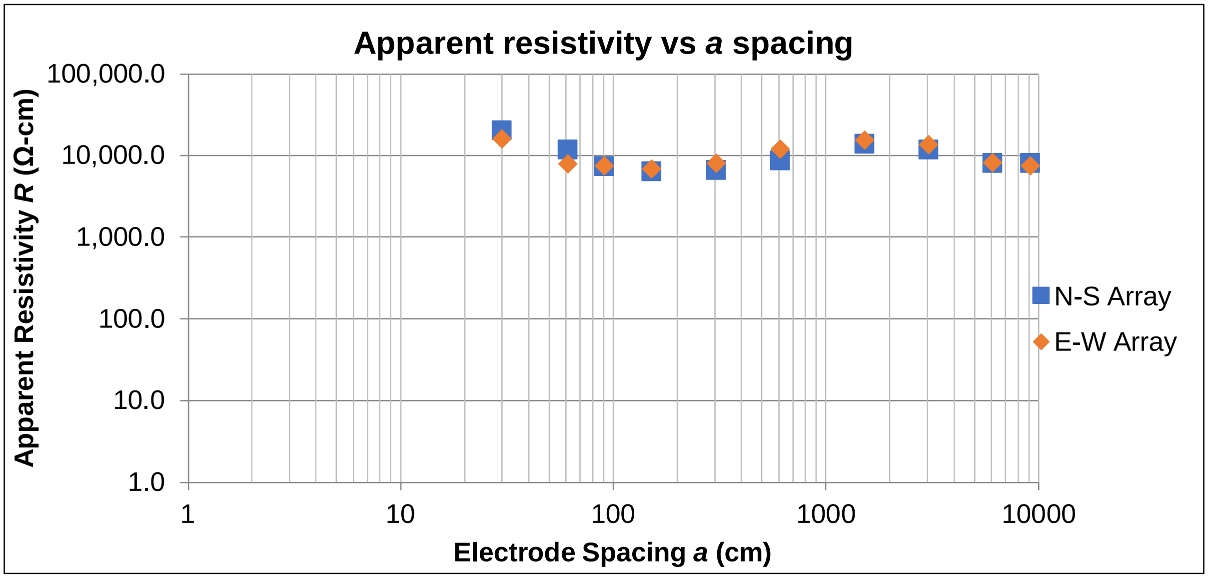
# FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

| | | | |
|---|---|---|---|
| **Array Loc.** | **FER-BESS-02: 35.553828, -106.002677** | | |
| **Instrument** | LRI MiniRes Ultra | **Weather** | Cloudy |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 10-Jul | **Tested By** | SL |
| **Test Date** | September 20, 2023 | **Method** | Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |
| **Notes & Conflicts** | | | |

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

| **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) |
| 1 | 30 | 6 | 15 | 81.80 | 20290 | 64.80 | 16070 |
| 2 | 61 | 6 | 15 | 28.10 | 11810 | 19.10 | 8030 |
| 3 | 91 | 6 | 15 | 12.50 | 7470 | 12.63 | 7550 |
| 5 | 152 | 6 | 15 | 6.62 | 6430 | 7.16 | 6950 |
| 10 | 305 | 13 | 33 | 3.42 | 6680 | 4.17 | 8140 |
| 20 | 610 | 13 | 33 | 2.27 | 8730 | 3.16 | 12170 |
| 50 | 1524 | 13 | 33 | 1.463 | 14020 | 1.618 | 15510 |
| 100 | 3048 | 14 | 36 | 0.618 | 11840 | 0.718 | 13750 |
| 200 | 6096 | 15 | 38 | 0.213 | 8160 | 0.216 | 8270 |
| 300 | 9144 | 16 | 41 | 0.143 | 8220 | 0.131 | 7530 |



## FIELD ELECTRICAL RESISTIVITY TEST DATA

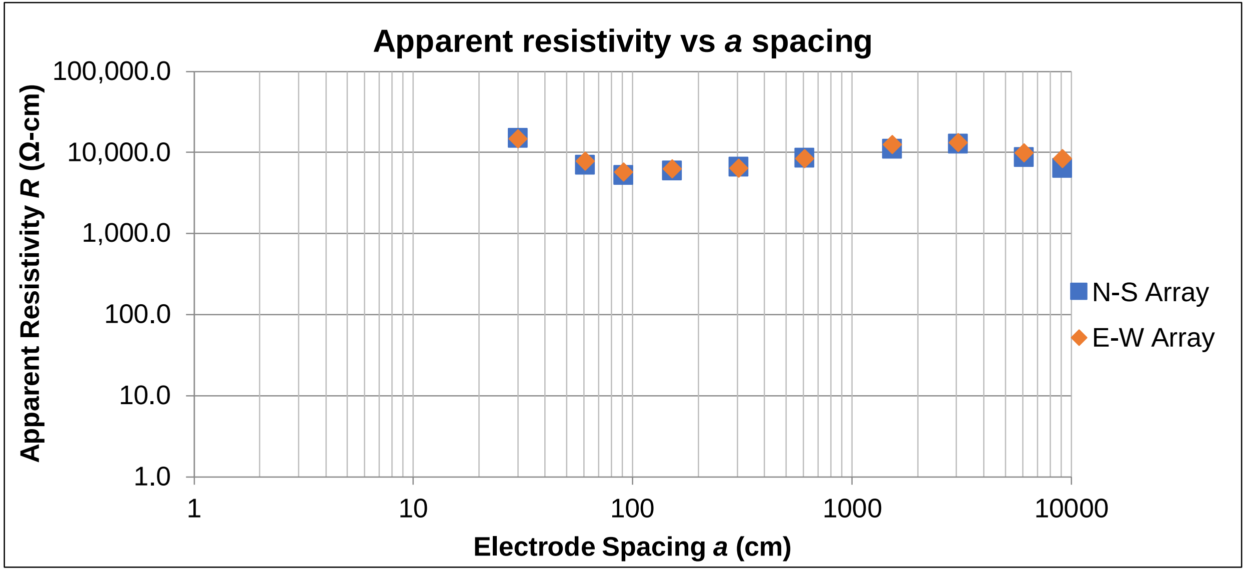
Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

| | | | |
|---|---|---|---|
| **Array Loc.** | FER-BW-01: 35.56568653, -105.9623908 | | |
| **Instrument** | LRI MiniRes Ultra | **Weather** | Cloudy |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 10-Jul | **Tested By** | MG, SS |
| **Test Date** | September 20, 2023 | **Method** | Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |
| **Notes & Conflicts** | | | |

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 61.00 | 15130 | 59.70 | 14810 |
| 2 | 61 | 6 | 15 | 16.90 | 7100 | 18.80 | 7900 |
| 3 | 91 | 6 | 15 | 8.90 | 5320 | 9.70 | 5800 |
| 5 | 152 | 6 | 15 | 6.19 | 6010 | 6.61 | 6420 |
| 10 | 305 | 13 | 33 | 3.41 | 6670 | 3.33 | 6510 |
| 20 | 610 | 13 | 33 | 2.27 | 8740 | 2.19 | 8440 |
| 50 | 1524 | 13 | 33 | 1.170 | 11210 | 1.336 | 12800 |
| 100 | 3048 | 14 | 36 | 0.674 | 12910 | 0.697 | 13350 |
| 200 | 6096 | 15 | 38 | 0.230 | 8810 | 0.264 | 10110 |
| 300 | 9144 | 16 | 41 | 0.113 | 6490 | 0.149 | 8560 |



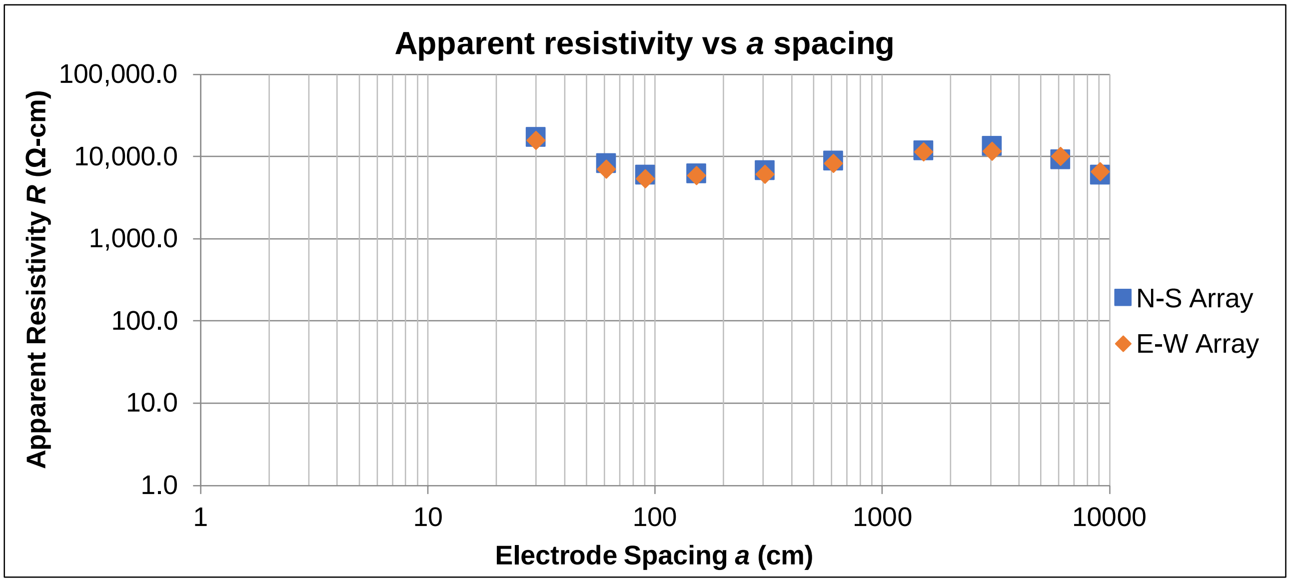
## FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

| | | | |
|---|---|---|---|
| **Array Loc.** | **FER-BW-02: 35.5654018, -105.9622446** | | |
| **Instrument** | LRI MiniRes Ultra | **Weather** | Cloudy |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 10-Jul | **Tested By** | SL |
| **Test Date** | September 20, 2023 | **Method** | Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |
| **Notes & Conflicts** | | | |

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 70.15 | 17400 | 64.10 | 15900 |
| 2 | 61 | 6 | 15 | 20.15 | 8470 | 17.10 | 7190 |
| 3 | 91 | 6 | 15 | 10.21 | 6100 | 9.16 | 5470 |
| 5 | 152 | 6 | 15 | 6.51 | 6320 | 6.19 | 6010 |
| 10 | 305 | 13 | 33 | 3.51 | 6860 | 3.16 | 6170 |
| 20 | 610 | 13 | 33 | 2.35 | 9060 | 2.20 | 8480 |
| 50 | 1524 | 13 | 33 | 1.251 | 11990 | 1.215 | 11640 |
| 100 | 3048 | 14 | 36 | 0.713 | 13660 | 0.615 | 11780 |
| 200 | 6096 | 15 | 38 | 0.243 | 9310 | 0.268 | 10270 |
| 300 | 9144 | 16 | 41 | 0.106 | 6090 | 0.115 | 6610 |



## FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Albuquerque, NM
December 2023 ■ Terracon Project No.66225093

| | | | |
|---|---|---|---|
| **Array Loc.** | **FER-SUB-01: 35.552903, -105.003589** | | |
| **Instrument** | LRI MiniRes Ultra | **Weather** | Cloudy |
| **Serial #** | SN-332 | **Ground Cond.** | Dry, moderate vegetation |
| **Cal. Check** | 10-Jul | **Tested By** | SL |
| **Test Date** | September 20, 2023 | **Method** | Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |
| **Notes & Conflicts** | | | |

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 60.81 | 15080 | 75.50 | 18730 |
| 2 | 61 | 6 | 15 | 44.50 | 18710 | 39.15 | 16460 |
| 3 | 91 | 6 | 15 | 19.16 | 11450 | 26.12 | 15620 |
| 5 | 152 | 6 | 15 | 11.16 | 10840 | 9.16 | 8900 |
| 10 | 305 | 13 | 33 | 4.16 | 8120 | 4.62 | 9030 |
| 20 | 610 | 13 | 33 | 2.20 | 8470 | 2.16 | 8310 |
| 50 | 1524 | 13 | 33 | 1.486 | 14240 | 1.168 | 11190 |
| 100 | 3048 | 14 | 36 | 0.765 | 14650 | 0.684 | 13100 |
| 200 | 6096 | 15 | 38 | 0.215 | 8240 | 0.254 | 9730 |
| 300 | 9144 | 16 | 41 | 0.156 | 8960 | 0.185 | 10630 |

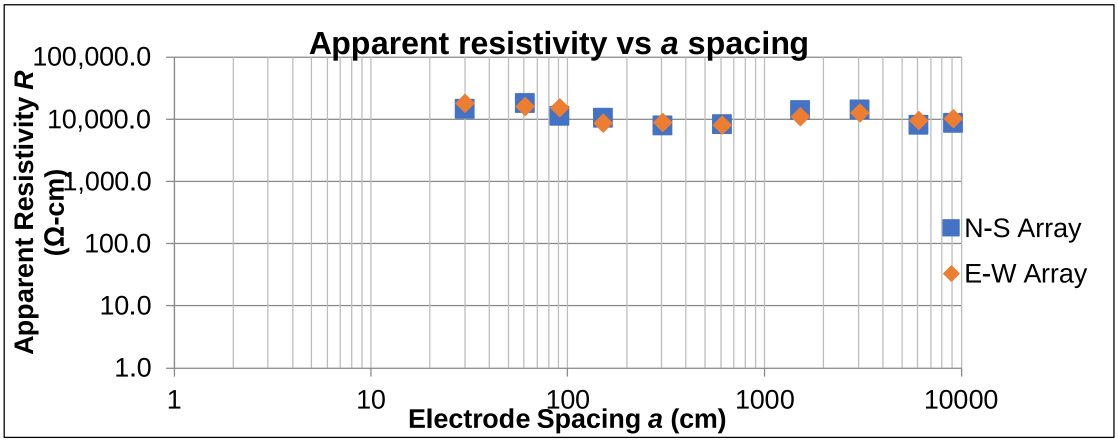


Exhibit D-25

# FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Santa Fe, New Mexico
September 23, 2022 ■ Terracon Project No.66225093

**Array Loc.** **FER-01** : 35.55098, -106.00957

| | | | |
|---|---|---|---|
| **Instrument** | MiniRes Ultra | **Weather** | Sunny 92°F |
| **Serial #** | | **Ground Cond.** | dry, low vegetation |
| **Cal. Check** | 1-Sep | **Tested By** | KD |
| **Test Date** | August 25, 2022 | **Method** | Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012 |

**Notes & Conflicts**

Apparent resistivity $\rho$ 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* Ω | Apparent Resistivity *ρ* (Ω-cm) | Measured Resistance *R* Ω | Apparent Resistivity *ρ* (Ω-cm) |
| 1 | 30 | 6 | 15 | 73.70 | 18280 | 65.60 | 16270 |
| 2 | 61 | 6 | 15 | 41.80 | 17570 | 41.90 | 17610 |
| 3 | 91 | 6 | 15 | 20.40 | 12200 | 25.70 | 15360 |
| 5 | 152 | 6 | 15 | 10.80 | 10490 | 10.70 | 10390 |
| 10 | 305 | 12 | 30 | 4.000 | 7790 | 3.700 | 7210 |
| 20 | 610 | 12 | 30 | 1.700 | 6540 | 1.800 | 6930 |
| 50 | 1524 | 12 | 30 | 0.653 | 6260 | 0.711 | 6810 |
| 100 | 3048 | 12 | 30 | 0.380 | 7280 | 0.434 | 8310 |

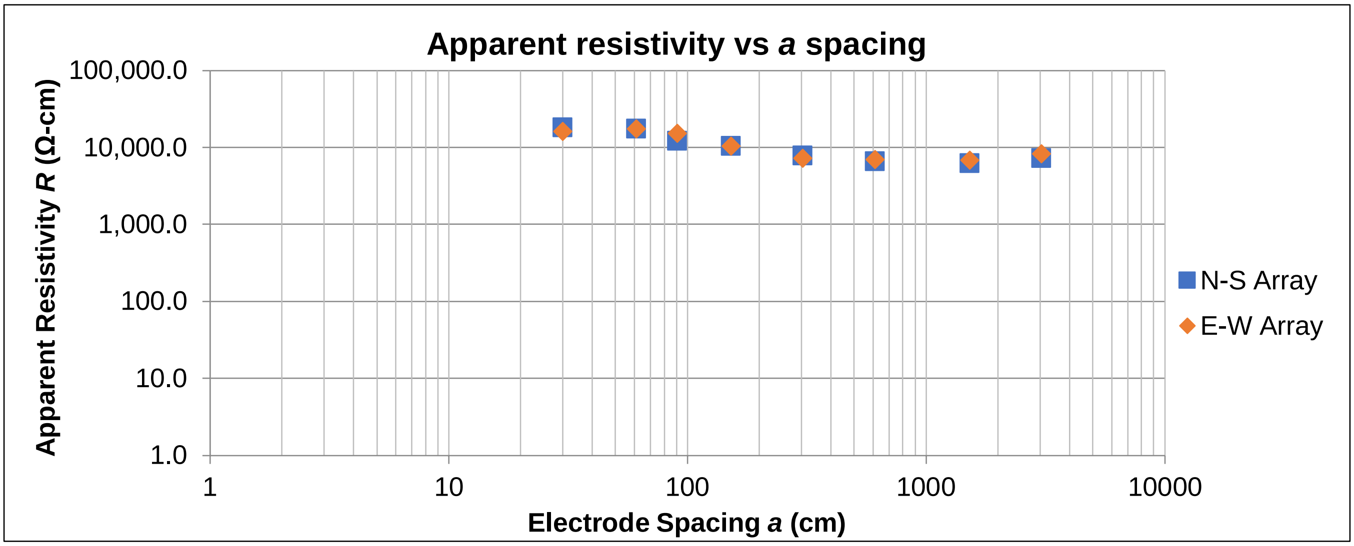


Exhibit D-26

**Array Loc.** **FER-02** : 35.54262, -106.02614

**Instrument** MiniRes Ultra

**Weather** Sunny 88°F

**Serial #**

**Ground Cond.** dry, low vegetation

**Cal. Check** 1-Sep

**Tested By** KD

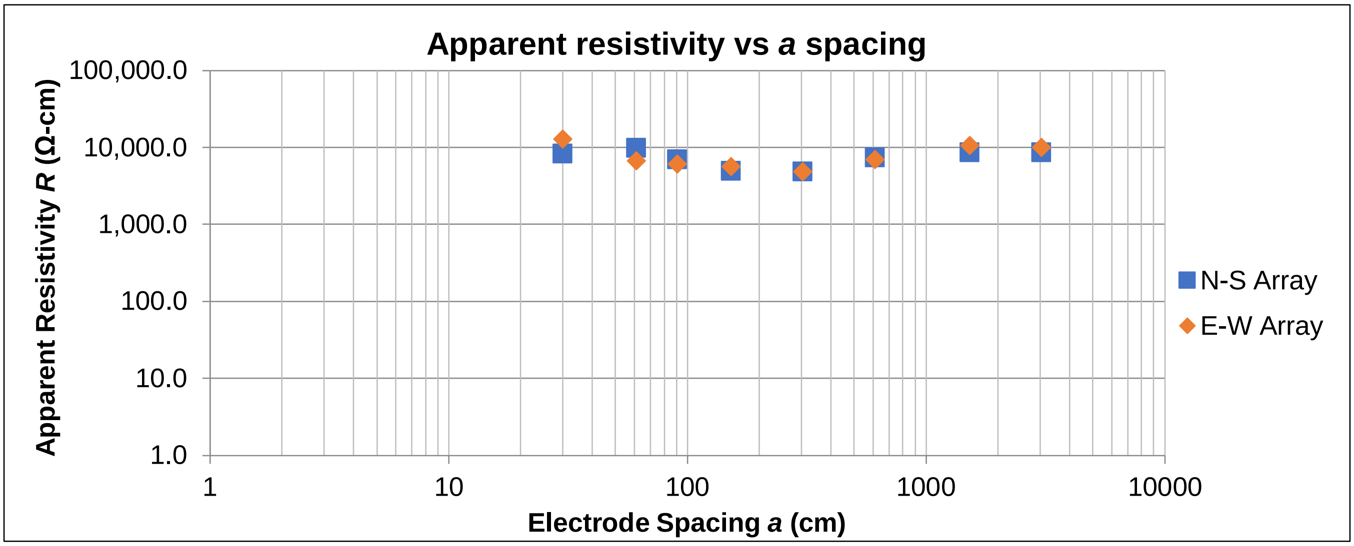
**Test Date** August 25, 2022

**Method** Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012

**Notes & Conflicts**

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

| 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) |
| 1 | 30 | 6 | 15 | 33.40 | 8290 | 52.10 | 12920 |
| 2 | 61 | 6 | 15 | 23.60 | 9920 | 16.00 | 6730 |
| 3 | 91 | 6 | 15 | 11.70 | 6990 | 10.20 | 6100 |
| 5 | 152 | 6 | 15 | 5.10 | 4950 | 5.80 | 5630 |
| 10 | 305 | 12 | 30 | 2.500 | 4870 | 2.500 | 4870 |
| 20 | 610 | 12 | 30 | 1.900 | 7310 | 1.800 | 6930 |
| 50 | 1524 | 12 | 30 | 0.900 | 8620 | 1.100 | 10540 |
| 100 | 3048 | 12 | 30 | 0.445 | 8520 | 0.528 | 10110 |



## FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Santa Fe, New Mexico
September 23, 2022 ■ Terracon Project No.66225093

**Array Loc.** **FER-03** : 35.54299, -106.00820

**Instrument** MiniRes Ultra

**Weather** Sunny 89°F

**Serial #**

**Ground Cond.** dry, low vegetation

**Cal. Check** 1-Sep

**Tested By** KD

**Test Date** August 25, 2022

**Method** Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012

**Notes & Conflicts**

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 82.90 | 20560 | 90.90 | 22550 |
| 2 | 61 | 6 | 15 | 31.70 | 13320 | 38.20 | 16060 |
| 3 | 91 | 6 | 15 | 21.50 | 12850 | 21.40 | 12790 |
| 5 | 152 | 6 | 15 | 9.60 | 9320 | 9.10 | 8840 |
| 10 | 305 | 12 | 30 | 4.000 | 7790 | 3.800 | 7400 |
| 20 | 610 | 12 | 30 | 2.300 | 8850 | 2.500 | 9620 |
| 50 | 1524 | 12 | 30 | 1.326 | 12710 | 1.338 | 12820 |
| 100 | 3048 | 12 | 30 | 0.723 | 13850 | 0.736 | 14100 |

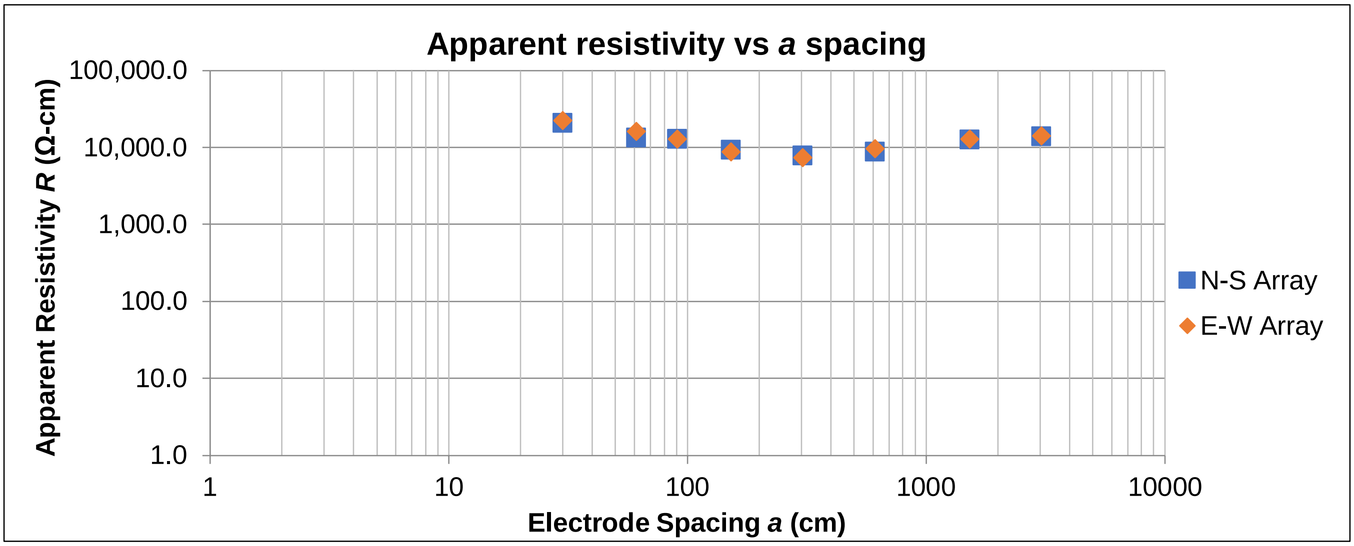


Exhibit D-28

# FIELD ELECTRICAL RESISTIVITY TEST DATA

Rancho Viejo Solar ■ Santa Fe, New Mexico
September 23, 2022 ■ Terracon Project No.66225093

**Array Loc.** **FER-SUB** : 35.55342, -106.00314

**Instrument** MiniRes Ultra

**Weather** Sunny 92°F

**Serial #**

**Ground Cond.** dry, low vegetation

**Cal. Check** 1-Sep

**Tested By** KD

**Test Date** August 25, 2022

**Method** Venner 4-pin (ASTM G57-06 (2012); IEEE 81-2012

**Notes & Conflicts** Barbed wire fence on north side, array went under fence

Apparent resistivity $\rho$ 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) |
| 1 | 30 | 6 | 15 | 57.90 | 14360 | 40.30 | 10000 |
| 2 | 61 | 6 | 15 | 28.50 | 11980 | 26.70 | 11220 |
| 3 | 91 | 6 | 15 | 16.20 | 9690 | 16.00 | 9570 |
| 5 | 152 | 6 | 15 | 8.50 | 8250 | 7.60 | 7380 |
| 10 | 305 | 12 | 30 | 3.400 | 6620 | 3.600 | 7010 |
| 20 | 610 | 12 | 30 | 2.500 | 9620 | 2.400 | 9240 |
| 50 | 1524 | 12 | 30 | 1.160 | 11120 | 1.336 | 12800 |
| 100 | 3048 | 12 | 30 | 0.468 | 8960 | 0.536 | 10270 |
| 200 | 6096 | 13 | 33 | 0.225 | 8620 | 0.218 | 8350 |
| 300 | 9144 | 14 | 36 | 0.121 | 6950 | 0.122 | 7010 |

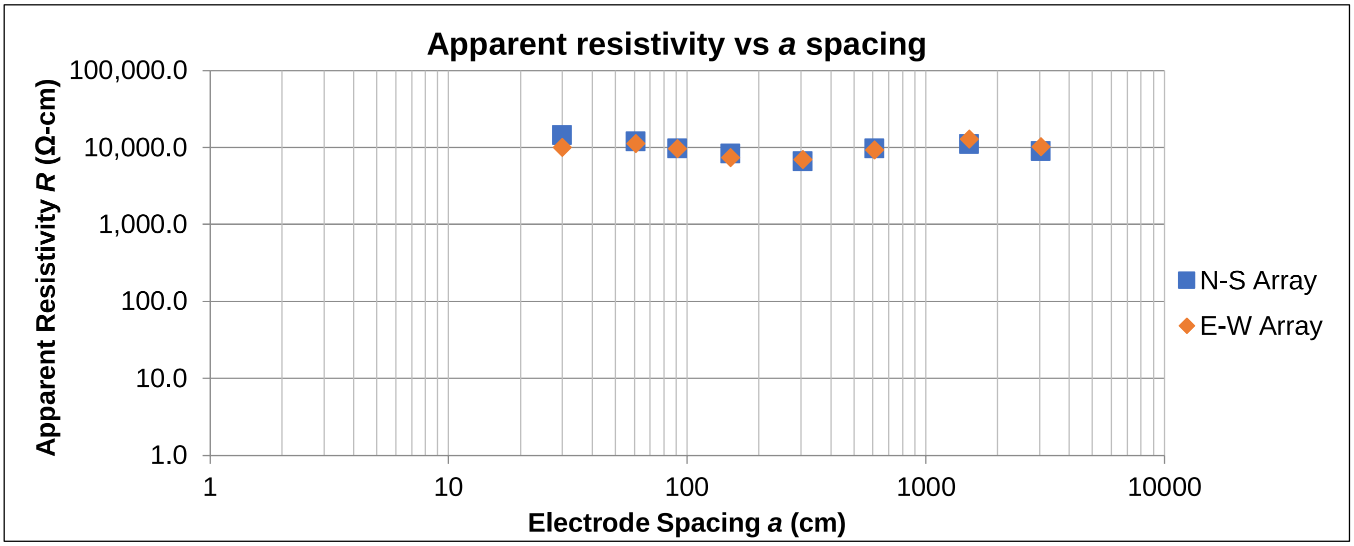


Exhibit D-29

# APPENDIX E

# TEST PILE DRIVING DATA

# Pile Load Test Location – Zone Map

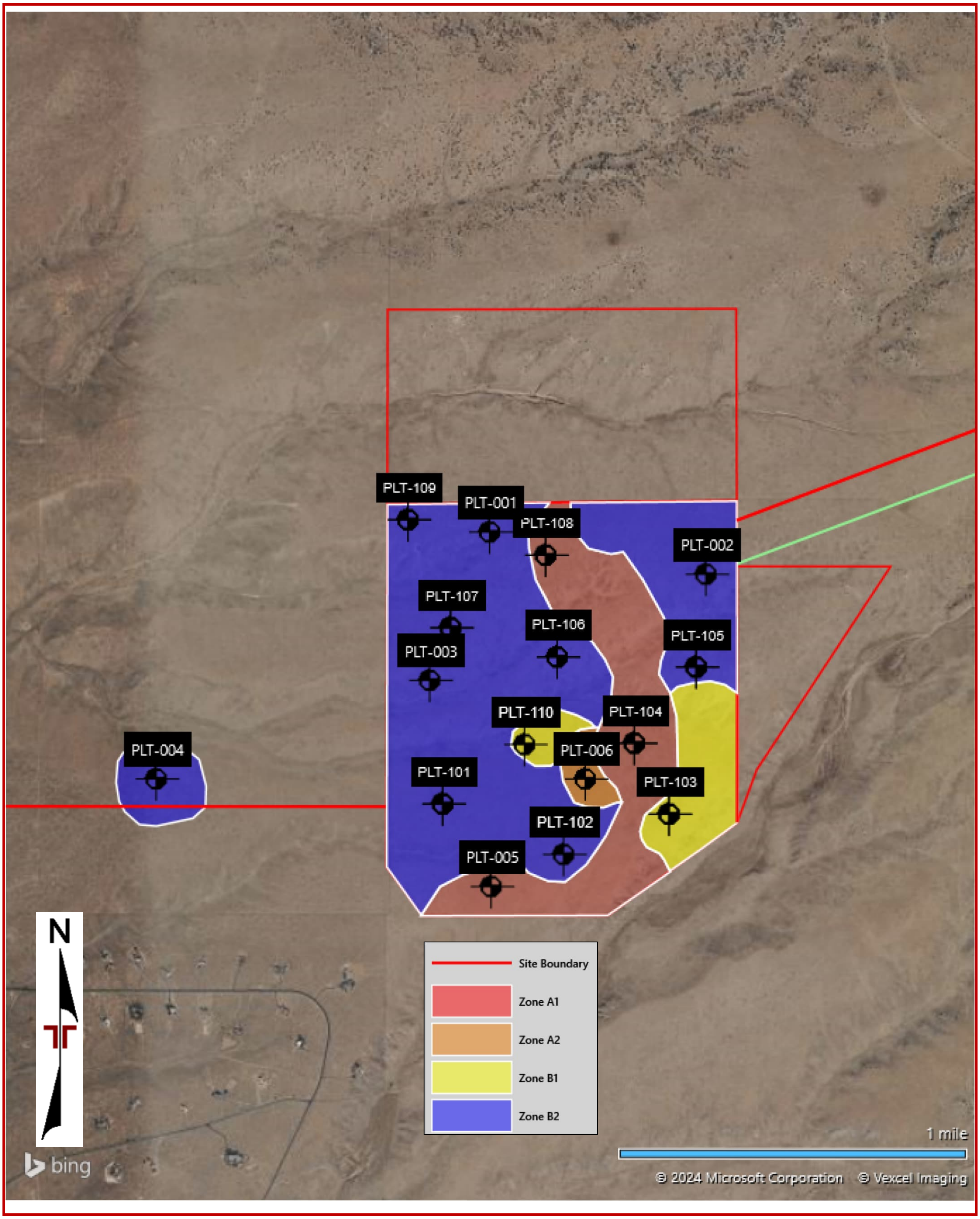
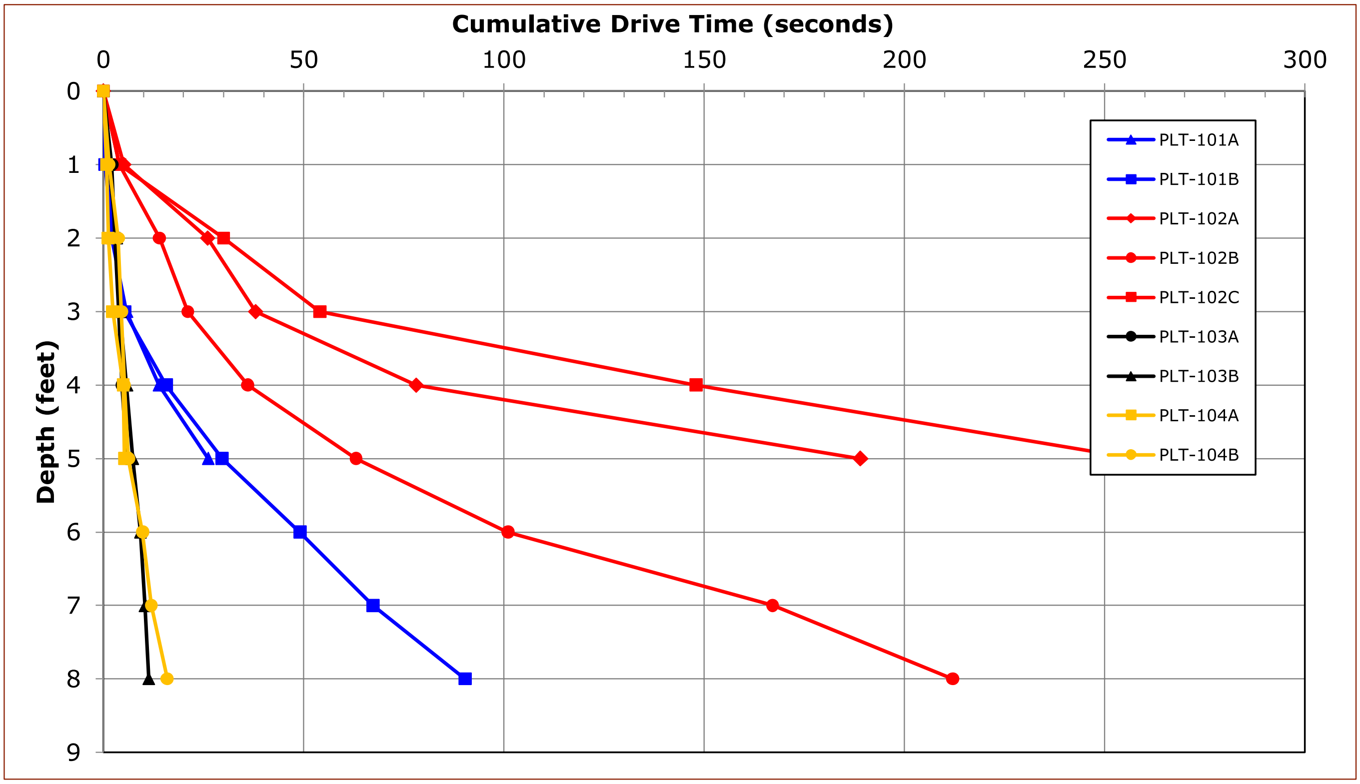


Exhibit E-1

# TEST PILE DRIVING RECORDS

## Rancho Viejo Solar Facility
## Terracon Project No. 66225093



| Depth Range, feet | Cumulative Driving Time, seconds (See Note 1) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **PLT-101A** | **PLT-101B** | **PLT-102A** | **PLT-102B** | **PLT-102C** | **PLT-103A** | **PLT-103B** | **PLT-104A** | **PLT-104B** |
| 0' | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0' to 1' | 0.5 | 0.4 | 5.0 | 4.0 | 4.0 | 2.1 | 1.4 | 0.8 | 1.4 |
| 1' to 2' | 2.0 | 2.6 | 26.0 | 14.0 | 30.0 | 2.9 | 3.2 | 1.2 | 3.7 |
| 2' to 3' | 5.8 | 5.3 | 38.0 | 21.0 | 54.0 | 3.8 | 4.2 | 2.3 | 4.5 |
| 3' to 4' | 13.9 | 15.7 | 78.0 | 36.0 | 148.0 | 4.7 | 5.7 | 4.9 | 5.2 |
| 4' to 5' | 26.1 | 29.6 | 189.0 | 63.0 | 258.0 | 5.9 | 7.3 | 5.3 | 6.2 |
| 5' to 6' | | 49.1 | | 101.0 | | | 9.2 | | 9.8 |
| 6' to 7' | | 67.3 | | 167.0 | | | 10.4 | | 11.9 |
| 7' to 8' | | 90.3 | | 212.0 | | | 11.3 | | 15.9 |
| **Install Date** | **8/23/23** | **8/24/23** | **2/29/24** | **3/1/24** | **3/2/24** | **8/28/23** | **8/29/23** | **8/30/23** | **8/30/23** |
| **Refusal** | **No** | **No** | **No** | **No** | **Yes** | **No** | **No** | **No** | **No** |
| **Embedment Depth, ft.** | **5** | **8** | **5** | **8** | **4.42** | **5** | **8** | **5** | **8** |
| **Total Drive Time, sec.** | **26.1** | **90.3** | **189.0** | **212.0** | **258.0** | **5.9** | **11.3** | **5.3** | **15.9** |
| **Average, sec./ft.** | **5.2** | **11.3** | **37.8** | **26.5** | **58.4** | **1.2** | **1.4** | **1.1** | **2.0** |

**NOTES:**

1. Piles advanced with a Gayk HRE4000 hydraulic hammer.

2. PLT-102 installed with a Vermeer PD10 hydraulic hammer.

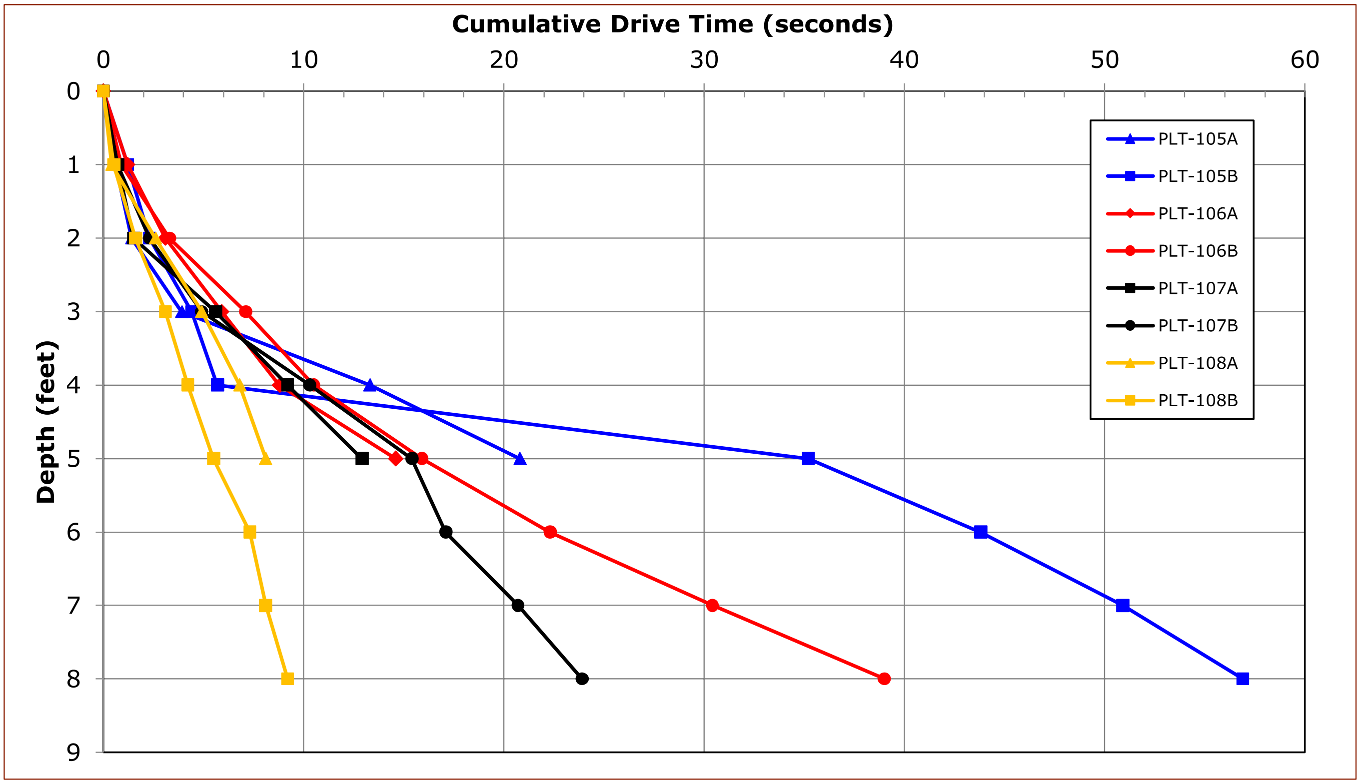
Exhibit E-1

Terracon

# TEST PILE DRIVING RECORDS

## Rancho Viejo Solar Facility

## Terracon Project No. 66225093



| **Depth Range, feet** | **Cumulative Driving Time, seconds (See Note 1)** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **PLT-105A** | **PLT-105B** | **PLT-106A** | **PLT-106B** | **PLT-107A** | **PLT-107B** | **PLT-108A** | **PLT-108B** | |
| 0' | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 0' to 1' | 0.6 | 1.2 | 1.2 | 0.9 | 0.7 | 0.7 | 0.4 | 0.5 | |
| 1' to 2' | 1.4 | 2.3 | 3.1 | 3.3 | 1.5 | 2.3 | 2.6 | 1.6 | |
| 2' to 3' | 3.9 | 4.4 | 5.9 | 7.1 | 5.6 | 4.9 | 4.9 | 3.1 | |
| 3' to 4' | 13.3 | 5.7 | 8.8 | 10.5 | 9.2 | 10.3 | 6.8 | 4.2 | |
| 4' to 5' | 20.8 | 35.2 | 14.6 | 15.9 | 12.9 | 15.4 | 8.1 | 5.5 | |
| 5' to 6' | | 43.8 | | 22.3 | | 17.1 | | 7.3 | |
| 6' to 7' | | 50.9 | | 30.4 | | 20.7 | | 8.1 | |
| 7' to 8' | | 56.9 | | 39.0 | | 23.9 | | 9.2 | |
| **Install Date** | **8/23/23** | **8/24/23** | **8/25/23** | **8/26/23** | **8/27/23** | **8/28/23** | **8/29/23** | **8/30/23** | |
| **Refusal** | **No** | **No** | **No** | **No** | **No** | **No** | **No** | **No** | |
| **Embedment Depth, ft.** | **5** | **8** | **5** | **8** | **5** | **8** | **5** | **8** | |
| **Total Drive Time, sec.** | **20.8** | **56.9** | **14.6** | **39.0** | **12.9** | **23.9** | **8.1** | **9.2** | |
| **Average, sec./ft.** | **4.2** | **7.1** | **2.9** | **4.9** | **2.6** | **3.0** | **1.6** | **1.2** | |

**NOTES:**

1. Piles advanced with a Gayk HRE4000 hydraulic hammer.

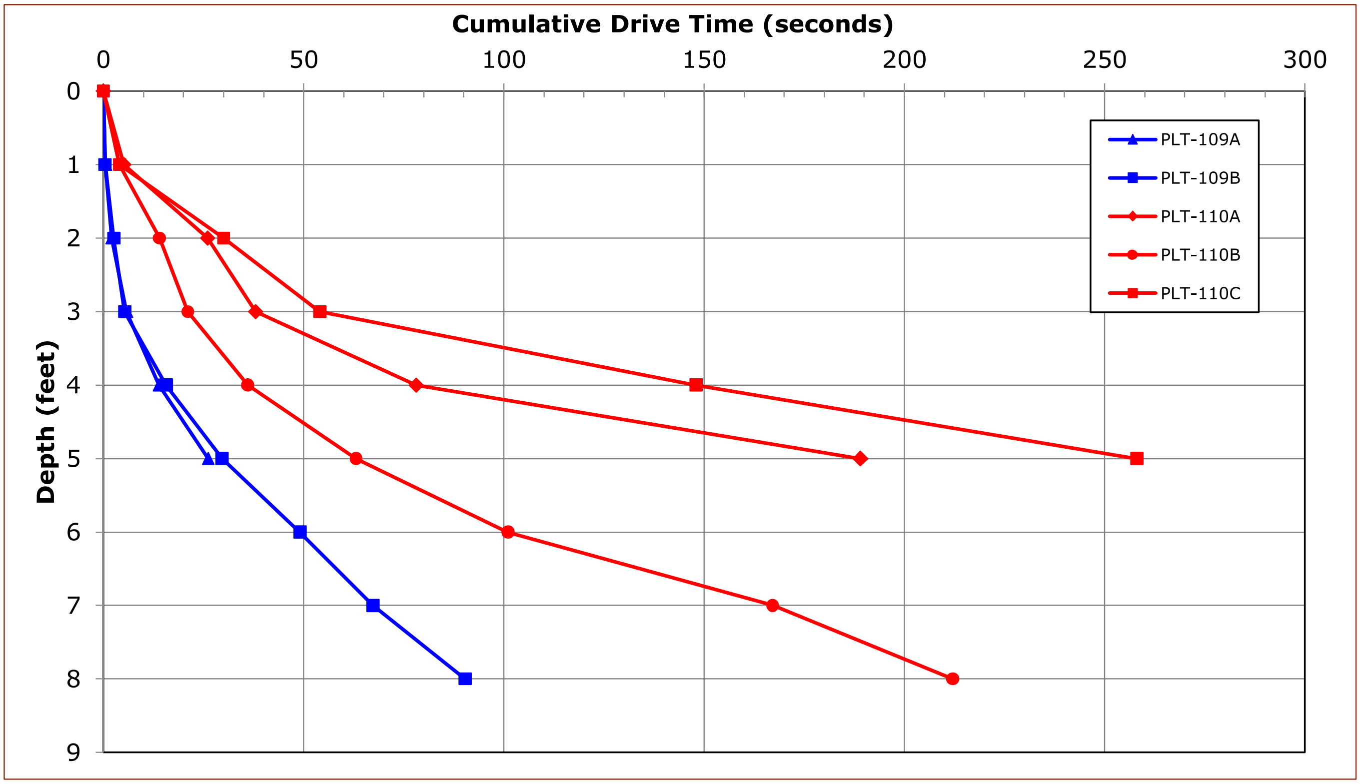
Exhibit E-2

Terracon

# TEST PILE DRIVING RECORDS

## Rancho Viejo Solar Facility

## Terracon Project No. 66225093



| Depth Range, feet | Cumulative Driving Time, seconds (See Note 1) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | PLT-109A | PLT-109B | PLT-110A | PLT-110B | PLT-110C | | | | |
| 0' | 0 | 0 | 0 | 0 | 0 | | | | |
| 0' to 1' | 0.5 | 0.4 | 5.0 | 4.0 | 4.0 | | | | |
| 1' to 2' | 2.0 | 2.6 | 26.0 | 14.0 | 30.0 | | | | |
| 2' to 3' | 5.8 | 5.3 | 38.0 | 21.0 | 54.0 | | | | |
| 3' to 4' | 13.9 | 15.7 | 78.0 | 36.0 | 148.0 | | | | |
| 4' to 5' | 26.1 | 29.6 | 189.0 | 63.0 | 258.0 | | | | |
| 5' to 6' | | 49.1 | | 101.0 | | | | | |
| 6' to 7' | | 67.3 | | 167.0 | | | | | |
| 7' to 8' | | 90.3 | | 212.0 | | | | | |
| **Install Date** | **8/23/23** | **8/24/23** | **3/3/24** | **3/4/24** | **3/5/24** | | | | |
| **Refusal** | **No** | **No** | **No** | **No** | **Yes** | | | | |
| **Embedment Depth, ft.** | **5** | **8** | **5** | **8** | **3.83** | | | | |
| **Total Drive Time, sec.** | **26.1** | **90.3** | **189.0** | **212.0** | **258.0** | | | | |
| **Average, sec./ft.** | **5.2** | **11.3** | **37.8** | **26.5** | **67.4** | | | | |

**NOTES:**

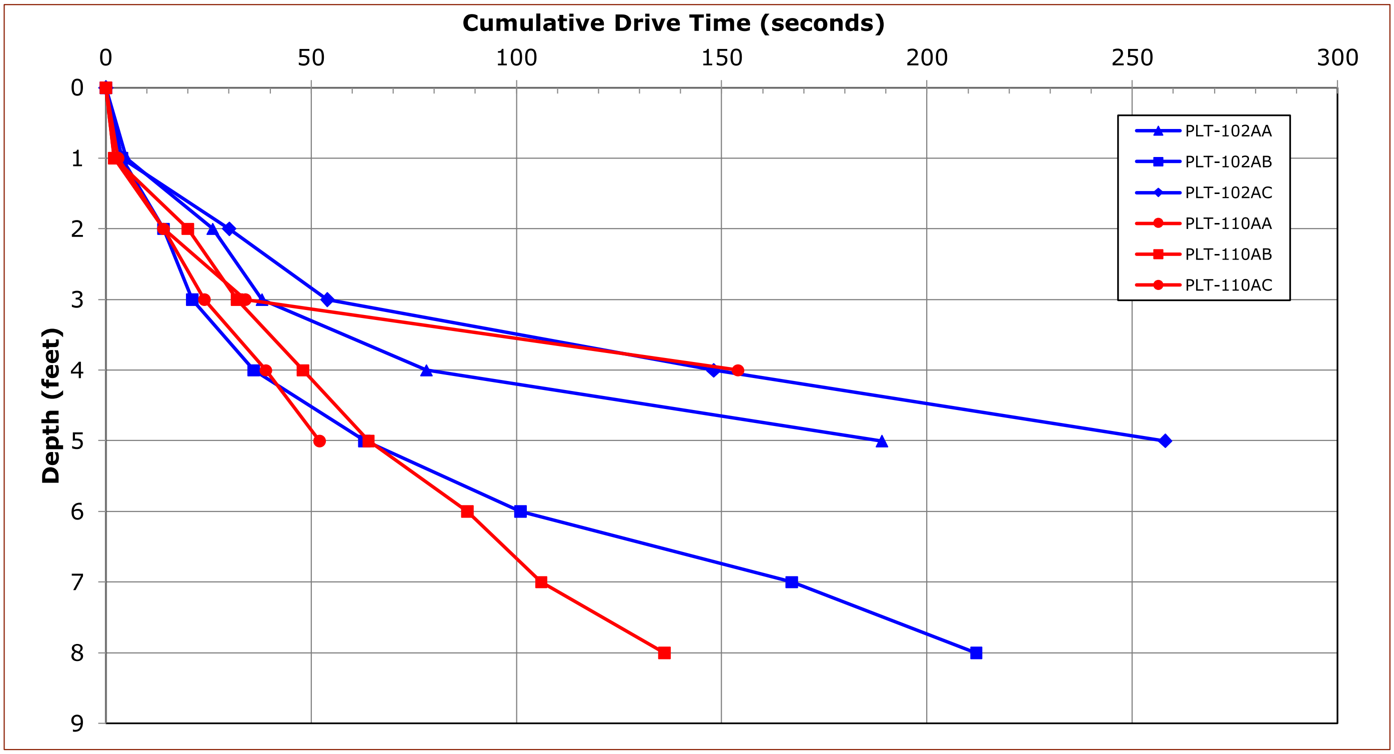
1. Piles advanced with a Gayk HRE4000 hydraulic hammer.

2. PLT-110 advanced with a Vermeer PD10 hydraulic hammer.

Exhibit E-3

# TEST PILE DRIVING RECORDS

### Rancho Viejo Solar Facility
### Terracon Project No. 66225093



| **Depth Range, feet** | **Cumulative Driving Time, seconds (See Note 1)** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **PLT-102AA** | **PLT-102AB** | **PLT-102AC** | **PLT-110AA** | **PLT-110AB** | **PLT-110AC** | | | |
| 0' | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| 0' to 1' | 5.0 | 4.0 | 4.0 | 2.0 | 2.0 | 3.0 | | | |
| 1' to 2' | 26.0 | 14.0 | 30.0 | 14.0 | 20.0 | 14.0 | | | |
| 2' to 3' | 38.0 | 21.0 | 54.0 | 24.0 | 32.0 | 34.0 | | | |
| 3' to 4' | 78.0 | 36.0 | 148.0 | 39.0 | 48.0 | 154.0 | | | |
| 4' to 5' | 189.0 | 63.0 | 258.0 | 52.0 | 64.0 | | | | |
| 5' to 6' | | 101.0 | | | 88.0 | | | | |
| 6' to 7' | | 167.0 | | | 106.0 | | | | |
| 7' to 8' | | 212.0 | | | 136.0 | | | | |
| **Install Date** | **2/29/24** | **3/1/24** | **3/2/24** | **3/3/24** | **3/4/24** | **3/5/24** | | | |
| **Refusal** | **No** | **No** | **Yes** | **No** | **No** | **Yes** | | | |
| **Embedment Depth, ft.** | **5** | **8** | **4.42** | **5** | **8** | **3.83** | | | |
| **Total Drive Time, sec.** | **189.0** | **212.0** | **258.0** | **52.0** | **136.0** | **154.0** | | | |
| **Average, sec./ft.** | **37.8** | **26.5** | **58.4** | **10.4** | **17.0** | **40.2** | | | |

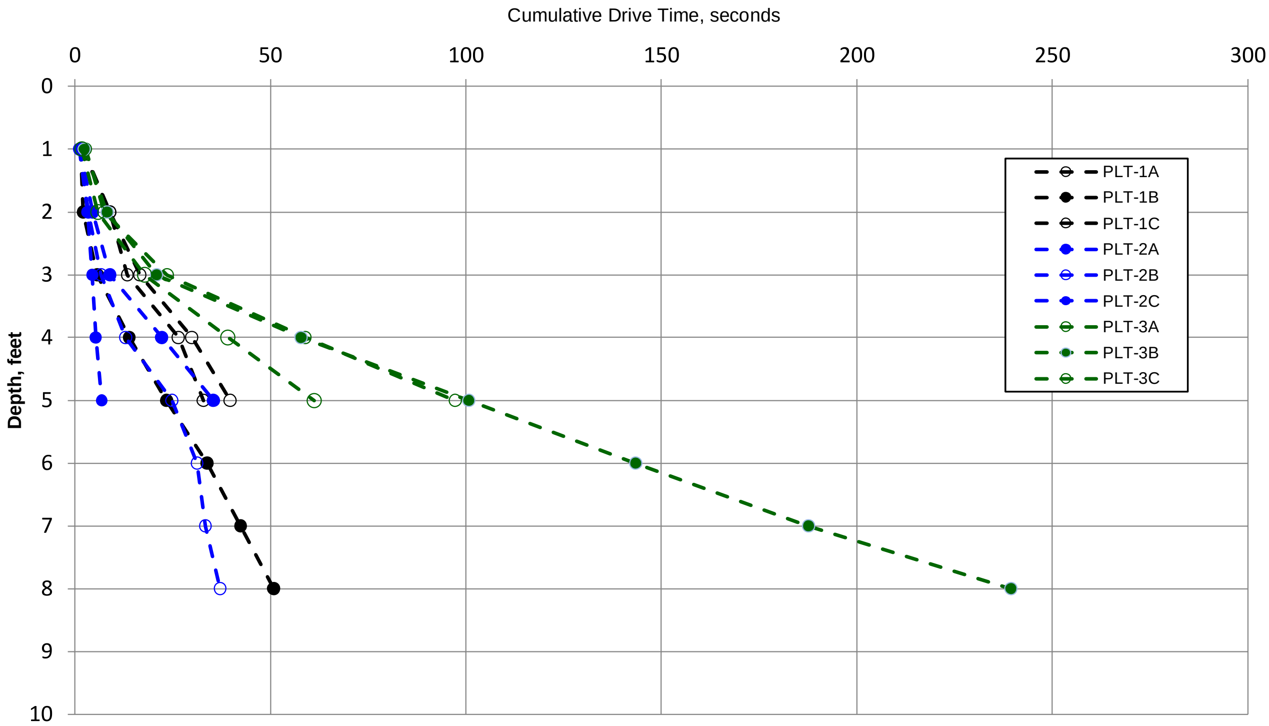
**NOTES:**

1. Piles advanced with a Vermeer PD10 hydraulic hammer.

Exhibit E-4

# TEST PILE DRIVING RECORDS

## Rancho Viejo Solar Facility - 66225093



| **Depth, feet** | **Cumulative Driving Time, seconds** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **PLT-1A** | **PLT-1B** | **PLT-1C** | **PLT-2A** | **PLT-2B** | **PLT-2C** | **PLT-3A** | **PLT-3B** | **PLT-3C** |
| 1 | 2.1 | 1.4 | 1.8 | 1.3 | 1.2 | 1.1 | 2.7 | 2.4 | 1.7 |
| 2 | 8.9 | 2.1 | 8.9 | 4.5 | 3.4 | 3.2 | 7.4 | 8.2 | 5.9 |
| 3 | 16.6 | 5.7 | 13.4 | 8.9 | 6.7 | 4.4 | 23.6 | 20.9 | 17.8 |
| 4 | 29.8 | 13.9 | 26.4 | 22.2 | 12.9 | 5.3 | 58.9 | 57.8 | 39.1 |
| 5 | 39.7 | 23.4 | 32.8 | 35.4 | 24.8 | 6.8 | 97.2 | 100.7 | 61.2 |
| 6 | | 33.8 | | | 31.2 | | | 143.4 | |
| 7 | | 42.4 | | | 33.3 | | | 187.6 | |
| 8 | | 50.8 | | | 37.1 | | | 239.4 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Note: | | | | | | | | | |
| **Embedment Depth, ft** | **5** | **8** | **5** | **5** | **8** | **5** | **5** | **8** | **5** |
| **Total Drive Time, sec** | **39.7** | **50.8** | **32.8** | **35.4** | **37.1** | **6.8** | **97.2** | **239.4** | **61.2** |
| **Average, sec/ft** | **7.9** | **6.4** | **6.6** | **7.1** | **4.6** | **1.4** | **19.4** | **29.9** | **12.2** |

**NOTES:**

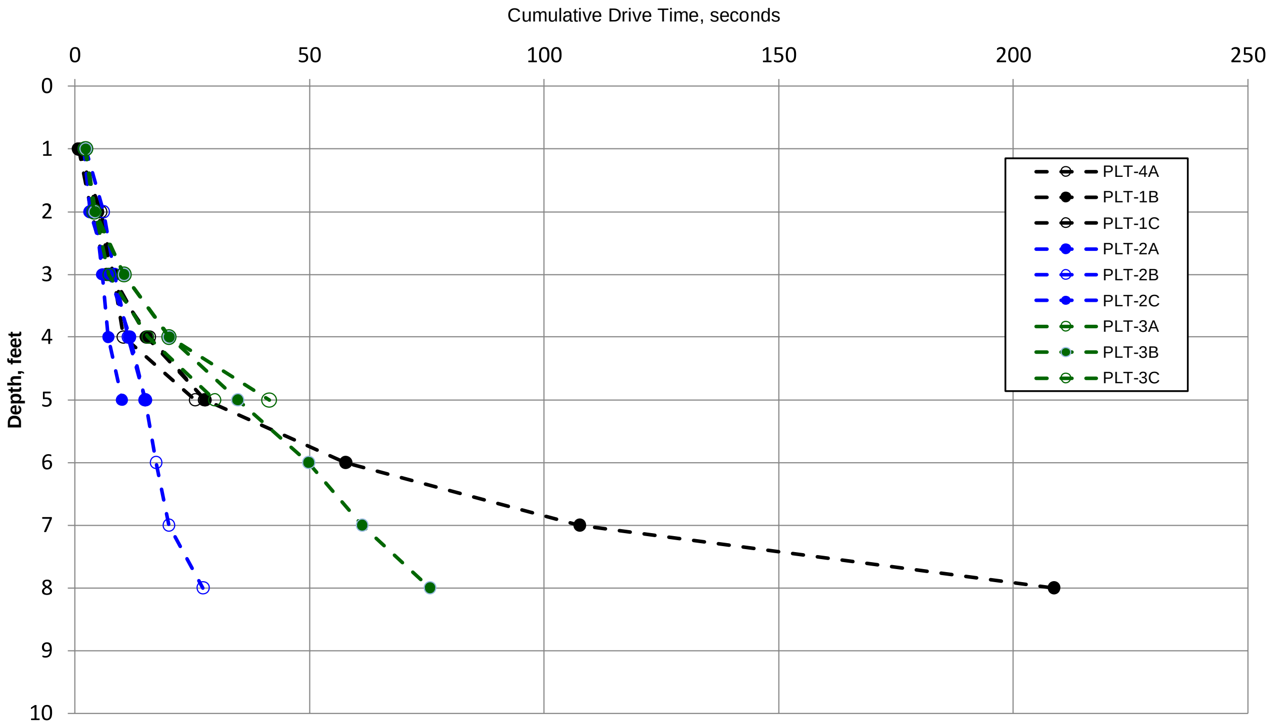
Piles advanced with a track mounted GAYK-HRE 4000 on July 26, 2022.

Terracon

Exhibit E-5

# TEST PILE DRIVING RECORDS

## Rancho Viejo Solar Facility - 66225093



| Depth, feet | Cumulative Driving Time, seconds | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | PLT-4A | PLT-1B | PLT-1C | PLT-2A | PLT-2B | PLT-2C | PLT-3A | PLT-3B | PLT-3C |
| 1 | 0.8 | 0.9 | 0.7 | 1.9 | 2.3 | 2.1 | 2.1 | 2.3 | 2.2 |
| 2 | 3.5 | 4.9 | 5.5 | 3.2 | 6.1 | 4.3 | 4.3 | 4.3 | 4.1 |
| 3 | 6.8 | 7.9 | 8.1 | 7.4 | 8.4 | 5.8 | 7.2 | 10.5 | 10.4 |
| 4 | 15.9 | 15.2 | 10.3 | 11.6 | 11.3 | 7.1 | 15.5 | 20.1 | 20.0 |
| 5 | 27.6 | 27.8 | 25.6 | 15.0 | 14.9 | 10.0 | 29.8 | 34.7 | 41.4 |
| 6 | | 57.7 | | | 17.3 | | | 49.8 | |
| 7 | | 107.6 | | | 20.0 | | | 61.2 | |
| 8 | | 208.7 | | | 27.3 | | | 75.7 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Note: | | | | | | | | | |
| **Embedment Depth, ft** | **5** | **8** | **5** | **5** | **8** | **5** | **5** | **8** | **5** |
| **Total Drive Time, sec** | **27.6** | **208.7** | **25.6** | **15.0** | **27.3** | **10.0** | **29.8** | **75.7** | **41.4** |
| **Average, sec/ft** | **5.5** | **26.1** | **5.1** | **3.0** | **3.4** | **2.0** | **6.0** | **9.5** | **8.3** |

**NOTES:**

Piles advanced with a track mounted GAYK-HRE 4000 on July 26, 2022.

Terracon

Exhibit E-6

# APPENDIX F

# PILE LOAD TESTING RESULTS – AXIAL COMPRESSIVE LOAD

# Compression Load Test Result for PLT-102C

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

**Axial Load Test Set Up**

| | |
|---|---|
| Number of Gauges: | 2 |
| Height of Gauges [in]: | 6 |
| Load Cell: | Dillion Ed junior |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | ED/AR |
| Date Tested: | 3/11/2024 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-102C |
| Latitude [deg.]: | 35.53980 |
| Longitude [deg.]: | -106.00941 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in.]: | 60 |
| Pile Diameter [in.]: | 6.5 |
| Pile Stick-Up [in.]: | 24 |
| Axial Design Load [lbs.]: | 10,000 |
| Pile Area [sq. in.]: | 2.68 |
| Elastic Modulus [ksi.]: | 29,000 |
| Drive Time [sec.]: | 0 |

**Compression Test Results**

| % of Design Load | Axial Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 5% | 500 | 0.004 | |
| 10% | 1,000 | 0.006 | |
| 15% | 1,500 | 0.009 | |
| 20% | 2,000 | 0.013 | |
| 25% | 2,500 | 0.017 | |
| 30% | 3,000 | 0.021 | |
| 35% | 3,500 | 0.024 | |
| 40% | 4,000 | 0.026 | |
| 45% | 4,500 | 0.028 | |
| 50% | 5,000 | 0.030 | |
| 55% | 5,500 | 0.032 | |
| 60% | 6,000 | 0.034 | |
| 65% | 6,500 | 0.036 | |
| 70% | 7,000 | 0.037 | |
| 75% | 7,500 | 0.038 | |
| 80% | 8,000 | 0.040 | |
| 85% | 8,500 | 0.041 | |
| 90% | 9,000 | 0.042 | |
| 95% | 9,500 | 0.067 | |
| 100% | 10,000 | 0.068 | |
| 0% | 0 | 0.016 | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

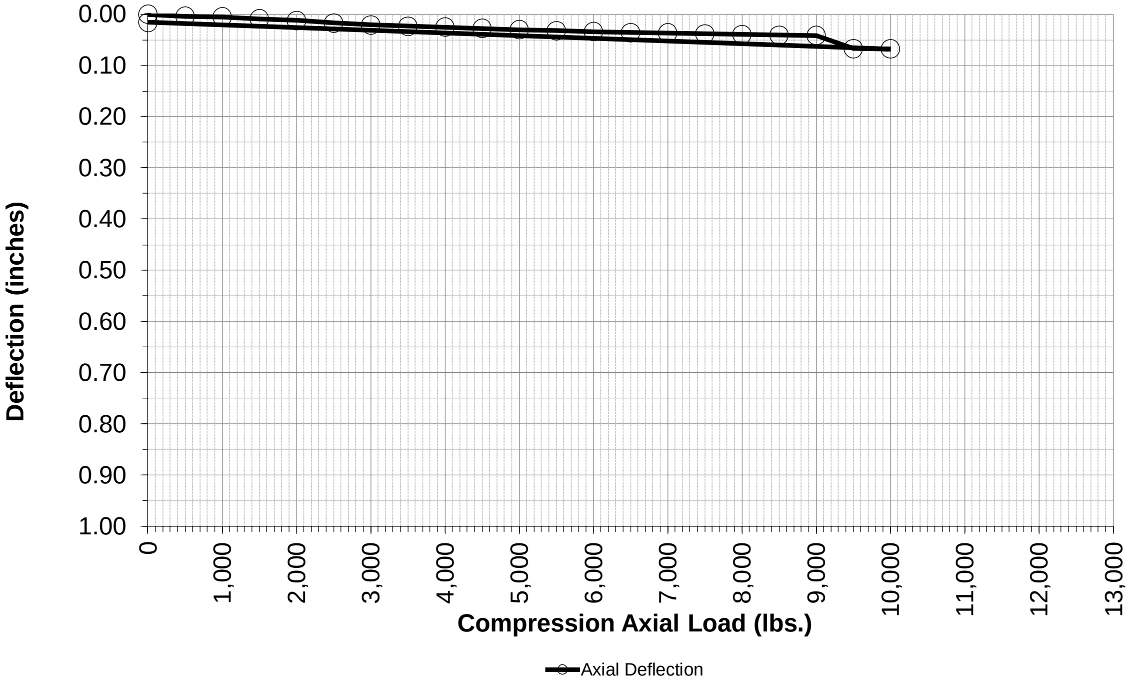


Exhibit F-1

# Compression Load Test Result for PLT-110C

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in]: 6
Load Cell: Dillion Ed junior

**Test Date and Representative**

Tested By Terracon Rep: ED/AR
Date Tested: 3/11/2024

**Pile Information**

Pile ID: PLT-110C
Latitude [deg.]: 35.54438
Longitude [deg.]: -106.01141
Pile Type: W6X9
Pile Embedment Depth [in.]: 60
Pile Diameter [in.]: 6.5
Pile Stick-Up [in.]: 24
Axial Design Load [lbs.]: 10,000
Pile Area [sq. in.]: 2.68
Elastic Modulus [ksi.]: 29,000
Drive Time [sec.]: 0

**Compression Test Results**

| % of Design Load | Axial Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 5% | 500 | 0.000 | |
| 10% | 1,000 | 0.000 | |
| 15% | 1,500 | 0.002 | |
| 20% | 2,000 | 0.005 | |
| 25% | 2,500 | 0.012 | |
| 30% | 3,000 | 0.019 | |
| 35% | 3,500 | 0.026 | |
| 40% | 4,000 | 0.035 | |
| 45% | 4,500 | 0.044 | |
| 50% | 5,000 | 0.052 | |
| 55% | 5,500 | 0.059 | |
| 60% | 6,000 | 0.067 | |
| 65% | 6,500 | 0.074 | |
| 70% | 7,000 | 0.080 | |
| 75% | 7,500 | | |
| 80% | 8,000 | | |
| 85% | 8,500 | | |
| 90% | 9,000 | | |
| 95% | 9,500 | | |
| 100% | 10,000 | | |
| 0% | 0 | | No return value - compression pile deformed |

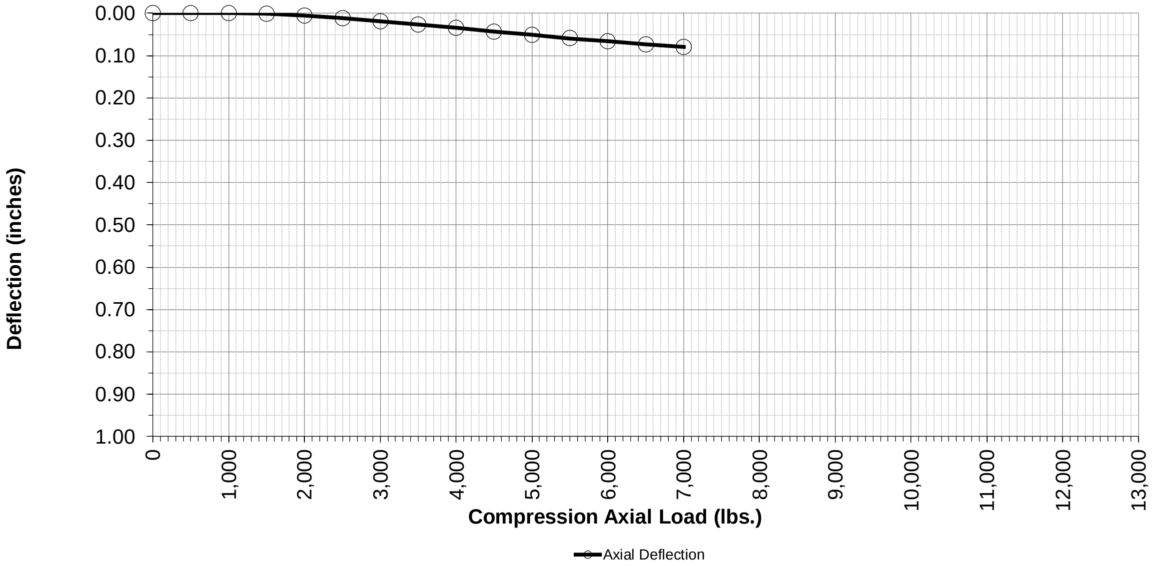


Exhibit F-2

# Compression Load Test Result for PLT-001C

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

**Axial Load Test Set Up**

| | |
|---|---|
| Number of Gauges: | 2 |
| Height of Gauges [in]: | 6 |
| Load Cell: | Custom Scale 25lb |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/25/2022 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-001C |
| Latitude: | 35.55334 |
| Longitude: | -106.01315 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 60 |
| Pile Diameter [in]: | 5.9 |
| Pile Stick-Up [in]: | 48 |
| Axial Design Load [lbs]: | 13000 |
| Pile Area [sq. in]: | 2.68 |
| Elastic Modulus [ksi]: | 29,000 |
| Drive Time [sec]: | 32.8 |

**Compression Test Results**

| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 4% | 500 | 0.000 | |
| 8% | 1000 | 0.000 | |
| 12% | 1500 | 0.001 | |
| 15% | 2000 | 0.001 | |
| 19% | 2500 | 0.001 | |
| 23% | 3000 | 0.002 | |
| 27% | 3500 | 0.003 | |
| 31% | 4000 | 0.004 | |
| 35% | 4500 | 0.005 | |
| 38% | 5000 | 0.006 | |
| 42% | 5500 | 0.006 | |
| 46% | 6000 | 0.007 | |
| 50% | 6500 | 0.009 | |
| 54% | 7000 | 0.010 | |
| 58% | 7500 | 0.012 | |
| 62% | 8000 | 0.014 | |
| 65% | 8500 | 0.015 | |
| 69% | 9000 | 0.016 | |
| 73% | 9500 | 0.018 | |
| 77% | 10000 | 0.020 | |
| 81% | 10500 | 0.022 | |
| 85% | 11000 | 0.024 | |
| 88% | 11500 | 0.027 | |
| 92% | 12000 | 0.029 | |
| 96% | 12500 | 0.032 | |
| 100% | 13000 | 0.035 | |
| 0% | 0 | 0.014 | |

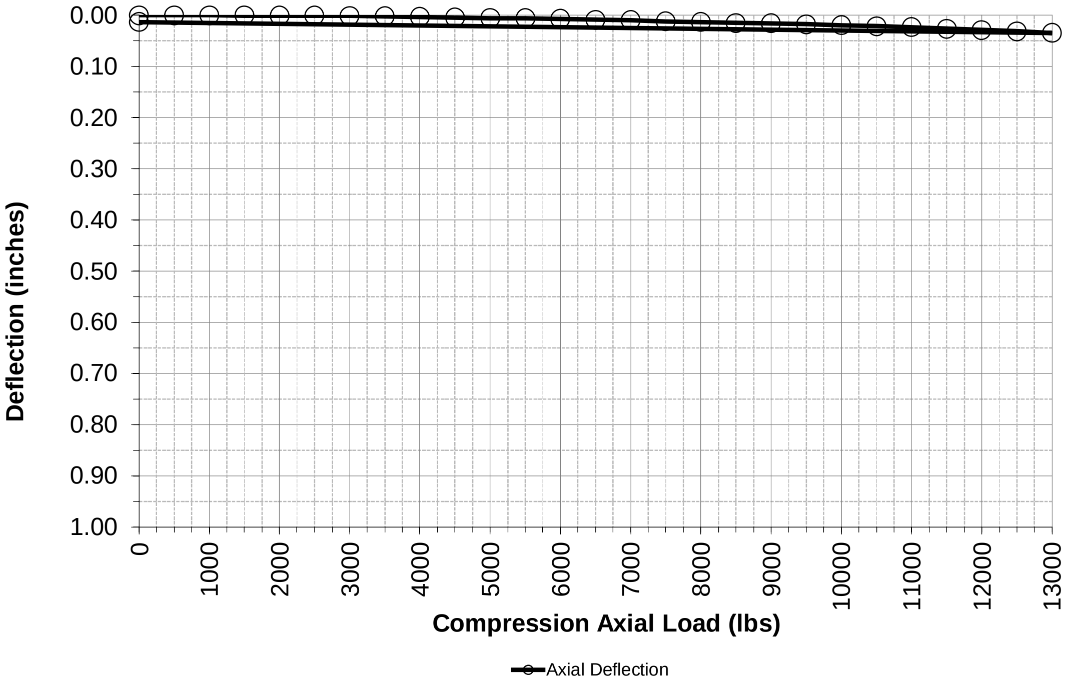


Exhibit F-3

# Compression Load Test Result for PLT-002C

### Project Information

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

### Axial Load Test Set Up

| | |
|---|---|
| Number of Gauges: | 2 |
| Height of Gauges [in]: | 6 |
| Load Cell: | Custom Scale 25lb |

### Test Date and Representative

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/25/2022 |

### Pile Information

| | |
|---|---|
| Pile ID: | PLT-002C |
| Latitude: | 35.55151 |
| Longitude: | -106.00214 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 60 |
| Pile Diameter [in]: | 5.9 |
| Pile Stick-Up [in]: | 48 |
| Axial Design Load [lbs]: | 13000 |
| Pile Area [sq. in]: | 2.68 |
| Elastic Modulus [ksi]: | 29,000 |
| Drive Time [sec]: | 37.1 |

**Compression Test Results**

| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 4% | 500 | 0.001 | |
| 8% | 1000 | 0.006 | |
| 12% | 1500 | 0.010 | |
| 15% | 2000 | 0.015 | |
| 19% | 2500 | 0.019 | |
| 23% | 3000 | 0.025 | |
| 27% | 3500 | 0.032 | |
| 31% | 4000 | 0.036 | |
| 35% | 4500 | 0.049 | |
| 38% | 5000 | 0.063 | |
| 42% | 5500 | 0.083 | |
| 46% | 6000 | 0.110 | |
| 50% | 6500 | 0.149 | |
| 54% | 7000 | 0.197 | |
| 58% | 7500 | 0.262 | |
| 62% | 8000 | 0.362 | |
| 65% | 8500 | 0.618 | |
| 69% | 9000 | 0.776 | |
| 73% | 9500 | | |
| 77% | 10000 | | |
| 81% | 10500 | | |
| 85% | 11000 | | |
| 88% | 11500 | | |
| 92% | 12000 | | |
| 96% | 12500 | | |
| 100% | 13000 | | |
| 0% | 0 | 0.721 | |

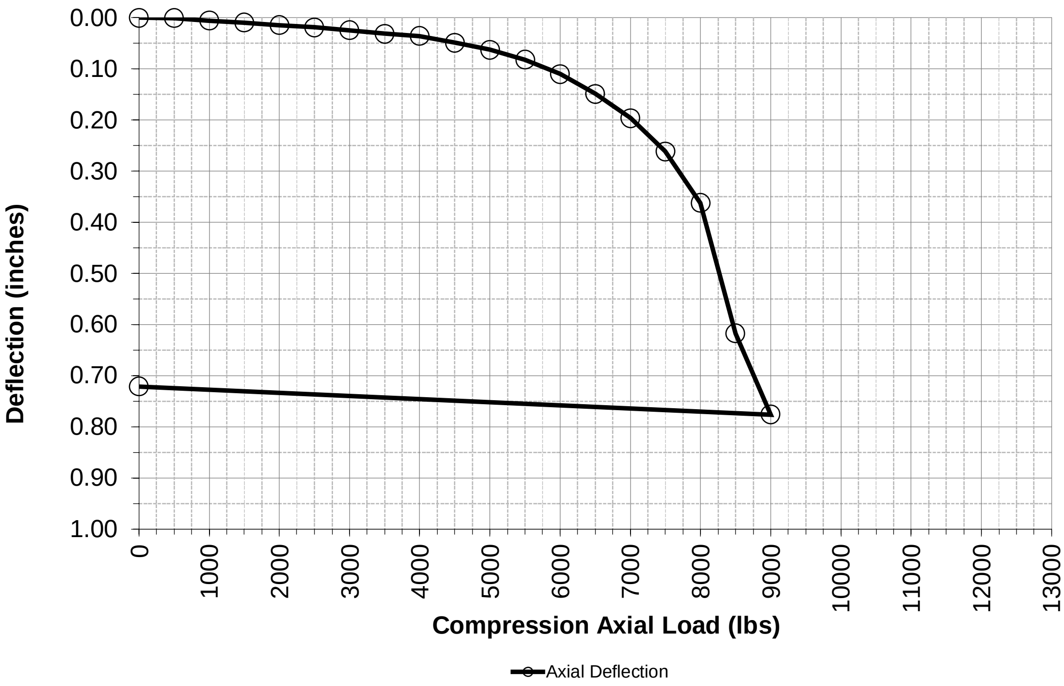


Exhibit F-4

# Compression Load Test Result for PLT-003C

### Project Information

Project Name: Rancho Viejo Solar Facility
Project Location: Santa Fe County, NM
Project Number: 66225093

### Axial Load Test Set Up

Number of Gauges: 2
Height of Gauges [in]: 6
Load Cell: Custom Scale 25lb

### Test Date and Representative

Tested By Terracon Rep: CS & SC
Date Tested: 8/25/2022

### Pile Information

Pile ID: PLT-003C
Latitude: 35.54711
Longitude: -106.01618
Pile Type: W6X9
Pile Embedment Depth [in]: 60
Pile Diameter [in]: 5.9
Pile Stick-Up [in]: 48
Axial Design Load [lbs]: 13000
Pile Area [sq. in]: 2.68
Elastic Modulus [ksi]: 29,000
Drive Time [sec]: 61.2

| Compression Test Results | | | |
|---|---|---|---|
| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
| 0% | 0 | 0.000 | |
| 4% | 500 | 0.001 | |
| 8% | 1000 | 0.002 | |
| 12% | 1500 | 0.002 | |
| 15% | 2000 | 0.003 | |
| 19% | 2500 | 0.004 | |
| 23% | 3000 | 0.005 | |
| 27% | 3500 | 0.006 | |
| 31% | 4000 | 0.006 | |
| 35% | 4500 | 0.007 | |
| 38% | 5000 | 0.008 | |
| 42% | 5500 | 0.008 | |
| 46% | 6000 | 0.008 | |
| 50% | 6500 | 0.008 | |
| 54% | 7000 | 0.009 | |
| 58% | 7500 | 0.009 | |
| 62% | 8000 | 0.010 | |
| 65% | 8500 | 0.011 | |
| 69% | 9000 | 0.011 | |
| 73% | 9500 | 0.012 | |
| 77% | 10000 | 0.013 | |
| 81% | 10500 | 0.013 | |
| 85% | 11000 | 0.013 | |
| 88% | 11500 | 0.014 | |
| 92% | 12000 | 0.014 | |
| 96% | 12500 | 0.015 | |
| 100% | 13000 | 0.015 | |
| 0% | 0 | 0.002 | |

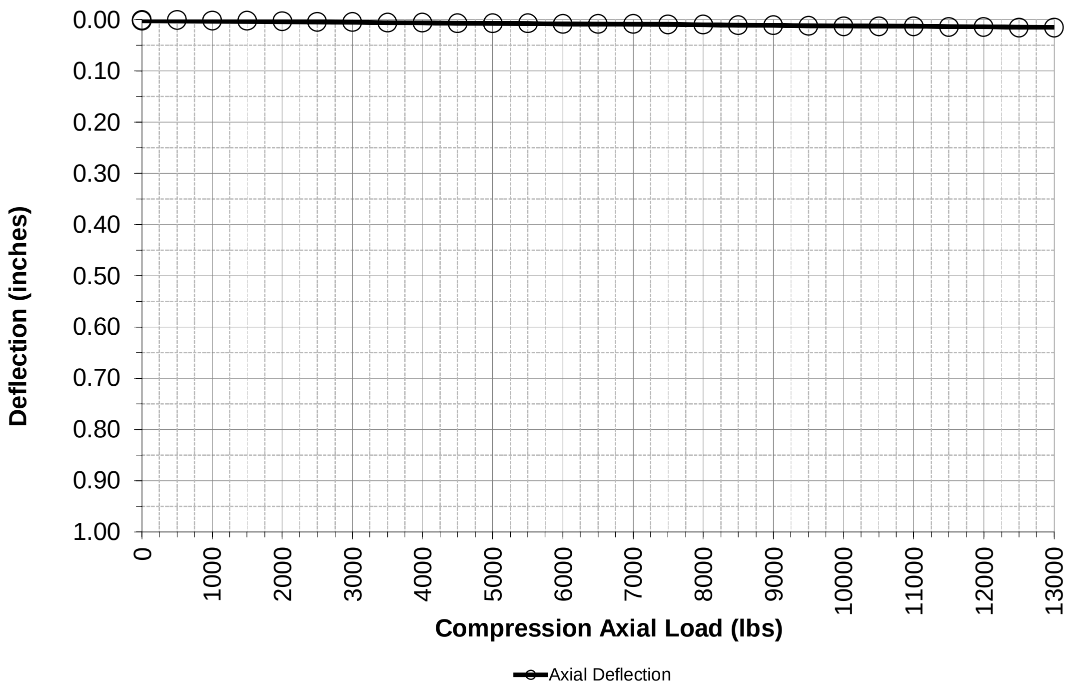


Exhibit F-5

# Compression Load Test Result for PLT-004C

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

**Axial Load Test Set Up**

| | |
|---|---|
| Number of Gauges: | 2 |
| Height of Gauges [in]: | 6 |
| Load Cell: | Custom Scale 25lb |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/25/2022 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-004C |
| Latitude: | 35.54296 |
| Longitude: | -106.03023 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 60 |
| Pile Diameter [in]: | 5.9 |
| Pile Stick-Up [in]: | 48 |
| Axial Design Load [lbs]: | 13000 |
| Pile Area [sq. in]: | 2.68 |
| Elastic Modulus [ksi]: | 29,000 |
| Drive Time [sec]: | 25.64 |

**Compression Test Results**

| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 4% | 500 | 0.000 | |
| 8% | 1000 | 0.001 | |
| 12% | 1500 | 0.001 | |
| 15% | 2000 | 0.002 | |
| 19% | 2500 | 0.004 | |
| 23% | 3000 | 0.004 | |
| 27% | 3500 | 0.006 | |
| 31% | 4000 | 0.006 | |
| 35% | 4500 | 0.008 | |
| 38% | 5000 | 0.008 | |
| 42% | 5500 | 0.009 | |
| 46% | 6000 | 0.010 | |
| 50% | 6500 | 0.012 | |
| 54% | 7000 | 0.013 | |
| 58% | 7500 | 0.014 | |
| 62% | 8000 | 0.015 | |
| 65% | 8500 | 0.016 | |
| 69% | 9000 | 0.017 | |
| 73% | 9500 | 0.018 | |
| 77% | 10000 | 0.019 | |
| 81% | 10500 | 0.020 | |
| 85% | 11000 | 0.022 | |
| 88% | 11500 | 0.023 | |
| 92% | 12000 | 0.024 | |
| 96% | 12500 | 0.025 | |
| 100% | 13000 | 0.026 | |
| 0% | 0 | 0.002 | |

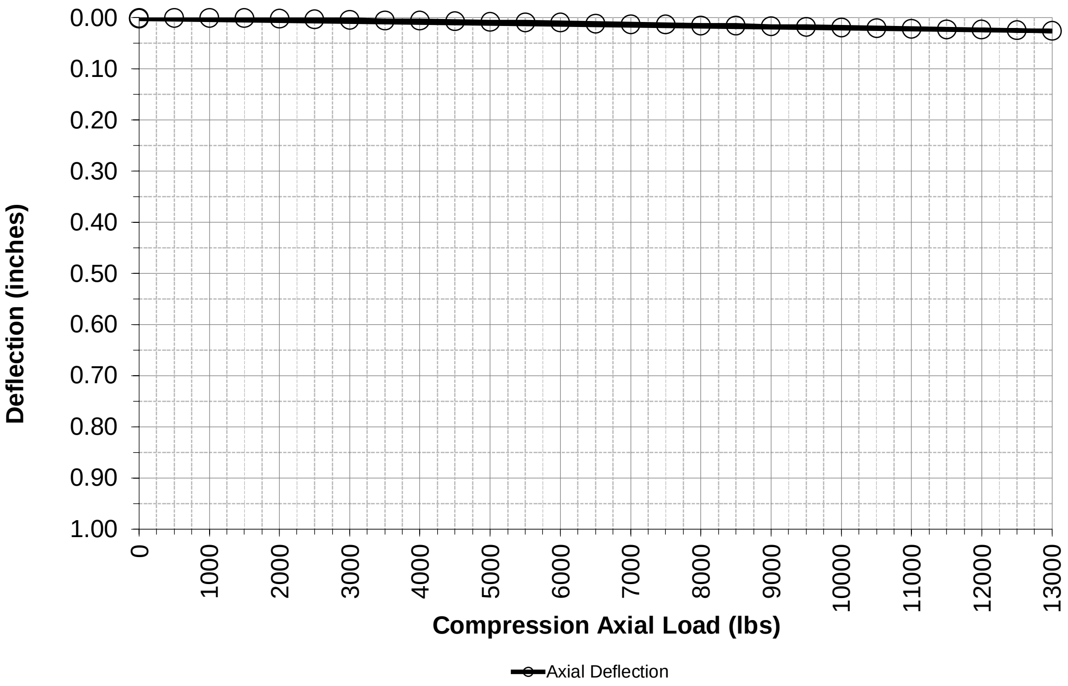


Exhibit F-6

# Compression Load Test Result for PLT-005C

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

**Axial Load Test Set Up**

| | |
|---|---|
| Number of Gauges: | 2 |
| Height of Gauges [in]: | 6 |
| Load Cell: | Custom Scale 25lb |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/25/2022 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-005C |
| Latitude: | 35.53853 |
| Longitude: | -106.01312 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 60 |
| Pile Diameter [in]: | 5.9 |
| Pile Stick-Up [in]: | 48 |
| Axial Design Load [lbs]: | 13000 |
| Pile Area [sq. in]: | 2.68 |
| Elastic Modulus [ksi]: | 29,000 |
| Drive Time [sec]: | 10 |

**Compression Test Results**

| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 4% | 500 | 0.000 | |
| 8% | 1000 | 0.001 | |
| 12% | 1500 | 0.002 | |
| 15% | 2000 | 0.003 | |
| 19% | 2500 | 0.004 | |
| 23% | 3000 | 0.005 | |
| 27% | 3500 | 0.007 | |
| 31% | 4000 | 0.011 | |
| 35% | 4500 | 0.015 | |
| 38% | 5000 | 0.020 | |
| 42% | 5500 | 0.025 | |
| 46% | 6000 | 0.032 | |
| 50% | 6500 | 0.041 | |
| 54% | 7000 | 0.054 | |
| 58% | 7500 | 0.073 | |
| 62% | 8000 | 0.104 | |
| 65% | 8500 | 0.146 | |
| 69% | 9000 | 0.266 | |
| 73% | 9500 | 0.759 | |
| 77% | 10000 | | |
| 81% | 10500 | | |
| 85% | 11000 | | |
| 88% | 11500 | | |
| 92% | 12000 | | |
| 96% | 12500 | | |
| 100% | 13000 | | |
| 0% | 0 | 0.732 | |

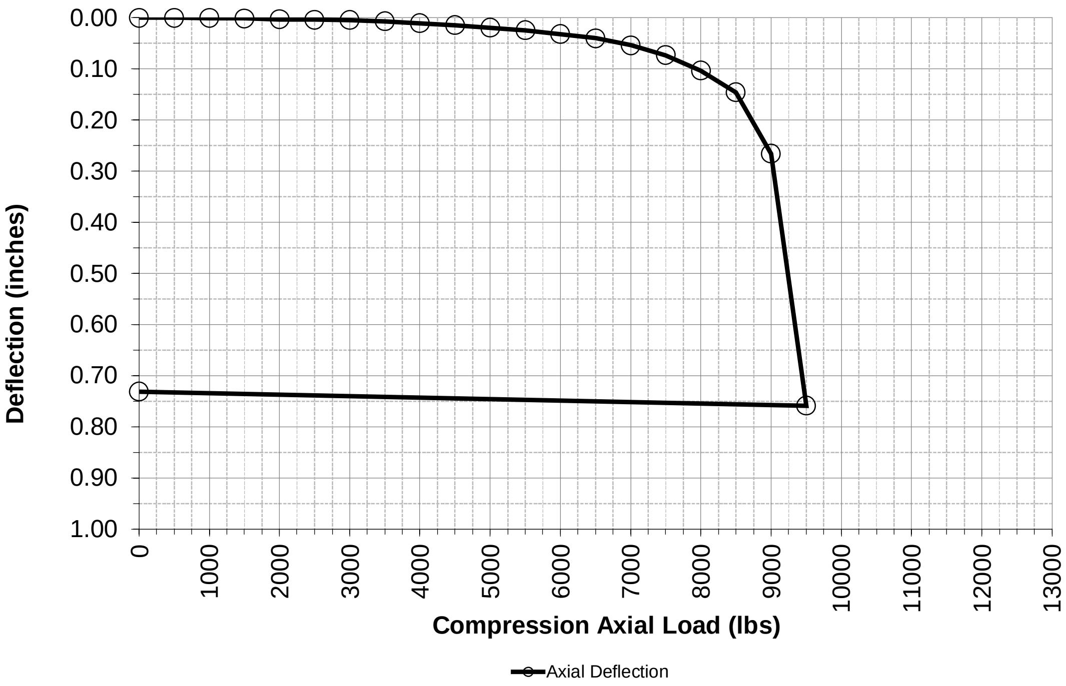


Exhibit F-7

# Compression Load Test Result for PLT-006C

### Project Information

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

### Axial Load Test Set Up

| | |
|---|---|
| Number of Gauges: | 2 |
| Height of Gauges [in]: | 6 |
| Load Cell: | Custom Scale 25lb |

### Test Date and Representative

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/26/2022 |

### Pile Information

| | |
|---|---|
| Pile ID: | PLT-006C |
| Latitude: | 35.54313 |
| Longitude: | -106.00830 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 60 |
| Pile Diameter [in]: | 5.9 |
| Pile Stick-Up [in]: | 48 |
| Axial Design Load [lbs]: | 13000 |
| Pile Area [sq. in]: | 2.68 |
| Elastic Modulus [ksi]: | 29,000 |
| Drive Time [sec]: | 41.4 |

**Compression Test Results**

| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 4% | 500 | 0.005 | |
| 8% | 1000 | 0.007 | |
| 12% | 1500 | 0.008 | |
| 15% | 2000 | 0.011 | |
| 19% | 2500 | 0.012 | |
| 23% | 3000 | 0.015 | |
| 27% | 3500 | 0.015 | |
| 31% | 4000 | 0.017 | |
| 35% | 4500 | 0.018 | |
| 38% | 5000 | 0.019 | |
| 42% | 5500 | 0.021 | |
| 46% | 6000 | 0.022 | |
| 50% | 6500 | 0.023 | |
| 54% | 7000 | 0.025 | |
| 58% | 7500 | 0.027 | |
| 62% | 8000 | 0.029 | |
| 65% | 8500 | 0.030 | |
| 69% | 9000 | 0.032 | |
| 73% | 9500 | 0.034 | |
| 77% | 10000 | 0.036 | |
| 81% | 10500 | 0.038 | |
| 85% | 11000 | 0.039 | |
| 88% | 11500 | 0.041 | |
| 92% | 12000 | 0.042 | |
| 96% | 12500 | 0.043 | |
| 100% | 13000 | 0.046 | |
| 0% | 0 | 0.013 | |

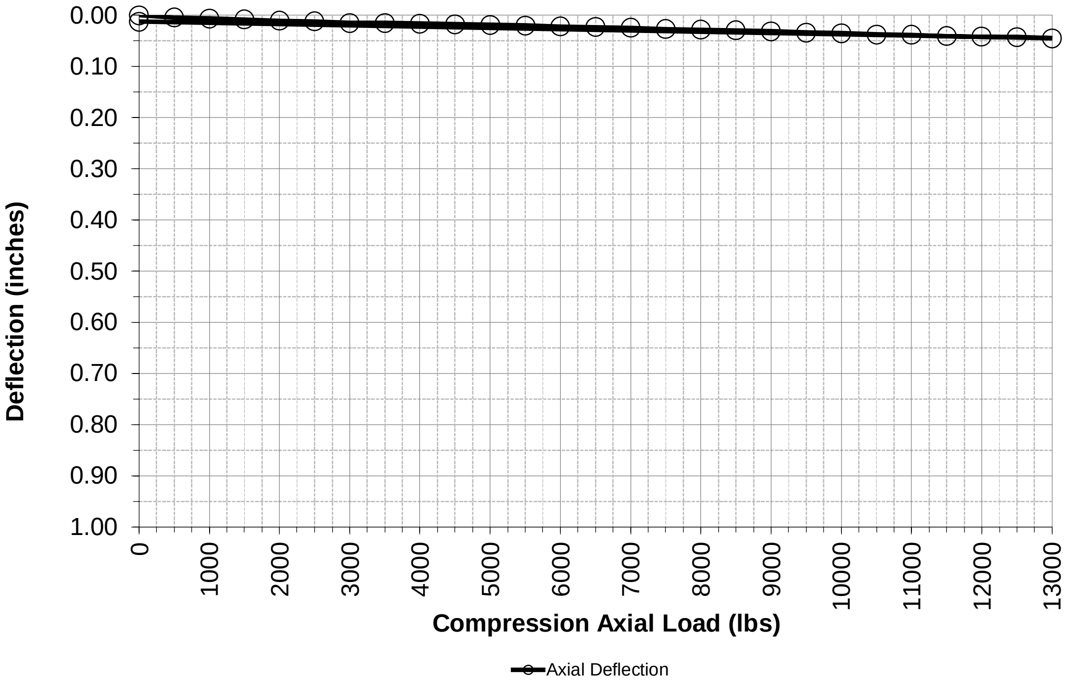


Exhibit F-8

# APPENDIX G
# PILE LOAD TESTING RESULTS – AXIAL TENSILE LOAD

# Tension Load Test Result for PLT-101A

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in.]: 6
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: SL/MGB/ED
Date Tested: 9/23/2023

**Pile Information**

Pile ID: PLT-101A
Latitude [deg.]: 35.54106
Longitude[deg.]: -106.01558
Pile Type: W6x9
Pile Embedment Depth [in.]: 60
Pile Diameter [in.]: 5.9
Pile Stick-Up [in.]: 48
Axial Design Load [lbs.]: 10,000
Pile Area [sq. in.]: 2.68
Elastic Modulus [ksi.]: 29,000
Drive Time [sec.]: 90.3

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| **% of Design Load** | **Axial Load [lbs.]** | **Deflection Δ (in.) Gauges #1 & #2** | **Elastic Data (in.) (PL/AE)** | **Davisson Offest Limit (in.) (0.15+D/120+(PL/AE))** | **Comments** |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.001 | 0.000 | 0.200 | |
| 10% | 1000 | 0.003 | 0.001 | 0.200 | |
| 15% | 1500 | 0.004 | 0.001 | 0.200 | |
| 20% | 2000 | 0.004 | 0.002 | 0.201 | |
| 25% | 2500 | 0.005 | 0.002 | 0.201 | |
| 30% | 3000 | 0.005 | 0.002 | 0.201 | |
| 35% | 3500 | 0.006 | 0.003 | 0.202 | |
| 40% | 4000 | 0.007 | 0.003 | 0.202 | |
| 45% | 4500 | 0.008 | 0.003 | 0.203 | |
| 50% | 5000 | 0.008 | 0.004 | 0.203 | |
| 55% | 5500 | 0.009 | 0.004 | 0.203 | |
| 60% | 6000 | 0.010 | 0.005 | 0.204 | |
| 65% | 6500 | 0.011 | 0.005 | 0.204 | |
| 70% | 7000 | 0.012 | 0.005 | 0.205 | |
| 75% | 7500 | 0.013 | 0.006 | 0.205 | |
| 80% | 8000 | 0.014 | 0.006 | 0.205 | |
| 85% | 8500 | 0.015 | 0.007 | 0.206 | |
| 90% | 9000 | 0.017 | 0.007 | 0.206 | |
| 95% | 9500 | 0.019 | 0.007 | 0.207 | |
| 100% | 10000 | 0.022 | 0.008 | 0.207 | |
| 0% | 0 | 0.005 | 0.000 | 0.199 | |

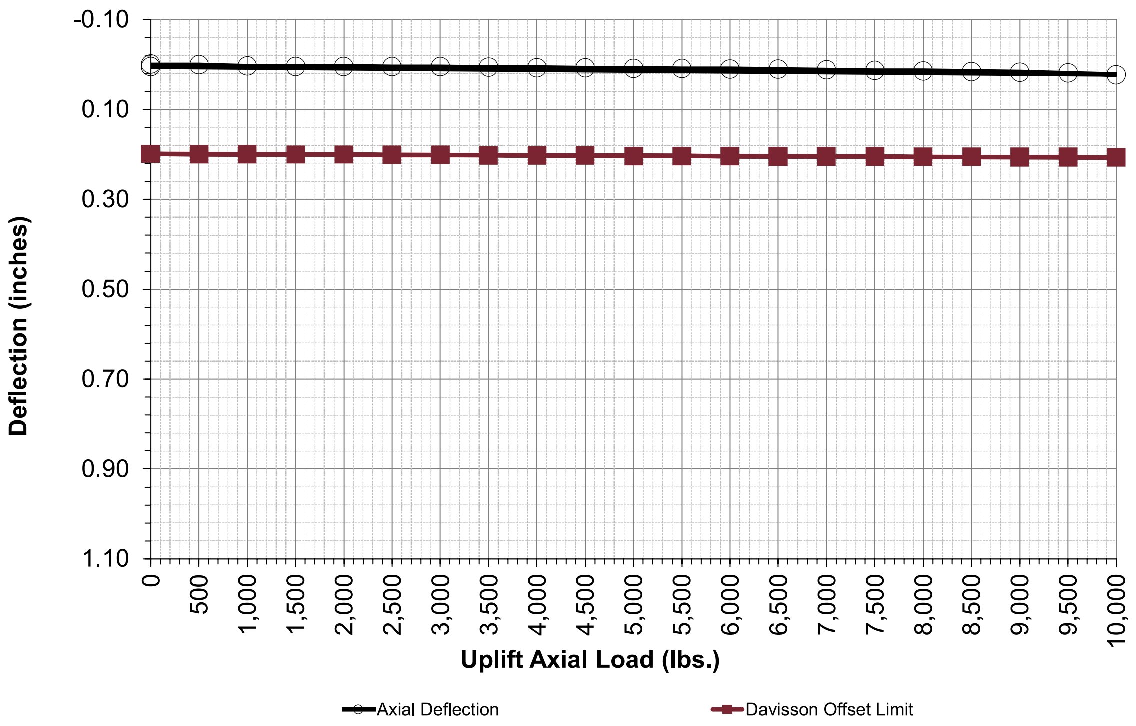


Exhibit G-1

# Tension Load Test Result for PLT-101B

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in.]: 6
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: SL/MGB/ED
Date Tested: 9/23/2023

**Pile Information**

Pile ID: PLT-101B
Latitude [deg.]: 35.54106
Longitude[deg.]: -106.01558
Pile Type: W6x9
Pile Embedment Depth [in.]: 96
Pile Diameter [in.]: 5.9
Pile Stick-Up [in.]: 48
Axial Design Load [lbs.]: 10,000
Pile Area [sq. in.]: 2.68
Elastic Modulus [ksi.]: 29,000
Drive Time [sec.]: 26.1

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in.) (PL/AE) | Davisson Offset Limit (in.) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.008 | 0.001 | 0.200 | |
| 10% | 1000 | 0.009 | 0.001 | 0.200 | |
| 15% | 1500 | 0.011 | 0.002 | 0.201 | |
| 20% | 2000 | 0.013 | 0.002 | 0.202 | |
| 25% | 2500 | 0.015 | 0.003 | 0.202 | |
| 30% | 3000 | 0.016 | 0.004 | 0.203 | |
| 35% | 3500 | 0.017 | 0.004 | 0.203 | |
| 40% | 4000 | 0.019 | 0.005 | 0.204 | |
| 45% | 4500 | 0.019 | 0.006 | 0.205 | |
| 50% | 5000 | 0.020 | 0.006 | 0.205 | |
| 55% | 5500 | 0.021 | 0.007 | 0.206 | |
| 60% | 6000 | 0.023 | 0.007 | 0.207 | |
| 65% | 6500 | 0.024 | 0.008 | 0.207 | |
| 70% | 7000 | 0.026 | 0.009 | 0.208 | |
| 75% | 7500 | 0.027 | 0.009 | 0.208 | |
| 80% | 8000 | 0.028 | 0.010 | 0.209 | |
| 85% | 8500 | 0.028 | 0.010 | 0.210 | |
| 90% | 9000 | 0.029 | 0.011 | 0.210 | |
| 95% | 9500 | 0.030 | 0.012 | 0.211 | |
| 100% | 10000 | 0.030 | 0.012 | 0.212 | |
| 0% | 0 | 0.002 | 0.000 | 0.199 | |

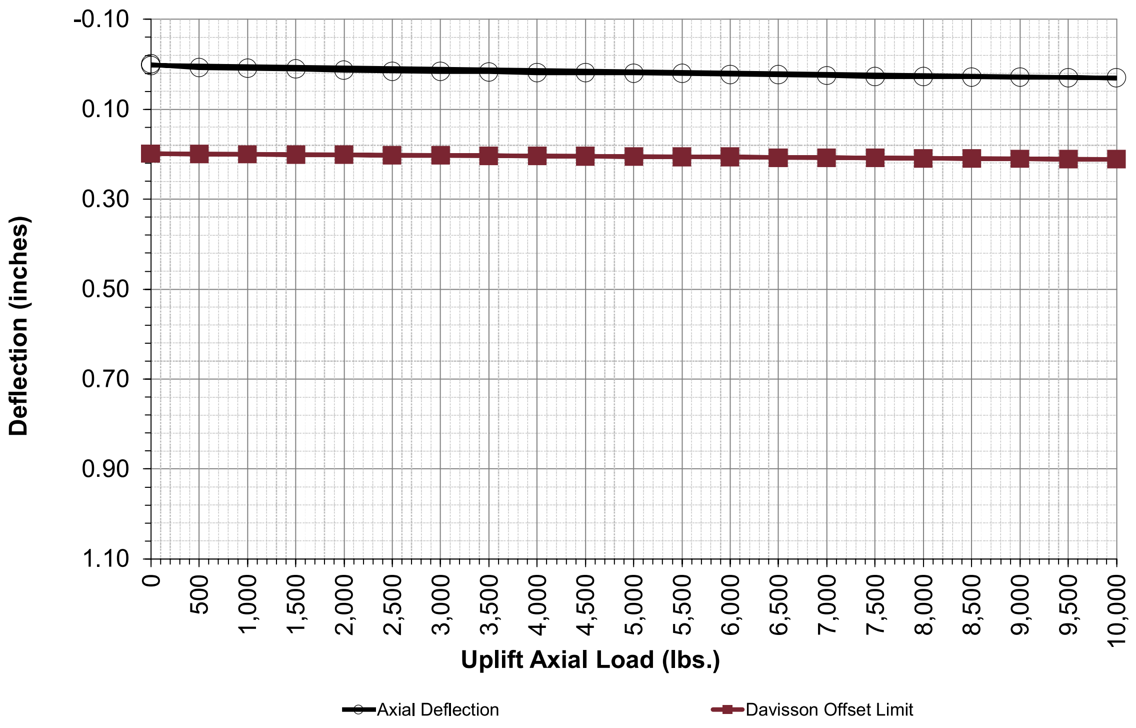


Exhibit G-2

# Tension Load Test Result for PLT-102A

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in.]: 6
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: ED/TS
Date Tested: 3/7/2024

**Pile Information**

Pile ID: PLT-102A
Latitude [deg.]: 35.53980
Longitude[deg.]: -106.00941
Pile Type: W6x9
Pile Embedment Depth [in.]: 60
Pile Diameter [in.]: 5.9
Pile Stick-Up [in.]: 48
Axial Design Load [lbs.]: 10,000
Pile Area [sq. in.]: 2.68
Elastic Modulus [ksi.]: 29,000
Drive Time [sec.]: 0

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| **% of Design Load** | **Axial Load [lbs.]** | **Deflection Δ (in.) Gauges #1 & #2** | **Elastic Data (in.) (PL/AE)** | **Davisson Offest Limit (in.) (0.15+D/120+(PL/AE))** | **Comments** |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.002 | 0.000 | 0.200 | |
| 10% | 1000 | 0.006 | 0.001 | 0.200 | |
| 15% | 1500 | 0.007 | 0.001 | 0.200 | |
| 20% | 2000 | 0.010 | 0.002 | 0.201 | |
| 25% | 2500 | 0.012 | 0.002 | 0.201 | |
| 30% | 3000 | 0.014 | 0.002 | 0.201 | |
| 35% | 3500 | 0.017 | 0.003 | 0.202 | |
| 40% | 4000 | 0.020 | 0.003 | 0.202 | |
| 45% | 4500 | 0.024 | 0.003 | 0.203 | |
| 50% | 5000 | 0.029 | 0.004 | 0.203 | |
| 55% | 5500 | 0.033 | 0.004 | 0.203 | |
| 60% | 6000 | 0.039 | 0.005 | 0.204 | |
| 65% | 6500 | 0.047 | 0.005 | 0.204 | |
| 70% | 7000 | 0.057 | 0.005 | 0.205 | |
| 75% | 7500 | 0.061 | 0.006 | 0.205 | |
| 80% | 8000 | 0.071 | 0.006 | 0.205 | |
| 85% | 8500 | 0.083 | 0.007 | 0.206 | |
| 90% | 9000 | 0.092 | 0.007 | 0.206 | |
| 95% | 9500 | 0.104 | 0.007 | 0.207 | |
| 100% | 10000 | 0.116 | 0.008 | 0.207 | |
| 0% | 0 | 0.067 | 0.000 | 0.199 | |

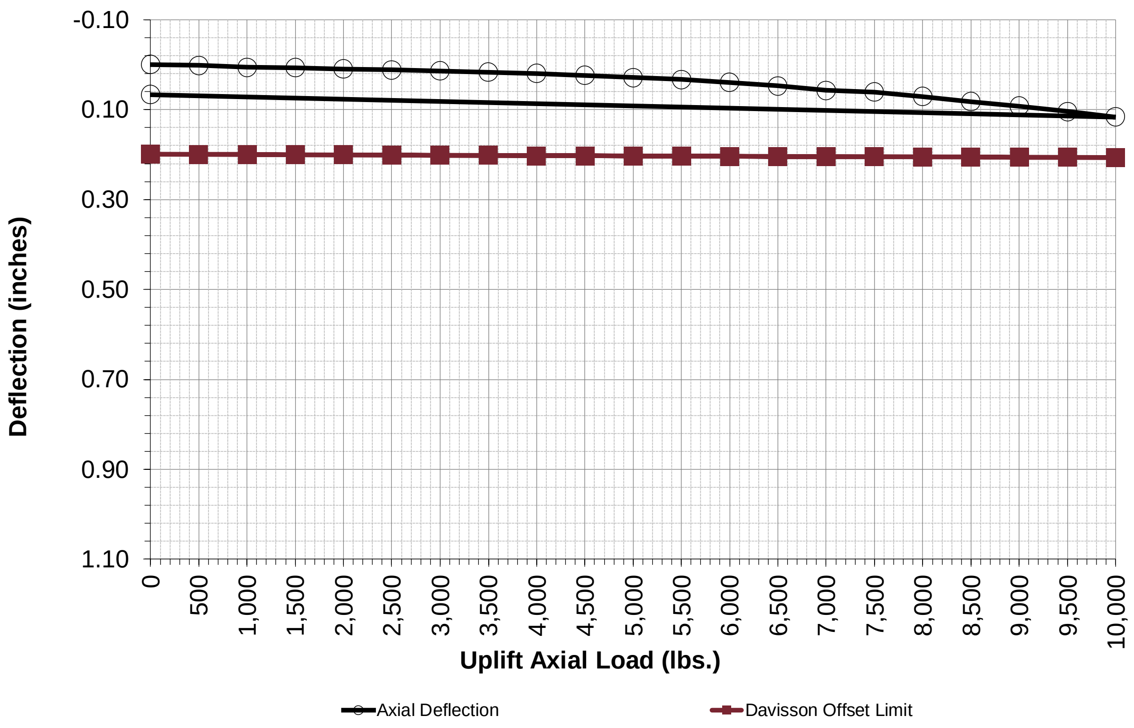


Exhibit G-3

Terracon

# Tension Load Test Result for PLT-102B

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

**Axial Load Test Set Up**

| | |
|---|---|
| Number of Gauges: | 2 |
| Height of Gauges [in.]: | 6 |
| Load Cell: | Dillion |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | ED/TS |
| Date Tested: | 3/7/2024 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-102B |
| Latitude [deg.]: | 35.53980 |
| Longitude[deg.]: | -106.00941 |
| Pile Type: | W6x9 |
| Pile Embedment Depth [in.]: | 96 |
| Pile Diameter [in.]: | 5.9 |
| Pile Stick-Up [in.]: | 48 |
| Axial Design Load [lbs.]: | 10,000 |
| Pile Area [sq. in.]: | 2.68 |
| Elastic Modulus [ksi.]: | 29,000 |
| Drive Time [sec.]: | 0 |

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in.) (PL/AE) | Davisson Offest Limit (in.) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.003 | 0.001 | 0.200 | |
| 10% | 1000 | 0.005 | 0.001 | 0.200 | |
| 15% | 1500 | 0.007 | 0.002 | 0.201 | |
| 20% | 2000 | 0.009 | 0.002 | 0.202 | |
| 25% | 2500 | 0.010 | 0.003 | 0.202 | |
| 30% | 3000 | 0.012 | 0.004 | 0.203 | |
| 35% | 3500 | 0.014 | 0.004 | 0.203 | |
| 40% | 4000 | 0.016 | 0.005 | 0.204 | |
| 45% | 4500 | 0.018 | 0.006 | 0.205 | |
| 50% | 5000 | 0.020 | 0.006 | 0.205 | |
| 55% | 5500 | 0.023 | 0.007 | 0.206 | |
| 60% | 6000 | 0.027 | 0.007 | 0.207 | |
| 65% | 6500 | 0.031 | 0.008 | 0.207 | |
| 70% | 7000 | 0.036 | 0.009 | 0.208 | |
| 75% | 7500 | 0.041 | 0.009 | 0.208 | |
| 80% | 8000 | 0.047 | 0.010 | 0.209 | |
| 85% | 8500 | 0.055 | 0.010 | 0.210 | |
| 90% | 9000 | 0.061 | 0.011 | 0.210 | |
| 95% | 9500 | 0.072 | 0.012 | 0.211 | |
| 100% | 10000 | 0.081 | 0.012 | 0.212 | |
| 0% | 0 | 0.038 | 0.000 | 0.199 | |

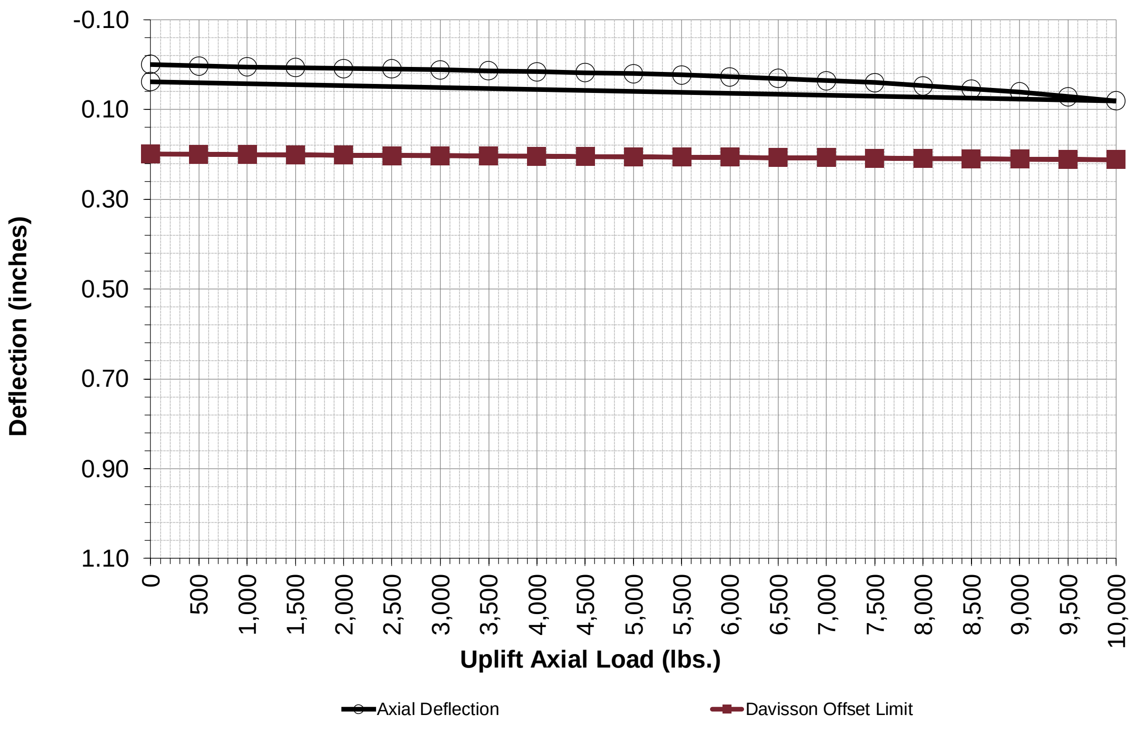


Exhibit G-4

# Tension Load Test Result for PLT-103A

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in.]: 6
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: SL/SS
Date Tested: 9/27/2023

**Pile Information**

Pile ID: PLT-103A
Latitude [deg.]: 35.54149
Longitude[deg.]: 106.00401
Pile Type: W6x9
Pile Embedment Depth [in.]: 60
Pile Diameter [in.]: 5.9
Pile Stick-Up [in.]: 48
Axial Design Load [lbs.]: 10,000
Pile Area [sq. in.]: 2.68
Elastic Modulus [ksi.]: 29,000
Drive Time [sec.]: 5.8

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| **% of Design Load** | **Axial Load [lbs.]** | **Deflection Δ (in.) Gauges #1 & #2** | **Elastic Data (in.) (PL/AE)** | **Davisson Offest Limit (in.) (0.15+D/120+(PL/AE))** | **Comments** |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.000 | 0.000 | 0.200 | |
| 10% | 1000 | 0.012 | 0.001 | 0.200 | |
| 15% | 1500 | 0.017 | 0.001 | 0.200 | |
| 20% | 2000 | 0.049 | 0.002 | 0.201 | |
| 25% | 2500 | 0.090 | 0.002 | 0.201 | |
| 30% | 3000 | 0.155 | 0.002 | 0.201 | |
| 35% | 3500 | 0.222 | 0.003 | 0.202 | |
| 40% | 4000 | 0.332 | 0.003 | 0.202 | |
| 45% | 4500 | 0.490 | 0.003 | 0.203 | |
| 50% | 5000 | 0.729 | 0.004 | 0.203 | |
| 55% | 5500 | 0.852 | 0.004 | 0.203 | |
| 60% | 6000 | | 0.005 | 0.204 | |
| 65% | 6500 | | 0.005 | 0.204 | |
| 70% | 7000 | | 0.005 | 0.205 | |
| 75% | 7500 | | 0.006 | 0.205 | |
| 80% | 8000 | | 0.006 | 0.205 | |
| 85% | 8500 | | 0.007 | 0.206 | |
| 90% | 9000 | | 0.007 | 0.206 | |
| 95% | 9500 | | 0.007 | 0.207 | |
| 100% | 10000 | | 0.008 | 0.207 | |
| 0% | 0 | 0.735 | 0.000 | 0.199 | |

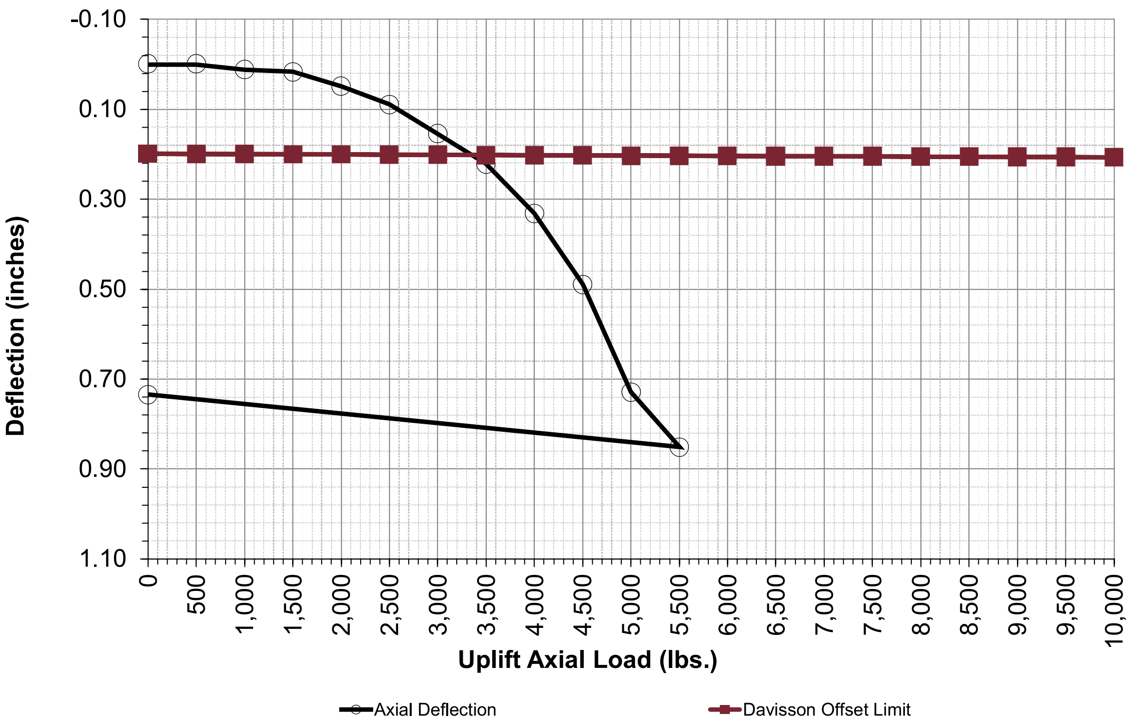


Exhibit G-5

# Tension Load Test Result for PLT-103B

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in.]: 6
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: SL/SS
Date Tested: 9/27/2023

**Pile Information**

Pile ID: PLT-103B
Latitude [deg.]: 35.54149
Longitude[deg.]: 106.00401
Pile Type: W6x9
Pile Embedment Depth [in.]: 96
Pile Diameter [in.]: 5.9
Pile Stick-Up [in.]: 48
Axial Design Load [lbs.]: 10,000
Pile Area [sq. in.]: 2.68
Elastic Modulus [ksi.]: 29,000
Drive Time [sec.]: 11.3

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| **% of Design Load** | **Axial Load [lbs.]** | **Deflection Δ (in.) Gauges #1 & #2** | **Elastic Data (in.) (PL/AE)** | **Davisson Offest Limit (in.) (0.15+D/120+(PL/AE))** | **Comments** |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.005 | 0.001 | 0.200 | |
| 10% | 1000 | 0.006 | 0.001 | 0.200 | |
| 15% | 1500 | 0.007 | 0.002 | 0.201 | |
| 20% | 2000 | 0.015 | 0.002 | 0.202 | |
| 25% | 2500 | 0.030 | 0.003 | 0.202 | |
| 30% | 3000 | 0.046 | 0.004 | 0.203 | |
| 35% | 3500 | 0.066 | 0.004 | 0.203 | |
| 40% | 4000 | 0.092 | 0.005 | 0.204 | |
| 45% | 4500 | 0.111 | 0.006 | 0.205 | |
| 50% | 5000 | 0.156 | 0.006 | 0.205 | |
| 55% | 5500 | 0.189 | 0.007 | 0.206 | |
| 60% | 6000 | 0.240 | 0.007 | 0.207 | |
| 65% | 6500 | 0.308 | 0.008 | 0.207 | |
| 70% | 7000 | 0.388 | 0.009 | 0.208 | |
| 75% | 7500 | 0.519 | 0.009 | 0.208 | |
| 80% | 8000 | 0.755 | 0.010 | 0.209 | |
| 85% | 8500 | | 0.010 | 0.210 | |
| 90% | 9000 | | 0.011 | 0.210 | |
| 95% | 9500 | | 0.012 | 0.211 | |
| 100% | 10000 | | 0.012 | 0.212 | |
| 0% | 0 | 0.706 | 0.000 | 0.199 | |

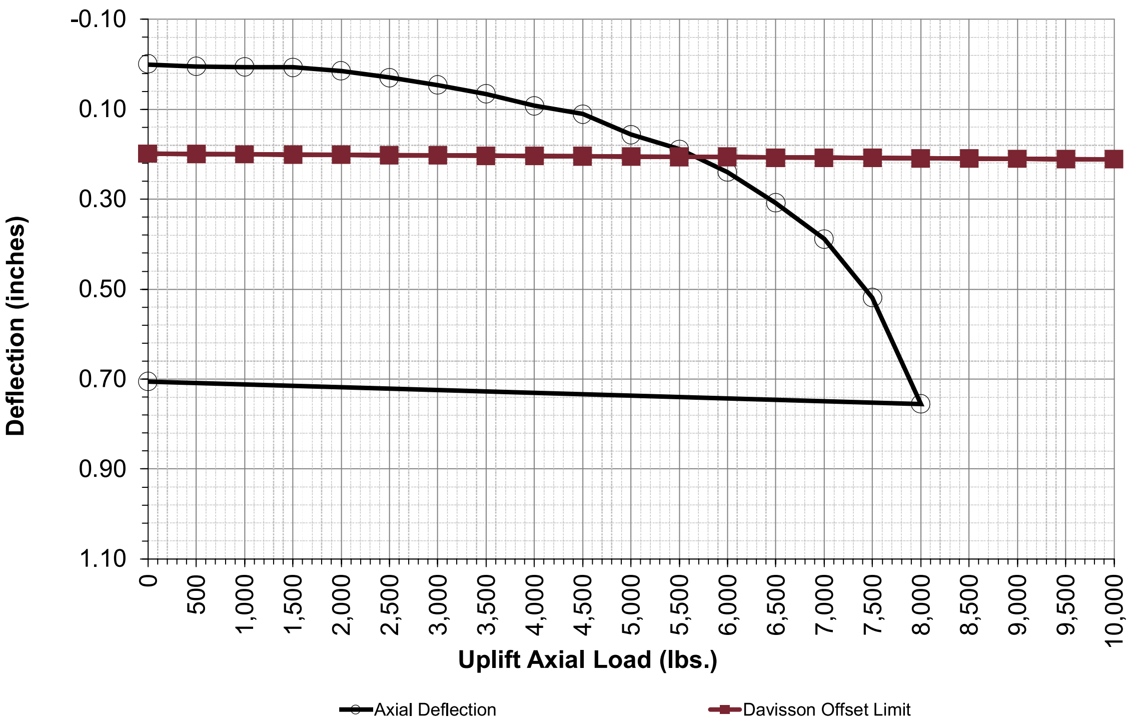


Exhibit G-6

# Tension Load Test Result for PLT-104A

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in.]: 6
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: SL/SS
Date Tested: 9/27/2023

**Pile Information**

Pile ID: PLT-104A
Latitude [deg.]: 35.54444
Longitude[deg.]: 106.00578
Pile Type: W6x9
Pile Embedment Depth [in.]: 60
Pile Diameter [in.]: 5.9
Pile Stick-Up [in.]: 48
Axial Design Load [lbs.]: 10,000
Pile Area [sq. in.]: 2.68
Elastic Modulus [ksi.]: 29,000
Drive Time [sec.]: 5.3

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| **% of Design Load** | **Axial Load [lbs.]** | **Deflection Δ (in.) Gauges #1 & #2** | **Elastic Data (in.) (PL/AE)** | **Davisson Offset Limit (in.) (0.15+D/120+(PL/AE))** | **Comments** |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.002 | 0.000 | 0.200 | |
| 10% | 1000 | 0.003 | 0.001 | 0.200 | |
| 15% | 1500 | 0.004 | 0.001 | 0.200 | |
| 20% | 2000 | 0.006 | 0.002 | 0.201 | |
| 25% | 2500 | 0.009 | 0.002 | 0.201 | |
| 30% | 3000 | 0.012 | 0.002 | 0.201 | |
| 35% | 3500 | 0.017 | 0.003 | 0.202 | |
| 40% | 4000 | 0.023 | 0.003 | 0.202 | |
| 45% | 4500 | 0.031 | 0.003 | 0.203 | |
| 50% | 5000 | 0.036 | 0.004 | 0.203 | |
| 55% | 5500 | 0.042 | 0.004 | 0.203 | |
| 60% | 6000 | 0.047 | 0.005 | 0.204 | |
| 65% | 6500 | 0.051 | 0.005 | 0.204 | |
| 70% | 7000 | 0.059 | 0.005 | 0.205 | |
| 75% | 7500 | 0.065 | 0.006 | 0.205 | |
| 80% | 8000 | 0.074 | 0.006 | 0.205 | |
| 85% | 8500 | 0.082 | 0.007 | 0.206 | |
| 90% | 9000 | 0.095 | 0.007 | 0.206 | |
| 95% | 9500 | 0.102 | 0.007 | 0.207 | |
| 100% | 10000 | 0.105 | 0.008 | 0.207 | |
| 0% | 0 | 0.078 | 0.000 | 0.199 | |

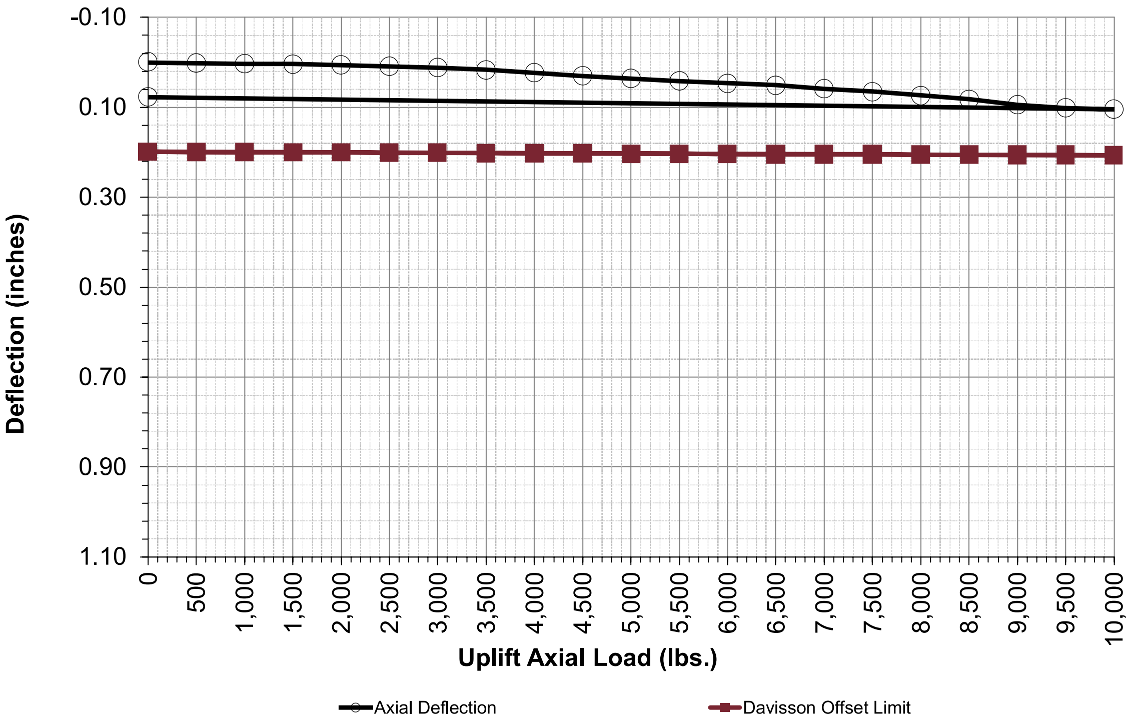


Exhibit G-7

# Tension Load Test Result for PLT-104B

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

**Axial Load Test Set Up**

| | |
|---|---|
| Number of Gauges: | 2 |
| Height of Gauges [in.]: | 6 |
| Load Cell: | Dillion |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | SL/SS |
| Date Tested: | 9/27/2023 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-104B |
| Latitude [deg.]: | 35.54444 |
| Longitude[deg.]: | 106.00578 |
| Pile Type: | W6x9 |
| Pile Embedment Depth [in.]: | 96 |
| Pile Diameter [in.]: | 5.9 |
| Pile Stick-Up [in.]: | 48 |
| Axial Design Load [lbs.]: | 10,000 |
| Pile Area [sq. in.]: | 2.68 |
| Elastic Modulus [ksi.]: | 29,000 |
| Drive Time [sec.]: | 16 |

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in.) (PL/AE) | Davisson Offset Limit (in.) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.002 | 0.001 | 0.200 | |
| 10% | 1000 | 0.003 | 0.001 | 0.200 | |
| 15% | 1500 | 0.003 | 0.002 | 0.201 | |
| 20% | 2000 | 0.003 | 0.002 | 0.202 | |
| 25% | 2500 | 0.003 | 0.003 | 0.202 | |
| 30% | 3000 | 0.004 | 0.004 | 0.203 | |
| 35% | 3500 | 0.005 | 0.004 | 0.203 | |
| 40% | 4000 | 0.006 | 0.005 | 0.204 | |
| 45% | 4500 | 0.007 | 0.006 | 0.205 | |
| 50% | 5000 | 0.009 | 0.006 | 0.205 | |
| 55% | 5500 | 0.010 | 0.007 | 0.206 | |
| 60% | 6000 | 0.014 | 0.007 | 0.207 | |
| 65% | 6500 | 0.015 | 0.008 | 0.207 | |
| 70% | 7000 | 0.019 | 0.009 | 0.208 | |
| 75% | 7500 | 0.021 | 0.009 | 0.208 | |
| 80% | 8000 | 0.026 | 0.010 | 0.209 | |
| 85% | 8500 | 0.029 | 0.010 | 0.210 | |
| 90% | 9000 | 0.034 | 0.011 | 0.210 | |
| 95% | 9500 | 0.036 | 0.012 | 0.211 | |
| 100% | 10000 | 0.042 | 0.012 | 0.212 | |
| 0% | 0 | 0.028 | 0.000 | 0.199 | |

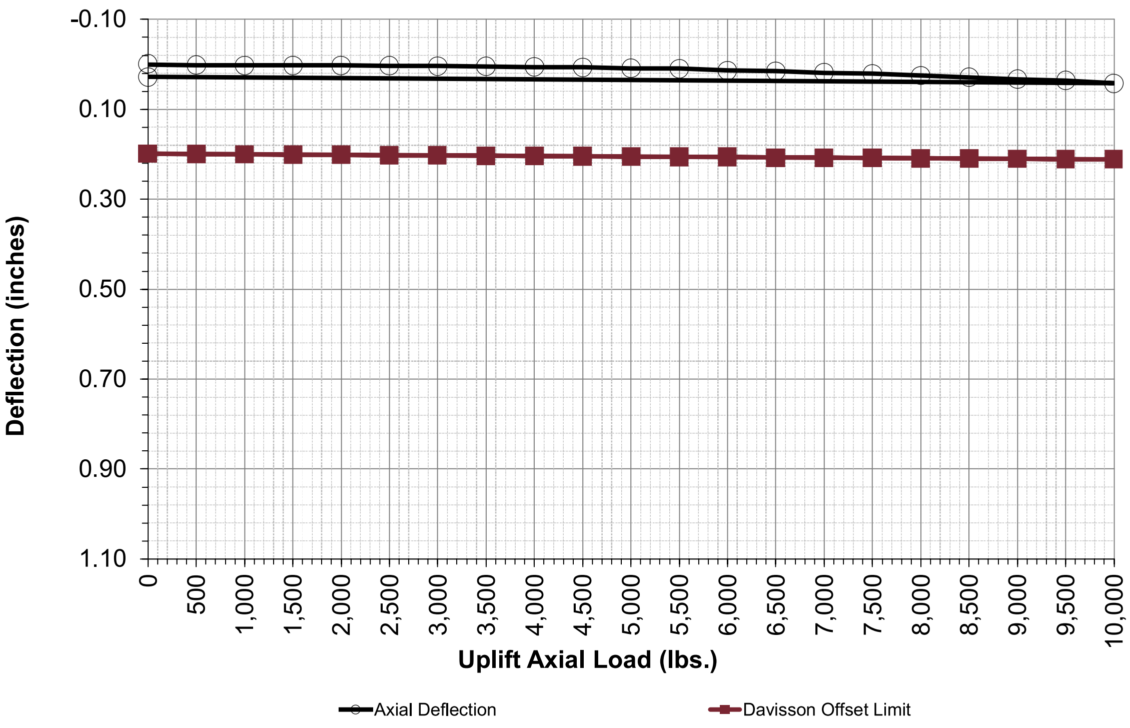


Exhibit G-8

# Tension Load Test Result for PLT-105A

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in.]: 6
Load Cell: Dillion

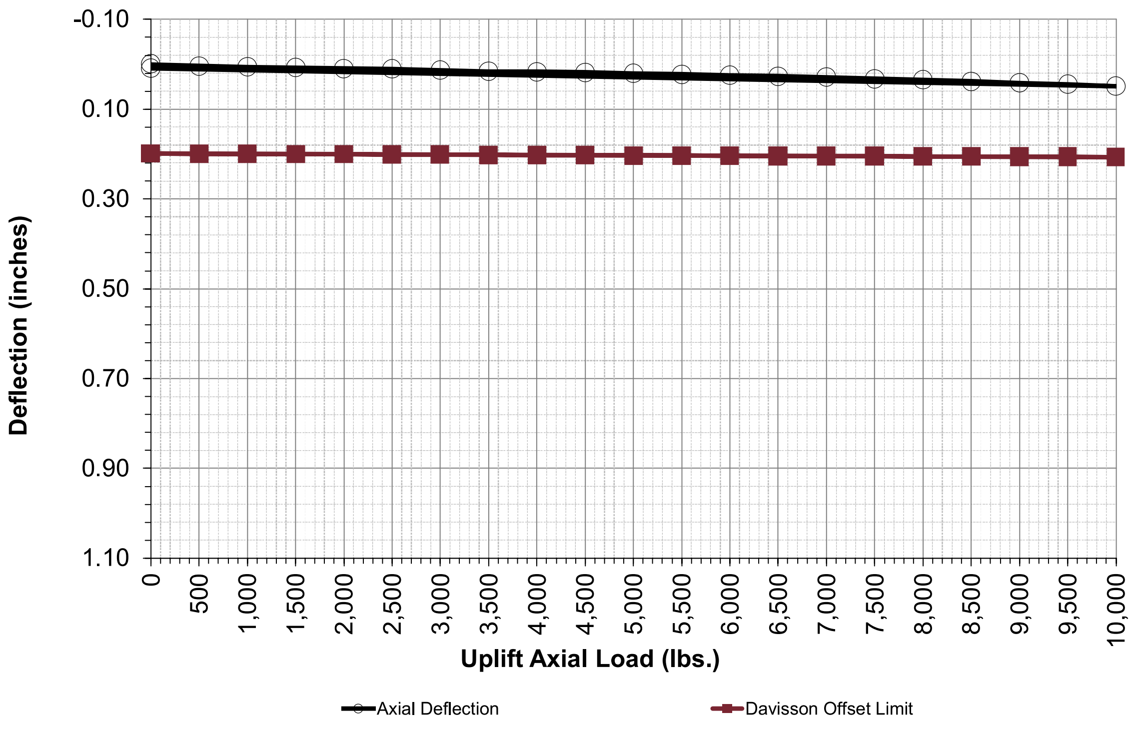
**Test Date and Representative**

Tested By Terracon Rep: SL/ED
Date Tested: 10/3/2023

**Pile Information**

Pile ID: PLT-105A
Latitude [deg.]: 35.54761
Longitude[deg.]: 106.00262
Pile Type: W6x9
Pile Embedment Depth [in.]: 60
Pile Diameter [in.]: 5.9
Pile Stick-Up [in.]: 48
Axial Design Load [lbs.]: 10,000
Pile Area [sq. in.]: 2.68
Elastic Modulus [ksi.]: 29,000
Drive Time [sec.]: 20.8

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| **% of Design Load** | **Axial Load [lbs.]** | **Deflection Δ (in.) Gauges #1 & #2** | **Elastic Data (in.) (PL/AE)** | **Davisson Offset Limit (in.) (0.15+D/120+(PL/AE))** | **Comments** |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.004 | 0.000 | 0.200 | |
| 10% | 1000 | 0.006 | 0.001 | 0.200 | |
| 15% | 1500 | 0.008 | 0.001 | 0.200 | |
| 20% | 2000 | 0.010 | 0.002 | 0.201 | |
| 25% | 2500 | 0.011 | 0.002 | 0.201 | |
| 30% | 3000 | 0.013 | 0.002 | 0.201 | |
| 35% | 3500 | 0.016 | 0.003 | 0.202 | |
| 40% | 4000 | 0.017 | 0.003 | 0.202 | |
| 45% | 4500 | 0.018 | 0.003 | 0.203 | |
| 50% | 5000 | 0.020 | 0.004 | 0.203 | |
| 55% | 5500 | 0.022 | 0.004 | 0.203 | |
| 60% | 6000 | 0.025 | 0.005 | 0.204 | |
| 65% | 6500 | 0.027 | 0.005 | 0.204 | |
| 70% | 7000 | 0.029 | 0.005 | 0.205 | |
| 75% | 7500 | 0.032 | 0.006 | 0.205 | |
| 80% | 8000 | 0.035 | 0.006 | 0.205 | |
| 85% | 8500 | 0.039 | 0.007 | 0.206 | |
| 90% | 9000 | 0.042 | 0.007 | 0.206 | |
| 95% | 9500 | 0.045 | 0.007 | 0.207 | |
| 100% | 10000 | 0.049 | 0.008 | 0.207 | |
| 0% | 0 | 0.009 | 0.000 | 0.199 | |



# Tension Load Test Result for PLT-105B

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

**Axial Load Test Set Up**

| | |
|---|---|
| Number of Gauges: | 2 |
| Height of Gauges [in.]: | 6 |
| Load Cell: | Dillion |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | SL/ED |
| Date Tested: | 10/3/2023 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-105B |
| Latitude [deg.]: | 35.54761 |
| Longitude[deg.]: | 106.00262 |
| Pile Type: | W6x9 |
| Pile Embedment Depth [in.]: | 96 |
| Pile Diameter [in.]: | 5.9 |
| Pile Stick-Up [in.]: | 48 |
| Axial Design Load [lbs.]: | 10,000 |
| Pile Area [sq. in.]: | 2.68 |
| Elastic Modulus [ksi.]: | 29,000 |
| Drive Time [sec.]: | 57 |

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in.) (PL/AE) | Davisson Offset Limit (in.) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.005 | 0.001 | 0.200 | |
| 10% | 1000 | 0.008 | 0.001 | 0.200 | |
| 15% | 1500 | 0.010 | 0.002 | 0.201 | |
| 20% | 2000 | 0.012 | 0.002 | 0.202 | |
| 25% | 2500 | 0.014 | 0.003 | 0.202 | |
| 30% | 3000 | 0.018 | 0.004 | 0.203 | |
| 35% | 3500 | 0.022 | 0.004 | 0.203 | |
| 40% | 4000 | 0.026 | 0.005 | 0.204 | |
| 45% | 4500 | 0.030 | 0.006 | 0.205 | |
| 50% | 5000 | 0.033 | 0.006 | 0.205 | |
| 55% | 5500 | 0.036 | 0.007 | 0.206 | |
| 60% | 6000 | 0.039 | 0.007 | 0.207 | |
| 65% | 6500 | 0.041 | 0.008 | 0.207 | |
| 70% | 7000 | 0.046 | 0.009 | 0.208 | |
| 75% | 7500 | 0.049 | 0.009 | 0.208 | |
| 80% | 8000 | 0.053 | 0.010 | 0.209 | |
| 85% | 8500 | 0.059 | 0.010 | 0.210 | |
| 90% | 9000 | 0.064 | 0.011 | 0.210 | |
| 95% | 9500 | 0.070 | 0.012 | 0.211 | |
| 100% | 10000 | 0.075 | 0.012 | 0.212 | |
| 0% | 0 | 0.020 | 0.000 | 0.199 | |

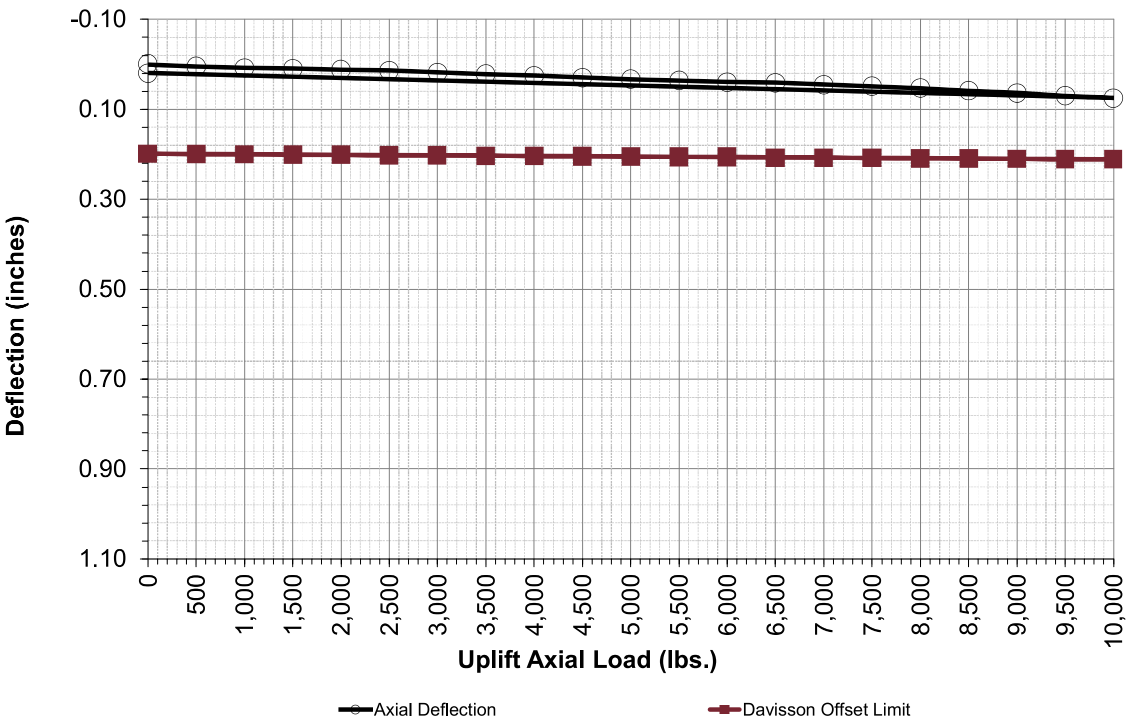


Exhibit G-10

# Tension Load Test Result for PLT-106A

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

**Axial Load Test Set Up**

| | |
|---|---|
| Number of Gauges: | 2 |
| Height of Gauges [in.]: | 6 |
| Load Cell: | Dillion |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | SL/JPS |
| Date Tested: | 10/3/2023 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-106A |
| Latitude [deg.]: | 35.54803 |
| Longitude[deg.]: | 106.00973 |
| Pile Type: | W6x9 |
| Pile Embedment Depth [in.]: | 108 |
| Pile Diameter [in.]: | 5.9 |
| Pile Stick-Up [in.]: | 36 |
| Axial Design Load [lbs.]: | 10,000 |
| Pile Area [sq. in.]: | 2.68 |
| Elastic Modulus [ksi.]: | 29,000 |
| Drive Time [sec.]: | 21.5 |

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in.) (PL/AE) | Davisson Offset Limit (in.) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.002 | 0.001 | 0.200 | |
| 10% | 1000 | 0.002 | 0.001 | 0.201 | |
| 15% | 1500 | 0.002 | 0.002 | 0.201 | |
| 20% | 2000 | 0.003 | 0.003 | 0.202 | |
| 25% | 2500 | 0.004 | 0.003 | 0.203 | |
| 30% | 3000 | 0.005 | 0.004 | 0.203 | |
| 35% | 3500 | 0.005 | 0.005 | 0.204 | |
| 40% | 4000 | 0.006 | 0.006 | 0.205 | |
| 45% | 4500 | 0.006 | 0.006 | 0.205 | |
| 50% | 5000 | 0.007 | 0.007 | 0.206 | |
| 55% | 5500 | 0.007 | 0.008 | 0.207 | |
| 60% | 6000 | 0.009 | 0.008 | 0.208 | |
| 65% | 6500 | 0.010 | 0.009 | 0.208 | |
| 70% | 7000 | 0.012 | 0.010 | 0.209 | |
| 75% | 7500 | 0.017 | 0.010 | 0.210 | |
| 80% | 8000 | 0.016 | 0.011 | 0.210 | |
| 85% | 8500 | 0.020 | 0.012 | 0.211 | |
| 90% | 9000 | 0.022 | 0.013 | 0.212 | |
| 95% | 9500 | 0.025 | 0.013 | 0.212 | |
| 100% | 10000 | 0.028 | 0.014 | 0.213 | |
| 0% | 0 | 0.013 | 0.000 | 0.199 | |

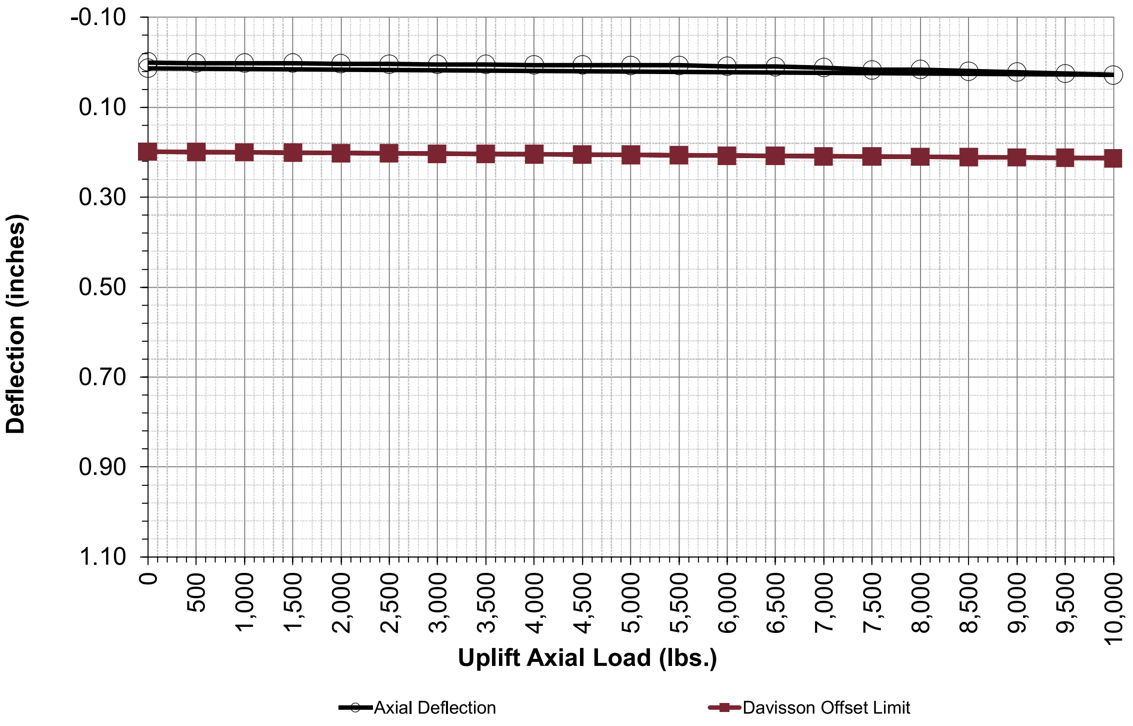


Exhibit G-11

# Tension Load Test Result for PLT-106B

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in.]: 6
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: SL/JPS
Date Tested: 10/3/2023

**Pile Information**

Pile ID: PLT-106B
Latitude [deg.]: 35.54803
Longitude[deg.]: 106.00973
Pile Type: W6x9
Pile Embedment Depth [in.]: 108
Pile Diameter [in.]: 5.9
Pile Stick-Up [in.]: 36
Axial Design Load [lbs.]: 10,000
Pile Area [sq. in.]: 2.68
Elastic Modulus [ksi.]: 29,000
Drive Time [sec.]: 50.3

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in.) (PL/AE) | Davisson Offset Limit (in.) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.002 | 0.001 | 0.200 | |
| 10% | 1000 | 0.005 | 0.001 | 0.201 | |
| 15% | 1500 | 0.005 | 0.002 | 0.201 | |
| 20% | 2000 | 0.007 | 0.003 | 0.202 | |
| 25% | 2500 | 0.008 | 0.003 | 0.203 | |
| 30% | 3000 | 0.010 | 0.004 | 0.203 | |
| 35% | 3500 | 0.011 | 0.005 | 0.204 | |
| 40% | 4000 | 0.012 | 0.006 | 0.205 | |
| 45% | 4500 | 0.012 | 0.006 | 0.205 | |
| 50% | 5000 | 0.013 | 0.007 | 0.206 | |
| 55% | 5500 | 0.014 | 0.008 | 0.207 | |
| 60% | 6000 | 0.015 | 0.008 | 0.208 | |
| 65% | 6500 | 0.016 | 0.009 | 0.208 | |
| 70% | 7000 | 0.016 | 0.010 | 0.209 | |
| 75% | 7500 | 0.017 | 0.010 | 0.210 | |
| 80% | 8000 | 0.018 | 0.011 | 0.210 | |
| 85% | 8500 | 0.019 | 0.012 | 0.211 | |
| 90% | 9000 | 0.019 | 0.013 | 0.212 | |
| 95% | 9500 | 0.020 | 0.013 | 0.212 | |
| 100% | 10000 | 0.112 | 0.014 | 0.213 | |
| 0% | 0 | 0.003 | 0.000 | 0.199 | |

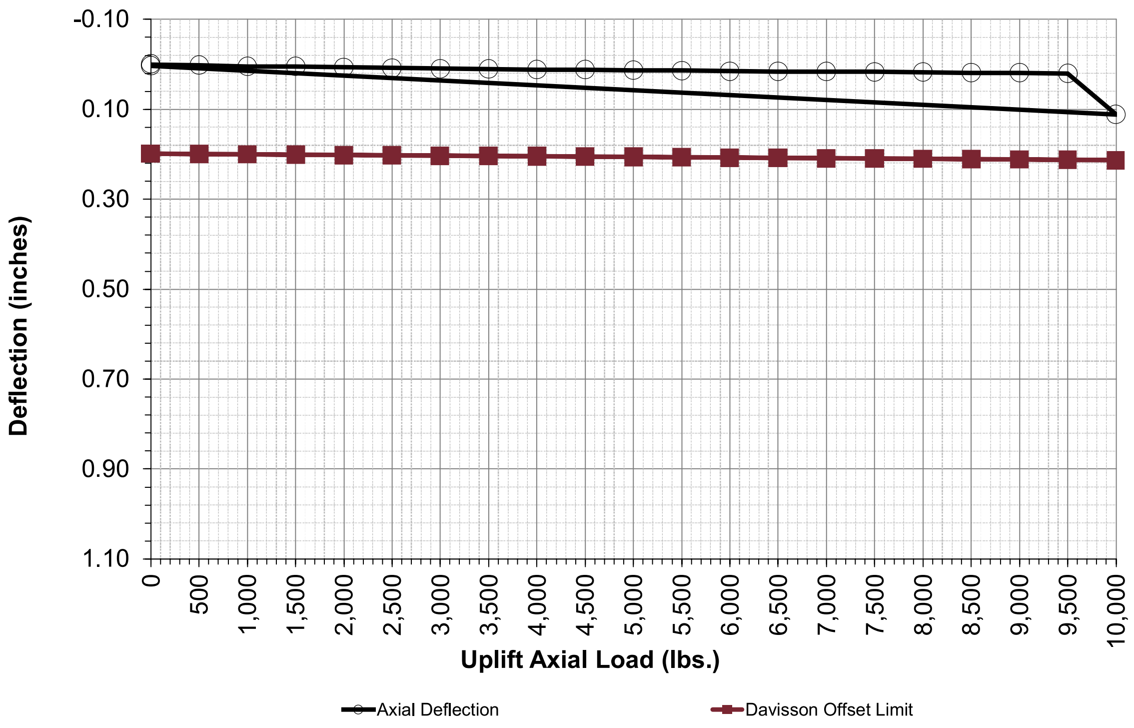


Exhibit G-12

# Tension Load Test Result for PLT-107A

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in.]: 6
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: SL/ED
Date Tested: 10/4/2023

**Pile Information**

Pile ID: PLT-107A
Latitude [deg.]: 35.54924
Longitude[deg.]: 106.01518
Pile Type: W6x9
Pile Embedment Depth [in.]: 60
Pile Diameter [in.]: 5.9
Pile Stick-Up [in.]: 48
Axial Design Load [lbs.]: 10,000
Pile Area [sq. in.]: 2.68
Elastic Modulus [ksi.]: 29,000
Drive Time [sec.]: 12.9

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| **% of Design Load** | **Axial Load [lbs.]** | **Deflection Δ (in.) Gauges #1 & #2** | **Elastic Data (in.) (PL/AE)** | **Davisson Offset Limit (in.) (0.15+D/120+(PL/AE))** | **Comments** |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.002 | 0.000 | 0.200 | |
| 10% | 1000 | 0.004 | 0.001 | 0.200 | |
| 15% | 1500 | 0.005 | 0.001 | 0.200 | |
| 20% | 2000 | 0.008 | 0.002 | 0.201 | |
| 25% | 2500 | 0.011 | 0.002 | 0.201 | |
| 30% | 3000 | 0.015 | 0.002 | 0.201 | |
| 35% | 3500 | 0.022 | 0.003 | 0.202 | |
| 40% | 4000 | 0.027 | 0.003 | 0.202 | |
| 45% | 4500 | 0.035 | 0.003 | 0.203 | |
| 50% | 5000 | 0.042 | 0.004 | 0.203 | |
| 55% | 5500 | 0.053 | 0.004 | 0.203 | |
| 60% | 6000 | 0.065 | 0.005 | 0.204 | |
| 65% | 6500 | 0.076 | 0.005 | 0.204 | |
| 70% | 7000 | 0.089 | 0.005 | 0.205 | |
| 75% | 7500 | 0.095 | 0.006 | 0.205 | |
| 80% | 8000 | 0.116 | 0.006 | 0.205 | |
| 85% | 8500 | 0.129 | 0.007 | 0.206 | |
| 90% | 9000 | 0.153 | 0.007 | 0.206 | |
| 95% | 9500 | 0.167 | 0.007 | 0.207 | |
| 100% | 10000 | 0.191 | 0.008 | 0.207 | |
| 0% | 0 | 0.124 | 0.000 | 0.199 | |

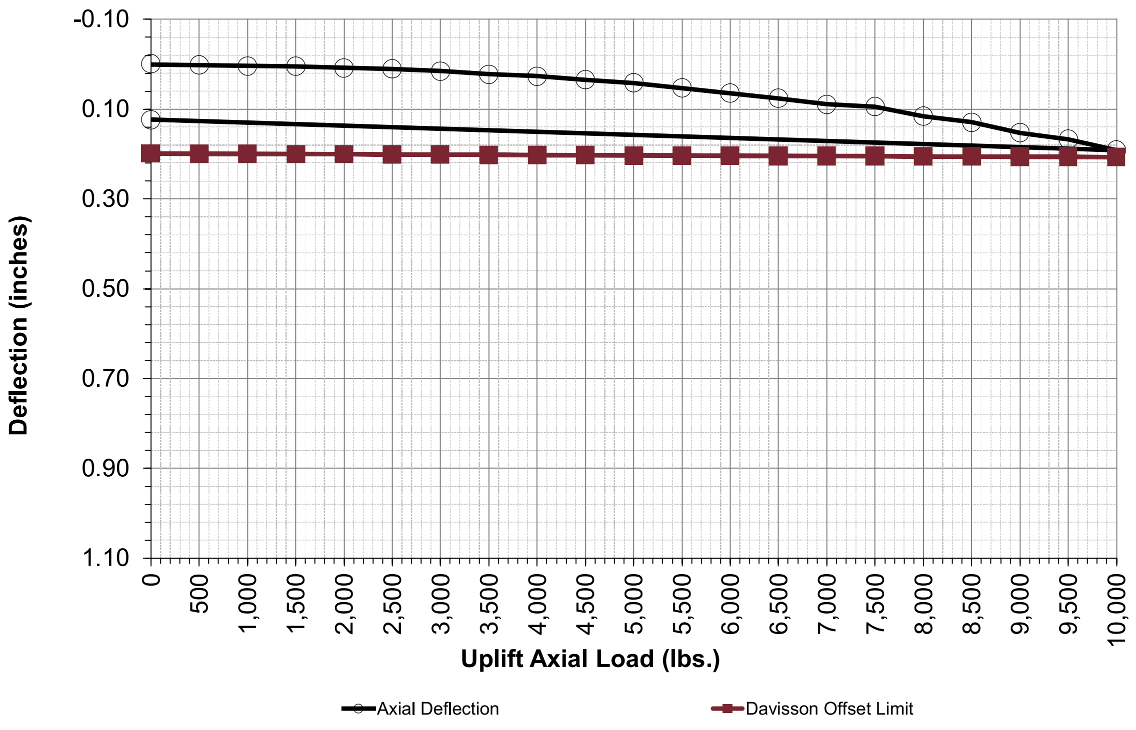


Exhibit G-13

# Tension Load Test Result for PLT-107B

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in.]: 6
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: SL/ED
Date Tested: 10/4/2023

**Pile Information**

Pile ID: PLT-107B
Latitude [deg.]: 35.54924
Longitude[deg.]: 106.01518
Pile Type: W6x9
Pile Embedment Depth [in.]: 96
Pile Diameter [in.]: 5.9
Pile Stick-Up [in.]: 48
Axial Design Load [lbs.]: 10,000
Pile Area [sq. in.]: 2.68
Elastic Modulus [ksi.]: 29,000
Drive Time [sec.]: 23.9

| **Tension Test Results** | | | | **Davisson Offset Limit Lines** | |
|---|---|---|---|---|---|
| **% of Design Load** | **Axial Load [lbs.]** | **Deflection Δ (in.) Gauges #1 & #2** | **Elastic Data (in.) (PL/AE)** | **Davisson Offest Limit (in.) (0.15+D/120+(PL/AE))** | **Comments** |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.006 | 0.001 | 0.200 | |
| 10% | 1000 | 0.008 | 0.001 | 0.200 | |
| 15% | 1500 | 0.008 | 0.002 | 0.201 | |
| 20% | 2000 | 0.009 | 0.002 | 0.202 | |
| 25% | 2500 | 0.011 | 0.003 | 0.202 | |
| 30% | 3000 | 0.013 | 0.004 | 0.203 | |
| 35% | 3500 | 0.015 | 0.004 | 0.203 | |
| 40% | 4000 | 0.016 | 0.005 | 0.204 | |
| 45% | 4500 | 0.022 | 0.006 | 0.205 | |
| 50% | 5000 | 0.027 | 0.006 | 0.205 | |
| 55% | 5500 | 0.031 | 0.007 | 0.206 | |
| 60% | 6000 | 0.036 | 0.007 | 0.207 | |
| 65% | 6500 | 0.041 | 0.008 | 0.207 | |
| 70% | 7000 | 0.048 | 0.009 | 0.208 | |
| 75% | 7500 | 0.054 | 0.009 | 0.208 | |
| 80% | 8000 | 0.058 | 0.010 | 0.209 | |
| 85% | 8500 | 0.066 | 0.010 | 0.210 | |
| 90% | 9000 | 0.073 | 0.011 | 0.210 | |
| 95% | 9500 | 0.082 | 0.012 | 0.211 | |
| 100% | 10000 | 0.088 | 0.012 | 0.212 | |
| 0% | 0 | 0.042 | 0.000 | 0.199 | |

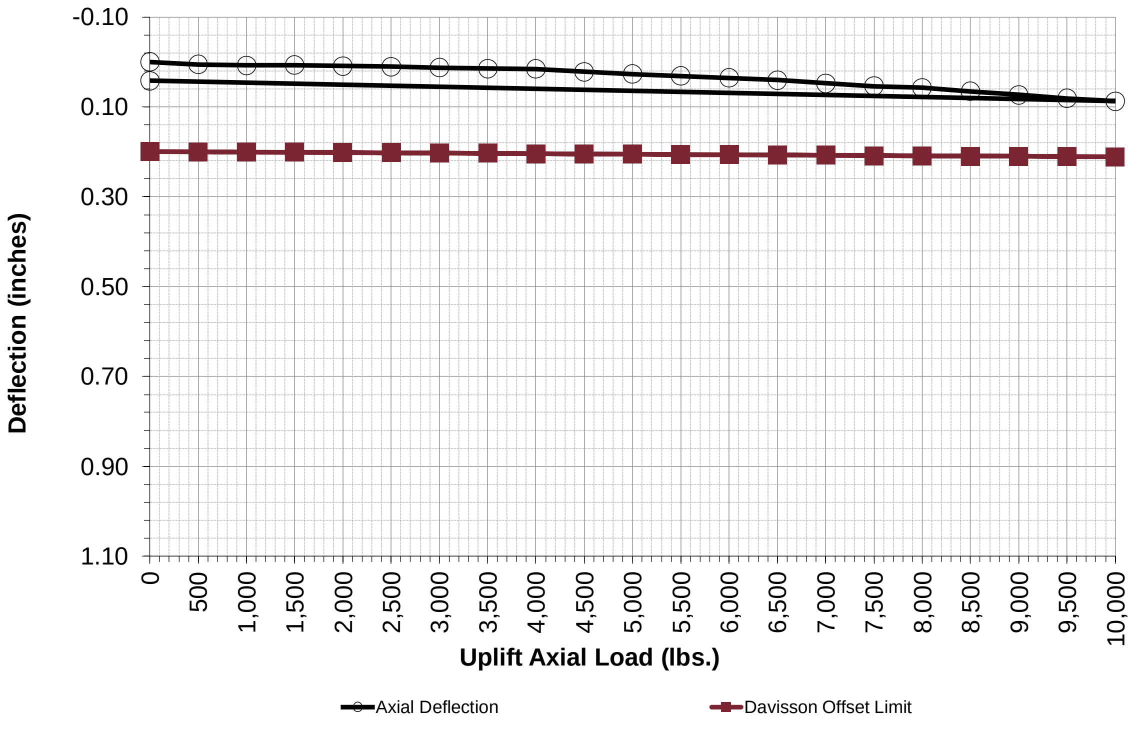


Exhibit G-14

# Tension Load Test Result for PLT-108A

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in.]: 6
Load Cell: Dillion

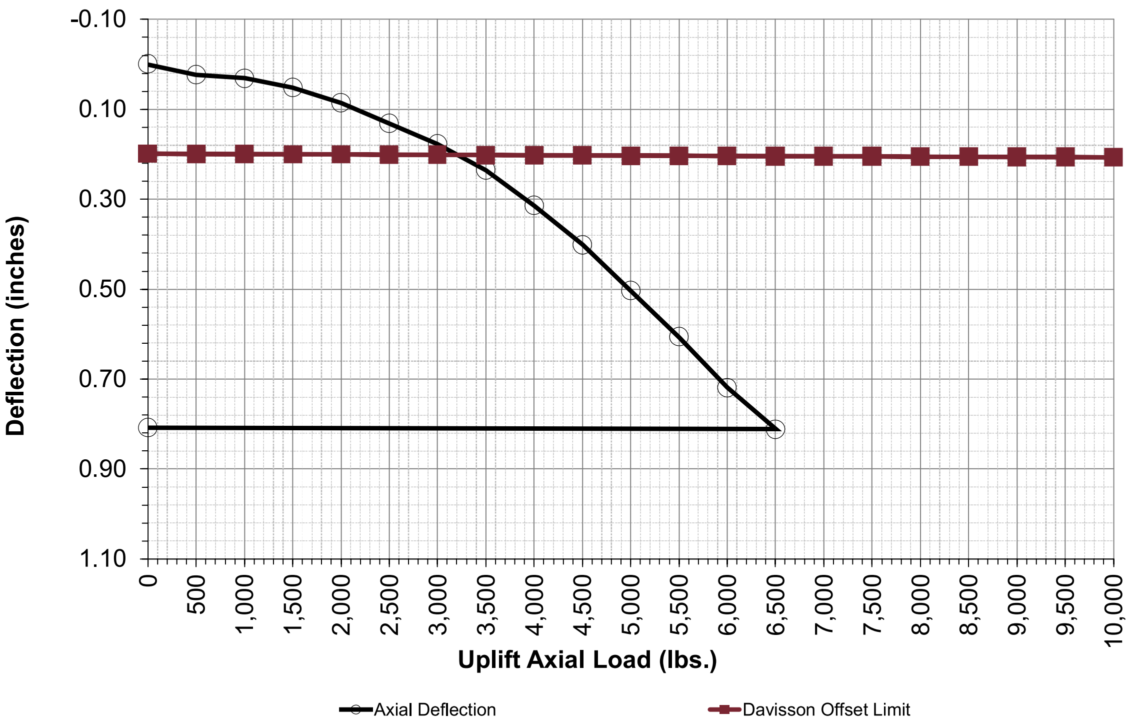
**Test Date and Representative**

Tested By Terracon Rep: SL/ED
Date Tested: 10/3/2023

**Pile Information**

Pile ID: PLT-108A
Latitude [deg.]: 35.55227
Longitude[deg.]: 106.01033
Pile Type: W6x9
Pile Embedment Depth [in.]: 60
Pile Diameter [in.]: 5.9
Pile Stick-Up [in.]: 48
Axial Design Load [lbs.]: 10,000
Pile Area [sq. in.]: 2.68
Elastic Modulus [ksi.]: 29,000
Drive Time [sec.]: 8.1

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in.) (PL/AE) | Davisson Offset Limit (in.) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.024 | 0.000 | 0.200 | |
| 10% | 1000 | 0.031 | 0.001 | 0.200 | |
| 15% | 1500 | 0.052 | 0.001 | 0.200 | |
| 20% | 2000 | 0.086 | 0.002 | 0.201 | |
| 25% | 2500 | 0.132 | 0.002 | 0.201 | |
| 30% | 3000 | 0.178 | 0.002 | 0.201 | |
| 35% | 3500 | 0.235 | 0.003 | 0.202 | |
| 40% | 4000 | 0.314 | 0.003 | 0.202 | |
| 45% | 4500 | 0.401 | 0.003 | 0.203 | |
| 50% | 5000 | 0.503 | 0.004 | 0.203 | |
| 55% | 5500 | 0.607 | 0.004 | 0.203 | |
| 60% | 6000 | 0.719 | 0.005 | 0.204 | |
| 65% | 6500 | 0.812 | 0.005 | 0.204 | |
| 70% | 7000 | | 0.005 | 0.205 | |
| 75% | 7500 | | 0.006 | 0.205 | |
| 80% | 8000 | | 0.006 | 0.205 | |
| 85% | 8500 | | 0.007 | 0.206 | |
| 90% | 9000 | | 0.007 | 0.206 | |
| 95% | 9500 | | 0.007 | 0.207 | |
| 100% | 10000 | | 0.008 | 0.207 | |
| 0% | 0 | 0.808 | 0.000 | 0.199 | |



# Tension Load Test Result for PLT-108B

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in.]: 6
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: SL/ED
Date Tested: 10/3/2023

**Pile Information**

Pile ID: PLT-108B
Latitude [deg.]: 35.55227
Longitude[deg.]: 106.01033
Pile Type: W6x9
Pile Embedment Depth [in.]: 96
Pile Diameter [in.]: 5.9
Pile Stick-Up [in.]: 48
Axial Design Load [lbs.]: 10,000
Pile Area [sq. in.]: 2.68
Elastic Modulus [ksi.]: 29,000
Drive Time [sec.]: 9.2

| **Tension Test Results** | | | | **Davisson Offset Limit Lines** | |
|---|---|---|---|---|---|
| **% of Design Load** | **Axial Load [lbs.]** | **Deflection Δ (in.) Gauges #1 & #2** | **Elastic Data (in.) (PL/AE)** | **Davisson Offset Limit (in.) (0.15+D/120+(PL/AE))** | **Comments** |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.005 | 0.001 | 0.200 | |
| 10% | 1000 | 0.010 | 0.001 | 0.200 | |
| 15% | 1500 | 0.014 | 0.002 | 0.201 | |
| 20% | 2000 | 0.021 | 0.002 | 0.202 | |
| 25% | 2500 | 0.037 | 0.003 | 0.202 | |
| 30% | 3000 | 0.065 | 0.004 | 0.203 | |
| 35% | 3500 | 0.104 | 0.004 | 0.203 | |
| 40% | 4000 | 0.188 | 0.005 | 0.204 | |
| 45% | 4500 | 0.275 | 0.006 | 0.205 | |
| 50% | 5000 | 0.380 | 0.006 | 0.205 | |
| 55% | 5500 | 0.515 | 0.007 | 0.206 | |
| 60% | 6000 | 0.651 | 0.007 | 0.207 | |
| 65% | 6500 | 0.896 | 0.008 | 0.207 | |
| 70% | 7000 | 1.031 | 0.009 | 0.208 | |
| 75% | 7500 | | 0.009 | 0.208 | |
| 80% | 8000 | | 0.010 | 0.209 | |
| 85% | 8500 | | 0.010 | 0.210 | |
| 90% | 9000 | | 0.011 | 0.210 | |
| 95% | 9500 | | 0.012 | 0.211 | |
| 100% | 10000 | | 0.012 | 0.212 | |
| 0% | 0 | 0.980 | 0.000 | 0.199 | |

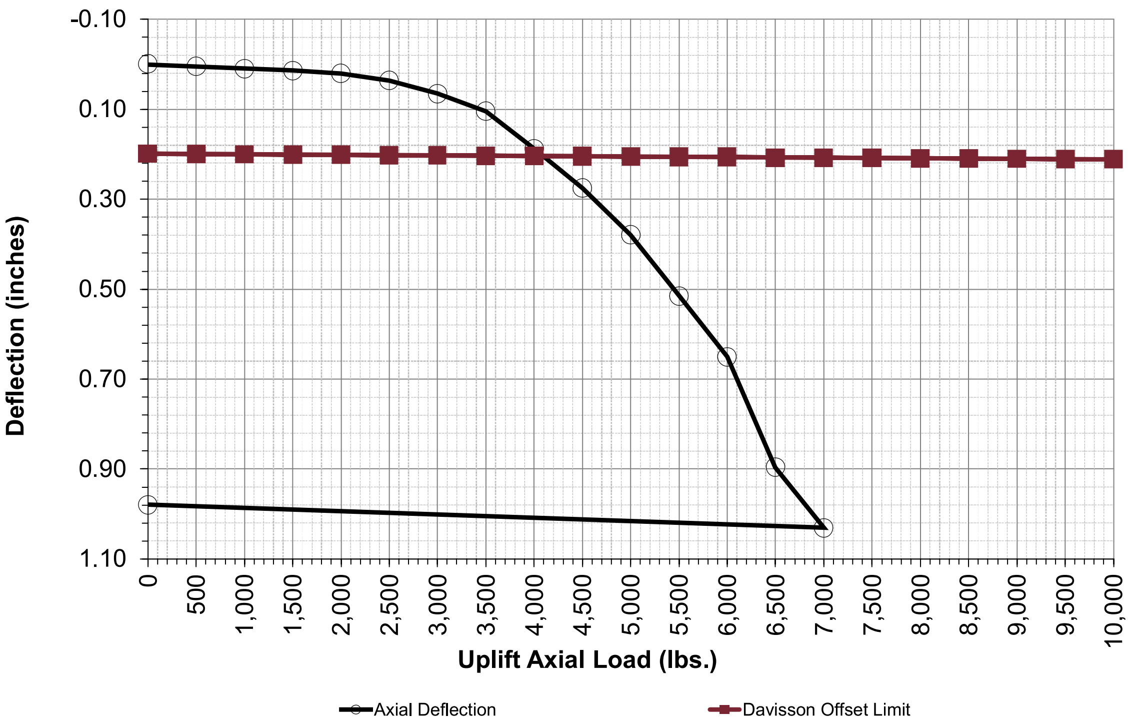


Exhibit G-16

# Tension Load Test Result for PLT-109A

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in.]: 6
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: SL/ED
Date Tested: 10/4/2023

**Pile Information**

Pile ID: PLT-109A
Latitude [deg.]: 35.55374
Longitude[deg.]: 106.01736
Pile Type: W6x9
Pile Embedment Depth [in.]: 60
Pile Diameter [in.]: 5.9
Pile Stick-Up [in.]: 48
Axial Design Load [lbs.]: 10,000
Pile Area [sq. in.]: 2.68
Elastic Modulus [ksi.]: 29,000
Drive Time [sec.]: 16.7

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in.) (PL/AE) | Davisson Offset Limit (in.) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.005 | 0.000 | 0.200 | |
| 10% | 1000 | 0.009 | 0.001 | 0.200 | |
| 15% | 1500 | 0.011 | 0.001 | 0.200 | |
| 20% | 2000 | 0.014 | 0.002 | 0.201 | |
| 25% | 2500 | 0.018 | 0.002 | 0.201 | |
| 30% | 3000 | 0.022 | 0.002 | 0.201 | |
| 35% | 3500 | 0.027 | 0.003 | 0.202 | |
| 40% | 4000 | 0.032 | 0.003 | 0.202 | |
| 45% | 4500 | 0.037 | 0.003 | 0.203 | |
| 50% | 5000 | 0.046 | 0.004 | 0.203 | |
| 55% | 5500 | 0.053 | 0.004 | 0.203 | |
| 60% | 6000 | 0.063 | 0.005 | 0.204 | |
| 65% | 6500 | 0.070 | 0.005 | 0.204 | |
| 70% | 7000 | 0.081 | 0.005 | 0.205 | |
| 75% | 7500 | 0.094 | 0.006 | 0.205 | |
| 80% | 8000 | 0.109 | 0.006 | 0.205 | |
| 85% | 8500 | 0.117 | 0.007 | 0.206 | |
| 90% | 9000 | 0.134 | 0.007 | 0.206 | |
| 95% | 9500 | 0.150 | 0.007 | 0.207 | |
| 100% | 10000 | 0.171 | 0.008 | 0.207 | |
| 0% | 0 | 0.054 | 0.000 | 0.199 | |

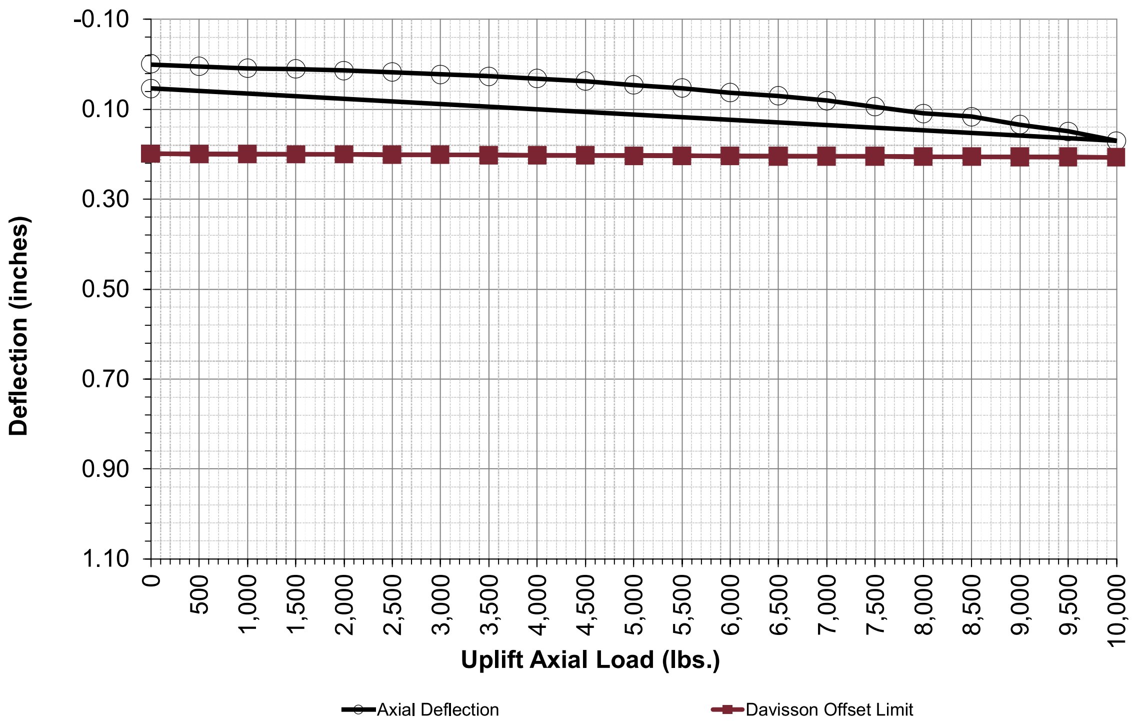


Exhibit G-17

# Tension Load Test Result for PLT-109B

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in.]: 6
Load Cell: Dillion

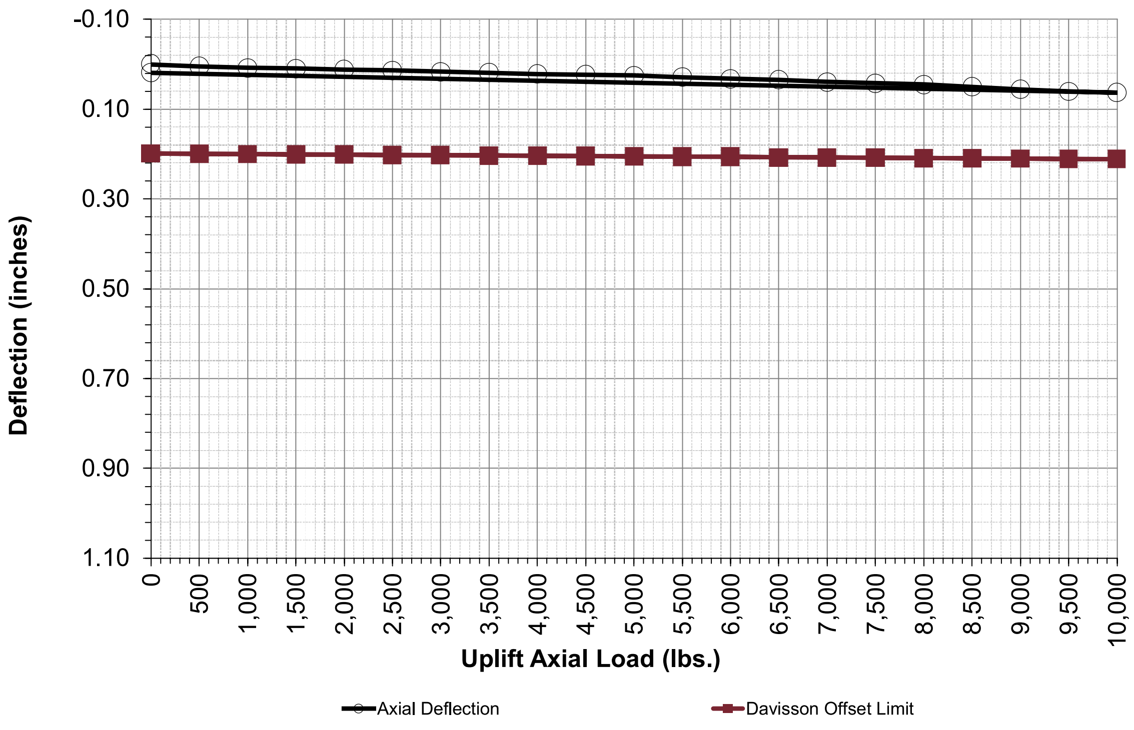
**Test Date and Representative**

Tested By Terracon Rep: SL/ED
Date Tested: 10/4/2023

**Pile Information**

Pile ID: PLT-109B
Latitude [deg.]: 35.55374
Longitude[deg.]: 106.01736
Pile Type: W6x9
Pile Embedment Depth [in.]: 96
Pile Diameter [in.]: 5.9
Pile Stick-Up [in.]: 48
Axial Design Load [lbs.]: 10,000
Pile Area [sq. in.]: 2.68
Elastic Modulus [ksi.]: 29,000
Drive Time [sec.]: 37.6

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| **% of Design Load** | **Axial Load [lbs.]** | **Deflection Δ (in.) Gauges #1 & #2** | **Elastic Data (in.) (PL/AE)** | **Davisson Offset Limit (in.) (0.15+D/120+(PL/AE))** | **Comments** |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.005 | 0.001 | 0.200 | |
| 10% | 1000 | 0.008 | 0.001 | 0.200 | |
| 15% | 1500 | 0.010 | 0.002 | 0.201 | |
| 20% | 2000 | 0.012 | 0.002 | 0.202 | |
| 25% | 2500 | 0.014 | 0.003 | 0.202 | |
| 30% | 3000 | 0.017 | 0.004 | 0.203 | |
| 35% | 3500 | 0.019 | 0.004 | 0.203 | |
| 40% | 4000 | 0.022 | 0.005 | 0.204 | |
| 45% | 4500 | 0.024 | 0.006 | 0.205 | |
| 50% | 5000 | 0.025 | 0.006 | 0.205 | |
| 55% | 5500 | 0.029 | 0.007 | 0.206 | |
| 60% | 6000 | 0.032 | 0.007 | 0.207 | |
| 65% | 6500 | 0.036 | 0.008 | 0.207 | |
| 70% | 7000 | 0.039 | 0.009 | 0.208 | |
| 75% | 7500 | 0.042 | 0.009 | 0.208 | |
| 80% | 8000 | 0.046 | 0.010 | 0.209 | |
| 85% | 8500 | 0.050 | 0.010 | 0.210 | |
| 90% | 9000 | 0.056 | 0.011 | 0.210 | |
| 95% | 9500 | 0.061 | 0.012 | 0.211 | |
| 100% | 10000 | 0.063 | 0.012 | 0.212 | |
| 0% | 0 | 0.019 | 0.000 | 0.199 | |



# Tension Load Test Result for PLT-110A

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in.]: 6
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: ED/AR
Date Tested: 3/11/2024

**Pile Information**

Pile ID: PLT-110A
Latitude [deg.]: 35.54438
Longitude[deg.]: -106.01141
Pile Type: W6x9
Pile Embedment Depth [in.]: 60
Pile Diameter [in.]: 5.9
Pile Stick-Up [in.]: 48
Axial Design Load [lbs.]: 10,000
Pile Area [sq. in.]: 2.68
Elastic Modulus [ksi.]: 29,000
Drive Time [sec.]: 0

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in.) (PL/AE) | Davisson Offest Limit (in.) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.002 | 0.000 | 0.200 | |
| 10% | 1000 | 0.002 | 0.001 | 0.200 | |
| 15% | 1500 | 0.003 | 0.001 | 0.200 | |
| 20% | 2000 | 0.009 | 0.002 | 0.201 | |
| 25% | 2500 | 0.031 | 0.002 | 0.201 | |
| 30% | 3000 | 0.064 | 0.002 | 0.201 | |
| 35% | 3500 | 0.109 | 0.003 | 0.202 | |
| 40% | 4000 | 0.163 | 0.003 | 0.202 | |
| 45% | 4500 | 0.225 | 0.003 | 0.203 | |
| 50% | 5000 | 0.298 | 0.004 | 0.203 | |
| 55% | 5500 | 0.355 | 0.004 | 0.203 | |
| 60% | 6000 | 0.425 | 0.005 | 0.204 | |
| 65% | 6500 | 0.491 | 0.005 | 0.204 | |
| 70% | 7000 | 0.560 | 0.005 | 0.205 | |
| 75% | 7500 | 0.636 | 0.006 | 0.205 | |
| 80% | 8000 | 0.721 | 0.006 | 0.205 | |
| 85% | 8500 | 0.746 | 0.007 | 0.206 | |
| 90% | 9000 | | 0.007 | 0.206 | |
| 95% | 9500 | | 0.007 | 0.207 | |
| 100% | 10000 | | 0.008 | 0.207 | |
| 0% | 0 | 0.694 | 0.000 | 0.199 | |

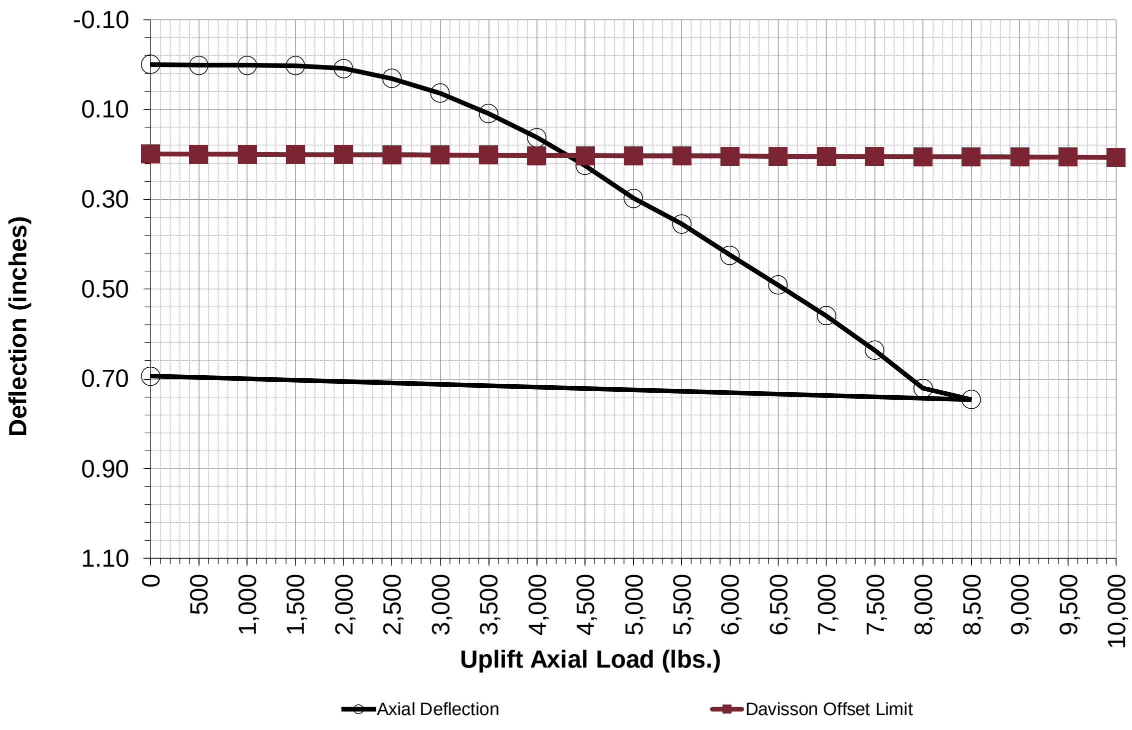


Exhibit G-19

# Tension Load Test Result for PLT-110B

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

**Axial Load Test Set Up**

| | |
|---|---|
| Number of Gauges: | 2 |
| Height of Gauges [in.]: | 6 |
| Load Cell: | Dillion |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | ED/AR |
| Date Tested: | 3/11/2024 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-110B |
| Latitude [deg.]: | 35.54438 |
| Longitude[deg.]: | -106.01141 |
| Pile Type: | W6x9 |
| Pile Embedment Depth [in.]: | 96 |
| Pile Diameter [in.]: | 5.9 |
| Pile Stick-Up [in.]: | 48 |
| Axial Design Load [lbs.]: | 10,000 |
| Pile Area [sq. in.]: | 2.68 |
| Elastic Modulus [ksi.]: | 29,000 |
| Drive Time [sec.]: | 0 |

| Tension Test Results | | | | Davisson Offset Limit Lines | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in.) (PL/AE) | Davisson Offset Limit (in.) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.004 | 0.001 | 0.200 | |
| 10% | 1000 | 0.005 | 0.001 | 0.200 | |
| 15% | 1500 | 0.007 | 0.002 | 0.201 | |
| 20% | 2000 | 0.008 | 0.002 | 0.202 | |
| 25% | 2500 | 0.009 | 0.003 | 0.202 | |
| 30% | 3000 | 0.010 | 0.004 | 0.203 | |
| 35% | 3500 | 0.010 | 0.004 | 0.203 | |
| 40% | 4000 | 0.011 | 0.005 | 0.204 | |
| 45% | 4500 | 0.011 | 0.006 | 0.205 | |
| 50% | 5000 | 0.013 | 0.006 | 0.205 | |
| 55% | 5500 | 0.014 | 0.007 | 0.206 | |
| 60% | 6000 | 0.018 | 0.007 | 0.207 | |
| 65% | 6500 | 0.025 | 0.008 | 0.207 | |
| 70% | 7000 | 0.031 | 0.009 | 0.208 | |
| 75% | 7500 | 0.043 | 0.009 | 0.208 | |
| 80% | 8000 | 0.056 | 0.010 | 0.209 | |
| 85% | 8500 | 0.071 | 0.010 | 0.210 | |
| 90% | 9000 | 0.094 | 0.011 | 0.210 | |
| 95% | 9500 | 0.110 | 0.012 | 0.211 | |
| 100% | 10000 | 0.132 | 0.012 | 0.212 | |
| 0% | 0 | 0.115 | 0.000 | 0.199 | |

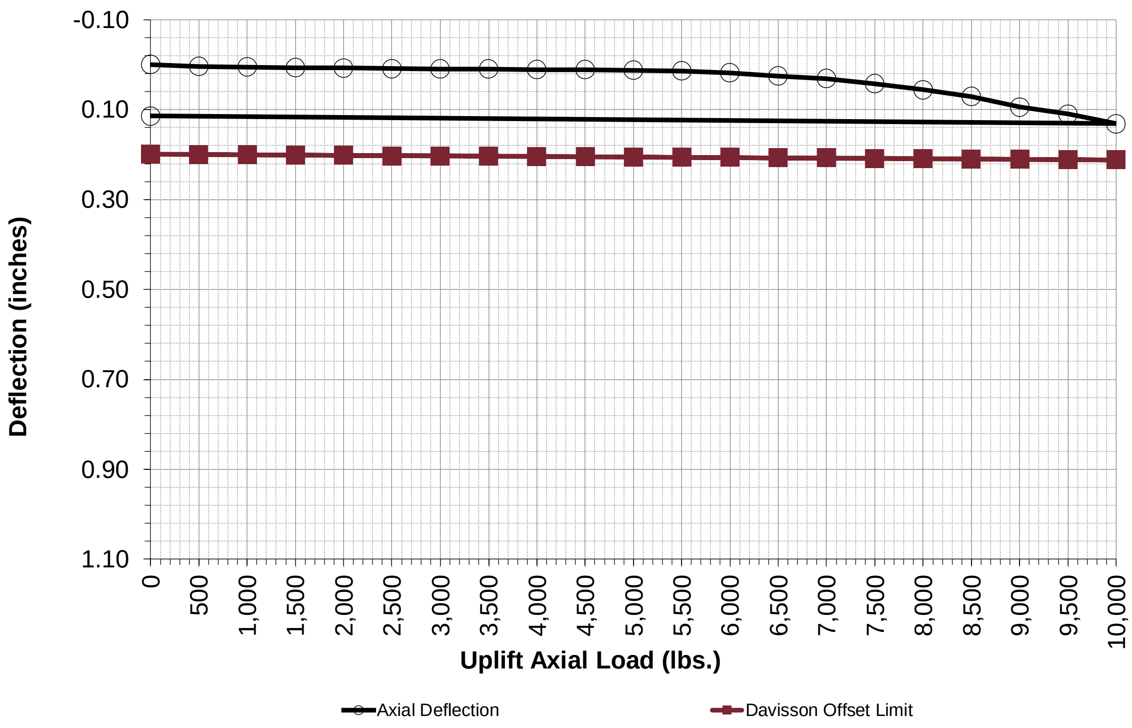


Exhibit G-20

# Tension Load Test Result for PLT-001A

### Project Information
Project Name: Rancho Viejo Solar Facility
Project Location: Santa Fe County, NM
Project Number: 66225093

### Axial Load Test Set Up
Number of Gauges: 2
Height of Gauges [in]: 6
Load Cell: Dillon ED jr 10,000lb

### Test Date and Representative
Tested By Terracon Rep: CS & SC
Date Tested: 8/25/2022

### Pile Information
Pile ID: PLT-001A
Latitude: 35.55334
Longitude: -106.01315
Pile Type: W6X9
Pile Embedment Depth [in]: 60
Pile Diameter [in]: 5.9
Pile Stick-Up [in]: 48
Axial Design Load [lbs]: 10000
Pile Area [sq. in]: 2.68
Elastic Modulus [ksi]: 29,000
Drive Time [sec]: 39.7

| Tension Test Results | | | Davisson Offset Limit Lines | | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in) (PL/AE) | Davisson Offset Limit (in) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.003 | 0.000 | 0.200 | |
| 10% | 1000 | 0.005 | 0.001 | 0.200 | |
| 15% | 1500 | 0.008 | 0.001 | 0.200 | |
| 20% | 2000 | 0.010 | 0.002 | 0.201 | |
| 25% | 2500 | 0.011 | 0.002 | 0.201 | |
| 30% | 3000 | 0.014 | 0.002 | 0.201 | |
| 35% | 3500 | 0.016 | 0.003 | 0.202 | |
| 40% | 4000 | 0.018 | 0.003 | 0.202 | |
| 45% | 4500 | 0.022 | 0.003 | 0.203 | |
| 50% | 5000 | 0.025 | 0.004 | 0.203 | |
| 55% | 5500 | 0.030 | 0.004 | 0.203 | |
| 60% | 6000 | 0.034 | 0.005 | 0.204 | |
| 65% | 6500 | 0.040 | 0.005 | 0.204 | |
| 70% | 7000 | 0.046 | 0.005 | 0.205 | |
| 75% | 7500 | 0.053 | 0.006 | 0.205 | |
| 80% | 8000 | 0.060 | 0.006 | 0.205 | |
| 85% | 8500 | 0.070 | 0.007 | 0.206 | |
| 90% | 9000 | 0.081 | 0.007 | 0.206 | |
| 95% | 9500 | 0.094 | 0.007 | 0.207 | |
| 100% | 10000 | 0.104 | 0.008 | 0.207 | |
| 0% | 0 | 0.065 | 0.000 | 0.199 | |

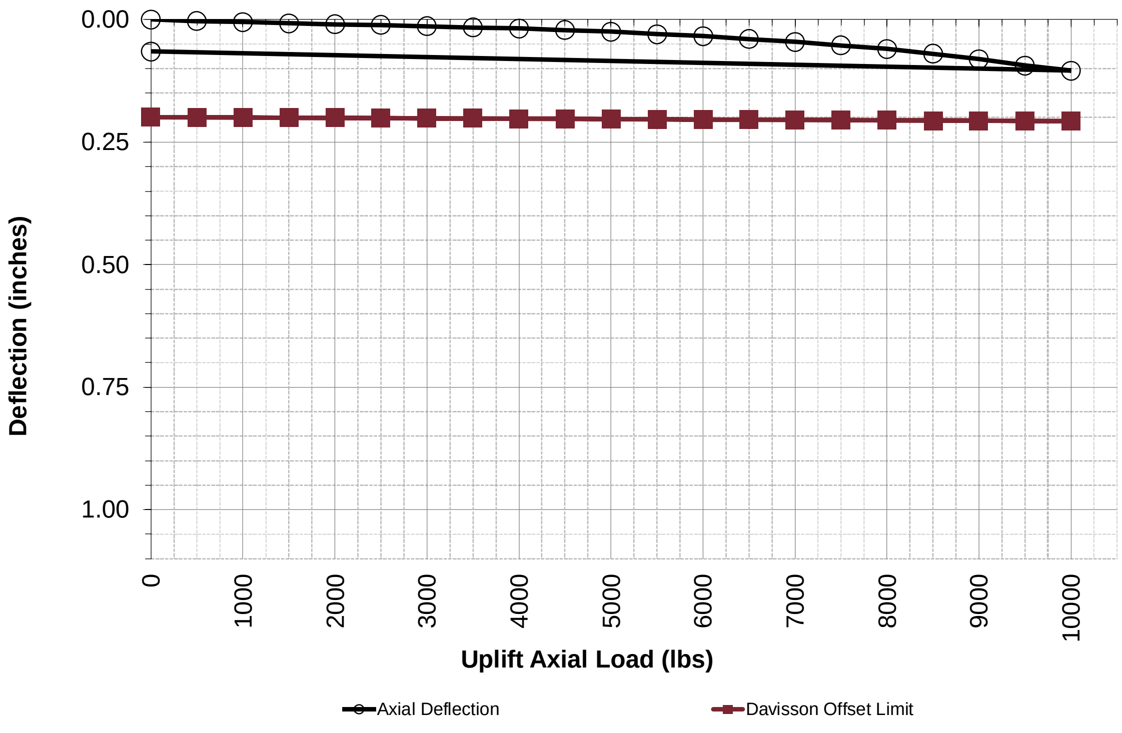


Exhibit G-21

# Tension Load Test Result for PLT-001B

**Project Information**

Project Name: Rancho Viejo Solar Facility
Project Location: Santa Fe County, NM
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in]: 6
Load Cell: Dillon ED jr 10,000lb

**Test Date and Representative**

Tested By Terracon Rep: CS & SC
Date Tested: 8/25/2022

**Pile Information**

Pile ID: PLT-001B
Latitude: 35.55334
Longitude: -106.01315
Pile Type: W6X9
Pile Embedment Depth [in]: 96
Pile Diameter [in]: 5.9
Pile Stick-Up [in]: 48
Axial Design Load [lbs]: 10000
Pile Area [sq. in]: 2.68
Elastic Modulus [ksi]: 29,000
Drive Time [sec]: 50.8

| Tension Test Results | | | Davisson Offset Limit Lines | | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in) (PL/AE) | Davisson Offset Limit (in) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.005 | 0.001 | 0.200 | |
| 10% | 1000 | 0.009 | 0.001 | 0.200 | |
| 15% | 1500 | 0.012 | 0.002 | 0.201 | |
| 20% | 2000 | 0.014 | 0.002 | 0.202 | |
| 25% | 2500 | 0.016 | 0.003 | 0.202 | |
| 30% | 3000 | 0.017 | 0.004 | 0.203 | |
| 35% | 3500 | 0.019 | 0.004 | 0.203 | |
| 40% | 4000 | 0.020 | 0.005 | 0.204 | |
| 45% | 4500 | 0.021 | 0.006 | 0.205 | |
| 50% | 5000 | 0.023 | 0.006 | 0.205 | |
| 55% | 5500 | 0.025 | 0.007 | 0.206 | |
| 60% | 6000 | 0.026 | 0.007 | 0.207 | |
| 65% | 6500 | 0.027 | 0.008 | 0.207 | |
| 70% | 7000 | 0.029 | 0.009 | 0.208 | |
| 75% | 7500 | 0.030 | 0.009 | 0.208 | |
| 80% | 8000 | 0.030 | 0.010 | 0.209 | |
| 85% | 8500 | 0.030 | 0.010 | 0.210 | |
| 90% | 9000 | 0.030 | 0.011 | 0.210 | |
| 95% | 9500 | 0.031 | 0.012 | 0.211 | |
| 100% | 10000 | 0.031 | 0.012 | 0.212 | |
| 0% | 0 | 0.005 | 0.000 | 0.199 | |

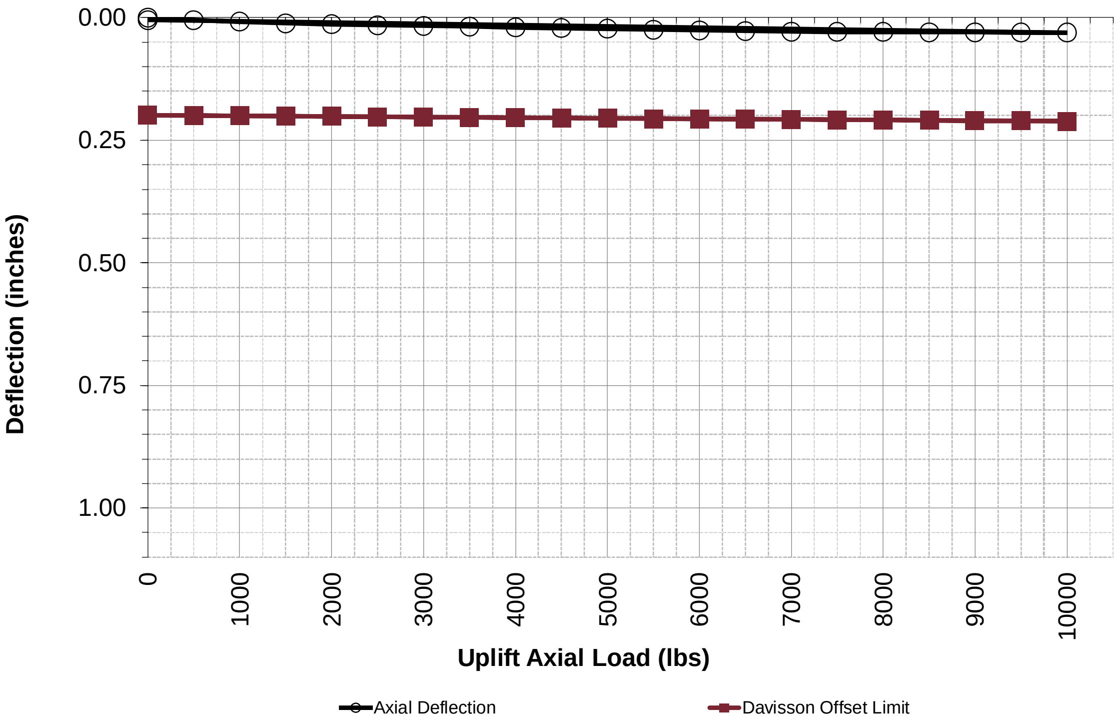


Exhibit G-22

# Tension Load Test Result for PLT-002A

### Project Information

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

### Axial Load Test Set Up

| | |
|---|---|
| Number of Gauges: | 2 |
| Height of Gauges [in]: | 6 |
| Load Cell: | Dillon ED jr 10,000lb |

### Test Date and Representative

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/25/2022 |

### Pile Information

| | |
|---|---|
| Pile ID: | PLT-002A |
| Latitude: | 35.55151 |
| Longitude: | -106.00214 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 60 |
| Pile Diameter [in]: | 5.9 |
| Pile Stick-Up [in]: | 48 |
| Axial Design Load [lbs]: | 10000 |
| Pile Area [sq. in]: | 2.68 |
| Elastic Modulus [ksi]: | 29,000 |
| Drive Time [sec]: | 35.4 |

| Tension Test Results | | | Davisson Offset Limit Lines | | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in) (PL/AE) | Davisson Offset Limit (in) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.001 | 0.000 | 0.200 | |
| 10% | 1000 | 0.002 | 0.001 | 0.200 | |
| 15% | 1500 | 0.004 | 0.001 | 0.200 | |
| 20% | 2000 | 0.006 | 0.002 | 0.201 | |
| 25% | 2500 | 0.009 | 0.002 | 0.201 | |
| 30% | 3000 | 0.012 | 0.002 | 0.201 | |
| 35% | 3500 | 0.014 | 0.003 | 0.202 | |
| 40% | 4000 | 0.017 | 0.003 | 0.202 | |
| 45% | 4500 | 0.019 | 0.003 | 0.203 | |
| 50% | 5000 | 0.022 | 0.004 | 0.203 | |
| 55% | 5500 | 0.027 | 0.004 | 0.203 | |
| 60% | 6000 | 0.034 | 0.005 | 0.204 | |
| 65% | 6500 | 0.041 | 0.005 | 0.204 | |
| 70% | 7000 | 0.048 | 0.005 | 0.205 | |
| 75% | 7500 | 0.056 | 0.006 | 0.205 | |
| 80% | 8000 | 0.065 | 0.006 | 0.205 | |
| 85% | 8500 | 0.074 | 0.007 | 0.206 | |
| 90% | 9000 | 0.080 | 0.007 | 0.206 | |
| 95% | 9500 | 0.094 | 0.007 | 0.207 | |
| 100% | 10000 | 0.139 | 0.008 | 0.207 | |
| 0% | 0 | 0.059 | 0.000 | 0.199 | |

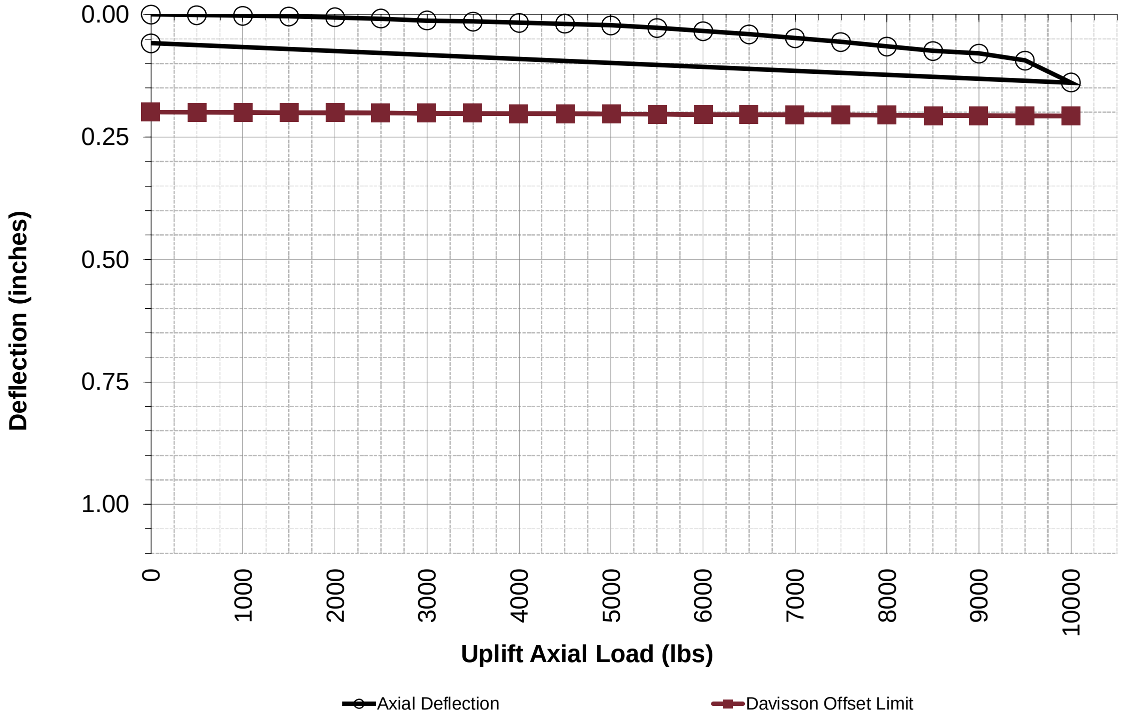


Exhibit G-23

# Tension Load Test Result for PLT-002B

**Project Information**

Project Name: Rancho Viejo Solar Facility
Project Location: Santa Fe County, NM
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in]: 6
Load Cell: Dillon ED jr 10,000lb

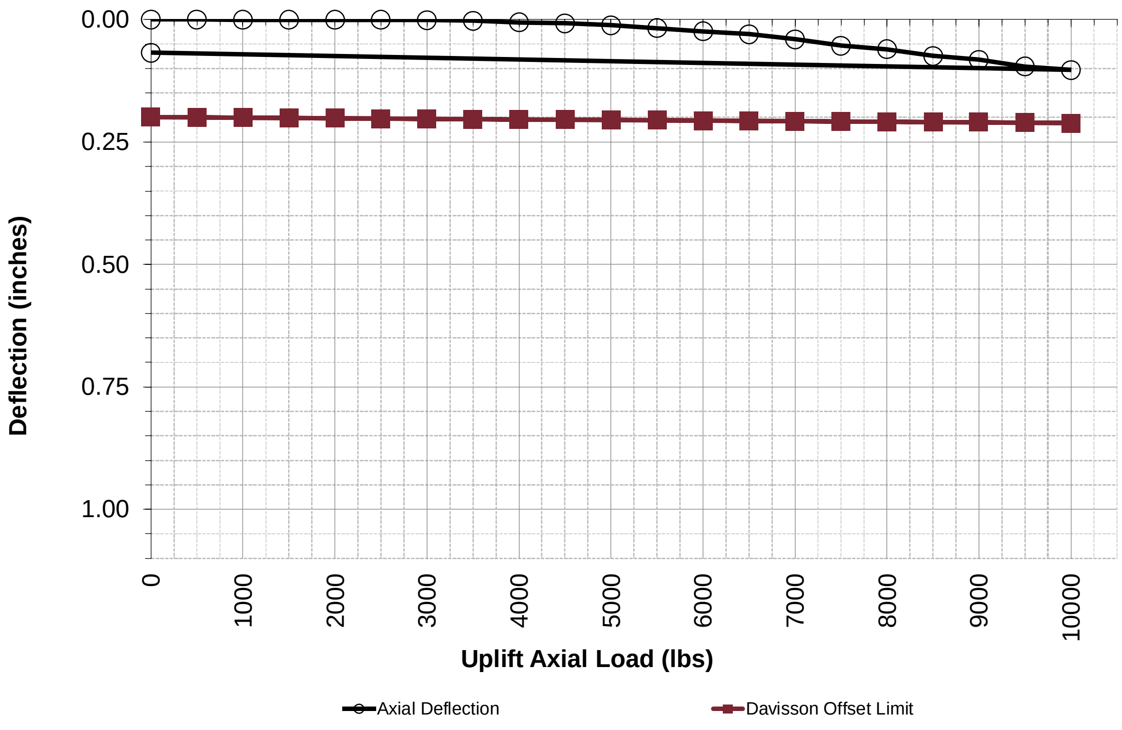
**Test Date and Representative**

Tested By Terracon Rep: CS & SC
Date Tested: 8/25/2022

**Pile Information**

Pile ID: PLT-002B
Latitude: 35.55151
Longitude: -106.00214
Pile Type: W6X9
Pile Embedment Depth [in]: 92
Pile Diameter [in]: 5.9
Pile Stick-Up [in]: 48
Axial Design Load [lbs]: 10000
Pile Area [sq. in]: 2.68
Elastic Modulus [ksi]: 29,000
Drive Time [sec]: 37.1

| Tension Test Results | | | Davisson Offset Limit Lines | | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in) (PL/AE) | Davisson Offset Limit (in) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.000 | 0.001 | 0.200 | |
| 10% | 1000 | 0.001 | 0.001 | 0.200 | |
| 15% | 1500 | 0.001 | 0.002 | 0.201 | |
| 20% | 2000 | 0.001 | 0.002 | 0.202 | |
| 25% | 2500 | 0.001 | 0.003 | 0.202 | |
| 30% | 3000 | 0.002 | 0.004 | 0.203 | |
| 35% | 3500 | 0.003 | 0.004 | 0.203 | |
| 40% | 4000 | 0.006 | 0.005 | 0.204 | |
| 45% | 4500 | 0.008 | 0.005 | 0.204 | |
| 50% | 5000 | 0.012 | 0.006 | 0.205 | |
| 55% | 5500 | 0.018 | 0.007 | 0.206 | |
| 60% | 6000 | 0.024 | 0.007 | 0.206 | |
| 65% | 6500 | 0.030 | 0.008 | 0.207 | |
| 70% | 7000 | 0.040 | 0.008 | 0.207 | |
| 75% | 7500 | 0.054 | 0.009 | 0.208 | |
| 80% | 8000 | 0.061 | 0.009 | 0.209 | |
| 85% | 8500 | 0.074 | 0.010 | 0.209 | |
| 90% | 9000 | 0.082 | 0.011 | 0.210 | |
| 95% | 9500 | 0.096 | 0.011 | 0.210 | |
| 100% | 10000 | 0.103 | 0.012 | 0.211 | |
| 0% | 0 | 0.068 | 0.000 | 0.199 | |



# Tension Load Test Result for PLT-003A

**Project Information**

Project Name: Rancho Viejo Solar Facility
Project Location: Santa Fe County, NM
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in]: 6
Load Cell: Dillon ED jr 10,000lb

**Test Date and Representative**

Tested By Terracon Rep: CS & SC
Date Tested: 8/18/2022

**Pile Information**

Pile ID: PLT-003A
Latitude: 35.54711
Longitude: -106.01618
Pile Type: W6X9
Pile Embedment Depth [in]: 60
Pile Diameter [in]: 5.9
Pile Stick-Up [in]: 48
Axial Design Load [lbs]: 10000
Pile Area [sq. in]: 2.68
Elastic Modulus [ksi]: 29,000
Drive Time [sec]: 97.2

| Tension Test Results | | | Davisson Offset Limit Lines | | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in) (PL/AE) | Davisson Offset Limit (in) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.001 | 0.000 | 0.200 | |
| 10% | 1000 | 0.001 | 0.001 | 0.200 | |
| 15% | 1500 | 0.002 | 0.001 | 0.200 | |
| 20% | 2000 | 0.002 | 0.002 | 0.201 | |
| 25% | 2500 | 0.003 | 0.002 | 0.201 | |
| 30% | 3000 | 0.003 | 0.002 | 0.201 | |
| 35% | 3500 | 0.004 | 0.003 | 0.202 | |
| 40% | 4000 | 0.005 | 0.003 | 0.202 | |
| 45% | 4500 | 0.007 | 0.003 | 0.203 | |
| 50% | 5000 | 0.008 | 0.004 | 0.203 | |
| 55% | 5500 | 0.008 | 0.004 | 0.203 | |
| 60% | 6000 | 0.009 | 0.005 | 0.204 | |
| 65% | 6500 | 0.009 | 0.005 | 0.204 | |
| 70% | 7000 | 0.011 | 0.005 | 0.205 | |
| 75% | 7500 | 0.012 | 0.006 | 0.205 | |
| 80% | 8000 | 0.013 | 0.006 | 0.205 | |
| 85% | 8500 | 0.014 | 0.007 | 0.206 | |
| 90% | 9000 | 0.016 | 0.007 | 0.206 | |
| 95% | 9500 | 0.017 | 0.007 | 0.207 | |
| 100% | 10000 | 0.019 | 0.008 | 0.207 | |
| 0% | 0 | 0.005 | 0.000 | 0.199 | |

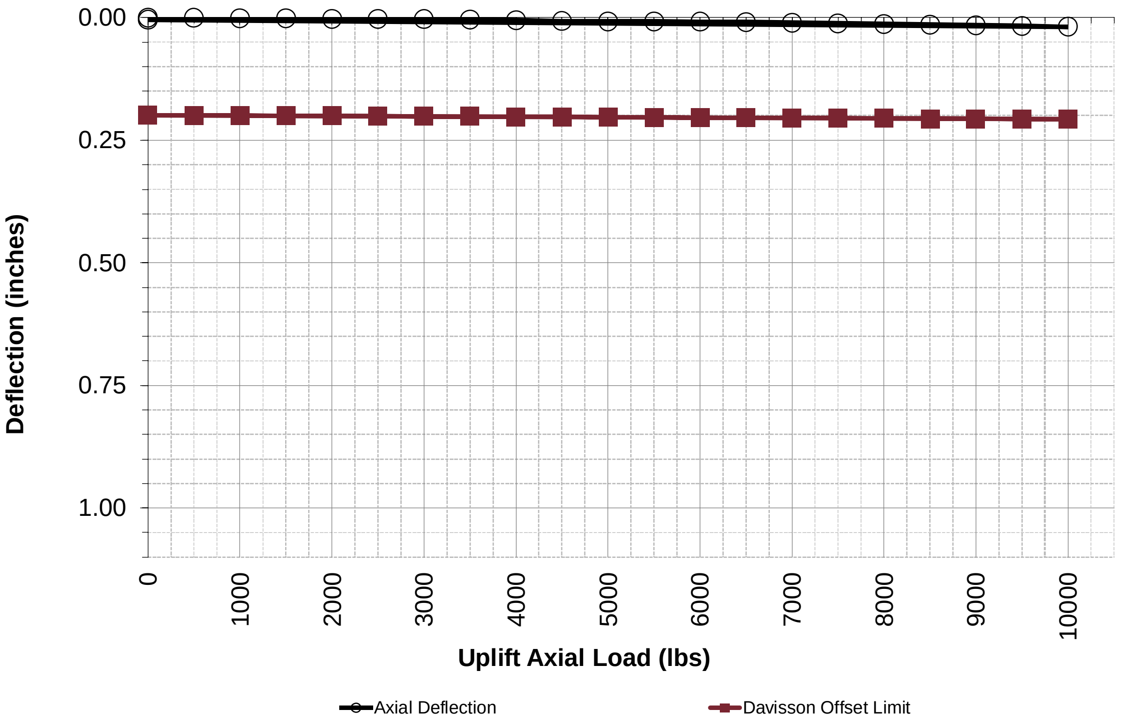


Exhibit G-25

# Tension Load Test Result for PLT-003B

### Project Information

Project Name: Rancho Viejo Solar Facility
Project Location: Santa Fe County, NM
Project Number: 66225093

### Axial Load Test Set Up

Number of Gauges: 2
Height of Gauges [in]: 6
Load Cell: Dillon ED jr 10,000lb

### Test Date and Representative

Tested By Terracon Rep: CS & SC
Date Tested: 8/18/2022

### Pile Information

Pile ID: PLT-003B
Latitude: 35.54711
Longitude: -106.01618
Pile Type: W6X9
Pile Embedment Depth [in]: 92
Pile Diameter [in]: 5.9
Pile Stick-Up [in]: 48
Axial Design Load [lbs]: 10000
Pile Area [sq. in]: 2.68
Elastic Modulus [ksi]: 29,000
Drive Time [sec]: 239.4

| Tension Test Results | | | Davisson Offset Limit Lines | | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in) (PL/AE) | Davisson Offset Limit (in) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.001 | 0.001 | 0.200 | |
| 10% | 1000 | 0.001 | 0.001 | 0.200 | |
| 15% | 1500 | 0.001 | 0.002 | 0.201 | |
| 20% | 2000 | 0.000 | 0.002 | 0.202 | |
| 25% | 2500 | 0.000 | 0.003 | 0.202 | |
| 30% | 3000 | -0.002 | 0.004 | 0.203 | |
| 35% | 3500 | -0.002 | 0.004 | 0.203 | |
| 40% | 4000 | -0.001 | 0.005 | 0.204 | |
| 45% | 4500 | 0.000 | 0.005 | 0.204 | |
| 50% | 5000 | 0.001 | 0.006 | 0.205 | |
| 55% | 5500 | 0.002 | 0.007 | 0.206 | |
| 60% | 6000 | 0.004 | 0.007 | 0.206 | |
| 65% | 6500 | 0.005 | 0.008 | 0.207 | |
| 70% | 7000 | 0.006 | 0.008 | 0.207 | |
| 75% | 7500 | 0.008 | 0.009 | 0.208 | |
| 80% | 8000 | 0.009 | 0.009 | 0.209 | |
| 85% | 8500 | 0.011 | 0.010 | 0.209 | |
| 90% | 9000 | 0.012 | 0.011 | 0.210 | |
| 95% | 9500 | 0.013 | 0.011 | 0.210 | |
| 100% | 10000 | 0.015 | 0.012 | 0.211 | |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |

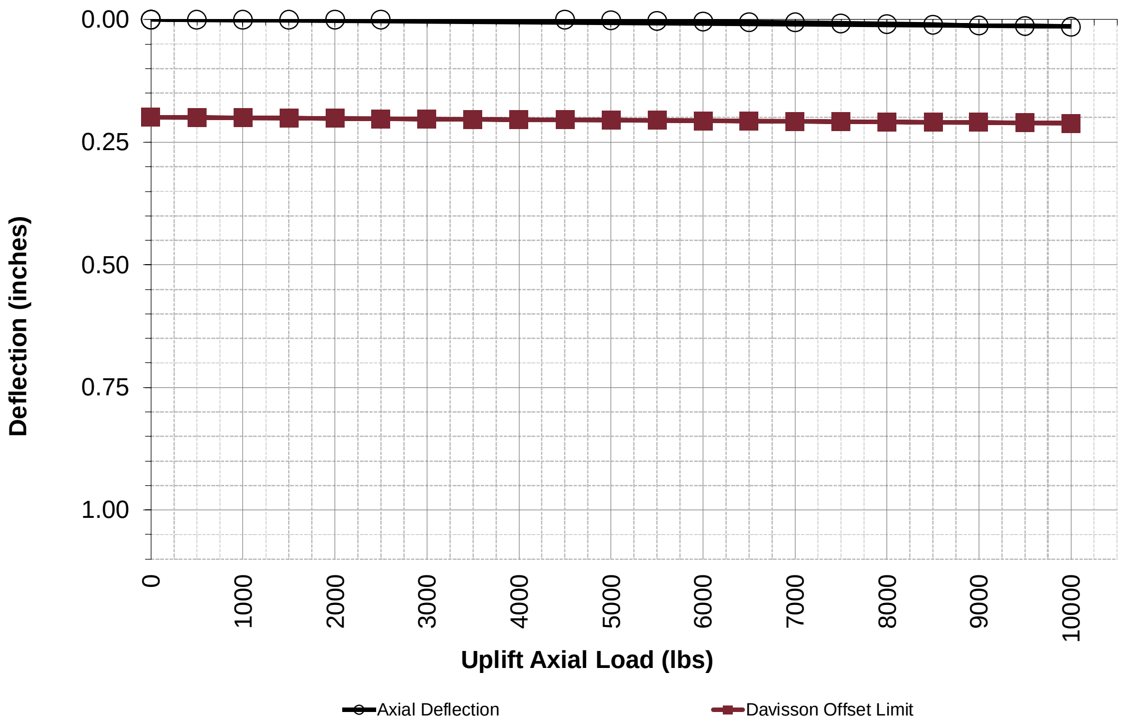


Exhibit G-26

# Tension Load Test Result for PLT-004A

**Project Information**

Project Name: Rancho Viejo Solar Facility
Project Location: Santa Fe County, NM
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in]: 6
Load Cell: Dillon ED jr 10,000lb

**Test Date and Representative**

Tested By Terracon Rep: CS & SC
Date Tested: 8/18/2022

**Pile Information**

Pile ID: PLT-004A
Latitude: 35.54296
Longitude: -106.03023
Pile Type: W6X9
Pile Embedment Depth [in]: 60
Pile Diameter [in]: 5.9
Pile Stick-Up [in]: 48
Axial Design Load [lbs]: 10000
Pile Area [sq. in]: 2.68
Elastic Modulus [ksi]: 29,000
Drive Time [sec]: 22.6

| Tension Test Results | | | Davisson Offset Limit Lines | | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in) (PL/AE) | Davisson Offset Limit (in) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.002 | 0.000 | 0.200 | |
| 10% | 1000 | 0.004 | 0.001 | 0.200 | |
| 15% | 1500 | 0.005 | 0.001 | 0.200 | |
| 20% | 2000 | 0.006 | 0.002 | 0.201 | |
| 25% | 2500 | 0.007 | 0.002 | 0.201 | |
| 30% | 3000 | 0.008 | 0.002 | 0.201 | |
| 35% | 3500 | 0.009 | 0.003 | 0.202 | |
| 40% | 4000 | 0.011 | 0.003 | 0.202 | |
| 45% | 4500 | 0.012 | 0.003 | 0.203 | |
| 50% | 5000 | 0.013 | 0.004 | 0.203 | |
| 55% | 5500 | 0.014 | 0.004 | 0.203 | |
| 60% | 6000 | 0.016 | 0.005 | 0.204 | |
| 65% | 6500 | 0.018 | 0.005 | 0.204 | |
| 70% | 7000 | 0.020 | 0.005 | 0.205 | |
| 75% | 7500 | 0.024 | 0.006 | 0.205 | |
| 80% | 8000 | 0.026 | 0.006 | 0.205 | |
| 85% | 8500 | 0.029 | 0.007 | 0.206 | |
| 90% | 9000 | 0.033 | 0.007 | 0.206 | |
| 95% | 9500 | 0.038 | 0.007 | 0.207 | |
| 100% | 10000 | 0.041 | 0.008 | 0.207 | |
| 0% | 0 | 0.017 | 0.000 | 0.199 | |

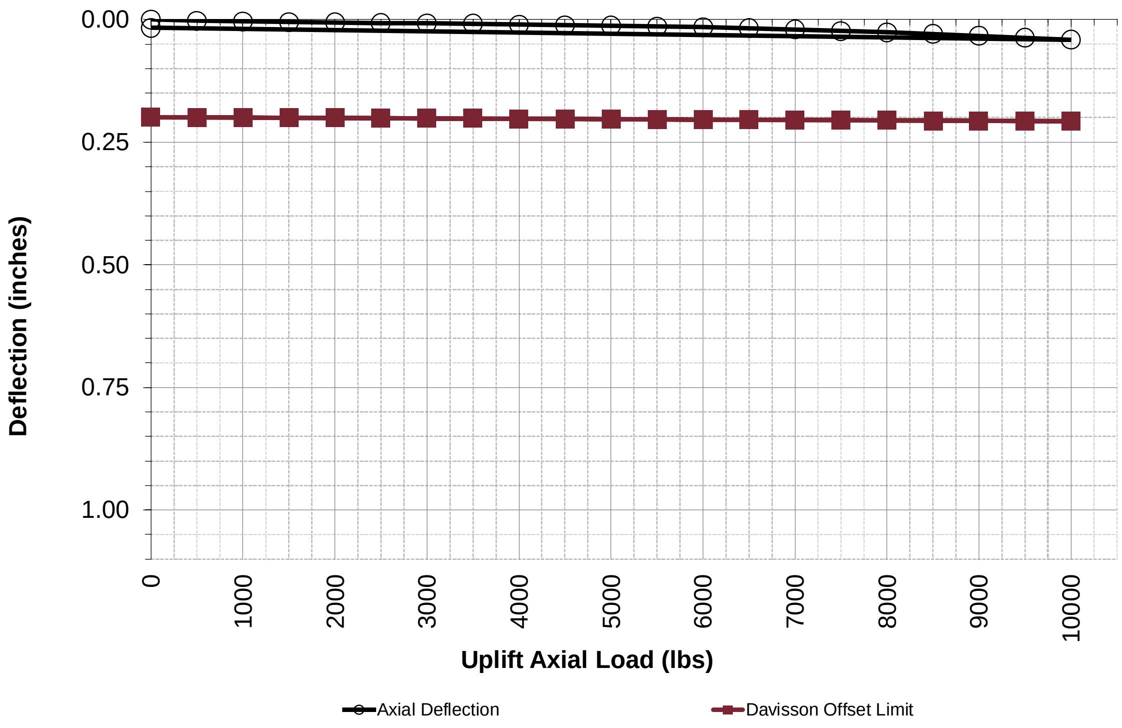


Exhibit G-27

# Tension Load Test Result for PLT-004B

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

**Axial Load Test Set Up**

| | |
|---|---|
| Number of Gauges: | 2 |
| Height of Gauges [in]: | 6 |
| Load Cell: | Dillon ED jr 10,000lb |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/18/2022 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-004B |
| Latitude: | 35.54296 |
| Longitude: | -106.03023 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 96 |
| Pile Diameter [in]: | 5.9 |
| Pile Stick-Up [in]: | 48 |
| Axial Design Load [lbs]: | 10000 |
| Pile Area [sq. in]: | 2.68 |
| Elastic Modulus [ksi]: | 29,000 |
| Drive Time [sec]: | 108.7 |

| Tension Test Results | | | Davisson Offset Limit Lines | | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in) (PL/AE) | Davisson Offset Limit (in) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.004 | 0.001 | 0.200 | |
| 10% | 1000 | 0.004 | 0.001 | 0.200 | |
| 15% | 1500 | 0.006 | 0.002 | 0.201 | |
| 20% | 2000 | 0.007 | 0.002 | 0.202 | |
| 25% | 2500 | 0.008 | 0.003 | 0.202 | |
| 30% | 3000 | 0.009 | 0.004 | 0.203 | |
| 35% | 3500 | 0.010 | 0.004 | 0.203 | |
| 40% | 4000 | 0.011 | 0.005 | 0.204 | |
| 45% | 4500 | 0.011 | 0.006 | 0.205 | |
| 50% | 5000 | 0.012 | 0.006 | 0.205 | |
| 55% | 5500 | 0.013 | 0.007 | 0.206 | |
| 60% | 6000 | 0.013 | 0.007 | 0.207 | |
| 65% | 6500 | 0.014 | 0.008 | 0.207 | |
| 70% | 7000 | 0.014 | 0.009 | 0.208 | |
| 75% | 7500 | 0.015 | 0.009 | 0.208 | |
| 80% | 8000 | 0.015 | 0.010 | 0.209 | |
| 85% | 8500 | 0.015 | 0.010 | 0.210 | |
| 90% | 9000 | 0.016 | 0.011 | 0.210 | |
| 95% | 9500 | 0.017 | 0.012 | 0.211 | |
| 100% | 10000 | 0.017 | 0.012 | 0.212 | |
| 0% | 0 | 0.003 | 0.000 | 0.199 | |

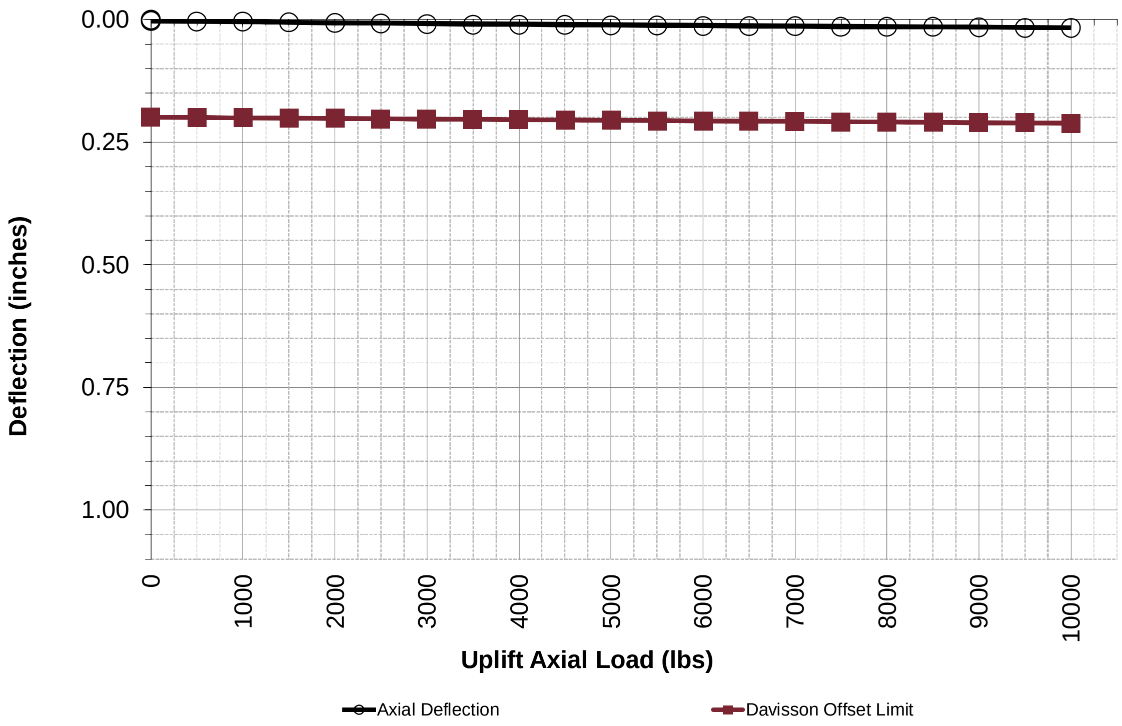


Exhibit G-28

# Tension Load Test Result for PLT-005A

**Project Information**

Project Name: Rancho Viejo Solar Facility
Project Location: Santa Fe County, NM
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in]: 6
Load Cell: Dillon ED jr 10,000lb

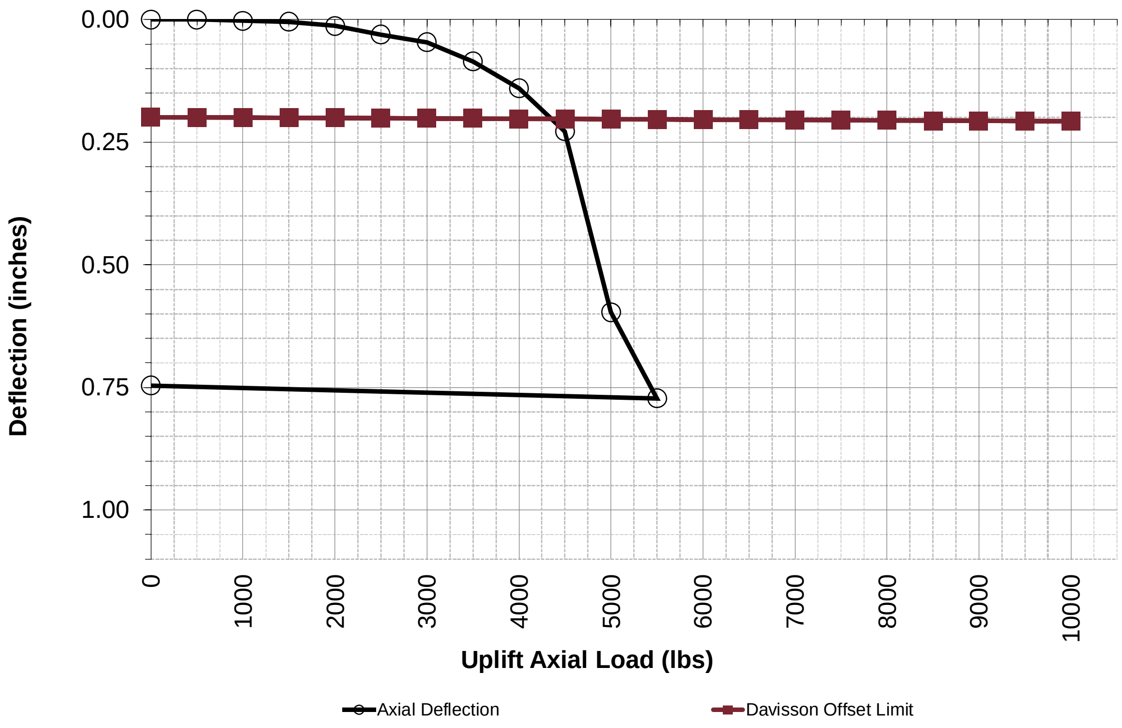
**Test Date and Representative**

Tested By Terracon Rep: CS & SC
Date Tested: 8/18/2022

**Pile Information**

Pile ID: PLT-005A
Latitude: 35.53853
Longitude: -106.01312
Pile Type: W6X9
Pile Embedment Depth [in]: 60
Pile Diameter [in]: 5.9
Pile Stick-Up [in]: 48
Axial Design Load [lbs]: 10000
Pile Area [sq. in]: 2.68
Elastic Modulus [ksi]: 29,000
Drive Time [sec]: 15

| Tension Test Results | | | Davisson Offset Limit Lines | | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in) (PL/AE) | Davisson Offset Limit (in) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.000 | 0.000 | 0.200 | |
| 10% | 1000 | 0.002 | 0.001 | 0.200 | |
| 15% | 1500 | 0.005 | 0.001 | 0.200 | |
| 20% | 2000 | 0.013 | 0.002 | 0.201 | |
| 25% | 2500 | 0.031 | 0.002 | 0.201 | |
| 30% | 3000 | 0.047 | 0.002 | 0.201 | |
| 35% | 3500 | 0.086 | 0.003 | 0.202 | |
| 40% | 4000 | 0.141 | 0.003 | 0.202 | |
| 45% | 4500 | 0.228 | 0.003 | 0.203 | |
| 50% | 5000 | 0.597 | 0.004 | 0.203 | |
| 55% | 5500 | 0.772 | 0.004 | 0.203 | |
| 60% | 6000 | | 0.005 | 0.204 | |
| 65% | 6500 | | 0.005 | 0.204 | |
| 70% | 7000 | | 0.005 | 0.205 | |
| 75% | 7500 | | 0.006 | 0.205 | |
| 80% | 8000 | | 0.006 | 0.205 | |
| 85% | 8500 | | 0.007 | 0.206 | |
| 90% | 9000 | | 0.007 | 0.206 | |
| 95% | 9500 | | 0.007 | 0.207 | |
| 100% | 10000 | | 0.008 | 0.207 | |
| 0% | 0 | 0.746 | 0.000 | 0.199 | |



# Tension Load Test Result for PLT-005B

**Project Information**

Project Name: Rancho Viejo Solar Facility
Project Location: Santa Fe County, NM
Project Number: 66225093

**Axial Load Test Set Up**

Number of Gauges: 2
Height of Gauges [in]: 6
Load Cell: Dillon ED jr 10,000lb

**Test Date and Representative**

Tested By Terracon Rep: CS & SC
Date Tested: 8/18/2022

**Pile Information**

Pile ID: PLT-005B
Latitude: 35.53853
Longitude: -106.01312
Pile Type: W6X9
Pile Embedment Depth [in]: 96
Pile Diameter [in]: 5.9
Pile Stick-Up [in]: 48
Axial Design Load [lbs]: 10000
Pile Area [sq. in]: 2.68
Elastic Modulus [ksi]: 29,000
Drive Time [sec]: 27.3

| Tension Test Results | | | Davisson Offset Limit Lines | | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in) (PL/AE) | Davisson Offset Limit (in) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.001 | 0.001 | 0.200 | |
| 10% | 1000 | 0.001 | 0.001 | 0.200 | |
| 15% | 1500 | 0.007 | 0.002 | 0.201 | |
| 20% | 2000 | 0.017 | 0.002 | 0.202 | |
| 25% | 2500 | 0.017 | 0.003 | 0.202 | |
| 30% | 3000 | 0.026 | 0.004 | 0.203 | |
| 35% | 3500 | 0.051 | 0.004 | 0.203 | |
| 40% | 4000 | 0.090 | 0.005 | 0.204 | |
| 45% | 4500 | 0.144 | 0.006 | 0.205 | |
| 50% | 5000 | 0.207 | 0.006 | 0.205 | |
| 55% | 5500 | 0.269 | 0.007 | 0.206 | |
| 60% | 6000 | 0.329 | 0.007 | 0.207 | |
| 65% | 6500 | 0.400 | 0.008 | 0.207 | |
| 70% | 7000 | 0.508 | 0.009 | 0.208 | |
| 75% | 7500 | 0.654 | 0.009 | 0.208 | |
| 80% | 8000 | 0.758 | 0.010 | 0.209 | |
| 85% | 8500 | | 0.010 | 0.210 | |
| 90% | 9000 | | 0.011 | 0.210 | |
| 95% | 9500 | | 0.012 | 0.211 | |
| 100% | 10000 | | 0.012 | 0.212 | |
| 0% | 0 | 0.750 | 0.000 | 0.199 | |

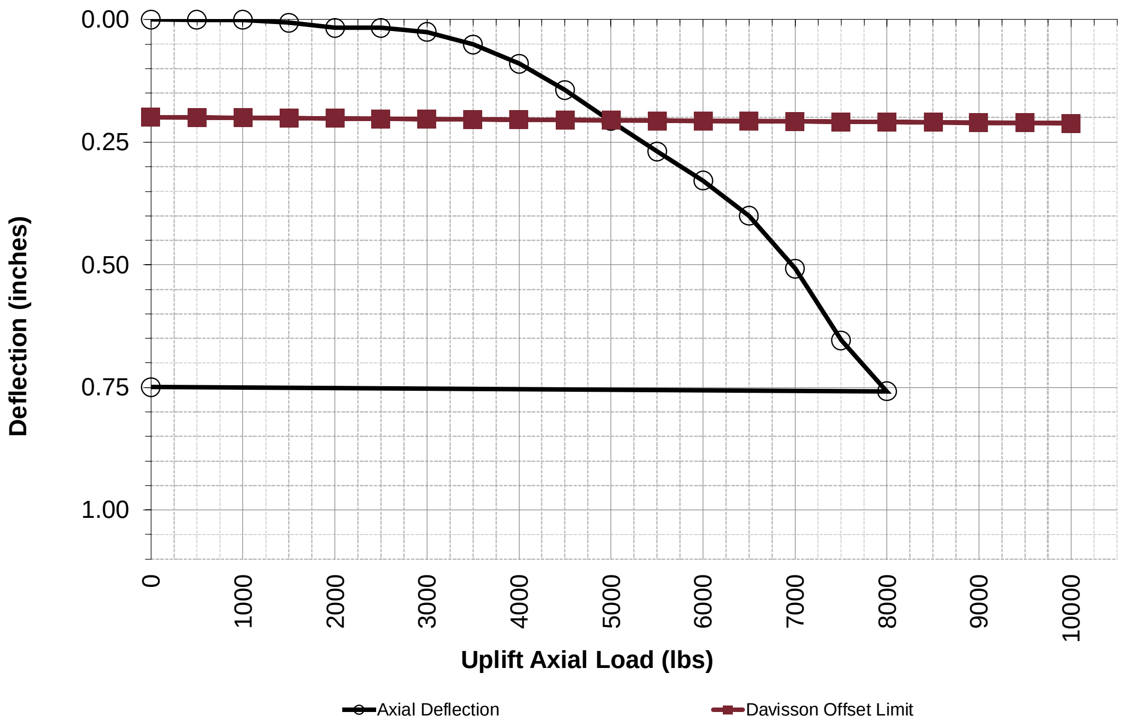


Exhibit G-30

# Tension Load Test Result for PLT-006A

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

**Axial Load Test Set Up**

| | |
|---|---|
| Number of Gauges: | 2 |
| Height of Gauges [in]: | 6 |
| Load Cell: | Dillon ED jr 10,000lb |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/22/2022 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-006A |
| Latitude: | 35.54313 |
| Longitude: | -106.00830 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 60 |
| Pile Diameter [in]: | 5.9 |
| Pile Stick-Up [in]: | 48 |
| Axial Design Load [lbs]: | 10000 |
| Pile Area [sq. in]: | 2.68 |
| Elastic Modulus [ksi]: | 29,000 |
| Drive Time [sec]: | 29.8 |

| Tension Test Results | | | Davisson Offset Limit Lines | | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in) (PL/AE) | Davisson Offset Limit (in) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.000 | 0.000 | 0.200 | |
| 10% | 1000 | 0.001 | 0.001 | 0.200 | |
| 15% | 1500 | 0.004 | 0.001 | 0.200 | |
| 20% | 2000 | 0.008 | 0.002 | 0.201 | |
| 25% | 2500 | 0.016 | 0.002 | 0.201 | |
| 30% | 3000 | 0.018 | 0.002 | 0.201 | |
| 35% | 3500 | 0.025 | 0.003 | 0.202 | |
| 40% | 4000 | 0.034 | 0.003 | 0.202 | |
| 45% | 4500 | 0.044 | 0.003 | 0.203 | |
| 50% | 5000 | 0.052 | 0.004 | 0.203 | |
| 55% | 5500 | 0.063 | 0.004 | 0.203 | |
| 60% | 6000 | 0.075 | 0.005 | 0.204 | |
| 65% | 6500 | 0.085 | 0.005 | 0.204 | |
| 70% | 7000 | 0.095 | 0.005 | 0.205 | |
| 75% | 7500 | 0.106 | 0.006 | 0.205 | |
| 80% | 8000 | 0.120 | 0.006 | 0.205 | |
| 85% | 8500 | 0.134 | 0.007 | 0.206 | |
| 90% | 9000 | 0.154 | 0.007 | 0.206 | |
| 95% | 9500 | 0.173 | 0.007 | 0.207 | |
| 100% | 10000 | 0.189 | 0.008 | 0.207 | |
| 0% | 0 | 0.124 | 0.000 | 0.199 | |

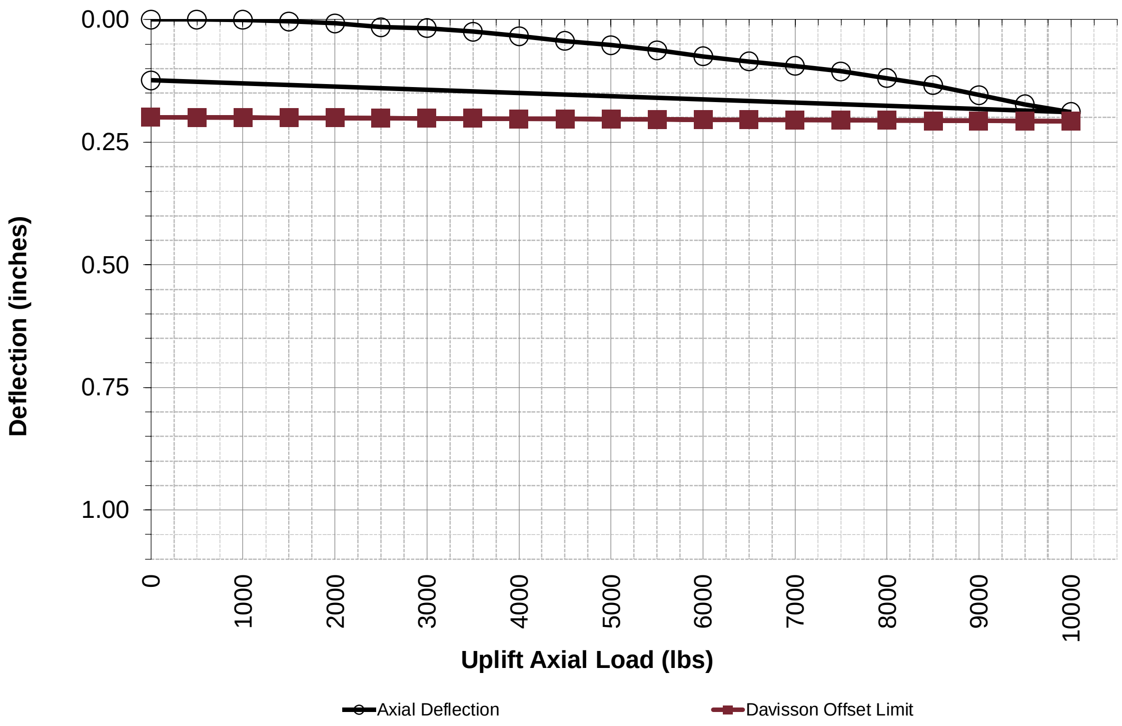


Exhibit G-31

# Tension Load Test Result for PLT-006B

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

**Axial Load Test Set Up**

| | |
|---|---|
| Number of Gauges: | 2 |
| Height of Gauges [in]: | 6 |
| Load Cell: | Dillon ED jr 10,000lb |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/22/2022 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-006B |
| Latitude: | 35.54313 |
| Longitude: | -106.00830 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 96 |
| Pile Diameter [in]: | 5.9 |
| Pile Stick-Up [in]: | 48 |
| Axial Design Load [lbs]: | 10000 |
| Pile Area [sq. in]: | 2.68 |
| Elastic Modulus [ksi]: | 29,000 |
| Drive Time [sec]: | 75.7 |

| Tension Test Results | | | Davisson Offset Limit Lines | | |
|---|---|---|---|---|---|
| % of Design Load | Axial Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Elastic Data (in) (PL/AE) | Davisson Offest Limit (in) (0.15+D/120+(PL/AE)) | Comments |
| 0% | 0 | 0.000 | 0.000 | 0.199 | |
| 5% | 500 | 0.002 | 0.001 | 0.200 | |
| 10% | 1000 | 0.002 | 0.001 | 0.200 | |
| 15% | 1500 | 0.003 | 0.002 | 0.201 | |
| 20% | 2000 | 0.004 | 0.002 | 0.202 | |
| 25% | 2500 | 0.005 | 0.003 | 0.202 | |
| 30% | 3000 | 0.006 | 0.004 | 0.203 | |
| 35% | 3500 | 0.006 | 0.004 | 0.203 | |
| 40% | 4000 | 0.008 | 0.005 | 0.204 | |
| 45% | 4500 | 0.008 | 0.006 | 0.205 | |
| 50% | 5000 | 0.010 | 0.006 | 0.205 | |
| 55% | 5500 | 0.011 | 0.007 | 0.206 | |
| 60% | 6000 | 0.012 | 0.007 | 0.207 | |
| 65% | 6500 | 0.015 | 0.008 | 0.207 | |
| 70% | 7000 | 0.017 | 0.009 | 0.208 | |
| 75% | 7500 | 0.019 | 0.009 | 0.208 | |
| 80% | 8000 | 0.021 | 0.010 | 0.209 | |
| 85% | 8500 | 0.024 | 0.010 | 0.210 | |
| 90% | 9000 | 0.026 | 0.011 | 0.210 | |
| 95% | 9500 | 0.030 | 0.012 | 0.211 | |
| 100% | 10000 | 0.032 | 0.012 | 0.212 | |
| 0% | 0 | 0.006 | 0.000 | 0.199 | |

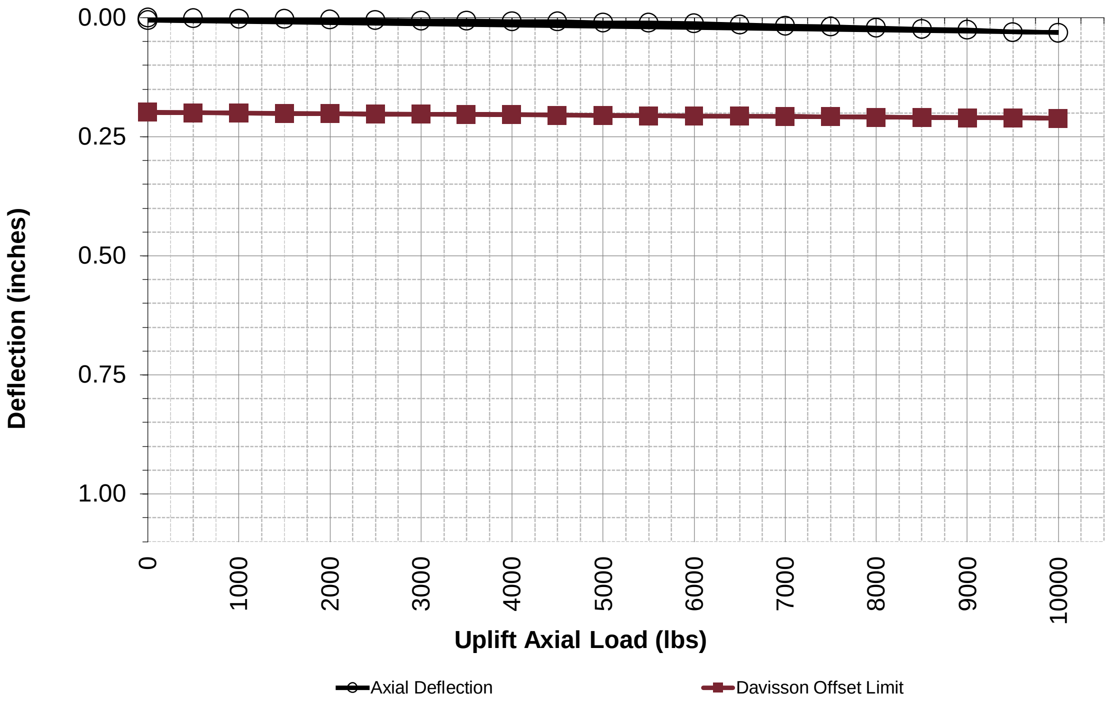
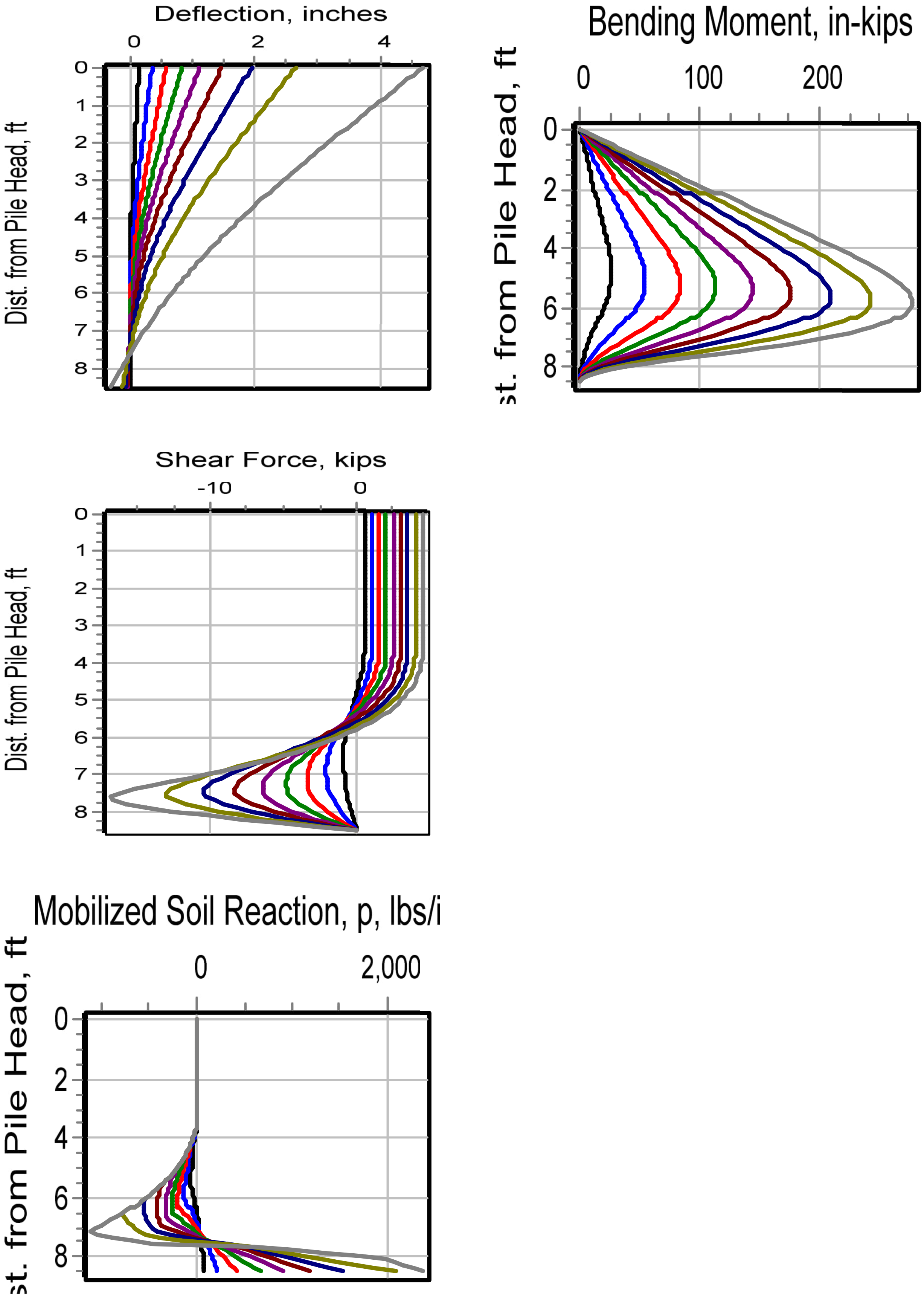


Exhibit G-32

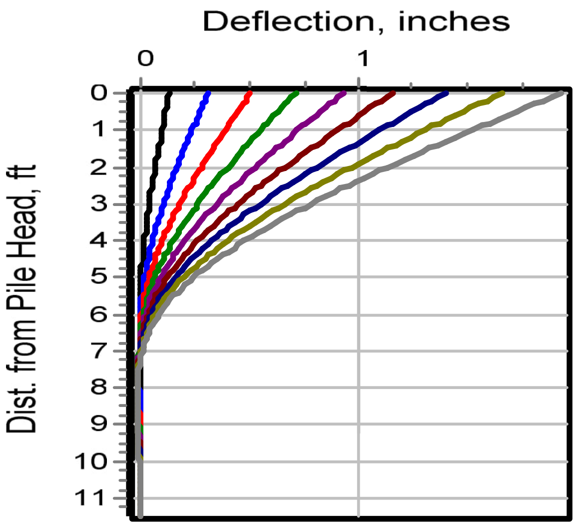
# APPENDIX H

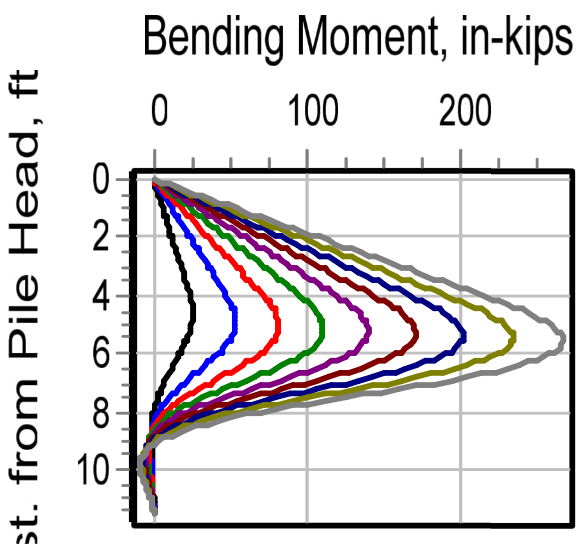
# PILE LOAD TESTING RESULTS – LATERAL LOAD

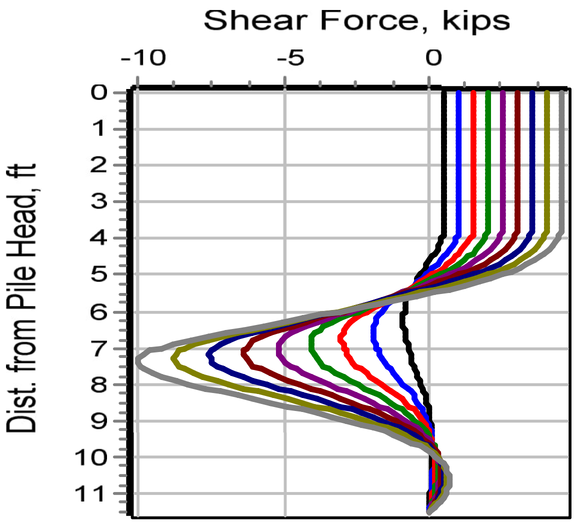
L-Pile Calibration Curve, Zone A, 5' Embedment

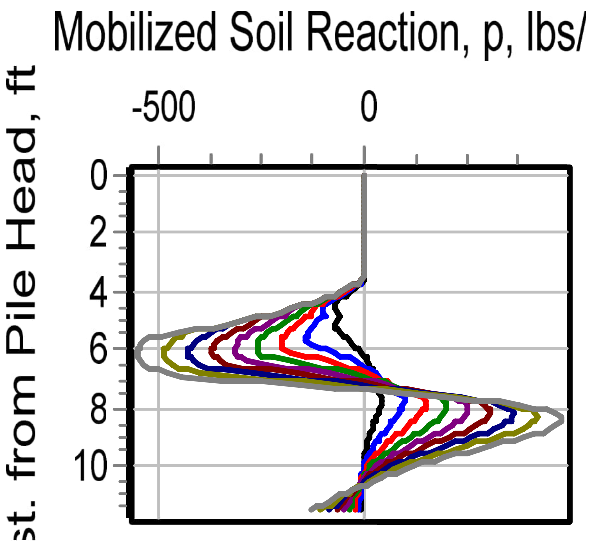


## L-Pile Calibration Curve, Zone A, 8' Embedment

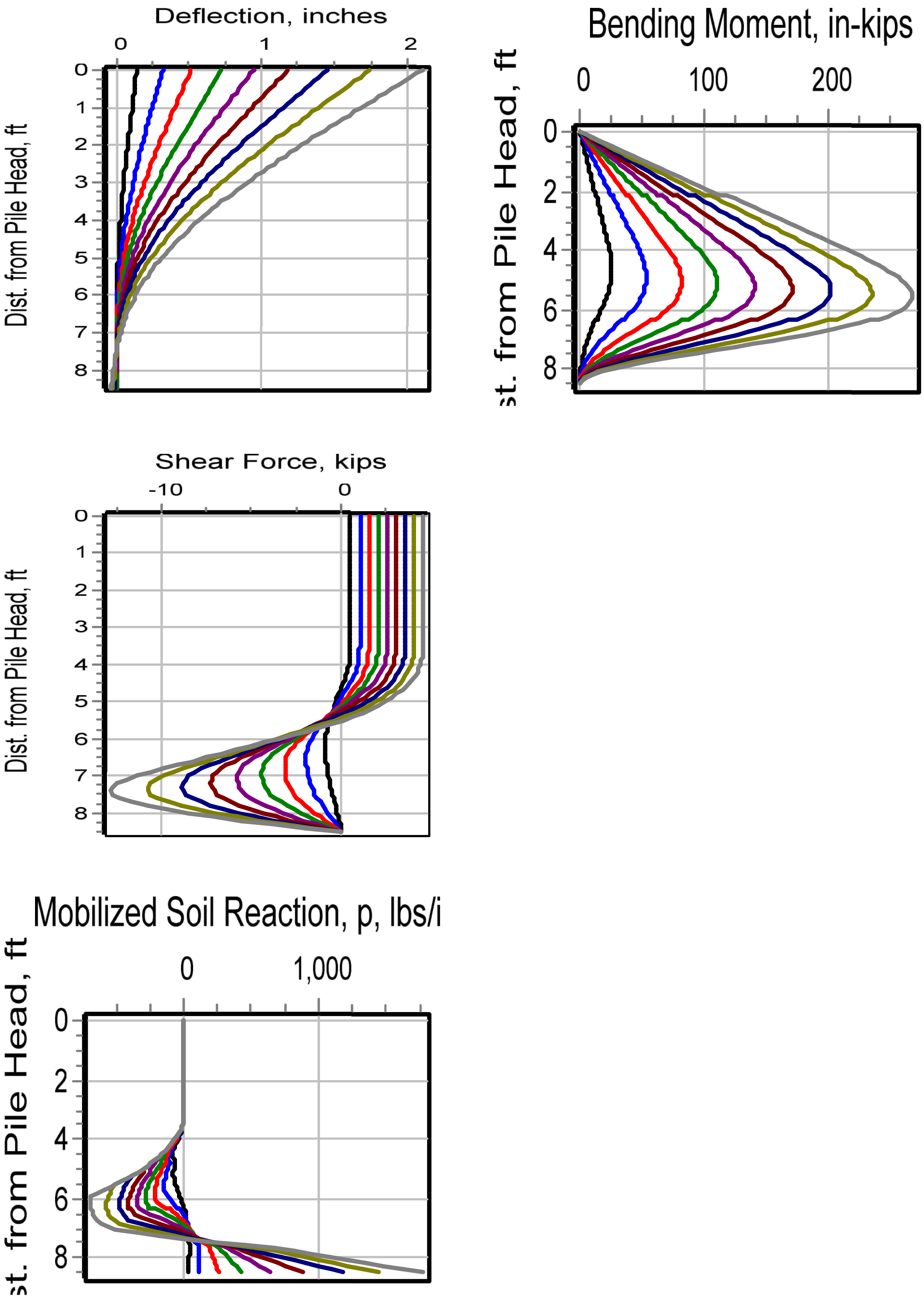




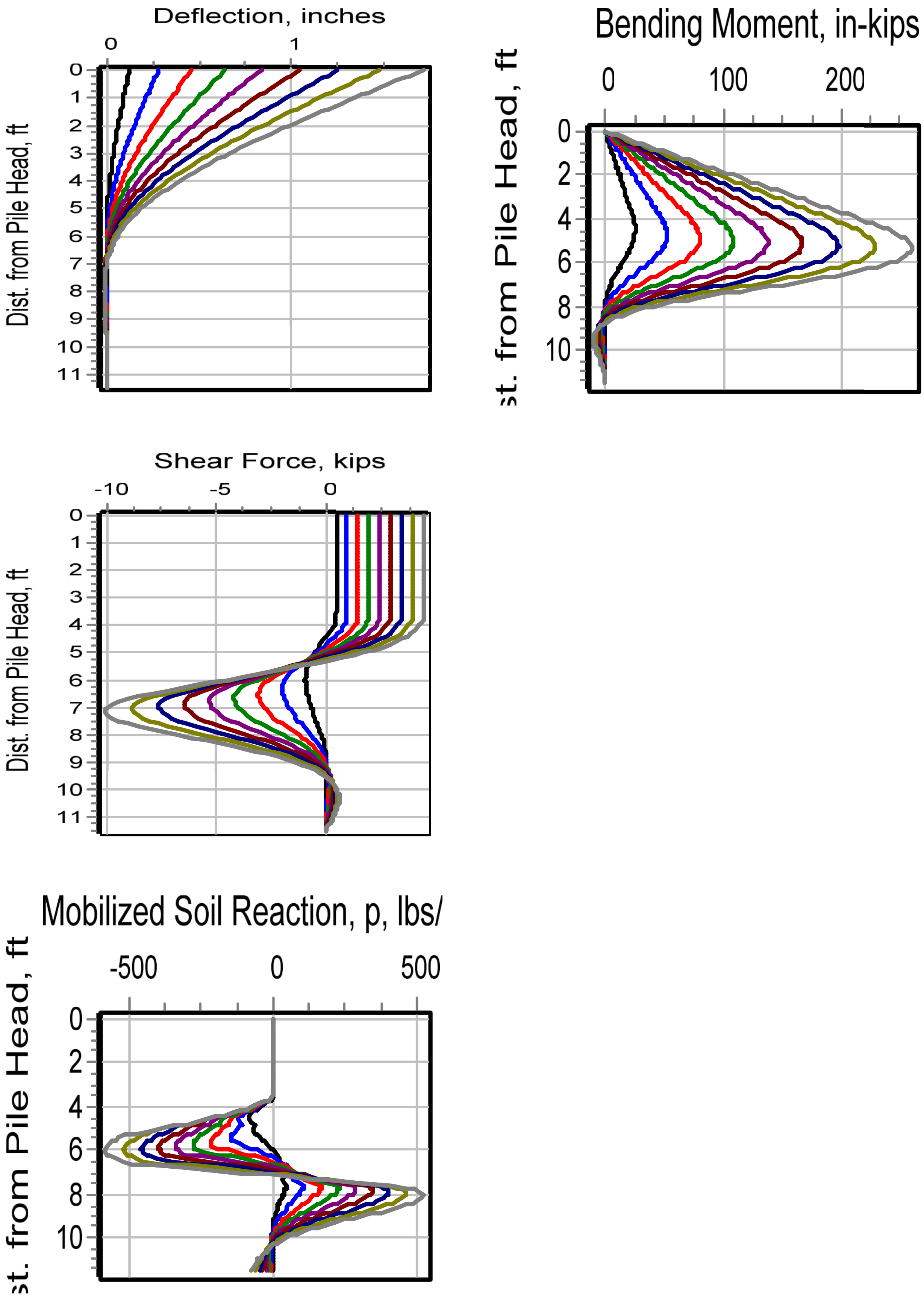




L-Pile Calibration Curve, Zone B, 5' Embedment



L-Pile Calibration Curve, Zone B, 8' Embedment



# Lateral Load Test Results for PLT-101A

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | N/A |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in.]: | NA |
| Height of Bottom Gauges [in.]: | 6 |
| Height of Applied Load [in.]: | 42 |
| Load Cell: | Dillion |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | SL/MGB/ED |
| Date Tested: | 9/23/2023 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-101A |
| Latitude [deg.]: | 35.54106 |
| Longitude [deg.]: | -106.01558 |
| Pile Type: | W6x9 |
| Pile Embedment Depth [in.]: | 60 |
| Pile Stick-Up [in.]: | 48 |
| Lateral Design Load [lbs.]: | 7,000 |
| Drive Time [sec.]: | 90.3 |

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.058 | |
| 14% | 1,000 | 0.107 | |
| 21% | 1,500 | 0.155 | |
| 0% | 0 | 0.014 | |
| 21% | 1,500 | 0.187 | |
| 29% | 2,000 | 0.216 | |
| 36% | 2,500 | 0.263 | |
| 0% | 0 | 0.035 | |
| 36% | 2,500 | 0.273 | |
| 43% | 3,000 | 0.320 | |
| 50% | 3,500 | 0.373 | |
| 57% | 4,000 | 0.429 | |
| 0% | 0 | 0.052 | |
| 57% | 4,000 | 0.445 | |
| 64% | 4,500 | 0.490 | |
| 71% | 5,000 | 0.547 | |
| 79% | 5,500 | 0.603 | |
| 0% | 0 | 0.074 | |
| 79% | 5,500 | 0.629 | |
| 86% | 6,000 | 0.676 | |
| 93% | 6,500 | 0.773 | |
| 100% | 7,000 | | |
| 0% | 0 | 0.000 | |

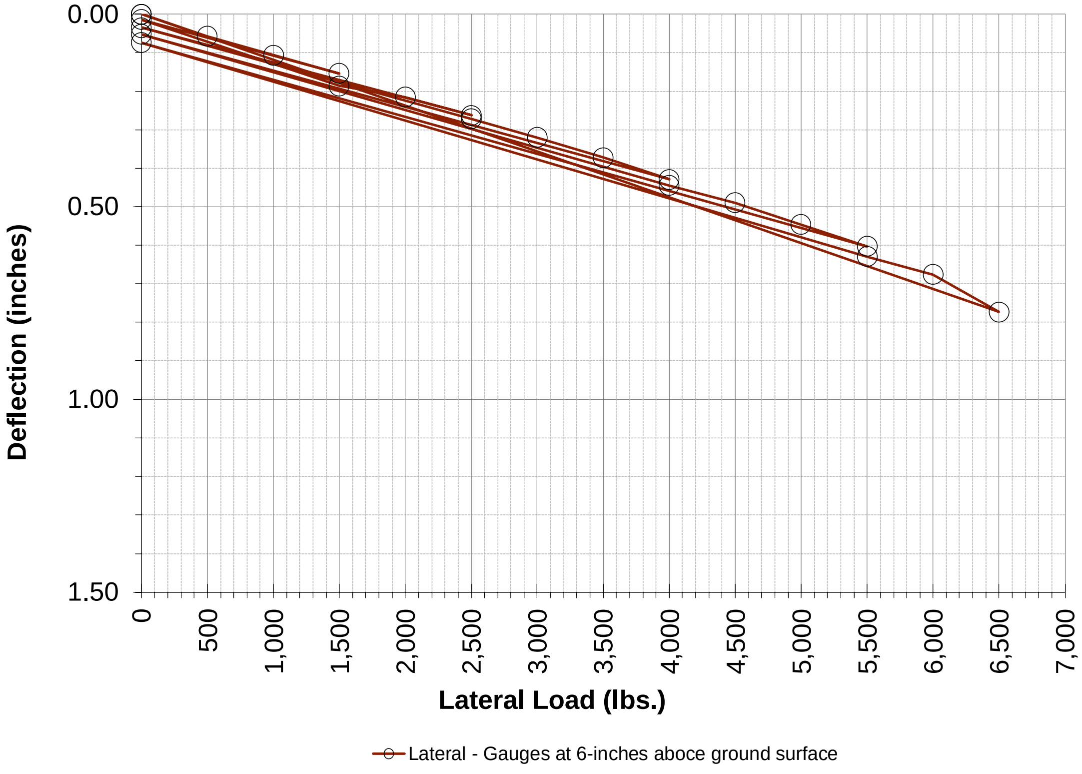


Exhibit H-1

# Lateral Load Test Results for PLT-101B

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Lateral Load Test Set Up**

Number of Top Gauges: N/A
Number of Bottom Gauges: 2
Height of Top Gauges [in.]: NA
Height of Bottom Gauges [in.]: 6
Height of Applied Load [in.]: 42
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: SL/MGB/ED
Date Tested: 9/23/2023

**Pile Information**

Pile ID: PLT-101B
Latitude [deg.]: 35.54106
Longitude [deg.]: -106.01558
Pile Type: W6x9
Pile Embedment Depth [in.]: 96
Pile Stick-Up [in.]: 48
Lateral Design Load [lbs.]: 7,000
Drive Time [sec.]: 26.1

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.056 | |
| 14% | 1,000 | 0.109 | |
| 21% | 1,500 | 0.161 | |
| 0% | 0 | 0.017 | |
| 21% | 1,500 | 0.196 | |
| 29% | 2,000 | 0.224 | |
| 36% | 2,500 | 0.274 | |
| 0% | 0 | 0.036 | |
| 36% | 2,500 | 0.284 | |
| 43% | 3,000 | 0.339 | |
| 50% | 3,500 | 0.394 | |
| 57% | 4,000 | 0.452 | |
| 0% | 0 | 0.054 | |
| 57% | 4,000 | 0.470 | |
| 64% | 4,500 | 0.517 | |
| 71% | 5,000 | 0.578 | |
| 79% | 5,500 | 0.649 | |
| 0% | 0 | 0.072 | |
| 79% | 5,500 | 0.664 | |
| 86% | 6,000 | 0.728 | |
| 93% | 6,500 | 0.929 | |
| 100% | 7,000 | 1.007 | |
| 0% | 0 | 0.318 | |

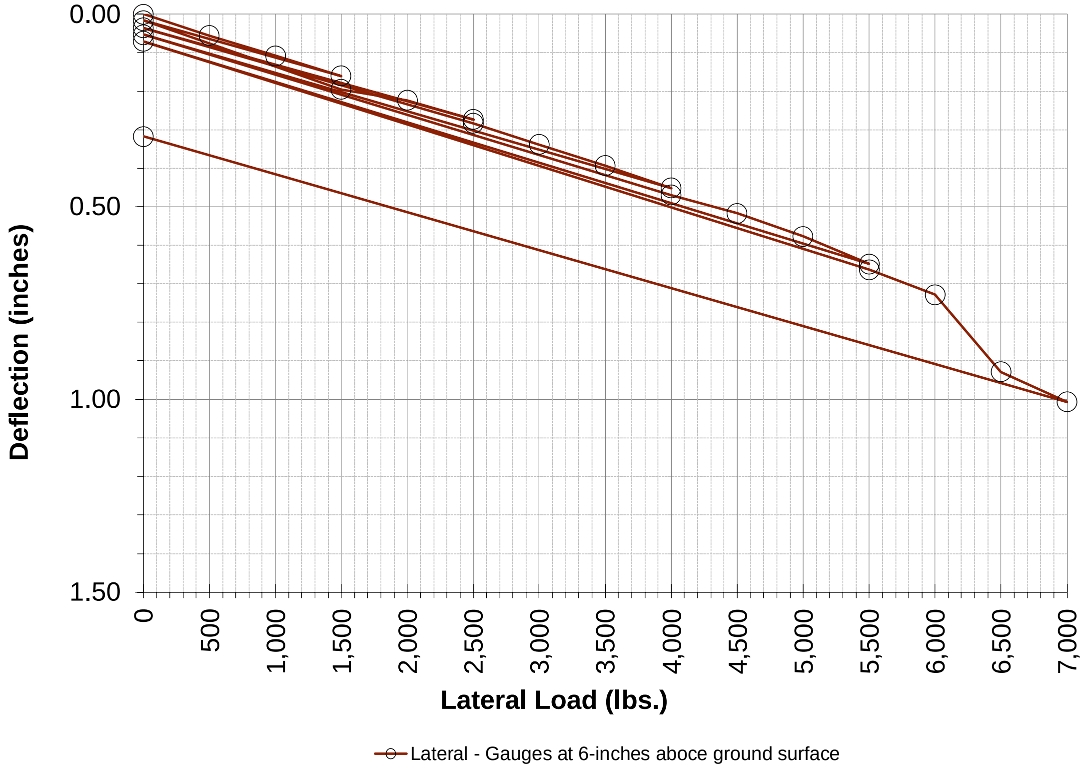


Exhibit H-2

# Lateral Load Test Results for PLT-102A

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Lateral Load Test Set Up**

Number of Top Gauges: N/A
Number of Bottom Gauges: 2
Height of Top Gauges [in.]: NA
Height of Bottom Gauges [in.]: 6
Height of Applied Load [in.]: 42
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: ED/TS
Date Tested: 3/7/2024

**Pile Information**

Pile ID: PLT-102A
Latitude [deg.]: 35.53980
Longitude [deg.]: -106.00941
Pile Type: W6x9
Pile Embedment Depth [in.]: 60
Pile Stick-Up [in.]: 48
Lateral Design Load [lbs.]: 7,000
Drive Time [sec.]: 0

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.046 | |
| 14% | 1,000 | 0.085 | |
| 21% | 1,500 | 0.131 | |
| 0% | 0 | 0.019 | |
| 21% | 1,500 | 0.158 | |
| 29% | 2,000 | 0.178 | |
| 36% | 2,500 | 0.229 | |
| 0% | 0 | 0.035 | |
| 36% | 2,500 | 0.234 | |
| 43% | 3,000 | 0.283 | |
| 50% | 3,500 | 0.339 | |
| 57% | 4,000 | 0.395 | |
| 0% | 0 | 0.058 | |
| 57% | 4,000 | 0.411 | |
| 64% | 4,500 | 0.454 | |
| 71% | 5,000 | 0.512 | |
| 79% | 5,500 | 0.575 | |
| 0% | 0 | 0.087 | |
| 79% | 5,500 | 0.598 | |
| 86% | 6,000 | 0.659 | |
| 93% | 6,500 | 0.734 | |
| 100% | 7,000 | 0.982 | |
| 0% | 0 | 0.362 | |

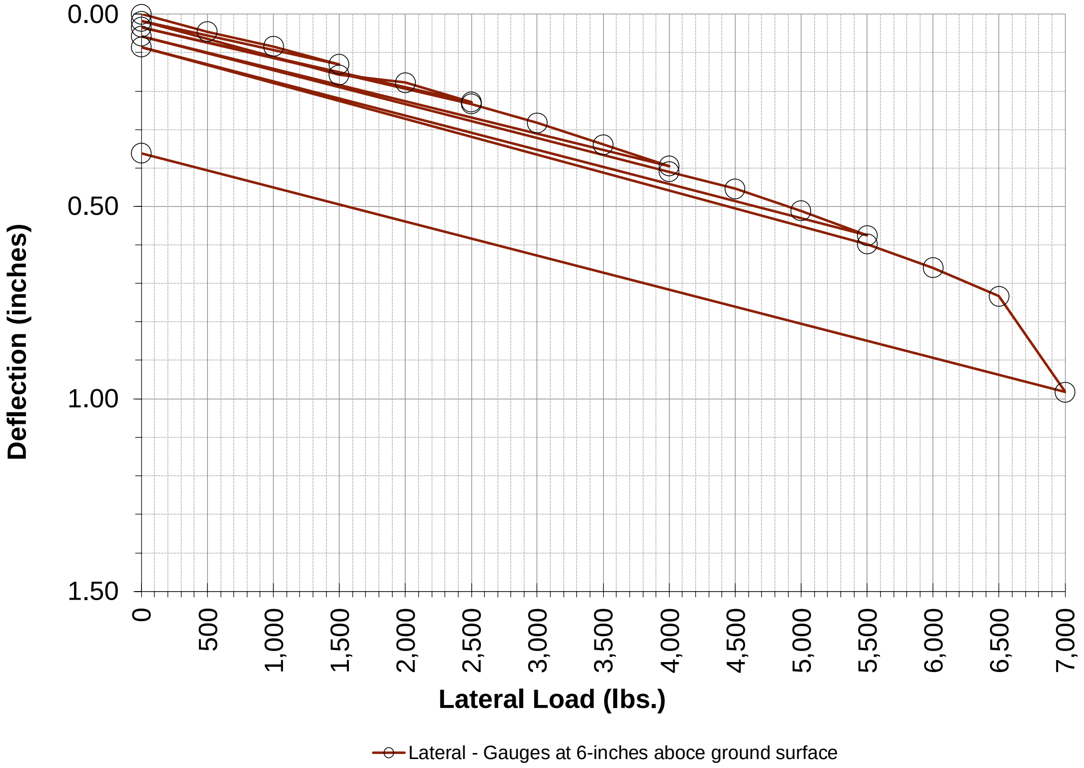


Exhibit H-3

# Lateral Load Test Results for PLT-102B

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | N/A |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in.]: | NA |
| Height of Bottom Gauges [in.]: | 6 |
| Height of Applied Load [in.]: | 42 |
| Load Cell: | Dillion |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | ED/TS |
| Date Tested: | 3/7/2024 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-102B |
| Latitude [deg.]: | 35.53980 |
| Longitude [deg.]: | -106.00941 |
| Pile Type: | W6x9 |
| Pile Embedment Depth [in.]: | 96 |
| Pile Stick-Up [in.]: | 48 |
| Lateral Design Load [lbs.]: | 7,000 |
| Drive Time [sec.]: | 0 |

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.051 | |
| 14% | 1,000 | 0.095 | |
| 21% | 1,500 | 0.146 | |
| 0% | 0 | 0.020 | |
| 21% | 1,500 | 0.149 | |
| 29% | 2,000 | 0.200 | |
| 36% | 2,500 | 0.257 | |
| 0% | 0 | 0.032 | |
| 36% | 2,500 | 0.264 | |
| 43% | 3,000 | 0.318 | |
| 50% | 3,500 | 0.379 | |
| 57% | 4,000 | 0.440 | |
| 0% | 0 | 0.045 | |
| 57% | 4,000 | 0.458 | |
| 64% | 4,500 | 0.505 | |
| 71% | 5,000 | 0.567 | |
| 79% | 5,500 | 0.635 | |
| 0% | 0 | 0.056 | |
| 79% | 5,500 | 0.657 | |
| 86% | 6,000 | 0.722 | |
| 93% | 6,500 | 0.816 | |
| 100% | 7,000 | 1.024 | |
| 0% | 0 | 0.296 | |

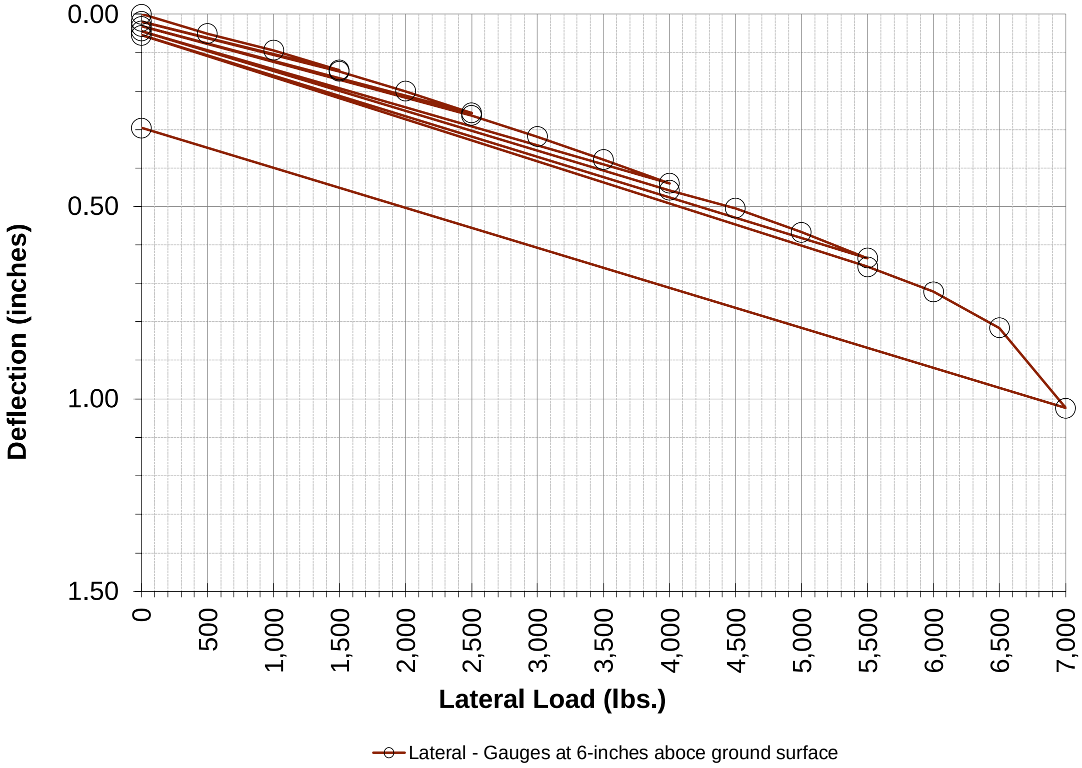


Exhibit H-4

# Lateral Load Test Results for PLT-103A

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | N/A |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in.]: | NA |
| Height of Bottom Gauges [in.]: | 6 |
| Height of Applied Load [in.]: | 42 |
| Load Cell: | Dillion |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | SL/SS |
| Date Tested: | 9/27/2023 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-103A |
| Latitude [deg.]: | 35.54149 |
| Longitude [deg.]: | -106.00401 |
| Pile Type: | W6x9 |
| Pile Embedment Depth [in.]: | 60 |
| Pile Stick-Up [in.]: | 48 |
| Lateral Design Load [lbs.]: | 7,000 |
| Drive Time [sec.]: | 5.8 |

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.103 | |
| 14% | 1,000 | 0.141 | |
| 21% | 1,500 | 0.187 | |
| 0% | 0 | 0.060 | |
| 21% | 1,500 | 0.218 | |
| 29% | 2,000 | 0.268 | |
| 36% | 2,500 | 0.329 | |
| 0% | 0 | 0.111 | |
| 36% | 2,500 | 0.344 | |
| 43% | 3,000 | 0.434 | |
| 50% | 3,500 | 0.523 | |
| 57% | 4,000 | 0.628 | |
| 0% | 0 | 0.267 | |
| 57% | 4,000 | 0.697 | |
| 64% | 4,500 | 0.798 | |
| 71% | 5,000 | 0.938 | |
| 79% | 5,500 | 1.072 | |
| 0% | 0 | | |
| 79% | 5,500 | | |
| 86% | 6,000 | | |
| 93% | 6,500 | | |
| 100% | 7,000 | | |
| 0% | 0 | 0.586 | |

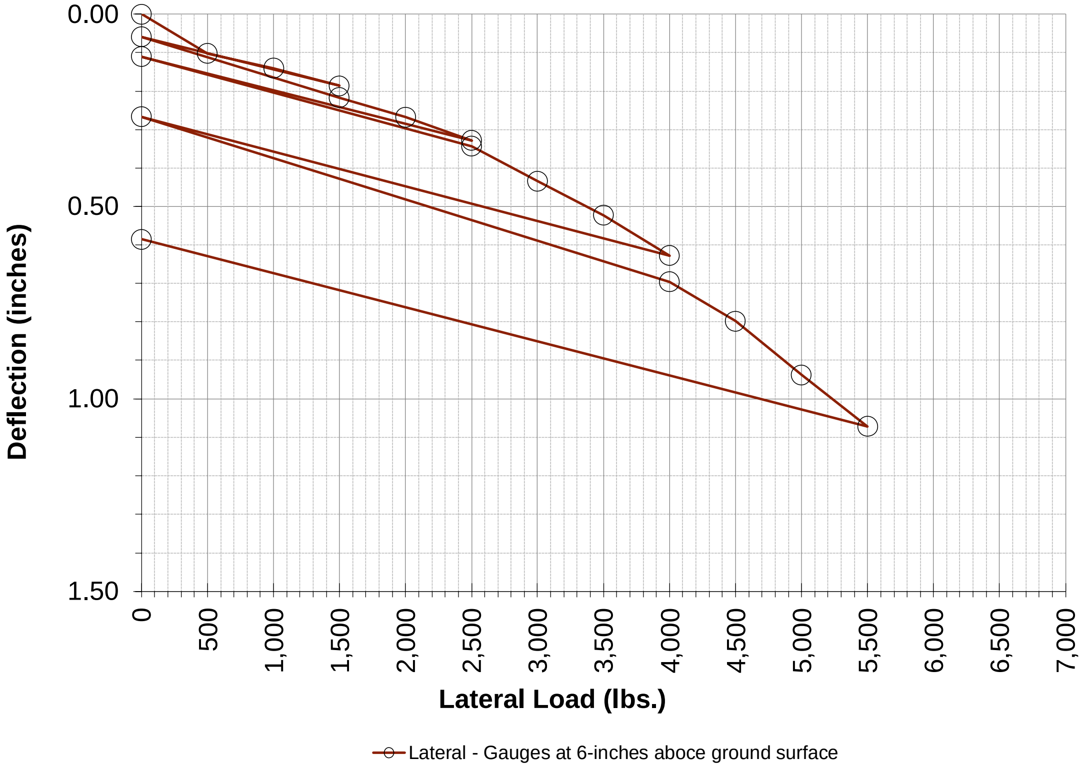


Exhibit H-5

# Lateral Load Test Results for PLT-103B

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | N/A |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in.]: | NA |
| Height of Bottom Gauges [in.]: | 6 |
| Height of Applied Load [in.]: | 42 |
| Load Cell: | Dillion |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | SL/SS |
| Date Tested: | 9/27/2023 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-103B |
| Latitude [deg.]: | 35.54149 |
| Longitude [deg.]: | -106.00400 |
| Pile Type: | W6x9 |
| Pile Embedment Depth [in.]: | 96 |
| Pile Stick-Up [in.]: | 48 |
| Lateral Design Load [lbs.]: | 7,000 |
| Drive Time [sec.]: | 11.3 |

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.082 | |
| 14% | 1,000 | 0.114 | |
| 21% | 1,500 | 0.151 | |
| 0% | 0 | 0.023 | |
| 21% | 1,500 | 0.173 | |
| 29% | 2,000 | 0.211 | |
| 36% | 2,500 | 0.253 | |
| 0% | 0 | 0.041 | |
| 36% | 2,500 | 0.259 | |
| 43% | 3,000 | 0.317 | |
| 50% | 3,500 | 0.367 | |
| 57% | 4,000 | 0.420 | |
| 0% | 0 | 0.073 | |
| 57% | 4,000 | 0.446 | |
| 64% | 4,500 | 0.494 | |
| 71% | 5,000 | 0.542 | |
| 79% | 5,500 | 0.624 | |
| 0% | 0 | 0.108 | |
| 79% | 5,500 | 0.647 | |
| 86% | 6,000 | 0.697 | |
| 93% | 6,500 | 0.798 | |
| 100% | 7,000 | | |
| 0% | 0 | 0.278 | |

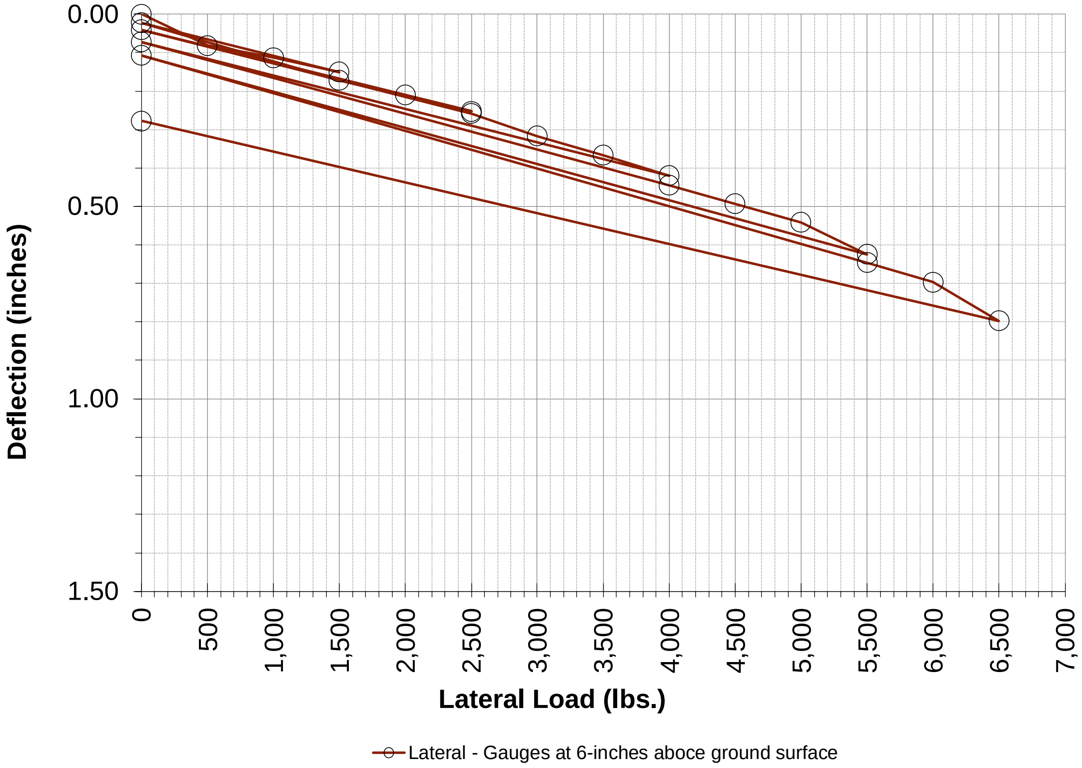


Exhibit H-6

# Lateral Load Test Results for PLT-104A

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Lateral Load Test Set Up**

Number of Top Gauges: N/A
Number of Bottom Gauges: 2
Height of Top Gauges [in.]: NA
Height of Bottom Gauges [in.]: 6
Height of Applied Load [in.]: 42
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: SL/SS
Date Tested: 9/27/2023

**Pile Information**

Pile ID: PLT-104A
Latitude [deg.]: 35.54444
Longitude [deg.]: -106.00580
Pile Type: W6x9
Pile Embedment Depth [in.]: 60
Pile Stick-Up [in.]: 48
Lateral Design Load [lbs.]: 7,000
Drive Time [sec.]: 5.3

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.084 | |
| 14% | 1,000 | 0.160 | |
| 21% | 1,500 | 0.224 | |
| 0% | 0 | 0.030 | |
| 21% | 1,500 | 0.239 | |
| 29% | 2,000 | 0.271 | |
| 36% | 2,500 | 0.350 | |
| 0% | 0 | 0.049 | |
| 36% | 2,500 | 0.373 | |
| 43% | 3,000 | 0.446 | |
| 50% | 3,500 | 0.523 | |
| 57% | 4,000 | 0.580 | |
| 0% | 0 | 0.092 | |
| 57% | 4,000 | 0.612 | |
| 64% | 4,500 | 0.673 | |
| 71% | 5,000 | 0.756 | |
| 79% | 5,500 | 0.838 | |
| 0% | 0 | 0.168 | |
| 79% | 5,500 | 0.891 | |
| 86% | 6,000 | 0.984 | |
| 93% | 6,500 | 1.025 | |
| 100% | 7,000 | | |
| 0% | 0 | 0.275 | |

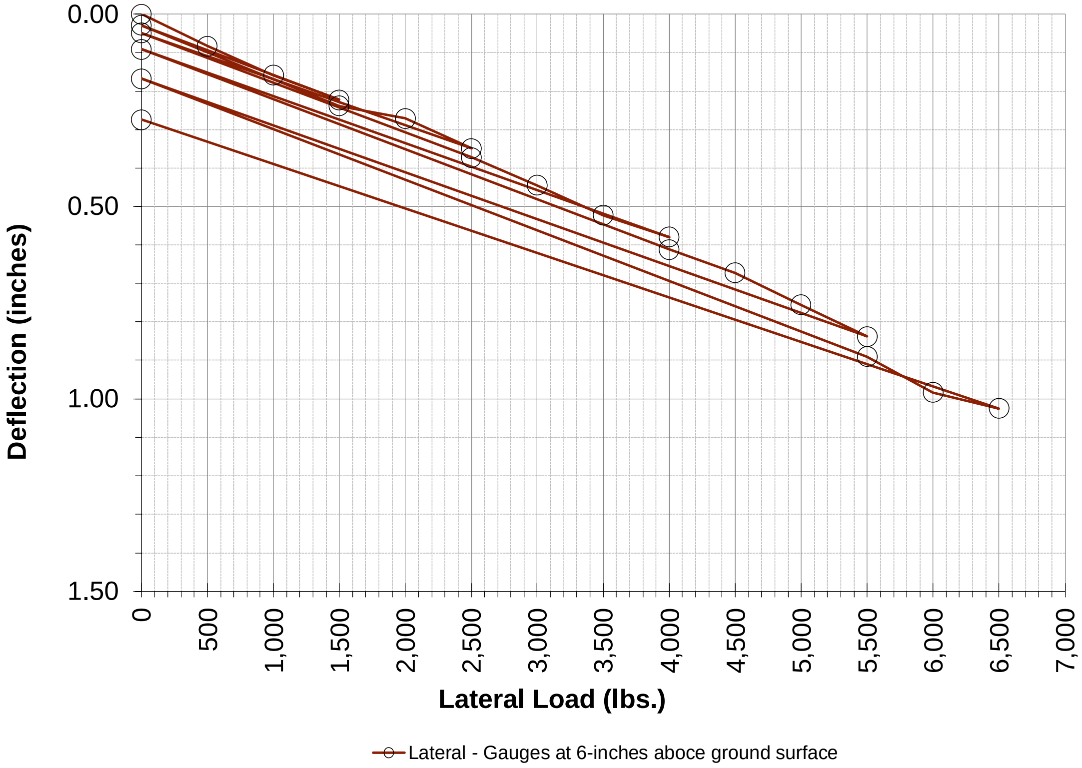


Exhibit H-7

Terracon

# Lateral Load Test Results for PLT-104B

### Project Information

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

### Lateral Load Test Set Up

| | |
|---|---|
| Number of Top Gauges: | N/A |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in.]: | NA |
| Height of Bottom Gauges [in.]: | 6 |
| Height of Applied Load [in.]: | 42 |
| Load Cell: | Dillion |

### Test Date and Representative

| | |
|---|---|
| Tested By Terracon Rep: | SL/SS |
| Date Tested: | 9/27/2023 |

### Pile Information

| | |
|---|---|
| Pile ID: | PLT-104B |
| Latitude [deg.]: | 35.54444 |
| Longitude [deg.]: | -106.00580 |
| Pile Type: | W6x9 |
| Pile Embedment Depth [in.]: | 96 |
| Pile Stick-Up [in.]: | 48 |
| Lateral Design Load [lbs.]: | 7,000 |
| Drive Time [sec.]: | 16 |

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.062 | |
| 14% | 1,000 | 0.116 | |
| 21% | 1,500 | 0.160 | |
| 0% | 0 | 0.021 | |
| 21% | 1,500 | 0.173 | |
| 29% | 2,000 | 0.196 | |
| 36% | 2,500 | 0.250 | |
| 0% | 0 | 0.032 | |
| 36% | 2,500 | 0.265 | |
| 43% | 3,000 | 0.315 | |
| 50% | 3,500 | 0.367 | |
| 57% | 4,000 | 0.407 | |
| 0% | 0 | 0.050 | |
| 57% | 4,000 | 0.426 | |
| 64% | 4,500 | 0.467 | |
| 71% | 5,000 | 0.548 | |
| 79% | 5,500 | 0.572 | |
| 0% | 0 | 0.074 | |
| 79% | 5,500 | 0.638 | |
| 86% | 6,000 | 0.662 | |
| 93% | 6,500 | 0.809 | |
| 100% | 7,000 | | |
| 0% | 0 | 0.325 | |

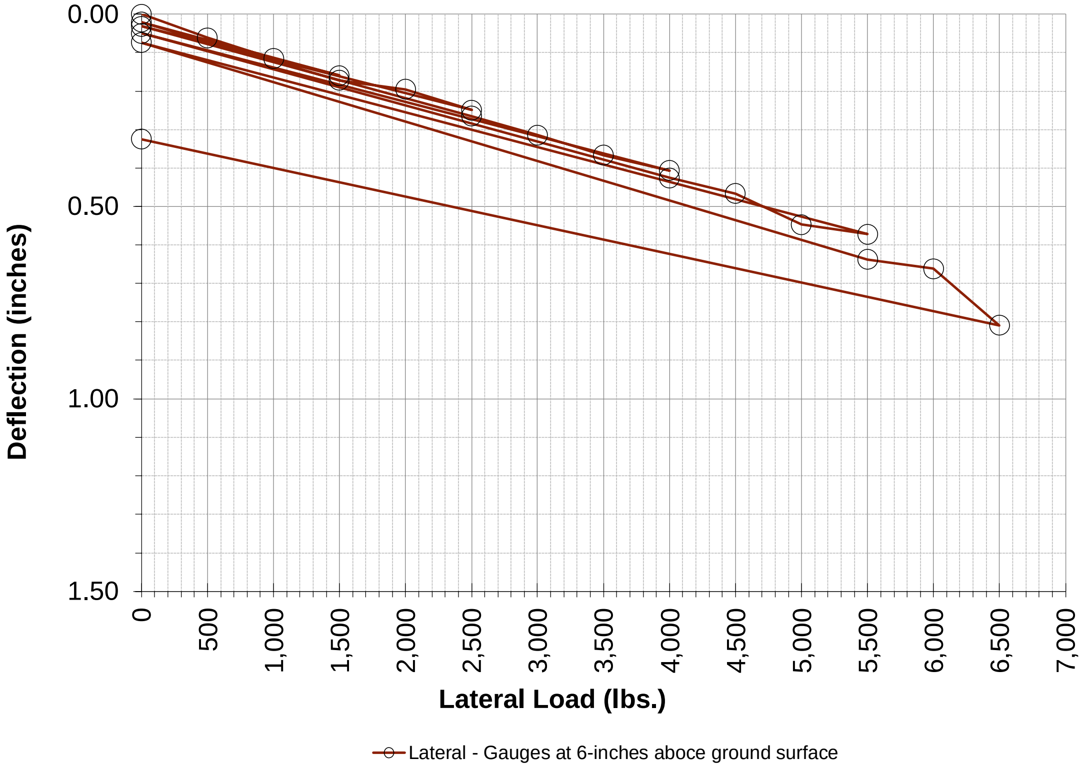


Exhibit H-8

# Lateral Load Test Results for PLT-105A

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Lateral Load Test Set Up**

Number of Top Gauges: N/A
Number of Bottom Gauges: 2
Height of Top Gauges [in.]: NA
Height of Bottom Gauges [in.]: 6
Height of Applied Load [in.]: 42
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: SL/ED
Date Tested: 10/3/2023

**Pile Information**

Pile ID: PLT-105A
Latitude [deg.]: 35.54761
Longitude [deg.]: -106.00260
Pile Type: W6x9
Pile Embedment Depth [in.]: 60
Pile Stick-Up [in.]: 48
Lateral Design Load [lbs.]: 7,000
Drive Time [sec.]: 20.8

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.067 | |
| 14% | 1,000 | 0.147 | |
| 21% | 1,500 | 0.180 | |
| 0% | 0 | 0.032 | |
| 21% | 1,500 | 0.201 | |
| 29% | 2,000 | 0.264 | |
| 36% | 2,500 | 0.292 | |
| 0% | 0 | 0.047 | |
| 36% | 2,500 | 0.316 | |
| 43% | 3,000 | 0.373 | |
| 50% | 3,500 | 0.417 | |
| 57% | 4,000 | 0.463 | |
| 0% | 0 | 0.071 | |
| 57% | 4,000 | 0.513 | |
| 64% | 4,500 | 0.550 | |
| 71% | 5,000 | 0.616 | |
| 79% | 5,500 | 0.697 | |
| 0% | 0 | 0.116 | |
| 79% | 5,500 | 0.729 | |
| 86% | 6,000 | 0.795 | |
| 93% | 6,500 | 0.858 | |
| 100% | 7,000 | 0.976 | |
| 0% | 0 | 0.239 | |

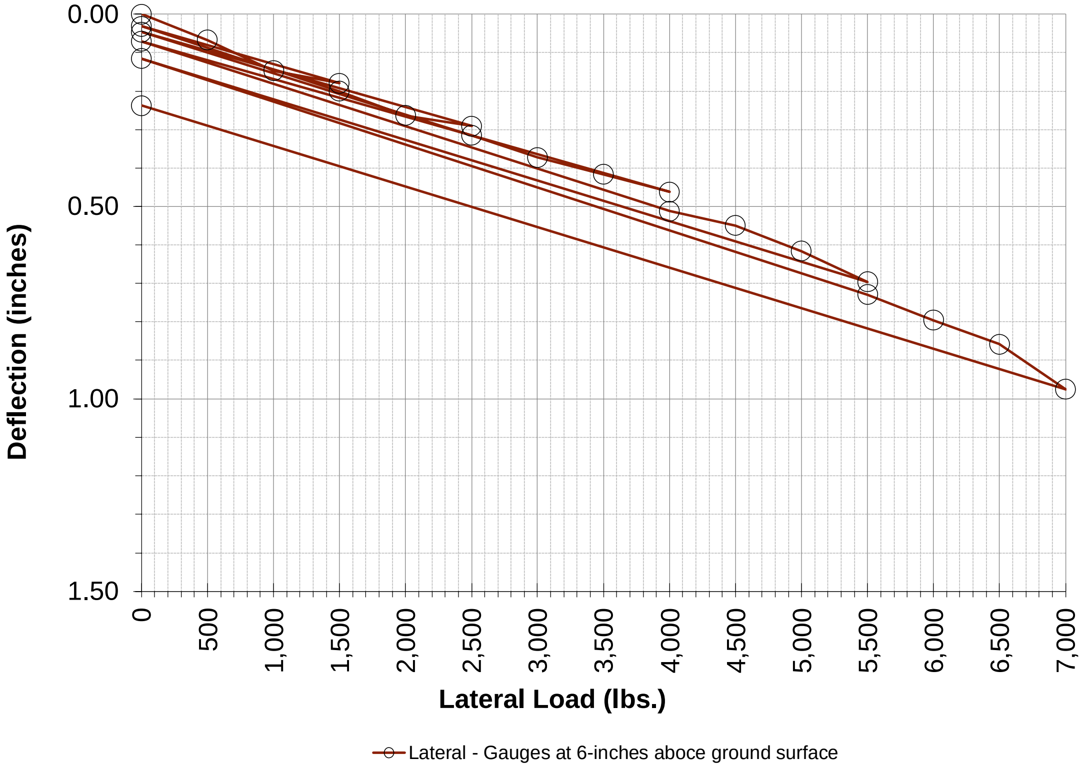


Exhibit H-9

# Lateral Load Test Results for PLT-105B

### Project Information

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

### Lateral Load Test Set Up

Number of Top Gauges: N/A
Number of Bottom Gauges: 2
Height of Top Gauges [in.]: NA
Height of Bottom Gauges [in.]: 6
Height of Applied Load [in.]: 42
Load Cell: Dillion

### Test Date and Representative

Tested By Terracon Rep: SL/ED
Date Tested: 10/3/2023

### Pile Information

Pile ID: PLT-105B
Latitude [deg.]: 35.54761
Longitude [deg.]: -106.00260
Pile Type: W6x9
Pile Embedment Depth [in.]: 96
Pile Stick-Up [in.]: 48
Lateral Design Load [lbs.]: 7,000
Drive Time [sec.]: 57

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.076 | |
| 14% | 1,000 | 0.158 | |
| 21% | 1,500 | 0.189 | |
| 0% | 0 | 0.026 | |
| 21% | 1,500 | 0.209 | |
| 29% | 2,000 | 0.241 | |
| 36% | 2,500 | 0.295 | |
| 0% | 0 | 0.034 | |
| 36% | 2,500 | 0.316 | |
| 43% | 3,000 | 0.369 | |
| 50% | 3,500 | 0.409 | |
| 57% | 4,000 | 0.450 | |
| 0% | 0 | 0.049 | |
| 57% | 4,000 | 0.493 | |
| 64% | 4,500 | 0.526 | |
| 71% | 5,000 | 0.586 | |
| 79% | 5,500 | 0.657 | |
| 0% | 0 | 0.074 | |
| 79% | 5,500 | 0.679 | |
| 86% | 6,000 | 0.733 | |
| 93% | 6,500 | 0.776 | |
| 100% | 7,000 | 0.850 | |
| 0% | 0 | 0.124 | |

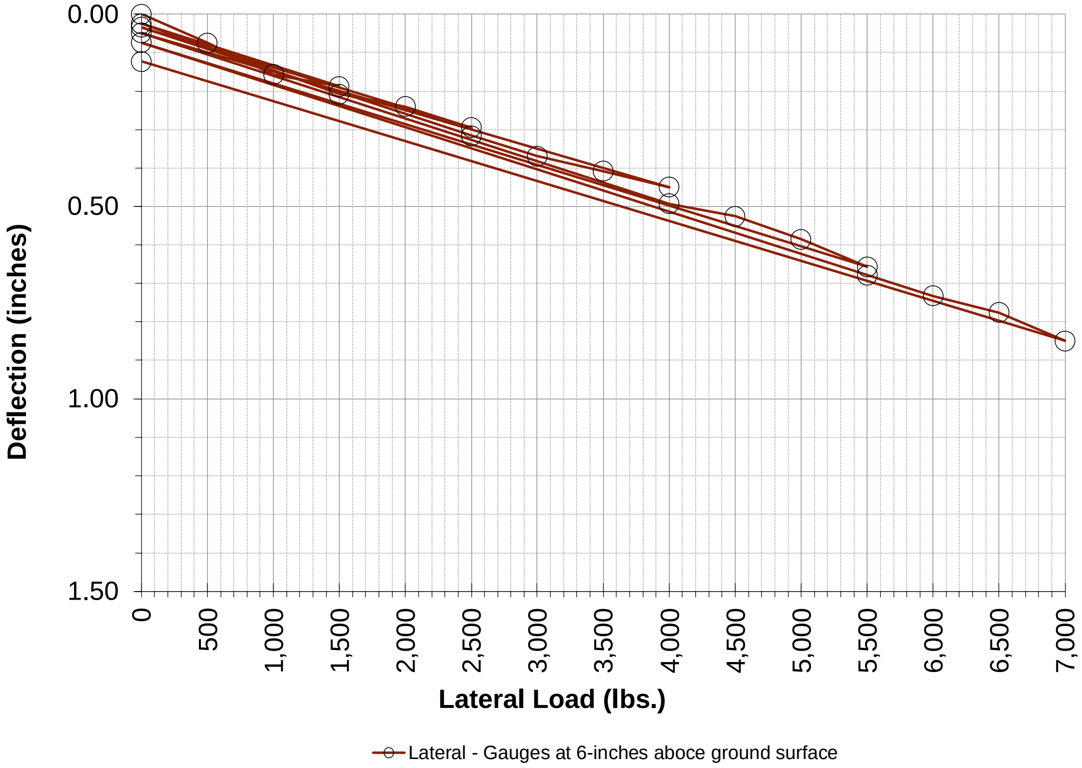


Exhibit H-10

# Lateral Load Test Results for PLT-106A

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | N/A |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in.]: | NA |
| eight of Bottom Gauges [in.]: | 6 |
| Height of Applied Load [in.]: | 42 |
| Load Cell: | Dillion |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | SL/JPS |
| Date Tested: | 10/3/2023 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-106A |
| Latitude [deg.]: | 35.54803 |
| Longitude [deg.]: | -106.00970 |
| Pile Type: | W6x9 |
| Pile Embedment Depth [in.]: | 108 |
| Pile Stick-Up [in.]: | 48 |
| Lateral Design Load [lbs.]: | 7,000 |
| Drive Time [sec.]: | 21.5 |

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.051 | |
| 14% | 1,000 | 0.116 | |
| 21% | 1,500 | 0.151 | |
| 0% | 0 | 0.020 | |
| 21% | 1,500 | 0.166 | |
| 29% | 2,000 | 0.207 | |
| 36% | 2,500 | 0.241 | |
| 0% | 0 | 0.026 | |
| 36% | 2,500 | 0.243 | |
| 43% | 3,000 | 0.306 | |
| 50% | 3,500 | 0.339 | |
| 57% | 4,000 | 0.380 | |
| 0% | 0 | 0.038 | |
| 57% | 4,000 | 0.392 | |
| 64% | 4,500 | 0.445 | |
| 71% | 5,000 | 0.483 | |
| 79% | 5,500 | 0.533 | |
| 0% | 0 | 0.051 | |
| 79% | 5,500 | 0.555 | |
| 86% | 6,000 | 0.598 | |
| 93% | 6,500 | 0.649 | |
| 100% | 7,000 | 0.687 | |
| 0% | 0 | 0.063 | |

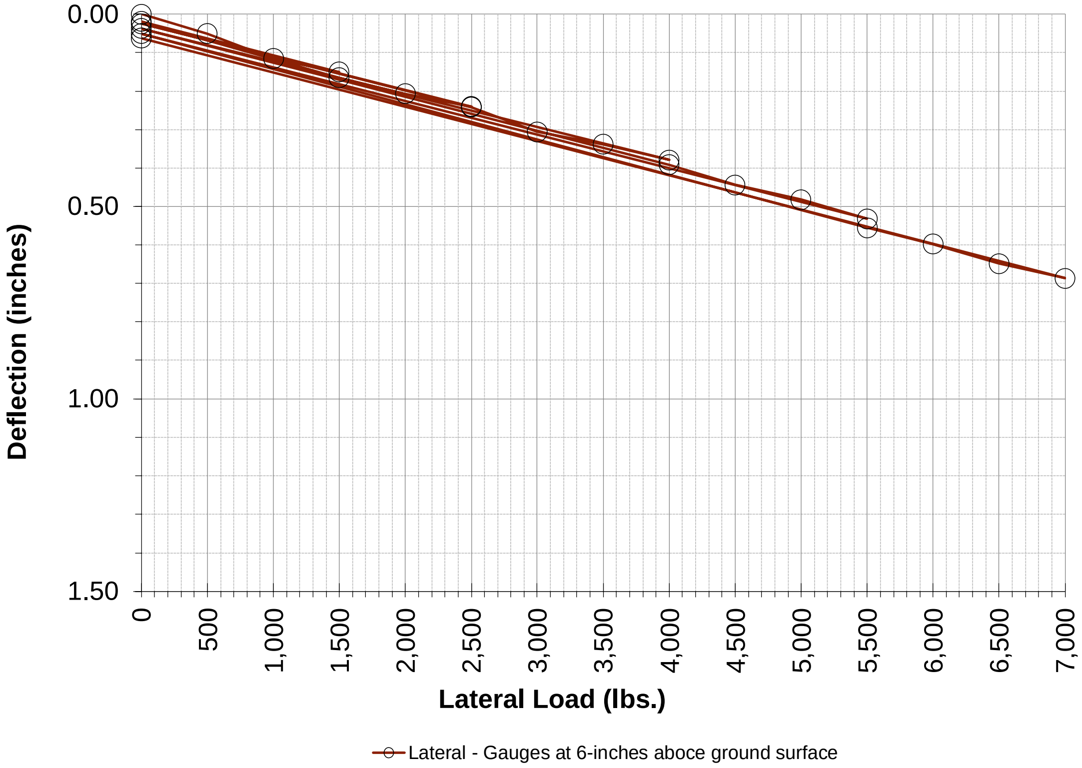


Exhibit H-11

# Lateral Load Test Results for PLT-106B

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Lateral Load Test Set Up**

Number of Top Gauges: N/A
Number of Bottom Gauges: 2
Height of Top Gauges [in.]: NA
Height of Bottom Gauges [in.]: 6
Height of Applied Load [in.]: 42
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: SL/JPS
Date Tested: 10/3/2023

**Pile Information**

Pile ID: PLT-106B
Latitude [deg.]: 35.54803
Longitude [deg.]: -106.00970
Pile Type: W6x9
Pile Embedment Depth [in.]: 108
Pile Stick-Up [in.]: 48
Lateral Design Load [lbs.]: 7,000
Drive Time [sec.]: 50.3

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.055 | |
| 14% | 1,000 | 0.114 | |
| 21% | 1,500 | 0.148 | |
| 0% | 0 | 0.031 | |
| 21% | 1,500 | 0.166 | |
| 29% | 2,000 | 0.204 | |
| 36% | 2,500 | 0.236 | |
| 0% | 0 | 0.043 | |
| 36% | 2,500 | 0.241 | |
| 43% | 3,000 | 0.301 | |
| 50% | 3,500 | 0.332 | |
| 57% | 4,000 | 0.372 | |
| 0% | 0 | 0.064 | |
| 57% | 4,000 | 0.388 | |
| 64% | 4,500 | 0.439 | |
| 71% | 5,000 | 0.476 | |
| 79% | 5,500 | 0.523 | |
| 0% | 0 | 0.084 | |
| 79% | 5,500 | 0.550 | |
| 86% | 6,000 | 0.591 | |
| 93% | 6,500 | 0.645 | |
| 100% | 7,000 | 0.694 | |
| 0% | 0 | 0.122 | |

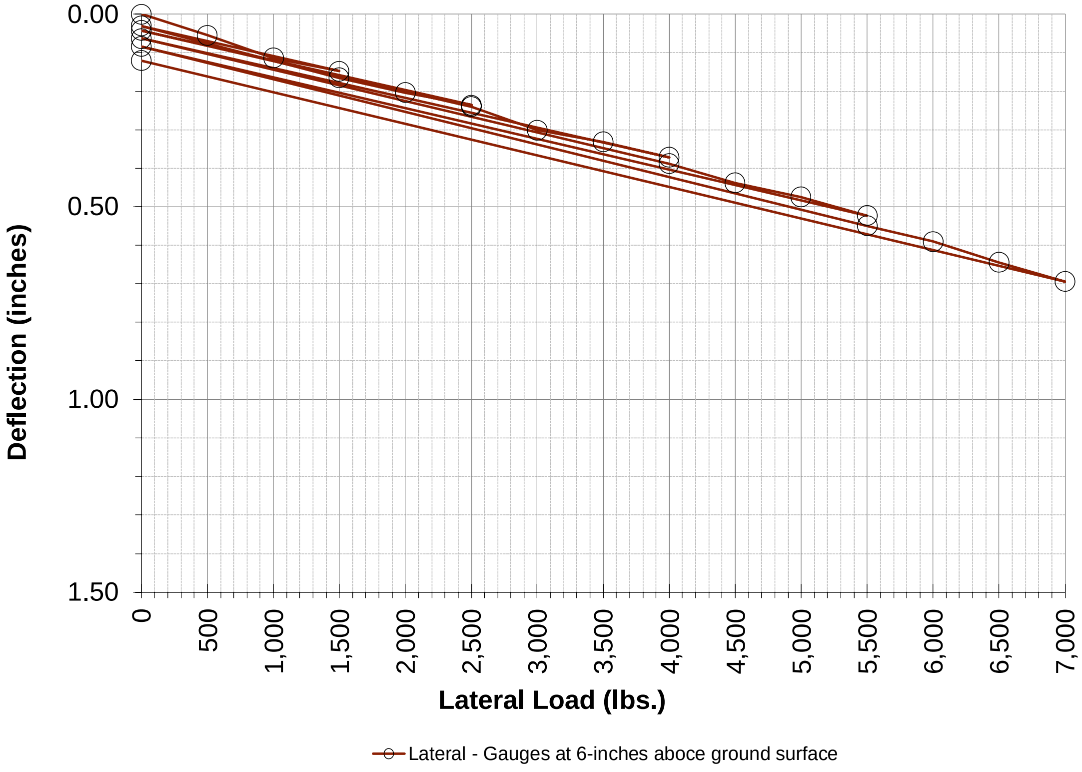


Exhibit H-12

# Lateral Load Test Results for PTL-107A

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Lateral Load Test Set Up**

Number of Top Gauges: N/A
Number of Bottom Gauges: 2
Height of Top Gauges [in.]: NA
Height of Bottom Gauges [in.]: 6
Height of Applied Load [in.]: 42
Load Cell: Dillion

**Test Date and Representative**

Tested By Terracon Rep: SL/ED
Date Tested: 10/4/2023

**Pile Information**

Pile ID: PTL-107A
Latitude [deg.]: 35.54924
Longitude [deg.]: -106.01520
Pile Type: W6x9
Pile Embedment Depth [in.]: 60
Pile Stick-Up [in.]: 48
Lateral Design Load [lbs.]: 7,000
Drive Time [sec.]: 12.9

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.076 | |
| 14% | 1,000 | 0.128 | |
| 21% | 1,500 | 0.170 | |
| 0% | 0 | 0.034 | |
| 21% | 1,500 | 0.198 | |
| 29% | 2,000 | 0.233 | |
| 36% | 2,500 | 0.293 | |
| 0% | 0 | 0.054 | |
| 36% | 2,500 | 0.320 | |
| 43% | 3,000 | 0.371 | |
| 50% | 3,500 | 0.426 | |
| 57% | 4,000 | 0.500 | |
| 0% | 0 | 0.108 | |
| 57% | 4,000 | 0.534 | |
| 64% | 4,500 | 0.573 | |
| 71% | 5,000 | 0.634 | |
| 79% | 5,500 | 0.712 | |
| 0% | 0 | 0.167 | |
| 79% | 5,500 | 0.739 | |
| 86% | 6,000 | 0.796 | |
| 93% | 6,500 | 0.867 | |
| 100% | 7,000 | 1.003 | |
| 0% | 0 | 0.336 | |

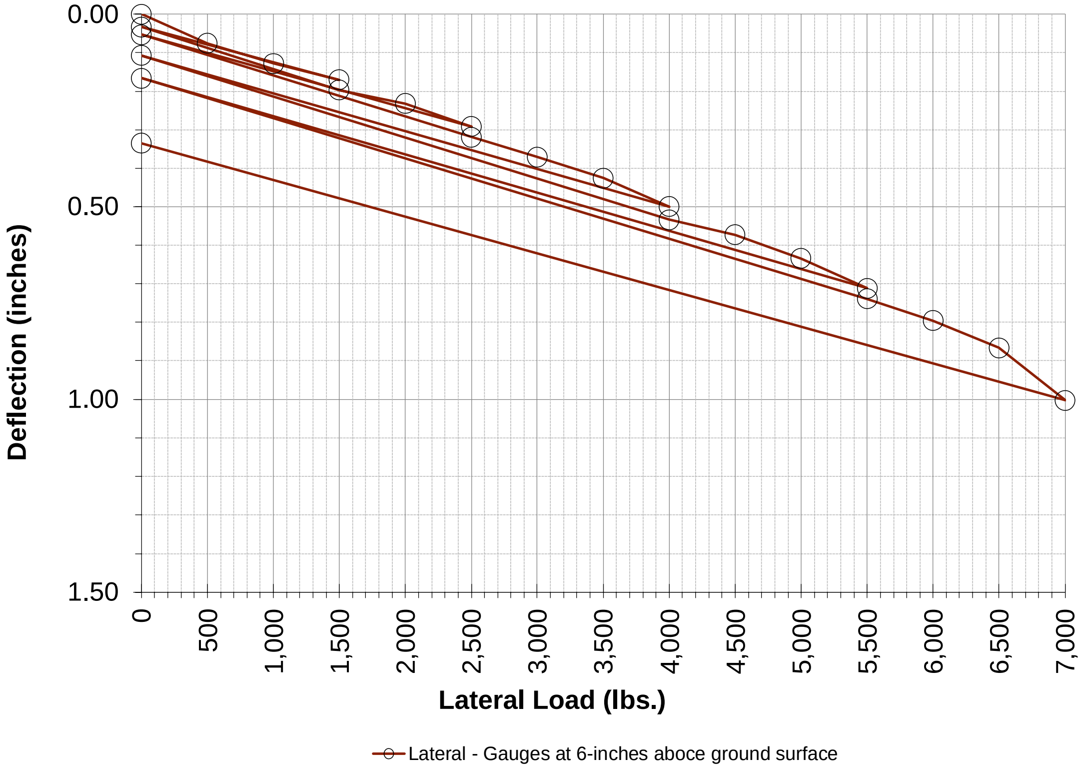


Exhibit H-13

# Lateral Load Test Results for PLT-107B

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | N/A |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in.]: | NA |
| Height of Bottom Gauges [in.]: | 6 |
| Height of Applied Load [in.]: | 42 |
| Load Cell: | Dillion |

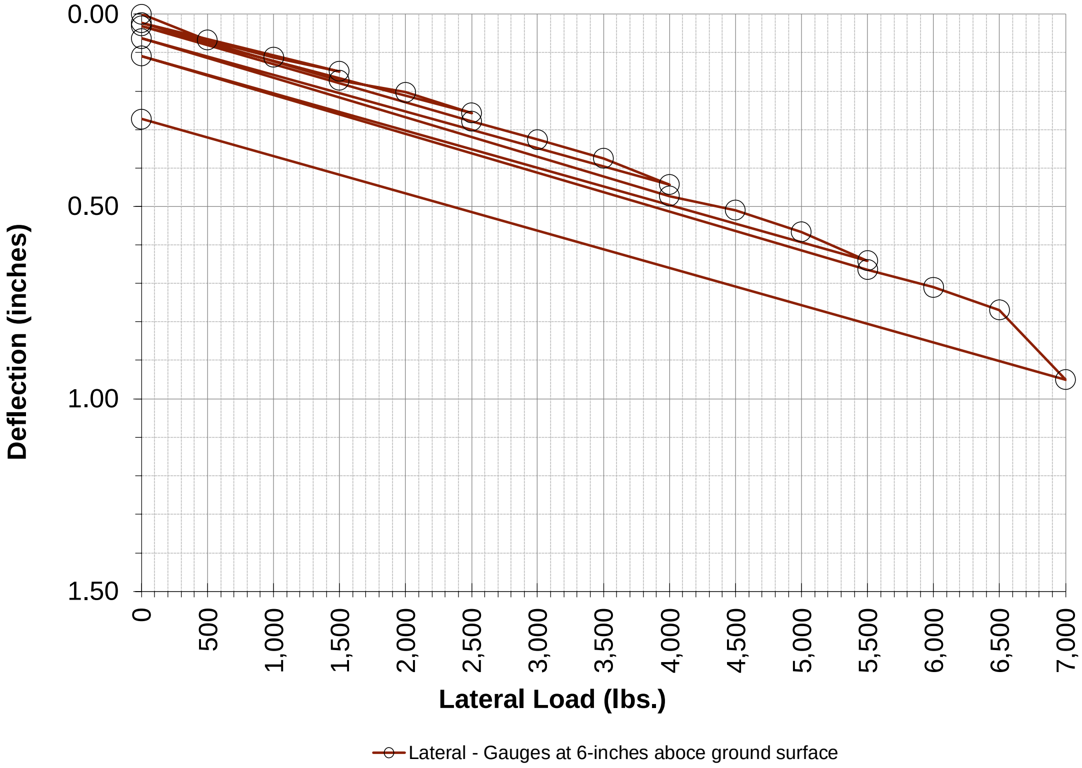
**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | SL/ED |
| Date Tested: | 10/4/2023 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-107B |
| Latitude [deg.]: | 35.54924 |
| Longitude [deg.]: | -106.01518 |
| Pile Type: | W6x9 |
| Pile Embedment Depth [in.]: | 96 |
| Pile Stick-Up [in.]: | 48 |
| Lateral Design Load [lbs.]: | 7,000 |
| Drive Time [sec.]: | 23.9 |

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.068 | |
| 14% | 1,000 | 0.113 | |
| 21% | 1,500 | 0.149 | |
| 0% | 0 | 0.023 | |
| 21% | 1,500 | 0.173 | |
| 29% | 2,000 | 0.203 | |
| 36% | 2,500 | 0.257 | |
| 0% | 0 | 0.031 | |
| 36% | 2,500 | 0.279 | |
| 43% | 3,000 | 0.326 | |
| 50% | 3,500 | 0.376 | |
| 57% | 4,000 | 0.443 | |
| 0% | 0 | 0.064 | |
| 57% | 4,000 | 0.473 | |
| 64% | 4,500 | 0.510 | |
| 71% | 5,000 | 0.567 | |
| 79% | 5,500 | 0.641 | |
| 0% | 0 | 0.109 | |
| 79% | 5,500 | 0.664 | |
| 86% | 6,000 | 0.710 | |
| 93% | 6,500 | 0.770 | |
| 100% | 7,000 | 0.951 | |
| 0% | 0 | 0.273 | |



# Lateral Load Test Results for PLT-108A

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Lateral Load Test Set Up**

Number of Top Gauges: N/A
Number of Bottom Gauges: 2
Height of Top Gauges [in.]: NA
Height of Bottom Gauges [in.]: 6
Height of Applied Load [in.]: 42
Load Cell: Dillion

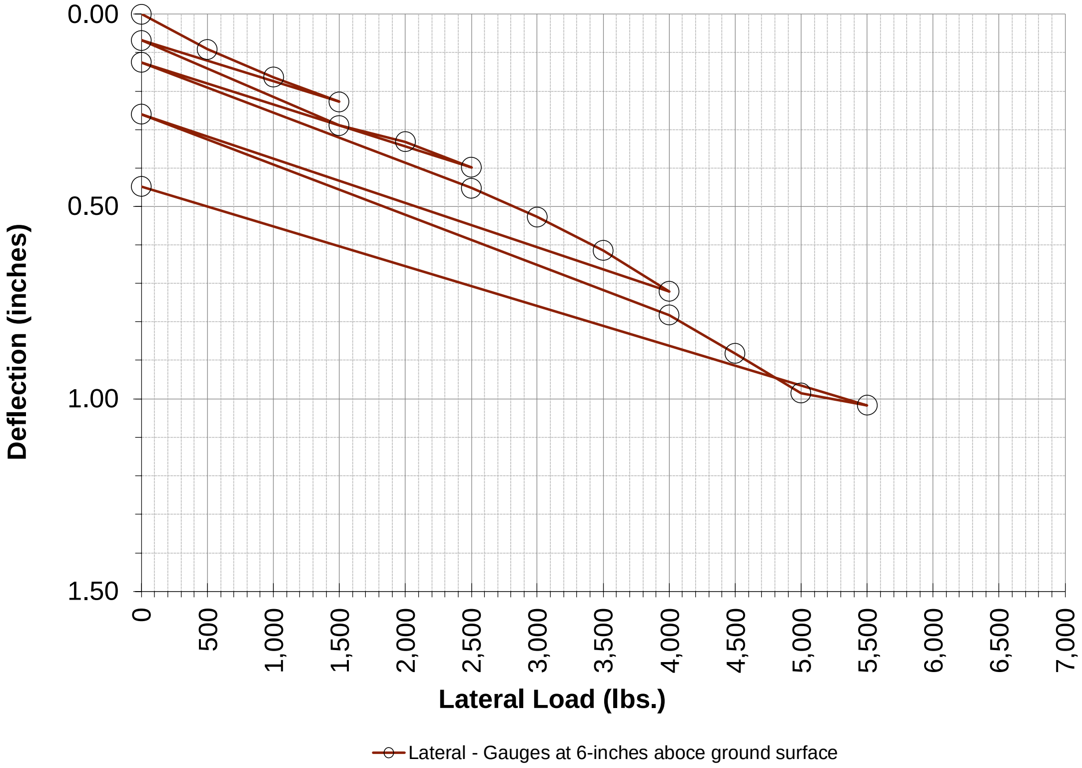
**Test Date and Representative**

Tested By Terracon Rep: SL/ED
Date Tested: 10/3/2023

**Pile Information**

Pile ID: PLT-108A
Latitude [deg.]: 35.55227
Longitude [deg.]: -106.01030
Pile Type: W6x9
Pile Embedment Depth [in.]: 60
Pile Stick-Up [in.]: 48
Lateral Design Load [lbs.]: 7,000
Drive Time [sec.]: 8.1

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.092 | |
| 14% | 1,000 | 0.164 | |
| 21% | 1,500 | 0.228 | |
| 0% | 0 | 0.069 | |
| 21% | 1,500 | 0.290 | |
| 29% | 2,000 | 0.332 | |
| 36% | 2,500 | 0.399 | |
| 0% | 0 | 0.126 | |
| 36% | 2,500 | 0.453 | |
| 43% | 3,000 | 0.528 | |
| 50% | 3,500 | 0.615 | |
| 57% | 4,000 | 0.721 | |
| 0% | 0 | 0.261 | |
| 57% | 4,000 | 0.783 | |
| 64% | 4,500 | 0.883 | |
| 71% | 5,000 | 0.986 | |
| 79% | 5,500 | 1.017 | |
| 0% | 0 | | |
| 79% | 5,500 | | |
| 86% | 6,000 | | |
| 93% | 6,500 | | |
| 100% | 7,000 | | |
| 0% | 0 | 0.449 | |



# Lateral Load Test Results for PLT-108B

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | N/A |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in.]: | NA |
| Height of Bottom Gauges [in.]: | 6 |
| Height of Applied Load [in.]: | 42 |
| Load Cell: | Dillion |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | SL/ED |
| Date Tested: | 10/3/2023 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-108B |
| Latitude [deg.]: | 35.55227 |
| Longitude [deg.]: | -106.01030 |
| Pile Type: | W6x9 |
| Pile Embedment Depth [in.]: | 96 |
| Pile Stick-Up [in.]: | 48 |
| Lateral Design Load [lbs.]: | 7,000 |
| Drive Time [sec.]: | 9.2 |

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.079 | |
| 14% | 1,000 | 0.141 | |
| 21% | 1,500 | 0.205 | |
| 0% | 0 | 0.025 | |
| 21% | 1,500 | 0.262 | |
| 29% | 2,000 | 0.299 | |
| 36% | 2,500 | 0.357 | |
| 0% | 0 | 0.048 | |
| 36% | 2,500 | 0.404 | |
| 43% | 3,000 | 0.464 | |
| 50% | 3,500 | 0.533 | |
| 57% | 4,000 | 0.612 | |
| 0% | 0 | 0.086 | |
| 57% | 4,000 | 0.657 | |
| 64% | 4,500 | 0.731 | |
| 71% | 5,000 | 0.801 | |
| 79% | 5,500 | 0.892 | |
| 0% | 0 | 0.147 | |
| 79% | 5,500 | 0.919 | |
| 86% | 6,000 | 1.018 | |
| 93% | 6,500 | | |
| 100% | 7,000 | | |
| 0% | 0 | 0.181 | |

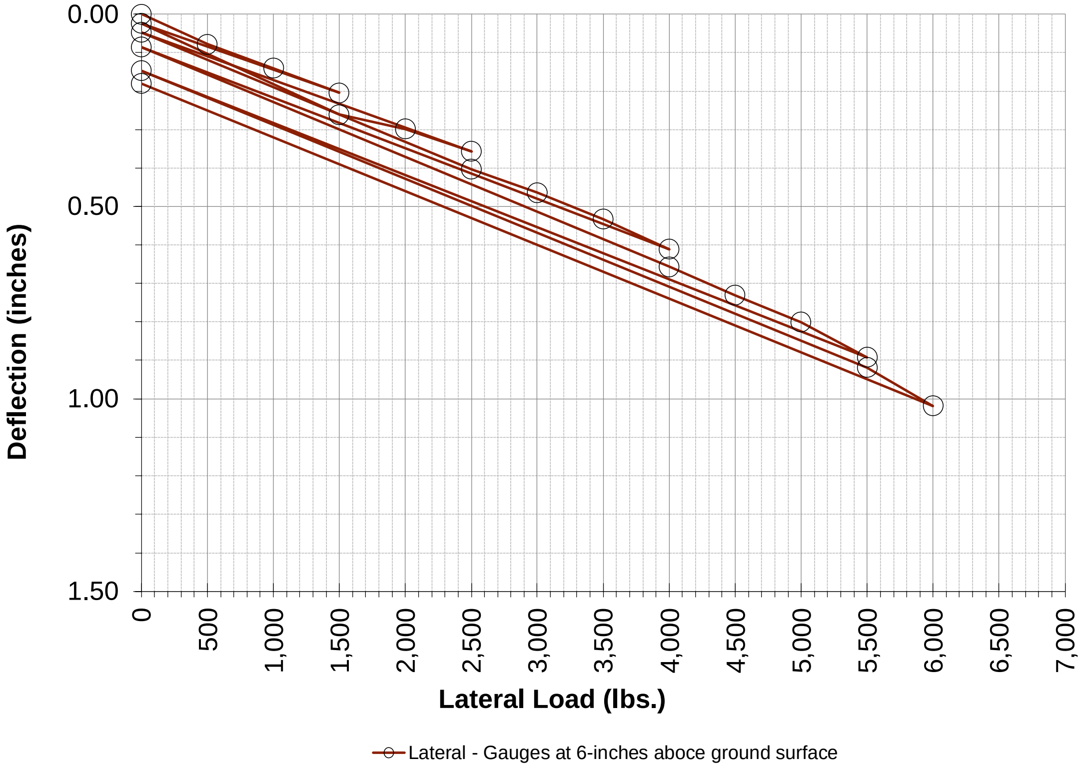


Exhibit H-16

# Lateral Load Test Results for PLT-109A

### Project Information

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

### Lateral Load Test Set Up

| | |
|---|---|
| Number of Top Gauges: | N/A |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in.]: | NA |
| Height of Bottom Gauges [in.]: | 6 |
| Height of Applied Load [in.]: | 42 |
| Load Cell: | Dillion |

### Test Date and Representative

| | |
|---|---|
| Tested By Terracon Rep: | SL/ED |
| Date Tested: | 10/4/2023 |

### Pile Information

| | |
|---|---|
| Pile ID: | PLT-109A |
| Latitude [deg.]: | 35.55374 |
| Longitude [deg.]: | -106.01736 |
| Pile Type: | W6x9 |
| Pile Embedment Depth [in.]: | 60 |
| Pile Stick-Up [in.]: | 48 |
| Lateral Design Load [lbs.]: | 7,000 |
| Drive Time [sec.]: | 16.7 |

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.068 | |
| 14% | 1,000 | 0.148 | |
| 21% | 1,500 | 0.189 | |
| 0% | 0 | 0.033 | |
| 21% | 1,500 | 0.201 | |
| 29% | 2,000 | 0.270 | |
| 36% | 2,500 | 0.317 | |
| 0% | 0 | 0.052 | |
| 36% | 2,500 | 0.333 | |
| 43% | 3,000 | 0.401 | |
| 50% | 3,500 | 0.448 | |
| 57% | 4,000 | 0.526 | |
| 0% | 0 | 0.092 | |
| 57% | 4,000 | 0.557 | |
| 64% | 4,500 | 0.604 | |
| 71% | 5,000 | 0.666 | |
| 79% | 5,500 | 0.736 | |
| 0% | 0 | 0.155 | |
| 79% | 5,500 | 0.818 | |
| 86% | 6,000 | 0.885 | |
| 93% | 6,500 | 1.028 | |
| 100% | 7,000 | | |
| 0% | 0 | 0.354 | |

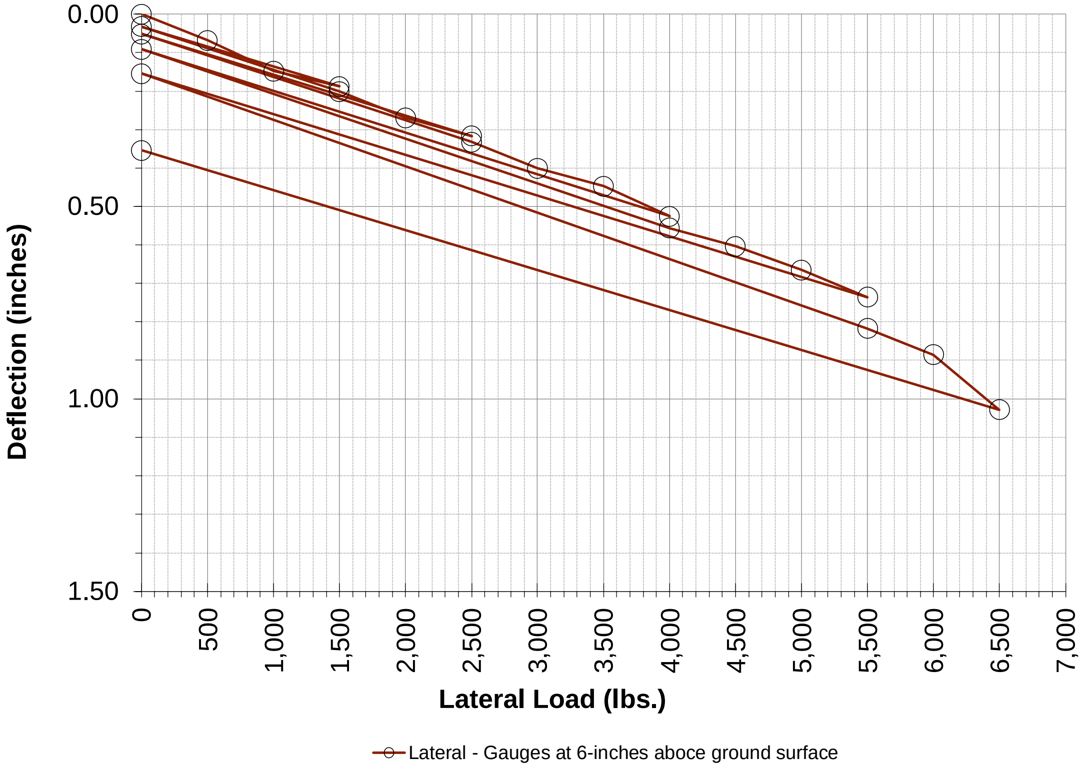


Exhibit H-17

# Lateral Load Test Results for PLT-109B

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | N/A |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in.]: | NA |
| Height of Bottom Gauges [in.]: | 6 |
| Height of Applied Load [in.]: | 42 |
| Load Cell: | Dillion |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | SL/ED |
| Date Tested: | 10/4/2023 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-109B |
| Latitude [deg.]: | 35.55374 |
| Longitude [deg.]: | -106.01736 |
| Pile Type: | W6x9 |
| Pile Embedment Depth [in.]: | 96 |
| Pile Stick-Up [in.]: | 48 |
| Lateral Design Load [lbs.]: | 7,000 |
| Drive Time [sec.]: | 37.6 |

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.054 | |
| 14% | 1,000 | 0.123 | |
| 21% | 1,500 | 0.155 | |
| 0% | 0 | 0.018 | |
| 21% | 1,500 | 0.165 | |
| 29% | 2,000 | 0.219 | |
| 36% | 2,500 | 0.257 | |
| 0% | 0 | 0.024 | |
| 36% | 2,500 | 0.268 | |
| 43% | 3,000 | 0.322 | |
| 50% | 3,500 | 0.360 | |
| 57% | 4,000 | 0.421 | |
| 0% | 0 | 0.036 | |
| 57% | 4,000 | 0.446 | |
| 64% | 4,500 | 0.482 | |
| 71% | 5,000 | 0.530 | |
| 79% | 5,500 | 0.583 | |
| 0% | 0 | 0.057 | |
| 79% | 5,500 | 0.630 | |
| 86% | 6,000 | 0.663 | |
| 93% | 6,500 | 0.713 | |
| 100% | 7,000 | 0.785 | |
| 0% | 0 | 0.126 | |

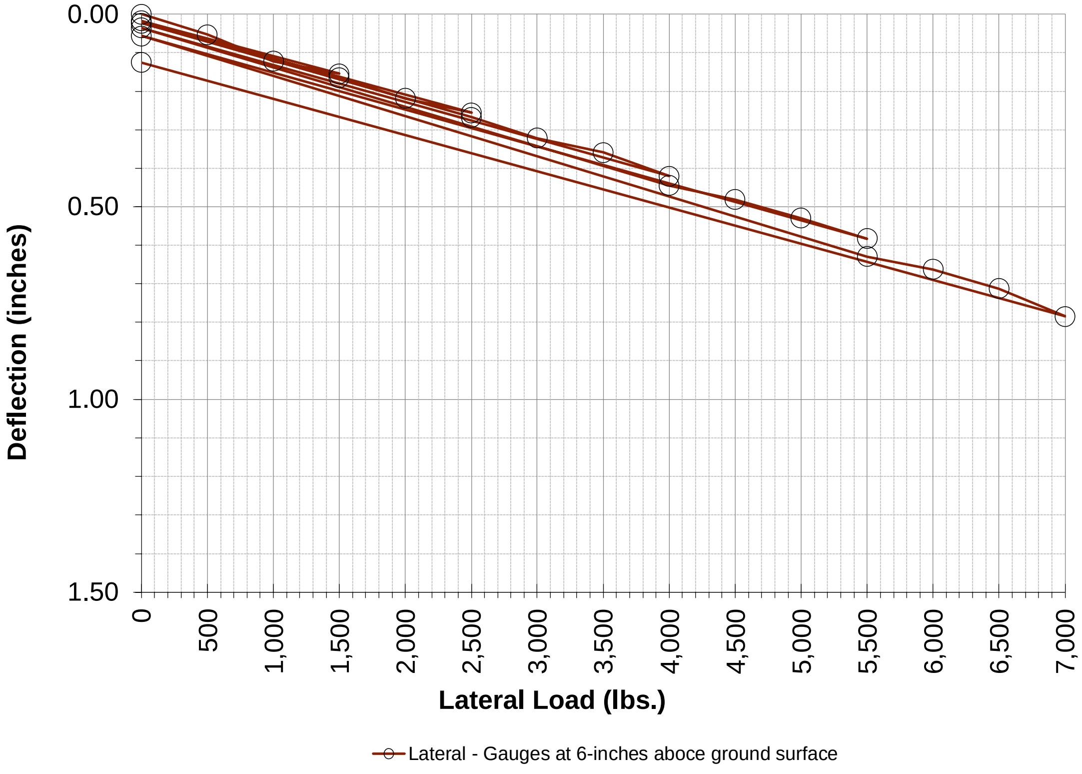


Exhibit H-18

# Lateral Load Test Results for PLT-110A

**Project Information**

Project Name: Rancho Viejo
Project Location: Santa Fe, New Mexico
Project Number: 66225093

**Lateral Load Test Set Up**

Number of Top Gauges: N/A
Number of Bottom Gauges: 2
Height of Top Gauges [in.]: NA
Height of Bottom Gauges [in.]: 6
Height of Applied Load [in.]: 42
Load Cell: Dillion

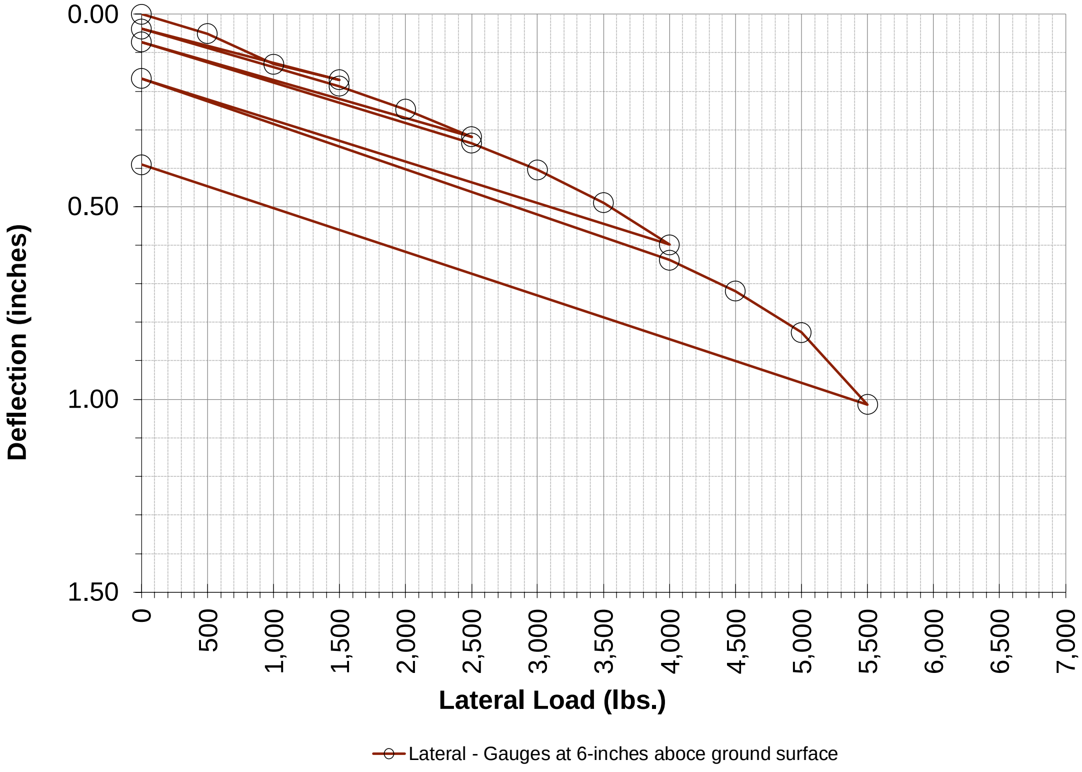
**Test Date and Representative**

Tested By Terracon Rep: ED/TS
Date Tested: 3/11/2024

**Pile Information**

Pile ID: PLT-110A
Latitude [deg.]: 35.54438
Longitude [deg.]: -106.01141
Pile Type: W6x9
Pile Embedment Depth [in.]: 60
Pile Stick-Up [in.]: 48
Lateral Design Load [lbs.]: 7,000
Drive Time [sec.]: 0

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.051 | |
| 14% | 1,000 | 0.130 | |
| 21% | 1,500 | 0.171 | |
| 0% | 0 | 0.039 | |
| 21% | 1,500 | 0.188 | |
| 29% | 2,000 | 0.248 | |
| 36% | 2,500 | 0.319 | |
| 0% | 0 | 0.073 | |
| 36% | 2,500 | 0.335 | |
| 43% | 3,000 | 0.404 | |
| 50% | 3,500 | 0.490 | |
| 57% | 4,000 | 0.599 | |
| 0% | 0 | 0.167 | |
| 57% | 4,000 | 0.639 | |
| 64% | 4,500 | 0.719 | |
| 71% | 5,000 | 0.827 | |
| 79% | 5,500 | 1.014 | |
| 0% | 0 | | |
| 79% | 5,500 | | |
| 86% | 6,000 | | |
| 93% | 6,500 | | |
| 100% | 7,000 | | |
| 0% | 0 | 0.391 | |



# Lateral Load Test Results for PLT-110B

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo |
| Project Location: | Santa Fe, New Mexico |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | N/A |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in.]: | NA |
| Height of Bottom Gauges [in.]: | 6 |
| Height of Applied Load [in.]: | 42 |
| Load Cell: | Dillion |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | ED/TS |
| Date Tested: | 3/11/2024 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-110B |
| Latitude [deg.]: | 35.54438 |
| Longitude [deg.]: | -106.01141 |
| Pile Type: | W6x9 |
| Pile Embedment Depth [in.]: | 96 |
| Pile Stick-Up [in.]: | 48 |
| Lateral Design Load [lbs.]: | 7,000 |
| Drive Time [sec.]: | 0 |

| % of Design Load | Lateral Load [lbs.] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.042 | |
| 14% | 1,000 | 0.102 | |
| 21% | 1,500 | 0.135 | |
| 0% | 0 | 0.020 | |
| 21% | 1,500 | 0.145 | |
| 29% | 2,000 | 0.191 | |
| 36% | 2,500 | 0.242 | |
| 0% | 0 | 0.034 | |
| 36% | 2,500 | 0.252 | |
| 43% | 3,000 | 0.302 | |
| 50% | 3,500 | 0.359 | |
| 57% | 4,000 | 0.425 | |
| 0% | 0 | 0.059 | |
| 57% | 4,000 | 0.444 | |
| 64% | 4,500 | 0.494 | |
| 71% | 5,000 | 0.570 | |
| 79% | 5,500 | 0.632 | |
| 0% | 0 | 0.098 | |
| 79% | 5,500 | 0.652 | |
| 86% | 6,000 | 0.702 | |
| 93% | 6,500 | | |
| 100% | 7,000 | | |
| 0% | 0 | 0.142 | |

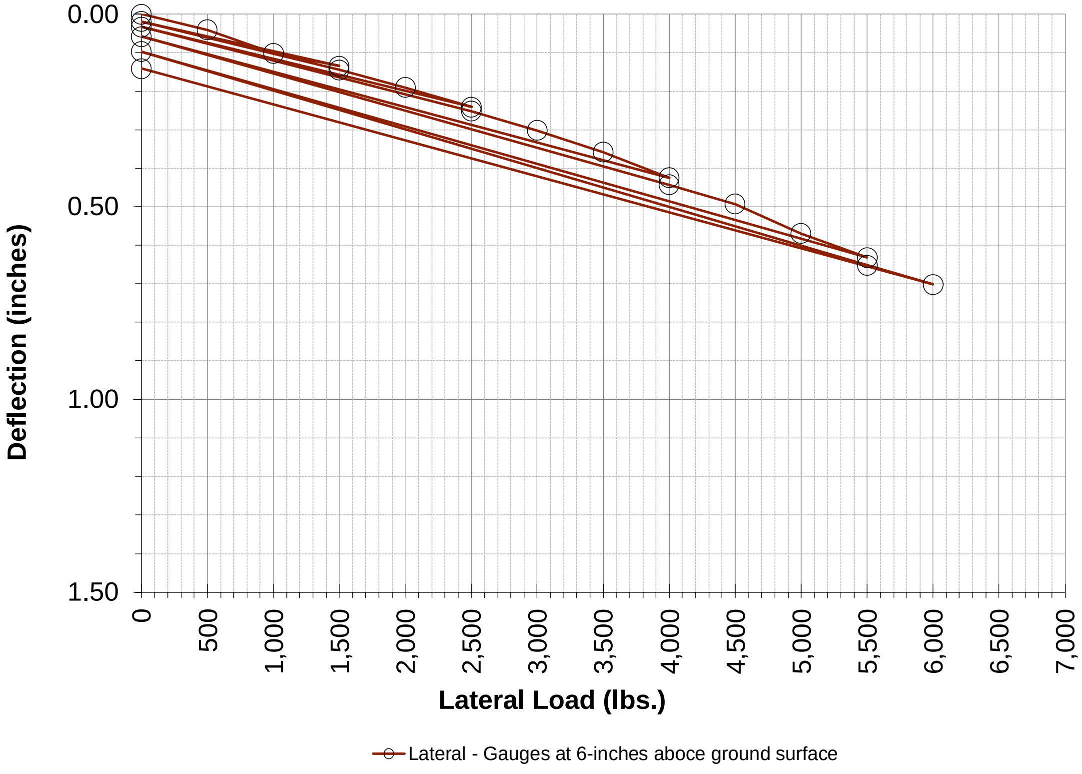


Exhibit H-20

# Lateral Load Test Result for PLT-001A

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | 0 |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in]: | 6 |
| Height of Bottom Gauges [in]: | 6 |
| Height of Applied Load [in]: | 42 |
| Load Cell: | Dillon ED jr 10,000lb |

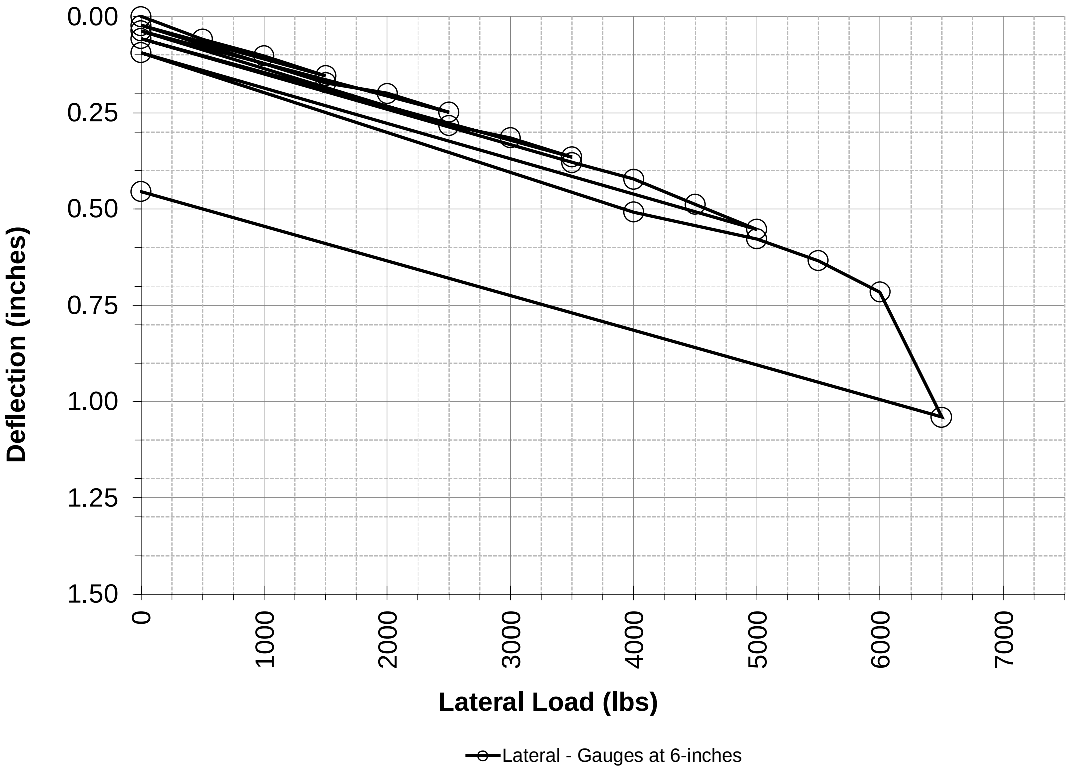
**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/25/2022 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-001A |
| Latitude: | 35.55334 |
| Longitude: | -106.01315 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 60 |
| Pile Stick-Up [in]: | 48 |
| Lateral Design Load [lbs]: | 7000 |
| Drive Time [sec]: | 39.7 |

| % of Design Load | Lateral Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.059 | |
| 14% | 1000 | 0.102 | |
| 21% | 1500 | 0.154 | |
| 0% | 0 | 0.024 | |
| 21% | 1500 | 0.172 | |
| 29% | 2000 | 0.200 | |
| 36% | 2500 | 0.249 | |
| 0% | 0 | 0.037 | |
| 36% | 2500 | 0.283 | |
| 43% | 3000 | 0.316 | |
| 50% | 3500 | 0.365 | |
| 0% | 0 | 0.058 | |
| 50% | 3500 | 0.380 | |
| 57% | 4000 | 0.423 | |
| 64% | 4500 | 0.488 | |
| 71% | 5000 | 0.553 | |
| 0% | 0 | 0.095 | |
| 57% | 4000 | 0.508 | |
| 71% | 5000 | 0.578 | |
| 79% | 5500 | 0.634 | |
| 86% | 6000 | 0.715 | |
| 93% | 6500 | 1.040 | |
| 100% | 7000 | | |
| 0% | 0 | 0.455 | |



Terracon

# Lateral Load Test Result for PLT-001B

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | 0 |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in]: | 6 |
| Height of Bottom Gauges [in]: | 6 |
| Height of Applied Load [in]: | 42 |
| Load Cell: | Dillon ED jr 10,000lb |

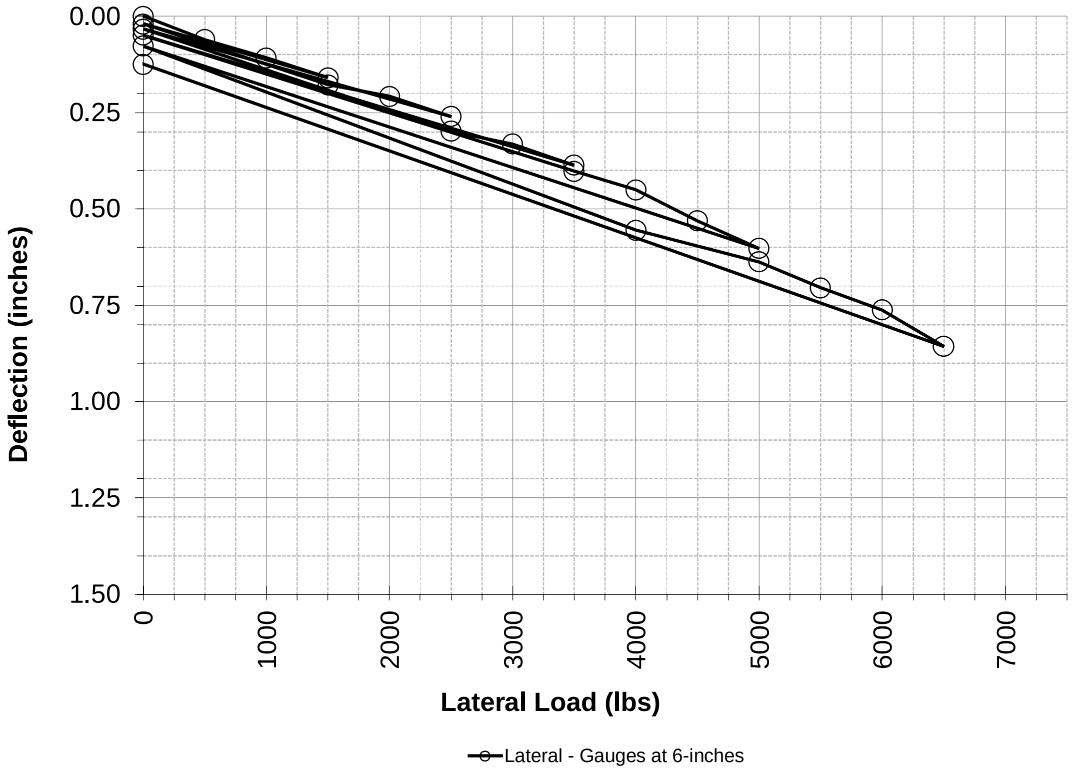
**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/25/2022 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-001B |
| Latitude: | 35.55334 |
| Longitude: | -106.01315 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 96 |
| Pile Stick-Up [in]: | 48 |
| Lateral Design Load [lbs]: | 7000 |
| Drive Time [sec]: | 50.8 |

| % of Design Load | Lateral Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.061 | |
| 14% | 1000 | 0.109 | |
| 21% | 1500 | 0.160 | |
| 0% | 0 | 0.021 | |
| 21% | 1500 | 0.179 | |
| 29% | 2000 | 0.209 | |
| 36% | 2500 | 0.261 | |
| 0% | 0 | 0.034 | |
| 36% | 2500 | 0.299 | |
| 43% | 3000 | 0.332 | |
| 50% | 3500 | 0.387 | |
| 0% | 0 | 0.049 | |
| 50% | 3500 | 0.403 | |
| 57% | 4000 | 0.451 | |
| 64% | 4500 | 0.531 | |
| 71% | 5000 | 0.603 | |
| 0% | 0 | 0.078 | |
| 57% | 4000 | 0.556 | |
| 71% | 5000 | 0.638 | |
| 79% | 5500 | 0.705 | |
| 86% | 6000 | 0.762 | |
| 93% | 6500 | 0.857 | |
| 100% | 7000 | | |
| 0% | 0 | 0.125 | |



# Lateral Load Test Result for PLT-002A

### Project Information

Project Name: Rancho Viejo Solar Facility
Project Location: Santa Fe County, NM
Project Number: 66225093

### Lateral Load Test Set Up

Number of Top Gauges: 0
Number of Bottom Gauges: 2
Height of Top Gauges [in]: 6
Height of Bottom Gauges [in]: 6
Height of Applied Load [in]: 42
Load Cell: Dillon ED jr 10,000lb

### Test Date and Representative

Tested By Terracon Rep: CS & SC
Date Tested: 8/25/2022

### Pile Information

Pile ID: PLT-002A
Latitude: 35.55151
Longitude: -106.00214
Pile Type: W6X9
Pile Embedment Depth [in]: 60
Pile Stick-Up [in]: 48
Lateral Design Load [lbs]: 7000
Drive Time [sec]: 35.4

| % of Design Load | Lateral Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.051 | |
| 14% | 1000 | 0.123 | |
| 21% | 1500 | 0.151 | |
| 0% | 0 | 0.021 | |
| 21% | 1500 | 0.169 | |
| 29% | 2000 | 0.219 | |
| 36% | 2500 | 0.287 | |
| 0% | 0 | 0.044 | |
| 36% | 2500 | 0.299 | |
| 43% | 3000 | 0.375 | |
| 50% | 3500 | 0.423 | |
| 0% | 0 | 0.069 | |
| 50% | 3500 | 0.439 | |
| 57% | 4000 | 0.507 | |
| 64% | 4500 | 0.582 | |
| 71% | 5000 | 0.655 | |
| 0% | 0 | 0.124 | |
| 57% | 4000 | 0.604 | |
| 71% | 5000 | 0.700 | |
| 79% | 5500 | 0.775 | |
| 86% | 6000 | 0.969 | |
| 93% | 6500 | 1.015 | |
| 100% | 7000 | | |
| 0% | 0 | 0.338 | |

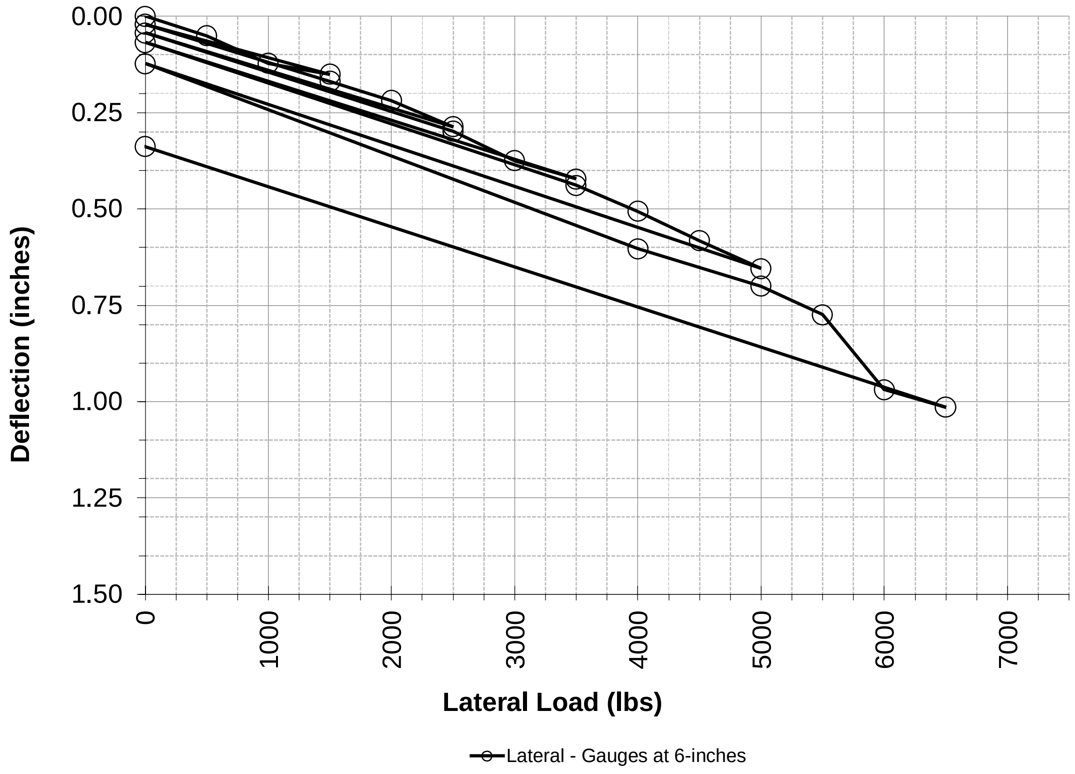


Exhibit H-23

# Lateral Load Test Result for PLT-002B

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | 0 |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in]: | 6 |
| Height of Bottom Gauges [in]: | 6 |
| Height of Applied Load [in]: | 42 |
| Load Cell: | Dillon ED jr 10,000lb |

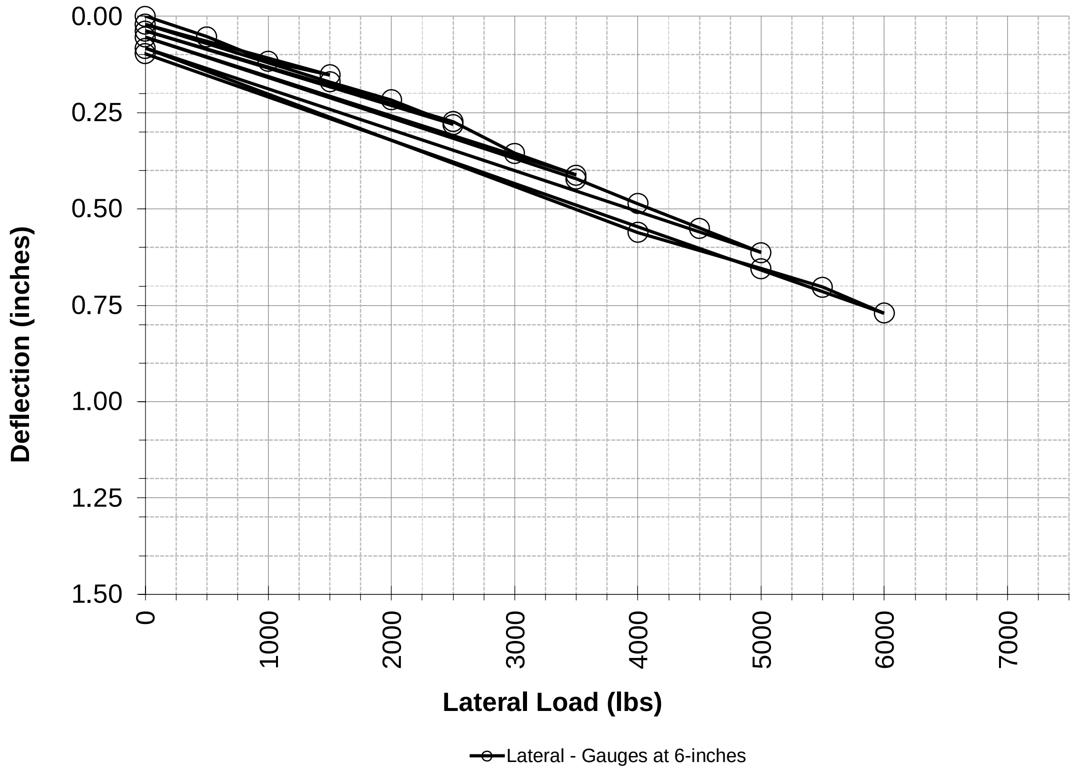
**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/25/2022 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-002B |
| Latitude: | 35.55151 |
| Longitude: | -106.00214 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 92 |
| Pile Stick-Up [in]: | 48 |
| Lateral Design Load [lbs]: | 7000 |
| Drive Time [sec]: | 37.1 |

| % of Design Load | Lateral Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.054 | |
| 14% | 1000 | 0.117 | |
| 21% | 1500 | 0.153 | |
| 0% | 0 | 0.022 | |
| 21% | 1500 | 0.170 | |
| 29% | 2000 | 0.218 | |
| 36% | 2500 | 0.281 | |
| 0% | 0 | 0.039 | |
| 36% | 2500 | 0.274 | |
| 43% | 3000 | 0.356 | |
| 50% | 3500 | 0.412 | |
| 0% | 0 | 0.055 | |
| 50% | 3500 | 0.423 | |
| 57% | 4000 | 0.486 | |
| 64% | 4500 | 0.551 | |
| 71% | 5000 | 0.614 | |
| 0% | 0 | 0.083 | |
| 57% | 4000 | 0.561 | |
| 71% | 5000 | 0.655 | |
| 79% | 5500 | 0.704 | |
| 86% | 6000 | 0.770 | |
| 93% | 6500 | | |
| 100% | 7000 | | |
| 0% | 0 | 0.097 | |



# Lateral Load Test Result for PLT-003A

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | 0 |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in]: | 6 |
| Height of Bottom Gauges [in]: | 6 |
| Height of Applied Load [in]: | 42 |
| Load Cell: | Dillon ED jr 10,000lb |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/18/2022 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-003A |
| Latitude: | 35.54711 |
| Longitude: | -106.01618 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 60 |
| Pile Stick-Up [in]: | 48 |
| Lateral Design Load [lbs]: | 7000 |
| Drive Time [sec]: | 97.2 |

| % of Design Load | Lateral Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.055 | |
| 14% | 1000 | 0.107 | |
| 21% | 1500 | 0.152 | |
| 0% | 0 | 0.011 | |
| 21% | 1500 | 0.163 | |
| 29% | 2000 | 0.182 | |
| 36% | 2500 | 0.223 | |
| 0% | 0 | 0.013 | |
| 36% | 2500 | 0.246 | |
| 43% | 3000 | 0.289 | |
| 50% | 3500 | 0.321 | |
| 0% | 0 | 0.020 | |
| 50% | 3500 | 0.345 | |
| 57% | 4000 | 0.377 | |
| 64% | 4500 | 0.417 | |
| 71% | 5000 | 0.463 | |
| 0% | 0 | 0.030 | |
| 57% | 4000 | 0.440 | |
| 71% | 5000 | 0.482 | |
| 79% | 5500 | 0.531 | |
| 86% | 6000 | 0.628 | |
| 93% | 6500 | 1.040 | |
| 100% | 7000 | | |
| 0% | 0 | 0.513 | |

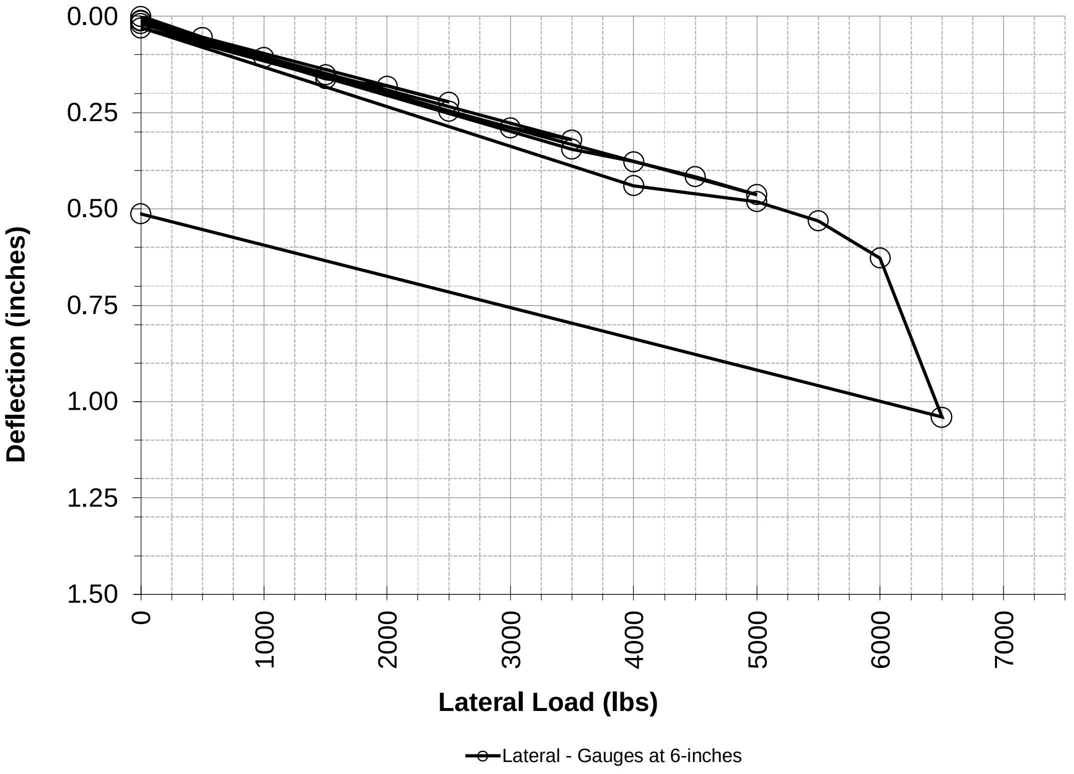


Exhibit H-25

# Lateral Load Test Result for PLT-003B

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | 0 |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in]: | 6 |
| Height of Bottom Gauges [in]: | 6 |
| Height of Applied Load [in]: | 42 |
| Load Cell: | Dillon ED jr 10,000lb |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/18/2022 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-003B |
| Latitude: | 35.54711 |
| Longitude: | -106.01618 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 92 |
| Pile Stick-Up [in]: | 48 |
| Lateral Design Load [lbs]: | 7000 |
| Drive Time [sec]: | 239.4 |

| % of Design Load | Lateral Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.055 | |
| 14% | 1000 | 0.109 | |
| 21% | 1500 | 0.157 | |
| 0% | 0 | 0.013 | |
| 21% | 1500 | 0.169 | |
| 29% | 2000 | 0.189 | |
| 36% | 2500 | 0.232 | |
| 0% | 0 | 0.018 | |
| 36% | 2500 | 0.256 | |
| 43% | 3000 | 0.301 | |
| 50% | 3500 | 0.335 | |
| 0% | 0 | 0.026 | |
| 50% | 3500 | 0.362 | |
| 57% | 4000 | 0.394 | |
| 64% | 4500 | 0.436 | |
| 71% | 5000 | 0.484 | |
| 0% | 0 | 0.038 | |
| 57% | 4000 | 0.461 | |
| 71% | 5000 | 0.503 | |
| 79% | 5500 | 0.544 | |
| 86% | 6000 | 0.596 | |
| 93% | 6500 | 0.707 | |
| 100% | 7000 | | |
| 0% | 0 | 0.000 | |

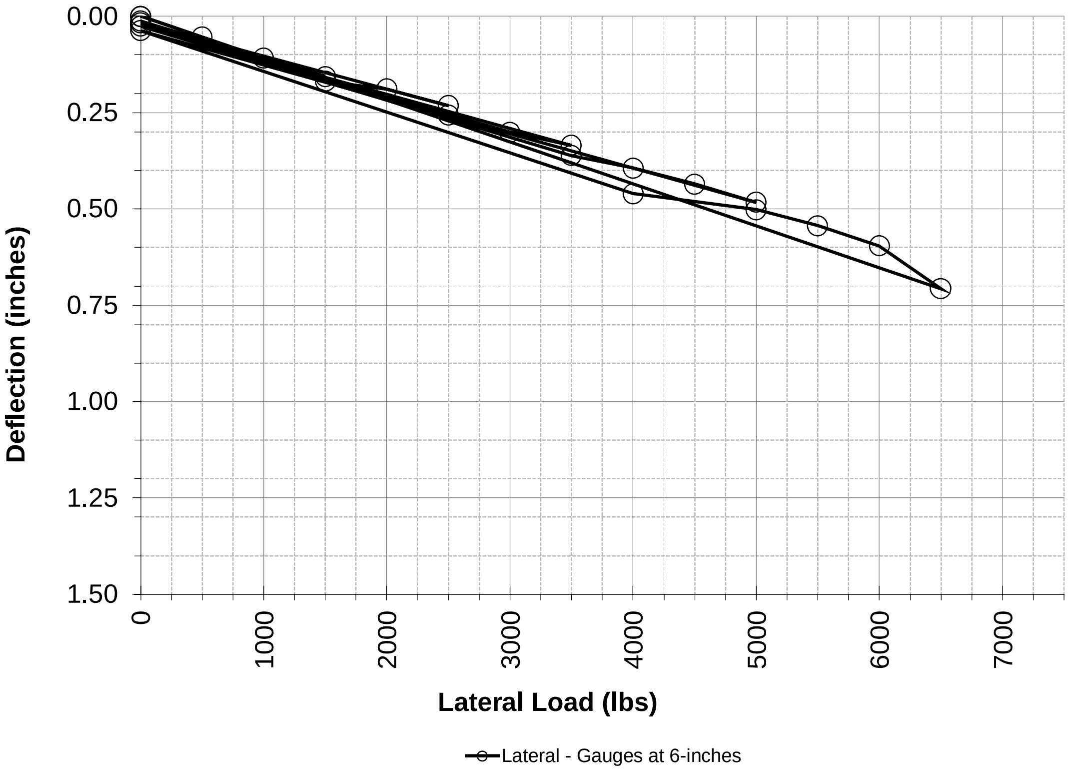


Exhibit H-26

# Lateral Load Test Result for PLT-004A

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | 0 |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in]: | 6 |
| Height of Bottom Gauges [in]: | 6 |
| Height of Applied Load [in]: | 42 |
| Load Cell: | Dillon ED jr 10,000lb |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/18/2022 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-004A |
| Latitude: | 35.54296 |
| Longitude: | -106.03023 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 60 |
| Pile Stick-Up [in]: | 48 |
| Lateral Design Load [lbs]: | 7000 |
| Drive Time [sec]: | 22.6 |

| % of Design Load | Lateral Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.052 | |
| 14% | 1000 | 0.111 | |
| 21% | 1500 | 0.173 | |
| 0% | 0 | 0.019 | |
| 21% | 1500 | 0.181 | |
| 29% | 2000 | 0.246 | |
| 36% | 2500 | 0.316 | |
| 0% | 0 | 0.038 | |
| 36% | 2500 | 0.337 | |
| 43% | 3000 | 0.360 | |
| 50% | 3500 | 0.450 | |
| 0% | 0 | 0.055 | |
| 50% | 3500 | 0.452 | |
| 57% | 4000 | 0.514 | |
| 64% | 4500 | 0.586 | |
| 71% | 5000 | 0.666 | |
| 0% | 0 | 0.099 | |
| 57% | 4000 | 0.599 | |
| 71% | 5000 | 0.692 | |
| 79% | 5500 | 0.748 | |
| 86% | 6000 | 1.002 | |
| 93% | 6500 | | |
| 100% | 7000 | | |
| 0% | 0 | 0.347 | |

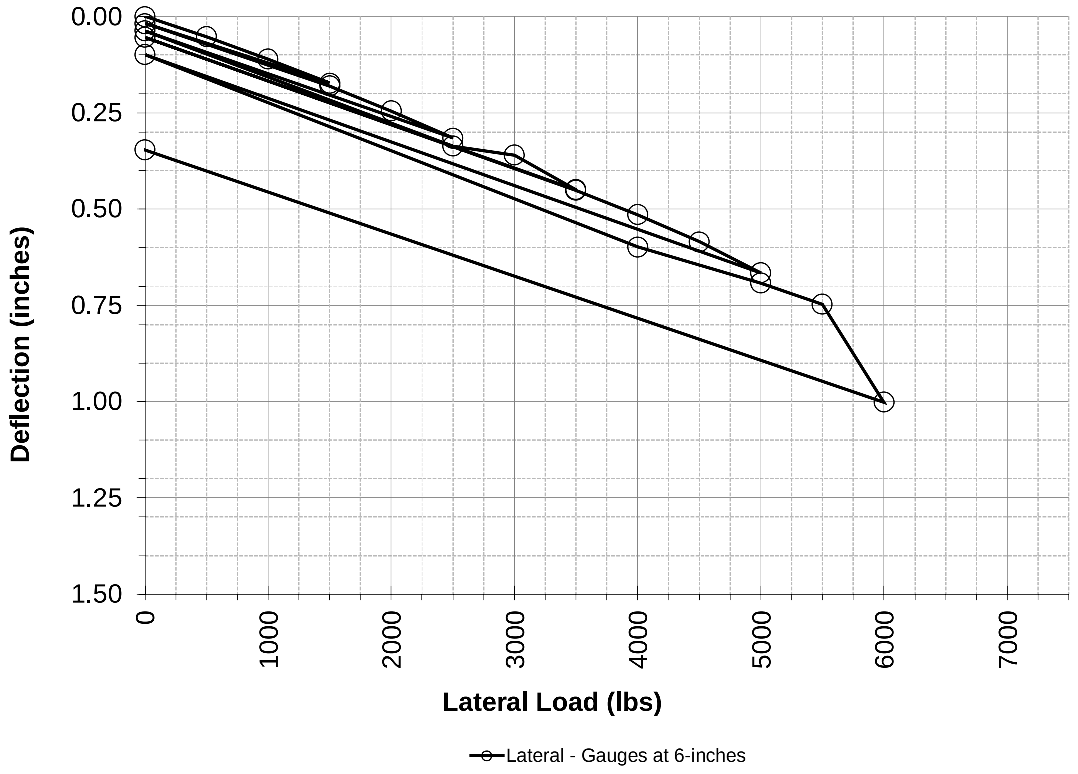


Exhibit H-27

# Lateral Load Test Result for PLT-004B

**Project Information**

Project Name: Rancho Viejo Solar Facility
Project Location: Santa Fe County, NM
Project Number: 66225093

**Lateral Load Test Set Up**

Number of Top Gauges: 0
Number of Bottom Gauges: 2
Height of Top Gauges [in]: 6
Height of Bottom Gauges [in]: 6
Height of Applied Load [in]: 42
Load Cell: Dillon ED jr 10,000lb

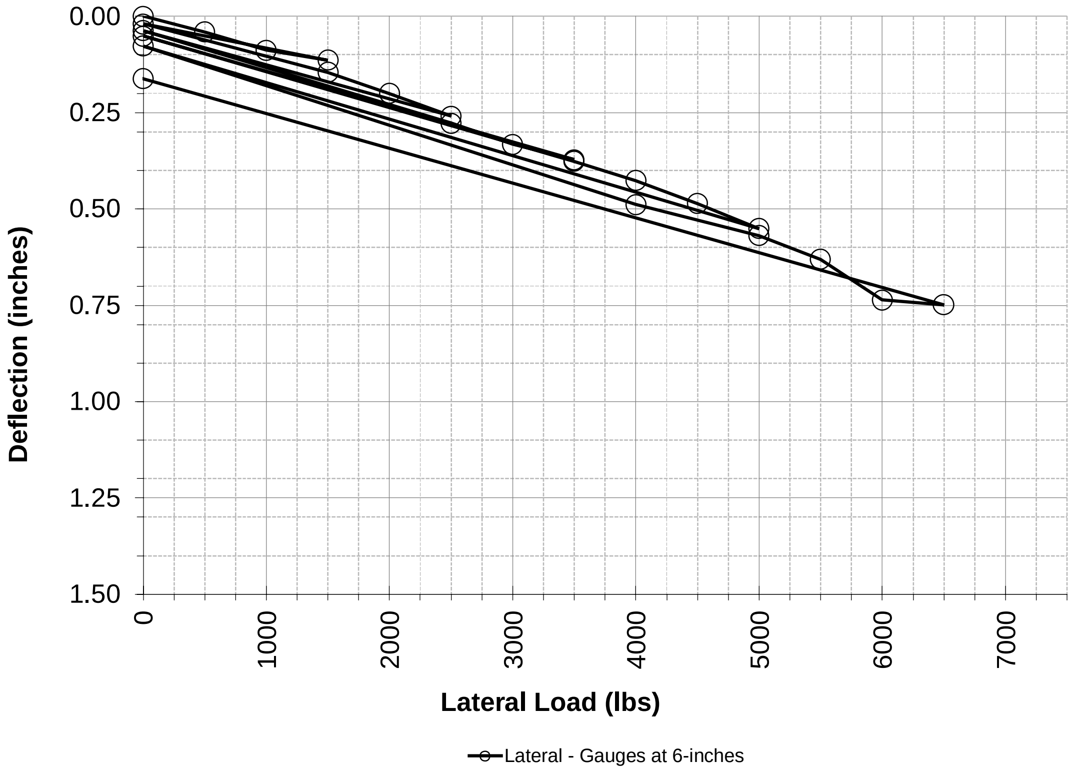
**Test Date and Representative**

Tested By Terracon Rep: CS & SC
Date Tested: 8/18/2022

**Pile Information**

Pile ID: PLT-004B
Latitude: 35.54296
Longitude: -106.03023
Pile Type: W6X9
Pile Embedment Depth [in]: 96
Pile Stick-Up [in]: 48
Lateral Design Load [lbs]: 7000
Drive Time [sec]: 108.7

| % of Design Load | Lateral Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.042 | |
| 14% | 1000 | 0.088 | |
| 21% | 1500 | 0.114 | |
| 0% | 0 | 0.021 | |
| 21% | 1500 | 0.146 | |
| 29% | 2000 | 0.201 | |
| 36% | 2500 | 0.260 | |
| 0% | 0 | 0.038 | |
| 36% | 2500 | 0.278 | |
| 43% | 3000 | 0.333 | |
| 50% | 3500 | 0.373 | |
| 0% | 0 | 0.052 | |
| 50% | 3500 | 0.377 | |
| 57% | 4000 | 0.427 | |
| 64% | 4500 | 0.486 | |
| 71% | 5000 | 0.551 | |
| 0% | 0 | 0.078 | |
| 57% | 4000 | 0.489 | |
| 71% | 5000 | 0.570 | |
| 79% | 5500 | 0.631 | |
| 86% | 6000 | 0.737 | |
| 93% | 6500 | 0.749 | |
| 100% | 7000 | | |
| 0% | 0 | 0.163 | |



# Lateral Load Test Result for PLT-005A

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | 0 |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in]: | 6 |
| Height of Bottom Gauges [in]: | 6 |
| Height of Applied Load [in]: | 42 |
| Load Cell: | Dillon ED jr 10,000lb |

**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/18/2022 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-005A |
| Latitude: | 35.53853 |
| Longitude: | -106.01312 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 60 |
| Pile Stick-Up [in]: | 48 |
| Lateral Design Load [lbs]: | 7000 |
| Drive Time [sec]: | 15 |

| % of Design Load | Lateral Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.058 | |
| 14% | 1000 | 0.136 | |
| 21% | 1500 | 0.184 | |
| 0% | 0 | 0.037 | |
| 21% | 1500 | 0.185 | |
| 29% | 2000 | 0.272 | |
| 36% | 2500 | 0.343 | |
| 0% | 0 | 0.070 | |
| 36% | 2500 | 0.370 | |
| 43% | 3000 | 0.441 | |
| 50% | 3500 | 0.550 | |
| 0% | 0 | 0.135 | |
| 50% | 3500 | 0.596 | |
| 57% | 4000 | 0.685 | |
| 64% | 4500 | 0.830 | |
| 71% | 5000 | 0.976 | |
| 0% | 0 | 0.314 | |
| 57% | 4000 | 0.913 | |
| 71% | 5000 | 1.031 | |
| 79% | 5500 | | |
| 86% | 6000 | | |
| 93% | 6500 | | |
| 100% | 7000 | | |
| 0% | 0 | 0.357 | |

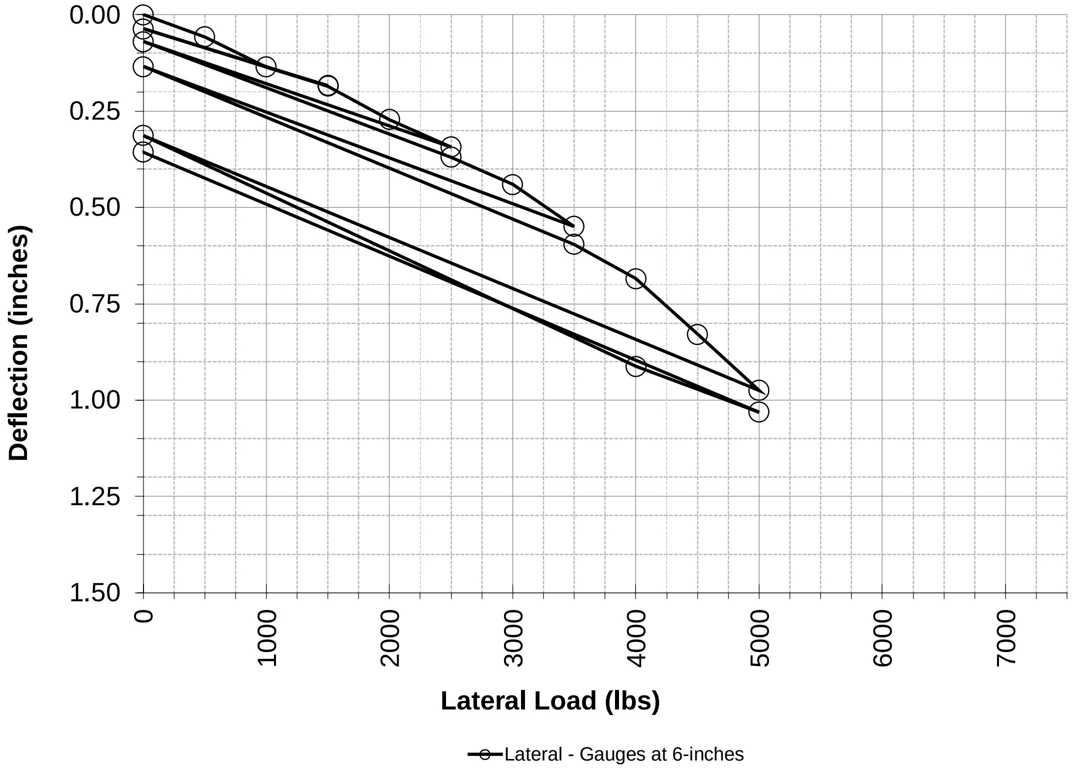


Exhibit H-29

# Lateral Load Test Result for PLT-005B

**Project Information**

Project Name: Rancho Viejo Solar Facility
Project Location: Santa Fe County, NM
Project Number: 66225093

**Lateral Load Test Set Up**

Number of Top Gauges: 0
Number of Bottom Gauges: 2
Height of Top Gauges [in]: 6
Height of Bottom Gauges [in]: 6
Height of Applied Load [in]: 42
Load Cell: Dillon ED jr 10,000lb

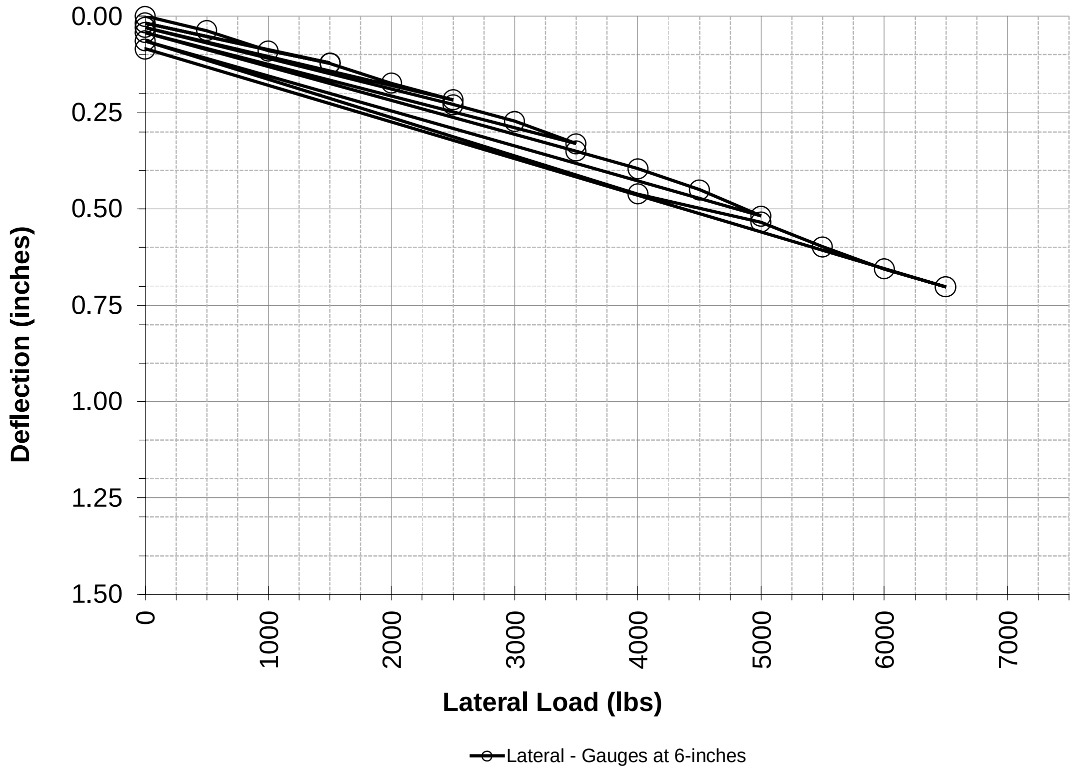
**Test Date and Representative**

Tested By Terracon Rep: CS & SC
Date Tested: 8/18/2022

**Pile Information**

Pile ID: PLT-005B
Latitude: 35.53853
Longitude: -106.01312
Pile Type: W6X9
Pile Embedment Depth [in]: 96
Pile Stick-Up [in]: 48
Lateral Design Load [lbs]: 7000
Drive Time [sec]: 27.3

| % of Design Load | Lateral Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.038 | |
| 14% | 1000 | 0.090 | |
| 21% | 1500 | 0.121 | |
| 0% | 0 | 0.018 | |
| 21% | 1500 | 0.123 | |
| 29% | 2000 | 0.175 | |
| 36% | 2500 | 0.218 | |
| 0% | 0 | 0.029 | |
| 36% | 2500 | 0.230 | |
| 43% | 3000 | 0.273 | |
| 50% | 3500 | 0.331 | |
| 0% | 0 | 0.043 | |
| 50% | 3500 | 0.351 | |
| 57% | 4000 | 0.396 | |
| 64% | 4500 | 0.451 | |
| 71% | 5000 | 0.519 | |
| 0% | 0 | 0.064 | |
| 57% | 4000 | 0.462 | |
| 71% | 5000 | 0.535 | |
| 79% | 5500 | 0.599 | |
| 86% | 6000 | 0.656 | |
| 93% | 6500 | 0.703 | |
| 100% | 7000 | | |
| 0% | 0 | 0.085 | |



# Lateral Load Test Result for PLT-006A

**Project Information**

Project Name: Rancho Viejo Solar Facility
Project Location: Santa Fe County, NM
Project Number: 66225093

**Lateral Load Test Set Up**

Number of Top Gauges: 0
Number of Bottom Gauges: 2
Height of Top Gauges [in]: 6
Height of Bottom Gauges [in]: 6
Height of Applied Load [in]: 42
Load Cell: Dillon ED jr 10,000lb

**Test Date and Representative**

Tested By Terracon Rep: CS & SC
Date Tested: 8/22/2022

**Pile Information**

Pile ID: PLT-006A
Latitude: 35.54313
Longitude: -106.00830
Pile Type: W6X9
Pile Embedment Depth [in]: 60
Pile Stick-Up [in]: 48
Lateral Design Load [lbs]: 7000
Drive Time [sec]: 29.8

| % of Design Load | Lateral Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.061 | |
| 14% | 1000 | 0.155 | |
| 21% | 1500 | 0.218 | |
| 0% | 0 | 0.047 | |
| 21% | 1500 | 0.221 | |
| 29% | 2000 | 0.299 | |
| 36% | 2500 | 0.372 | |
| 0% | 0 | 0.082 | |
| 36% | 2500 | 0.400 | |
| 43% | 3000 | 0.476 | |
| 50% | 3500 | 0.575 | |
| 0% | 0 | 0.134 | |
| 50% | 3500 | 0.594 | |
| 57% | 4000 | 0.664 | |
| 64% | 4500 | 0.747 | |
| 71% | 5000 | 0.826 | |
| 0% | 0 | 0.202 | |
| 57% | 4000 | 0.767 | |
| 71% | 5000 | 0.858 | |
| 79% | 5500 | 0.971 | |
| 86% | 6000 | 1.014 | |
| 93% | 6500 | | |
| 100% | 7000 | | |
| 0% | 0 | 0.292 | |

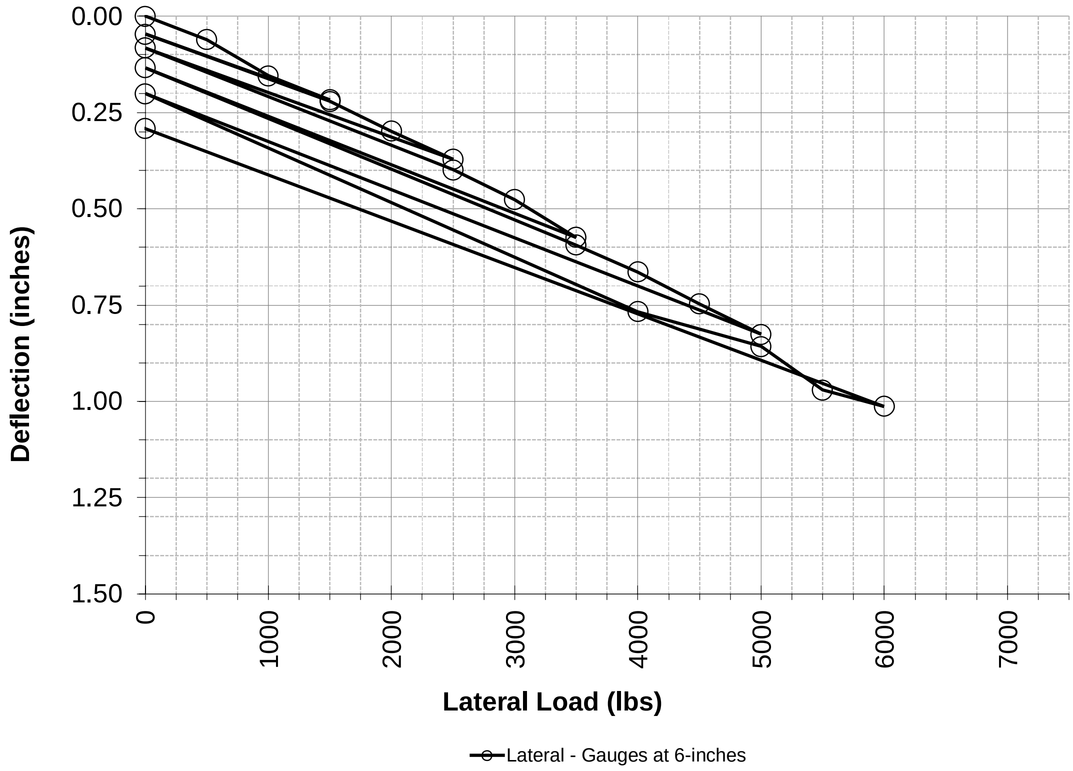


Exhibit H-31

# Lateral Load Test Result for PLT-006B

**Project Information**

| | |
|---|---|
| Project Name: | Rancho Viejo Solar Facility |
| Project Location: | Santa Fe County, NM |
| Project Number: | 66225093 |

**Lateral Load Test Set Up**

| | |
|---|---|
| Number of Top Gauges: | 0 |
| Number of Bottom Gauges: | 2 |
| Height of Top Gauges [in]: | 6 |
| Height of Bottom Gauges [in]: | 6 |
| Height of Applied Load [in]: | 42 |
| Load Cell: | Dillon ED jr 10,000lb |

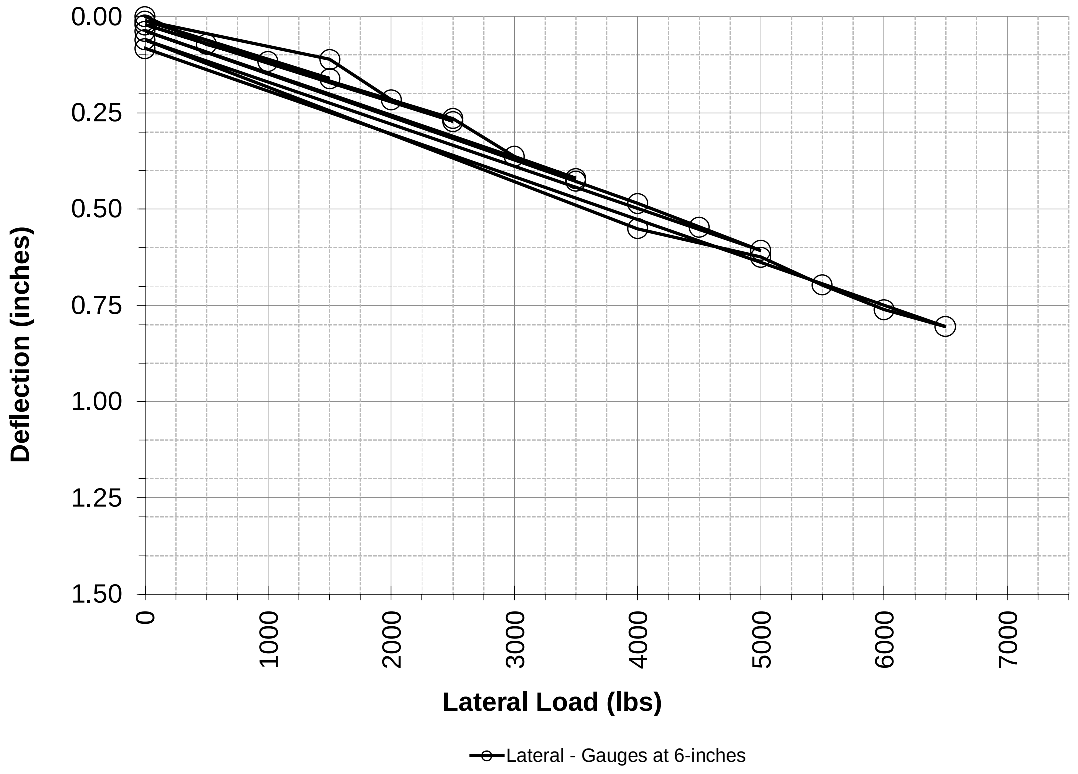
**Test Date and Representative**

| | |
|---|---|
| Tested By Terracon Rep: | CS & SC |
| Date Tested: | 8/22/2022 |

**Pile Information**

| | |
|---|---|
| Pile ID: | PLT-006B |
| Latitude: | 35.54313 |
| Longitude: | -106.00830 |
| Pile Type: | W6X9 |
| Pile Embedment Depth [in]: | 96 |
| Pile Stick-Up [in]: | 48 |
| Lateral Design Load [lbs]: | 7000 |
| Drive Time [sec]: | 75.7 |

| % of Design Load | Lateral Load [lbs] | Deflection Δ (in.) Gauges #1 & #2 | Comments |
|---|---|---|---|
| 0% | 0 | 0.000 | |
| 7% | 500 | 0.073 | |
| 14% | 1000 | 0.117 | |
| 21% | 1500 | 0.162 | |
| 0% | 0 | 0.012 | |
| 21% | 1500 | 0.112 | |
| 29% | 2000 | 0.217 | |
| 36% | 2500 | 0.273 | |
| 0% | 0 | 0.022 | |
| 36% | 2500 | 0.265 | |
| 43% | 3000 | 0.364 | |
| 50% | 3500 | 0.421 | |
| 0% | 0 | 0.039 | |
| 50% | 3500 | 0.428 | |
| 57% | 4000 | 0.486 | |
| 64% | 4500 | 0.547 | |
| 71% | 5000 | 0.608 | |
| 0% | 0 | 0.061 | |
| 57% | 4000 | 0.552 | |
| 71% | 5000 | 0.625 | |
| 79% | 5500 | 0.698 | |
| 86% | 6000 | 0.761 | |
| 93% | 6500 | 0.806 | |
| 100% | 7000 | | |
| 0% | 0 | 0.084 | |



# APPENDIX I
# Double Ring Infiltration Test Results

# Double Ring Infiltrometer Tests

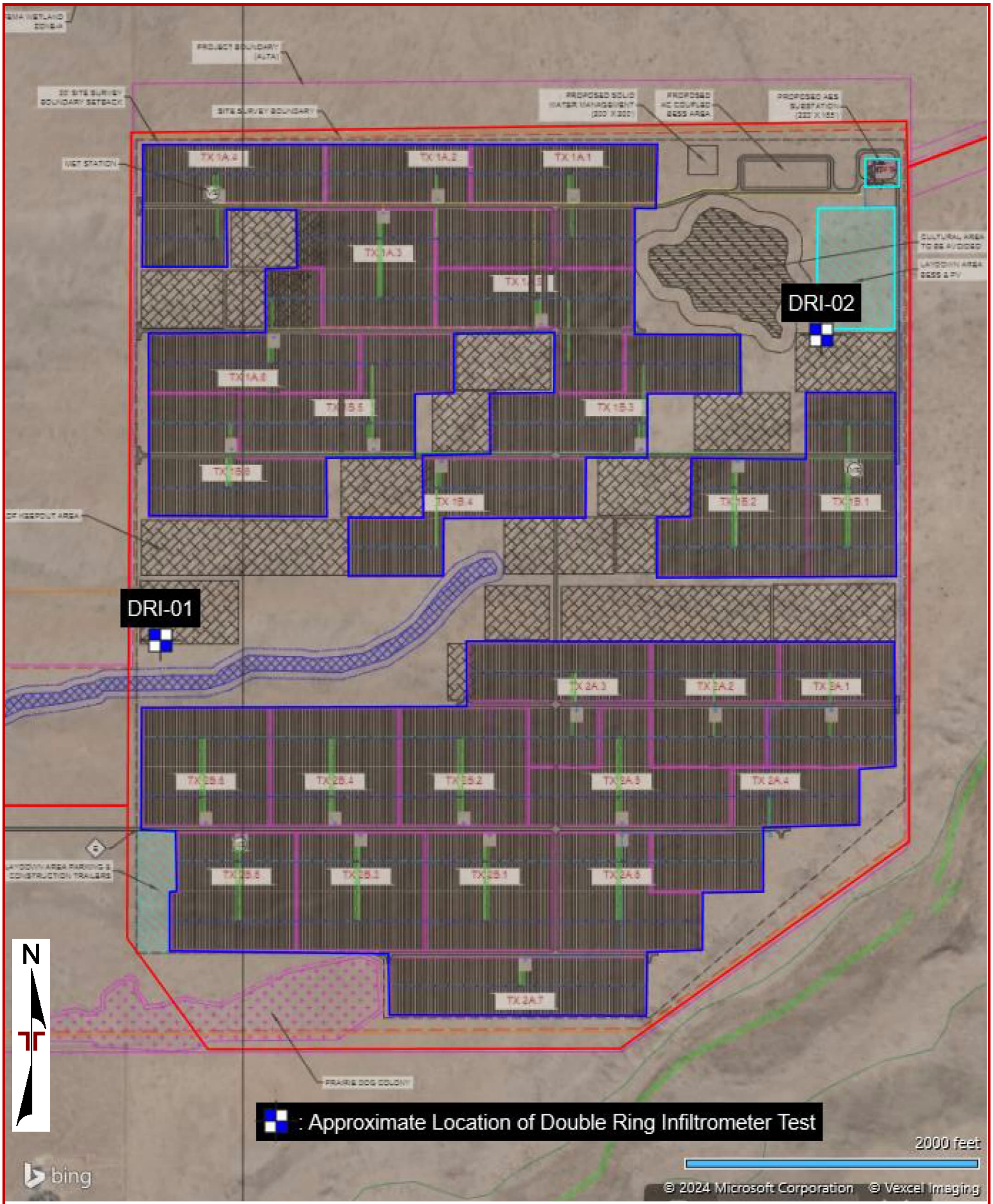


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES MAP PROVIDED BY MICROSOFT BING MAPS

# DOUBLE RING INFILTRATION TEST SUMMARY

## Project

Project Name: Rancho Viejo Solar
roject Location: Santa Fe County, New Mexico
roject Number: 66225093

## Test Details

Test No.: DR -1
Depth (Elev.): 4 ft
Technician: SL
Date: 10/6/2023
Weather: Sunny
Liquid Type: Water
Coordinates: 35.545011 -106.017882

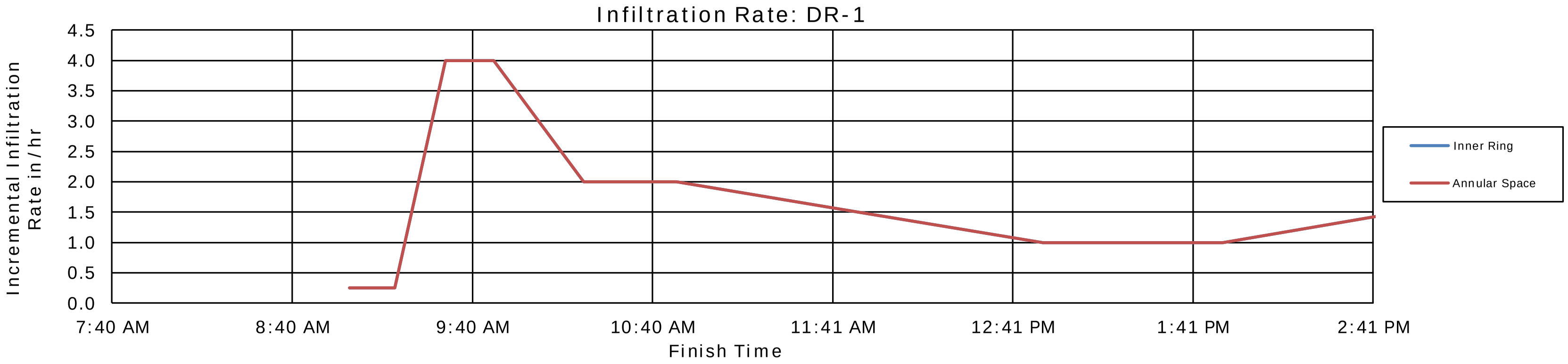
## Test Setup

| | | |
|---|---|---|
| Inner Ring Area: | 113.1 | $in^2$ |
| Inner Ring Diameter: | 12.0 | in |
| Annular space between Outer and Inner rings: | 339 | $in^2$ |
| Outer Ring Diameter: | 24.0 | in |
| Depth of Liquid Inner Ring: | 7.00 | in |
| Depth of Liquid Annular Space: | 7.00 | in |

## Soil Description

Depth: 4 ft
Description: silty sand, light brown

| Trial No. | Time | | Elapsed Time (hr:min:sec) | Volume Measurements | | | | Infiltration Rate, in/hr | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Start | | Finish | | | |
| | Start | Finish | | Inner Ring Volume, $in^3$ | Annular Space Volume, $in^3$ | Inner Ring Volume, $in^3$ | Annular Space Volume,$in^3$ | Inner Ring | Annular Space |
| 1 | 8:45 AM | 9:00:00 AM | 0:15:00 | 792 | 2375 | 785 | 2354 | 0.25 | 0.25 |
| 2 | 9:00:00 AM | 9:15:00 AM | 0:15:00 | 792 | 2375 | 785 | 2354 | 0.25 | 0.25 |
| 3 | 9:17:00 AM | 9:32:00 AM | 0:15:00 | 845 | 2534 | 732 | 2195 | 4.00 | 4.00 |
| 4 | 9:33:00 AM | 9:48:00 AM | 0:15:00 | 845 | 2534 | 732 | 2195 | 4.00 | 4.00 |
| 5 | 9:48:00 AM | 10:18:00 AM | 0:30:00 | 845 | 2534 | 732 | 2195 | 2.00 | 2.00 |
| 6 | 10:19:00 AM | 10:49:00 AM | 0:30:00 | 845 | 2534 | 732 | 2195 | 2.00 | 2.00 |
| 7 | 10:49:00 AM | 11:49:00 AM | 1:00:00 | 873 | 2619 | 703 | 2110 | 1.50 | 1.50 |
| 8 | 11:51:00 AM | 12:51:00 PM | 1:00:00 | 845 | 2534 | 732 | 2195 | 1.00 | 1.00 |
| 9 | 12:51:00 PM | 1:51:00 PM | 1:00:00 | 845 | 2534 | 732 | 2195 | 1.00 | 1.00 |
| 10 | 1:51:00 PM | 2:51:00 PM | 1:00:00 | 873 | 2619 | 703 | 2110 | 1.50 | 1.50 |



# DOUBLE RING INFILTRATION TEST SUMMARY

Terracon

## Project

| | |
|---|---|
| Project Name: | Rancho Viejo Solar |
| roject Location: | Santa Fe County, New Mexico |
| roject Number: | 66225093 |

## Test Details

| | | |
|---|---|---|
| Test No.: | DR -2 | |
| Depth (Elev.): | 4 ft | |
| Technician: | SL | |
| Date: | 10/9/2023 | |
| Weather: | sunny | |
| Liquid Type: | Water | |
| Coordinates: | 35.550217 | -106.00271 |

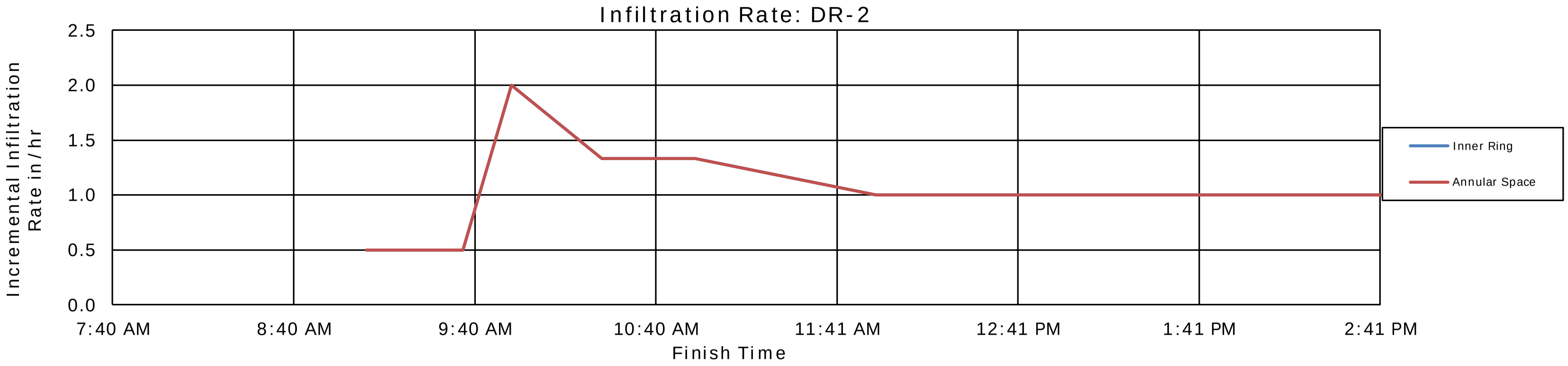
## Test Setup

| | | |
|---|---|---|
| Inner Ring Area: | 113.1 | $in^2$ |
| Inner Ring Diameter: | 12.0 | in |
| Annular space between Outer and Inner rings: | 339 | $in^2$ |
| Outer Ring Diameter: | 24.0 | in |
| Depth of Liquid Inner Ring: | 9.00 | in |
| Depth of Liquid Annular Space: | 9.00 | in |

## Soil Description

| | |
|---|---|
| Depth: | 4 ft |
| Description: | Silty sand, light brown |

| Trial No. | Time | | Elapsed Time (hr:min:sec) | Volume Measurements | | | | Infiltration Rate, in/hr | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Start | | Finish | | | |
| | Start | Finish | | Inner Ring Volume, $in^3$ | Annular Space Volume, $in^3$ | Inner Ring Volume, $in^3$ | Annular Space Volume,$in^3$ | Inner Ring | Annular Space |
| 1 | 8:50 AM | 9:05:00 AM | 0:15:00 | 1018 | 3054 | 1004 | 3011 | 0.50 | 0.50 |
| 2 | 9:06:00 AM | 9:21:00 AM | 0:15:00 | 1018 | 3054 | 1004 | 3011 | 0.50 | 0.50 |
| 3 | 9:22:00 AM | 9:37:00 AM | 0:15:00 | 1018 | 3054 | 1004 | 3011 | 0.50 | 0.50 |
| 4 | 9:38:00 AM | 9:53:00 AM | 0:15:00 | 1039 | 3117 | 983 | 2948 | 2.00 | 2.00 |
| 5 | 9:53:00 AM | 10:23:00 AM | 0:30:00 | 1048 | 3145 | 973 | 2919 | 1.33 | 1.33 |
| 6 | 10:24:00 AM | 10:54:00 AM | 0:30:00 | 1048 | 3145 | 973 | 2919 | 1.33 | 1.33 |
| 7 | 10:54:00 AM | 11:54:00 AM | 1:00:00 | 1067 | 3202 | 954 | 2863 | 1.00 | 1.00 |
| 8 | 11:55:00 AM | 12:55:00 PM | 1:00:00 | 1067 | 3202 | 954 | 2863 | 1.00 | 1.00 |
| 9 | 12:55:00 PM | 1:55:00 PM | 1:00:00 | 1067 | 3202 | 954 | 2863 | 1.00 | 1.00 |
| 10 | 1:55:00 PM | 2:55:00 PM | 1:00:00 | 1067 | 3202 | 954 | 2863 | 1.00 | 1.00 |



# APPENDIX J

# JDH Corrosion Analysis

jdh corrosion consultants, inc.

*Protecting the infrastructure*
*through innovative*
*Corrosion Engineering Solutions*

March 21, 2024

Terracon
6805 Academy Parkway, West NE
Albuquerque, New Mexico
Stenson.Lee@terracon.com

**Attention:** **Stenson Lee**
**Staff Engineer**

**Subject:** **Corrosion Engineering Services**
**Soil Corrosivity for Steel Support Piles**
**Rancho Viejo Solar Project**
**Santa Fe, New Mexico**

Dear Stenson,

Pursuant to your request, **JDH Corrosion Consultants, Inc**. has conducted a review of the soil data for the above referenced project site and we have provided herein our analysis and long-term corrosion control recommendations for the subject steel support piles for the photovoltaic solar project at this site.

## PURPOSE

The purpose of this evaluation is to review the materials being proposed for use at the above referenced solar project for **Terracon** in order to determine their requirements for a 40-year expected life. This analysis will include below grade recommendations as follows:

Below Grade
- Determine the rate of corrosion for bare steel support piles (i.e. H-pile configuration)
- Determine the rate of corrosion for hot dipped galvanizing
- Provide recommendations for hot dipped galvanized piles as appropriate
- Provide recommendations for epoxy coated piles as appropriate

Above Grade
- Determine the rate of corrosion on hot dipped galvanized support structures

## PROJECT BACKGROUND

The proposed Rancho Viejo Solar Project is located in Santa Fe, New Mexico.

Soil chemical data was extracted from the following report: Terracon Geotechnical Engineering Report, Rancho Viejo Solar Development, Project #66225093. This site has soils which have been reported in the geotechnical report as having the following electrical characteristics:

**TABLE 1: Soil Chemical Analysis**

| Chemical Analysis | Range of Results | Corrosion Classification |
|---|---|---|
| Electrical Resistivity (In-Situ) | 4,240 – 40,630 ohm-cm | Moderately to Progressively Less Corrosive |
| Minimum Resistivity (Laboratory) | 1,273 – 6,700 ohm-cm | Corrosive to Moderately Corrosive |
| pH | 6.35 – 8.35 | Mildly to non-corrosive |
| Chloride | 37 - 155 mg/kg | Non-Corrosive to Moderately Corrosive |
| Sulfate | 24 - 133 mg/kg | Non-Corrosive |

### In-Situ Soil Resistivity Analysis

Corrosion of a metal is an electro-chemical process and is accompanied by the flow of electric current. Resistivity is a measure of the ability of a soil to conduct an electric current and is, therefore, an important parameter in consideration of corrosion data. Soil resistivity is primarily dependent upon the chemical content and moisture content of the soil mass.

The greater the amount of chemical constituents present in the soil, the lower the resistivity will be. As moisture content increases, resistivity decreases until maximum solubility of dissolved chemicals is attained. Beyond this point, an increase in moisture content results in dilution of the chemical concentration and resistivity increases. The corrosion rate of steel in soil normally increases as resistivity decreases. Therefore, in any particular group of soils, maximum corrosion will generally occur in the lowest resistivity areas. The following classification of soil corrosivity, developed by William J. Ellis[1], is used for the analysis of the soil data for the project site.

| Resistivity (Ohm-cm) | Corrosivity Classification |
|---|---|
| 0 – 500 | Severely Corrosive |
| 501 – 2,000 | Corrosive |
| 2,001 – 8,000 | Moderately Corrosive |
| 8,001 – 32,000 | Mildly Corrosive |
| > 32,000 | Progressively Less Corrosive |

## DISCUSSION

Corrosion is defined by the National Association of Corrosion Engineers (NACE) as the degradation of a material or its properties due to a reaction with its environment. Corrosion of a metal is an electro-chemical process which is accompanied by the flow of electric current. When steel is buried in soil, the soil is the electrolyte for this electro-chemical process. Resistivity of the soil is a measure of the ability of that soil to conduct an electric current and is, therefore, an important parameter in consideration of corrosion data. Soil resistivity is primarily dependent upon the chemical content and moisture content of the soil mass. The greater the amount of chemical constituents present in the soil, the lower the resistivity will be. Also, the moisture content in the soil is critical to the resistivity due to the fact that as moisture content increases, resistivity will decrease until maximum solubility of dissolved chemicals is attained.

Corrosion is usually not caused by a single factor, but is typically the result of numerous factors influencing the metal in question and oftentimes the factors affecting the rate of corrosion may not remain constant with time. It is, therefore, difficult to accurately predict the corrosion rate in soil.

The rates of corrosion for both the galvanizing and the bare carbon steel were determined based on the following:

- "Corrosion of Galvanized Steel in Soils" by Irving A Denison and Melvin Lauderdale Romanoff, Journal of Research of the National Bureau of Standards, Vo. 49, No. 5, November 1952.
- "Corrosion Resistance of Zinc & Zinc Alloys" by Frank C. Porter – ISBN 0-8247-9213-0 – 1994
- "Corrosion Guidelines", Version 2.0, November 2012, by California Department of Transportation.
- "Hot-Dip Galvanizing, In Soil", by American Galvanizers Association, 2011

## Service Life of Galvanized Steel

There are countless soil types in the world, which makes predicting the performance of galvanized steel in soil difficult. A number of soil characteristics affect the corrosion rate of galvanized steel, and soil content conditions can vary significantly. These variances can lead to vastly different corrosion rates for zinc, ranging from 0.2 microns per year in very favorable conditions to 20 microns annually in very aggressive soils. Therefore, the key to understanding how long galvanized steel will last in buried applications is through classification of the soil.

As a general rule of thumb, galvanizing tends to perform well in brown, sandy soils, and not very well in gray, clay-like soils. The reason for this difference is sandy soils with larger particles wick moisture more rapidly, limiting the galvanized piece's exposure to wet conditions, while clay-like soils hold moisture for longer periods. Similar to atmospheric exposure, galvanized steel performs best when it is relatively dry.

The four variables with the most profound impact on the corrosion rate of hot-dip galvanized steel in soil include chloride concentration, moisture content, pH, and resistivity. The presence of chloride ions causes resistivity to be lower, making the zinc coating more susceptible to corrosion. Along with high moisture levels in the soil, high chlorides will increase the rate of the corrosion of the zinc coating. For hot-dip galvanized steel, the soil moisture content primarily affects the activity of the chloride ions. If the moisture content of the soil is below 17.5%, the chloride ion concentration does not significantly affect the corrosion rate of the zinc. For soils with moisture content above 17.5%, the chloride ion concentration has a significant effect on the corrosion rate of zinc. Soils with pH values less than 7.0 have a higher corrosion rate on zinc coatings. If the pH of the soil is above 7.0, then the corrosion rate of the soil yields a longer service life of the zinc coating. The resistivity parameter follows the chloride ion concentration in that higher resistivity often means lower chloride ion content and a lower corrosion rate of the zinc coating.

Corrosion Rate for Zinc (Galvanizing)

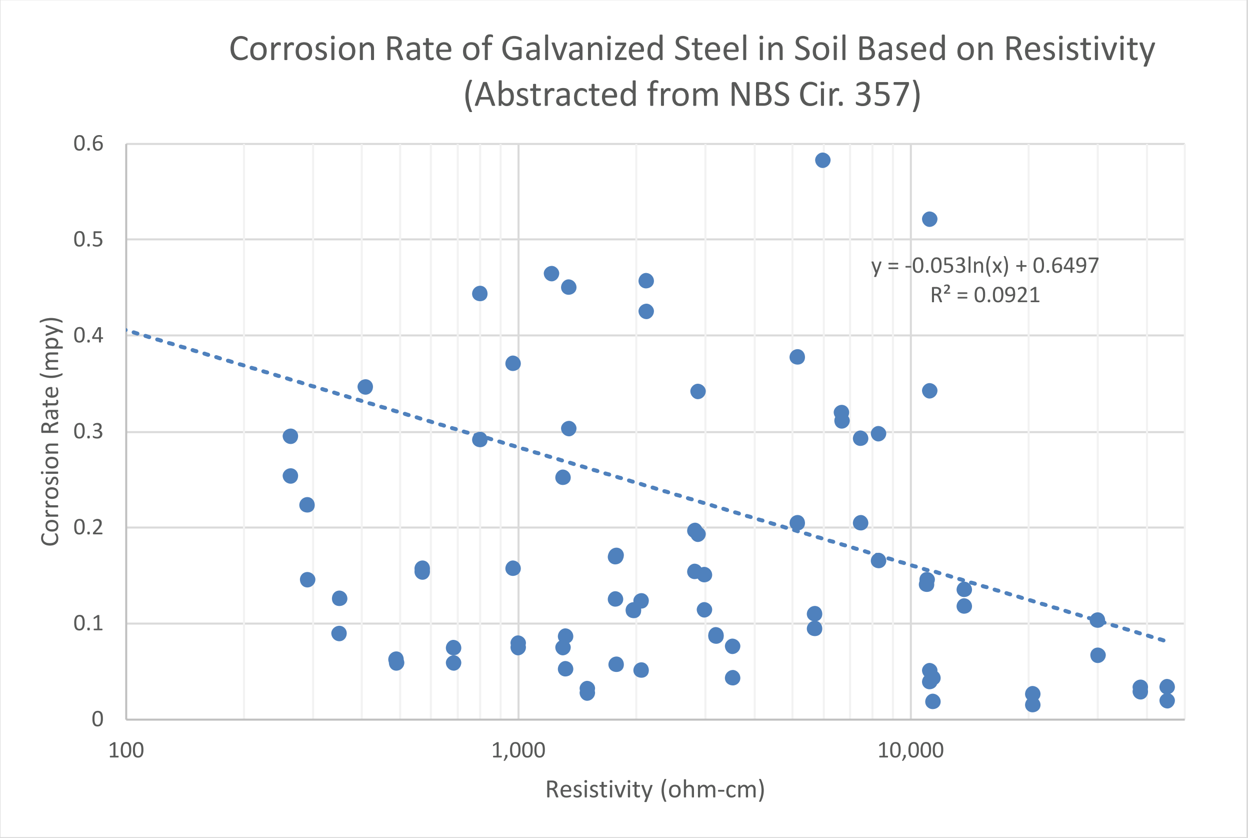


**Figure 2 - Zinc loss vs. resistivity (abstracted from NBS Cir. 579, Romanoff)**

The plot above indicates that for a soil of resistivity value of 4,240 ohm-cm (the lowest in-situ resistivity encountered) the corrosion rate will be roughly 0.21 mpy for the soil conditions. Accounting for any uncertainties in data, the addition of a 90% confidence interval applied brings the corrosion rate up to 0.25 mpy. This translates to a life of the hot dipped galvanized coating that meets ASTM A123 of approximately 3.5 mils, of approximately 13.9 years for the soil conditions. It is our professional opinion that this chart provides a relatively accurate representation of the annual average corrosion rate for HDG at the site, due to the resistivity levels found.

Corrosion Rate for Steel

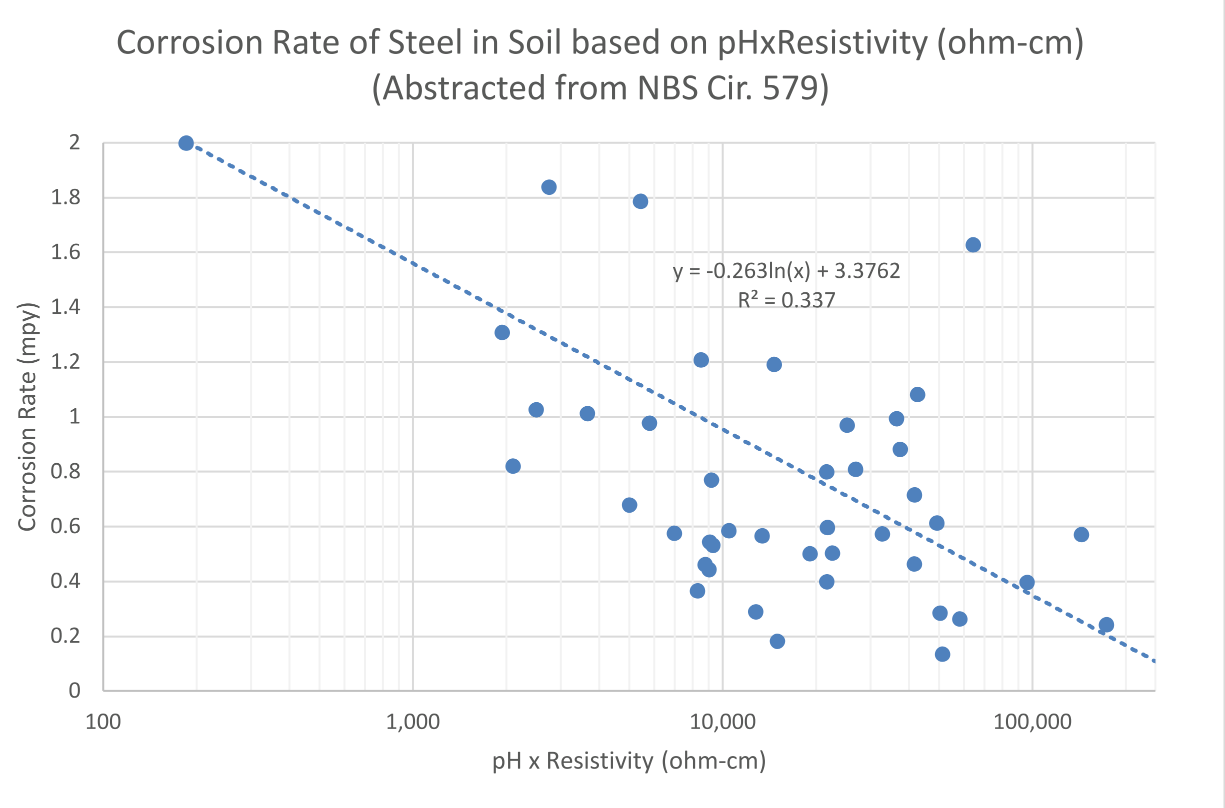


**Figure 3 – Carbon Steel loss as a function of pH times resistivity (abstracted from NBS Cir. 579, Romanoff)**

The plot above indicates that for a soil with a pH value of 6.35 (the lowest pH encountered), and a resistivity of 4,240 ohm-cm (the lowest in-situ resistivity), the corrosion rate will be approximately 0.69 mpy for the soil conditions based upon a pH*Resistivity = 26,924. Accounting for any uncertainties in data the addition of a 90% confidence interval applied bring the corrosion rate up to 0.84 mpy. It is our professional opinion that this is an accurate average annual corrosion rate for the 35-year design life of the site coupled with the fact that the site receives roughly 14 inches of rain per year along with the predominately moderate resistivity and neutral pH levels.

## Summary of Corrosion Rates

Therefore, based on the afore-mentioned references, our review of the geotechnical reports for this site and our experience in studying piles in similar situations, the corrosion rates for these soils are determined to be as follows:

Summary of Corrosion Rates:

Steel: 0.84 mpy (mils per year)
Zinc: 0.25 mpy

## STRATEGIES FOR 25-YEAR DESIGN LIFE

### Option 1: Hot Dipped Galvanized Piles with Corrosion Allowance.

3.0 mils of HDG
Utilize a hot-dipped galvanized steel pile with hot dipped galvanized coating, of 3.0 mils, that meets ASTM A123. The zinc coating will provide an approximate 11.9-year life based on a corrosion rate of 0.25 mpy. This means that for a 25-year design life, 13.1 years of corrosion allowance must be accounted for. The corrosion allowance must consist of 0.84 mpy per face for a total thickness allowance of 1.68 mpy for both the flanges and the web of the H-pile, for these soil conditions. Therefore, because a corrosion allowance for 13.1 years is needed for the piles: 13.1 yrs x 0.84 mpy = 11.00 mils per side. Thus, the piles will need a total of 22.0 mils of corrosion allowance, along with the 3.0 mils of HDG.

3.9 mils of HDG
Therefore, because a HDG coating of 3.9 mils will last 15.5 years, a corrosion allowance of 9.5 years would be needed. 9.5 yrs x 0.84 mpy = 7.98 mils per side. Thus, the piles would need a total of 16.0 mils of corrosion allowance, along with 3.9 mils of HDG.

5.0 mils of HDG
Therefore, because a HDG coating of 5.0 mils will last 19.8 years, a corrosion allowance of 5.2 years would be needed. 5.2 yrs x 0.84 mpy = 4.4 mils per side. Thus, the piles would need a total of 8.7 mils of corrosion allowance, along with 5.0 mils of HDG.

### Option 2: Ungalvanized piles with Corrosion Allowance.

Utilize an ungalvanized steel pile, this means that for a 25-year design life, 25 years of corrosion allowance must be accounted for. The corrosion allowance must consist of 0.84 mpy per face for a total thickness allowance of 1.68 mpy for both the flanges and the web of the H-pile, for these soil conditions. Therefore, because a corrosion allowance for 25 years is needed for the piles: 25 yrs x 0.84 mpy = 21 mils per side. Thus, the piles will need a total of 42 mils of corrosion allowance.

### Option 3: Epoxy Coating

Coat the entire piles with a tough, durable and scratch resistant epoxy system such as 3M Scotchkote Abrasion Resistant Epoxy Costing 328 or a similarly tough polyurethane system such as Polyclad 777 by Carboline or other similar type of system. The coating shall be applied in a thickness of approximately 25-mils and extended at least 6" above grade to the bottom of the pile.

## STRATEGIES FOR 35-YEAR DESIGN LIFE

### Option 1: Hot Dipped Galvanized Piles with Corrosion Allowance.

3.0 mils of HDG
Utilize a hot-dipped galvanized steel pile with hot dipped galvanized coating, of 3.0 mils, that meets ASTM A123. The zinc coating will provide an approximate 11.9-year life based on a corrosion rate of 0.25 mpy. This means that for a 35-year design life, 23.1 years of corrosion allowance must be accounted for. The corrosion allowance must consist of 0.84 mpy per face for a total thickness allowance of 1.68 mpy for both the flanges and the web of the H-pile, for these soil conditions. Therefore, because a corrosion allowance for 23.1 years is needed for the piles: 23.1 yrs x 0.84 mpy = 19.40 mils per side. Thus, the piles will need a total of 38.8 mils of corrosion allowance, along with the 3.0 mils of HDG.

3.9 mils of HDG

Therefore, because a HDG coating of 3.9 mils will last 15.5 years, a corrosion allowance of 19.5 years would be needed. 19.5 yrs x 0.84 mpy = 16.38 mils per side. Thus, the piles would need a total of 32.8 mils of corrosion allowance, along with 3.9 mils of HDG.

5.0 mils of HDG

Therefore, because a HDG coating of 5.0 mils will last 19.8 years, a corrosion allowance of 15.2 years would be needed. 15.2 yrs x 0.84 mpy = 12.77 mils per side. Thus, the piles would need a total of 25.5 mils of corrosion allowance, along with 5.0 mils of HDG.

### Option 2: Ungalvanized piles with Corrosion Allowance.

Utilize an ungalvanized steel pile, this means that for a 35-year design life, 35 years of corrosion allowance must be accounted for. The corrosion allowance must consist of 0.84 mpy per face for a total thickness allowance of 1.68 mpy for both the flanges and the web of the H-pile, for these soil conditions. Therefore, because a corrosion allowance for 35 years is needed for the piles: 35 yrs x 0.84 mpy = 29.4 mils per side. Thus, the piles will need a total of 58.8 mils of corrosion allowance.

### Option 3: Epoxy Coating

Coat the entire piles with a tough, durable and scratch resistant epoxy system such as 3M Scotchkote Abrasion Resistant Epoxy Costing 328 or a similarly tough polyurethane system such as Polyclad 777 by Carboline or other similar type of system. The coating shall be applied in a thickness of approximately 35-mils and extended at least 6” above grade to the bottom of the pile.

## Abrasion Resistance

The epoxy coating system is an abrasion resistant coating and as such will tend to minimize the amount of damage to the coating during the pile driving operations. The Hot Dip Galvanizing, however, is not an abrasion resistant coating and some degree of scraping was anticipated and will penetrate these coatings during the pile driving operations based on the geotechnical reports and this has been taken into account in our analysis and recommendations.

It should be understood that isolated scrapes and penetrations through both the, epoxy and HDG, coatings is anticipated and is not considered to be detrimental to the overall structural integrity of the piles during the desired design life. It is the overall section modulus of the piles that give them the strength to resist the design loads on the system and as such it is the overall loss of cross-sectional area that is of concern.

## Concrete

Corrosion of the reinforcing steel and other embedded metals is the leading cause of deterioration in concrete. When steel corrodes, the resulting rust occupies a greater volume than the steel. This expansion creates tensile stresses in the concrete, which can eventually cause cracking, delamination, and spalling. Although steel's natural tendency is to undergo corrosion, the alkaline environment of concrete (pH of 12 to 13) provides the steel with a level of corrosion protection in the form of a thin oxide layer which passivates the steel. Carbonation occurs when carbon dioxide penetrates the concrete and reacts with hydroxides to form carbonates. This reaction reduces the pH of the concrete to as low as 8.5, which then the passive film on the steel is no longer stable, thus allowing the steel to begin corroding.

With regards to the corrosion potential to concrete at the site, ACI-318 categorizes the site as a S0 due to the non-corrosive Sulfate levels. However, due to the moderate resistivity we recommend 3" of cover for the reinforcing steel, and a good concrete mix design such as, a type II or MS cement, with a water to cement ratio of 0.50 or less with 4,000 psi.

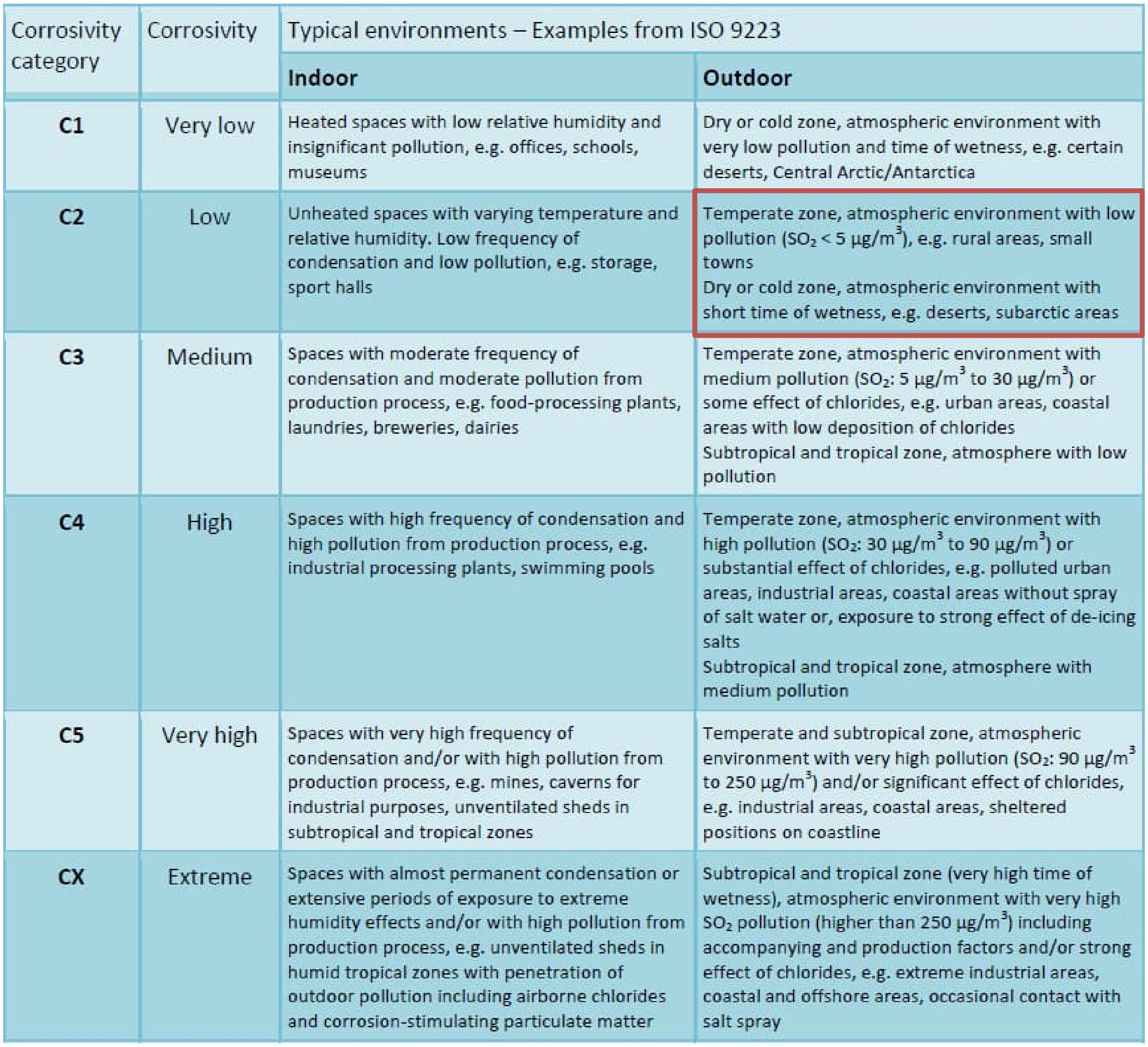
## ATMOSPHERIC CORROSION

The purpose of this evaluation is to analyze the atmospheric corrosion potential to the metallic system components resulting from the environmental factors outlined in this report and to determine the life expectancy of these components based on the corrosion potential.

Atmospheric corrosion of metals and alloys at any particular site depends on the environmental conditions, namely the moisture present (time of wetness) and the pollutants in the atmosphere (mainly sulfur dioxide in the marine-industrial sites and airborne salts along coastline regions).

Atmospheric data for this site was collected from the Santa Fe Municipal Airport Weather Station.

Atmospheres are classified according to ISO (International Standards Organization) in ISO 9223:

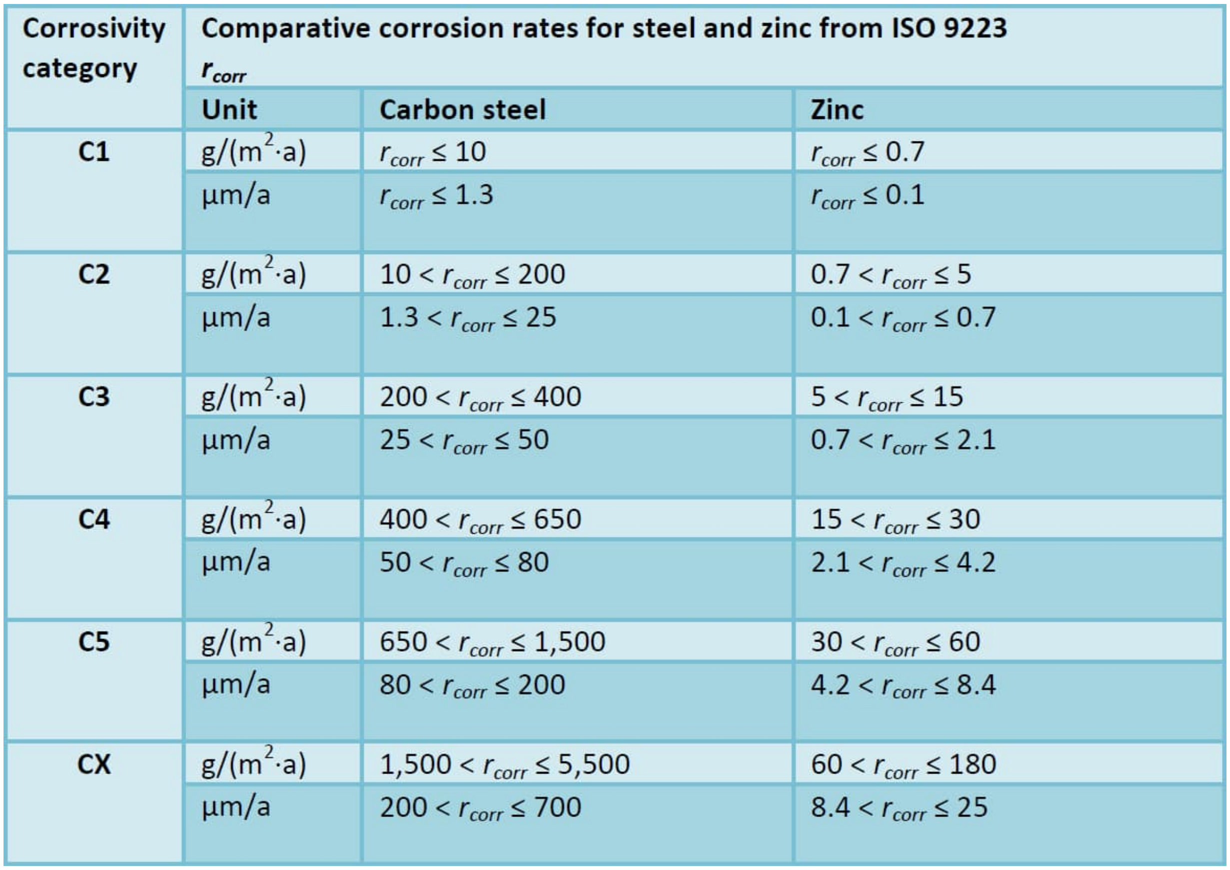


| Corrosivity category | Corrosivity | Typical environments – Examples from ISO 9223 | |
|---|---|---|---|
| | | **Indoor** | **Outdoor** |
| **C1** | Very low | Heated spaces with low relative humidity and insignificant pollution, e.g. offices, schools, museums | Dry or cold zone, atmospheric environment with very low pollution and time of wetness, e.g. certain deserts, Central Arctic/Antarctica |
| **C2** | Low | Unheated spaces with varying temperature and relative humidity. Low frequency of condensation and low pollution, e.g. storage, sport halls | Temperate zone, atmospheric environment with low pollution ($SO_2 < 5\ \mu g/m^3$), e.g. rural areas, small towns<br>Dry or cold zone, atmospheric environment with short time of wetness, e.g. deserts, subarctic areas |
| **C3** | Medium | Spaces with moderate frequency of condensation and moderate pollution from production process, e.g. food-processing plants, laundries, breweries, dairies | Temperate zone, atmospheric environment with medium pollution ($SO_2$: 5 $\mu g/m^3$ to 30 $\mu g/m^3$) or some effect of chlorides, e.g. urban areas, coastal areas with low deposition of chlorides<br>Subtropical and tropical zone, atmosphere with low pollution |
| **C4** | High | Spaces with high frequency of condensation and high pollution from production process, e.g. industrial processing plants, swimming pools | Temperate zone, atmospheric environment with high pollution ($SO_2$: 30 $\mu g/m^3$ to 90 $\mu g/m^3$) or substantial effect of chlorides, e.g. polluted urban areas, industrial areas, coastal areas without spray of salt water or, exposure to strong effect of de-icing salts<br>Subtropical and tropical zone, atmosphere with medium pollution |
| **C5** | Very high | Spaces with very high frequency of condensation and/or with high pollution from production process, e.g. mines, caverns for industrial purposes, unventilated sheds in subtropical and tropical zones | Temperate and subtropical zone, atmospheric environment with very high pollution ($SO_2$: 90 $\mu g/m^3$ to 250 $\mu g/m^3$) and/or significant effect of chlorides, e.g. industrial areas, coastal areas, sheltered positions on coastline |
| **CX** | Extreme | Spaces with almost permanent condensation or extensive periods of exposure to extreme humidity effects and/or with high pollution from production process, e.g. unventilated sheds in humid tropical zones with penetration of outdoor pollution including airborne chlorides and corrosion-stimulating particulate matter | Subtropical and tropical zone (very high time of wetness), atmospheric environment with very high $SO_2$ pollution (higher than 250 $\mu g/m^3$) including accompanying and production factors and/or strong effect of chlorides, e.g. extreme industrial areas, coastal and offshore areas, occasional contact with salt spray |

**Figure 1: Categories of Corrosivity of the Atmosphere**

Corrosivity classifications are determined through two methods: measurement or estimation of time of wetness, sulfur dioxide and chloride deposition rates, or direct exposure testing of metal coupons.

Based on either of the two methods corrosivity categories of atmosphere and then corrosion rates of various metals of interest can be derived utilizing the ISO 9223 guidelines and thus assigned a corrosion category (Fig. 1).



| Corrosivity category | Comparative corrosion rates for steel and zinc from ISO 9223 $r_{corr}$ | | |
|---|---|---|---|
| | **Unit** | **Carbon steel** | **Zinc** |
| **C1** | $g/(m^2 \cdot a)$ | $r_{corr} \le 10$ | $r_{corr} \le 0.7$ |
| | µm/a | $r_{corr} \le 1.3$ | $r_{corr} \le 0.1$ |
| **C2** | $g/(m^2 \cdot a)$ | $10 < r_{corr} \le 200$ | $0.7 < r_{corr} \le 5$ |
| | µm/a | $1.3 < r_{corr} \le 25$ | $0.1 < r_{corr} \le 0.7$ |
| **C3** | $g/(m^2 \cdot a)$ | $200 < r_{corr} \le 400$ | $5 < r_{corr} \le 15$ |
| | µm/a | $25 < r_{corr} \le 50$ | $0.7 < r_{corr} \le 2.1$ |
| **C4** | $g/(m^2 \cdot a)$ | $400 < r_{corr} \le 650$ | $15 < r_{corr} \le 30$ |
| | µm/a | $50 < r_{corr} \le 80$ | $2.1 < r_{corr} \le 4.2$ |
| **C5** | $g/(m^2 \cdot a)$ | $650 < r_{corr} \le 1,500$ | $30 < r_{corr} \le 60$ |
| | µm/a | $80 < r_{corr} \le 200$ | $4.2 < r_{corr} \le 8.4$ |
| **CX** | $g/(m^2 \cdot a)$ | $1,500 < r_{corr} \le 5,500$ | $60 < r_{corr} \le 180$ |
| | µm/a | $200 < r_{corr} \le 700$ | $8.4 < r_{corr} \le 25$ |

**Figure 2: Comparative Corrosion Rates for Steel and Zinc**

## Time of Wetness

Atmospheric corrosion in normal temperatures is directly proportional to the amount of time that moisture is present on the subject metal. It is, therefore, important that all parts be designed so as not to retain any moisture as much as possible. The time of wetness may be estimated from the following guidelines based on the location of the subject metal and the environmental conditions such as temperature and relative humidity. Time of wetness is defined as the number of hours per year where the relative humidity is above 80% while the ambient temperature is above $0^0$ C. The ISO 9223 ratings for time of wetness are as follows:

- $T_1$: <10 hours/year (Indoor climate with climate control)
- $T_2$: 10-250 hours/year (Indoor without climate control)
- $T_3$: 250-2500 hours/year (Outdoor dry or cold climate)
- $T_4$: 2500-5500 hours/year (Outdoor atmospheres in all climate)
- $T_5$: >5500 hours/year (Damp climates, humid conditions)

Based on the information available from the Rancho Viejo site, due to the average temperature of 11.62$^o$C, and average annual humidity of 47.82%, time of wetness is considered to be as $T_{3.}$

## Sulfur Dioxide in the Air

Sulfur dioxide is the most corrosive pollutant to zinc in the air. Sulfur dioxide is a pollutant product largely introduced through industrial manufacturing and fossil fuel combustion during large scale energy production, and thus is higher in concentration in regions where such processes occur. The following are typical deposition rates for rural, urban, and industrial atmospheres:

- Rural Atmosphere: 2 – 15 $\mu g/m^3$
- Urban atmosphere: 5 - 100 $\mu g/m^3$
- Industrial Atmosphere: 50 - 300 $\mu g/m^3$

The ISO 9223 ratings for sulfur dioxide deposition are as follows:

- $P_0$: <5 mg/ $m^2$ x day (Rural atmosphere)
- $P_1$: 5 - 30 mg/ $m^2$ x day (Urban atmosphere)
- $P_2$: 30 - 90 $\mu g/m^3$ (Industrial atmosphere)
- $P_3$: 90 - 250 $\mu g/m^3$ (Highly polluted industrial atmosphere)

Based on the location of the Rancho Viejo site, sulfur dioxide deposition is considered to be as $P_0$ as the site can be considered a Rural atmosphere due to its proximity to Albuquerque, NM.

## Chlorides in the Air

Deposited chlorides on zinc surfaces contribute to corrosion by easily penetrating the passive oxide film by reacting with the normally protective zinc corrosion products to form soluble zinc chlorides. When the chlorides are washed away, fresh zinc is exposed, and the normal process of passivation through oxidation is prevented. For this reason, in regions along the coastline where the major pollutants in the air are chlorides, corrosion rates can be high. Rates decrease with distance from the sea coast as salt content in the air drops significantly. In general, at a distance of 0.6 miles from the shoreline, the corrosion rate of zinc is comparable to that measured inland. The ISO 9223 ratings for chloride deposition are as follows:

- $S_0$: <3 mg/ $m^2$ x day
- $S_1$: 3-60 mg/ $m^2$ x day
- $S_2$: 60-300 mg/ $m^2$ x day
- $S_3$: 300-1500 mg/ $m^2$ x day

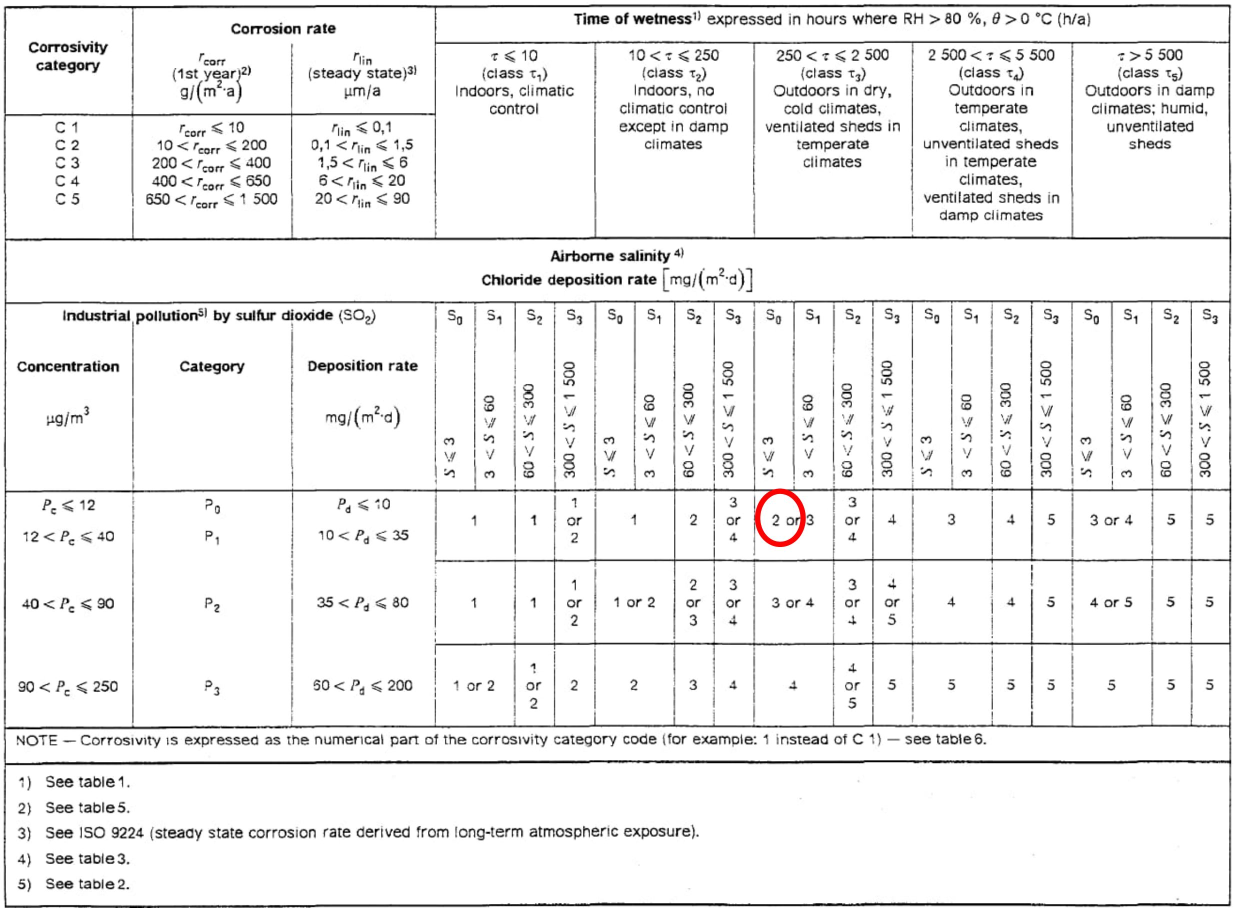
Based on the information available from the Rancho Viejo site, chloride deposition is considered to be classified as $S_0$ due to its remote proximity to a source of chlorides, over 100 miles.

### Atmospheric Corrosivity Characterization

Ratings for time of wetness, sulfur dioxide and chloride deposition are then used to determine the corrosivity classifications of C1 through C5 of a specific area, based on the Table 4.

Time of wetness = $T_{3.}$
Sulfur dioxide deposition = $P_0$.
Chloride deposition = $S_0$.

## Table 4: Corrosivity Classifications - Based on Time of Wetness (Tx), Sulfur (Px) and Chloride (Sx) Deposition Rates

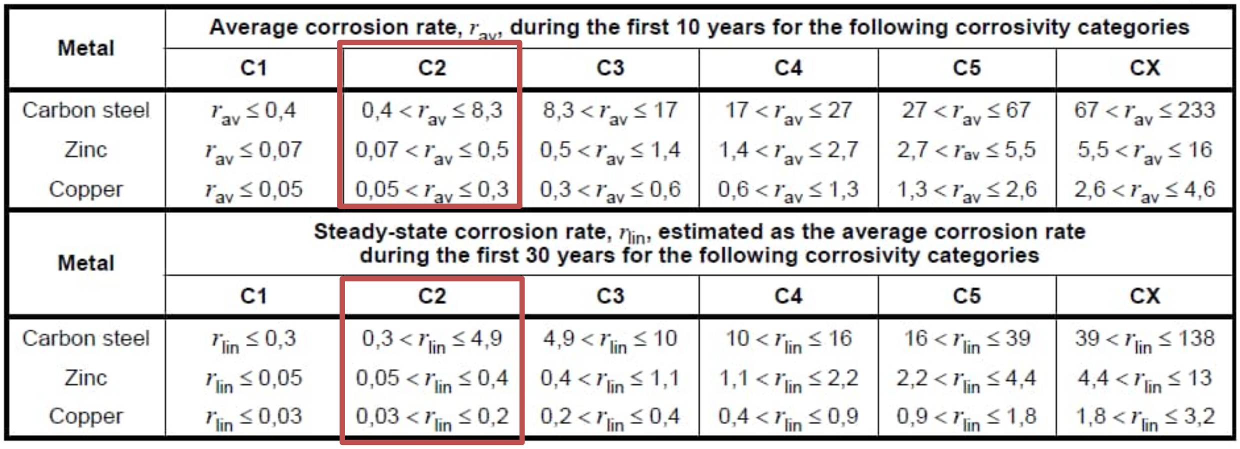


<table>
<tr><th rowspan="2">Corrosivity category</th><th colspan="2">Corrosion rate</th><th colspan="20">Time of wetness[1] expressed in hours where RH > 80 %, $\theta > 0$ °C (h/a)</th></tr>
<tr><th>$r_{corr}$ (1st year)[2] $g/(m^2 \cdot a)$</th><th>$r_{lin}$ (steady state)[3] µm/a</th><th colspan="4">$\tau \leqslant 10$ (class $\tau_1$) Indoors, climatic control</th><th colspan="4">$10 < \tau \leqslant 250$ (class $\tau_2$) Indoors, no climatic control except in damp climates</th><th colspan="4">$250 < \tau \leqslant 2\,500$ (class $\tau_3$) Outdoors in dry, cold climates, ventilated sheds in temperate climates</th><th colspan="4">$2\,500 < \tau \leqslant 5\,500$ (class $\tau_4$) Outdoors in temperate climates, unventilated sheds in temperate climates, ventilated sheds in damp climates</th><th colspan="4">$\tau > 5\,500$ (class $\tau_5$) Outdoors in damp climates; humid, unventilated sheds</th></tr>
<tr><td>C 1<br>C 2<br>C 3<br>C 4<br>C 5</td><td>$r_{corr} \leqslant 10$<br>$10 < r_{corr} \leqslant 200$<br>$200 < r_{corr} \leqslant 400$<br>$400 < r_{corr} \leqslant 650$<br>$650 < r_{corr} \leqslant 1\,500$</td><td>$r_{lin} \leqslant 0,1$<br>$0,1 < r_{lin} \leqslant 1,5$<br>$1,5 < r_{lin} \leqslant 6$<br>$6 < r_{lin} \leqslant 20$<br>$20 < r_{lin} \leqslant 90$</td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td></tr>
<tr><th colspan="23">Airborne salinity[4]<br>Chloride deposition rate $\left[mg/(m^2 \cdot d)\right]$</th></tr>
<tr><th colspan="3">Industrial pollution[5] by sulfur dioxide ($SO_2$)</th><th>$S_0$</th><th>$S_1$</th><th>$S_2$</th><th>$S_3$</th><th>$S_0$</th><th>$S_1$</th><th>$S_2$</th><th>$S_3$</th><th>$S_0$</th><th>$S_1$</th><th>$S_2$</th><th>$S_3$</th><th>$S_0$</th><th>$S_1$</th><th>$S_2$</th><th>$S_3$</th><th>$S_0$</th><th>$S_1$</th><th>$S_2$</th><th>$S_3$</th></tr>
<tr><th>Concentration µg/m³</th><th>Category</th><th>Deposition rate $mg/(m^2 \cdot d)$</th><th>$S \leqslant 3$</th><th>$3 < S \leqslant 60$</th><th>$60 < S \leqslant 300$</th><th>$300 < S \leqslant 1\,500$</th><th>$S \leqslant 3$</th><th>$3 < S \leqslant 60$</th><th>$60 < S \leqslant 300$</th><th>$300 < S \leqslant 1\,500$</th><th>$S \leqslant 3$</th><th>$3 < S \leqslant 60$</th><th>$60 < S \leqslant 300$</th><th>$300 < S \leqslant 1\,500$</th><th>$S \leqslant 3$</th><th>$3 < S \leqslant 60$</th><th>$60 < S \leqslant 300$</th><th>$300 < S \leqslant 1\,500$</th><th>$S \leqslant 3$</th><th>$3 < S \leqslant 60$</th><th>$60 < S \leqslant 300$</th><th>$300 < S \leqslant 1\,500$</th></tr>
<tr><td>$P_c \leqslant 12$<br>$12 < P_c \leqslant 40$</td><td>$P_0$<br>$P_1$</td><td>$P_d \leqslant 10$<br>$10 < P_d \leqslant 35$</td><td colspan="2">1</td><td>1</td><td>1 or 2</td><td colspan="2">1</td><td>2</td><td>3 or 4</td><td colspan="2">2 or 3</td><td>3 or 4</td><td>4</td><td colspan="2">3</td><td>4</td><td>5</td><td colspan="2">3 or 4</td><td>5</td><td>5</td></tr>
<tr><td>$40 < P_c \leqslant 90$</td><td>$P_2$</td><td>$35 < P_d \leqslant 80$</td><td colspan="2">1</td><td>1</td><td>1 or 2</td><td colspan="2">1 or 2</td><td>2 or 3</td><td>3 or 4</td><td colspan="2">3 or 4</td><td>3 or 4</td><td>4 or 5</td><td colspan="2">4</td><td>4</td><td>5</td><td colspan="2">4 or 5</td><td>5</td><td>5</td></tr>
<tr><td>$90 < P_c \leqslant 250$</td><td>$P_3$</td><td>$60 < P_d \leqslant 200$</td><td colspan="2">1 or 2</td><td>1 or 2</td><td>2</td><td colspan="2">2</td><td>3</td><td>4</td><td colspan="2">4</td><td>4 or 5</td><td>5</td><td colspan="2">5</td><td>5</td><td>5</td><td colspan="2">5</td><td>5</td><td>5</td></tr>
<tr><td colspan="23">NOTE — Corrosivity is expressed as the numerical part of the corrosivity category code (for example: 1 instead of C 1) — see table 6.</td></tr>
<tr><td colspan="23">1) See table 1.<br>2) See table 5.<br>3) See ISO 9224 (steady state corrosion rate derived from long-term atmospheric exposure).<br>4) See table 3.<br>5) See table 2.</td></tr>
</table>

Based on the corrosivity category rating of C2, ISO 9224 provides the following corrosion rates for various metals, in Table 5 below:

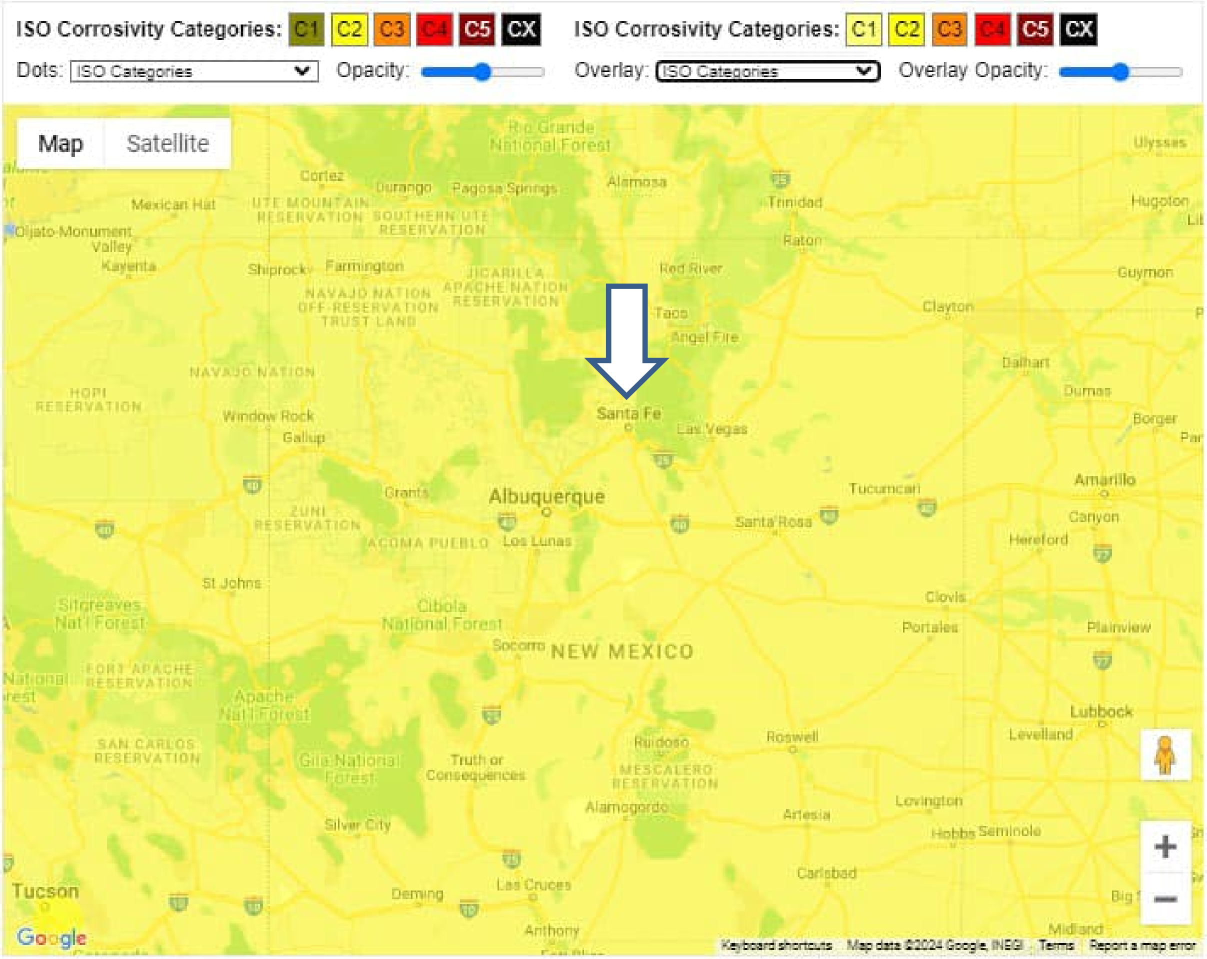
## Table 5: Guiding Corrosion Values for Corrosivity Categories

Values in micrometres per year



<table>
<tr><th rowspan="2">Metal</th><th colspan="6">Average corrosion rate, $r_{av}$, during the first 10 years for the following corrosivity categories</th></tr>
<tr><th>C1</th><th>C2</th><th>C3</th><th>C4</th><th>C5</th><th>CX</th></tr>
<tr><td>Carbon steel</td><td>$r_{av} \le 0,4$</td><td>$0,4 < r_{av} \le 8,3$</td><td>$8,3 < r_{av} \le 17$</td><td>$17 < r_{av} \le 27$</td><td>$27 < r_{av} \le 67$</td><td>$67 < r_{av} \le 233$</td></tr>
<tr><td>Zinc</td><td>$r_{av} \le 0,07$</td><td>$0,07 < r_{av} \le 0,5$</td><td>$0,5 < r_{av} \le 1,4$</td><td>$1,4 < r_{av} \le 2,7$</td><td>$2,7 < r_{av} \le 5,5$</td><td>$5,5 < r_{av} \le 16$</td></tr>
<tr><td>Copper</td><td>$r_{av} \le 0,05$</td><td>$0,05 < r_{av} \le 0,3$</td><td>$0,3 < r_{av} \le 0,6$</td><td>$0,6 < r_{av} \le 1,3$</td><td>$1,3 < r_{av} \le 2,6$</td><td>$2,6 < r_{av} \le 4,6$</td></tr>
<tr><th rowspan="2">Metal</th><th colspan="6">Steady-state corrosion rate, $r_{lin}$, estimated as the average corrosion rate during the first 30 years for the following corrosivity categories</th></tr>
<tr><th>C1</th><th>C2</th><th>C3</th><th>C4</th><th>C5</th><th>CX</th></tr>
<tr><td>Carbon steel</td><td>$r_{lin} \le 0,3$</td><td>$0,3 < r_{lin} \le 4,9$</td><td>$4,9 < r_{lin} \le 10$</td><td>$10 < r_{lin} \le 16$</td><td>$16 < r_{lin} \le 39$</td><td>$39 < r_{lin} \le 138$</td></tr>
<tr><td>Zinc</td><td>$r_{lin} \le 0,05$</td><td>$0,05 < r_{lin} \le 0,4$</td><td>$0,4 < r_{lin} \le 1,1$</td><td>$1,1 < r_{lin} \le 2,2$</td><td>$2,2 < r_{lin} \le 4,4$</td><td>$4,4 < r_{lin} \le 13$</td></tr>
<tr><td>Copper</td><td>$r_{lin} \le 0,03$</td><td>$0,03 < r_{lin} \le 0,2$</td><td>$0,2 < r_{lin} \le 0,4$</td><td>$0,4 < r_{lin} \le 0,9$</td><td>$0,9 < r_{lin} \le 1,8$</td><td>$1,8 < r_{lin} \le 3,2$</td></tr>
</table>

As the ISO standard determines that the corrosion category is C2. This is further evidence by the ISO Corrosivity Category Estimation Tool (ICCET) developed as part of the Environmental Severity Classification Study, conducted by the Department of Defense. Using their online tool, the site is confirmed to be a C2 environment as seen below.



ISO Corrosivity Categories: C1 C2 C3 C4 C5 CX

Dots: ISO Categories

Opacity:

ISO Corrosivity Categories: C1 C2 C3 C4 C5 CX

Overlay: ISO Categories

Overlay Opacity:

**Figure 1 - ICCET Corrosion Categorization**

Therefore, based on the above along with our professional experience, ISO 9223 and the ICCET, it is our opinion that the atmospheric corrosion rate for the Rancho Viejo Solar site is a C2.

### Table 8: Atmospheric Corrosion Rates for a C2 Environments 30-year steady-state

| Metal | Expected Steady State Corrosion Rates (micrometer per year) | Expected Steady State Corrosion Rates (mils per year) |
|---|---|---|
| Carbon Steel | 4.9 | 0.19 |
| Zinc | 0.4 | 0.016 |
| Copper | 0.2 | 0.008 |

## CONCLUSION

1. The corrosion rate for zinc in soil is determined to be 0.25 mils per year at this site.

2. The corrosion rate for steel in soil is determined to be 0.84 mil per year at this site.

3. For a 25- year design life

    a. The utilization of hot dipped galvanized piles with a coating thickness of 3.0 mils, that meets ASTM A123, along with a total corrosion allowance of 22.0 mils is suitable to meet the desired 25-year design life for this site.

    b. The utilization of hot dipped galvanized piles with a coating thickness of 3.9 mils, that meets ASTM A123, along with a total corrosion allowance of 16.0 mils is suitable to meet the desired 25-year design life for this site.

    c. The utilization of hot dipped galvanized piles with a coating thickness of 5.0 mils, that meets ASTM A123, along with a total corrosion allowance of 8.7 mils is suitable to meet the desired 25-year design life for this site.

    d. The utilization of an ungalvanized steel pile with a total corrosion allowance of 42 mils is suitable to meet the desired 25-year design life for this site.

4. For a 35- year design life

    a. The utilization of hot dipped galvanized piles with a coating thickness of 3.0 mils, that meets ASTM A123, along with a total corrosion allowance of 38.8 mils is suitable to meet the desired 35-year design life for this site.

    b. The utilization of hot dipped galvanized piles with a coating thickness of 3.9 mils, that meets ASTM A123, along with a total corrosion allowance of 32.8 mils is suitable to meet the desired 35-year design life for this site.

    c. The utilization of hot dipped galvanized piles with a coating thickness of 5.0 mils, that meets ASTM A123, along with a total corrosion allowance of 25.5 mils is suitable to meet the desired 35-year design life for this site.

    d. The utilization of an ungalvanized steel pile with a total corrosion allowance of 58.8 mils is suitable to meet the desired 35-year design life for this site.

5. With regards to the corrosion potential to concrete at the site, due to the moderate resistivity we recommend 3” of cover for the reinforcing steel, and a good concrete mix design such as, a type II or MS cement, with a water to cement ratio of 0.50 or less with 4,000 psi.

6. The atmospheric corrosion category for the Rancho Viejo Solar site is C2.

## LIMITATIONS

> *The conclusions and recommendations contained in this report reflect the opinion of the author of this report and are based on the information and assumptions referenced herein, this report does not take grounding of the piles into consideration. All services provided herein were performed by persons who are experienced and skilled in providing these types of services and in accordance with the standards of workmanship in this profession. No other warrantees or guarantees either expressed or implied are provided.*

We thank you for the opportunity to be of assistance on this important project. If you have any questions concerning this report or the analysis provided herein, please feel free to contact us at (925) 927-6630.

Respectfully submitted,

J. Darby Howard, Jr.

J. Darby Howard, Jr., P.E.
**JDH CORROSION CONSULTANTS, INC.**
Principal

REGISTERED PROFESSIONAL ENGINEER
J. DARBY HOWARD, JR.
No. CR 1055
Exp. June 30, 2025
CORROSION
STATE OF CALIFORNIA

Mohammed Ali

Mohammed Ali, P.E. NACE (3887)
**JDH CORROSION CONSULTANTS, INC.**
NACE Corrosion Specialist

J.D. Howard, Esq.

J.D. Howard, Esq.
**JDH CORROSION CONSULTANTS, INC.**
Corrosion Control Specialist