PIKE SOLAR LLC

Appendix T- Geotechnical Engineering Report

Geotechnical Engineering Report

CO465 – Pike Solar
East of Birdsall Road and Moonshadow Lane
El Paso County, Colorado
February 5, 2021
Terracon Project No. 23205109

Prepared for:
JSI Construction Group LLC
Boulder, Colorado

Prepared by:
Terracon Consultants, Inc.
Wheat Ridge, Colorado

February 5, 2021

JSI Construction Group LLC
1710 29th Street, Suite 1068
Boulder, Colorado 80301

Attn: Mr. David Gardner-Dale
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Re: Geotechnical Engineering Report
CO465 – Pike Solar
East of Birdsall Road and Moonshadow Lane
El Paso County, Colorado
Terracon Project No. 23205109

Mr. Gardner-Dale:

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering services for the project referenced above. This study was performed in general accordance with Work Order No. CO465 Terracon Consultants, Inc. WO001 dated October 12, 2020. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations and access roads for the proposed project.

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

Sincerely,
Terracon Consultants, Inc.

COLORADO LICENSED
WILLIAM W. BORECKI
53195
2/5/2021
PROFESSIONAL ENGINEER

Scott W. Borecki, P.E.
Project Engineer

Scott B. Myers, P.E.
Regional Senior Consultant

Solar Subject Matter Expert (SME) Review by: Jimmy M. Jackson, P.E. (FL)

REPORT TOPICS

Note: This report was originally delivered in a web-based format. For more interactive features, please view your project online at client.terracon.com.

FIGURES

ATTACHMENTS

Note: Refer to each individual Attachment cover page for a listing of contents.

REPORT SUMMARY

A geotechnical engineering exploration has been performed for the proposed CO465 – Pike Solar project to be located east of the intersection of Birdsall Road and Moonshadow Lane in El Paso County, Colorado. Based on the information obtained from this subsurface exploration and the laboratory testing completed, the site appears suitable for the proposed construction; however, the following geotechnical conditions will need to be considered:

- Based on the geotechnical engineering analyses, the proposed solar arrays can be constructed on driven H-piles, W-members, C-channels, or pipe pile foundation systems.

- Based on the geotechnical engineering analyses, the proposed electrical equipment may be supported on shallow foundations bottomed on native soils or new engineered fill, provided the owner is willing to accept the associated risk of movement.

- Aggregate-surfaced access drives should consist of a minimum of 4 inches of Colorado Department of Transportation (CDOT) Class 5 or 6 aggregate base course over properly prepared subgrade soils. Compacted native soil access roads for post-construction traffic should consist of a minimum of 12 inches of compacted on-site soils. Aggregate-surfaced roads and compacted native soil roads, regardless of the section thickness or subgrade preparation measures, will require on-going maintenance and repairs to keep them in a serviceable condition.

- Based on the results of the laboratory testing and our experience in the area, the clay soils and claystone bedrock have nil to high expansive potentials, while the native sand soils are considered to be essentially non-expansive. Additionally, based on the results of the laboratory testing and our experience in the area, compressible, low-density soils are also present at the project site.

- Test boring data indicates that loose soils may be locally present and may influence the construction of electrical and ancillary structure pads and access roads. Consequently, loose soils could be encountered below electrical and ancillary structure pads, access roads, or other improvements and these conditions will likely require some corrective work. Corrective work could involve removal and recompaction or replacement of existing soils, or in-place soil densification.

- Based on the 2015 International Building Code (IBC) Section 1613.3.2 and the subsurface conditions encountered in the borings, the seismic site classification for this site ranges from C to D.

- The amount of movement associated with foundations, slabs-on-grade, etc. will be related to the wetting of the underlying soils and bedrock. Therefore, it is imperative the

recommendations outlined in the **Grading and Drainage** subsection of **Earthwork** be followed to reduce potential movement. Moisture conditioning and/or replacement of the on-site fill materials and/or native soils and bedrock should follow the recommendations outlined in **Earthwork**.

This summary should be used in conjunction with the entire report for design purposes. It should be recognized that details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein. The section titled **General Comments** should be read for an understanding of the report limitations.

Geotechnical Engineering Report

CO465 – Pike Solar

East of Birdsall Road and Moonshadow Lane

El Paso County, Colorado

Terracon Project No. 23205109

February 5, 2021

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed CO465 – Pike Solar project to be located east of Birdsall Road and Moonshadow Lane in El Paso County, Colorado.

The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil and bedrock conditions
- Groundwater levels
- Earthwork
- Grading and drainage
- Foundation design and construction
- Seismic site classification
- Access road design and construction

The geotechnical engineering Scope of Services for this project included:

- 60 exploratory borings (designated as Boring Nos. 1-1 through 1-10, 1b-1 through 1b-7, 2-1 through 2-5, 3-1 through 3-4, 4-1 through 4-8, 4b-1 through 4b-2, 5-1 through 5-4, 6-1 through 6-9, 7-1 through 7-11) to a depth of about 20 to 30 feet below existing site grades
- 24 test pits (designated as Test Pit Nos. TP1-1 through TP1-3, TP1b-1 through TP1b-1through TP1b-4, TP2-1, TP3-1, TP3-2, TP4-1 through TP4-4, TP4b—1, TP5-1, TP5-2, TP6-1 through TP6-4, and TP7-1 through TP7-3) to depths of about 7 to 15 feet below existing site grades
- 16 field electrical resistivity tests (designated as ER-1 through ER-16; Wenner Four-Electrode Method)

Plans showing the site and exploration locations are shown in Appendix A – **Site Location and Exploration Plans**. The results of the laboratory testing performed on soil and bedrock samples obtained from the site during the field exploration are included on the boring logs in Appendix B – **Exploration Results** and/or as separate graphs in Appendix C – **Laboratory Test Results**.

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration.

Item	Description
Parcel Information	The project is located east of the intersection of Birdsall Road and Moonshadow Lane in El Paso County, Colorado. The overall project site includes an area of approximately 4,000 acres. Based on the provided information we understand an area of about 1,200 acres will be developed with solar photovoltaic (PV) arrays. Approximate Latitude/Longitude: 38.6353° N, 104.6245° W (See Exhibit A-1: **Site Location**) The project site is divided into several areas referred to herein as Area Nos. 1, 1b, 2, 3, 4, 4b, 5, 6, and 7 (See Exhibit A-2: **Area Identification Plan**)
Existing Improvements	The project site consists primarily of open land and earthen roads. An existing electrical substation and water distribution facility are located in the central/southwest portion of the site and a portion of a newly-constructed solar facility is located outside of the southwest boundary of the site. The site is also transected by various overhead and underground utility easements, and a drainage feature running north-south through the site.
Current Ground Cover	Earthen, light to moderate vegetation
Existing Topography	Variable topography across the site. The site appears to generally slope down to the south, with slopes generally around 1 to 3 percent based on readily available Google Earth maps. Localized steeper slopes were also observed up to 15 to 20 percent.
Expected Subsurface Conditions	Our experience near the vicinity of the proposed development and geologic maps indicates subsurface conditions consist of clay soils overlying claystone bedrock of the Pierre Shale formation. The depth to bedrock has been mapped as shallow as 12 inches below ground surface on portions of the site.

PROJECT DESCRIPTION

Our initial understanding of the project was provided in our proposal and was discussed during project planning. Our final understanding of the project conditions is as follows:

Item	Description
Information Provided	Our understanding of the project comes from: ■ Geotechnical Engineering Services Request for Proposal by JSI dated September 3, 2020 ■ Geotechnical Engineering and Pile Load Testing Services Scope of Work by JSI dated September 4, 2020 ■ JES_Tracker_ALIGNMENT_SUPPLEMENTAL_IMAGES_150305.pdf ■ Layout-CSU_Pike_Solar_COS2023.kmz ■ CSU_Pike_Solar_Site_Plan_JuwiSolar_08_17_2020.dwg ■ Pike Solar - Site Plan - Pre-App 20201023.pdf
Project Description	We understand the proposed project includes the construction of a large-scale photovoltaic (PV) facility on approximately 4,000 acres. The facility will include PV modules aligned in arrays affixed to a single-axis tracking system. Based on the provided information we understand that approximately 1,200 acres of the site will be developed with PV arrays. We also understand the project will include foundation construction and installation of electrical equipment such as inverters, transformers, and other ancillary equipment. Site development will also include construction of aggregate-surfaced construction access roadways, an aggregate-surfaced staging area, and post-construction native access roads. We understand a substation will be constructed on the project site. We anticipate the substation will include equipment pads, dead end structures, and ancillary buildings.
Foundation Systems	Racking Systems: Driven pile (c-channel or H pile) foundation systems are preferred for support of racking systems. However, recommendations for one alternative foundation system most appropriate for the site-specific subsurface conditions has also been requested. Electrical and Ancillary Structures: Shallow mat foundations or driven piles Substation Structures: Drilled piers

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Design Loads</td><td>
The following design loading conditions were reported and include a factor of safety of 2.
<table>
<tr><th colspan="3">200’ Drive Post</th></tr>
<tr><th>Array Type</th><th>Load Type</th><th>Design Load (kips)</th></tr>
<tr><td rowspan="3">Exterior</td><td>Uplift</td><td>1.8</td></tr>
<tr><td>Compression</td><td>-5.56</td></tr>
<tr><td>Lateral</td><td>8.09</td></tr>
<tr><td rowspan="3">Interior</td><td>Uplift</td><td>0.725</td></tr>
<tr><td>Compression</td><td>-5.53</td></tr>
<tr><td>Lateral</td><td>4.775</td></tr>
</table>
<table>
<tr><th colspan="3">200’ Bearing Post</th></tr>
<tr><th>Array Type</th><th>Load Type</th><th>Design Load (lbf)</th></tr>
<tr><td rowspan="3">Exterior</td><td>Uplift</td><td>2.05</td></tr>
<tr><td>Compression</td><td>-6.3</td></tr>
<tr><td>Lateral</td><td>2.55</td></tr>
<tr><td rowspan="3">Interior</td><td>Uplift</td><td>1.0</td></tr>
<tr><td>Compression</td><td>-7.825</td></tr>
<tr><td>Lateral</td><td>1.625</td></tr>
</table>
We assume that the loading conditions for electrical and ancillary equipment will result in a maximum foundation bearing pressure of 2,500 psf.
We understand substation structures will have a maximum anticipated drilled pier ground line loading of about a moment of 325 kip-ft with 8 kips of shear (lateral) load. We understand substation electrical equipment on pads may weigh up to 150 kips.
</td></tr>
<tr><td>Grading/Slopes</td><td>We anticipate the proposed solar array will roughly follow existing site grades, and the electrical/ancillary equipment could have up to 2 feet of cut/fill to develop final grades.</td></tr>
<tr><td>Aggregate-Surfaced Access Roads</td><td>Reportedly aggregate-surfaced access roadways will be constructed to support construction traffic. Thickness design recommendations presented in this report are based on the 1993 AASHTO Design of Pavement Structures guidelines for low-volume roads and based on an allowable rutting depth of 1 to 2½ inches and a serviceability loss of 1.0.
An aggregate-surfaced staging area will also be used during construction.</td></tr>
</table>

GEOTECHNICAL CHARACTERIZATION

We have developed a general characterization of the subsurface soil, bedrock, and groundwater conditions based upon our review of the data and our understanding of the geologic setting and planned construction. The following sections provide our geotechnical characterization.

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

Local Geology

Surficial geologic conditions at the site, as mapped by the U.S. Geological Survey (USGS) ([1]White, et al., 2017 and [2]Scott, et al., 1976), consist of valley-fill alluvium, Piney Creek alluvium, eolian sand, and Pierre Shale bedrock.

Valley-fill alluvium is described as sandy to silty clay deposited in broad drainage swales and Piney Creek Alluvium is described as mostly clayey-sandy silt and silty sand containing varying amounts of clay and gravel deposited along valleys. Eolian sand is mapped as fine to coarse wind-blown sand that may contain variable amounts of silt and clay.

Pierre Shale bedrock mapped in the project vicinity contains the cone-in-cone zone of Lavington and Tepee Zone of Gilbert. Pierre Shale bedrock is predominantly comprised of siltstone and claystone and may contain sandstone and sandy shale near the top and bottom of formations. Limestone beds are also found within the formation.

Geologic hazards at the site are anticipated to be low. Seismic activity in the area is anticipated to be low; and from a structural standpoint, the property should be relatively stable. With proper site grading around the proposed structures, erosional problems at the site should be reduced.

The geologic conditions presented in this section were obtained by locating the subject site on available large-scale geologic maps. Due to the scales involved, precise location of the site can be difficult to determine. In addition, the large-scale geologic maps describe only general trends. Local variations are possible and site-specific geology may differ from those described above. A site-specific detailed geologic description is beyond the scope of this project.

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[1]While, J.L., Lindsey, K.O., Morgan, M.L., and Mahan, S.A., 2017, ***Geologic Map of the Fountain Quadrangle, El Paso County, Colorado***, Colorado Geological Survey, Open File Report 17-05, scale 1:24,000.

[2]Scott, G.R., Taylor, R.B., Epis, R.C., and Wobus, R.A., 1976, ***Geologic map of the Pueblo 1 degree x 2 degrees quadrangle, south-central Colorado***, United States Geological Survey, Miscellaneous Field Studies Map MF-775, scale 1:187,500.

Typical Profile

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting, and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of site preparation and foundation options. Conditions encountered at each exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration Results** section and the GeoModel for each area can be found in the **Figures** section of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each exploration location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	**Sand**	With varying amounts of gravel, silt, and clay; loose to dense
2	**Lean Clay**	With varying amounts of gravel, silt, and clay; medium stiff to hard
3	**Weathered Claystone Bedrock**	Weathered to very hard
4	**Claystone Bedrock**	Firm to very hard

Stratification boundaries on the boring and test pit logs represent the approximate location of changes in soil and material types; in situ, the transition between materials may be gradual. Further details of the borings and test pits can be found on the boring and test pit logs in Appendix B – **Exploration Results**.

Laboratory Test Results

Based on the results of the laboratory testing and our experience in the area, the clay soils and claystone bedrock have nil to high expansive potentials, while the native sand soils are considered to be essentially non-expansive. Additionally, based on the results of the laboratory testing and our experience in the area, compressible, low-density soils are also present at the project site. Laboratory test results are presented in Appendix C – **Laboratory Test Results**.

Corrosion Considerations

The following tables list the results of the following laboratory tests performed on samples obtained during our field exploration:

- Water-soluble sulfate
- Water-soluble chlorides
- Sulfides
- pH
- Total salts
- Electrical resistivity (as-received and 100% saturated moisture contents)
- Oxidation-reduction potential
- Neutral salt content
- Buffer capacity

These values should be used to help determine potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials that will be used for project construction. Laboratory test results are presented in Appendix C – **Laboratory Test Results**.

The corrosion information presented is specific to the samples tested. If the actual soils that will be in contact with the structures at the site are different than those tested, then additional corrosion testing should be performed. Terracon is not a corrosion engineer, and our scope of work was limited to performing corrosion laboratory tests on selected samples, presenting these results, and providing a brief comparison of the results to selected criteria. A qualified corrosion engineer should be consulted if corrosion of underground utilities and structures is a concern.

Boring No.	Sample Depth (feet)	Water-Soluble Sulfate [1] (ppm)	Water-Soluble Chlorides (ppm)	Sulfides	pH
1-1	1 – 5	156	48	Nil	8.18
1-4	1 – 5	179	35	Nil	8.06
1-5	1 – 5	134	50	Nil	8.32
1-7	1 – 5	65	50	Nil	7.79
1-9	1 – 5	67	47	Nil	7.99
1b-1	1 – 5	129	53	Nil	8.41
1b-3	1 – 5	7,125	48	Nil	8.36
1b-7	1 – 5	116	67	Nil	8.06
2-1	1 – 5	7,729	18	Nil	7.84
2-3	1 – 5	6,336	35	Nil	7.97
2-5	1 – 5	145	65	Nil	8.55
3-1	1 – 5	10,784	40	Nil	8.02
3-3	1 – 5	9,727	47	Nil	8.11
4-1	1 – 5	8,359	58	Nil	8.12
4-3	1 – 5	8,380	58	Nil	8.01
4-5	1 – 5	9,222	42	Nil	8.02
4-7	1 – 5	8,687	45	Nil	8.05

Boring No.	Sample Depth (feet)	Water-Soluble Sulfate [1] (ppm)	Water-Soluble Chlorides (ppm)	Sulfides	pH
4b-1	1 – 5	9,375	165	Nil	8.06
5-1	1 – 5	10,728	32	Nil	7.99
5-3	1 – 5	12,204	50	Nil	8.12
6-1	1 – 5	11,892	37	Nil	7.84
6-3	1 – 5	132	38	Nil	8.51
6-5	1 – 5	8,657	82	Nil	8.03
6-7	1 – 5	212	58	Nil	7.78
6-9	1 – 5	1,025	45	Nil	7.49
7-1	1 – 5	43	50	Nil	7.87
7-3	1 – 5	116	45	Nil	7.94
7-5	1 – 5	125	35	Nil	7.82
7-7	1 – 5	160	60	Nil	8.27
7-11	1 – 5	10,991	53	Nil	8.09

1. Results of water-soluble sulfate testing indicate that samples of the on-site soils have an exposure class of S0 to S1 when classified in accordance with Table 19.3.1.1 of the American Concrete Institute (ACI) Design Manual. The results of the testing indicate ASTM Type II Portland Cement is recommended for additional sulfate resistance of construction concrete. Concrete should be designed in accordance with the provisions of the ACI Design Manual, Section 318, Chapter 19.

Boring No.	Sample Depth (feet)	Total Salts (mg/kg)	Electrical Resistivity (ohm-cm)		Oxidation-Reduction Potential (mv)
			100% Saturated	As-Received	
1-1	1 – 5	1,033	2,278	160,800	+691
1-4	1 – 5	568	3,685	174,200	+693
1-5	1 – 5	846	2,546	194,300	+689
1-7	1 – 5	761	2,345	113,900	+690
1-9	1 – 5	592	3,819	127,300	+694
1b-1	1 – 5	811	2,546	167,500	+690
1b-3	1 – 5	11,082	590	107,200	+682
1b-7	1 – 5	306	3,618	13,400	+696
2-1	1 – 5	11,648	576	140,700	+677
2-3	1 – 5	11,312	429	113,900	+678
2-5	1 – 5	1,557	1,206	147,400	+687

Boring No.	Sample Depth (feet)	Total Salts (mg/kg)	Electrical Resistivity (ohm-cm)		Oxidation-Reduction Potential (mv)
			100% Saturated	As-Received	
3-1	1 – 5	14,784	422	113,900	+678
3-3	1 – 5	14,224	415	107,200	+675
4-1	1 – 5	13,440	415	100,500	+676
4-3	1 – 5	12,712	583	221,100	+675
4-5	1 – 5	13,552	523	154,100	+676
4-7	1 – 5	13,496	482	154,100	+675
4b-1	1 – 5	15,232	342	120,600	+673
5-1	1 – 5	15,736	362	113,900	+670
5-3	1 – 5	17,864	302	113,900	+667
6-1	1 – 5	16,632	335	87,100	+675
6-3	1 – 5	1,568	1,072	154,100	+685
6-5	1 – 5	13,664	415	66,330	+676
6-7	1 – 5	1,215	1,407	93,800	+685
6-9	1 – 5	4,245	630	234,500	+682
7-1	1 – 5	899	2,010	268,000	+689
7-3	1 – 5	3,484	3,484	288,100	+692
7-5	1 – 5	2,747	2,747	261,300	+694
7-7	1 – 5	263	4,824	227,800	+693
7-11	1 – 5	17,024	322	80,400	+665

Boring No.	Sample Depth (feet)	Buffering Capacity, ASTM E1910 (milliequivalents of base per gram of product) *reagent: 0.05 N HCl	Neutral Salts, WREP-125, 4th ed. (dS m^{-1})
1-1	1 – 5	0.079	1.28×10^{-5}
1-4	1 – 5	0.028	4.43×10^{-6}
1-5	1 – 5	0.025	5.78×10^{-6}
1-7	1 – 5	0.022	5.24×10^{-6}
1-9	1 – 5	0.055	3.97×10^{-6}
1b-1	1 – 5	0.062	6.14×10^{-6}
1b-3	1 – 5	0.029	4.04×10^{-5}
1b-7	1 – 5	0.012	4.42×10^{-6}
2-1	1 – 5	0.022	3.37×10^{-5}

Boring No.	Sample Depth (feet)	Buffering Capacity, ASTM E1910 (milliequivalents of base per gram of product) *reagent: 0.05 N HCl	Neutral Salts, WREP-125, 4th ed. (dS m^{-1})
2-3	1 – 5	0.012	6.27×10^{-5}
2-5	1 – 5	0.010	1.25×10^{-5}
3-1	1 – 5	0.015	7.77×10^{-5}
3-3	1 – 5	0.010	5.67×10^{-5}
4-1	1 – 5	0.017	4.67×10^{-5}
4-3	1 – 5	0.028	4.16×10^{-5}
4-5	1 – 5	0.033	4.45×10^{-5}
4-7	1 – 5	0.020	5.13×10^{-5}
4b-1	1 – 5	0.015	6.20×10^{-5}
5-1	1 – 5	0.010	7.68×10^{-5}
5-3	1 – 5	0.032	7.72×10^{-5}
6-1	1 – 5	0.005	6.47×10^{-5}
6-3	1 – 5	0.005	1.48×10^{-5}
6-5	1 – 5	0.014	5.54×10^{-5}
6-7	1 – 5	0.022	9.21×10^{-6}
6-9	1 – 5	0.010	3.31×10^{-5}
7-1	1 – 5	0.029	8.64×10^{-6}
7-3	1 – 5	0.018	5.73×10^{-6}
7-5	1 – 5	0.014	4.00×10^{-6}
7-7	1 – 5	0.005	3.94×10^{-6}
7-11	1 – 5	0.005	6.84×10^{-5}

Laboratory Thermal Resistivity

Bulk samples of near-surface subsurface materials obtained from Test Pit Nos. TP1-1, TP1b-1, TP1b-2, TP1b-4, TP2-1, TP4-1, TP4-2, TP4-4, TP6-2, TP6-4, TP7-1, TP7-2, and TP7-3 were sent to Geotherm USA for thermal resistivity tests. The testing was performed on selected specimens remolded to about 80 and 90 percent of the maximum dry unit weight as determined by ASTM D698 (Standard Proctor), and to the approximate in-situ density as determined by the results of nuclear density gauge testing performed within the test pit excavations. Thermal dry-out curves were generated for each sample from the optimum moisture content down to zero moisture content. Testing was conducted in general accordance with the IEEE standard 442-2017. The results are summarized in the table below and the Geotherm USA report is presented in Appendix C – **Laboratory Test Results**.

Test Pit No.	Depth (feet)	Compaction Effort (%, ASTM D698)	Dry Density (pcf)	Optimum Moisture Content (%)	Thermal Resistivity (°C-cm/W)	
					Wet [1]	Dry
TP1-1	3	80	93	12	89	209
		90	105		69	161
TP1-1	5	In-situ [2]	96	14	84	193
TP1b-1	5	In-situ [2]	103	15	98	192
TP1b-2	3	80	99	11	76	164
		90	111		59	124
TP1b-4	3	80	85	16	106	262
		90	95		90	196
TP1b-4	5	In-situ [2]	88	7	111	231
TP2-1	3	80	85	19	104	276
		90	95		90	208
TP2-1	5	In-situ [2]	96	14	89	187
TP4-1	3	80	86	19	91	257
		90	97		82	188
TP4-2	3	80	83	21	101	289
		90	93		95	217
TP4-2	5	In-situ [2]	103	15	80	186
TP4-4	5	In-situ [2]	103	15	79	170
TP6-2	3	80	83	21	96	275
		90	94		85	223
TP6-2	5	In-situ [2]	96	14	84	199
TP6-4	5	In-situ [2]	88	7	106	233
TP7-1	3	80	83	21	96	236
		90	93		89	192
TP7-2	5	In-situ [2]	88	7	115	214

Test Pit No.	Depth (feet)	Compaction Effort (%, ASTM D698)	Dry Density (pcf)	Optimum Moisture Content (%)	Thermal Resistivity (°C-cm/W)	
					Wet [1]	Dry
TP7-3	3	80	92	14	78	227
		90	103		70	178

1. Sample prepared at optimum moisture content.
2. Sample prepared to the approximate in-situ density as determined by the results of the nuclear density gauge testing performed within the test pit excavation. The results of the nuclear density testing are presented in the **Field Exploration** subsection of **Exploration and Testing Procedures**.

Field Electrical Resistivity Testing

Field electrical resistivity tests were performed at 16 locations using a Mini-Res ground resistance meter and the Wenner four-point test method. The field electrical resistivity test locations are shown in Appendix A – **Site Location and Exploration Plans**. The field resistivity survey procedures are discussed in **Exploration and Testing Procedures**. The field resistivity test results are presented in Appendix B – **Exploration Results**.

A qualified corrosion engineer should be consulted to assess the corrosion potential of the subgrade soils with regard to underground utilities and structures.

Groundwater Conditions

The borings were observed while drilling and upon completion of drilling and excavating for the presence and level of groundwater. The water levels encountered in the boreholes can be found on the boring and test pit logs in Appendix B – **Exploration Results**. Groundwater was not encountered in the borings or test pits at the time they were performed, except for in Test Pit No. TP1b-3, where the groundwater was encountered at about 7 feet below existing site grade while excavating.

These observations represent groundwater conditions at the time of the field explorations and may not be indicative of other times or at other locations. Groundwater levels can be expected to fluctuate with varying seasonal and weather conditions.

Zones of perched and/or trapped groundwater may also occur at times in the subsurface soils overlying bedrock, on top of the bedrock surface or within permeable fractures in the bedrock materials. The location and amount of perched water is dependent upon several factors, including hydrologic conditions, type of site development, irrigation demands on or adjacent to the site, fluctuations in water features, seasonal and weather conditions.

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. Groundwater levels during

construction or at other times in the life of the structures may be higher or lower than the levels indicated on the boring or test pit logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

GEOTECHNICAL OVERVIEW

Based on subsurface conditions encountered in the borings and test pits, the site appears suitable for the proposed construction from a geotechnical point of view provided certain precautions and design and construction recommendations outlined in this report are followed. We have identified geotechnical conditions that could impact design and construction of the proposed improvements.

Expansive and Compressible Soils and Bedrock

Based on the results of the laboratory testing and our experience in the area, the clay soils and claystone bedrock have nil to high expansive potentials, while the native sand soils are considered to be essentially non-expansive. Additionally, based on the results of the laboratory testing and our experience in the area, compressible, low-density soils are also present at the project site.

While elevated swell percentages were encountered in the borings, it is our opinion with proper grading and drainage, the performance of foundations will not be significantly influenced.

This report provides recommendations to help mitigate the effects of soil and bedrock shrinkage and expansion and soil compression. However, even if these procedures are followed, some movement in foundations should be anticipated. The severity of cracking and other damage such as uneven slabs will probably increase if any modification of the site results in excessive wetting or drying of the expansive soils and bedrock. Eliminating the risk of movement and distress is generally not feasible, but it may be possible to further reduce the risk of movement if significantly more expensive measures are used during construction. At minimum, it is imperative the recommendations outlined in the **Grading and Drainage** subsection of **Earthwork** in this report be followed to reduce movement.

Loose Soils

Test boring data indicates that loose soils may be locally present and may influence the construction of electrical and ancillary structure pads and access roads. In particular, Boring Nos. 1-6 and 7-6 encountered loose soils to depths of about 3 to 6 feet. Loose soils in this area may require some corrective work. Although not likely, because the site is large, additional areas of loose soils that were not identified in the widely-spaced borings and test pits could be encountered and may require some corrective work. Corrective work could involve removal and re-compaction or replacement of existing soils, or in-place soil densification. In any event, Terracon should be contacted to observe foundation excavations to evaluate bearing conditions and to provide guidance concerning corrective work (if needed).

PV ARRAY AREA

We understand foundations for the proposed solar array are planned to consist of W8x10 and C8x2x0.124 driven piles. We expect the inverters in the array field could be supported on driven piles or mat foundations. 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 borings.

Topsoil, organic matter, stumps, existing fill, or other unsuitable materials should not be left in place below inverters supported on mat foundations; otherwise, these types of materials may be left in place. All mat foundations for inverters should bear on suitable native soil or on properly compacted engineered fill.

Driven Pile Preliminary Design Recommendations

This site presents cost considerations for supporting the solar panels on driven pile foundations. Soil resistance parameters are recommended in the following sections and may be used for preliminary planning. A load testing program has been performed at the project site and will be used by the client to finalize design embedment lengths.

Based on the variability in subsurface conditions at the project site, multiple design and termination criteria will need to be considered. We have categorized our preliminary recommendations into two pile design zones (Zones 1 and 2) based on the information from the borings and test pits at the project site. Zone 1 consists of areas where the claystone bedrock was encountered within 5 feet of existing site grades, while Zone 2 consists of areas where the claystone bedrock was encountered deeper than 5 feet below existing site grades or not encountered within the boring or test pit. The plan showing the pile design zones can be found in the **Figures** section of this report.

Axial Capacity Recommendations

The solar PV panels may be supported on driven steel piles, which should be structurally designed to resist compression, uplift, and bending forces.

Subject to successful pile load testing, the proposed solar PV panels may be supported on a driven pile foundation system. The design capacity of a single-driven pile is a function of several factors including:

- Size and type of pile;
- Type and capacity of pile installation equipment;
- Pile integrity after installation; and
- Engineering properties of the subsurface soils.

The following parameters have been estimated based on static pile analysis for small W- and C-section piles typically used for solar array support driven into native soils and bedrock. Note that conventional pile analyses typically underestimate the capacity of piles used in solar arrays, and the more effective means of determining pile capacities for tension, compression, or lateral loads is through pile load tests. The upper 18 inches of soil should be neglected when calculating the ultimate capacity from skin friction.

Zone 1: Shallow Claystone Bedrock		
Minimum Pile Embedment Depth Below Ground Surface (feet)	**Ultimate Skin Friction (psf)**	**Ultimate End Bearing Pressure (psf)**
0 to 1½	Neglect	Neglect
1½ to 3	300	4,500
3 to 17	1,200	8,000
17 to 20	4,000	40,000

Zone 2: Deeper Claystone Bedrock or Without Claystone Bedrock		
Minimum Pile Embedment Depth Below Ground Surface (feet)	**Ultimate Skin Friction (psf)**	**Ultimate End Bearing Pressure (psf)**
0 to 1½	Neglect	Neglect
1½ to 6	150	1,600
6 to 12	450	4,500
12 to 20	900	5,000

The above values are to be used in the following equations to obtain the ultimate compressive or uplift capacity of a pile:

$$Q_{ult\ (compressive)} = q_t * A * + q_s * P * H$$
$$Q_{ult\ (uplift)} = q_s * P * H$$

$Q_{ult\ (compressive)}$ = Ultimate compressive capacity of pile (lbs)
$Q_{ult\ (uplift)}$ = Ultimate uplift capacity of pile (lbs)
q_t = Toe (end) bearing pressure per table above (psf)
A = Cross sectional area of pile tip (i.e. W6x9 = 0.019 sf)
q_s = Skin friction per table above (psf)
P = Perimeter area per foot of pile (i.e. W6x9 = 1.64 sf/ft)
H = Depth of embedment of pile (ft)

Where the pile is placed in an oversized pre-drilled hole and grouted in place, the ultimate skin friction capacity can be calculated by using the surface area of the pre-drilled hole. The values provided in the table represent ultimate values. Therefore, a factor of safety of 2 should be applied to the skin friction and 3 for end bearing values.

Lateral Capacity Recommendations

The parameters in the following table can be used for analysis of the lateral capacity of steel piles driven in either native soil and/or bedrock and under-sized pre-drilled holes for support of solar panel arrays. These parameters are based on correlations with SPT results, published values, and our experience with similar soil types.

LPile Parameters – Zone 1: Shallow Claystone Bedrock					
Soil Type	**Depth (feet)**	**LPile (P-y) Curve Soil Model**	**Effective Unit Weight, γ (pcf)** [1]	**Undrained Shear Strength, S_u (psf)**	**P-Multiplier**
Lean Clay Soils	0 to 1½	Stiff clay w/out free water [2]	100	750	0.7 [3]
	1½ to 3	Stiff clay w/out free water [2]	100	1,500	1.0
Weathered Claystone Bedrock	3 to 17	Stiff clay w/out free water [2,4]	110	3,000	1.0
Claystone Bedrock	17 to 20	Stiff clay w/out free water [2,4]	115	5,000	1.0

1. Buoyant unit weight values should be used below groundwater table. However, groundwater is expected to be deeper than 20 feet below existing site grades.
2. Use LPile default value for coefficient of subgrade reaction (k) and strain (ε_{50}).
3. Reduced in the upper 1½ feet to account for freeze/thaw effects.
4. The weathered claystone bedrock and claystone bedrock is considered to behave like a stiff clay soil for this analysis.

LPile Parameters – Zone 2: Deeper Claystone Bedrock or Without Claystone Bedrock					
Soil Type	**Depth (feet)**	**LPile (P-y) Curve Soil Model**	**Effective Unit Weight, γ (pcf)** [1]	**Undrained Shear Strength, S_u (psf)**	**P-Multiplier**
Lean Clay Soils	0 to 1½	Stiff clay w/out free water [2]	100	750	0.7 [3]

LPile Parameters – Zone 2: Deeper Claystone Bedrock or Without Claystone Bedrock					
Soil Type	**Depth (feet)**	**LPile (P-y) Curve Soil Model**	**Effective Unit Weight, γ (pcf)** [1]	**Undrained Shear Strength, S_u (psf)**	**P-Multiplier**
	1½ to 6	Stiff clay w/out free water [2]	100	1,500	1.0
Lean Clay Soils	6 to 12	Stiff clay w/out free water [2,4]	100	1,750	1.0
Lean Clay Soils	12 to 20	Stiff clay w/out free water [2,4]	100	2,500	1.0

1. Buoyant unit weight values should be used below groundwater table. However, groundwater is expected to be deeper than 20 feet below existing site grades.
2. Use LPile default value for coefficient of subgrade reaction (k) and strain (ε_{50}).
3. Reduced in the upper 1½ feet to account for freeze/thaw effects.
4. The weathered claystone bedrock and claystone bedrock is considered to behave like a stiff clay soil for this analysis.

The above indicated parameters have no factor of safety and may be used to analyze suitability of the proposed section and serviceability requirements. These parameters are based on correlations with SPT results, published values, and our experience with similar soil types. Existing p-y models typically under-predict the lateral capacity of shallow driven piles. Therefore, the P-multiplier is most likely higher but would need to be confirmed based on results of site-specific load test results.

Reinforced Mat Foundation Design Recommendations

We understand the main foundation component in the array area will include driven pile foundations for support of solar arrays; however, some lightly-loaded, inverter structures are typically required across the site. In general, small, lightly-loaded, inverter structures may be supported on driven piles or isolated mat/slab foundation systems.

Proposed electrical equipment may be constructed on a minimum of 12 inches of non-frost susceptible soils. Additional design considerations are presented in the table below:

Description	Value
Supporting Stratum	Minimum of 12 inches of non-frost susceptible soils placed in accordance with the **Earthwork** section of this report.
Maximum Allowable Gross Bearing Pressure [1]	2,500 psf

Description	Value
Lateral Earth Pressure Coefficients [2]	Lean clay: Active, K_a = 0.47 Passive, K_p = 2.1 At-rest, K_o = 0.64 Granular soil: Active, K_a = 0.33 Passive, K_p = 3.0 At-rest, K_o = 0.50
Coefficient of Sliding [2]	Lean clay: μ = 0.3 Granular soil: μ = 0.4
Moist Soil Unit Weight	Lean clay: ɣ = 110 pcf Granular soil: ɣ = 110 pcf
Estimated Total Movement	About 1 to 1½ inch
Estimated Differential Movement	About ½ to ¾ of total movement

1. The recommended maximum allowable gross bearing pressure assumes any unsuitable fill or soft soils, if encountered, will be over-excavated and replaced with properly compacted engineered fill. The design bearing pressure applies to a dead load plus design live load condition. The design bearing pressure may be increased by one-third when considering total loads that include wind or seismic conditions.
2. The lateral earth pressure coefficients and sliding coefficients are ultimate values and do not include a factor of safety. The foundation designer should include the appropriate factors of safety.

Earthwork

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. Site preparation where inverter mat foundations will be installed should include clearing and grubbing, installation of a site drainage system (where necessary), subgrade preparation, proof rolling, and vibratory densification, as necessary. 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.

Site Preparation

Strip and remove existing vegetation, organics, and other deleterious materials from proposed access road areas and any proposed mat foundations supporting inverters. All exposed surfaces should be free of mounds and depressions that could prevent uniform compaction. In the proposed solar array field, stripping of topsoil and vegetation may not be necessary if final grades are the same as the existing grades. Keeping existing topsoil and vegetation at the array field could minimize stormwater erosion during construction and maintain overall ground surface stability for the life span of the solar energy center.

Stripped materials consisting of vegetation, unsuitable fills, and organic materials should be used to revegetate landscaped areas or exposed slopes after completion of grading operations, or should be wasted from the site.

Where possible, the site should be initially graded to create a relatively level surface to receive fill and to provide for a relatively uniform thickness of fill beneath the proposed improvement areas. Once properly cleared, all exposed areas that will receive fill where support is needed above (e.g. foundations, slabs, roadways, etc.) should be scarified to a minimum depth of 8 inches, conditioned to near optimum moisture content, and compacted as stated below in the **Compaction Requirements** section. It is imperative the moisture content of prepared materials be protected from moisture loss. Refer to the **Access Roadways** section of this report for subgrade preparation recommendations related to aggregate-surfaced roadways and compacted native soil access roads.

Although evidence of underground facilities such as septic tanks was not observed during our exploration, such features could be encountered during construction. If unexpected fills or underground facilities are encountered, such features should be removed, and the excavation should be thoroughly cleaned prior to backfill placement and/or construction.

It is anticipated that excavations into the overburden soils for the proposed construction can be accomplished with conventional earthmoving equipment. However, heavy-duty construction equipment may be necessary when excavating into very hard claystone bedrock, where shallow bedrock is present.

Depending upon seasonal conditions, surface water may infiltrate into the excavations on the site. Water seeping into excavations at this site could most likely be controlled by shallow trenches leading to a sump pit where the water could be removed by pumping.

The stability of subgrade soils may be affected by precipitation, repetitive construction traffic, or other factors. If unstable conditions are encountered or develop during construction, workability may be improved by overexcavation of wet zones and mixing these soils with crushed gravel. Use of geotextiles could also be considered as a stabilization technique. Lightweight excavation equipment may be required to reduce subgrade pumping.

Material Types

Fill for this project should consist of engineered fill. Engineered fill is fill that meets the criteria presented in this report and has been properly documented.

Engineered fill should meet the following material property requirements:

Fill Type [1,2]	USCS Classification	Acceptable Location for Placement
On-site clay soils	CL	On-site clay soils are considered suitable for reuse as compacted fill below foundation, slab, and access road areas, and as general fill for this project.
On-site sand soils	SM, SC, SW	On-site sand soils are considered suitable for reuse as compacted fill below foundation, slab, and access road areas and as general fill for this project.
Processed claystone bedrock [3]	N/A	The on-site claystone bedrock is considered suitable for engineered fill below foundation, slab, and access road areas, provided the claystone bedrock is processed in accordance with Note 3 below.
Imported soils	Varies	Imported soils meeting the gradation outlined herein can be considered acceptable for use as engineered fill beneath slabs and pavements.

1. Controlled, compacted fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the geotechnical engineer for evaluation.
2. Care should be taken during the fill placement process to avoid zones of dis-similar fill. Improvements constructed over varying fill types are at a higher risk of differential movement compared to improvements over a uniform fill zone.
3. On-site claystone bedrock materials should be staged separately from excavated soils and processed to a soil-like consistency with a maximum particle size of 3 inches.

Imported soils for engineered fill (if required) should meet the following material property requirements:

Gradation	Percent Finer by Weight (ASTM C136)
3”	100
No. 4 Sieve	50-100
No. 200 Sieve	15-75

- Liquid Limit ..... 30 (max)
- Plasticity Index ..... 15 (max)
- Maximum Expansive Potential (%) 1.0*

*Measured on a sample compacted to approximately 95 percent of the ASTM D698 maximum dry density at optimum water content. The sample is confined under a 200-psf surcharge and submerged.

Imported non-frost susceptible soils should meet the following material property requirements:

Gradation	Percent Finer by Weight (ASTM C136)
3”	100
No. 4 Sieve	50-100
No. 200 Sieve	6 (max)

- Liquid Limit ..... NV
- Plasticity Index ..... NP

Compaction Requirements

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.

Item	Description
Fill Lift Thickness	8 inches or less in loose thickness when heavy, self-propelled compaction equipment is used 4 to 6 inches in loose thickness when hand-guided equipment (e.g. jumping jack, plate compactor) is used
Compaction Requirements [1,2]	Minimum of 95% of the material’s standard Proctor maximum dry density (ASTM D698) for clay soils and a minimum of 98% of the material’s standard Proctor maximum dry density for sand and gravel soils.
Moisture Content of Cohesive Soils (Clay Soils) [3]	0 to +3% of the optimum moisture content
Moisture Content of Cohesionless Soils (Sand Soils)	-2 to +2% of the optimum moisture content

1. We recommend that engineered fill be tested for water content and compaction during placement. Should the results of the in-place density tests indicate the specified water or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified water and compaction requirements are achieved.
2. Water levels should be maintained low enough to allow for satisfactory compaction to be achieved without the compacted fill material pumping when proofrolled.
3. Moisture conditioned clay soils should not be allowed to dry out. A loss of moisture within these materials could result in an increase in the materials expansive potential. Subsequent wetting of these materials could result in undesirable movement.

Excavation and Trench Construction

Excavations into the subsurface soils and bedrock will encounter a variety of conditions. The individual contractor(s) is responsible for designing and constructing stable, temporary excavations as required to maintain stability of both the excavation sides and bottom. All excavations should be sloped or shored in the interest of safety following local and federal

regulations, including current Occupational Safety and Health Administration (OSHA) excavation and trench safety standards.

Soils and bedrock penetrated by the proposed excavations may vary significantly across the site. The soil and bedrock classifications are based solely on the materials encountered in the exploratory borings. The contractor should verify that similar conditions exist throughout the proposed area of excavation. If different subsurface conditions are encountered at the time of construction, the actual conditions should be evaluated to determine any excavation modifications necessary to maintain safe conditions.

Utility Trench Installation

Based on the subsurface conditions encountered in the borings and test pits at the site, it is our opinion the utilities can be installed using conventional open-cut trenches or cable plowing techniques.

Conventional Open-Cut Trenches

Utility trenches are a common source of water infiltration and migration. Utility trenches penetrating beneath equipment pad foundations should be sealed to restrict water intrusion and flow through the trenches below the equipment pad foundations. The trench should include a plug that extends at least 5 feet from the face of equipment pad foundations. The plug material should consist of cementitious flowable fill or on-site clay soils. The trench plug material should be placed to surround the utility line. If used, the clay trench plug material should be placed and compacted to comply with the water content and compaction recommendations for moisture-conditioned soils as previously described in this report.

Cable Plowing

Based on the subsurface conditions encountered in the exploratory borings and test pits, it is our opinion cable plowing is a feasible installation method at this site. In addition, we do not believe that pre-ripping the proposed cable alignments will be necessary at this site. Narrow trenches created during cable plowing generally get filled in as the cable or conduit is being installed. In addition, the trenches may get filled in as equipment traverses the plow trench alignment. Soils with a higher percentage of sands and gravels will fill in better than soils with higher percentage of clay size particles. Because the shallow soils at this site are clayey in nature, we recommend the surface of the plow trench be scarified and compacted. In areas where plow trenching is performed, it is possible that depressions may occur over time and may need to be monitored and maintained as necessary.

Grading and Drainage

All grades must be adjusted to provide positive drainage away from the structures during construction and maintained throughout the life of the proposed project. Infiltration of water into

utility or foundation excavations must be prevented during construction. Landscaped irrigation adjacent to the foundation systems should be minimized or eliminated. Water permitted to pond near or adjacent to the perimeter of the structures (either during or post-construction) can result in significantly higher soil movements than those discussed in this report. As a result, any estimations of potential movement described in this report cannot be relied upon if positive drainage is not obtained and maintained, and water is allowed to infiltrate the fill and/or subgrade.

Exposed ground should be sloped at a minimum of 10 percent grade for at least 5 feet beyond the perimeter of the structures or at a minimum of 5 percent grade for at least 10 feet beyond the perimeter of the structure. Backfill against the structures, if necessary, should be compacted in accordance with recommendations in this report and free of all construction debris to reduce the possibility of water infiltration. After construction and prior to project completion, we recommend that verification of final grading be performed to document that positive drainage, as described above, has been achieved.

Slopes

For permanent slopes in unreinforced compacted fill areas, recommended maximum configurations are as follows:

Item	Maximum Slope (Horizontal : Vertical)
Granular and cohesive soils	3H:1V

Recommendations are for maximum 10-foot high slopes. If steeper or higher slopes are required for site development, stability analyses should be completed to design the grading plan. The face of all slopes should be compacted to the minimum specification for fill embankments. Fill slopes should be overbuilt and trimmed to compacted material.

Earthwork Construction Considerations

Upon completion of grading operations, care should be taken to maintain the moisture content of the subgrade prior to construction of shallow foundations, slabs-on-grade, aggregate-surfaced roads, etc. Construction traffic over prepared subgrade should be minimized and avoided to the extent practical. Construction traffic over processed clay subgrade will eventually reduce the moisture content and increase the density of the subgrade. Subsequent wetting of these materials will result in undesirable movement.

The site should also be graded to prevent ponding of surface water on prepared subgrade or in excavations. In areas where water is allowed to pond over a period of time, the affected area should be removed and allowed to dry out; however, allowing the clay soils to dry out below the optimum moisture content is not recommended. If constraints do not allow for moisture conditioning of affected clays as recommended in this report, the affected area should be

overexcavated and replaced with engineered fill. As an alternative, geotextiles could also be considered as a stabilization technique.

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during overexcavation operations, excavations, subgrade preparation; proof-rolling; placement and compaction of controlled compacted fills; backfilling of excavations into the completed subgrade, and just prior to construction of building floor slabs.

SUBSTATION

We would 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 location (Boring Nos. 4b-1 and 4b-2) and assumed structural loads. We understand substation structures will have a maximum anticipated drilled pier ground line loading of about a moment of 325 kip-ft with 8 kips of shear (lateral) load. We understand substation electrical equipment on pads may weigh up to 150 kips. Shallow foundation systems for support of lightly-loaded buildings and equipment pads will be acceptable provided these maximum loads are not exceeded and provided the estimated movements can be tolerated. Once loading for these ancillary structures is better known, detailed settlement analyses can be performed to confirm shallow foundation acceptability.

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 should be constructed as straight shafts at least 18 inches in diameter. Settlement of drilled shaft foundations using design properties presented in this report is expected to be less than ½ inch.

Topsoil, organic matter, stumps, existing fill, or other unsuitable materials should not be left in place below any building structures. All building structure foundations should bear on suitable natural soil or on properly compacted structural fill.

Drilled Pier Design Recommendations

Substation structures may be constructed on drilled pier foundation systems bottomed within the claystone bedrock. Design recommendations for a drilled pier foundation system are presented in the following table and paragraphs and are based on the results of Boring Nos. 4b-1 and 4b-2 drilled at the proposed substation location:

Description	Value
Minimum Pier Length [1]	20 feet
Minimum Bedrock Embedment [2,3,4]	8 feet
Maximum Allowable End-Bearing Pressure [5]	25,000 psf
Maximum Allowable Skin Friction [6]	2,000 psf
Minimum Dead Load (kips) [7]	N/A
Uplift Force (Tension due to Soil/Bedrock Uplift, kips)	N/A
Minimum Pier Diameter	18 inches or length/diameter <30
Shear Rings	N/A
Minimum Required Grade Beam Void Thickness	N/A

1. The required minimum length is from the bottom of grade beams or pier caps.
2. Drilled shafts should be embedded into firm or harder weathered or unweathered bedrock materials.
3. Additional bedrock embedment may be necessary to accommodate the structural loading and the actual design minimum bedrock embedment should be evaluated by the structural engineer.
4. The portion of the drilled piers that can resist the uplift force must be (a) embedded in firm or harder bedrock and (b) be at least 15 feet below the top of the drilled pier.
5. In accordance with IBC Section 1806.1, if design of the pier foundations is completed using allowable stress design (ASD) methods, the vertical bearing resistance may be increased by 1/3 where used with the alternative basic load combinations that include wind or seismic loads that are described in IBC Section 1605.3.2. This 1/3 increase does not apply if design is completed using load and resistance factor design (LRFD) methods. Increases also do not apply to the resistance of uplift loads, nor to the soil properties provided in this report for modeling the pier response to lateral loads, nor the resulting lateral pier deflection vs. applied load graph.
6. Skin friction should not be applied in fill or overburden soils, or the upper 5 feet of the drilled pier, whichever is deepest.
7. Provided the minimum bedrock embedment is achieved, a minimum dead load is not necessary.
8. Movement on the order of about ½ inch should be anticipated for the drilled piers, provided the piers are properly designed and constructed and provided positive drainage away from the structures during construction and maintained throughout the life of the proposed project site grading is maintained away from the foundations. Skin friction capacity provided may be used for compression and tension loading.

Piers should be considered to work in group action if the center-to-center horizontal spacing is less than three pier diameters. A minimum practical center-to-center horizontal spacing between piers of at least three diameters should be maintained, and adjacent piers should bottom at the same elevation. The capacity of individual piers must be reduced when considering the effects of group action. Capacity reduction is a function of pier spacing and the number of piers within a group. The following table presents capacity reductions for closely spaced piers.

Description	Value		
Drilled Pier Spacing (Center-to-Center)	>3 diameters	>2 to 3 diameters	>1 to 2 diameters
Pier Capacity Reduction	None	30 percent	50 percent

1. End bearing values do not need to be reduced for closely spaced piers, if the bottoms of piers are at the same elevation.

To satisfy forces in the horizontal direction using the computer program LPile©, piers may be designed for the following lateral load criteria:

Soil Layer	Unit Weight (pcf)	Soil Type for LPILE©	Undrained Shear Strength (psf)	Angle of Internal Friction, Φ(degrees)	Coeff. of Subgrade Reaction, k (pci)	Strain, ε_{50} (%)
Clay	100	Stiff clay w/o free water	1,500	0	Default [1]	Default [1]
Sand	100	Sand (Reese)	0	30	Default [1]	N/A
Weathered Claystone Bedrock	110	Stiff clay w/o free water	3,000	0	Default [1]	Default [1]
Claystone Bedrock	115	Stiff clay w/o free water	4,000	0	Default [1]	Default [1]

1. Use LPile default values.

Lateral analysis should account for the center-to-center spacing and P-Y multiplier values per the following table:

Pier Center-to-Center Spacing (In Direction of Loading)	P-multiplier, P_M Row 1	P-multiplier, P_M Row 2	P-multiplier, P_M Row 3 and Higher
3 x diameter	0.8	0.4	0.3
5 x diameter	1.0	0.85	0.7

The structural engineer should determine the reinforcement necessary for the piers. At a minimum, all piers should be reinforced full depth for the applied axial, lateral, and uplift stresses imposed. We recommend a minimum reinforcement of at least 1 percent of the cross-sectional area of the pier.

Drilling to design depth should be possible with conventional single-flight power.

We do not anticipate pier casing will be necessary to construct drilled piers at this site. However, pier casing may be required if groundwater, loose soils, or caving soils are encountered. Casing should be withdrawn in a slow continuous manner maintaining a sufficient head of concrete to prevent infiltration of water or caving soils or the creation of voids in pier concrete. Pier concrete should have a relatively high fluidity when placed in cased pier holes or through a tremie. Pier concrete with slump in the range of 5 to 7 inches is recommended for uncased piers. For cased piers, a slump in the range of 7 to 9 inches is recommended.

Groundwater (if encountered) should be removed from each pier hole prior to concrete placement. Pier concrete should be placed immediately after completion of drilling and cleaning. If pier concrete cannot be placed in dry conditions, a tremie should be used for concrete placement. Free-fall concrete placement in piers will only be acceptable if provisions are taken to avoid striking the concrete on the sides of the hole or reinforcing steel. The use of a bottom-dump hopper, or an elephant's trunk discharging near the bottom of the hole where concrete segregation will be reduced, is recommended.

Due to potential sloughing and raveling, foundation concrete quantities may exceed calculated geometric volumes. Pier-bearing surfaces must be cleaned prior to concrete placement. A Terracon representative should observe the bearing surface and shaft configuration.

The top of the piers should be cylindrical in shape. Forms may be necessary at the top of the piers in order to minimize the disturbance of the soils and to maintain a cylindrical shape. Failure to provide this shape (i.e., allowing mushrooming of pier tops) may result in additional uplift forces and unanticipated movement.

Spread Footing Foundation Design Recommendations

We understand within the substation that some equipment may be supported on mat/slab foundations, while other building(s), including the operations and maintenance building, may be supported on shallow footing foundations. Transmission line structures are anticipated to be constructed as poles on drilled shafts or as direct embed poles.

Design recommendations for spread footing foundation systems are presented in the following paragraphs.

Description	Value
Overexcavation/Modification Depth	None
Support Stratum	Native soils or engineered fill
Maximum Gross Allowable Bearing Pressure [1]	2,500 psf
Lateral Earth Pressure Coefficients [2]	Lean clay: Active, K_a = 0.47 Passive, K_p = 2.1 At-rest, K_o = 0.64 Granular soil: Active, K_a = 0.33 Passive, K_p = 3.0 At-rest, K_o = 0.50
Coefficient of Sliding [2]	Lean clay: μ = 0.3 Granular soil: μ = 0.4
Moist Soil Unit Weight	Lean clay: ɣ = 110 pcf Granular soil: ɣ = 110 pcf
Minimum Embedment Below Finished Grade for Frost Protection [3]	3 feet
Estimated Total Movement	About 1 to 1½ inch
Estimated Differential Movement [4]	About ½ to ¾ of total movement

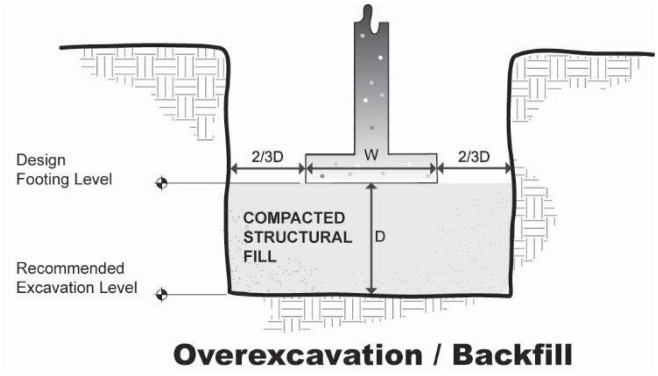
1. The recommended maximum allowable bearing pressure assumes any unsuitable fill or soft soils, if encountered, will be over-excavated and replaced with properly compacted engineered fill. The design bearing pressure applies to a dead load plus design live load condition. The design bearing pressure may be increased by one-third when considering total loads that include wind or seismic conditions.
2. The lateral earth pressure coefficients and sliding coefficients are ultimate values and do not include a factor of safety. The foundation designer should include the appropriate factors of safety.
3. For perimeter footings, footings beneath unheated areas, and footings that will be exposed to freezing conditions during construction. Interior footings may bottom at a minimum depth of 12 inches below finished grade in heated areas.
4. 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 engineered fill, and the quality of the earthwork operations and footing construction.

Description	Value
5. Differential settlement is considered over a distance of about 40 feet.	

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 and throughout the life of the structure. Failure to maintain the proper drainage as recommended in the **Grading and Drainage** subsection of **Earthwork** will nullify the movement estimates provided above.

Unstable subgrade conditions should be observed by the geotechnical engineer to assess the subgrade and provide suitable alternatives for stabilization. Stabilized areas should be proofrolled prior to continuing construction to assess the stability of the subgrade.

Overexcavation of unsuitable soil (if encountered) below foundations should extend laterally beyond all edges of the footings at least 8 inches per foot of overexcavation depth below footing base elevation. The overexcavation should then be backfilled up to the footing base elevation in accordance with the procedures outlined in the **Earthwork** section of this report. The overexcavation and backfill procedure is described in the following figure.



NOTE: Excavations in sketches shown vertical for convenience. Excavations should be sloped as necessary for safety.

The base of all foundation excavations should be free of water and loose soil prior to concrete placement. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Should the soils at bearing level become excessively dry, disturbed or saturated, or frozen, the affected soil should be removed prior to placing concrete.

Reinforced Mat Foundation Design Recommendations

Proposed electrical equipment may be constructed on a minimum of 12 inches of non-frost susceptible soils. Additional design considerations are presented in the table below:

Description	Value
Supporting Stratum	Minimum of 12 inches of non-frost susceptible soils placed in accordance with the **Earthwork** section of this report.
Maximum Allowable Gross Bearing Pressure [1]	2,500 psf
Modulus of Subgrade Reaction	12 pci
Lateral Earth Pressure Coefficients [2]	Lean clay: Active, K_a = 0.47 Passive, K_p = 2.1 At-rest, K_o = 0.64 Granular soil: Active, K_a = 0.33 Passive, K_p = 3.0 At-rest, K_o = 0.50
Coefficient of Sliding [2]	Lean clay: μ = 0.3 Granular soil: μ = 0.4
Moist Soil Unit Weight	Lean clay: ɣ = 110 pcf Granular soil: ɣ = 110 pcf
Estimated Total Movement	About 1 to 1½ inch
Estimated Differential Movement	About ½ to ¾ of total movement

3. The recommended maximum allowable gross bearing pressure assumes any unsuitable fill or soft soils, if encountered, will be over-excavated and replaced with properly compacted engineered fill. The design bearing pressure applies to a dead load plus design live load condition. The design bearing pressure may be increased by one-third when considering total loads that include wind or seismic conditions.
4. The lateral earth pressure coefficients and sliding coefficients are ultimate values and do not include a factor of safety. The foundation designer should include the appropriate factors of safety.

Earthwork

The following presents recommendations for site preparation, excavation, subgrade preparation, and placement of engineered fills on the project. All earthwork on the project should be observed and evaluated by Terracon.

Site Preparation

Strip and remove existing vegetation, organics, and other deleterious materials from proposed substation area. All exposed surfaces should be free of mounds and depressions that could prevent uniform compaction. In the proposed solar array field, stripping of topsoil and vegetation may not be necessary if final grades are the same as the existing grades.

Stripped materials consisting of vegetation, unsuitable fills, and organic materials should be used to revegetate landscaped areas or exposed slopes after completion of grading operations, or should be wasted from the site.

Where possible, the site should be initially graded to create a relatively level surface to receive fill and to provide for a relatively uniform thickness of fill beneath the proposed improvement areas. Once properly cleared, all exposed areas that will receive fill where support is needed above (e.g. foundations, slabs, roadways, etc.) should be scarified to a minimum depth of 8 inches, conditioned to near optimum moisture content, and compacted as stated below in the **Compaction Requirements** section. It is imperative the moisture content of prepared materials be protected from moisture loss. Refer to the **Access Roadways** section of this report for subgrade preparation recommendations related to aggregate-surfaced roadways and compacted native soil access roads.

Although evidence of underground facilities such as septic tanks was not observed during our exploration, such features could be encountered during construction. If unexpected fills or underground facilities are encountered, such features should be removed, and the excavation should be thoroughly cleaned prior to backfill placement and/or construction.

It is anticipated that excavations into the overburden soils for the proposed construction can be accomplished with conventional earthmoving equipment. However, heavy-duty construction equipment may be necessary when excavating into very hard claystone bedrock, where shallow bedrock is present.

Depending upon seasonal conditions, surface water may infiltrate into the excavations on the site. Water seeping into excavations at this site could most likely be controlled by shallow trenches leading to a sump pit where the water could be removed by pumping.

The stability of subgrade soils may be affected by precipitation, repetitive construction traffic, or other factors. If unstable conditions are encountered or develop during construction, workability may be improved by overexcavation of wet zones and mixing these soils with crushed gravel.

Use of geotextiles could also be considered as a stabilization technique. Lightweight excavation equipment may be required to reduce subgrade pumping.

Material Types

Fill for this project should consist of engineered fill. Engineered fill is fill that meets the criteria presented in this report and has been properly documented.

Engineered fill should meet the following material property requirements:

Fill Type [1,2]	USCS Classification	Acceptable Location for Placement
On-site clay soils	CL	On-site clay soils are considered suitable for reuse as compacted fill below foundation, slab, and access road areas, and as general fill for this project.
On-site sand soils	SM, SC, SW	On-site sand soils are considered suitable for reuse as compacted fill below foundation, slab, and access road areas and as general fill for this project.
Processed claystone bedrock [3]	N/A	The on-site claystone bedrock is considered suitable for engineered fill below foundation, slab, and access road areas, provided the claystone bedrock is processed in accordance with Note 3 below.
Imported soils	Varies	Imported soils meeting the gradation outlined herein can be considered acceptable for use as engineered fill beneath slabs and pavements.

1. Controlled, compacted fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the geotechnical engineer for evaluation.
2. Care should be taken during the fill placement process to avoid zones of dis-similar fill. Improvements constructed over varying fill types are at a higher risk of differential movement compared to improvements over a uniform fill zone.
3. On-site claystone bedrock materials should be staged separately from excavated soils and processed to a soil-like consistency with a maximum particle size of 3 inches.

Imported soils for engineered fill (if required) should meet the following material property requirements:

Gradation	Percent Finer by Weight (ASTM C136)
3”	100
No. 4 Sieve	50-100
No. 200 Sieve	15-75

- Liquid Limit ..... 30 (max)
- Plasticity Index ..... 15 (max)
- Maximum Expansive Potential (%) 1.0*

*Measured on a sample compacted to approximately 95 percent of the ASTM D698 maximum dry density at optimum water content. The sample is confined under a 200-psf surcharge and submerged.

Imported non-frost susceptible soils should meet the following material property requirements:

Gradation	Percent Finer by Weight (ASTM C136)
3”	100
No. 4 Sieve	50-100
No. 200 Sieve	6 (max)

- Liquid Limit ..... NV
- Plasticity Index ..... NP

Compaction Requirements

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.

Item	Description
Fill Lift Thickness	8 inches or less in loose thickness when heavy, self-propelled compaction equipment is used 4 to 6 inches in loose thickness when hand-guided equipment (e.g. jumping jack, plate compactor) is used
Compaction Requirements [1,2]	Minimum of 95% of the material’s standard Proctor maximum dry density (ASTM D698) for clay soils and a minimum of 98% of the material’s standard Proctor maximum dry density for sand and gravel soils.
Moisture Content of Cohesive Soils (Clay Soils) [3]	0 to +3% of the optimum moisture content
Moisture Content of Cohesionless Soils (Sand Soils)	-2 to +2% of the optimum moisture content

1. We recommend that engineered fill be tested for water content and compaction during placement. Should the results of the in-place density tests indicate the specified water or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified water and compaction requirements are achieved.
2. Water levels should be maintained low enough to allow for satisfactory compaction to be achieved without the compacted fill material pumping when proofrolled.
3. Moisture conditioned clay soils should not be allowed to dry out. A loss of moisture within these materials could result in an increase in the materials expansive potential. Subsequent wetting of these materials could result in undesirable movement.

Excavation and Trench Construction

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

Soils and bedrock penetrated by the proposed excavations may vary significantly across the site. The soil and bedrock classifications are based solely on the materials encountered in the exploratory borings. The contractor should verify that similar conditions exist throughout the proposed area of excavation. If different subsurface conditions are encountered at the time of construction, the actual conditions should be evaluated to determine any excavation modifications necessary to maintain safe conditions.

Utility Trench Installation

Based on the subsurface conditions encountered in the borings and test pits at the site, it is our opinion the utilities can be installed using conventional open-cut trenches or cable plowing techniques.

Conventional Open-Cut Trenches

Utility trenches are a common source of water infiltration and migration. Utility trenches penetrating beneath equipment pad foundations should be sealed to restrict water intrusion and flow through the trenches below the equipment pad foundations. The trench should include a plug that extends at least 5 feet from the face of equipment pad foundations. The plug material should consist of cementitious flowable fill or on-site clay soils. The trench plug material should be placed to surround the utility line. If used, the clay trench plug material should be placed and compacted to comply with the water content and compaction recommendations for moisture-conditioned soils as previously described in this report.

Cable Plowing

Based on the subsurface conditions encountered in the exploratory borings and test pits, it is our opinion cable plowing is a feasible installation method at this site. In addition, we do not believe that pre-ripping the proposed cable alignments will be necessary at this site. Narrow trenches created during cable plowing generally get filled in as the cable or conduit is being installed. In addition, the trenches may get filled in as equipment traverses the plow trench alignment. Soils with a higher percentage of sands and gravels will fill in better than soils with higher percentage of clay size particles. Because the shallow soils at this site are clayey in nature, we recommend the surface of the plow trench be scarified and compacted. In areas where plow trenching is

performed, it is possible that depressions may occur over time and may need to be monitored and maintained as necessary.

Grading and Drainage

All grades must be adjusted to provide positive drainage away from the structures during construction and maintained throughout the life of the proposed project. Infiltration of water into utility or foundation excavations must be prevented during construction. Landscaped irrigation adjacent to the foundation systems should be minimized or eliminated. Water permitted to pond near or adjacent to the perimeter of the structures (either during or post-construction) can result in significantly higher soil movements than those discussed in this report. As a result, any estimations of potential movement described in this report cannot be relied upon if positive drainage is not obtained and maintained, and water is allowed to infiltrate the fill and/or subgrade.

Exposed ground should be sloped at a minimum of 10 percent grade for at least 5 feet beyond the perimeter of the structures or at a minimum of 5 percent grade for at least 10 feet beyond the perimeter of the structure. Backfill against the structures, if necessary, should be compacted in accordance with recommendations in this report and free of all construction debris to reduce the possibility of water infiltration. After construction and prior to project completion, we recommend that verification of final grading be performed to document that positive drainage, as described above, has been achieved.

Slopes

For permanent slopes in unreinforced compacted fill areas, recommended maximum configurations are as follows:

Item	Maximum Slope (Horizontal : Vertical)
Granular and cohesive soils	3H:1V

Recommendations are for maximum 10-foot high slopes. If steeper or higher slopes are required for site development, stability analyses should be completed to design the grading plan. The face of all slopes should be compacted to the minimum specification for fill embankments. Fill slopes should be overbuilt and trimmed to compacted material.

Earthwork Construction Considerations

Upon completion of grading operations, care should be taken to maintain the moisture content of the subgrade prior to construction of shallow foundations, slabs-on-grade, aggregate-surfaced roads, etc. Construction traffic over prepared subgrade should be minimized and avoided to the extent practical. Construction traffic over processed clay subgrade will eventually reduce the moisture content and increase the density of the subgrade. Subsequent wetting of these materials will result in undesirable movement.

The site should also be graded to prevent ponding of surface water on prepared subgrade or in excavations. In areas where water is allowed to pond over a period of time, the affected area should be removed and allowed to dry out; however, allowing the clay soils to dry out below the optimum moisture content is not recommended. If constraints do not allow for moisture conditioning of affected clays as recommended in this report, the affected area should be overexcavated and replaced with engineered fill. As an alternative, geotextiles could also be considered as a stabilization technique.

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during overexcavation operations, excavations, subgrade preparation; proof-rolling; placement and compaction of controlled compacted fills; backfilling of excavations into the completed subgrade, and just prior to construction of building floor slabs.

SEISMIC CONSIDERATIONS

Based on our subsurface exploration and laboratory testing, it is our opinion that the soils have a low risk of liquefaction. The following table presents the seismic site classification based on the 2015 International Building Code (IBC) and the subsurface conditions encountered within the borings:

Area No. (Boring Nos.)	Site Classification [1,2]
1 (1-1 through 1-10)	D
1b (1b-1 through 1b-7)	D
2 (2-1 through 2-5)	C
3 (3-1 through 3-4)	C
4 (4-1 through 4-8)	C
4b (4b-1 and 4b-2)	C
5 (5-1 through 5-4)	C
6 (6-1 through 6-9)	D
7 (7-1 through 7-11)	D

1. In general accordance with the 2015 International Building Code, Section 1613.3.2.
2. The 2015 International Building Code (IBC) requires a site subsurface profile determination extending a depth of 100 feet for seismic site classification. The current scope requested does not include the required 100-foot subsurface profile determination. The deepest borings of this exploration extended to a maximum depth of about 30 feet and this seismic site class definition considers that similar subsurface conditions exist below the maximum depth of the subsurface exploration.

ACCESS ROADWAYS

We understand that access road cross sections used for construction of the project will be the responsibility of the EPC contractor, and that only post-construction traffic with an allowable rut depth of up to 1 to 2½ inches and a serviceability loss of 1.0 is what we are to design for in this report.

The following sections present our design recommendations for aggregate-surfaced roads and compacted native soil access roads at the project site.

Aggregate-Surfaced Roadway Design Recommendations

Evaluation of the aggregate-surfaced roadway section thicknesses for the project has been based on the procedures outlined in the 1993 Guideline for Design of Pavement Structures by the American Association of State Highway and Transportation Officials (AASHTO) for low volume design. The recommendations presented in this section can also be applied to the gravel surface in the staging area, provided the traffic loading is equal or less than the traffic loading outlined within this section. Less aggregate thickness can be used in staging areas; however, additional maintenance of the staging areas during construction should be anticipated.

The following traffic loads were provided by JSI Construction Group LLC and were used for the aggregate-surfaced roadway thickness design:

Design Period	Design Traffic Loads	
	Cars and Pickups	Heavy Trucks
0 to 3 months (during construction)	200 per day (5 days per week)	1,600 heavy trucks 200 concrete trucks 40 light civil 10 heavy civil
3 to 8 months (during construction)	50 per day (5 days per week)	
8 months to 20 years	6 or less per month	3 or less per year

Based on the assumed traffic data, the following table presents the calculated Equivalent Single Axis Load (ESAL) and other traffic criteria used for aggregate thickness design:

Design Criteria	Value
Calculated 8-month Construction Traffic ESAL	4,500
Calculated 20-year Total ESAL (including the 8-month construction traffic ESAL)	5,000
Estimated Subgrade Resilient Modulus, M_R	3,000 psi
Modulus of Aggregate Base Layer, E_{BS}	30,000 psi
Assumed Maximum Allowable Rut Depth	1 to 2½ inches

Based on Figure 4.3, Design Chart for Aggregate-Surfaced Roads Considering Allowable Rutting, 1993 Guide for Design of Pavement Structures by AASHTO, the estimated resilient modulus (M_R), and the assumed modulus of the aggregate base layer, the following minimum aggregate base course thicknesses could be implemented:

Allowable Rut Depth	Aggregate Base Course Thickness (inches)
3 inches or more	4 inches
2½ inches	5½ inches
2 inches	6½ inches
1½ inches	8½ inches
1 inch	13 inches

Prior to aggregate placement, we recommend the native subgrade soils be scarified, moisture conditioned and compacted to a minimum depth of 8 inches, prior to placing the aggregate base.

We recommend the use of aggregate base course meeting Colorado Department of Transportation (CDOT) Class 5 or Class 6 specifications. Recycled aggregate materials could be considered, provided the material has a modulus of at least 30,000 psi. Ongoing maintenance will also be required should the access roads be constructed prior to the finished construction of the solar array.

The aggregate surface materials and native subgrade soils beneath roadways should be compacted in accordance with the recommendations in the **Earthwork** section of this report. The surface course should be compacted at a moisture content not more than 2 percent above the optimum moisture content as determined by the standard Proctor (ASTM D698).

If subgrade soils become unstable, we recommend removing the soft or yielding soils and replace the material with approved on-site soils or imported fill. As an alternative, consideration can be given to placing geotextile and additional base course on top of the unstable area. We estimate 12 to 24 inches of base course may be required to stabilize the roadway in isolated areas or low areas that are susceptible to holding water.

Compacted Native Soil Access Road Design Recommendations

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

If the compacted native soil access roads (un-surfaced roads) are anticipated to be used routinely during wet seasons or when the upper soils are in saturated conditions, the un-surfaced roads will experience wheel path rutting and depression and may require increased maintenance.

Construction of the un-surfaced roadways should consist of a minimum of 12 inches of compacted on-site soils. In the event the proposed roadways are higher in elevation than the existing grades, the upper 8 inches of subgrade soils at existing grade should be scarified, moisture conditioned, and compacted to grade in accordance with the recommendations in the **Earthwork** section of this report.

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

Roadway Design and Construction Considerations

On most project sites, the site grading is accomplished relatively early in the construction phase. Fills are typically placed and compacted in a uniform manner. However, as construction proceeds, the subgrade may be disturbed due to utility excavations, construction traffic, desiccation, or rainfall/snow melt. As a result, the roadway subgrade may not be suitable for construction and corrective action will be required. The subgrade should be carefully evaluated at the time of construction for signs of disturbance or instability. We recommend the subgrade be thoroughly proofrolled with a loaded tandem-axle dump truck prior to final grading. Access roadway areas should be moisture conditioned and properly compacted in accordance with the recommendations in the **Earthwork** section of this report immediately prior to placement of the surfacing materials.

We emphasize that aggregated-surfaced or compacted native soil roadways, 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.

We recommend an implementation of a site inspection program at a frequency of at least once per year to verify the adequacy of the roadways. Preventative measures should be applied as needed for erosion control and regrading. An initial site inspection should be completed approximately three months following construction.

When potholes, ruts, depressions, or yielding subgrades develop, they must be addressed as soon as possible in order to avoid major repairs. The roadways should be carefully reevaluated at the time of the use by heavy equipment or critical component delivery for signs of disturbance or excessive rutting. Roadway reevaluation should include proofrolling immediately prior to use by heavy or critical equipment, particularly after a rainfall event. If disturbance and/or excessive wetting have occurred, roadway areas should be reworked, moisture conditioned (if necessary), and properly compacted as indicated in this report.

Loss of aggregate-surfaced roadway surfacing materials from dust can be significant and may result in a roadway surface course that is several inches thinner within a few years. The reduced thickness will result in loss of strength and poor drainage. The use of a dust palliative such as magnesium chloride can reduce the rate of deterioration of the roadway surface and associated dust, especially when used with an aggregate surfacing material containing 8 to 12 percent fines. The typical application rate is about 0.3 gallons per square yard, although the rate may need to be increased to 0.5 to 0.6 gallons per square yard to accommodate the heavy traffic associated with the site. The treatment should be applied when the surfacing material is in a damp condition.

Positive surface drainage of the roadway and subgrade should be provided and maintained during the life of the project. We understand the client intends to design roads with drainage features on one side, if necessary, to allow for sheet flow across the full width of the road. The clay subgrade of the roadway should sloped at 2 percent across the width of the road to provide surface water drainage at all times. Water should not be allowed to remain within the roadway section and subgrade soils. In addition, the subgrade soils should be prepared in accordance with the **Earthwork** section of this report. The following recommendations should be considered at minimum:

- Shoulders adjacent to pavements should slope at 5 to 10 percent away from the roadways
- The subgrade surfaces have a minimum ¼ inch per foot (2 percent) slope to promote proper surface drainage
- Consider appropriate edge drainage and ditches/culverts
- The roadway clay subgrade should be slightly above surrounding grades to promote positive drainage. Aggregate base course should not be placed in a “trough” condition within the roadway section that is prone to holding water.

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

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

GENERAL COMMENTS

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

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

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

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

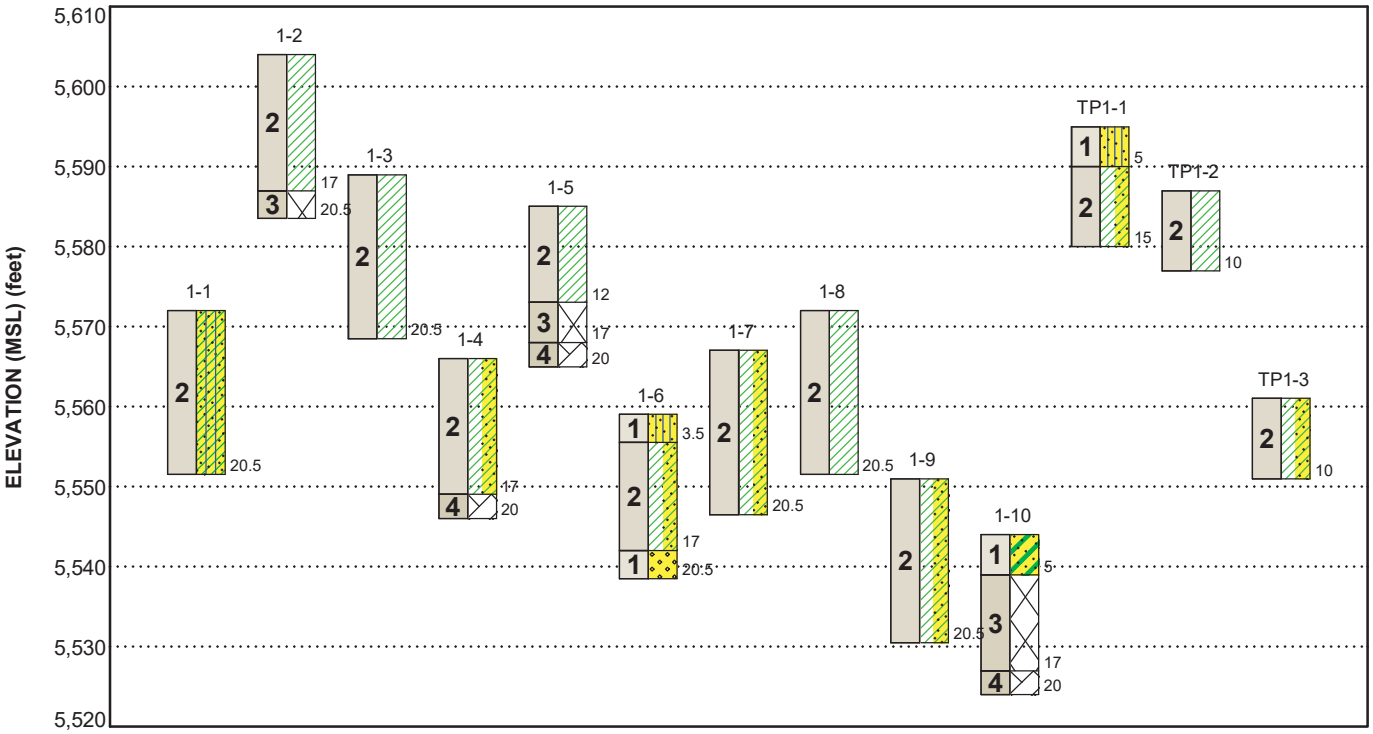
of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

FIGURES

Contents:

GEOMODEL - Area No. 1

CO465 - Pike Solar ■ El Paso County, Colorado
Terracon Project No. 23205109



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Sand**	With varying amounts of gravel, silt, and clay; loose to dense
2	**Lean Clay**	With varying amounts of gravel, sand, and silt; medium stiff to hard
3	**Weathered Claystone Bedrock**	Weathered to very hard
4	**Claystone Bedrock**	Hard to very hard

LEGEND

- Sandy Silty Clay
- Lean Clay with Sand
- Well-graded Sand
- Lean Clay
- Claystone
- Clayey Sand
- Weathered Rock
- Silty Sand

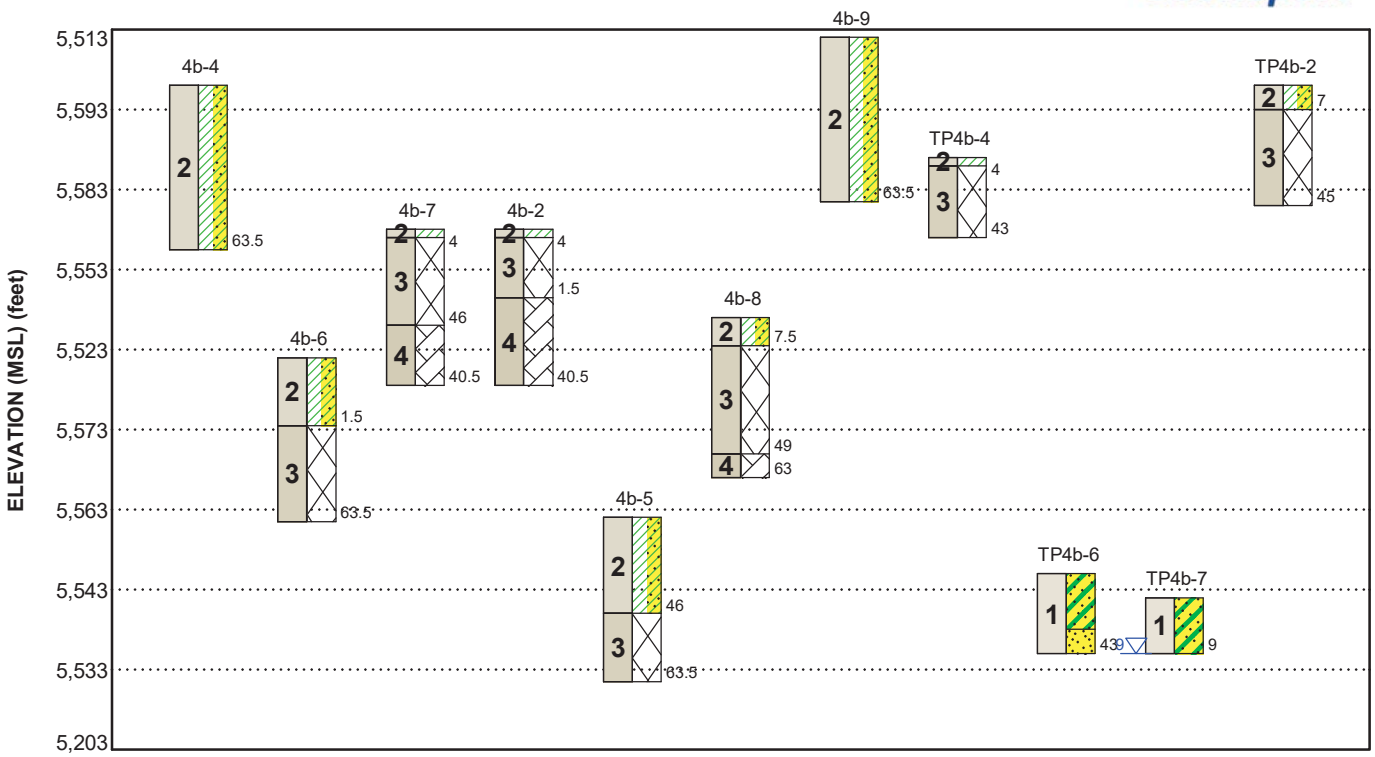
▽ First Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.
Numbers adjacent to soil column indicate depth below ground surface.

GEOMODEL - Area No. 1b

CO465 - Pike Solar ■ El Paso County, Colorado
Terracon Project No. 23205109



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Sand	With varying amounts of gravel, silt, and clay; loose to dense
2	Lean Clay	With varying amounts of gravel, sand, and silt; medium stiff to hard
3	Weathered Claystone Bedrock	Weathered to very hard
4	Claystone Bedrock	Hard to very hard

LEGEND

- Lean Clay with Sand
- Weathered Rock
- Lean Clay
- Claystone
- Clayey Sand
- Poorly-graded Sand

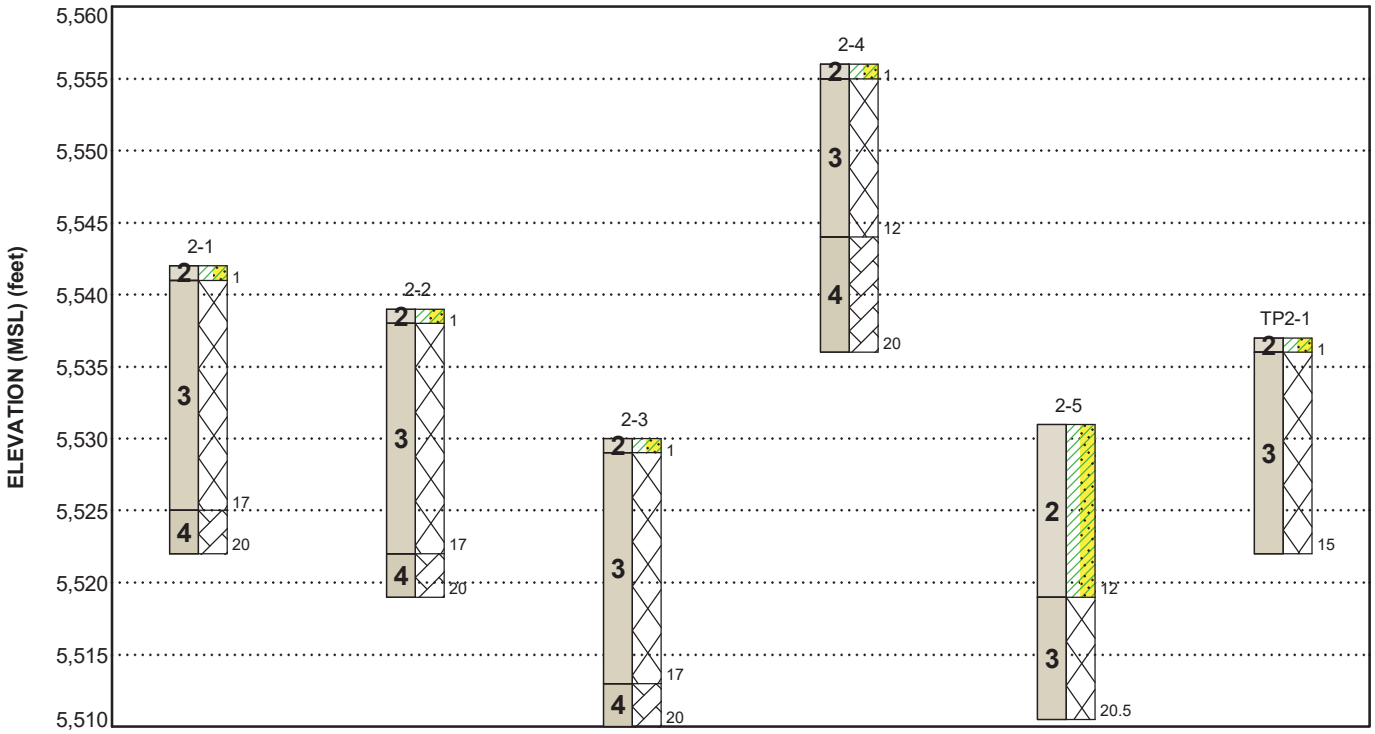
▽ First Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.
Numbers adjacent to soil column indicate depth below ground surface.

GEOMODEL - Area No. 2

CO465 - Pike Solar ■ El Paso County, Colorado
Terracon Project No. 23205109



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Sand	With varying amounts of gravel, silt, and clay; loose to dense
2	Lean Clay	With varying amounts of gravel, sand, and silt; medium stiff to hard
3	Weathered Claystone Bedrock	Weathered to very hard
4	Claystone Bedrock	Hard to very hard

LEGEND

Lean Clay with Sand

Weathered Rock

Claystone

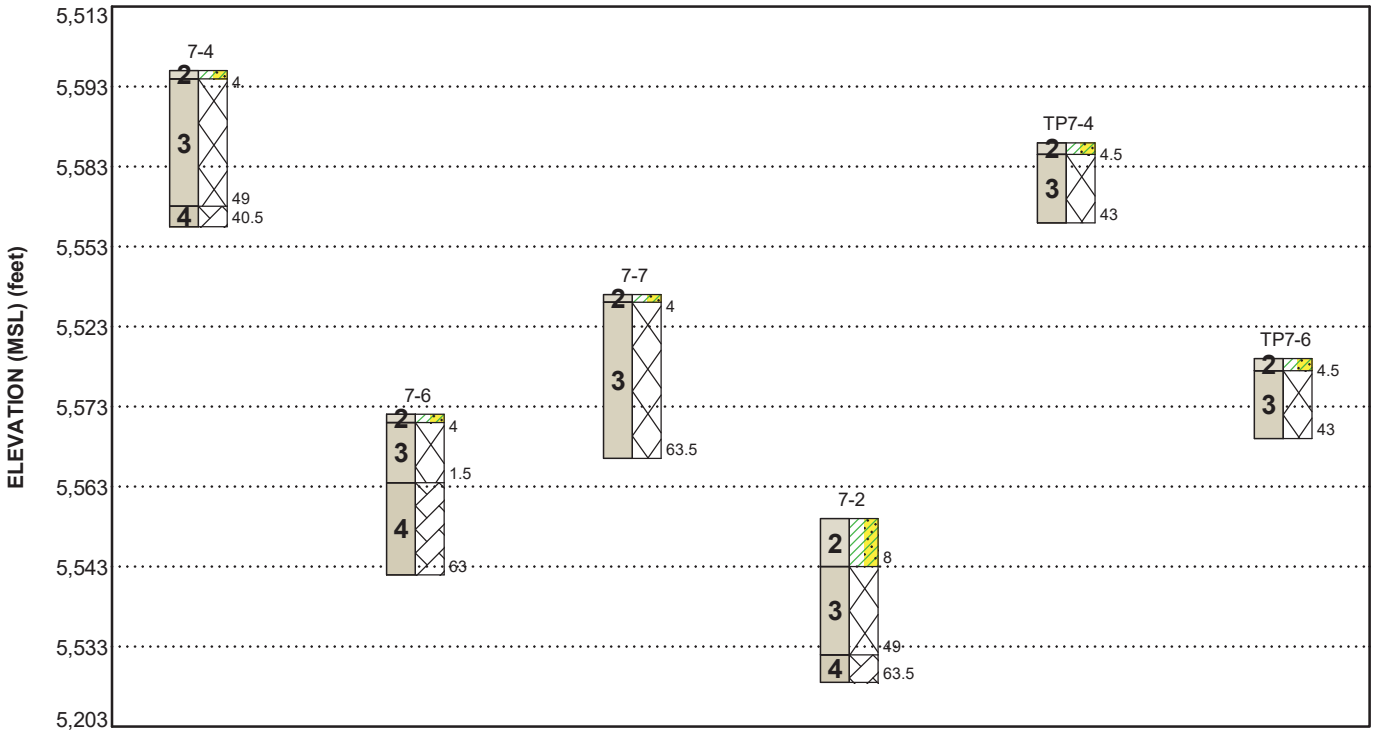
▽ First Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.
Numbers adjacent to soil column indicate depth below ground surface.

GEOMODEL - Area No. 3

CO465 - Pike Solar ■ El Paso County, Colorado
Terracon Project No. 23205109



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Sand**	With varying amounts of gravel, silt, and clay; loose to dense
2	**Lean Clay**	With varying amounts of gravel, sand, and silt; medium stiff to hard
3	**Weathered Claystone Bedrock**	Weathered to very hard
4	**Claystone Bedrock**	Hard to very hard

LEGEND

Lean Clay with Sand

Weathered Rock

Claystone

▽ First Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
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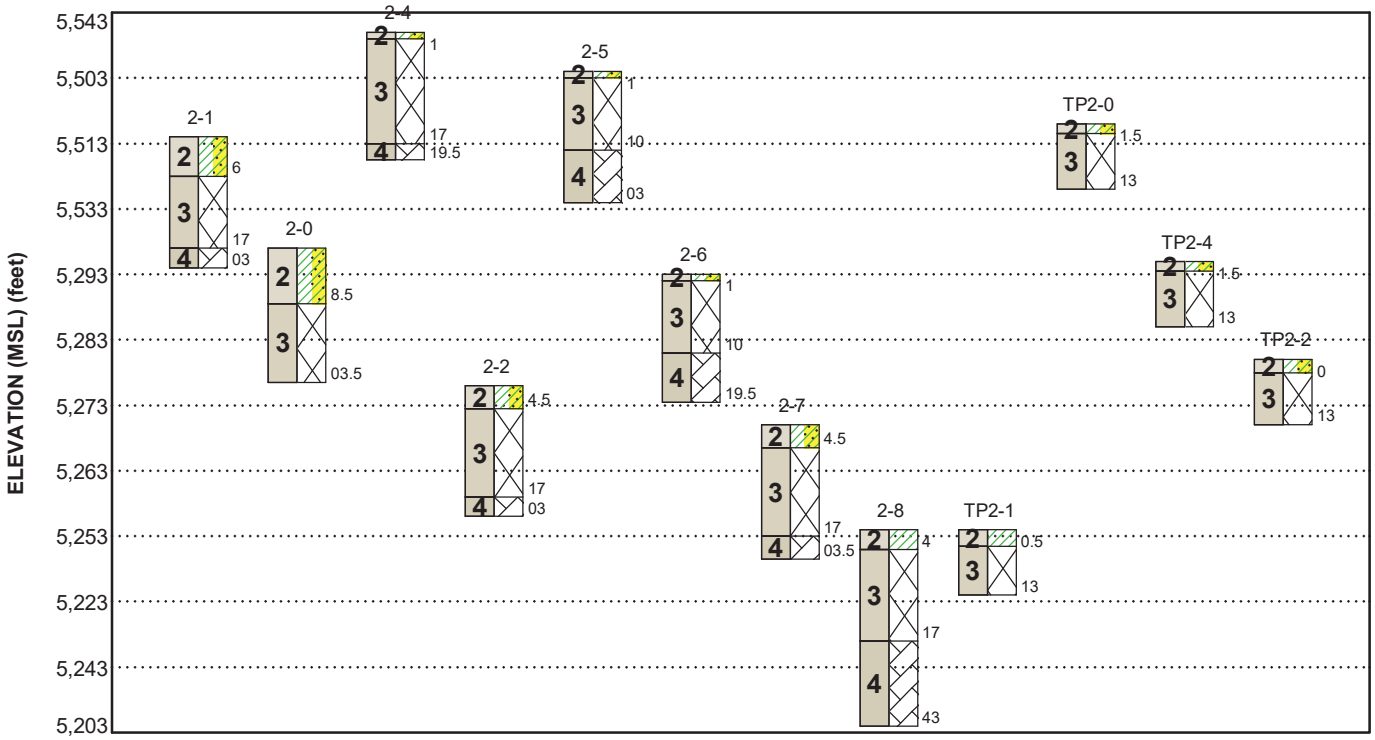
Numbers adjacent to soil column indicate depth below ground surface.

GEOMODEL - Area No. 4

CO465 - Pike Solar ■ El Paso County, Colorado
Terracon Project No. 23205109



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Sand**	With varying amounts of gravel, silt, and clay; loose to dense
2	**Lean Clay**	With varying amounts of gravel, sand, and silt; medium stiff to hard
3	**Weathered Claystone Bedrock**	Weathered to very hard
4	**Claystone Bedrock**	Hard to very hard

LEGEND

Lean Clay with Sand
Lean Clay
Weathered Rock
Claystone

▽ First Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
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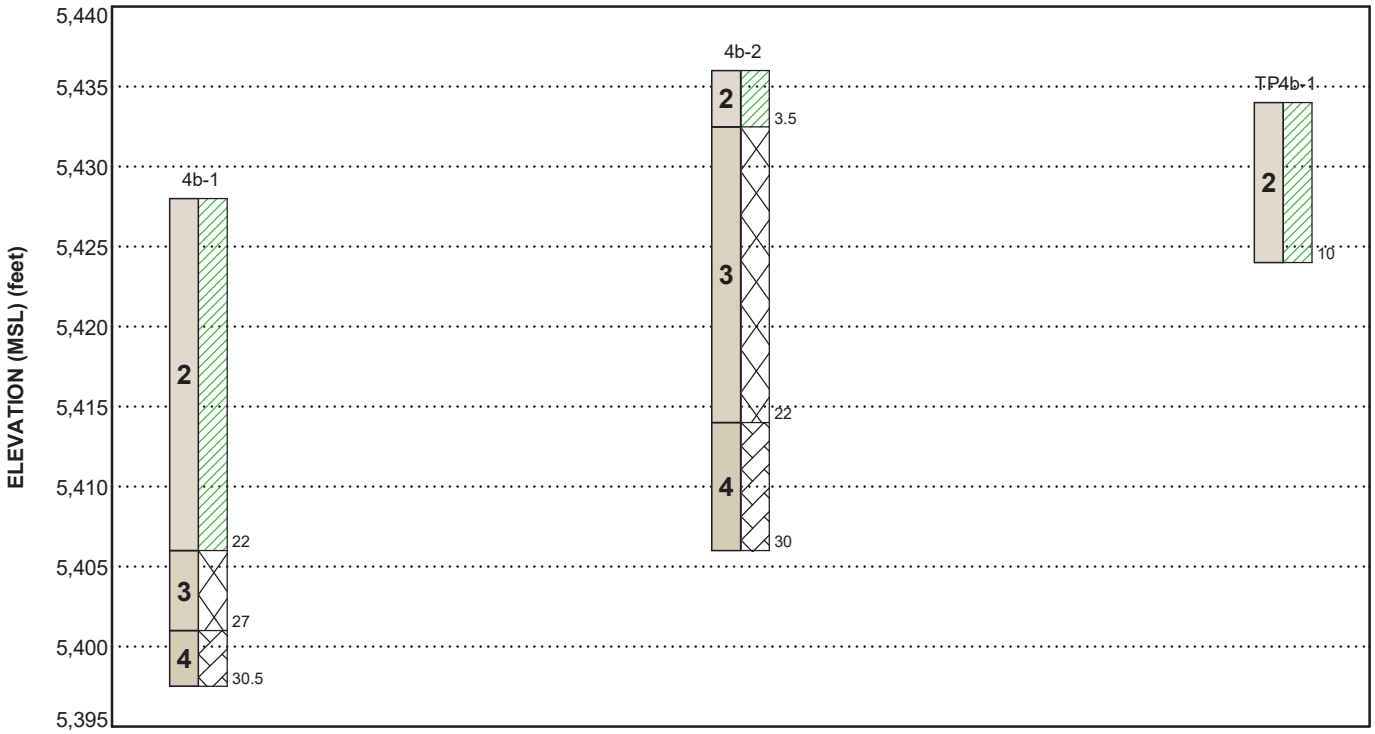
Numbers adjacent to soil column indicate depth below ground surface.

GEOMODEL - Area No. 4b

CO465 - Pike Solar ■ El Paso County, Colorado
Terracon Project No. 23205109



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Sand	With varying amounts of gravel, silt, and clay; loose to dense
2	Lean Clay	With varying amounts of gravel, sand, and silt; medium stiff to hard
3	Weathered Claystone Bedrock	Weathered to very hard
4	Claystone Bedrock	Hard to very hard

LEGEND

Lean Clay

Weathered Rock

Claystone

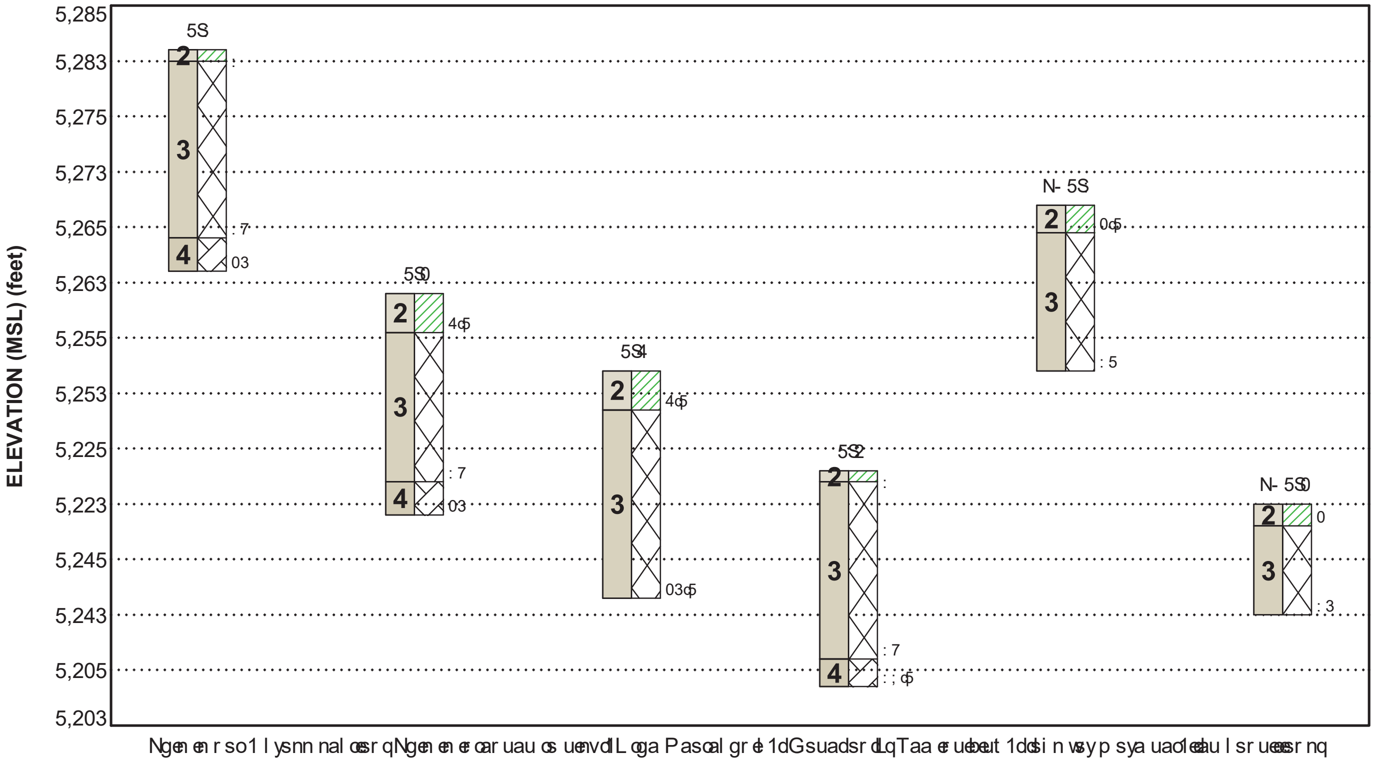
▽ First Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.
Numbers adjacent to soil column indicate depth below ground surface.

GEOMODEL - Area No. 5

CO465 - Pike Solar ■ El Paso County, Colorado
Terracon Project No. 23205109



Model Layer	Layer Name	General Description
1	Sand	With varying amounts of gravel, silt, and clay; loose to dense
2	Lean Clay	With varying amounts of gravel, sand, and silt; medium stiff to hard
3	Weathered Claystone Bedrock	x a1ogayau os bayL g1yu
4	Claystone Bedrock	F 1yu os bayL g1yu

LEGEND

9a1r HdIL

x a1ogayau CsI I

HdILnosr a

k eynox 1oay. f nayb1oesr

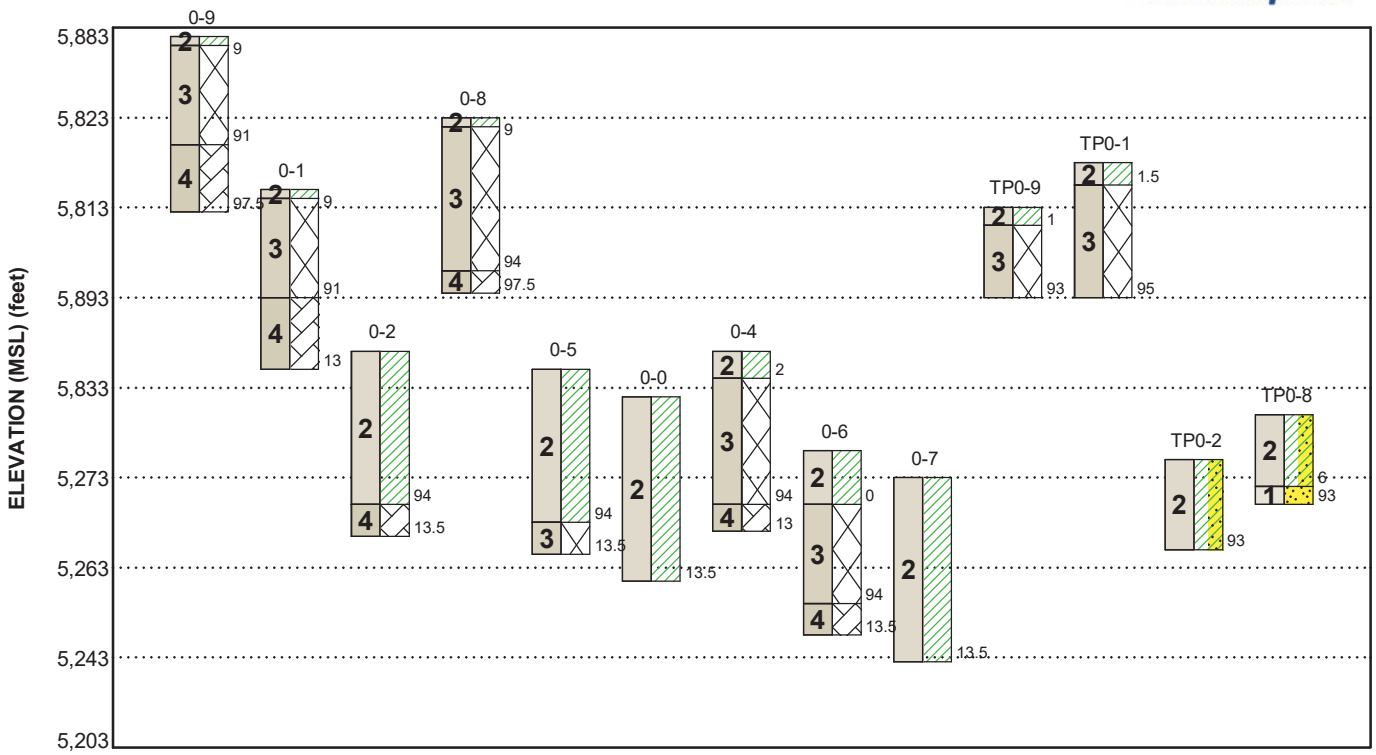
Pystruh 1oaydabadh 1ya oap vsy1oq Nga dabadh ngshr 1ya yavyanar o1oeba swoga u1oa 1ru oep a swst yaMdsy1oesr qTe r ewe 1rol g1ri an 1ya vsnnefda sbayoep aq x 1oaydabadh ngshr 1ya 1n p a1nt yau ut yer i 1ruWy 1woayuyedde i q/r nsp a l 1nan, f syer i 1ub1rl ap ar op aogsun p 1nl oga vyanar l aWf nar l a swi yst ruh 1oayqTaa er uebeut 1ddsi n wsy uao1edq

j . NOTE

91Layer i ngshr sr ogen we t ya g1n f aar uabadsvau f Loga i asoal gr el 1dar i er aay wsy vt ysnan swp suader i oga nt f nt ywl a l sr ueesr n 1n yact eyau wsy oga nt f nact ar oi asoal gr el 1dar i er aayer i wsy ogen vysnal oq
j t p f ayn 1uml ar oos nsedl sdl p r er uel 1oa uavog f adsh i ystru nt ywl aq

GEOMODEL - Area No. 6

CO465 - Pike Solar ■ El Paso County, Colorado
Terracon Project No. 23205109



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Sand**	With varying amounts of gravel, silt, and clay; loose to dense
2	**Lean Clay**	With varying amounts of gravel, sand, and silt; medium stiff to hard
3	**Weathered Claystone Bedrock**	Weathered to very hard
4	**Claystone Bedrock**	Hard to very hard

LEGEND

- Lean Clay
- Lean Clay with Sand
- Weathered Rock
- Poorly-graded Sand
- Claystone

▽ First Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
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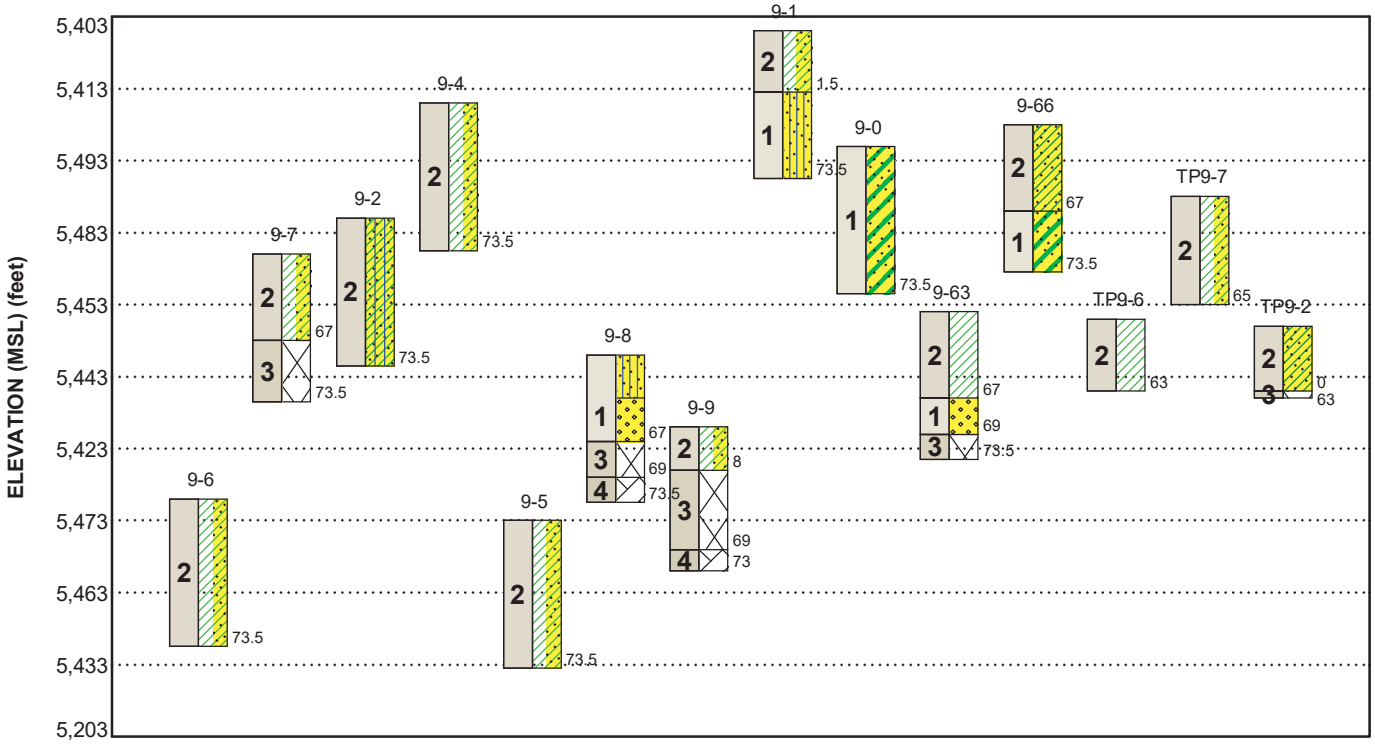
Numbers adjacent to soil column indicate depth below ground surface.

GEOMODEL - Area No. 7

CO465 - Pike Solar ■ El Paso County, Colorado
Terracon Project No. 23205109



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Sand**	With varying amounts of gravel, silt, and clay; loose to dense
2	**Lean Clay**	With varying amounts of gravel, sand, and silt; medium stiff to hard
3	**Weathered Claystone Bedrock**	Weathered to very hard
4	**Claystone Bedrock**	Hard to very hard

LEGEND

- Lean Clay with Sand
- Silty Sand
- Clayey Sand
- Weathered Rock
- Well-graded Sand
- Lean Clay
- Sandy Silty Clay
- Claystone
- Sandy Lean Clay

▽ First Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
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Numbers adjacent to soil column indicate depth below ground surface.

PILE DESIGN ZONE PLAN

CO465 – Pike Solar ■ El Paso County, Colorado
February 5, 2021 ■ Terracon Project No. 23205109

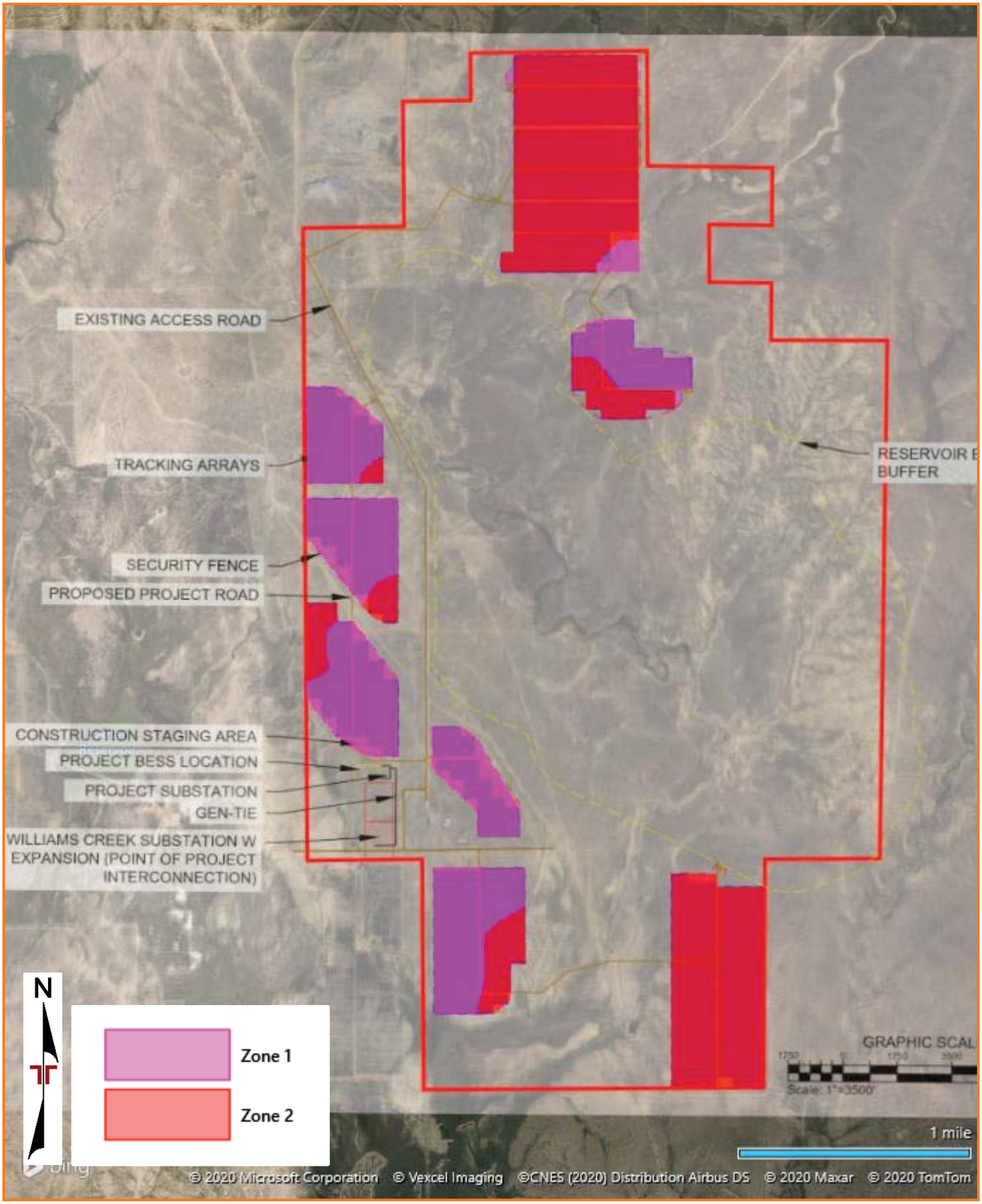


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Exploration Layout and Elevations: The locations of the explorations are presented in Appendix A – **Site Location and Exploration Plans**. The exploration location coordinates were provided by JSI Construction Group LLC in a Google Earth KMZ file and Terracon staked the borings using a handheld, recreational-grade GPS unit. The accuracy of the latitude and longitude values is typically about +/- 25 feet when obtaining the values using this method. Elevations at the exploration locations were estimated using Google Earth. The accuracy of the exploration locations and elevations should only be assumed to the level implied by the methods used.

Subsurface Exploration Procedures - Borings: The borings were drilled with a CME-45 truck-mounted rotary drill rig with solid-stem augers. During the drilling operations, lithologic logs of the borings were recorded by the field engineer. Disturbed samples were obtained at selected intervals utilizing a 2-inch outside diameter standard split spoon sampler and relatively undisturbed samples were obtained using a 3-inch outside diameter ring-lined split-barrel sampler. Bulk samples were obtained from auger cuttings. Penetration resistance values were recorded in a manner similar to the standard penetration test (SPT). This test consists of driving the sampler into the ground with a 140-pound hammer free falling through a distance of 30 inches. The number of blows required to advance the barrel sampler 12 inches (18 inches for standard split-spoon samplers, final 12 inches are recorded) or the interval indicated is recorded and can be correlated to the standard penetration resistance value (N-value). The blow count values are indicated on the boring logs at the respective sample depths, barrel sampler blow counts are not considered N-values.

An automatic hammer was used to advance the samplers in the borings performed on this site. A greater efficiency is typically achieved with the automatic hammer compared to the conventional safety hammer operated with a cathead and rope. Published correlations between the SPT values and soil properties are based on the lower efficiency cathead and rope method. This higher efficiency affects the standard penetration resistance blow count value by increasing the penetration per hammer blow over what would be obtained using the cathead and rope method. The effect of the automatic hammer's efficiency has been considered in the interpretation and analysis of the subsurface information for this report.

The standard penetration test provides a reasonable indication of the in-place density of sandy type materials, but only provides an indication of the relative stiffness of cohesive materials since the blow count in these soils may be affected by the moisture content of the soil. In addition, considerable care should be exercised in interpreting the N-values in gravelly soils, particularly where the size of the gravel particle exceeds the inside diameter of the sampler.

Groundwater measurements were obtained in the borings at the time of drilling. Due to safety concerns, the borings were backfilled with auger cuttings after drilling. Some settlement of the backfill may occur and should be repaired as soon as possible.

Subsurface Exploration Procedures – Test Pits: The test pits were excavated using a CASE 590 backhoe. During the excavation operations, lithologic logs of the test pits were recorded by the field engineer. Bulk samples were collected from the excavated materials.

The approximate in-situ density and moisture content of the subsurface materials at a depth of about 4 feet below existing site grade were measured using a nuclear density gauge testing within the test pit excavation. The results are shown in the table below and on the test pit logs in Appendix B – **Exploration Results**.

Test Pit No.	Approximate Total Depth (feet)	Approximate Total Time to Excavate (min)	Nuclear Density Gauge Test Results at a Depth of About 4 feet below Existing Site Grade	
			Dry Density (pcf)	Moisture Content (%)
TP1-1	15	14	95	6
TP1-2	10	9	94	6
TP1-3	10	10	88	13
TP1b-1	10	15	99	14
TP1b-2	10	9	92	17
TP1b-3	7	8	93	20
TP1b-4	15	17	84	11
TP2-1	15	32	96	16
TP3-1	10	24	105	14
TP3-2	10	13	99	17
TP4-1	10	14	103	15
TP4-2	10	28	99	14
TP4-3	10	15	103	16
TP4-4	10	9	103	14
TP4b-1	10	22	88	15
TP5-1	15	31	96	14
TP5-2	10	12	109	15
TP6-1	10	18	104	11
TP6-2	15	25	94	15

Test Pit No.	Approximate Total Depth (feet)	Approximate Total Time to Excavate (min)	Nuclear Density Gauge Test Results at a Depth of About 4 feet below Existing Site Grade	
			Dry Density (pcf)	Moisture Content (%)
TP6-3	10	14	94	13
TP6-4	10	13	86	9
TP7-1	10	12	98	16
TP7-2	15	12	88	7
TP7-3	10	9	88	9

Due to safety concerns, the test pits were backfilled with excavated materials upon completion. The backfill materials were compacted with the bottom of the excavator bucket in lifts; however, compaction testing of the backfill was not performed. Some settlement of the backfill may occur and should be monitored and repaired as soon as possible.

Field Electrical Resistivity Testing: Field electrical resistivity test were performed at 16 locations (designated as ER-1 through ER-16) at the site using a Mini-Res ground resistance meter and the Wenner four-point test method. The tests were conducted along a pair of approximately perpendicular arrays at each location using electrode spacings (A-spacing) of 1, 2, 4, 8, 16, 25, 50, 100, 250, and 500 feet, except for ER-16, which was performed at the proposed substation location and conducted using A-spacings of 5, 10, 20, 40, and 80 feet in accordance with the substation geotechnical investigation specifications. The resistivity survey test location is shown in Appendix A – **Site Location and Exploration Plans**. The field resistivity test results are presented in Appendix B – **Exploration Results**.

Laboratory Testing

Samples retrieved during the field exploration were returned to the laboratory for observation by the project geotechnical engineer and were classified in general accordance with the Unified Soil Classification System presented in Appendix B – **Exploration Results**.

At this time, an applicable laboratory-testing program was formulated to determine engineering properties of the subsurface materials. Following the completion of the laboratory testing, the field descriptions were confirmed or modified as necessary, and the boring logs were prepared. The boring logs are included in Appendix B – **Exploration Results**.

Laboratory test results are included in Appendix C – **Laboratory Test Results**. These results were used for the geotechnical engineering analyses and the development of foundation, earthwork, and access road recommendations. All laboratory tests were performed in general accordance with the applicable local or other accepted standards.

Selected soil and bedrock samples were tested for the following engineering properties:

- Water content
- Dry density
- Grain size distribution
- Atterberg limits
- Moisture-density relationship
- California Bearing Ratio
- Thermal resistivity
- Swell/consolidation
- pH
- Electrical Resistivity
- Water-soluble sulfates
- Water-soluble chlorides
- Oxidation-reduction potential
- Total salts
- Sulfides
- Neutral salt content
- Buffering capacity

APPENDIX A – SITE LOCATION AND EXPLORATION PLANS

Contents:

Note: All attachments are one page unless noted above.

SITE LOCATION

CO465 - Pike Solar ■ El Paso County, Colorado
February 5, 2021 ■ Terracon Project No. 23205109

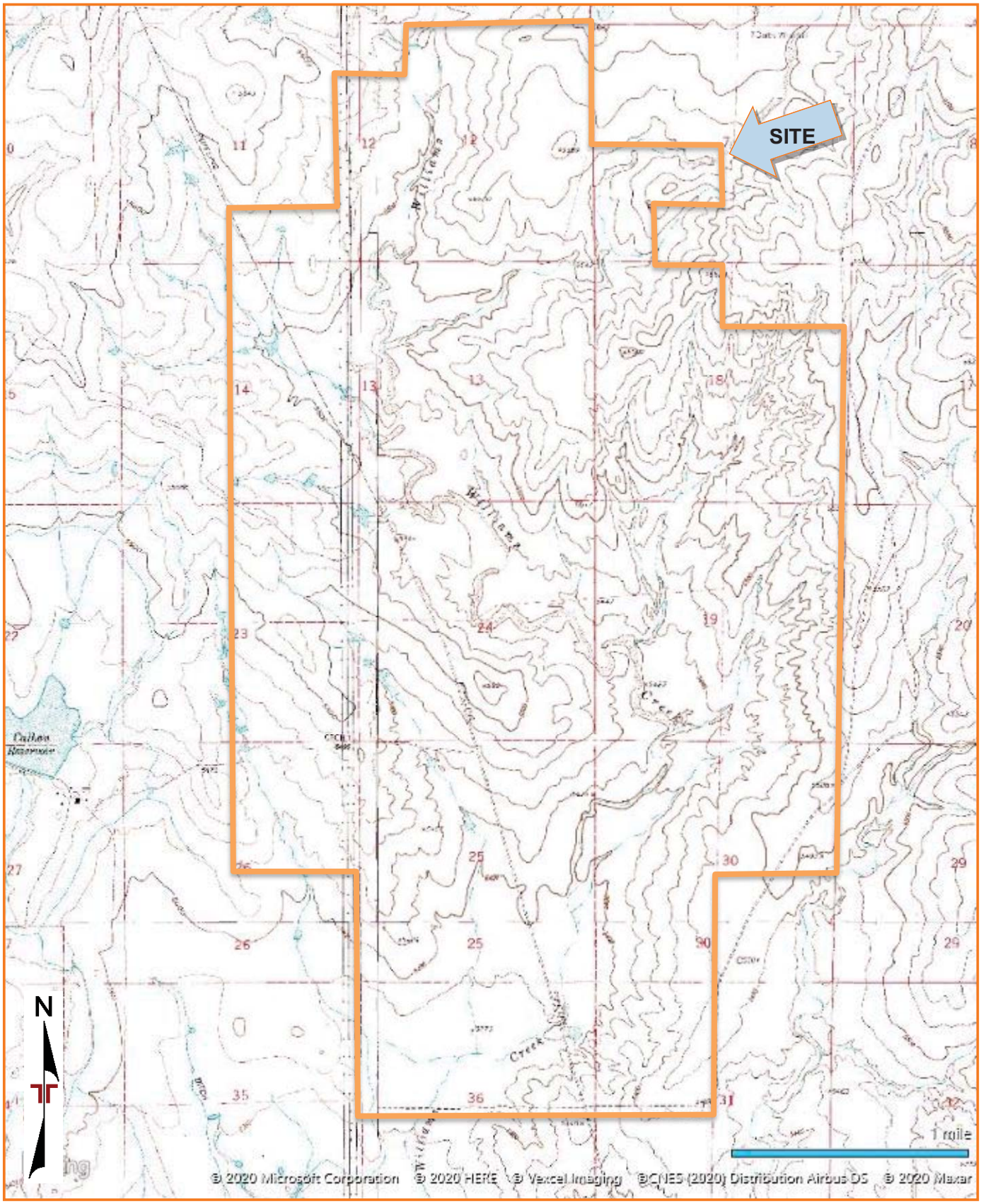


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY QUADRANGLES INCLUDE: FOUNTAIN, CO (1/1/1994) and FOUNTAIN NE, CO (1/1/1961).

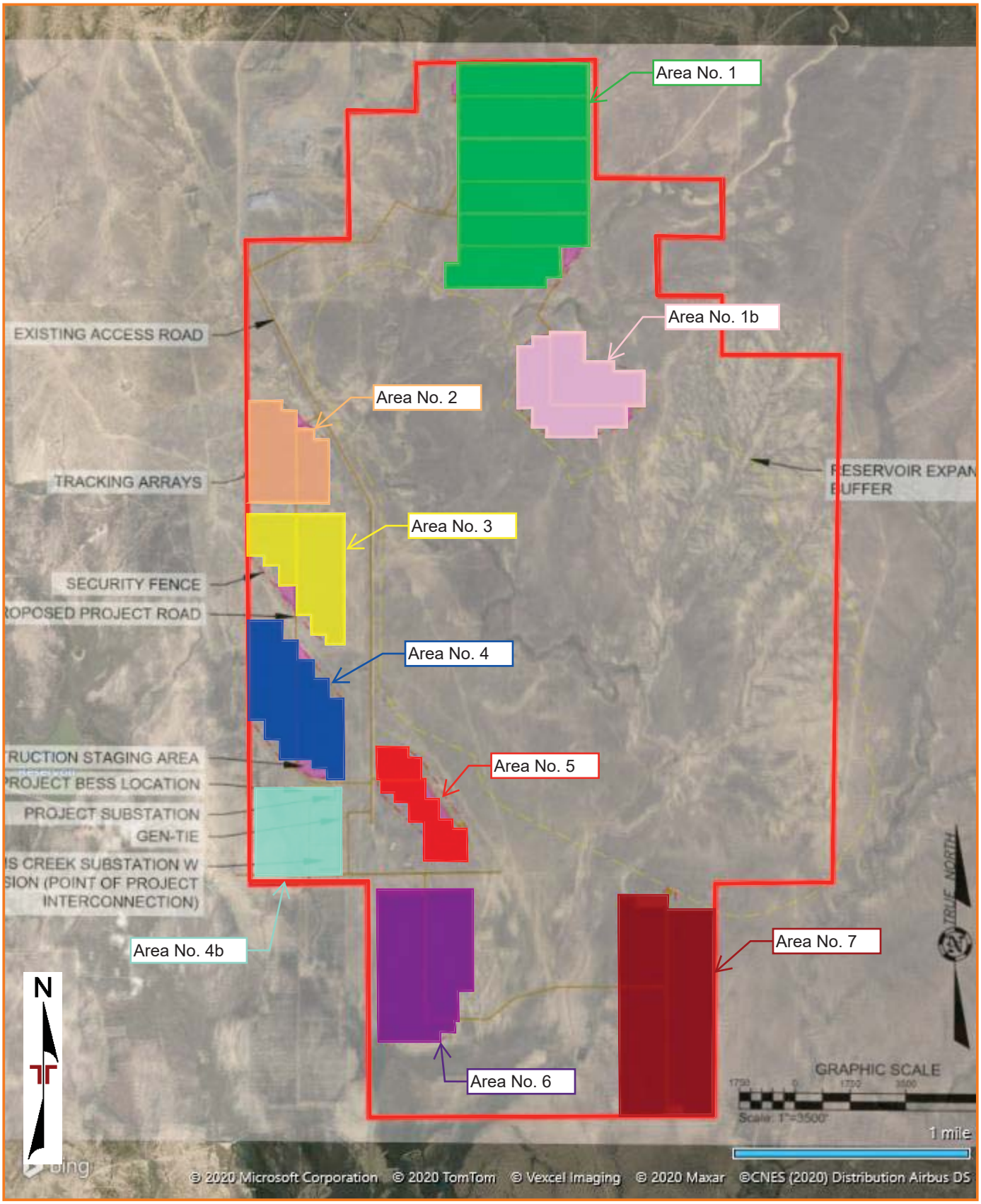


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN WITH AERIAL IMAGE – AREA Nos. 1 & 1b

CO465 - Pike Solar ■ El Paso County, Colorado
February 5, 2021 ■ Terracon Project No. 23205109

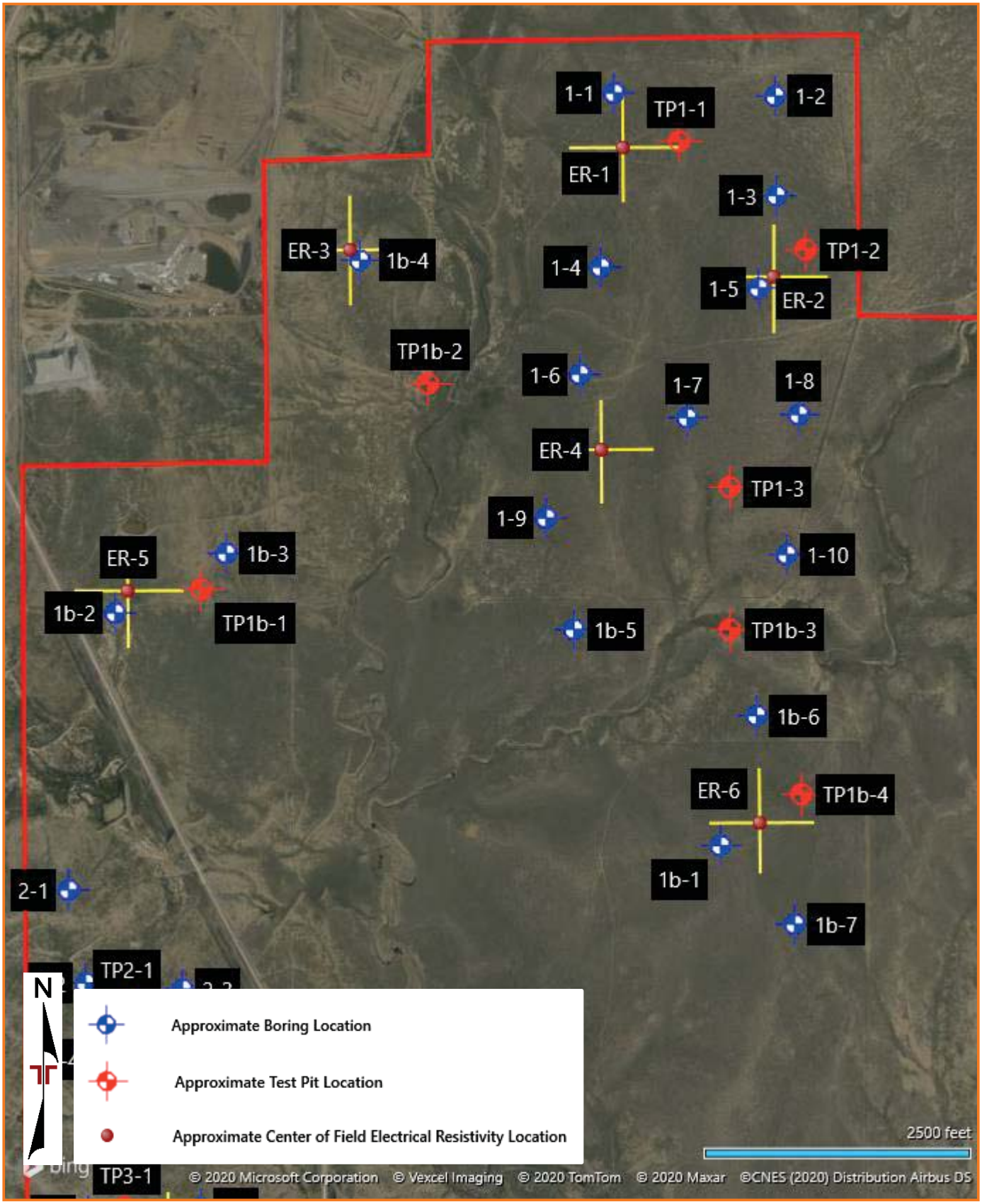


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

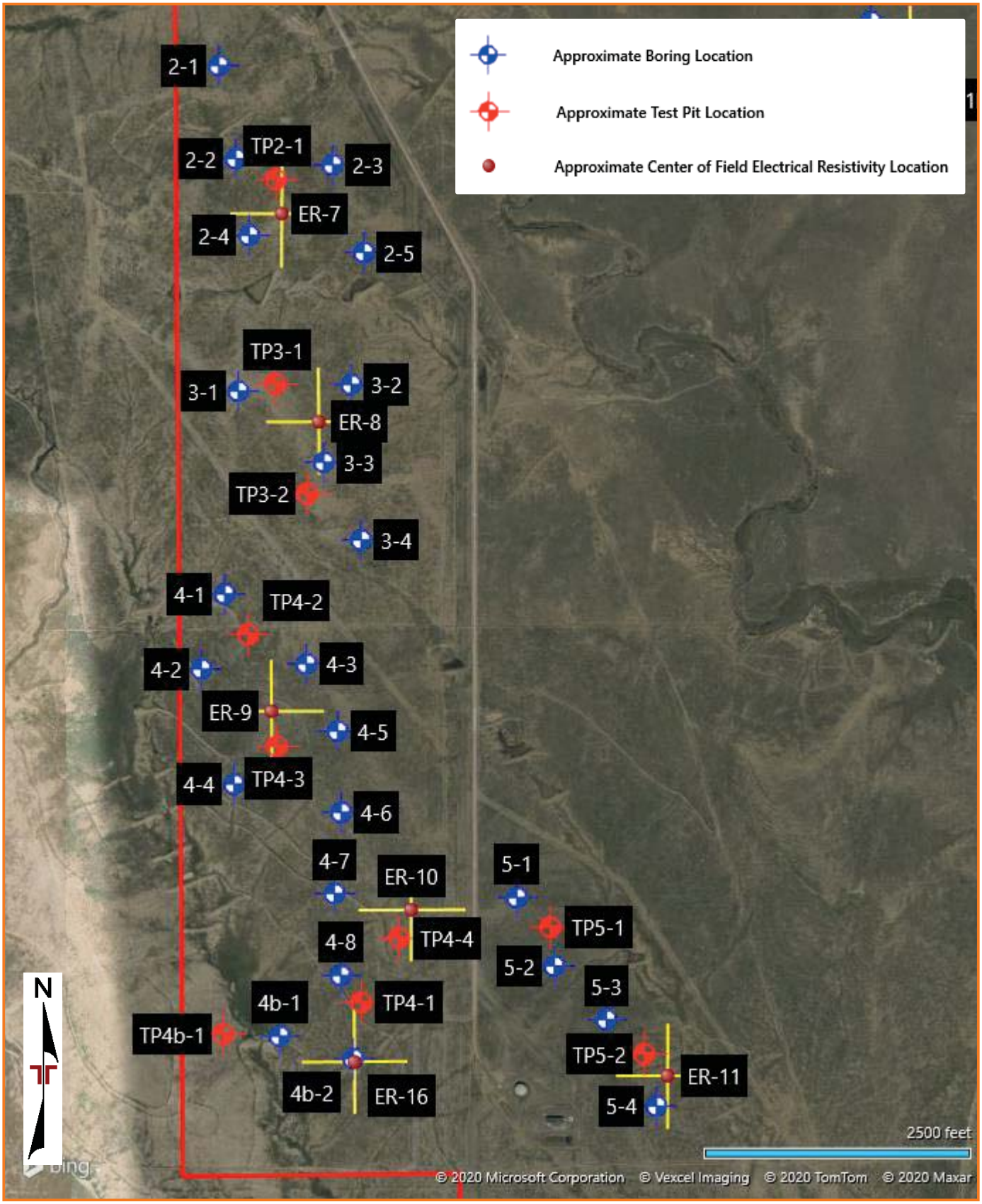


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN WITH AERIAL IMAGE – AREA Nos. 6 & 7

CO465 - Pike Solar ■ El Paso County, Colorado
February 5, 2021 ■ Terracon Project No. 23205109

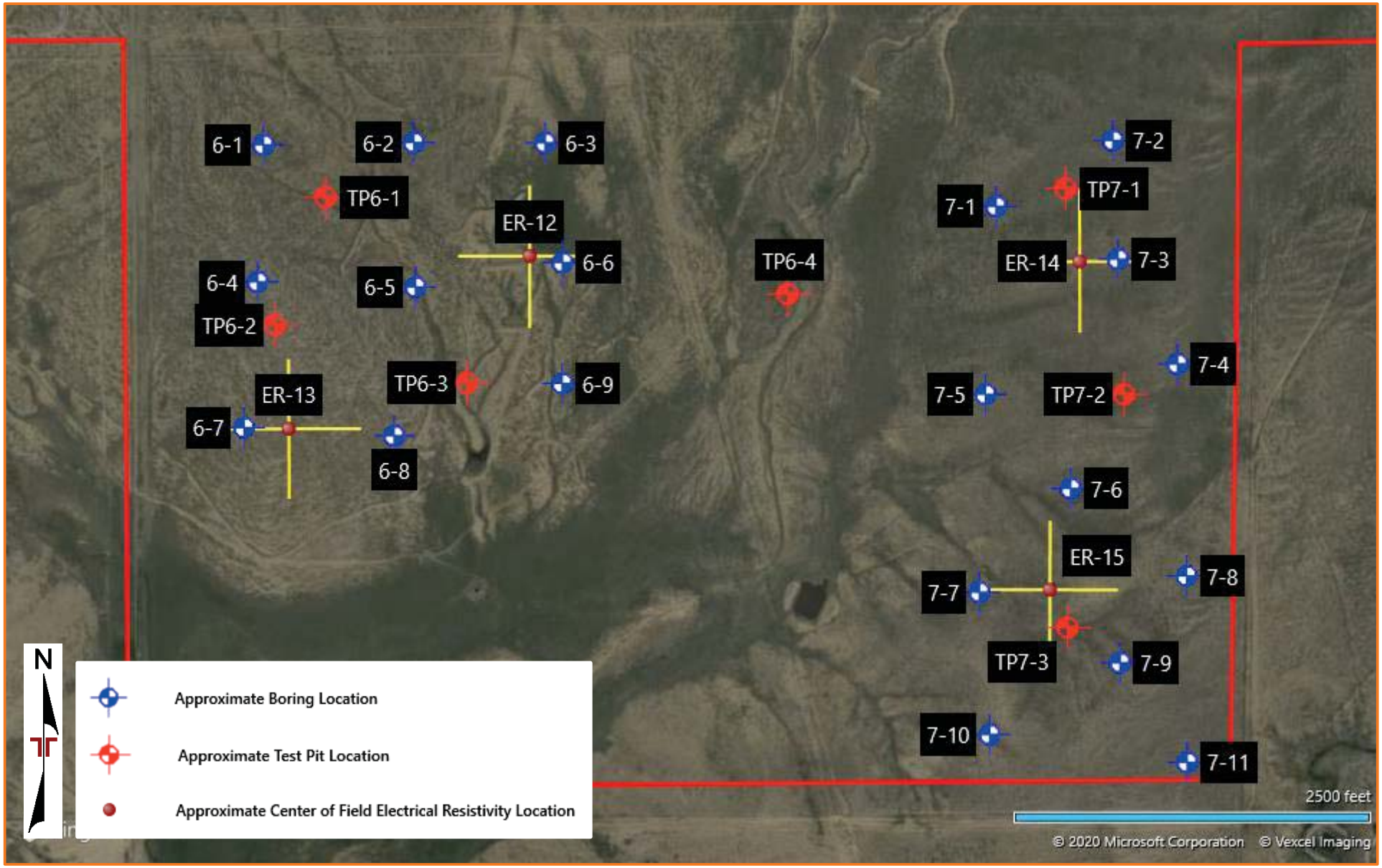


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

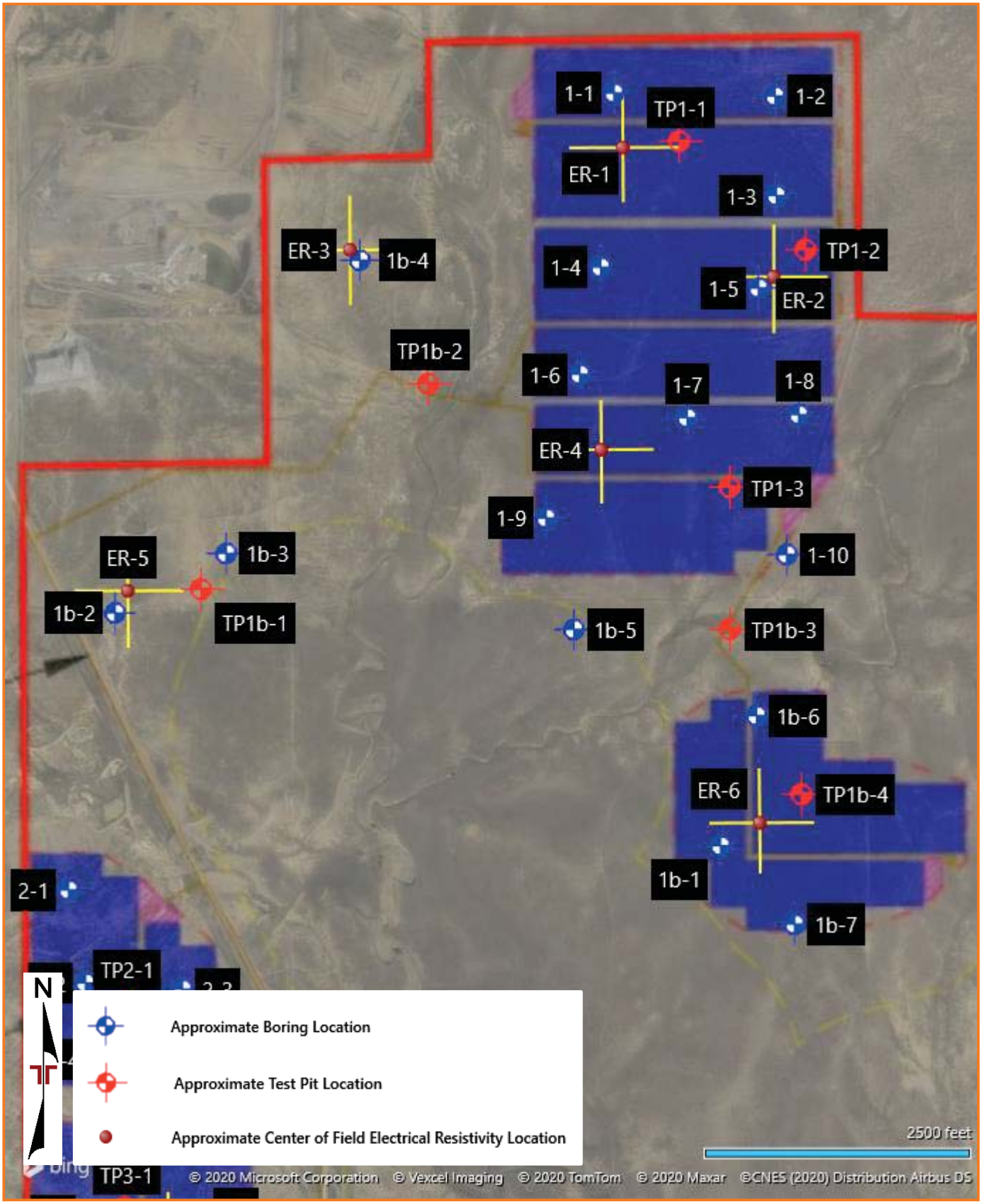


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN WITH PROJECT OVERLAY – AREA Nos. 2, 3, 4, 4b, & 5

CO465 - Pike Solar ■ El Paso County, Colorado
February 5, 2021 ■ Terracon Project No. 23205109

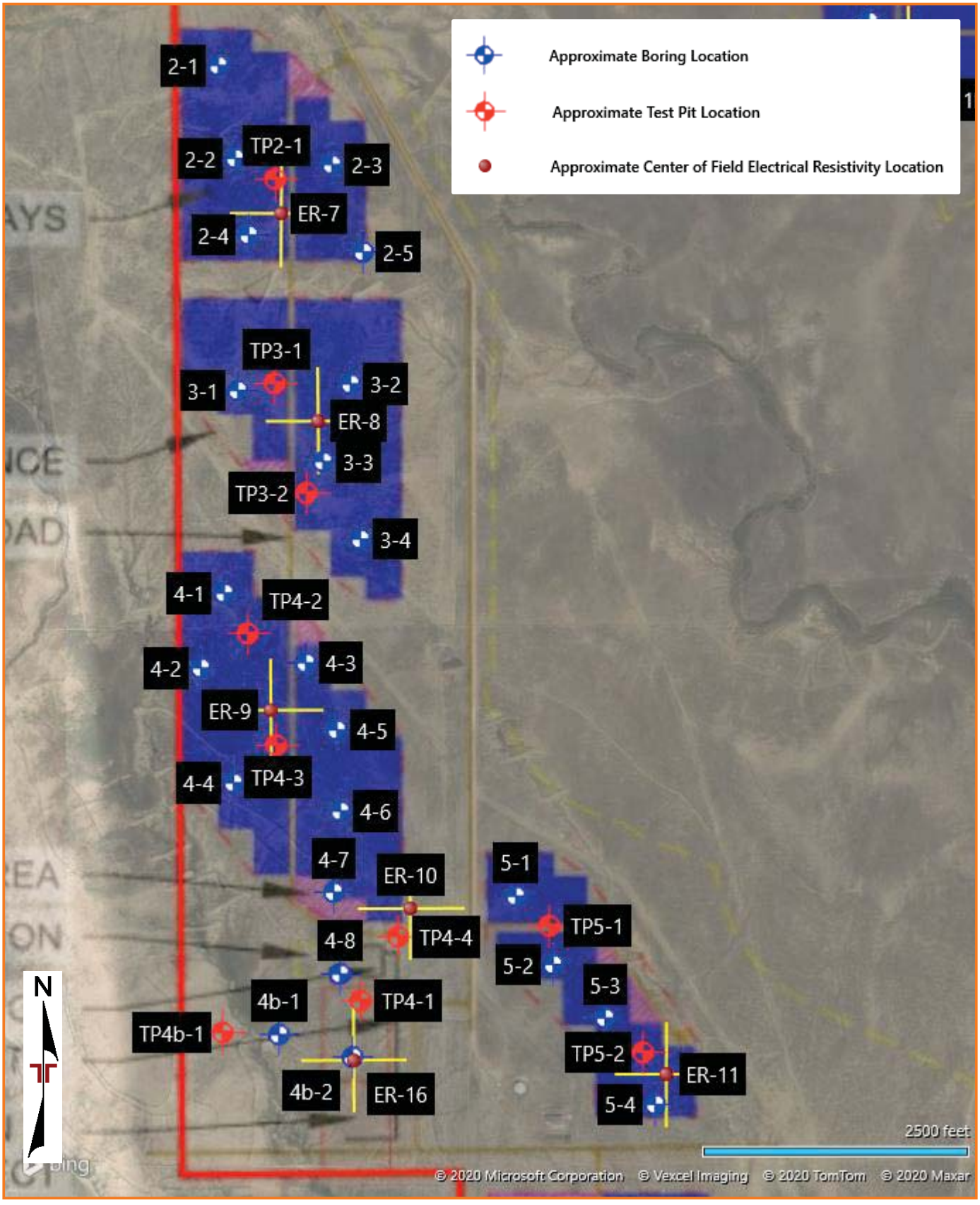


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN WITH PROJECT OVERLAY - AREA Nos. 6 & 7

CO465 - Pike Solar ■ El Paso County, Colorado
February 5, 2021 ■ Terracon Project No. 23205109

Terracon GeoReport

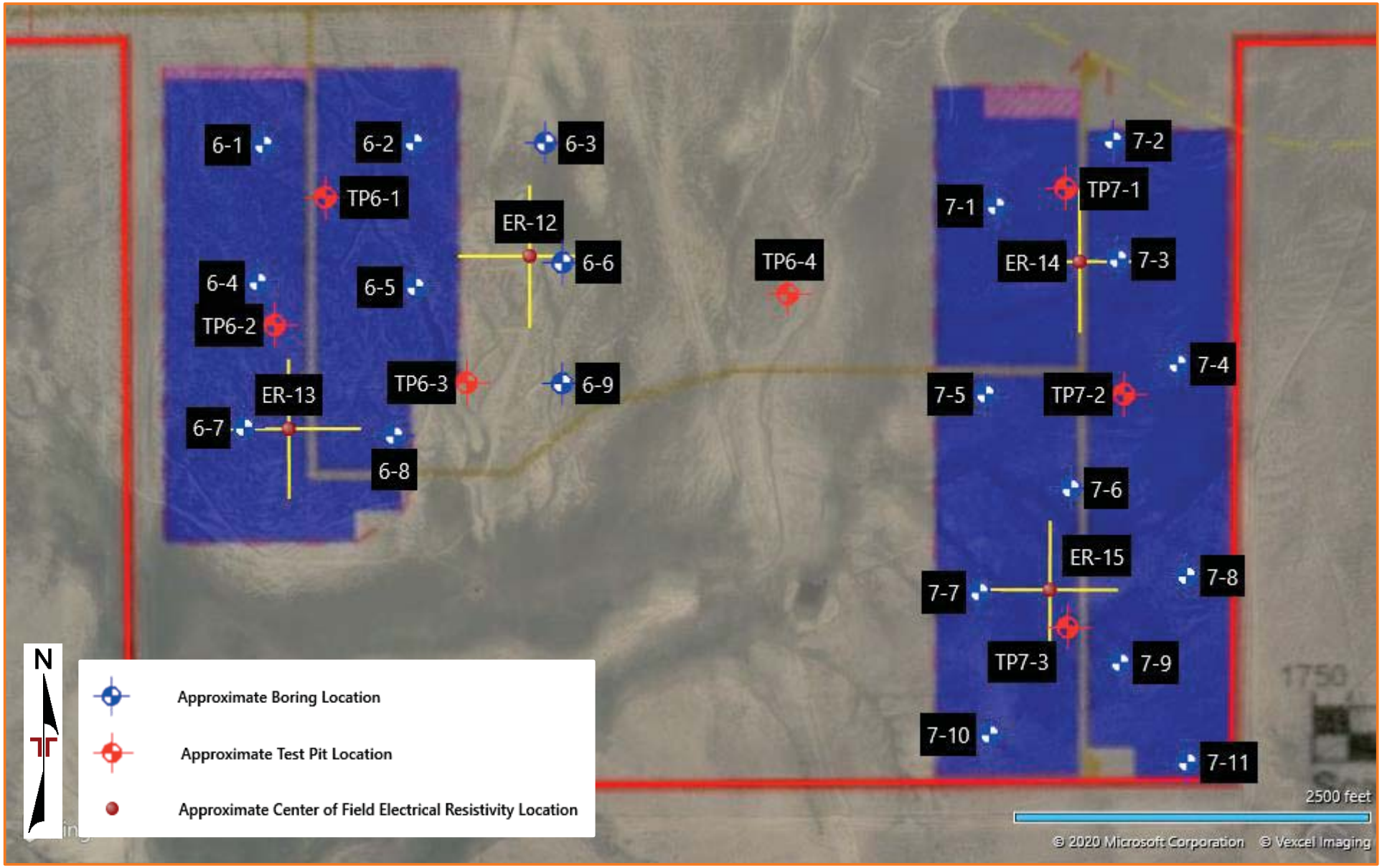


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

APPENDIX B – EXPLORATION RESULTS

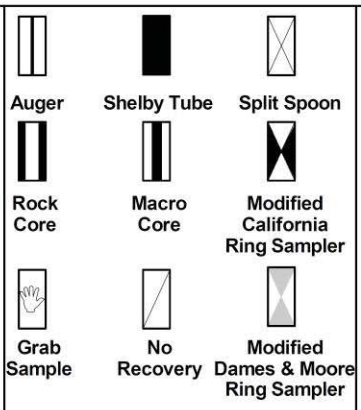
Contents:

Note: All attachments are one page unless noted above.

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING



WATER LEVEL

Water Initially Encountered

Water Level After a Specified Period of Time

Water Level After a Specified Period of Time

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

FIELD TESTS

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

DESCRIPTIVE SOIL CLASSIFICATION

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

LOCATION AND ELEVATION NOTES

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

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts.			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance				BEDROCK		
Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength, Qu, psf	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.	Ring Sampler Blows/Ft.	Standard Penetration or N-Value Blows/Ft.	Descriptive Term (Consistency)
Very Loose	0 - 3	0 - 6	Very Soft	less than 500	0 - 1	< 3	< 30	< 20	Weathered
Loose	4 - 9	7 - 18	Soft	500 to 1,000	2 - 4	3 - 4	30 - 49	20 - 29	Firm
Medium Dense	10 - 29	19 - 58	Medium-Stiff	1,000 to 2,000	5 - 7	5 - 9	50 - 89	30 - 49	Medium Hard
Dense	30 - 50	59 - 98	Stiff	2,000 to 4,000	8 - 14	10 - 18	90 - 119	50 - 79	Hard
Very Dense	> 50	≥ 99	Very Stiff	4,000 to 8,000	15 - 30	19 - 42	> 119	>79	Very Hard
			Hard	> 8,000	> 30	> 42			

RELATIVE PROPORTIONS OF SAND AND GRAVEL

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

GRAIN SIZE TERMINOLOGY

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

RELATIVE PROPORTIONS OF FINES

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

PLASTICITY DESCRIPTION

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

Terracon

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

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

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

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

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

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

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

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

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

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

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

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

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

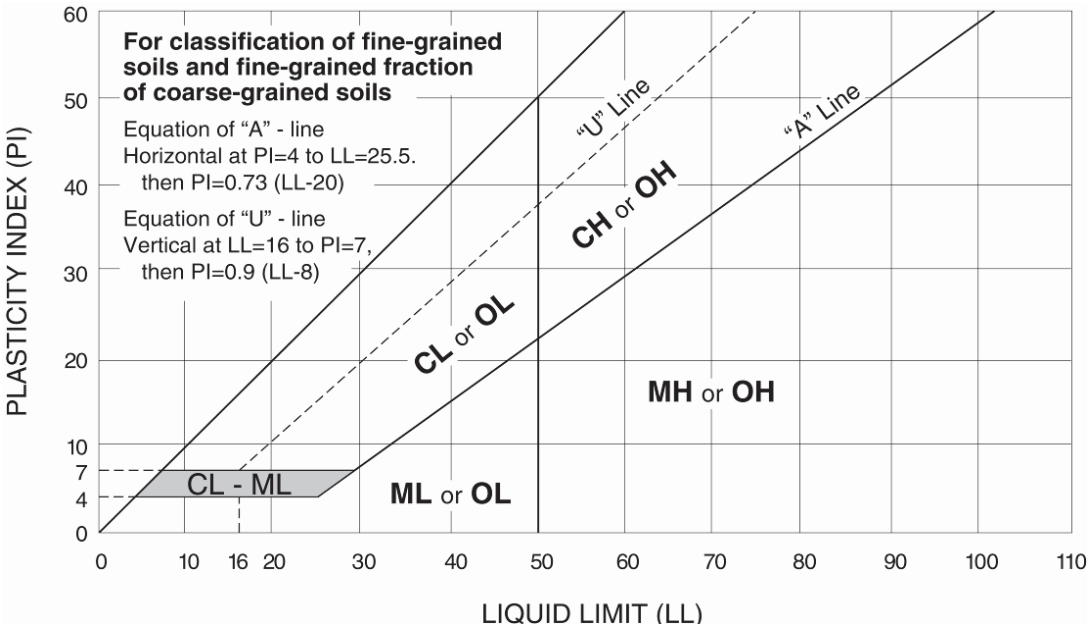
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

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

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

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

[Q] PI plots below "A" line.



Terracon

BORING LOG NO. 1-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6780° Longitude: -104.6171°

Approximate Surface Elev.: 5572 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2									
					9-10	6.4	88	24-18-6	64
					7-8	7.5	86		
		5			5-6	6.5	88		
					7-11	2.9	98		
		10							
					9-16	3.1	105		
		15							
					8-7-10 N=17	4.6			
		20							

SANDY SILTY CLAY (CL-ML), light brown, stiff to very stiff

20.5 5551.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-28-2020 Boring Completed: 10-28-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109 Exhibit B-3

BORING LOG NO. 1-2

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6780° Longitude: -104.6118°

Approximate Surface Elev.: 5604 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY (CL)**, light brown, stiff to very stiff								
							9-10	6.7	89		
				5			7-8	7.6	85	31-20-11	87
							9-9	8.8	87		
							5-9	9.4	91		
				10							
							14-18	10.5	98		
				15							
3		17.0	5587+/-								
			WEATHERED CLAYSTONE, brown, hard								
		20.5	5583.5+/-	20			14-20-31 N=51	11.7			
			Boring Terminated at 20.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-19-2020 | Boring Completed: 10-19-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109 | Exhibit B-4

BORING LOG NO. 1-3

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6754° Longitude: -104.6118°

Approximate Surface Elev.: 5589 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0							
					11-13	7.3	93		
		5			15-14	13.0	87		
					11-19	12.3	95		
		10			14-25	13.6	95		
		15			14-14	11.4	93		
		20			11-10-11 N=21	1.8			

LEAN CLAY (CL), brown, very stiff

20.5 5568.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-28-2020 Boring Completed: 10-28-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109 Exhibit B-5

BORING LOG NO. 1-4

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6736° Longitude: -104.6175°

Approximate Surface Elev.: 5566 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY WITH SAND (CL)**, light brown, stiff to very stiff								
							12-13	5.0	90		
				5			10-12	5.8	89		
							6-7	5.2	97		
				10			7-10	5.4	93		
			trace gravel at 14 feet								
				15			16-12	7.4	99		
		17.0	5549+/-								
4			**CLAYSTONE**, gray, very hard								
		20.0	5546+/-	20			24-50/5" N=50/5"	12.1			
			Boring Terminated at 20 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-28-2020 | Boring Completed: 10-28-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-6

BORING LOG NO. 1-5

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6730° Longitude: -104.6123°

Approximate Surface Elev.: 5585 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY (CL)**, light brown, stiff to very stiff								
							7-8	9.0	85		
							8-9	9.1	89		
				5							
							8-11	8.8	93		
							7-10	10.4	83		
				10							
		12.0	5573+/-								
3			**WEATHERED CLAYSTONE**, brown, medium hard								
							21-34	14.4	108		
				15							
		17.0	5568+/-								
4			**CLAYSTONE**, brown, very hard								
							26-50/6" N=50/6"	14.5			
		20.0	5565+/-	20							
			Boring Terminated at 20 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-19-2020 | Boring Completed: 10-19-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-7

BORING LOG NO. 1-6

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6708° Longitude: -104.6182°

Approximate Surface Elev.: 5559 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1			**SILTY SAND (SM)**, fine grained, brown, loose								
							5-8	2.6	94		
		3.5	5555.5+/-								
2			**LEAN CLAY WITH SAND (CL)**, light brown, stiff to very stiff								
							9-9	5.1	96		
				5							
							11-14	8.7	104	30-18-12	85
							9-10	11.6	90		
				10							
							11-18	7.1	104		
				15							
1			**WELL GRADED SAND (SW)**, fine to coarse grained, light brown, dense								
							8-14-20 N=34	1.6			
		20.5	5538.5+/-	20							
			Boring Terminated at 20.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-18-2020 | Boring Completed: 10-18-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-8

BORING LOG NO. 1-7

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6697° Longitude: -104.6147°

Approximate Surface Elev.: 5567 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0							
					8-9	7.1	84		
		5			5-6	7.9	94		
					7-8	9.0	103		
		10			8-7	7.9	82		
		15			12-13	8.5	86		
		20			5-5-6 N=11	4.2			

LEAN CLAY WITH SAND (CL), light brown, stiff to very stiff

20.5 5546.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-28-2020 Boring Completed: 10-28-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109

Exhibit B-9

BORING LOG NO. 1-8

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6698° Longitude: -104.6110°

Approximate Surface Elev.: 5572 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0							
					6-7	7.4	79		
		5			9-12	6.3	91		
					5-7	11.1	86		
		10			7-10	6.2	96		
		15			10-13	7.8	96		
		20			8-8-8 N=16	9.8			

LEAN CLAY (CL), light brown, stiff to very stiff

20.5 5551.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-28-2020 Boring Completed: 10-28-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109 Exhibit B-10

BORING LOG NO. 1-9

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6671° Longitude: -104.6193°

Approximate Surface Elev.: 5551 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0							
					7-8	6.2	82		
		5			7-8	7.6	81		
					7-9	7.6	84		
		10			8-11	7.7	86		
		15			7-8-9 N=17	6.5			
		20			8-8-11 N=19	10.1			

LEAN CLAY WITH SAND (CL), light brown, stiff to very stiff

20.5 5530.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-28-2020 Boring Completed: 10-28-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109 Exhibit B-11

BORING LOG NO. 1-10

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6662° Longitude: -104.6114°

Approximate Surface Elev.: 5544 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1			**CLAYEY SAND (SC)**, fine to coarse grained, brown, medium dense								
							9-15	2.5	107		
		5.0	5539+/-	5			13-19	5.3	110		
3			**WEATHERED CLAYSTONE**, gray to brown, hard								
							25-50/4"	10.9	119		
				10			30-50/4"	12.3	116		
							35-50/3"	13.0	119		
		17.0	5527+/-	15							
4			**CLAYSTONE**, gray to brown, very hard								
		20.0	5524+/-	20			24-50/5" N=50/5"	13.1			
			Boring Terminated at 20 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-19-2020 | Boring Completed: 10-19-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109 | Exhibit B-12

BORING LOG NO. 1b-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6587° Longitude: -104.6136°

Approximate Surface Elev.: 5573 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0							
					8-9	5.5	82		
		5			5-6	6.7	93		
					9-12	6.8	94		
		10			10-11	5.4	98		
		15			10-16				
		20			9-10-10 N=20	5.3			

LEAN CLAY WITH SAND (CL), light brown, stiff to very stiff

no recovery

20.5 5552.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-28-2020 Boring Completed: 10-28-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109 Exhibit B-13

BORING LOG NO. 1b-2

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6647° Longitude: -104.6335°

Approximate Surface Elev.: 5539 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		**LEAN CLAY WITH SAND (CL)**, light brown, medium stiff to very stiff								
						10-11	9.0	90		
			5			5-9	16.4	94		
						4-4	24.4	98		
						12-19	18.5	103		
3		**WEATHERED CLAYSTONE**, brown to gray, firm to hard	10							
			15			16-30	21.7	102		
			20			16-32-44 N=76	19.1			
		8.5 5530.5+/-								
		20.5 5518.5+/-								
		Boring Terminated at 20.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-19-2020 Boring Completed: 10-19-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109 Exhibit B-14

BORING LOG NO. 1b-3

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6662° Longitude: -104.6299°

Approximate Surface Elev.: 5555 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	5554+/-								
			LEAN CLAY (CL), brown								
3			**WEATHERED CLAYSTONE**, gray, firm to hard				12-20	10.1	99		
				5			10-34	13.0	111	44-25-19	100
							24-50/4"	13.4	115		
				10			31-50/3"	11.1	106		
4		12.0	5543+/-								
			CLAYSTONE, gray, very hard	15			50/5"	9.7	101		
		19.5	5535.5+/-				50/3" N=50/3"	7.7			
			Boring Terminated at 19.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-19-2020 | Boring Completed: 10-19-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109 | Exhibit B-15

BORING LOG NO. 1b-4

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6737° Longitude: -104.6255°

Approximate Surface Elev.: 5555 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	5554+/-								
			LEAN CLAY (CL), brown								
3			**WEATHERED CLAYSTONE**, brown to gray, firm to medium hard				16-17	10.3	109		
				5			15-22	10.0	116		
							28-50/5"	11.5	115		
		8.5	5546.5+/-								
4			**CLAYSTONE**, gray, hard to very hard				50/5"	11.7	97		
				10							
							35-50/3"	10.2	105		
				15							
		19.5	5535.5+/-				50/5" N=50/5"	9.9			
			Boring Terminated at 19.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-19-2020 | Boring Completed: 10-19-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-16

BORING LOG NO. 1b-5

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6642° Longitude: -104.6184°

Approximate Surface Elev.: 5519 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2									
					5-7	5.6	84		
		5			6-7	4.6	86		
					8-9	10.2	85		
		10			9-10	7.6	90		
3					13-17	2.8	101		
		15							
		20			12-15-22 N=37	3.0			

LEAN CLAY WITH SAND (CL), light brown, stiff to very stiff

12.0 5507+/-

WEATHERED CLAYSTONE, gray, firm to medium hard

20.5 5498.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-19-2020 Boring Completed: 10-19-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109 Exhibit B-17

BORING LOG NO. 1b-6

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6620° Longitude: -104.6124°

Approximate Surface Elev.: 5544 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY WITH SAND (CL)**, light brown, very stiff								
		3.5	5540.5+/-				9-13	2.9	92		
3			**WEATHERED CLAYSTONE**, gray to brown, weathered to very hard	5			17-10	9.6	109		
							22-50	13.4	113	44-22-22	99
				10			36-50/5"	13.1	109		
				15			28-50/4"	13.9	107		
4		20.0	5524+/-	20			50/4" N=50/4"	12.5			
			Boring Terminated at 20 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-19-2020 | Boring Completed: 10-19-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-18

BORING LOG NO. 1b-7

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6567° Longitude: -104.6112°

Approximate Surface Elev.: 5579 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0							
					13-15	8.7	95		
		5			11-12	10.6	80		
					22-35	11.5	99		
		10			18-22	11.2	106		
		15			15-21	11.3	84		
		20			10-11-12 N=23	5.9			

LEAN CLAY WITH SAND (CL), light brown, very stiff to hard

20.5 5558.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-28-2020 Boring Completed: 10-28-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109

Exhibit B-19

BORING LOG NO. 2-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6575° Longitude: -104.6351°

Approximate Surface Elev.: 5542 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	5541+/-								
3			**LEAN CLAY WITH SAND (CL)**, brown **WEATHERED CLAYSTONE**, gray, firm to medium hard	5			15-23	12.9	106		
							25-30	14.2	110	44-25-19	97
							23-50/5"	16.8	110		
				10			20-41	18.0	109		
				15			18-30	17.2	112		
		17.0	5525+/-								
4			**CLAYSTONE**, dark gray, very hard								
		20.0	5522+/-	20			43-50/3" N=50/3"	10.7			
			Boring Terminated at 20 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-20

BORING LOG NO. 2-2

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6551° Longitude: -104.6345°

Approximate Surface Elev.: 5539 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	5538+/-								
3			**LEAN CLAY WITH SAND (CL)**, brown **WEATHERED CLAYSTONE**, brown to gray, firm to medium hard				17-21	12.1	110		
				5			27-28	13.4	106		
							20-29	16.8	101		
							19-38	17.3	107		
				10							
							21-50/4"	15.9	102		
				15							
4		17.0	5522+/-								
			CLAYSTONE, gray, very hard				30-50/4" N=50/4"	14.3			
		20.0	5519+/-	20							
			Boring Terminated at 20 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-23-2020 | Boring Completed: 10-23-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-21

BORING LOG NO. 2-3

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6550° Longitude: -104.6313°

Approximate Surface Elev.: 5530 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	5529+/-								
3			**LEAN CLAY WITH SAND (CL)**, brown **WEATHERED CLAYSTONE**, gray, firm to hard				13-23	15.4	109		
				5			18-29	14.5	102		
							18-46	15.9	102		
				10			22-24	14.2	105		
							36-50/4"	13.1	110		
				15							
4		17.0	5513+/-								
			CLAYSTONE, gray, very hard								
		20.0	5510+/-	20			24-50/5" N=50/5"	14.8			
			Boring Terminated at 20 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-22

BORING LOG NO. 2-4

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6532° Longitude: -104.6341°

Approximate Surface Elev.: 5556 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	5555+/-								
3			**LEAN CLAY WITH SAND (CL)**, brown **WEATHERED CLAYSTONE**, gray, firm to medium hard								
							18-25	14.7	104		
							20-25	14.1	110		
				5							
							24-33	14.5	108		
							26-47	13.9	108		
				10							
4		12.0	5544+/-								
			CLAYSTONE, gray, very hard								
							40-50/3"	13.2	109		
				15							
		20.0	5536+/-				25-50/4" N=50/4"	13.0			
			Boring Terminated at 20 Feet	20							

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-23

BORING LOG NO. 2-5

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6527° Longitude: -104.6303°

Approximate Surface Elev.: 5531 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2									
					19-23	9.6	100	46-18-28	84
					16-21	11.4	104		
		5							
					16-32	13.0	98		
					19-27	11.8	96		
		10							
					23-35	16.6	105		
		15							
					16-36-50/5" N=86/11"	15.7			
		20							

LEAN CLAY WITH SAND (CL), light brown, very stiff to hard

12.0 5519+/-

WEATHERED CLAYSTONE, gray, medium hard to very hard

20.5 5510.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-23-2020 | Boring Completed: 10-23-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-24

BORING LOG NO. 3-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6492° Longitude: -104.6344°

Approximate Surface Elev.: 5572 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	5571+/-								
3			**LEAN CLAY WITH SAND (CL)**, brown **WEATHERED CLAYSTONE**, gray, firm to hard				17-24	13.3	109		
				5			24-34	15.3	106		
							25-50/5"	11.8	111		
				10			27-36	12.6	105		
							36-50/5"	12.4	104		
		17.0	5555+/-	15							
4			**CLAYSTONE**, dark gray, very hard				26-50/2" N=50/2"	11.6			
		19.5	5552.5+/-								
			Boring Terminated at 19.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-25

BORING LOG NO. 3-2

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6493° Longitude: -104.6307°

Approximate Surface Elev.: 5529 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	5528+/-								
3			**LEAN CLAY WITH SAND (CL)**, brown **WEATHERED CLAYSTONE**, brown to gray, firm to hard				15-25	13.1	102		
							22-33	12.9	106		
				5							
							45-50/5"	13.6	110		
		8.5	5520.5+/-								
4			**CLAYSTONE**, dark gray, very hard				50/5"	13.2	97		
				10							
							33-50/2"	13.3	105		
				15							
		20.0	5509+/-				43-50/4" N=50/4"	11.7			
			Boring Terminated at 20 Feet	20							

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-22-2020 | Boring Completed: 10-22-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-26

BORING LOG NO. 3-3

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6473° Longitude: -104.6316°

Approximate Surface Elev.: 5544 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0 **LEAN CLAY WITH SAND (CL)**, brown — 5543+/-								
3		**WEATHERED CLAYSTONE**, gray, firm to very hard				12-19	15.3	97	50-27-23	96
			5			19-39	13.3	110		
						29-47	14.2	103		
			10			26-40	15.3	102		
			15			40-50/2"	12.2	101		
		20.5 — 5523.5+/-	20			19-25-39 N=64	11.4			
		Boring Terminated at 20.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109 | Exhibit B-27

BORING LOG NO. 3-4

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6453° Longitude: -104.6304°

Approximate Surface Elev.: 5516 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY WITH SAND (CL)**, light brown, very stiff								
							12-16	13.2	93		
							7-12	15.6	87		
		6.0	5510+/-	5							
3			**WEATHERED CLAYSTONE**, gray, medium hard to hard				30-50/5"	13.8	112		
							34-50/4"	12.3	106		
				10							
							19-34	14.7	100		
		17.0	5499+/-	15							
4			**CLAYSTONE**, gray, very hard								
							21-43-50/4" N=93/10"	15.0			
		20.5	5495.5+/-	20							
			Boring Terminated at 20.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-22-2020 | Boring Completed: 10-22-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-28

BORING LOG NO. 4-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6439° Longitude: -104.6349°

Approximate Surface Elev.: 5511 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY WITH SAND (CL)**, brown, very stiff								
							19-21	11.8	97		
							9-15	11.0	96		
		6.0	5505+/-	5							
3			**WEATHERED CLAYSTONE**, gray, medium hard to hard				22-32	15.3	104		
							36-50/5"	12.9	111		
				10							
							37-34	10.1	114		
				15							
4		17.0	5494+/-								
			CLAYSTONE, gray, very hard								
		20.0	5491+/-	20			34-50/2" N=50/2"	10.9			
			Boring Terminated at 20 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-22-2020 | Boring Completed: 10-22-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-29

BORING LOG NO. 4-2

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6420° Longitude: -104.6356°

Approximate Surface Elev.: 5494 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0	**LEAN CLAY WITH SAND (CL)**, light brown, very stiff to hard								
							14-24	12.6	93		
				5			15-24	12.1	97		
							19-30	13.3	102		
		8.5	5485.5+/-								
3			**WEATHERED CLAYSTONE**, gray, firm to hard								
				10			18-20	14.4	107		
				15			28-50	12.1	112		
		20.5	5473.5+/-	20			21-29-38 N=67	11.0			
			Boring Terminated at 20.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 Boring Completed: 10-20-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109 Exhibit B-30

BORING LOG NO. 4-3

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6421° Longitude: -104.6322°

Approximate Surface Elev.: 5527 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	5526+/-								
3			**LEAN CLAY WITH SAND (CL)**, brown								
			WEATHERED CLAYSTONE, brown to gray, weathered to hard				13-16	11.5	106		
				5			16-21	12.3	107		
							34-50/4"	14.4	110		
				10			29-50/5"	16.0	108		
							32-50	15.5	108		
		17.0	5510+/-	15							
4			**CLAYSTONE**, dark gray, very hard				N=50/5"	14.4			
		19.5	5507.5+/-								
			Boring Terminated at 19.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-22-2020 | Boring Completed: 10-22-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-31

BORING LOG NO. 4-4

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6391° Longitude: -104.6346°

Approximate Surface Elev.: 5473 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY WITH SAND (CL)**, brown, very stiff								
							18-24	11.7	98		
		3.5	5469.5+/-								
3			**WEATHERED CLAYSTONE**, brown to gray, weathered to hard								
				5			19-26	12.1	94	46-24-22	99
							13-7	12.4	89		
				10			15-27	13.9	104		
							35-50/4"	14.6	103		
		17.0	5456+/-	15							
4			**CLAYSTONE**, dark gray, very hard								
		20.0	5453+/-	20			22-40-50/4" N=90/10"	14.5			
			Boring Terminated at 20 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-32

BORING LOG NO. 4-5

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6404° Longitude: -104.6312°

Approximate Surface Elev.: 5521 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	5520+/-								
3			**LEAN CLAY WITH SAND (CL)**, brown **WEATHERED CLAYSTONE**, gray to brown, firm to medium hard				15-19	10.4	99		
							16-23	14.3	100		
				5			21-46	21.5	99		
							24-48	16.2	95		
		12.0	5509+/-	10							
4			**CLAYSTONE**, gray, very hard				50/5"	14.6	98		
				15							
		20.0	5501+/-				N=50/2"	6.6			
			Boring Terminated at 20 Feet	20							

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-33

BORING LOG NO. 4-6

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6383° Longitude: -104.6310°

Approximate Surface Elev.: 5490 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	5489+/-								
3			**LEAN CLAY WITH SAND (CL)**, brown								
			WEATHERED CLAYSTONE, brown, firm to hard				15-21	13.4	95		
				5			25-33	12.7	111		
							27-50/5"	14.1	109		
				10			41-50/4"	13.7	106		
		12.0	5478+/-								
4			**CLAYSTONE**, dark gray, very hard	15			38-50/2"	15.6	107		
		19.5	5470.5+/-				N=50/4"	8.9			
			Boring Terminated at 19.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-22-2020 | Boring Completed: 10-22-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-34

BORING LOG NO. 4-7

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6362° Longitude: -104.6313°

Approximate Surface Elev.: 5467 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY WITH SAND (CL)**, brown, very stiff								
		3.5	5463.5+/-				16-21	10.6	99		
3			**WEATHERED CLAYSTONE**, gray to brown, firm to medium hard	5			21-27	11.0	108		
							20-44	11.3	114		
				10			19-30	13.0	110		
							25-50/5"	13.8	111		
		17.0	5450+/-	15							
4			**CLAYSTONE**, gray to brown, very hard								
		20.5	5446.5+/-	20			29-38-50/4" N=88/4"	15.1			
			Boring Terminated at 20.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-22-2020 | Boring Completed: 10-22-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-35

BORING LOG NO. 4-8

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6341° Longitude: -104.6311°

Approximate Surface Elev.: 5451 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		**LEAN CLAY (CL)**, light brown, hard									
		3.0	5448+/-				21-30	13.0	105		
3		**WEATHERED CLAYSTONE**, gray to brown, firm to medium hard		5			17-19	13.3	101		
							21-38	14.0	108		
				10			22-31	13.4	108		
				15			24-30	20.2	94		
		17.0	5434+/-								
4		**CLAYSTONE**, dark gray, very hard		20			29-38-50/4" N=88/10"	12.0			
				25			35-50/3" N=50/3"	15.8			
		30.0	5421+/-				34-50/2" N=50/2"	15.1			
		Boring Terminated at 30 Feet		30							

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-22-2020 | Boring Completed: 10-22-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-36

BORING LOG NO. 4b-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6326° Longitude: -104.6331°

Approximate Surface Elev.: 5428 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY (CL)**, brown, stiff to hard								
							18-41	11.7	97		
				5			18-13	10.1	86	44-19-25	100
							14-19	13.2	96		
				10			8-11	13.2	85		
							14-25	14.4	107		
				15							
							6-11-13 N=24	18.8			
				20							
							5-7-10 N=17	18.4			
				25							
							13-37-50/5" N=87/11"	14.4			
				30							
3		22.0	5406+/-								
			WEATHERED CLAYSTONE, brown to gray, weathered								
4		27.0	5401+/-								
			CLAYSTONE, brown to gray, very hard								
		30.5	5397.5+/-								
			Boring Terminated at 30.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-22-2020 | Boring Completed: 10-22-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-37

BORING LOG NO. 4b-2

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6320° Longitude: -104.6306°

Approximate Surface Elev.: 5436 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY (CL)**, brown, very stiff								
							11-17	14.2	89		
		3.5	5432.5+/-								
3			**WEATHERED CLAYSTONE**, brown to gray, firm to hard	5			13-23	12.6	105		
							30-50	13.1	109	45-22-23	97
				10			38-50/4"	13.7	110		
				15			26-43	13.9	108		
				20			20-23-40 N=63	17.3			
4			**CLAYSTONE**, brown to gray, very hard	25			17-37-50/4" N=87/10"	15.7			
		30.0	5406+/-	30			30-50/5" N=50/5"	13.3			
			Boring Terminated at 30 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-22-2020 | Boring Completed: 10-22-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-38

BORING LOG NO. 5-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6361° Longitude: -104.6253°

Approximate Surface Elev.: 5481 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	5480+/-								
3			**LEAN CLAY (CL)**, brown **WEATHERED CLAYSTONE**, gray, firm to very hard				16-19	12.0	106		
				5			28-40	13.4	113		
							31-50/4"	16.6	107		
				10			50/5"	13.6	111		
							44-50/4"	15.9	103		
4		17.0	5464+/-	15							
			CLAYSTONE, gray, very hard								
		20.0	5461+/-	20			N=50/2"	12.8			
			Boring Terminated at 20 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-39

BORING LOG NO. 5-2

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6344° Longitude: -104.6240°

Approximate Surface Elev.: 5459 (Ft.) +/-

DEPTH | ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY (CL)**, brown to gray, very stiff								
		3.5	5455.5+/-				19-21	12.6	110		
3			**WEATHERED CLAYSTONE**, gray, firm to medium hard	5			17-24	13.2	104		
							23-41	15.8	108		
				10			25-36	15.1	110		
							20-39	16.4	108		
				15							
4		20.0	5439+/-				25-50/5" N=50/5"	16.7			
			Boring Terminated at 20 Feet	20							

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-40

BORING LOG NO. 5-3

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6330° Longitude: -104.6223°

Approximate Surface Elev.: 5452 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		**LEAN CLAY (CL)**, light brown, very stiff									
							12-25	13.9	96		
		3.5	5448.5+/-								
3		**WEATHERED CLAYSTONE**, gray, firm to hard									
							22-50/4"	18.0	100		
				5							
							13-21	17.6	97		
							18-26	14.9	110		
				10							
							20-30	14.5	109		
				15							
							20-23-46 N=69	13.0			
		20.5	5431.5+/-	20							
		Boring Terminated at 20.5 Feet									

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-23-2020 Boring Completed: 10-23-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109

Exhibit B-41

BORING LOG NO. 5-4

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6308° Longitude: -104.6207°

Approximate Surface Elev.: 5443 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	5442+/-								
			LEAN CLAY (CL), brown								
3			**WEATHERED CLAYSTONE**, gray to brown, firm to hard				21-24	11.6	107		
				5			20-26	12.5	108		
							38-50/4"	12.4	106	45-24-21	99
				10			32-50/5"	16.7	110		
							18-31	25.9	103		
		17.0	5426+/-	15							
4			**CLAYSTONE**, gray, very hard				N=50/5"	11.5			
		19.5	5423.5+/-								
			Boring Terminated at 19.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-42

BORING LOG NO. 6-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6270° Longitude: -104.6237°

Approximate Surface Elev.: 5439 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	5438+/-								
3			**LEAN CLAY (CL)**, brown **WEATHERED CLAYSTONE**, brown to gray, firm to medium hard				17-22	13.8	104		
				5			23-31	14.0	102	50-22-28	97
							28-50/5"	15.8	110		
				10			25-50	17.4	105		
4		12.0	5427+/-								
			CLAYSTONE, gray, very hard				50/4"	14.9	96		
				15							
		19.5	5419.5+/-				N=50/4"	11.8			
			Boring Terminated at 19.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-43

BORING LOG NO. 6-2

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6270° Longitude: -104.6200°

Approximate Surface Elev.: 5422 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	5421+/-								
3			**LEAN CLAY (CL)**, brown **WEATHERED CLAYSTONE**, gray to brown, firm to medium hard	5			21-27	13.4	102		
							24-33	14.0	109		
							21-33	13.8	112		
				10			22-22	14.6	106		
4		12.0	5410+/-								
			CLAYSTONE, gray to brown, very hard	15			50/5"	12.5	98		
		20.0	5402+/-	20			30-50/5" N=50/5"	13.8			
			Boring Terminated at 20 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-44

BORING LOG NO. 6-3

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6270° Longitude: -104.6167°

Approximate Surface Elev.: 5404 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0							
					14-25	12.2	96		
		5			42-35	12.9	104		
					13-31	12.5	95		
		10			17-19	13.8	98		
		15			14-18	15.8	94		
4		20			20-41-50/5" N=91/11"	16.7			

LEAN CLAY (CL), light brown, very stiff to hard

17.0 5387+/-

CLAYSTONE, brown to gray, very hard

20.5 5383.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-27-2020 Boring Completed: 10-27-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109 Exhibit B-45

BORING LOG NO. 6-4

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6244° Longitude: -104.6238°

Approximate Surface Elev.: 5430 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	5429+/-								
3			**LEAN CLAY (CL)**, brown **WEATHERED CLAYSTONE**, gray, firm to hard	5			19-23	13.8	101		
							19-24	13.3	102		
							26-42	15.7	102		
				10			21-36	14.5	114		
							32-50/4"	14.7	101		
		17.0	5413+/-	15							
4			**CLAYSTONE**, gray, very hard								
		19.5	5410.5+/-				N=50/5"	12.1			
			Boring Terminated at 19.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-46

BORING LOG NO. 6-5

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6243° Longitude: -104.6199°

Approximate Surface Elev.: 5402 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		**LEAN CLAY (CL)**, brown to gray, very stiff to hard								
						21-33	11.0	96		
						9-13	12.1	86		
			5							
						20-30	11.5	78		
						11-17	12.5	91		
			10							
						20-23	13.6	99		
			15							
						17-22-33 N=55	16.4			
			20							

17.0 5385+/-

3 **WEATHERED CLAYSTONE**, gray, hard

20.5 5381.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-27-2020 Boring Completed: 10-27-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109

Exhibit B-47

BORING LOG NO. 6-6

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6247° Longitude: -104.6163°

Approximate Surface Elev.: 5399 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0							
					20-32	14.2	98		
		5			21-34	13.9	95		
					23-39	12.9	105		
		10			23-42	15.5	88		
		15			21-50/5"	14.3	115		
		20			18-10-14 N=24	14.4			

LEAN CLAY (CL), light brown, very stiff to hard

20.5 5378.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-27-2020 Boring Completed: 10-27-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109 Exhibit B-48

BORING LOG NO. 6-7

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6215° Longitude: -104.6241°

Approximate Surface Elev.: 5404 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY (CL)**, brown to gray, very stiff								
		3.0	5401+/-				9-17	14.1	92		
3			**WEATHERED CLAYSTONE**, gray, firm to hard	5			17-21	14.0	102		
							24-50/5"	16.5	118		
				10			27-32	16.2	104		
							33-50/4"	14.6	109		
		17.0	5387+/-	15							
4			**CLAYSTONE**, gray, very hard				32-50/3" N=50/3"	14.0			
		20.0	5384+/-	20							
			Boring Terminated at 20 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-27-2020 | Boring Completed: 10-27-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-49

BORING LOG NO. 6-8

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6214° Longitude: -104.6205°

Approximate Surface Elev.: 5393 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY (CL)**, brown to gray, very stiff to hard								
							22-29	11.1	98		
				5			16-19	10.3	93	47-19-28	95
		6.0	5387+/-								
3			**WEATHERED CLAYSTONE**, gray, medium hard				24-34	12.0	96		
							21-44	12.1	99		
				10							
							20-30	12.6	98		
				15							
		17.0	5376+/-								
4			**CLAYSTONE**, gray, very hard								
							17-32-48 N=80	16.1			
		20.5	5372.5+/-	20							
			Boring Terminated at 20.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109 | Exhibit B-50

BORING LOG NO. 6-9

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6224° Longitude: -104.6163°

Approximate Surface Elev.: 5390 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0							
					20-41	11.6	95		
		5			24-25	12.8	96		
					13-18	13.7	90		
		10			12-27	13.8	86		
		15			14-27	14.2	110		
		20			9-11-14 N=25	12.7			

LEAN CLAY (CL), light brown, very stiff to hard

20.5 5369.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-27-2020 Boring Completed: 10-27-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109 Exhibit B-51

BORING LOG NO. 7-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6258° Longitude: -104.6056°

Approximate Surface Elev.: 5423 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0							
					13-16	5.1	94		
		5			14-14	7.3	95		
					8-8	8.7	95	29-12-17	84
		10			10-12	8.6	95		
		15			12-16	9.2	98		
		20			12-17-21 N=38	12.2			

LEAN CLAY WITH SAND (CL), light brown, stiff to hard

20.5 5402.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-23-2020 Boring Completed: 10-23-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109

Exhibit B-52

BORING LOG NO. 7-2

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6271° Longitude: -104.6028°

Approximate Surface Elev.: 5457 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2									
					8-9	6.1	90		
					7-9	7.6	89		
		5			10-13	7.2	95		
					11-14	10.0	99		
		10							
3					16-24	16.6	102		
		15							
					18-28-41 N=69	17.1			
		20							

LEAN CLAY WITH SAND (CL), light brown, stiff to very stiff

12.0 5445+/-

WEATHERED CLAYSTONE, brown to gray, firm to hard

20.5 5436.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 Boring Completed: 10-20-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109 Exhibit B-53

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 23205109 PIKE SOLAR PROJEC.GPJ TERRACON_DATATEMPLATE.GDT 12/17/20

BORING LOG NO. 7-3

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6248° Longitude: -104.6026°

Approximate Surface Elev.: 5462 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0							
					13-14	5.6	92	23-16-7	63
					9-11	5.4	89		
		5							
					10-14	16.4	94		
					10-12	19.0	94		
		10							
					17-24	8.9	99		
		15							
					9-17-28 N=45	16.9			
		20							

SANDY SILTY CLAY (CL), light brown, very stiff to hard

20.5 5441.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-23-2020 Boring Completed: 10-23-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109 Exhibit B-54

BORING LOG NO. 7-4

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6228° Longitude: -104.6012°

Approximate Surface Elev.: 5478 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0							
					13-16	7.3	99		
		5			8-8	7.9	86		
					9-12	8.8	89		
		10			10-19	9.2	96		
		15			18-23	7.0	97		
		20			12-13-15 N=28	10.9			

LEAN CLAY WITH SAND (CL), light brown, stiff to very stiff

20.5 5457.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 Boring Completed: 10-20-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109

Exhibit B-55

BORING LOG NO. 7-5

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6222° Longitude: -104.6059°

Approximate Surface Elev.: 5420 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0							
					9-11	5.5	88		
		5			7-7	6.8	80		
					11-15	6.6	89		
		10			9-10	7.8	88		
		15			10-15	7.2	98		
		20			11-9-9 N=18	6.7			

LEAN CLAY WITH SAND (CL), light brown, stiff to very stiff

20.5 5399.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 Boring Completed: 10-20-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109 Exhibit B-56

BORING LOG NO. 7-6

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6204° Longitude: -104.6038°

Approximate Surface Elev.: 5443 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
							9-10	1.4			
							7-7	2.8	102		
1		6.0	5437+/-	5							
							8-13	2.5	94		
							10-12	1.4	100		
3		12.0	5431+/-	10							
							14-27	18.2	98		
4		17.0	5426+/-	15							
		20.5	5422.5+/-	20			22-32-50 N=82	15.8			

SILTY SAND (SM), fine to coarse grained, brown, loose to medium dense

WELL GRADED SAND (SW), fine to coarse grained, brown, medium dense

WEATHERED CLAYSTONE, dark gray, firm

CLAYSTONE, dark gray, very hard

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:
Dry unit weight not obtained at 2 feet due to sample disturbance.

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-57

BORING LOG NO. 7-7

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6184° Longitude: -104.6060°

Approximate Surface Elev.: 5433 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY WITH SAND (CL)**, light brown, very stiff								
							12-16	5.5	97		
							13-15	3.5	101		
		6.0	5427+/-	5							
3			**WEATHERED CLAYSTONE**, brown to gray, firm to medium hard				18-21	13.8	90		
				10							
							13-39	19.6	107		
		17.0	5416+/-	15							
4			**CLAYSTONE**, dark gray, very hard								
							45-50/5" N=50/5"	13.3			
		20.0	5413+/-	20							
			Boring Terminated at 20 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-23-2020 | Boring Completed: 10-27-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-58

BORING LOG NO. 7-8

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6187° Longitude: -104.6009°

Approximate Surface Elev.: 5488 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2									
					8-11	6.2	86		
		5			10-11	5.4	91	24-14-10	80
					7-10	3.9	90		
		10			8-12	3.2	92		
1					11-17	3.7	96		
		15							
		20			11-12-14 N=26	5.2			

LEAN CLAY WITH SAND (CL), light brown, stiff to very stiff

8.5 5479.5+/-

SILTY SAND (SM), fine grained, brown, medium dense

20.5 5467.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 Boring Completed: 10-20-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109 Exhibit B-59

BORING LOG NO. 7-9

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6170° Longitude: -104.6026°

Approximate Surface Elev.: 5472 (Ft.) +/-

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		0							
					10-12	3.1	96		
		5			15-19	6.0	100		
					11-14	5.9	101		
		10			9-12	6.2	100		
		15			12-14	5.6	109		
		20			8-10-10 N=20	6.9			

CLAYEY SAND (SC), fine grained, brown, medium dense

20.5 5451.5+/-

Boring Terminated at 20.5 Feet

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-27-2020 Boring Completed: 10-27-2020

Drill Rig: CME-45 Driller: Odell

Project No.: 23205109 Exhibit B-60

BORING LOG NO. 7-10

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6156° Longitude: -104.6058°

Approximate Surface Elev.: 5449 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY (CL)**, light brown, very stiff								
							13-14	3.3	95		
				5			13-19	9.0	99	31-14-17	86
							14-15	10.5	98		
							14-23	7.5	109		
		12.0	5437+/-	10							
1			**WELL GRADED SAND (SW)**, gray to brown, medium dense								
				15			14-20	2.2			
		17.0	5432+/-								
3			**WEATHERED CLAYSTONE**, brown, medium hard								
		20.5	5428.5+/-	20			13-21-28 N=49	18.1			
			Boring Terminated at 20.5 Feet								

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-61

BORING LOG NO. 7-11

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6151° Longitude: -104.6009°

Approximate Surface Elev.: 5475 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2											
							11-13	7.9	83		
							7-10	8.1	82		
				5							
							11-14	8.2	94		
							14-14	6.6	95		
				10							
		12.0	5463+/-								
1			**CLAYEY SAND (SC)**, fine grained, brown, medium dense								
				15			10-11	5.8	89		
		20.5	5454.5+/-	20			8-10-13 N=23	5.0			
			Boring Terminated at 20.5 Feet								

SANDY LEAN CLAY (CL), light brown, stiff to very stiff

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

Hammer Type: Automatic

Advancement Method:
4-inch diameter solid stem continuous flight power 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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while drilling

Terracon
4172 Center Park Dr
Colorado Springs, CO

Boring Started: 10-27-2020 | Boring Completed: 10-27-2020

Drill Rig: CME-45 | Driller: Odell

Project No.: 23205109

Exhibit B-62

TEST PIT LOG NO. TP1-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6768° Longitude: -104.6149°

Approximate Surface Elev.: 5595 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		**SILTY SAND (SM)**, fine grained, brown						
		Field density test performed at 4 ft (Dry Unit Weight: 95 pcf; Moisture Content: 6%)					NP	28
		5.0	5590+/-	5				
2		**LEAN CLAY WITH SAND (CL)**, brown						
		15.0	5580+/-	10				
		Test Pit Terminated at 15 Feet		15				
		Approximate Total Time to Excavate (minutes): 14						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-10-2020

Test Pit Completed: 11-10-2020

Excavator: Case 590 Backhoe

Operator: Liquid Structures

Project No.: 23205109

Exhibit B-63

TEST PIT LOG NO. TP1-2

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6740° Longitude: -104.6108°

Approximate Surface Elev.: 5587 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		**LEAN CLAY (CL)**, brown Field density test performed at 4 ft (Dry Unit Weight: 94 pcf; Moisture Content: 6%)		5				
		10.0	5577+/-	10				
		Test Pit Terminated at 10 Feet Approximate Total Time to Excavate (minutes): 9						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-10-2020

Test Pit Completed: 11-10-2020

Excavator: Case 590 Backhoe

Operator: Liquid Structures

Project No.: 23205109

Exhibit B-64

TEST PIT LOG NO. TP1-3

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6679° Longitude: -104.6133°

Approximate Surface Elev.: 5561 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY WITH SAND (CL)**, brown					
			Field density test performed at 4 ft (Dry Unit Weight: 88 pcf; Moisture Content: 13%)	5				
		10.0	5551+/-	10				
			Test Pit Terminated at 10 Feet					
			Approximate Total Time to Excavate (minutes): 10					

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-10-2020

Test Pit Completed: 11-10-2020

Excavator: Case 590 Backhoe

Operator: Liquid Structures

Project No.: 23205109

Exhibit B-65

TEST PIT LOG NO. TP1b-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6653° Longitude: -104.6307°

Approximate Surface Elev.: 5564 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH		ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	**LEAN CLAY (CL)**, brown	5563+/-					
3			**WEATHERED CLAYSTONE**, brown to gray Field density test performed at 4 ft (Dry Unit Weight: 99 pcf; Moisture Content: 14%)		5				
		10.0		5554+/-	10				
			Test Pit Terminated at 10 Feet						
			Approximate Total Time to Excavate (minutes): 15						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-10-2020 | Test Pit Completed: 11-10-2020

Excavator: Case 590 Backhoe | Operator: Liquid Structures

Project No.: 23205109 | Exhibit B-66

TEST PIT LOG NO. TP1b-2

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6706° Longitude: -104.6232°

Approximate Surface Elev.: 5512 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1			**CLAYEY SAND (SC)**, fine grained, brown					
			Field density test performed at 4 ft (Dry Unit Weight: 92 pcf; Moisture Content: 17%)	5			28-13-15	38
		7.0	5505+/-					
			POORLY GRADED SAND (SP), fine grained, brown					
		10.0	5502+/-	10				
			Test Pit Terminated at 10 Feet					
			Approximate Total Time to Excavate (minutes): 9					

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-10-2020

Test Pit Completed: 11-10-2020

Excavator: Case 590 Backhoe

Operator: Liquid Structures

Project No.: 23205109

Exhibit B-67

TEST PIT LOG NO. TP1b-3

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6642° Longitude: -104.6132°

Approximate Surface Elev.: 5509 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		**CLAYEY SAND (SC)**, fine grained, brown						
		Field density test performed at 4 ft (Dry Unit Weight: 93 pcf; Moisture Content: 20%)		5				
		7.0 Excavation termianted due to groundwater and sloughing soils at 7 feet	5502+/-		▽			
		Test Pit Terminated at 7 Feet						
		Approximate Total Time to Excavate (minutes): 8						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater observed at 7 feet while excavating*

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-10-2020 | Test Pit Completed: 11-10-2020

Excavator: Case 590 Backhoe | Operator: Liquid Structures

Project No.: 23205109 | Exhibit B-68

TEST PIT LOG NO. TP1b-4

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6600° Longitude: -104.6109°

Approximate Surface Elev.: 5573 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**LEAN CLAY WITH SAND (CL)**, brown					
		3.0	5570+/-					
3			**WEATHERED CLAYSTONE**, brown to gray Field density test performed at 4 ft (Dry Unit Weight: 84 pcf; Moisture Content: 11%)	5			34-16-18	75
				10				
		15.0	5558+/-	15				
			Test Pit Terminated at 15 Feet Approximate Total Time to Excavate (minutes): 17					

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-10-2020 | Test Pit Completed: 11-10-2020

Excavator: Case 590 Backhoe | Operator: Liquid Structures

Project No.: 23205109 | Exhibit B-69

TEST PIT LOG NO. TP2-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6546° Longitude: -104.6331°

Approximate Surface Elev.: 5537 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH		ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		1.0	**LEAN CLAY WITH SAND (CL)**, brown	5536+/-					
3			**WEATHERED CLAYSTONE**, brown to gray Field density test performed at 4 ft (Dry Unit Weight: 96 pcf; Moisture Content: 16%)		5 10			51-19-32	91
		15.0		5522+/-	15				
			Test Pit Terminated at 15 Feet Approximate Total Time to Excavate (minutes): 32						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-06-2020

Test Pit Completed: 11-06-2020

Excavator: Case 590 Backhoe

Operator: Liquid Structures

Project No.: 23205109

Exhibit B-70

TEST PIT LOG NO. TP3-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6494° Longitude: -104.6332°

Approximate Surface Elev.: 5563 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0.0	5563+/-					
		LEAN CLAY WITH SAND (CL), brown						
		1.5	5561.5+/-					
3		**WEATHERED CLAYSTONE**, brown to gray						
		Field density test performed at 4 ft (Dry Unit Weight: 105 pcf; Moisture Content: 14%)		5				
		10.0	5553+/-	10				
		Test Pit Terminated at 10 Feet						
		Approximate Total Time to Excavate (minutes): 24						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-06-2020

Test Pit Completed: 11-06-2020

Excavator: Case 590 Backhoe

Operator: Liquid Structures

Project No.: 23205109

Exhibit B-71

TEST PIT LOG NO. TP3-2

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6465° Longitude: -104.6321°

Approximate Surface Elev.: 5536 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0.0	5536+/-					
		LEAN CLAY WITH SAND (CL), brown						
		1.5	5534.5+/-					
3		**WEATHERED CLAYSTONE**, brown to gray		5				
		Field density test performed at 4 ft (Dry Unit Weight: 99 pcf; Moisture Content: 17%)						
		10.0	5526+/-	10				
		Test Pit Terminated at 10 Feet						
		Approximate Total Time to Excavate (minutes): 13						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-06-2020 | Test Pit Completed: 11-06-2020

Excavator: Case 590 Backhoe | Operator: Liquid Structures

Project No.: 23205109 | Exhibit B-72

TEST PIT LOG NO. TP4-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6334° Longitude: -104.6303°

Approximate Surface Elev.: 5451 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		**LEAN CLAY (CL)**, brown						
		2.5	5448.5+/-					
3		**WEATHERED CLAYSTONE**, brown to gray					46-20-26	98
		Field density test performed at 4 ft (Dry Unit Weight: 103 pcf; Moisture Content: 15%)		5				
		10.0	5441+/-	10				
		Test Pit Terminated at 10 Feet						
		Approximate Total Time to Excavate (minutes): 14						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-06-2020

Test Pit Completed: 11-06-2020

Excavator: Case 590 Backhoe

Operator: Liquid Structures

Project No.: 23205109

Exhibit B-73

TEST PIT LOG NO. TP4-2

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6429° Longitude: -104.6341°

Approximate Surface Elev.: 5513 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0.0	5513+/-					
		LEAN CLAY WITH SAND (CL), brown						
		1.5	5511.5+/-					
3		**WEATHERED CLAYSTONE**, brown to gray						
		Field density test performed at 4 ft (Dry Unit Weight: 99 pcf; Moisture Content: 14%)		5			54-23-31	97
		10.0	5503+/-	10				
		Test Pit Terminated at 10 Feet						
		Approximate Total Time to Excavate (minutes): 28						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-06-2020 | Test Pit Completed: 11-06-2020

Excavator: Case 590 Backhoe | Operator: Liquid Structures

Project No.: 23205109 | Exhibit B-74

TEST PIT LOG NO. TP4-3

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6400° Longitude: -104.6331°

Approximate Surface Elev.: 5492 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		0.0	5492+/-					
		LEAN CLAY WITH SAND (CL), brown						
		1.5	5490.5+/-					
3		**WEATHERED CLAYSTONE**, brown to gray						
		Field density test performed at 4 ft (Dry Unit Weight: 103 pcf; Moisture Content: 16%)		5				
		10.0	5482+/-	10				
		Test Pit Terminated at 10 Feet						
		Approximate Total Time to Excavate (minutes): 15						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-06-2020

Test Pit Completed: 11-06-2020

Excavator: Case 590 Backhoe

Operator: Liquid Structures

Project No.: 23205109

Exhibit B-75

TEST PIT LOG NO. TP4-4

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6351° Longitude: -104.6291°

Approximate Surface Elev.: 5477 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)
2		**LEAN CLAY WITH SAND (CL)**, brown	
		2.0	5475+/-
3		**WEATHERED CLAYSTONE**, brown to gray	
		Field density test performed at 4 ft (Dry Unit Weight: 103 pcf; Moisture Content: 14%)	
		10.0	5467+/-
		Test Pit Terminated at 10 Feet	
		Approximate Total Time to Excavate (minutes): 9	

DEPTH (Ft.) 5 10

WATER LEVEL OBSERVATIONS

SAMPLE TYPE

ATTERBERG LIMITS LL-PL-PI

PERCENT FINES

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-06-2020

Test Pit Completed: 11-06-2020

Excavator: Case 590 Backhoe

Operator: Liquid Structures

Project No.: 23205109

Exhibit B-76

TEST PIT LOG NO. TP4b-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6326° Longitude: -104.6349°

Approximate Surface Elev.: 5434 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		**LEAN CLAY (CL)**, brown Field density test performed at 4 ft (Dry Unit Weight: 88 pcf; Moisture Content: 15%)		5				
		10.0	5424+/-	10				
		Test Pit Terminated at 10 Feet Approximate Total Time to Excavate (minutes): 22						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-09-2020 | Test Pit Completed: 11-09-2020

Excavator: Case 590 Backhoe | Operator: Liquid Structures

Project No.: 23205109 | Exhibit B-77

TEST PIT LOG NO. TP5-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6354° Longitude: -104.6241°

Approximate Surface Elev.: 5467 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		**LEAN CLAY (CL)**, brown						
		2.5	5464.5+/-					
3		**WEATHERED CLAYSTONE**, brown to gray Field density test performed at 4 ft (Dry Unit Weight: 96 pcf; Moisture Content: 14%)		5 10				
		15.0	5452+/-	15				
		Test Pit Terminated at 15 Feet Approximate Total Time to Excavate (minutes): 31						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-09-2020 | Test Pit Completed: 11-09-2020

Excavator: Case 590 Backhoe | Operator: Liquid Structures

Project No.: 23205109 | Exhibit B-78

TEST PIT LOG NO. TP5-2

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6321° Longitude: -104.6210°

Approximate Surface Elev.: 5440 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		**LEAN CLAY (CL)**, brown						
		2.0	5438+/-					
3		**WEATHERED CLAYSTONE**, brown Field density test performed at 4 ft (Dry Unit Weight: 109 pcf; Moisture Content: 15%)		5				
		10.0	5430+/-	10				
		Test Pit Terminated at 10 Feet Approximate Total Time to Excavate (minutes): 12						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-09-2020 | Test Pit Completed: 11-09-2020

Excavator: Case 590 Backhoe | Operator: Liquid Structures

Project No.: 23205109 | Exhibit B-79

TEST PIT LOG NO. TP6-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6260° Longitude: -104.6221°

Approximate Surface Elev.: 5420 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		**LEAN CLAY (CL)**, brown						
		2.0	5418+/-					
3		**WEATHERED CLAYSTONE**, brown to gray						
		Field density test performed at 4 ft (Dry Unit Weight: 104 pcf; Moisture Content: 11%)		5				
		10.0	5410+/-	10				
		Test Pit Terminated at 10 Feet						
		Approximate Total Time to Excavate (minutes): 18						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-09-2020 | Test Pit Completed: 11-09-2020

Excavator: Case 590 Backhoe | Operator: Liquid Structures

Project No.: 23205109 | Exhibit B-80

TEST PIT LOG NO. TP6-2

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6235° Longitude: -104.6234°

Approximate Surface Elev.: 5425 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		**LEAN CLAY (CL)**, brown						
		2.5	5422.5+/-					
3		**WEATHERED CLAYSTONE**, brown to gray						
		Field density test performed at 4 ft (Dry Unit Weight: 94 pcf; Moisture Content: 15%)					52-21-31	97
				5				
				10				
		15.0	5410+/-	15				
		Test Pit Terminated at 15 Feet						
		Approximate Total Time to Excavate (minutes): 25						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-09-2020
Test Pit Completed: 11-09-2020
Excavator: Case 590 Backhoe
Operator: Liquid Structures
Project No.: 23205109

Exhibit B-81

TEST PIT LOG NO. TP6-3

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 38.6224° Longitude: -104.6186° Approximate Surface Elev.: 5392 (Ft.) +/- DEPTH / ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		**LEAN CLAY WITH SAND (CL)**, brown Field density test performed at 4 ft (Dry Unit Weight: 94 pcf; Moisture Content: 13%)	5				
		10.0 / 5382+/- ***Test Pit Terminated at 10 Feet*** Approximate Total Time to Excavate (minutes): 14	10				

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-09-2020
Test Pit Completed: 11-09-2020
Excavator: Case 590 Backhoe
Operator: Liquid Structures
Project No.: 23205109

Exhibit B-82

TEST PIT LOG NO. TP6-4

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6241° Longitude: -104.6107°

Approximate Surface Elev.: 5397 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		**LEAN CLAY WITH SAND (CL)**, brown Field density test performed at 4 ft (Dry Unit Weight: 86 pcf; Moisture Content: 9%)		5				
		8.0	5389+/-					
1		**POORLY GRADED SAND (SP)**, fine grained, brown						
		10.0	5387+/-	10				
		Test Pit Terminated at 10 Feet						
		Approximate Total Time to Excavate (minutes): 13						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-09-2020
Test Pit Completed: 11-09-2020
Excavator: Case 590 Backhoe
Operator: Liquid Structures
Project No.: 23205109

Exhibit B-83

TEST PIT LOG NO. TP7-1

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6262° Longitude: -104.6039°

Approximate Surface Elev.: 5448 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		**LEAN CLAY (CL)**, brown						
		Field density test performed at 4 ft (Dry Unit Weight: 98 pcf; Moisture Content: 16%)		5			47-19-28	86
		10.0	5438+/-	10				
		Test Pit Terminated at 10 Feet						
		Approximate Total Time to Excavate (minutes): 12						

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-09-2020

Test Pit Completed: 11-09-2020

Excavator: Case 590 Backhoe

Operator: Liquid Structures

Project No.: 23205109

Exhibit B-84

TEST PIT LOG NO. TP7-2

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 38.6222° Longitude: -104.6025° Approximate Surface Elev.: 5465 (Ft.) +/- DEPTH / ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2		**LEAN CLAY WITH SAND (CL)**, brown Field density test performed at 4 ft (Dry Unit Weight: 88 pcf; Moisture Content: 7%)	5 10				
		15.0 / 5450+/- ***Test Pit Terminated at 15 Feet*** Approximate Total Time to Excavate (minutes): 12	15				

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-09-2020
Test Pit Completed: 11-09-2020
Excavator: Case 590 Backhoe
Operator: Liquid Structures
Project No.: 23205109

Exhibit B-85

TEST PIT LOG NO. TP7-3

PROJECT: CO465 - Pike Solar

CLIENT: JSI Construction Group LLC

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

LOCATION See Exploration Plan

Latitude: 38.6177° Longitude: -104.6038°

Approximate Surface Elev.: 5447 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
2			**SANDY LEAN CLAY (CL)**, brown					
			Field density test performed at 4 ft (Dry Unit Weight: 88 pcf; Moisture Content: 9%)	5			27-15-12	55
		9.0						
3		10.0	**WEATHERED CLAYSTONE**, brown to gray					
			5438+/-					
			5437+/-	10				
			Test Pit Terminated at 10 Feet					
			Approximate Total Time to Excavate (minutes): 9					

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

Hammer Type: N/A

Advancement Method:
24-inch Standard Teeth Bucket with a Rubber-Tired Backhoe

Abandonment Method:
Backfilled with excavation spoils and tamped with backhoe bucket

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 were obtained from Google Earth

Notes:

WATER LEVEL OBSERVATIONS

None encountered while excavating

Terracon
4172 Center Park Dr
Colorado Springs, CO

Test Pit Started: 11-09-2020 | Test Pit Completed: 11-09-2020

Excavator: Case 590 Backhoe | Operator: Liquid Structures

Project No.: 23205109 | Exhibit B-86

FIELD ELECTRICAL RESISTIVITY TEST DATA

CO465 - Pike Solar ■ El Paso County, Colorado
December 11, 2020 ■ Terracon Project No. 23205109

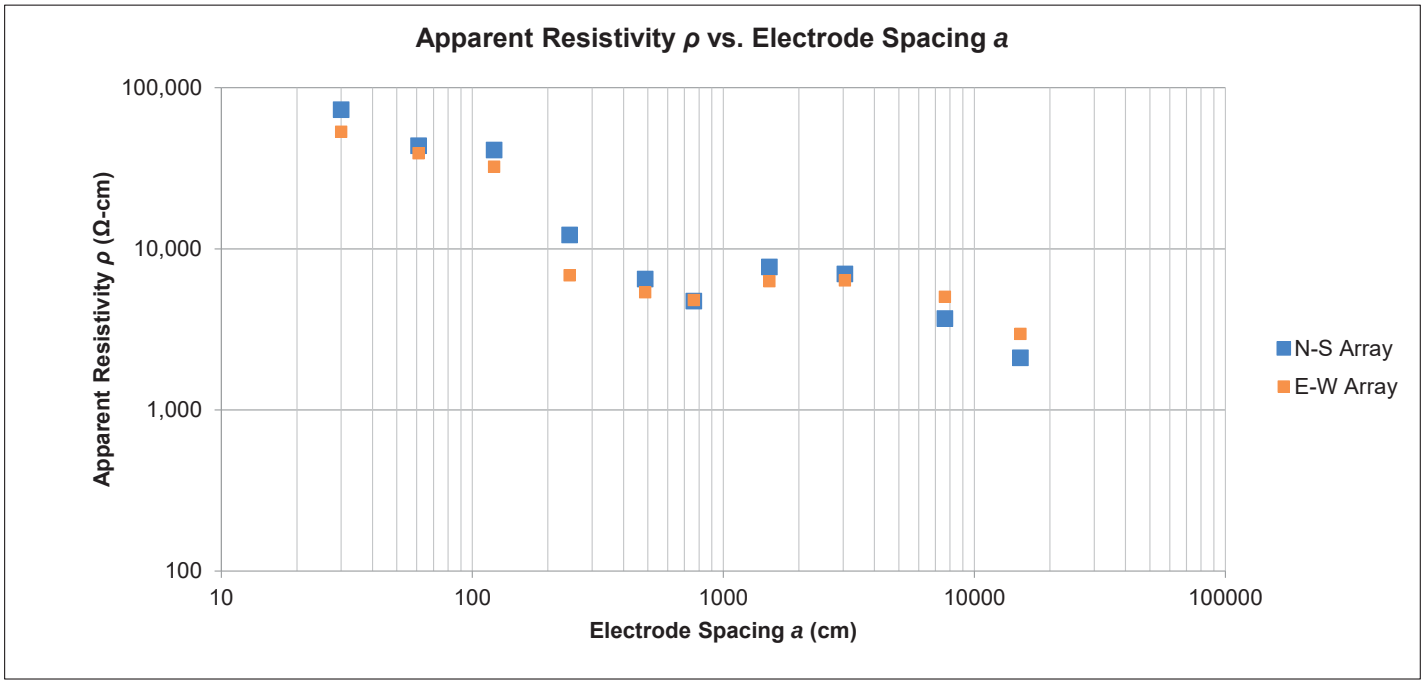
Array ID	ER-1	**Weather**	55° F, sunny, partly cloudy, light wind
Array Lat/Long	38.6766°, -104.6167° (approximate center of cross)	**Ground Cond.**	Dry, sandy, some vegetation, some surficial gravel

Test Date	October 30, 2020	**Instrument Type**	Mini-Res
Test By	Kyle Johnson	**Serial #**	SN-310
Test Method	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)	**Calibrated By**	Exploration Instruments LLC

Notes & Conflicts	N/A

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

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**			**E-W Test**		
(ft)	(cm)	(in)	(cm)	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ
				Select One	Ω	(Ω-cm)	Select One	Ω	(Ω-cm)
1	30	3	8	2000 Ω	348.6	73,070	2000 Ω	254.1	53,260
2	61	3	8	2000 Ω	110.7	43,670	2000 Ω	99.3	39,170
4	122	6	15	2000 Ω	52.1	40,970	2000 Ω	41.1	32,320
8	244	6	15	20 Ω	7.896	12,180	20 Ω	4.444	6,860
16	488	12	30	2000 mΩ	2.099	6,480	2000 mΩ	1.741	5,370
25	762	12	30	2000 mΩ	0.987	4,740	2000 mΩ	1.003	4,820
50	1524	12	30	2000 mΩ	0.805	7,710	2000 mΩ	0.658	6,300
100	3048	12	30	2000 mΩ	0.365	6,990	2000 mΩ	0.332	6,360
250	7620	12	30	2000 mΩ	0.077	3,690	2000 mΩ	0.105	5,030
500	15240	12	30	2000 mΩ	0.022	2,110	2000 mΩ	0.031	2,970



FIELD ELECTRICAL RESISTIVITY TEST DATA

CO465 - Pike Solar ■ El Paso County, Colorado
December 11, 2020 ■ Terracon Project No. 23205109

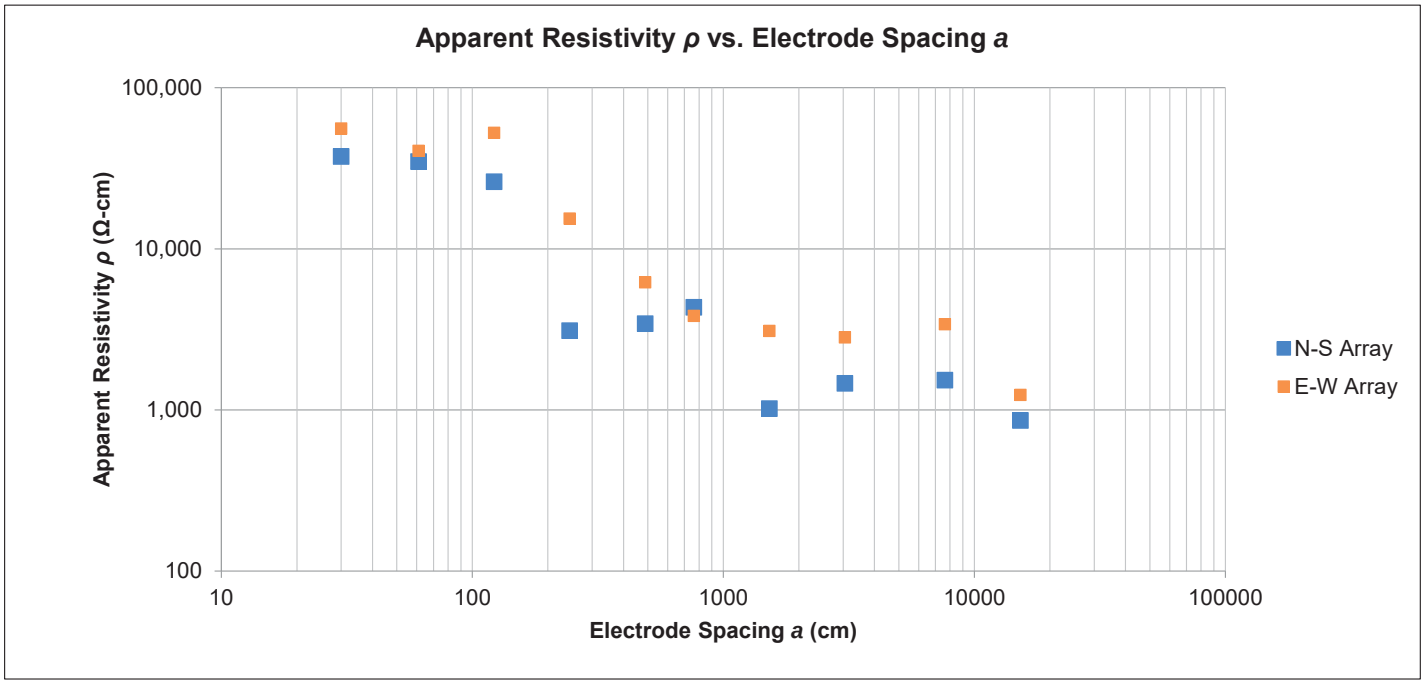
Array ID	ER-2	**Weather**	55° F, sunny, partly cloudy, light wind
Array Lat/Long	38.6732°, -104.6118° (approximate center of cross)	**Ground Cond.**	Dry, sandy, some vegetation, some surficial gravel

Test Date	October 30, 2020	**Instrument Type**	Mini-Res
Test By	Kyle Johnson	**Serial #**	SN-310
Test Method	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)	**Calibrated By**	Exploration Instruments LLC

Notes & Conflicts	N/A

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

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**			**E-W Test**		
(ft)	(cm)	(in)	(cm)	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ
				Select One	Ω	(Ω-cm)	Select One	Ω	(Ω-cm)
1	30	3	8	2000 Ω	178.6	37,440	2000 Ω	266.2	55,800
2	61	3	8	2000 Ω	88.1	34,760	2000 Ω	102.8	40,560
4	122	6	15	2000 Ω	33.1	26,030	2000 Ω	66.7	52,450
8	244	6	15	20 Ω	2.007	3,100	20 Ω	9.998	15,430
16	488	12	30	2000 mΩ	1.112	3,430	2000 mΩ	2.005	6,190
25	762	12	30	2000 mΩ	0.901	4,330	2000 mΩ	0.797	3,830
50	1524	12	30	2000 mΩ	0.106	1,020	2000 mΩ	0.322	3,090
100	3048	12	30	2000 mΩ	0.076	1,460	2000 mΩ	0.147	2,820
250	7620	12	30	2000 mΩ	0.032	1,530	2000 mΩ	0.071	3,400
500	15240	12	30	2000 mΩ	0.009	860	2000 mΩ	0.013	1,240



FIELD ELECTRICAL RESISTIVITY TEST DATA

CO465 - Pike Solar ■ El Paso County, Colorado
December 11, 2020 ■ Terracon Project No. 23205109

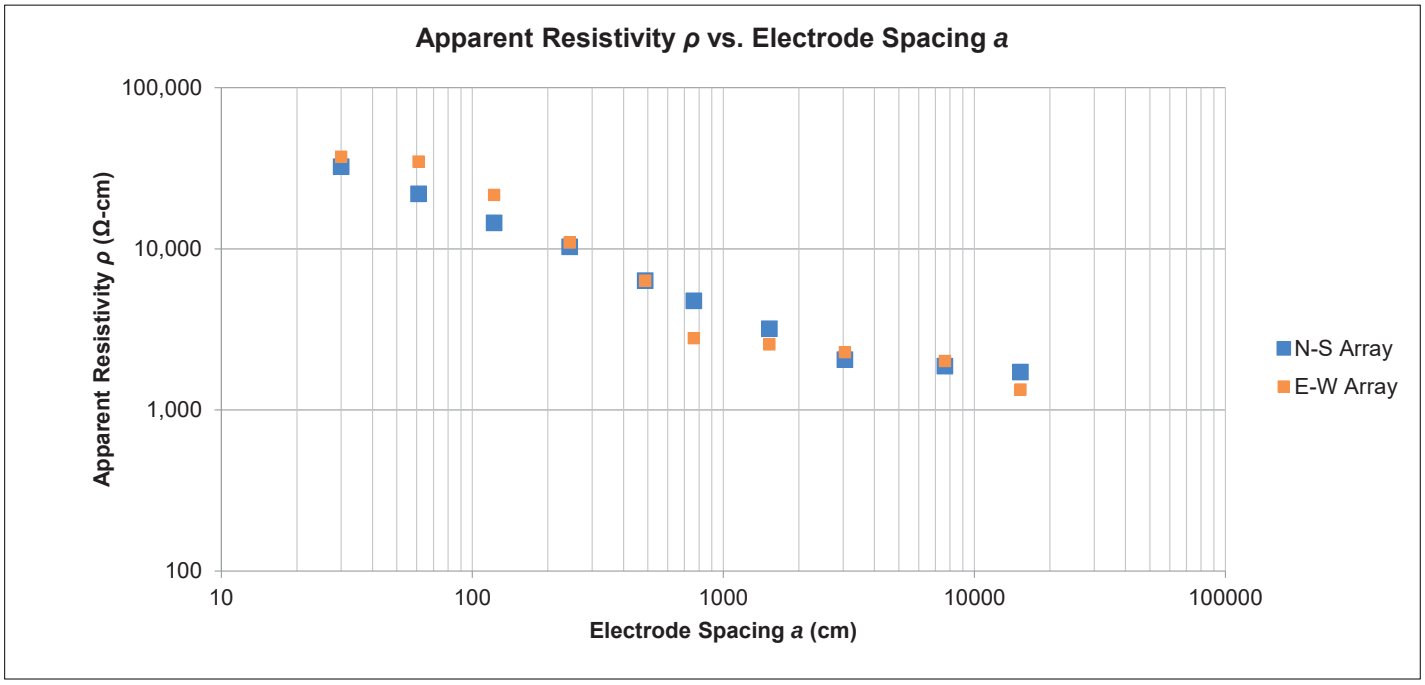
Array ID	ER-3	**Weather**	55° F, sunny, partly cloudy, light wind
Array Lat/Long	38.6738°, -104.6258° (approximate center of cross)	**Ground Cond.**	Dry, sandy, some vegetation, some surficial gravel

Test Date	October 30, 2020	**Instrument Type**	Mini-Res
Test By	Kyle Johnson	**Serial #**	SN-310
Test Method	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)	**Calibrated By**	Exploration Instruments LLC

Notes & Conflicts	N/A

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

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**			**E-W Test**		
(ft)	(cm)	(in)	(cm)	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ
				Select One	Ω	(Ω-cm)	Select One	Ω	(Ω-cm)
1	30	3	8	2000 Ω	154.3	32,340	2000 Ω	177.8	37,270
2	61	3	8	2000 Ω	55.5	21,900	2000 Ω	88.2	34,800
4	122	6	15	2000 Ω	18.4	14,470	2000 Ω	27.5	21,620
8	244	6	15	20 Ω	6.677	10,300	20 Ω	7.101	10,960
16	488	12	30	2000 mΩ	2.057	6,350	2000 mΩ	2.054	6,340
25	762	12	30	2000 mΩ	0.992	4,760	2000 mΩ	0.581	2,790
50	1524	12	30	2000 mΩ	0.333	3,190	2000 mΩ	0.266	2,550
100	3048	12	30	2000 mΩ	0.107	2,050	2000 mΩ	0.119	2,280
250	7620	12	30	2000 mΩ	0.039	1,870	2000 mΩ	0.042	2,010
500	15240	12	30	2000 mΩ	0.018	1,720	2000 mΩ	0.014	1,340



FIELD ELECTRICAL RESISTIVITY TEST DATA

CO465 - Pike Solar ■ El Paso County, Colorado
December 11, 2020 ■ Terracon Project No. 23205109

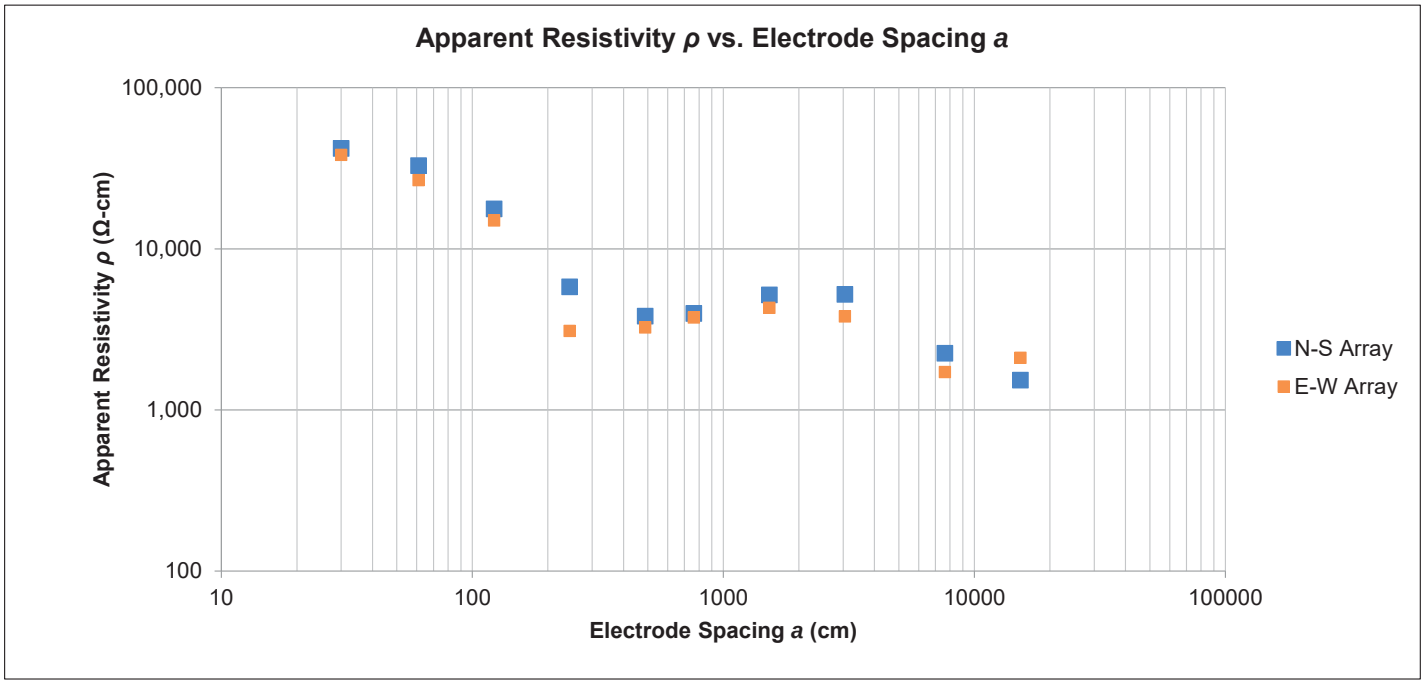
Array ID	ER-4	**Weather**	55° F, sunny, partly cloudy, light wind
Array Lat/Long	38.6687°, -104.6176° (approximate center of cross)	**Ground Cond.**	Dry, sandy, some vegetation, some surficial gravel

Test Date	October 30, 2020	**Instrument Type**	Mini-Res
Test By	Kyle Johnson	**Serial #**	SN-310
Test Method	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)	**Calibrated By**	Exploration Instruments LLC

Notes & Conflicts	N/A

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

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**			**E-W Test**		
(ft)	(cm)	(in)	(cm)	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ
				Select One	Ω	(Ω-cm)	Select One	Ω	(Ω-cm)
1	30	3	8	2000 Ω	200.6	42,050	2000 Ω	182.9	38,340
2	61	3	8	2000 Ω	83.1	32,780	2000 Ω	67.7	26,710
4	122	6	15	2000 Ω	22.5	17,690	2000 Ω	19.1	15,020
8	244	6	15	20 Ω	3.760	5,800	20 Ω	2.001	3,090
16	488	12	30	2000 mΩ	1.239	3,820	2000 mΩ	1.052	3,250
25	762	12	30	2000 mΩ	0.826	3,970	2000 mΩ	0.782	3,750
50	1524	12	30	2000 mΩ	0.540	5,170	2000 mΩ	0.449	4,300
100	3048	12	30	2000 mΩ	0.272	5,210	2000 mΩ	0.199	3,810
250	7620	12	30	2000 mΩ	0.047	2,250	2000 mΩ	0.036	1,720
500	15240	12	30	2000 mΩ	0.016	1,530	2000 mΩ	0.022	2,110



FIELD ELECTRICAL RESISTIVITY TEST DATA

CO465 - Pike Solar ■ El Paso County, Colorado
December 11, 2020 ■ Terracon Project No. 23205109

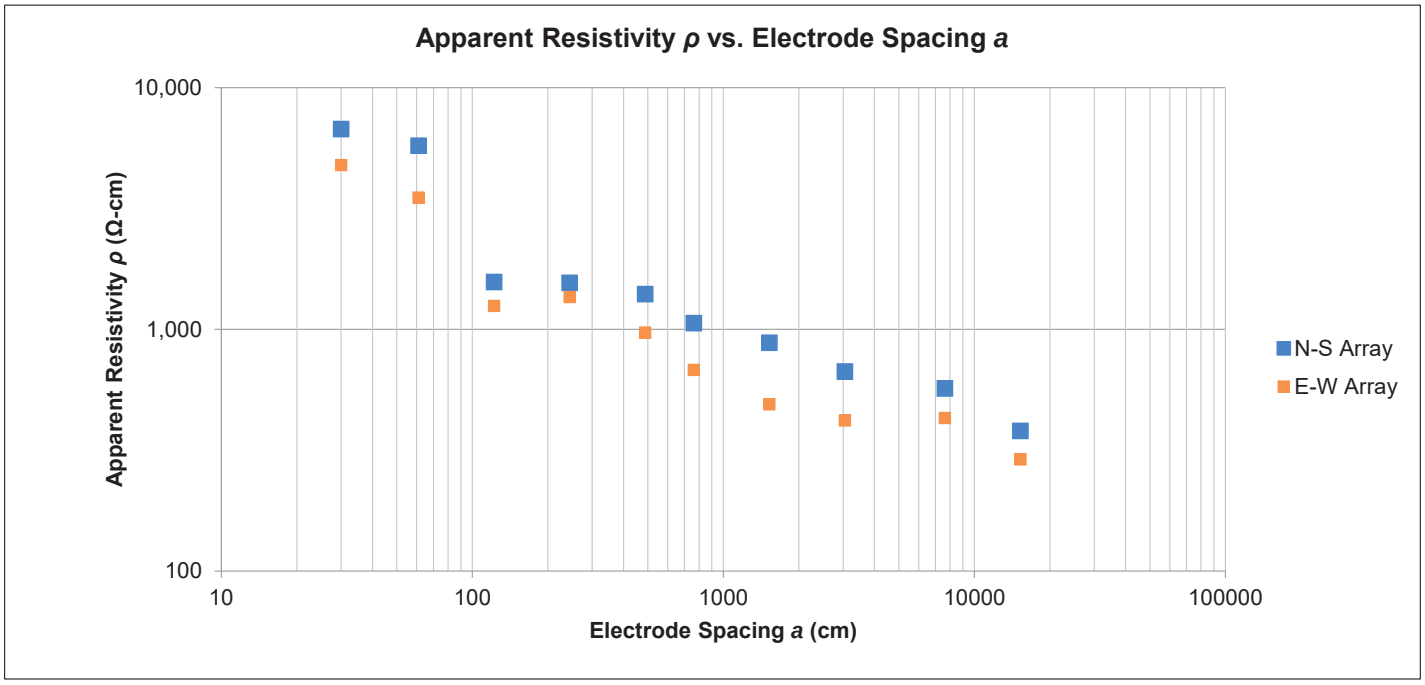
Array ID	ER-5	**Weather**	50° F, sunny, partly cloudy, light wind
Array Lat/Long	38.6652°, -104.6330° (approximate center of cross)	**Ground Cond.**	Moist, sandy, some vegetation, some surficial gravel

Test Date	October 29, 2020	**Instrument Type**	Mini-Res
Test By	Kyle Johnson	**Serial #**	SN-310
Test Method	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)	**Calibrated By**	Exploration Instruments LLC

Notes & Conflicts	N/A

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

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**			**E-W Test**		
(ft)	(cm)	(in)	(cm)	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ
				Select One	Ω	(Ω-cm)	Select One	Ω	(Ω-cm)
1	30	3	8	2000 Ω	32.2	6,750	2000 Ω	22.8	4,780
2	61	3	8	2000 Ω	14.6	5,760	2000 Ω	8.9	3,510
4	122	6	15	2000 mΩ	2.001	1,570	2000 mΩ	1.590	1,250
8	244	6	15	2000 mΩ	1.014	1,560	2000 mΩ	0.884	1,360
16	488	12	30	2000 mΩ	0.452	1,400	2000 mΩ	0.313	970
25	762	12	30	2000 mΩ	0.221	1,060	2000 mΩ	0.142	680
50	1524	12	30	2000 mΩ	0.092	880	2000 mΩ	0.051	490
100	3048	12	30	2000 mΩ	0.035	670	2000 mΩ	0.022	420
250	7620	12	30	2000 mΩ	0.012	570	2000 mΩ	0.009	430
500	15240	12	30	2000 mΩ	0.004	380	2000 mΩ	0.003	290



FIELD ELECTRICAL RESISTIVITY TEST DATA

CO465 - Pike Solar ■ El Paso County, Colorado
December 11, 2020 ■ Terracon Project No. 23205109

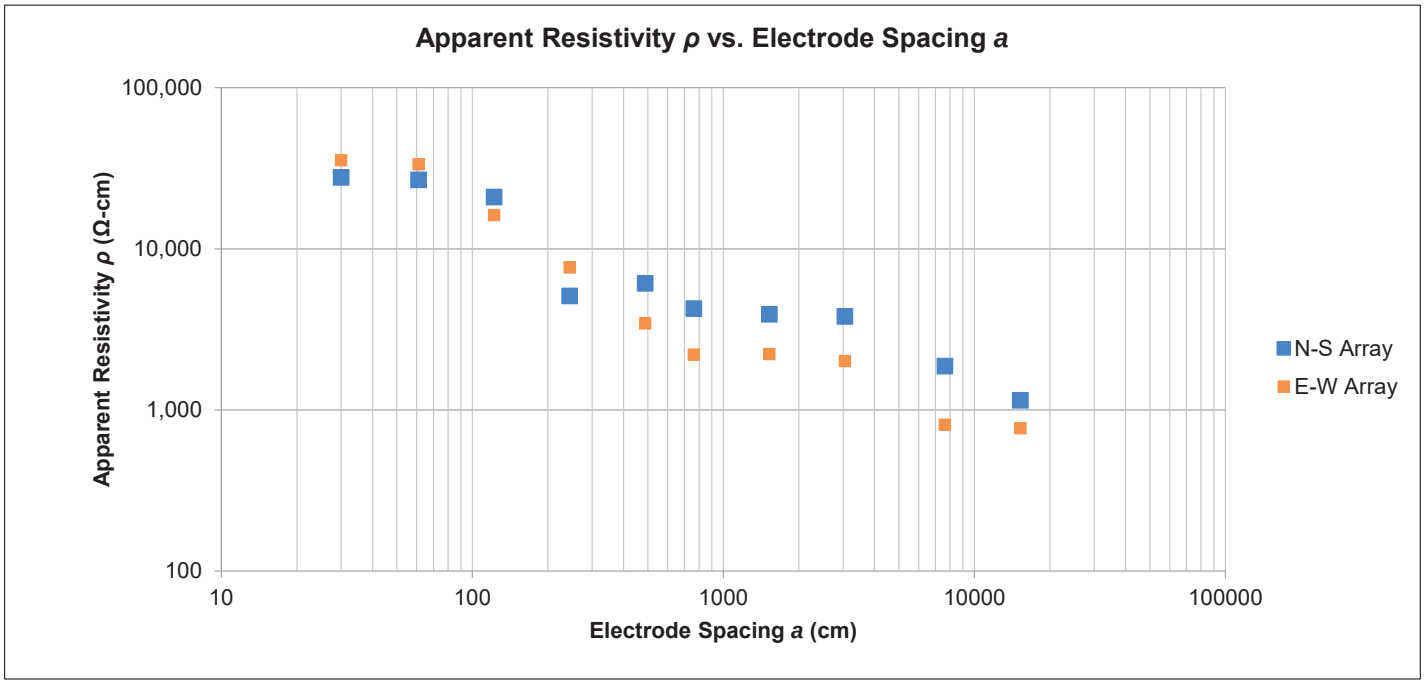
Array ID	ER-6	**Weather**	55° F, sunny, partly cloudy, light wind
Array Lat/Long	38.6592°, -104.6122° (approximate center of cross)	**Ground Cond.**	Dry, sandy, some vegetation, some surficial gravel

Test Date	October 30, 2020	**Instrument Type**	Mini-Res
Test By	Kyle Johnson	**Serial #**	SN-310
Test Method	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)	**Calibrated By**	Exploration Instruments LLC

Notes & Conflicts	N/A

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

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**			**E-W Test**		
(ft)	(cm)	(in)	(cm)	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ
				Select One	Ω	(Ω-cm)	Select One	Ω	(Ω-cm)
1	30	3	8	2000 Ω	132.1	27,690	2000 Ω	169.1	35,450
2	61	3	8	2000 Ω	67.9	26,790	2000 Ω	84.7	33,410
4	122	6	15	2000 Ω	26.6	20,920	2000 Ω	20.6	16,200
8	244	6	15	20 Ω	3.302	5,100	20 Ω	4.969	7,670
16	488	12	30	2000 mΩ	1.975	6,100	2000 mΩ	1.113	3,440
25	762	12	30	2000 mΩ	0.888	4,260	2000 mΩ	0.461	2,210
50	1524	12	30	2000 mΩ	0.410	3,930	2000 mΩ	0.232	2,220
100	3048	12	30	2000 mΩ	0.199	3,810	2000 mΩ	0.105	2,010
250	7620	12	30	2000 mΩ	0.039	1,870	2000 mΩ	0.017	810
500	15240	12	30	2000 mΩ	0.012	1,150	2000 mΩ	0.008	770



FIELD ELECTRICAL RESISTIVITY TEST DATA

CO465 - Pike Solar ■ El Paso County, Colorado
December 11, 2020 ■ Terracon Project No. 23205109

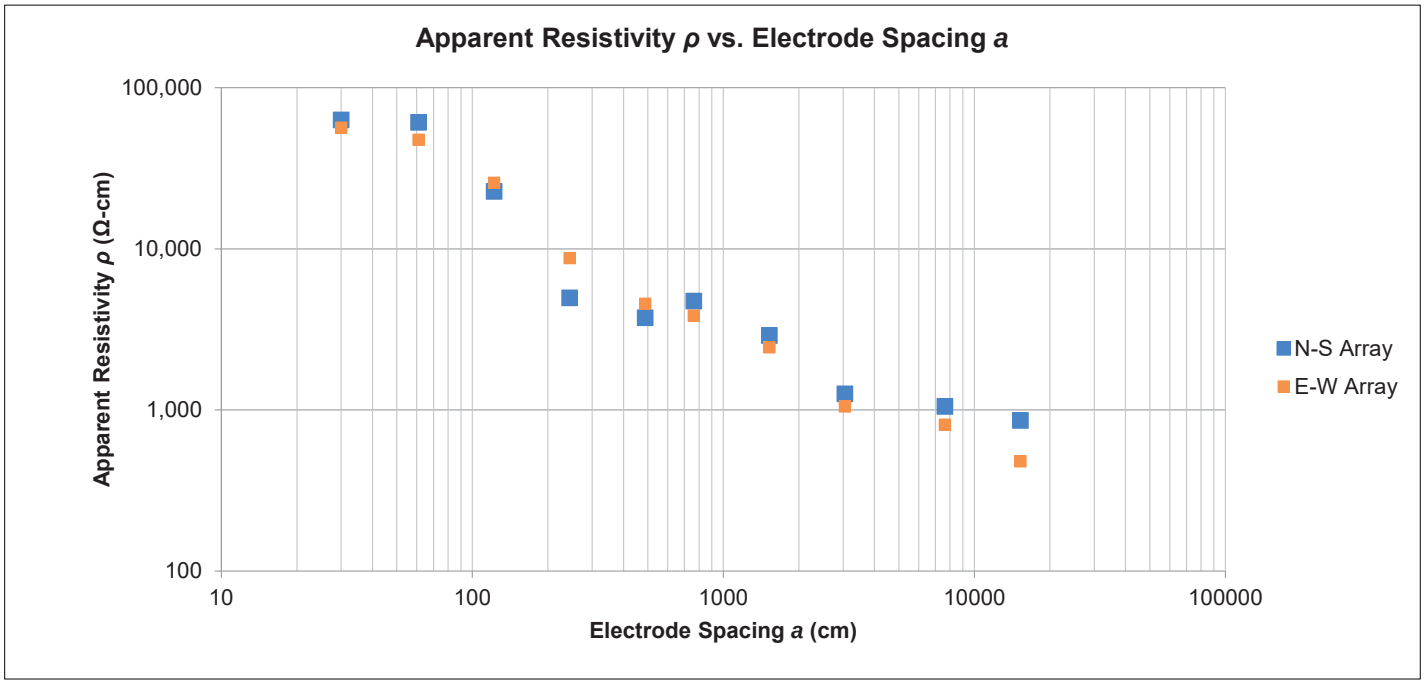
Array ID	ER-7	**Weather**	50° F, sunny, partly cloudy, light wind
Array Lat/Long	38.6537°, -104.6330° (approximate center of cross)	**Ground Cond.**	Moist, sandy, some vegetation, some surficial gravel

Test Date	October 29, 2020	**Instrument Type**	Mini-Res
Test By	Kyle Johnson	**Serial #**	SN-310
Test Method	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)	**Calibrated By**	Exploration Instruments LLC

Notes & Conflicts	N/A

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

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**			**E-W Test**		
(ft)	(cm)	(in)	(cm)	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ
				Select One	Ω	(Ω-cm)	Select One	Ω	(Ω-cm)
1	30	3	8	2000 Ω	301.5	63,200	2000 Ω	269.7	56,530
2	61	3	8	2000 Ω	154.3	60,870	2000 Ω	120.4	47,500
4	122	6	15	2000 Ω	28.9	22,730	2000 Ω	32.6	25,640
8	244	6	15	20 Ω	3.221	4,970	20 Ω	5.667	8,750
16	488	12	30	2000 mΩ	1.207	3,730	2000 mΩ	1.479	4,560
25	762	12	30	2000 mΩ	0.986	4,730	2000 mΩ	0.802	3,850
50	1524	12	30	2000 mΩ	0.303	2,900	2000 mΩ	0.256	2,450
100	3048	12	30	2000 mΩ	0.066	1,260	2000 mΩ	0.055	1,050
250	7620	12	30	2000 mΩ	0.022	1,050	2000 mΩ	0.017	810
500	15240	12	30	2000 mΩ	0.009	860	2000 mΩ	0.005	480



FIELD ELECTRICAL RESISTIVITY TEST DATA

CO465 - Pike Solar ■ El Paso County, Colorado
December 11, 2020 ■ Terracon Project No. 23205109

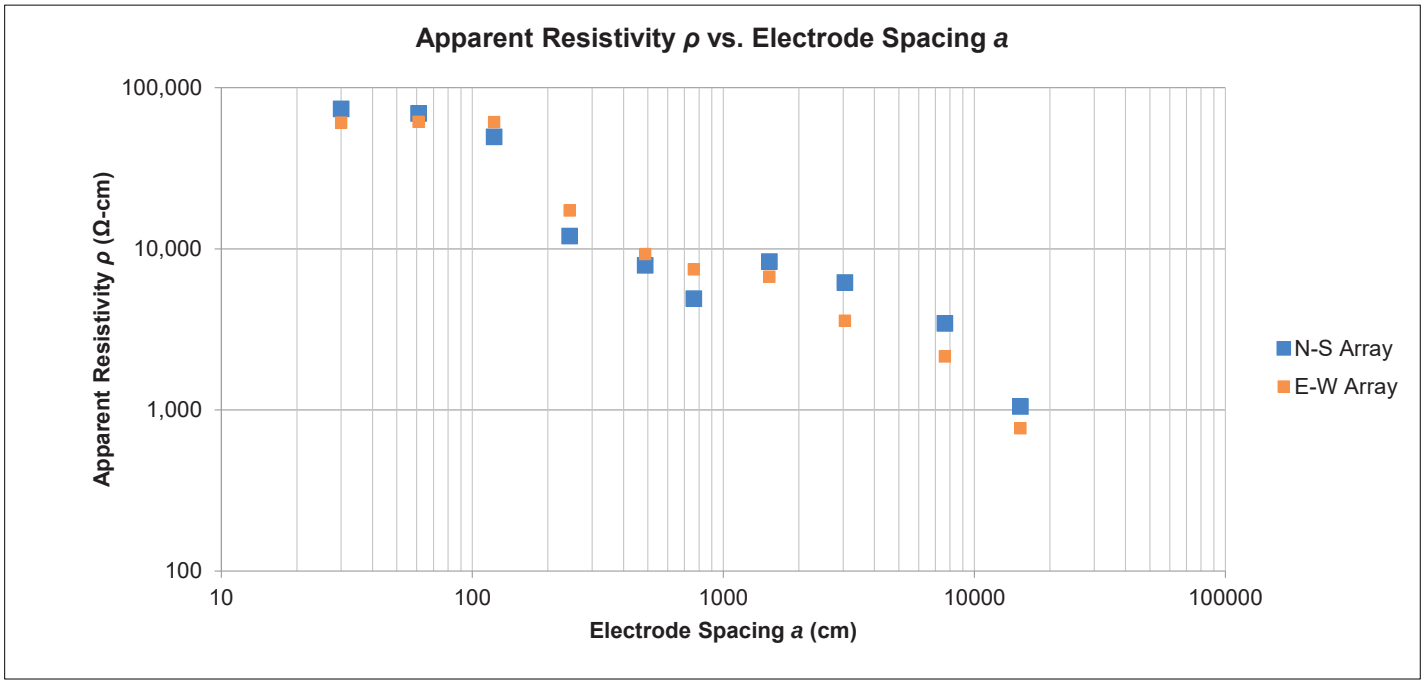
Array ID	ER-8	**Weather**	50° F, sunny, partly cloudy, light wind
Array Lat/Long	38.6483°, -104.6317° (approximate center of cross)	**Ground Cond.**	Moist, sandy, some vegetation, some surficial gravel

Test Date	October 29, 2020	**Instrument Type**	Mini-Res
Test By	Kyle Johnson	**Serial #**	SN-310
Test Method	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)	**Calibrated By**	Exploration Instruments LLC

Notes & Conflicts	N/A

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

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**			**E-W Test**		
(ft)	(cm)	(in)	(cm)	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ
				Select One	Ω	(Ω-cm)	Select One	Ω	(Ω-cm)
1	30	3	8	2000 Ω	352.1	73,810	2000 Ω	289.2	60,620
2	61	3	8	2000 Ω	175.6	69,280	2000 Ω	155.5	61,350
4	122	6	15	2000 Ω	62.9	49,460	2000 Ω	77.8	61,180
8	244	6	15	20 Ω	7.778	12,000	20 Ω	11.220	17,310
16	488	12	30	2000 mΩ	2.556	7,890	2000 mΩ	3.009	9,290
25	762	12	30	2000 mΩ	1.020	4,900	2000 mΩ	1.552	7,450
50	1524	12	30	2000 mΩ	0.870	8,340	2000 mΩ	0.702	6,730
100	3048	12	30	2000 mΩ	0.322	6,170	2000 mΩ	0.187	3,580
250	7620	12	30	2000 mΩ	0.072	3,450	2000 mΩ	0.045	2,150
500	15240	12	30	2000 mΩ	0.011	1,050	2000 mΩ	0.008	770



FIELD ELECTRICAL RESISTIVITY TEST DATA

CO465 - Pike Solar ■ El Paso County, Colorado
December 11, 2020 ■ Terracon Project No. 23205109

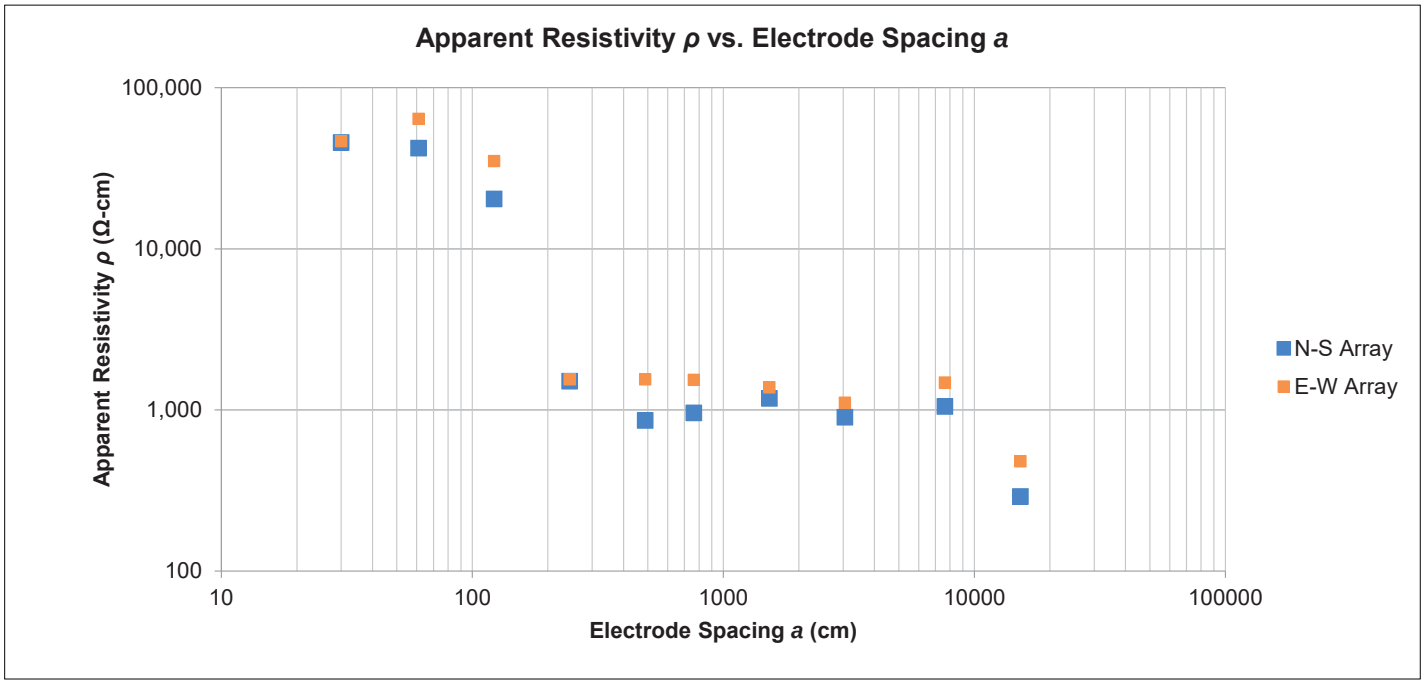
Array ID	ER-9	**Weather**	50° F, sunny, partly cloudy, light wind
Array Lat/Long	38.6408°, -104.6335° (approximate center of cross)	**Ground Cond.**	Moist, sandy, some vegetation, some surficial gravel

Test Date	October 29, 2020	**Instrument Type**	Mini-Res
Test By	Kyle Johnson	**Serial #**	SN-310
Test Method	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)	**Calibrated By**	Exploration Instruments LLC

Notes & Conflicts	N/A

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

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**			**E-W Test**		
(ft)	(cm)	(in)	(cm)	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ
				Select One	Ω	(Ω-cm)	Select One	Ω	(Ω-cm)
1	30	3	8	2000 Ω	217.7	45,630	2000 Ω	222.3	46,600
2	61	3	8	2000 Ω	106.9	42,170	2000 Ω	162.5	64,110
4	122	6	15	2000 Ω	25.9	20,370	2000 Ω	44.6	35,070
8	244	6	15	2000 mΩ	0.976	1,510	2000 mΩ	1.002	1,550
16	488	12	30	2000 mΩ	0.278	860	2000 mΩ	0.501	1,550
25	762	12	30	2000 mΩ	0.201	960	2000 mΩ	0.321	1,540
50	1524	12	30	2000 mΩ	0.123	1,180	2000 mΩ	0.144	1,380
100	3048	12	30	2000 mΩ	0.047	900	2000 mΩ	0.058	1,110
250	7620	12	30	2000 mΩ	0.022	1,050	2000 mΩ	0.031	1,480
500	15240	12	30	2000 mΩ	0.003	290	2000 mΩ	0.005	480



FIELD ELECTRICAL RESISTIVITY TEST DATA

CO465 - Pike Solar ■ El Paso County, Colorado
December 11, 2020 ■ Terracon Project No. 23205109

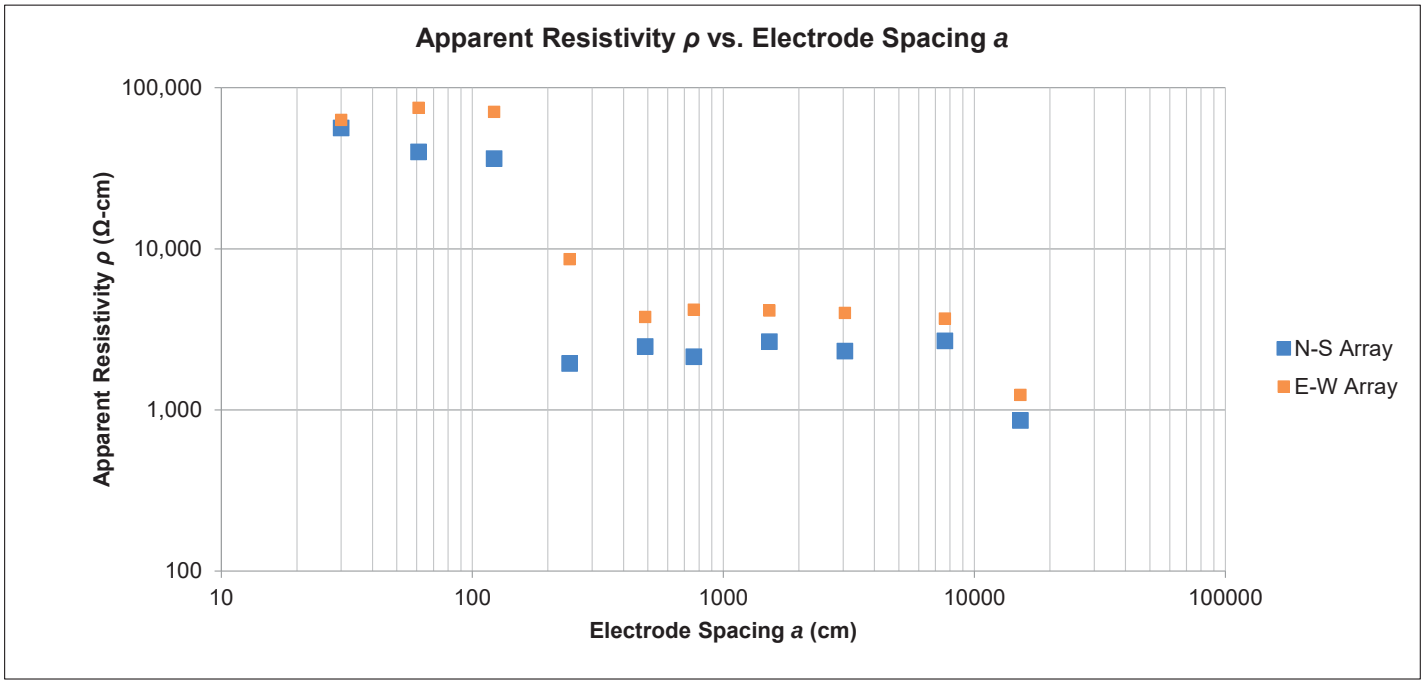
Array ID	ER-10	**Weather**	50° F, sunny, partly cloudy, light wind
Array Lat/Long	38.6357°, -104.6286° (approximate center of cross)	**Ground Cond.**	Moist, sandy, some vegetation, some surficial gravel

Test Date	October 29, 2020	**Instrument Type**	Mini-Res
Test By	Kyle Johnson	**Serial #**	SN-310
Test Method	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)	**Calibrated By**	Exploration Instruments LLC

Notes & Conflicts	N/A

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

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**			**E-W Test**		
(ft)	(cm)	(in)	(cm)	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ
				Select One	Ω	(Ω-cm)	Select One	Ω	(Ω-cm)
1	30	3	8	2000 Ω	267.9	56,160	2000 Ω	301.5	63,200
2	61	3	8	2000 Ω	101.2	39,920	2000 Ω	190.2	75,040
4	122	6	15	2000 Ω	46.1	36,250	2000 Ω	90.1	70,850
8	244	6	15	2000 mΩ	1.258	1,940	2000 mΩ	5.602	8,640
16	488	12	30	2000 mΩ	0.805	2,480	2000 mΩ	1.223	3,770
25	762	12	30	2000 mΩ	0.446	2,140	2000 mΩ	0.873	4,190
50	1524	12	30	2000 mΩ	0.277	2,650	2000 mΩ	0.432	4,140
100	3048	12	30	2000 mΩ	0.121	2,320	2000 mΩ	0.209	4,000
250	7620	12	30	2000 mΩ	0.056	2,680	2000 mΩ	0.077	3,690
500	15240	12	30	2000 mΩ	0.009	860	2000 mΩ	0.013	1,240



FIELD ELECTRICAL RESISTIVITY TEST DATA

CO465 - Pike Solar ■ El Paso County, Colorado
December 11, 2020 ■ Terracon Project No. 23205109

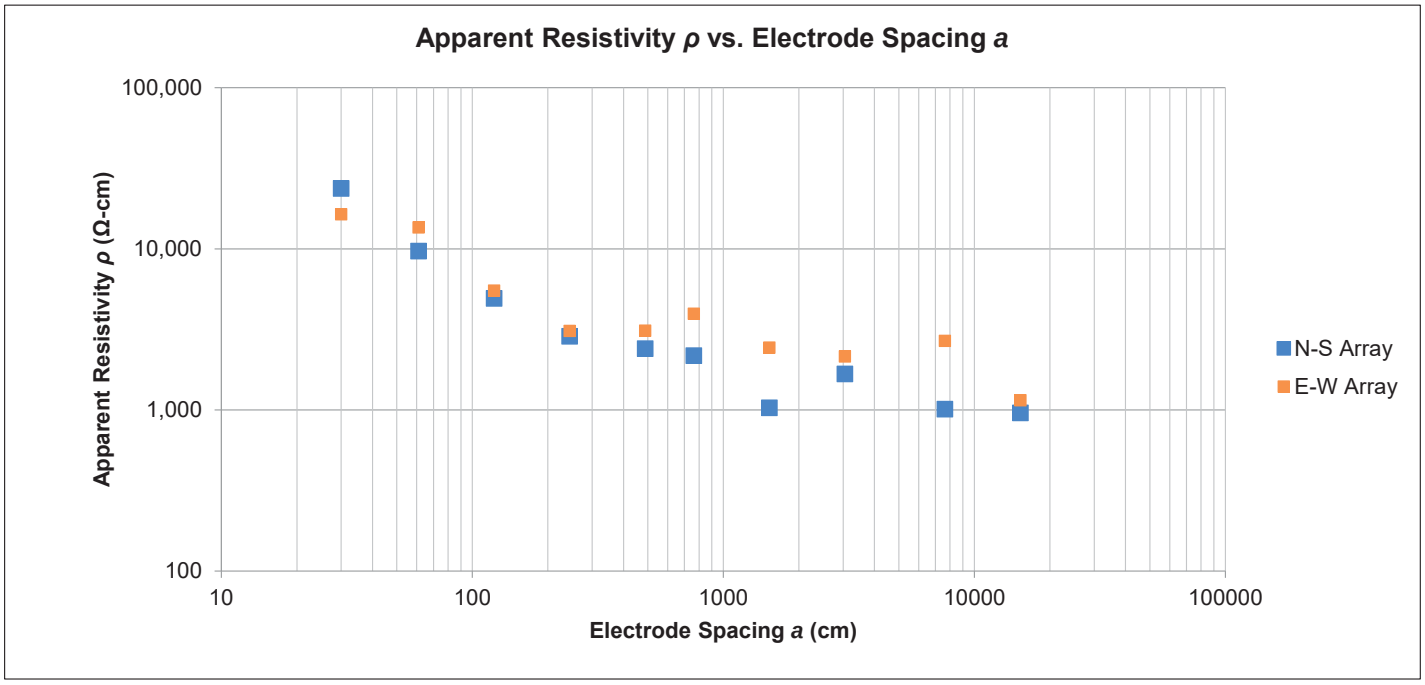
Array ID	ER-11	**Weather**	40° F, sunny, partly cloudy, very windy
Array Lat/Long	38.6314°, -104.6201° (approximate center of cross)	**Ground Cond.**	Wet, sandy, some vegetation, snow

Test Date	October 28, 2020	**Instrument Type**	Mini-Res
Test By	Kyle Johnson	**Serial #**	SN-310
Test Method	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)	**Calibrated By**	Exploration Instruments LLC

Notes & Conflicts	Ground covered with approximately 1 to 2 inches of snow that melted throughout the day.

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

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**			**E-W Test**		
(ft)	(cm)	(in)	(cm)	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ
				Select One	Ω	(Ω-cm)	Select One	Ω	(Ω-cm)
1	30	3	8	2000 Ω	113.1	23,710	2000 Ω	78.2	16,390
2	61	3	8	2000 Ω	24.5	9,670	2000 Ω	34.4	13,570
4	122	6	15	20 Ω	6.257	4,920	20 Ω	7.010	5,510
8	244	6	15	2000 mΩ	1.856	2,860	2000 mΩ	2.002	3,090
16	488	12	30	2000 mΩ	0.777	2,400	2000 mΩ	1.003	3,100
25	762	12	30	2000 mΩ	0.451	2,170	2000 mΩ	0.824	3,960
50	1524	12	30	2000 mΩ	0.108	1,030	2000 mΩ	0.255	2,440
100	3048	12	30	2000 mΩ	0.087	1,670	2000 mΩ	0.112	2,150
250	7620	12	30	2000 mΩ	0.021	1,010	2000 mΩ	0.056	2,680
500	15240	12	30	2000 mΩ	0.010	960	2000 mΩ	0.012	1,150



FIELD ELECTRICAL RESISTIVITY TEST DATA

CO465 - Pike Solar ■ El Paso County, Colorado
December 11, 2020 ■ Terracon Project No. 23205109

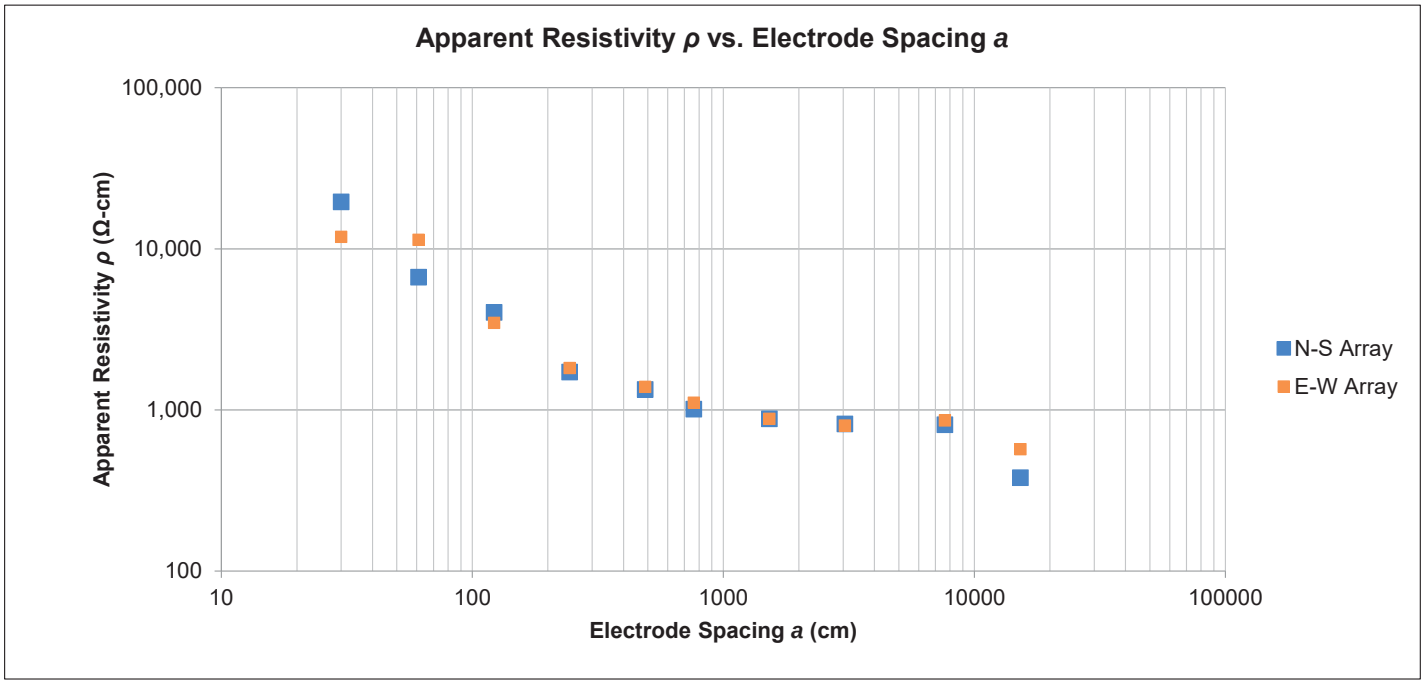
Array ID	ER-12	**Weather**	40° F, sunny, partly cloudy, very windy
Array Lat/Long	38.6248°, -104.6171° (approximate center of cross)	**Ground Cond.**	Wet, sandy, some vegetation, snow

Test Date	October 28, 2020	**Instrument Type**	Mini-Res
Test By	Kyle Johnson	**Serial #**	SN-310
Test Method	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)	**Calibrated By**	Exploration Instruments LLC

Notes & Conflicts	Ground covered with approximately 1 to 2 inches of snow that melted throughout the day.

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

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**			**E-W Test**		
(ft)	(cm)	(in)	(cm)	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ
				Select One	Ω	(Ω-cm)	Select One	Ω	(Ω-cm)
1	30	3	8	2000 Ω	93.1	19,520	2000 Ω	56.6	11,860
2	61	3	8	20 Ω	16.940	6,680	2000 Ω	28.8	11,360
4	122	6	15	20 Ω	5.129	4,030	20 Ω	4.414	3,470
8	244	6	15	2000 mΩ	1.117	1,720	2000 mΩ	1.178	1,820
16	488	12	30	2000 mΩ	0.434	1,340	2000 mΩ	0.451	1,390
25	762	12	30	2000 mΩ	0.211	1,010	2000 mΩ	0.231	1,110
50	1524	12	30	2000 mΩ	0.092	880	2000 mΩ	0.092	880
100	3048	12	30	2000 mΩ	0.043	820	2000 mΩ	0.042	800
250	7620	12	30	2000 mΩ	0.017	810	2000 mΩ	0.018	860
500	15240	12	30	2000 mΩ	0.004	380	2000 mΩ	0.006	570



FIELD ELECTRICAL RESISTIVITY TEST DATA

CO465 - Pike Solar ■ El Paso County, Colorado
December 11, 2020 ■ Terracon Project No. 23205109

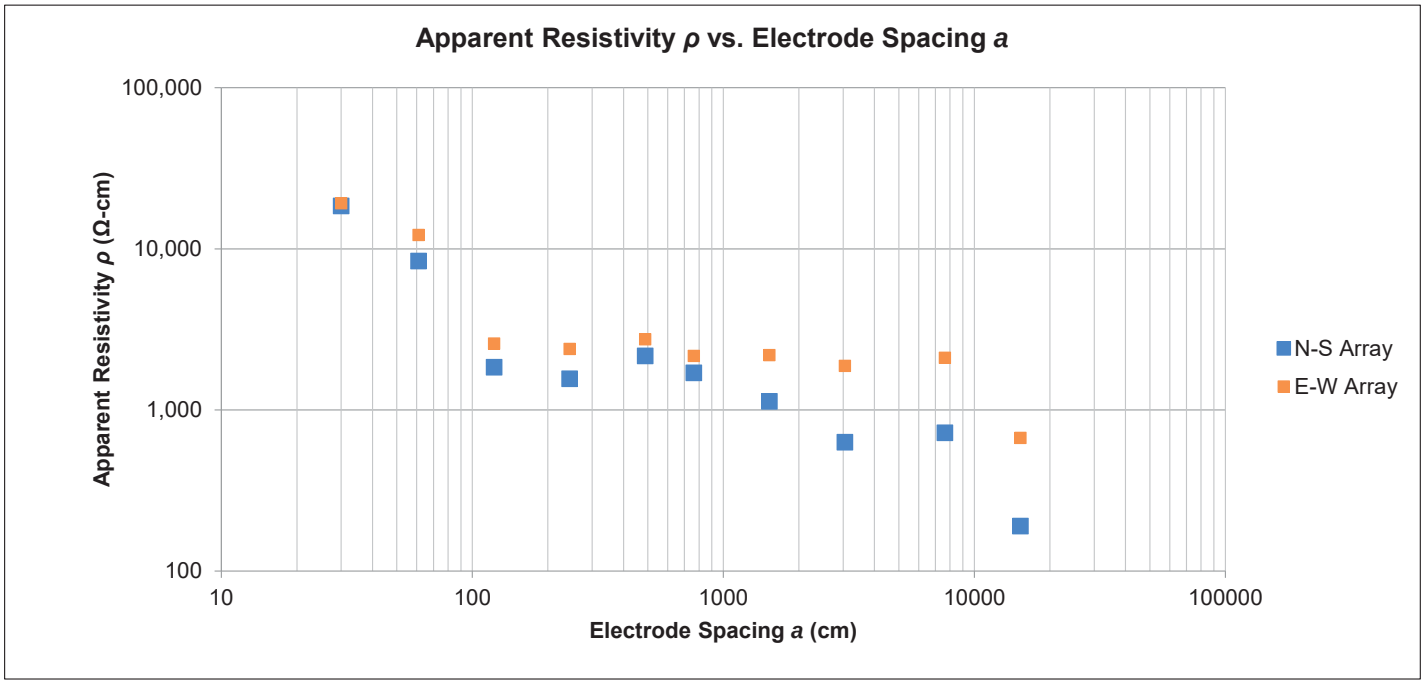
Array ID	ER-13	**Weather**	40° F, sunny, partly cloudy, very windy
Array Lat/Long	38.6215°, -104.6229° (approximate center of cross)	**Ground Cond.**	Wet, sandy, some vegetation, snow

Test Date	October 28, 2020	**Instrument Type**	Mini-Res
Test By	Kyle Johnson	**Serial #**	SN-310
Test Method	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)	**Calibrated By**	Exploration Instruments LLC

Notes & Conflicts	Ground covered with approximately 1 to 2 inches of snow that melted throughout the day.

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

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**			**E-W Test**		
(ft)	(cm)	(in)	(cm)	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ
				Select One	Ω	(Ω-cm)	Select One	Ω	(Ω-cm)
1	30	3	8	2000 Ω	87.9	18,430	2000 Ω	91.5	19,180
2	61	3	8	2000 Ω	21.310	8,410	2000 Ω	30.9	12,190
4	122	6	15	20 Ω	2.336	1,840	20 Ω	3.281	2,580
8	244	6	15	2000 mΩ	1.009	1,560	2000 mΩ	1.551	2,390
16	488	12	30	2000 mΩ	0.701	2,160	2000 mΩ	0.890	2,750
25	762	12	30	2000 mΩ	0.354	1,700	2000 mΩ	0.450	2,160
50	1524	12	30	2000 mΩ	0.118	1,130	2000 mΩ	0.229	2,190
100	3048	12	30	2000 mΩ	0.033	630	2000 mΩ	0.098	1,880
250	7620	12	30	2000 mΩ	0.015	720	2000 mΩ	0.044	2,110
500	15240	12	30	2000 mΩ	0.002	190	2000 mΩ	0.007	670



FIELD ELECTRICAL RESISTIVITY TEST DATA

CO465 - Pike Solar ■ El Paso County, Colorado
December 11, 2020 ■ Terracon Project No. 23205109

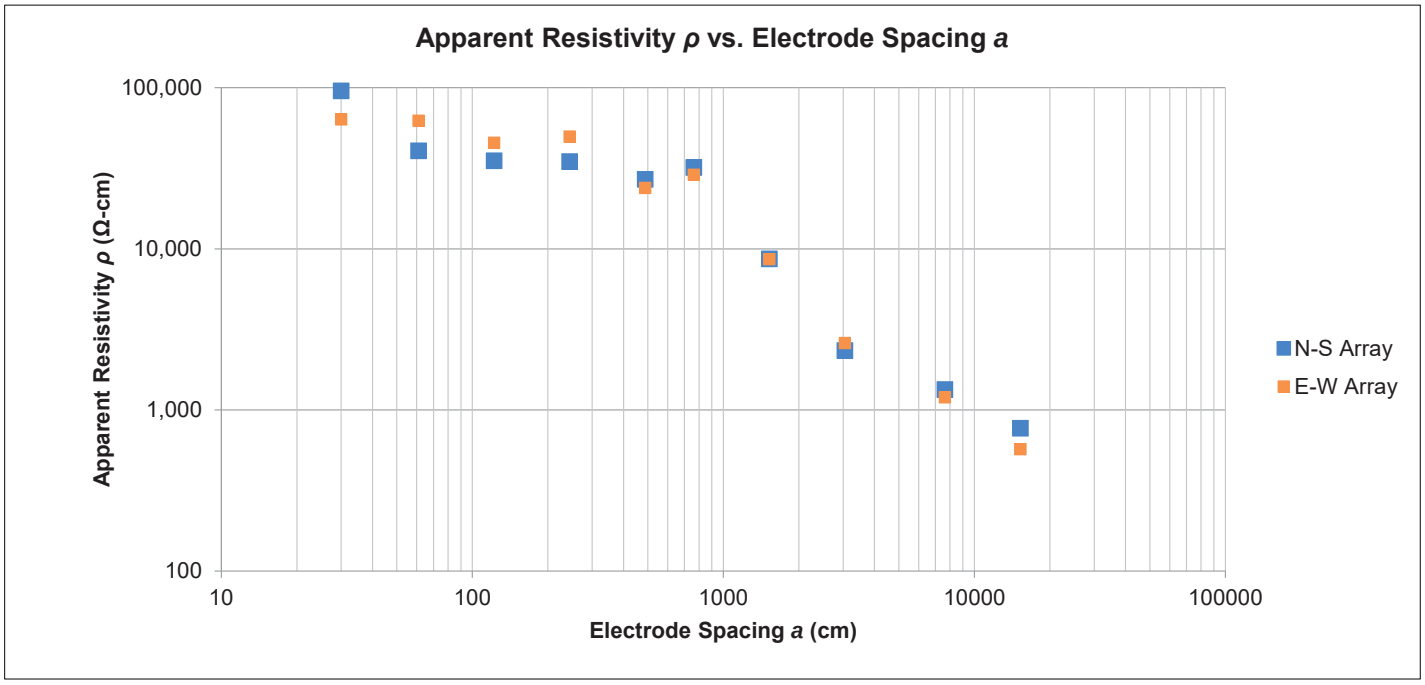
Array ID	ER-14	**Weather**	40° F, sunny, partly cloudy, very windy
Array Lat/Long	38.6246°, -104.6037° (approximate center of cross)	**Ground Cond.**	Moist, sandy, some vegetation, snow

Test Date	October 28, 2020	**Instrument Type**	Mini-Res
Test By	Kyle Johnson	**Serial #**	SN-310
Test Method	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)	**Calibrated By**	Exploration Instruments LLC

Notes & Conflicts	Ground covered with approximately 1 to 2 inches of snow that melted throughout the day.

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

Electrode Spacing *a*		Electrode Depth *b*		N-S Test			E-W Test		
(ft)	(cm)	(in)	(cm)	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ
				Select One	Ω	(Ω-cm)	Select One	Ω	(Ω-cm)
1	30	3	8	2000 Ω	455.1	95,400	2000 Ω	303.4	63,600
2	61	3	8	2000 Ω	102.9	40,590	2000 Ω	158.1	62,370
4	122	6	15	2000 Ω	44.8	35,230	2000 Ω	57.9	45,530
8	244	6	15	2000 Ω	22.5	34,720	2000 Ω	32.2	49,690
16	488	12	30	20 Ω	8.750	27,010	20 Ω	7.744	23,900
25	762	12	30	20 Ω	6.665	32,000	20 Ω	6.005	28,830
50	1524	12	30	2000 mΩ	0.905	8,670	2000 mΩ	0.899	8,610
100	3048	12	30	2000 mΩ	0.122	2,340	2000 mΩ	0.136	2,600
250	7620	12	30	2000 mΩ	0.028	1,340	2000 mΩ	0.025	1,200
500	15240	12	30	2000 mΩ	0.008	770	2000 mΩ	0.006	570



FIELD ELECTRICAL RESISTIVITY TEST DATA

CO465 - Pike Solar ■ El Paso County, Colorado
December 11, 2020 ■ Terracon Project No. 23205109

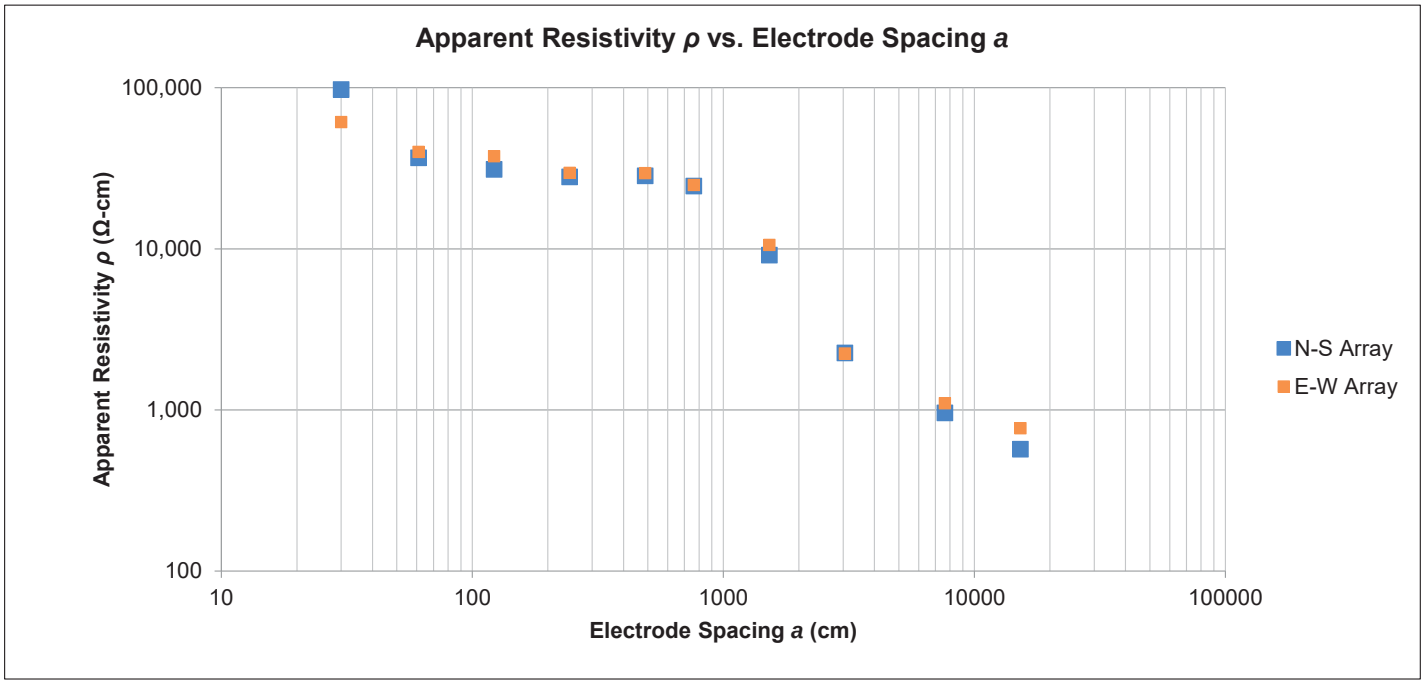
Array ID	ER-15	**Weather**	40° F, sunny, partly cloudy, very windy
Array Lat/Long	38.6182°, -104.6045° (approximate center of cross)	**Ground Cond.**	Moist, sandy, some vegetation, snow

Test Date	October 28, 2020	**Instrument Type**	Mini-Res
Test By	Kyle Johnson	**Serial #**	SN-310
Test Method	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)	**Calibrated By**	Exploration Instruments LLC

Notes & Conflicts	Ground covered with approximately 1 to 2 inches of snow that melted throughout the day.

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

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**			**E-W Test**		
(ft)	(cm)	(in)	(cm)	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ
				Select One	Ω	(Ω-cm)	Select One	Ω	(Ω-cm)
1	30	3	8	2000 Ω	464.9	97,450	2000 Ω	291.7	61,150
2	61	3	8	2000 Ω	93.1	36,730	2000 Ω	101.4	40,000
4	122	6	15	2000 Ω	39.5	31,060	2000 Ω	47.7	37,510
8	244	6	15	20 Ω	18.120	27,960	20 Ω	19.160	29,570
16	488	12	30	20 Ω	9.213	28,430	20 Ω	9.541	29,450
25	762	12	30	20 Ω	5.101	24,490	20 Ω	5.194	24,940
50	1524	12	30	2000 mΩ	0.955	9,150	2000 mΩ	1.102	10,560
100	3048	12	30	2000 mΩ	0.118	2,260	2000 mΩ	0.117	2,240
250	7620	12	30	2000 mΩ	0.020	960	2000 mΩ	0.023	1,100
500	15240	12	30	2000 mΩ	0.006	570	2000 mΩ	0.008	770



FIELD ELECTRICAL RESISTIVITY TEST DATA

CO465 - Pike Solar ■ El Paso County, Colorado
December 11, 2020 ■ Terracon Project No. 23205109

Array ID	ER-16	**Weather**	50° F, sunny, partly cloudy, light wind
Array Lat/Long	38.6319°, -104.6306° (approximate center of cross)	**Ground Cond.**	Moist, sandy, some vegetation, some surficial gravel

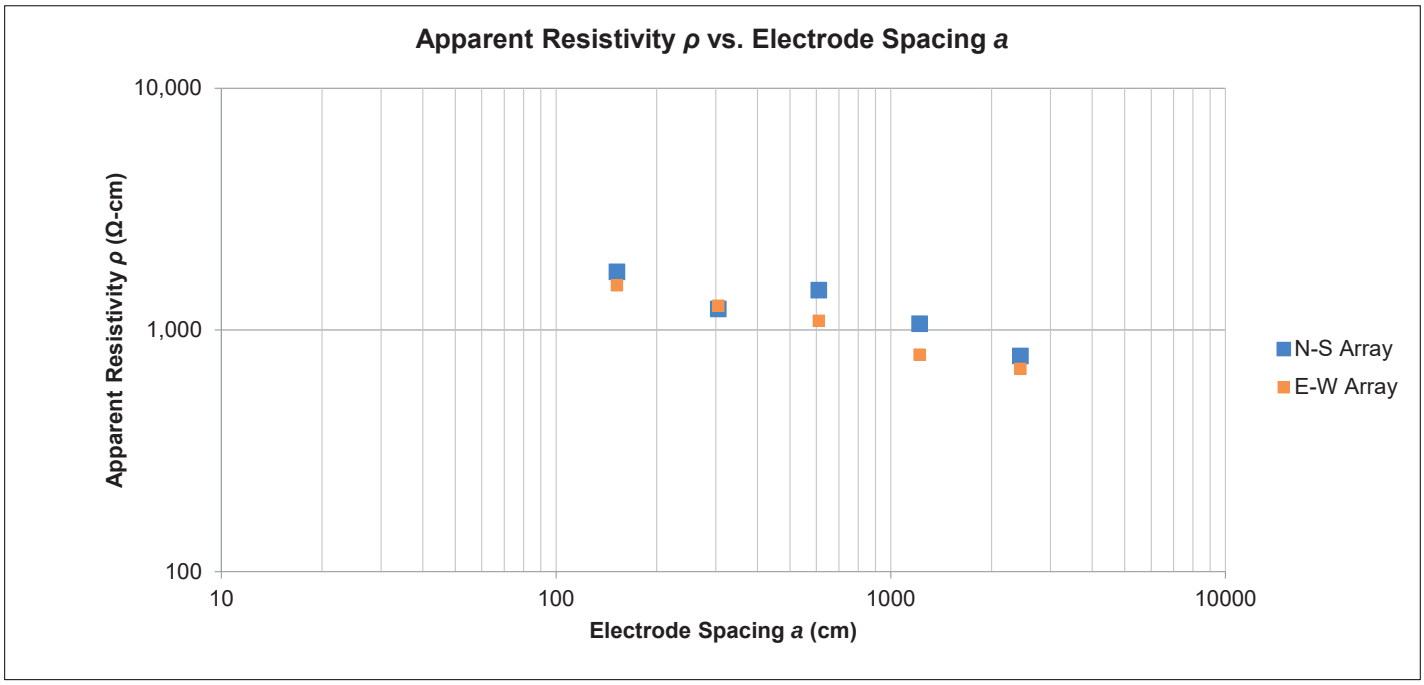
Test Date	October 30, 2020	**Instrument Type**	Mini-Res
Test By	Kyle Johnson	**Serial #**	SN-310
Test Method	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)	**Calibrated By**	Exploration Instruments LLC

Notes & Conflicts	N/A

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

Electrode Spacing *a*		Electrode Depth *b*		N-S Test			E-W Test		
(ft)	(cm)	(in)	(cm)	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ	Ohm Range Setting	Measured Resistance *R*	Apparent Resistivity ρ
				Select One	Ω	(Ω-cm)	Select One	Ω	(Ω-cm)
5	152	3	8	2000 mΩ	1.815	1,740	2000 mΩ	1.592	1,530
10	305	3	8	2000 mΩ	0.637	1,220	2000 mΩ	0.655	1,260
20	610	6	15	2000 mΩ	0.380	1,460	2000 mΩ	0.283	1,090
40	1219	6	15	2000 mΩ	0.138	1,060	2000 mΩ	0.103	790
80	2438	12	30	2000 mΩ	0.051	780	2000 mΩ	0.045	690

*Field electrical resistivity testing was performed at the proposed substation location using A-spacings in accordance with the substation geotechnical investigation specifications.

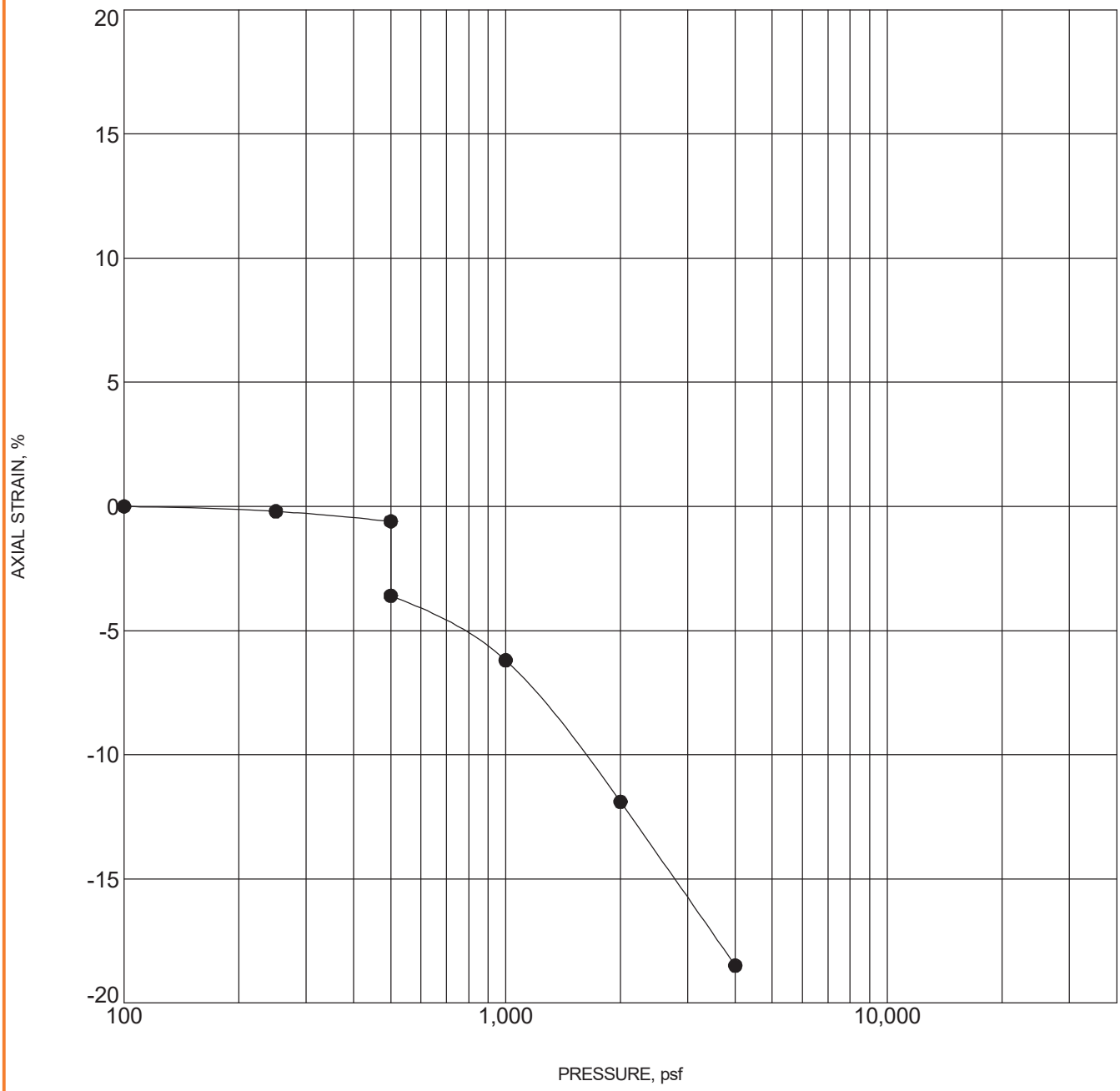


APPENDIX C – LABORATORY TEST RESULTS

Contents:

Note: All attachments are one page unless noted above.

SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	1-2	4 - 5 ft	LEAN CLAY(CL)	85	7.6

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

PROJECT: CO465 - Pike Solar

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

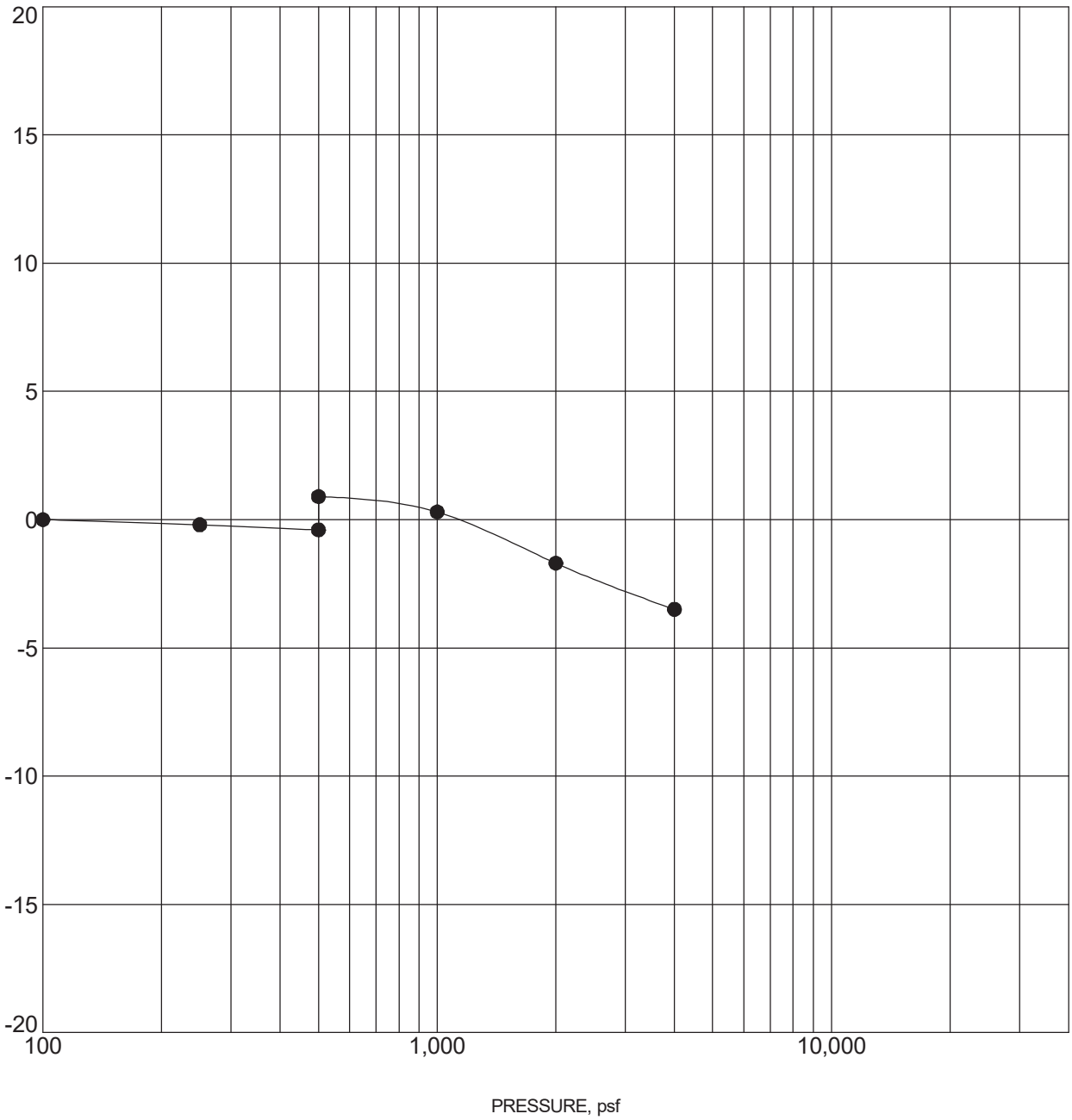
Terracon
4172 Center Park Dr
Colorado Springs, CO

PROJECT NUMBER: 23205109

CLIENT: JSI Construction Group LLC

Exhibit C-1

SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	1-6	7 - 8 ft	LEAN CLAY with SAND(CL)	104	8.7

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

PROJECT: CO465 - Pike Solar

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

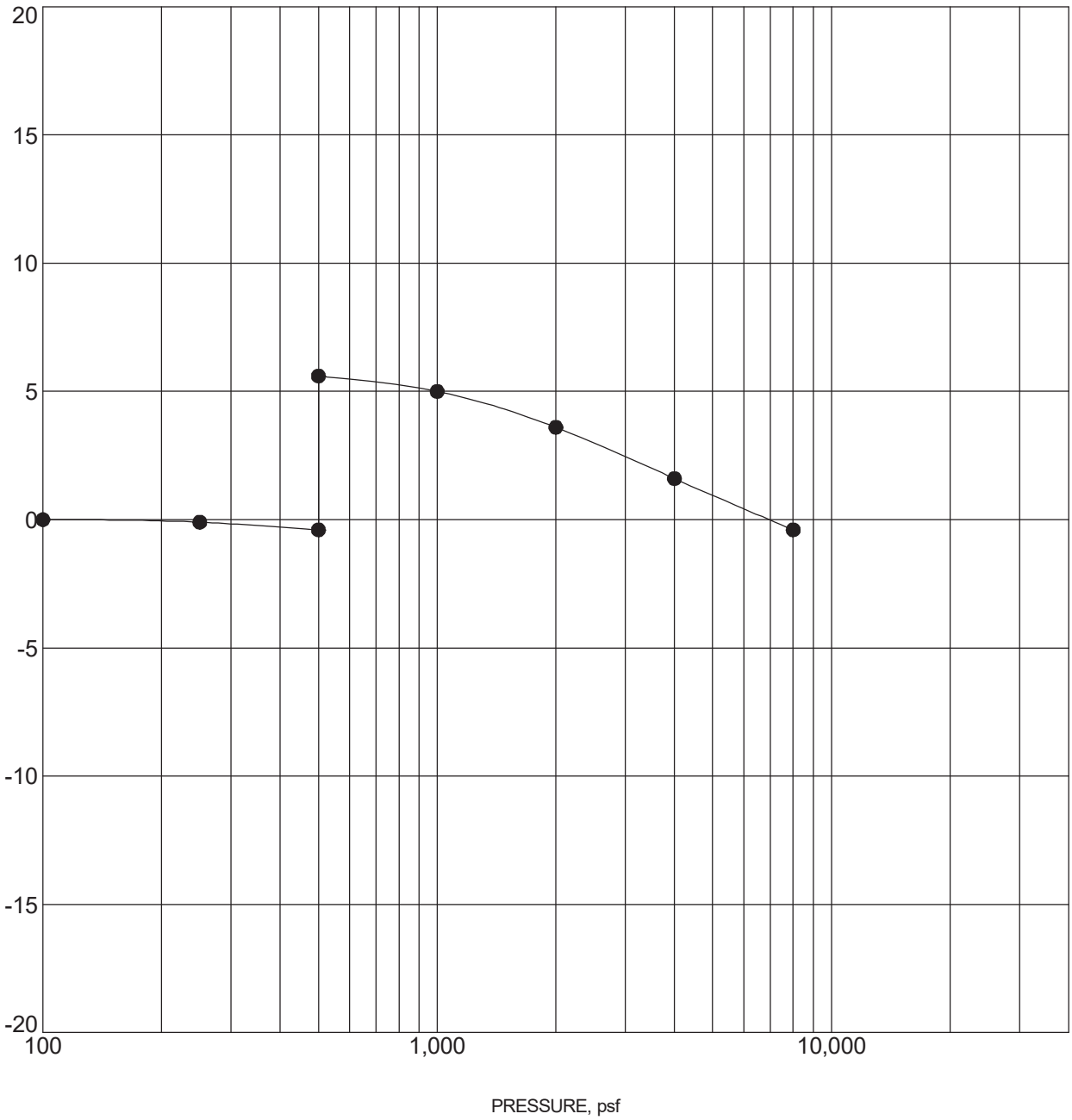
Terracon
4172 Center Park Dr
Colorado Springs, CO

PROJECT NUMBER: 23205109

CLIENT: JSI Construction Group LLC

Exhibit C-2

SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	1b-3	4 - 5 ft	WEATHERED CLAYSTONE	111	13.0

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

PROJECT: CO465 - Pike Solar

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El Paso County, Colorado

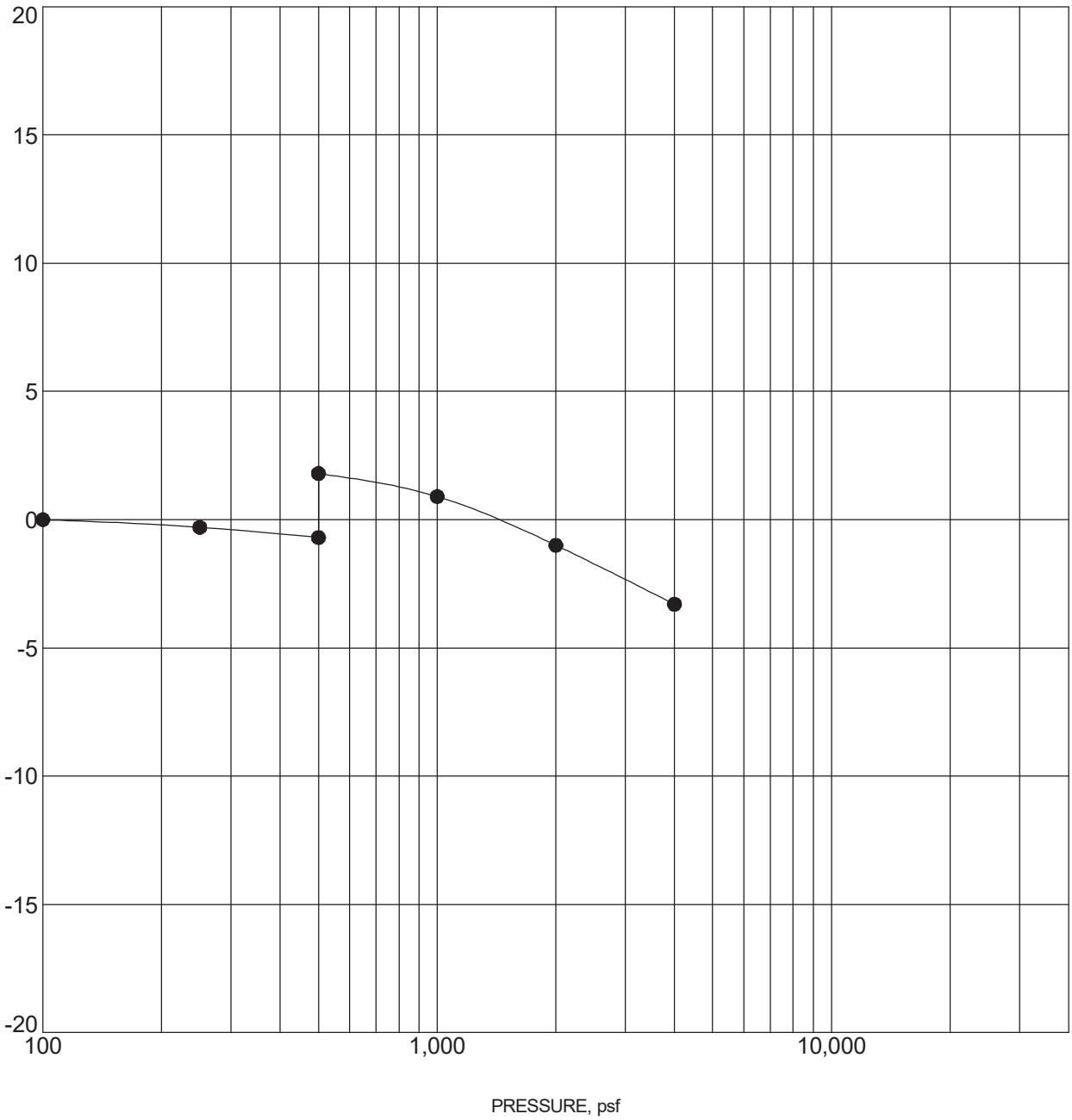
Terracon
4172 Center Park Dr
Colorado Springs, CO

PROJECT NUMBER: 23205109

CLIENT: JSI Construction Group LLC

Exhibit C-3

SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	1b-6	7 - 8 ft	WEATHERED CLAYSTONE	113	13.4

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

PROJECT: CO465 - Pike Solar

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

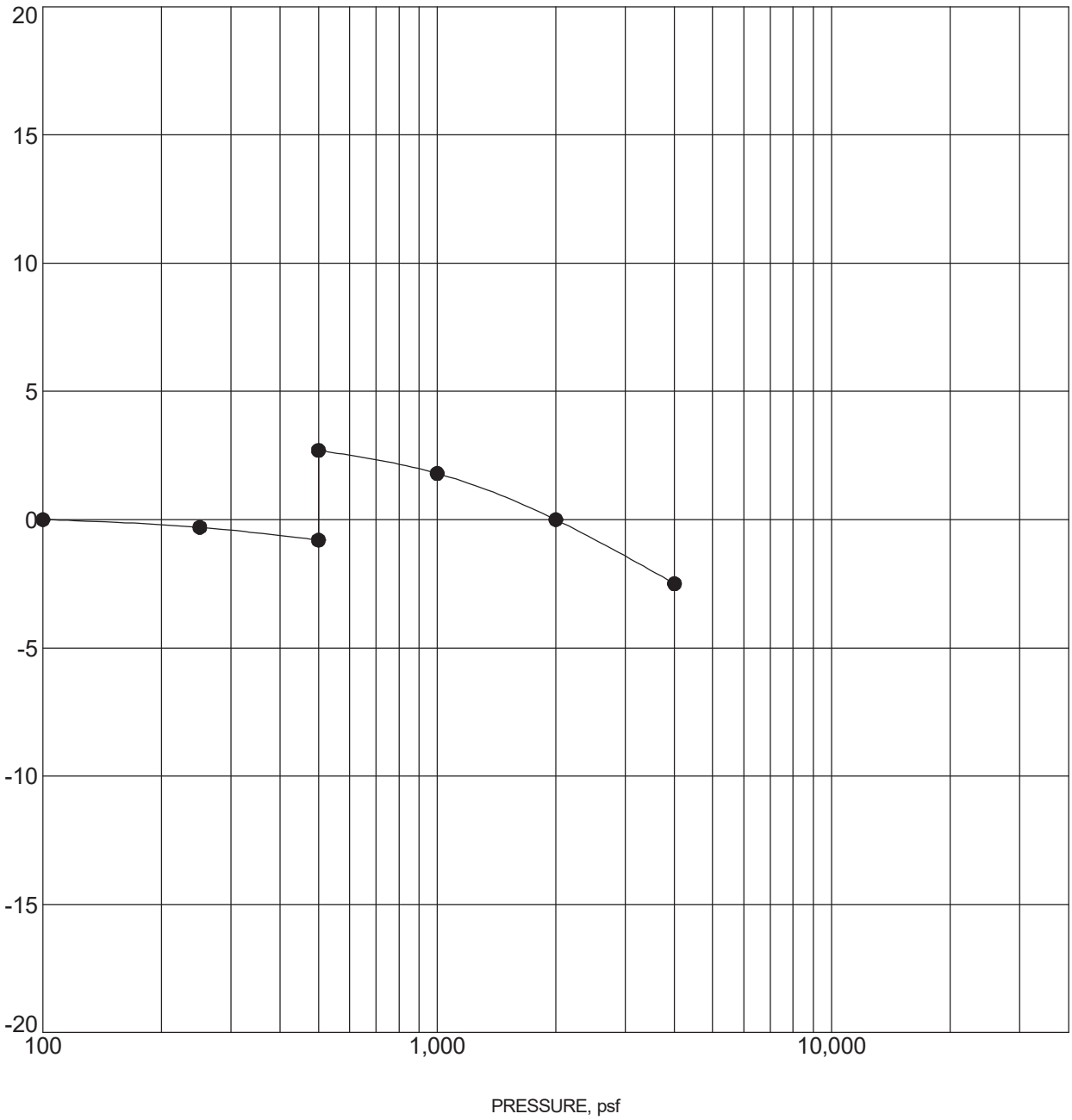
Terracon
4172 Center Park Dr
Colorado Springs, CO

PROJECT NUMBER: 23205109

CLIENT: JSI Construction Group LLC

Exhibit C-4

SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	2-1	4 - 5 ft	WEATHERED CLAYSTONE	110	14.2

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

PROJECT: CO465 - Pike Solar

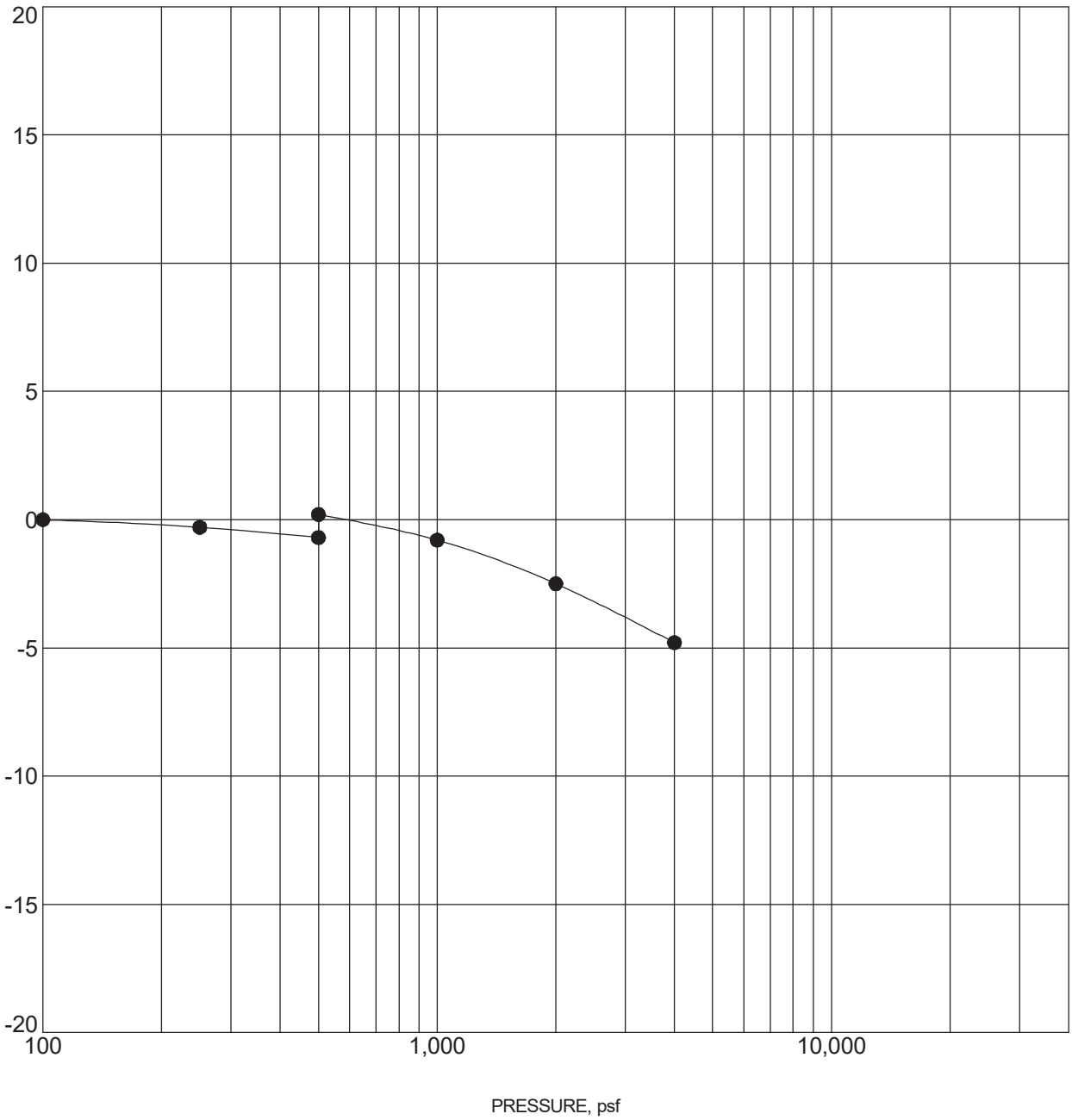
SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

Terracon
4172 Center Park Dr
Colorado Springs, CO

PROJECT NUMBER: 23205109

CLIENT: JSI Construction Group LLC

SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	3-3	2 - 3 ft	WEATHERED CLAYSTONE	97	15.3

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

PROJECT: CO465 - Pike Solar

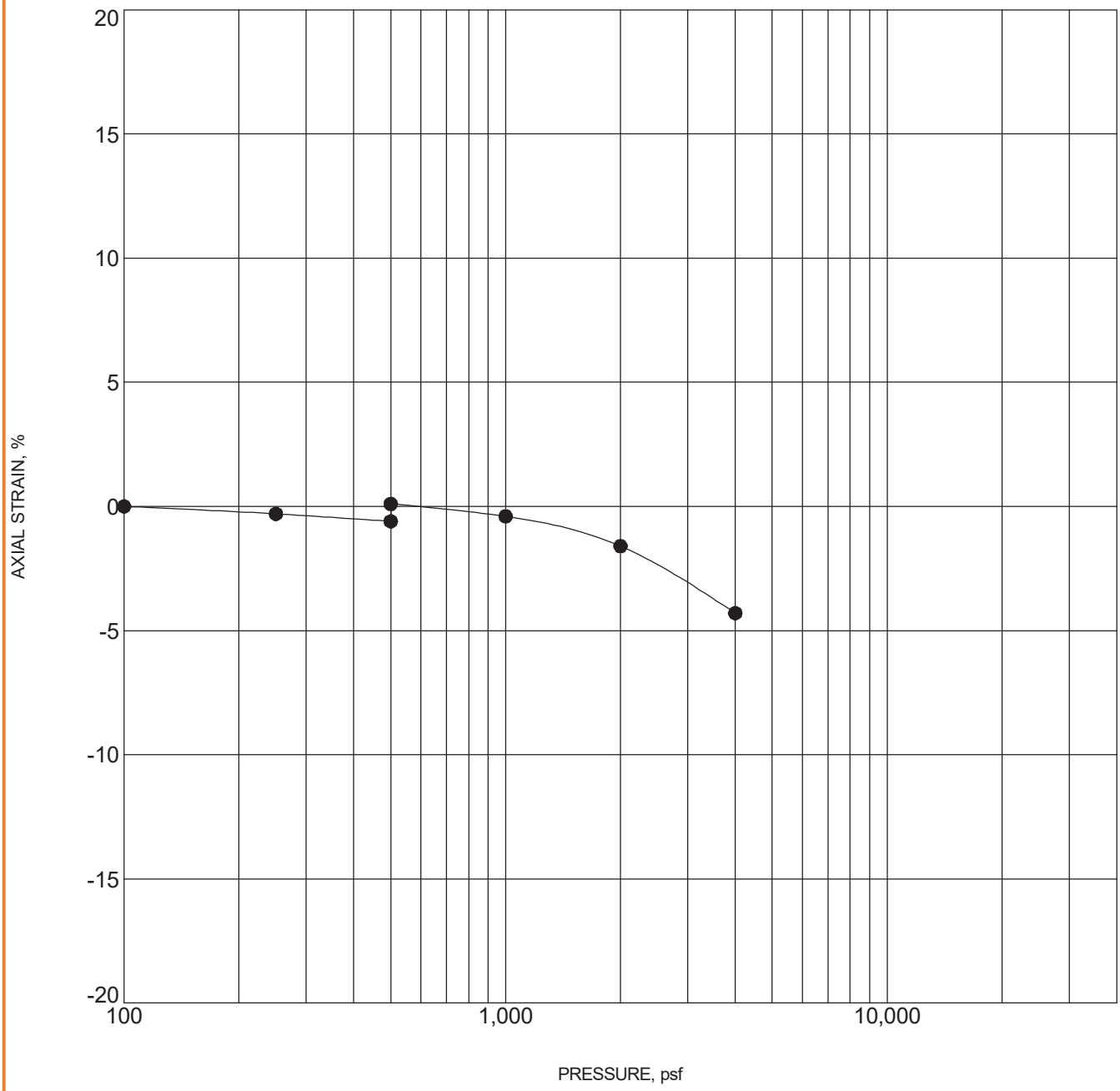
SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

Terracon
4172 Center Park Dr
Colorado Springs, CO

PROJECT NUMBER: 23205109

CLIENT: JSI Construction Group LLC

SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	4-4	4 - 5 ft	WEATHERED CLAYSTONE	94	12.1

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

PROJECT: CO465 - Pike Solar

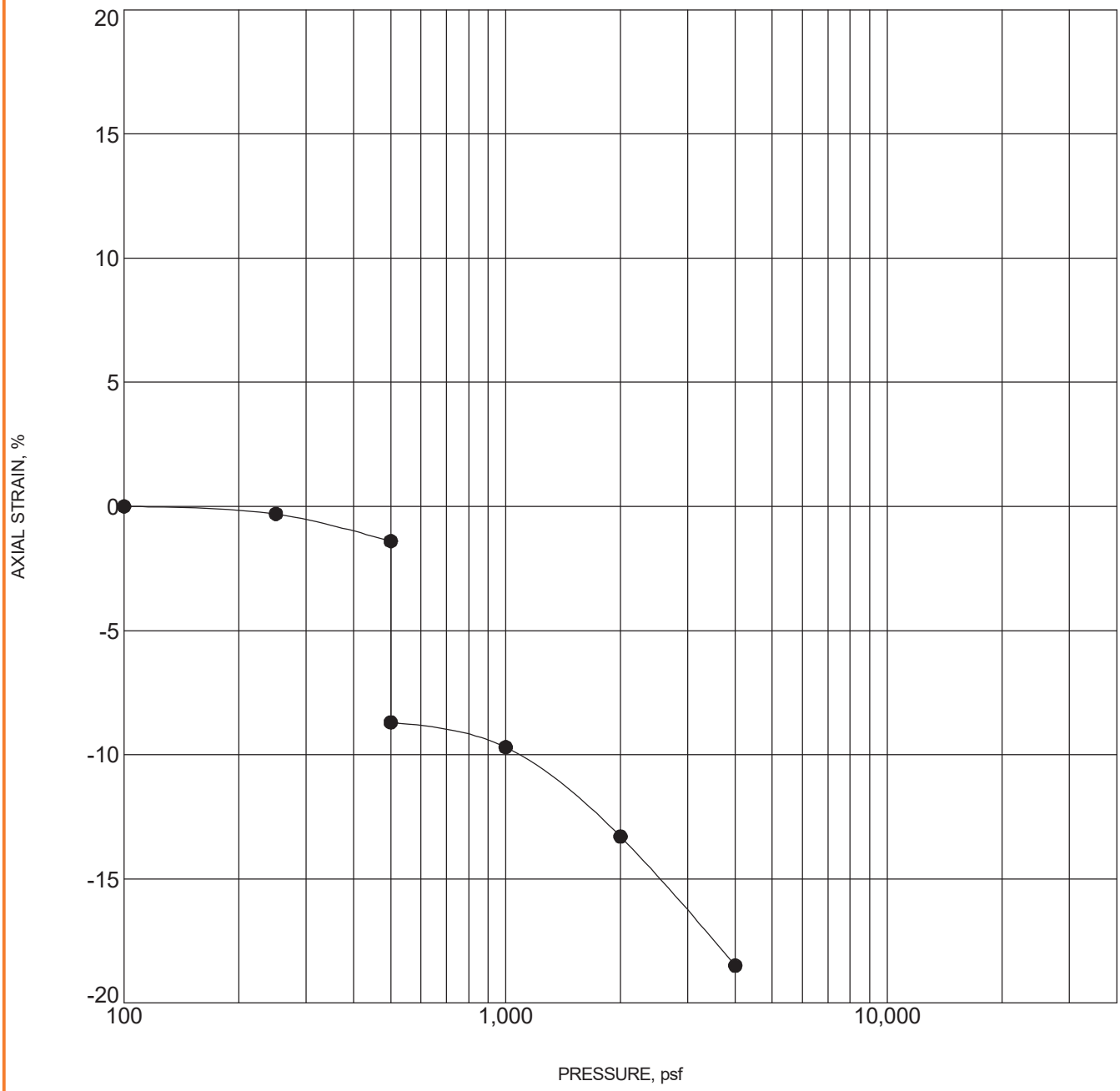
SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

Terracon
4172 Center Park Dr
Colorado Springs, CO

PROJECT NUMBER: 23205109

CLIENT: JSI Construction Group LLC

SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	4b-1	4 - 5 ft	LEAN CLAY(CL)	86	10.1

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

PROJECT: CO465 - Pike Solar

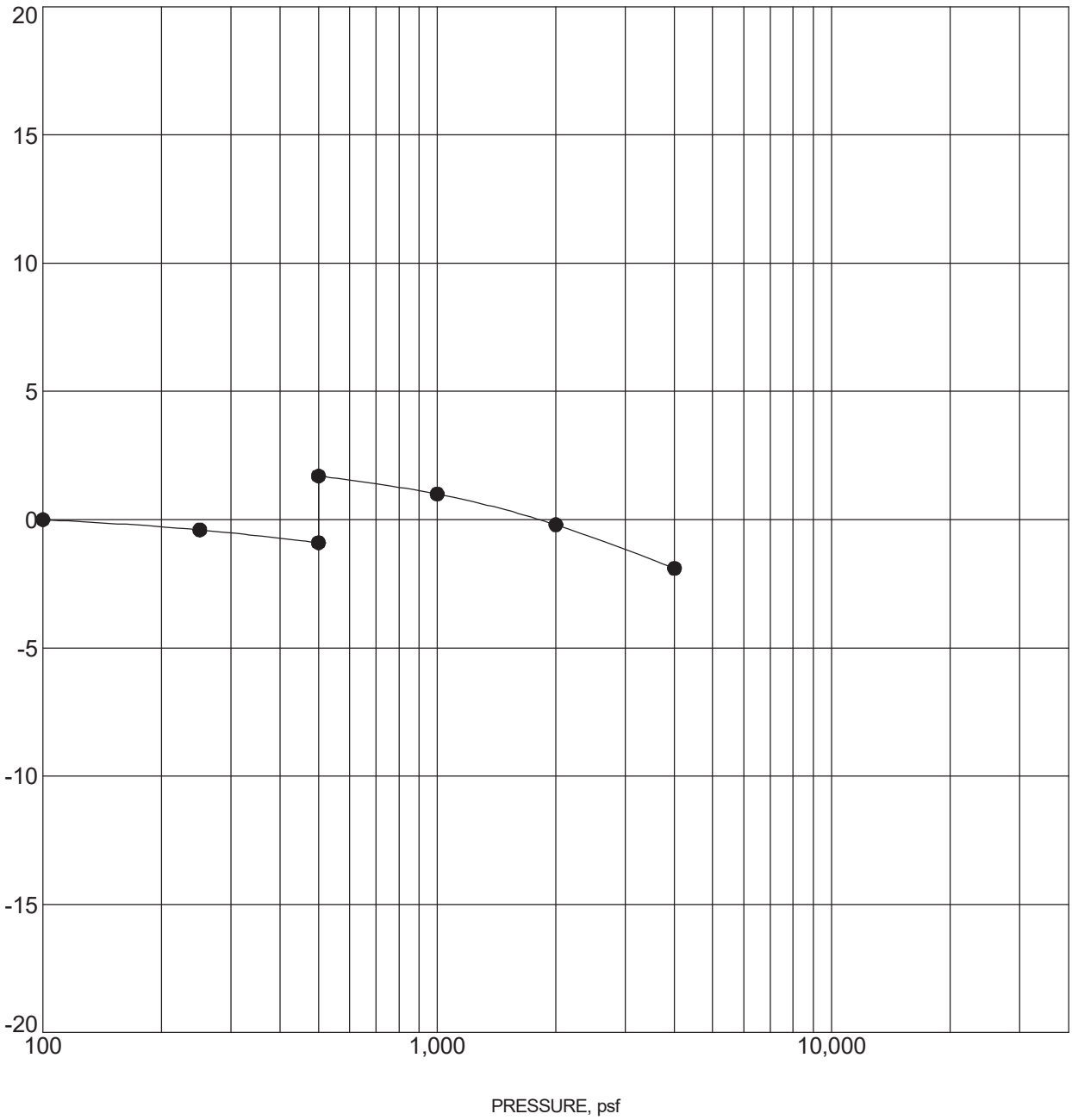
SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

Terracon
4172 Center Park Dr
Colorado Springs, CO

PROJECT NUMBER: 23205109

CLIENT: JSI Construction Group LLC

SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	4b-2	7 - 8 ft	WEATHERED CLAYSTONE	109	13.1

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

PROJECT: CO465 - Pike Solar

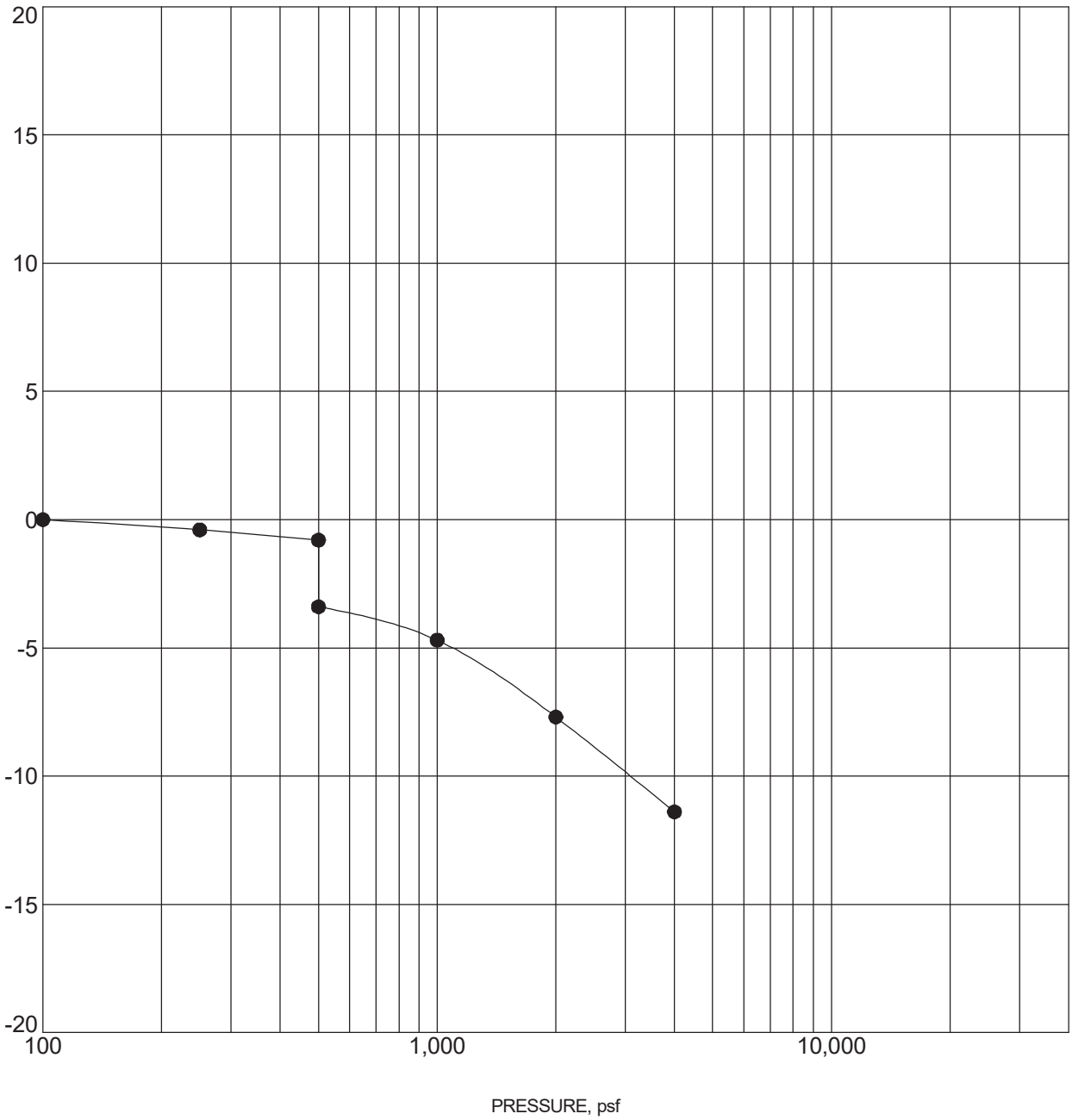
PROJECT NUMBER: 23205109

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

Terracon
4172 Center Park Dr
Colorado Springs, CO

CLIENT: JSI Construction Group LLC

SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	5-4	7 - 8 ft	WEATHERED CLAYSTONE	106	12.4

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

PROJECT: CO465 - Pike Solar

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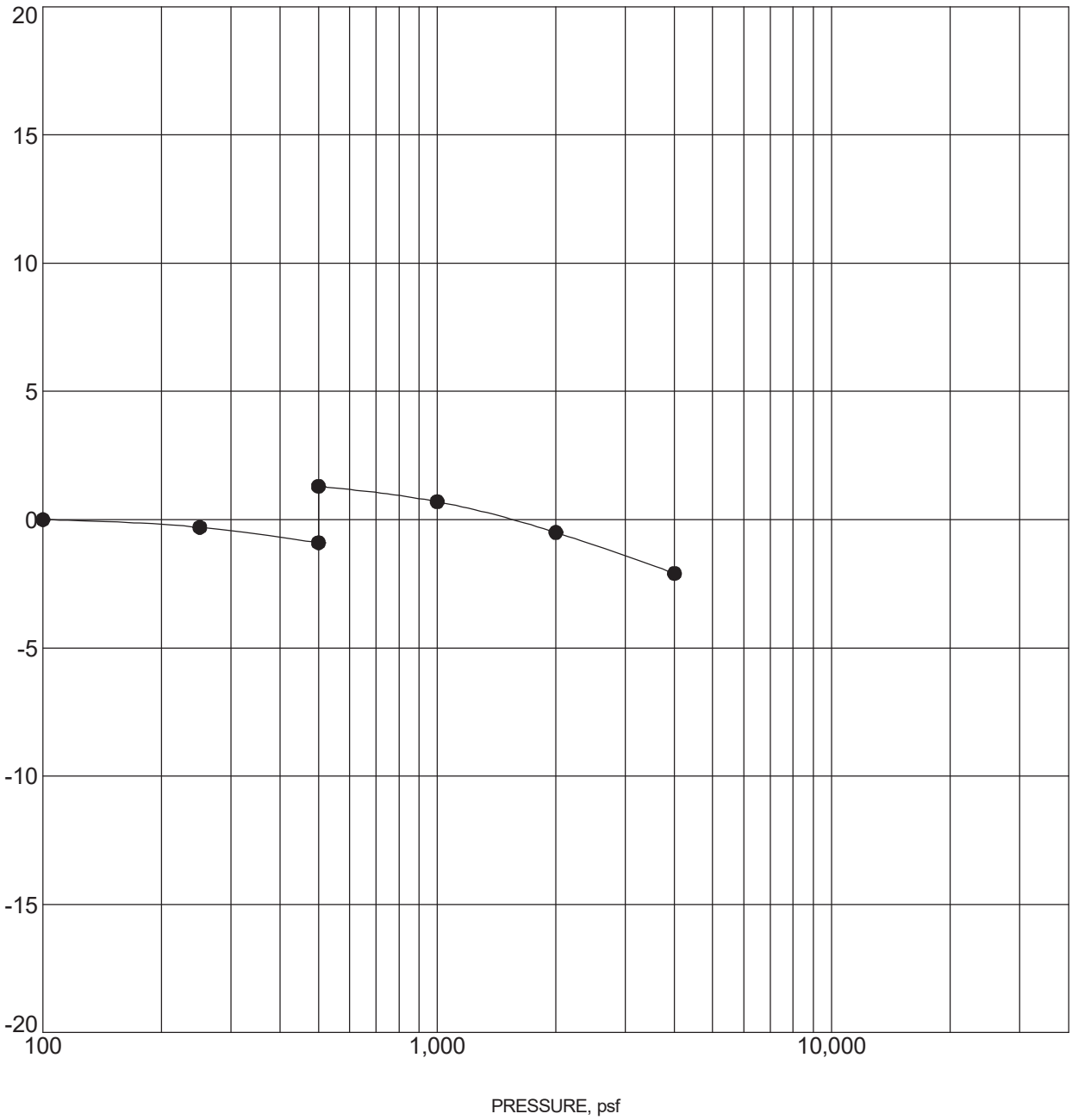
4172 Center Park Dr
Colorado Springs, CO

PROJECT NUMBER: 23205109

CLIENT: JSI Construction Group LLC

SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	6-1	4 - 5 ft	WEATHERED CLAYSTONE	102	14.0

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

PROJECT: CO465 - Pike Solar

SITE: E of Birdsall Rd and Moonshadow Ln
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Terracon
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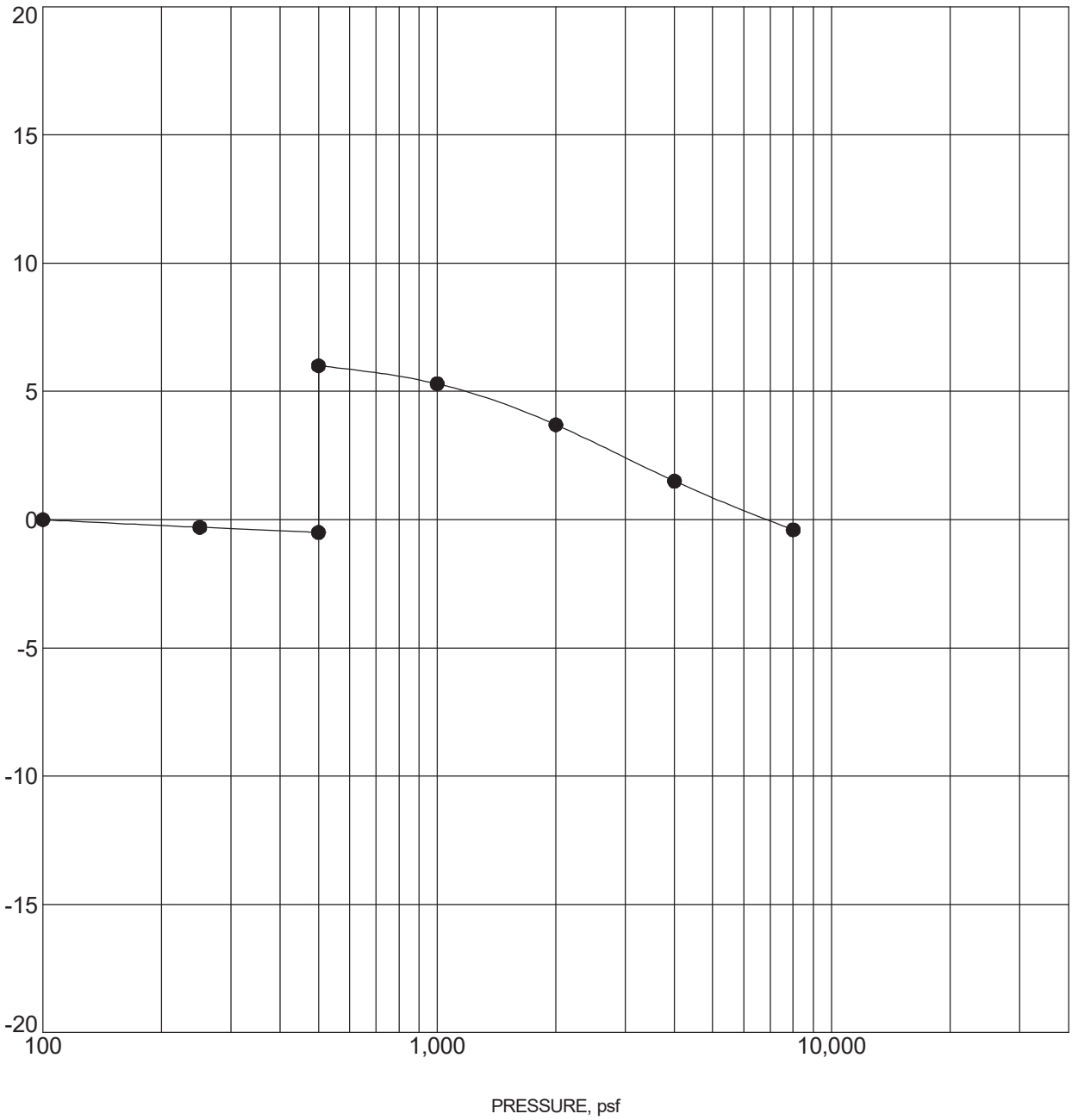
Colorado Springs, CO

PROJECT NUMBER: 23205109

CLIENT: JSI Construction Group LLC

SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	6-8	4 - 5 ft	LEAN CLAY(CL)	93	10.3

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

PROJECT: CO465 - Pike Solar

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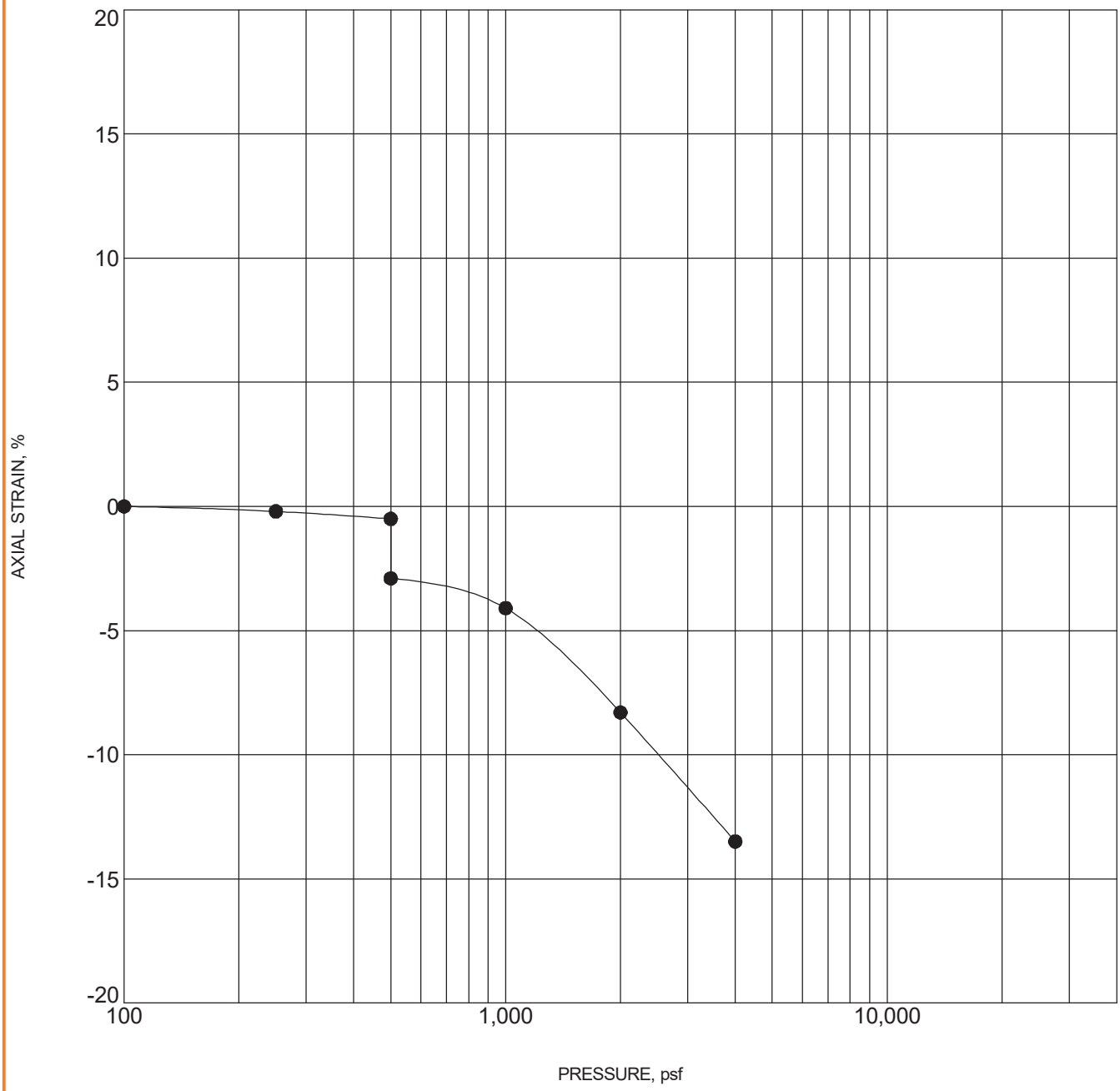
SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	7-1	7 - 8 ft	LEAN CLAY with SAND(CL)	95	8.7

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

PROJECT: CO465 - Pike Solar

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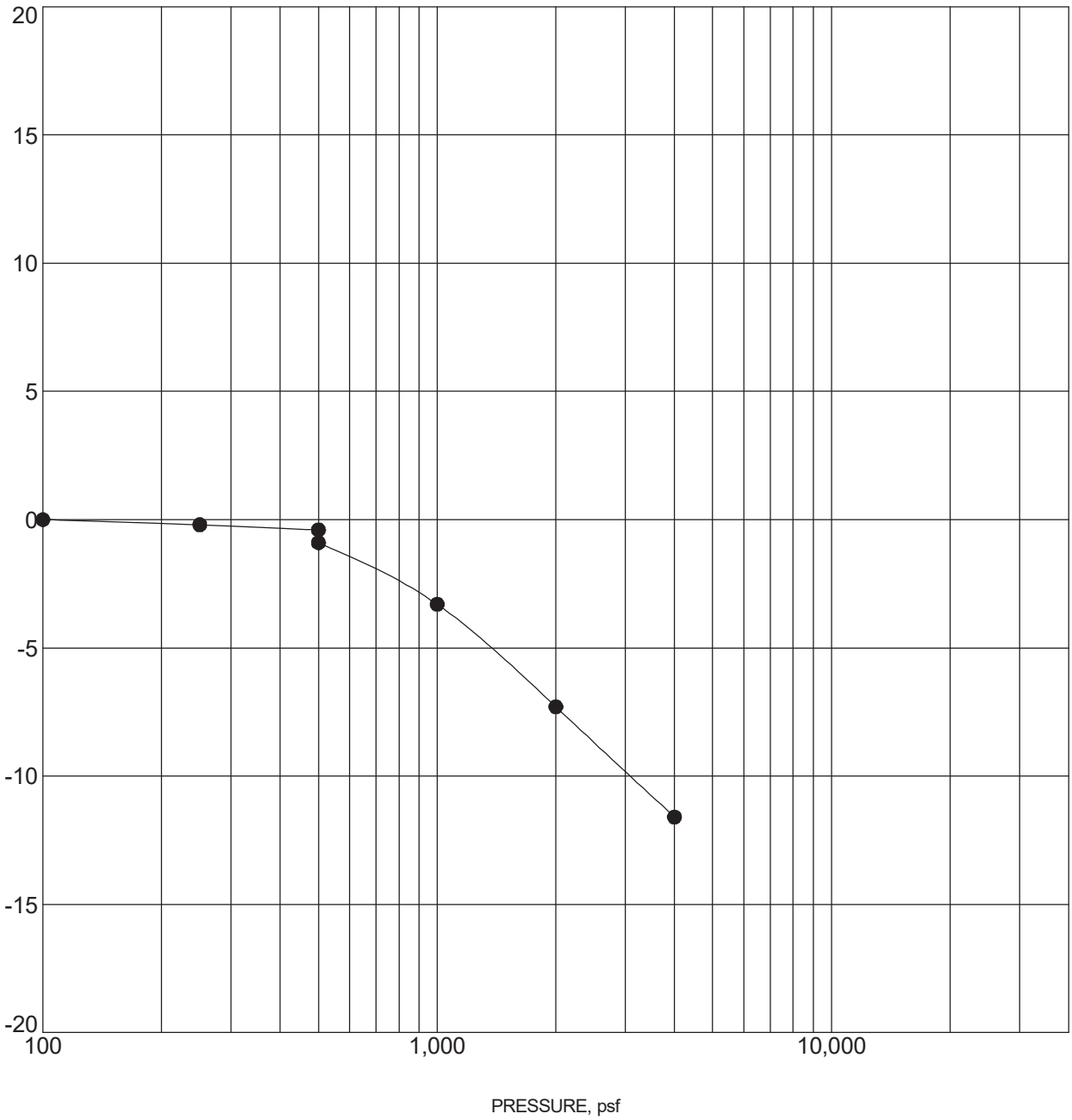
SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	7-8	4 - 5 ft	LEAN CLAY with SAND(CL)	91	5.4

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

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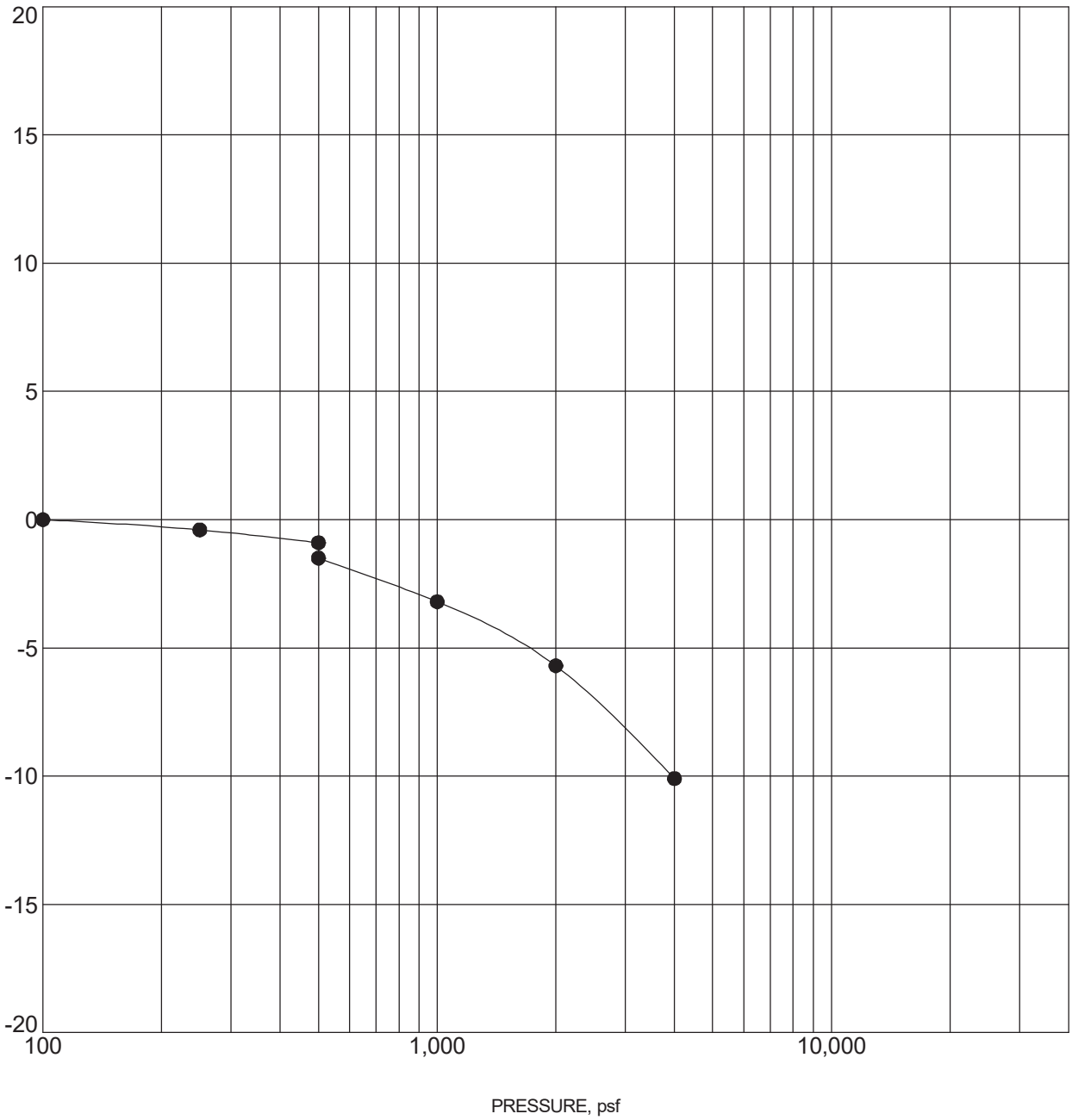
SWELL CONSOLIDATION TEST



Specimen Identification			Classification	γ_d, pcf	WC, %
●	7-10	4 - 5 ft	LEAN CLAY(CL)	99	9.0

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

PROJECT: CO465 - Pike Solar

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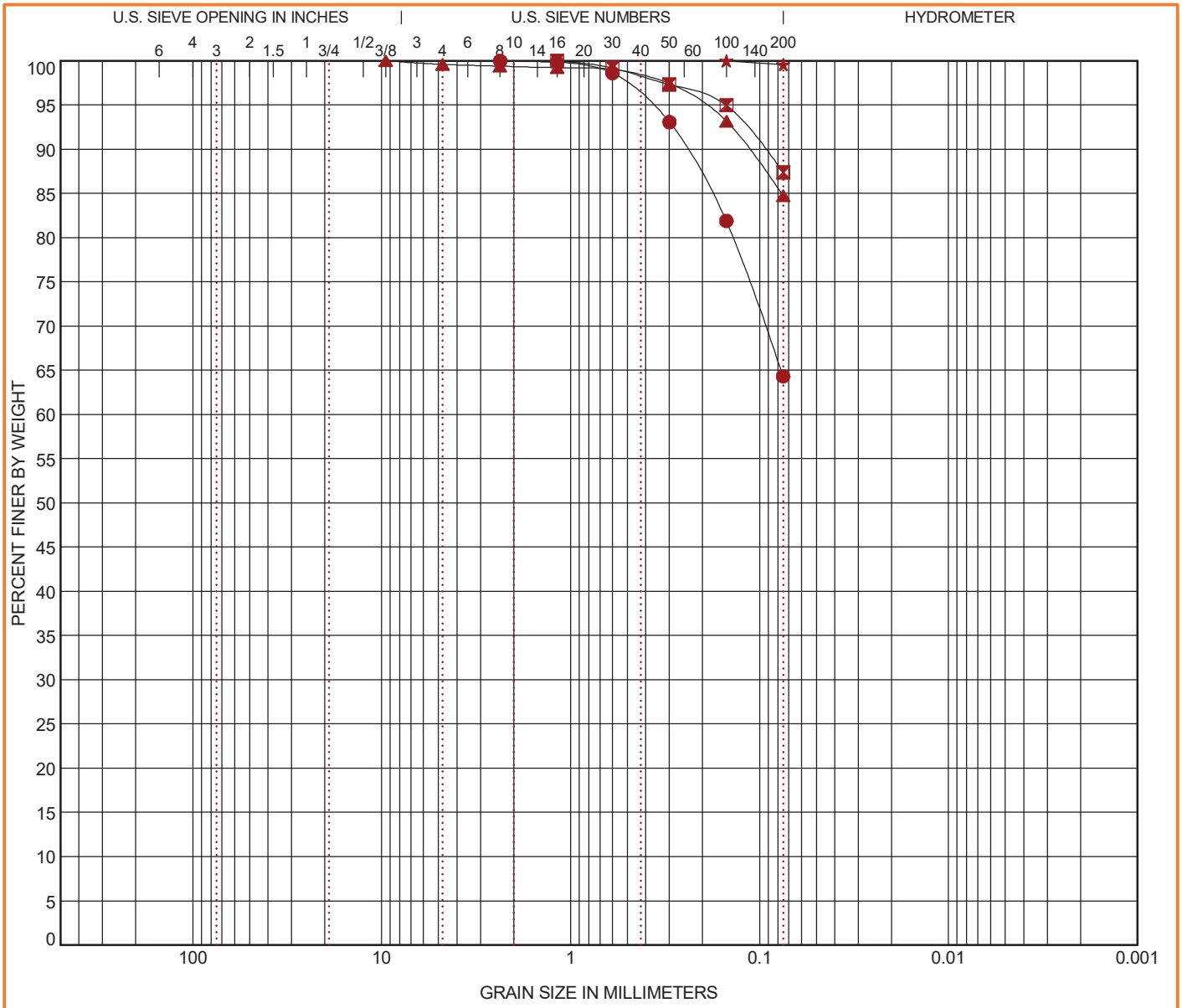
4172 Center Park Dr
Colorado Springs, CO

PROJECT NUMBER: 23205109

CLIENT: JSI Construction Group LLC

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	WC (%)	LL	PL	PI	Cc	Cu
●	1-1	1 - 5	SANDY SILTY CLAY (CL-ML)	A-4 (2)		24	18	6		
⊠	1-2	4 - 5	LEAN CLAY (CL)	A-6 (9)	7.6	31	20	11		
▲	1-6	7 - 8	LEAN CLAY with SAND (CL)	A-6 (9)	8.7	30	18	12		
★	1b-3	4 - 5	LEAN CLAY (CL)	A-7-6 (22)	13.0	44	25	19		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
●	1-1	1 - 5	2.36				0.0	35.7		64.3	
⊠	1-2	4 - 5	1.18				0.0	12.6		87.4	
▲	1-6	7 - 8	9.5				0.4	14.8		84.8	
★	1b-3	4 - 5	0.15				0.0	0.4		99.6	

PROJECT: CO465 - Pike Solar

PROJECT NUMBER: 23205109

SITE: E of Birdsall Rd and Moonshadow Ln
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CLIENT: JSI Construction Group LLC

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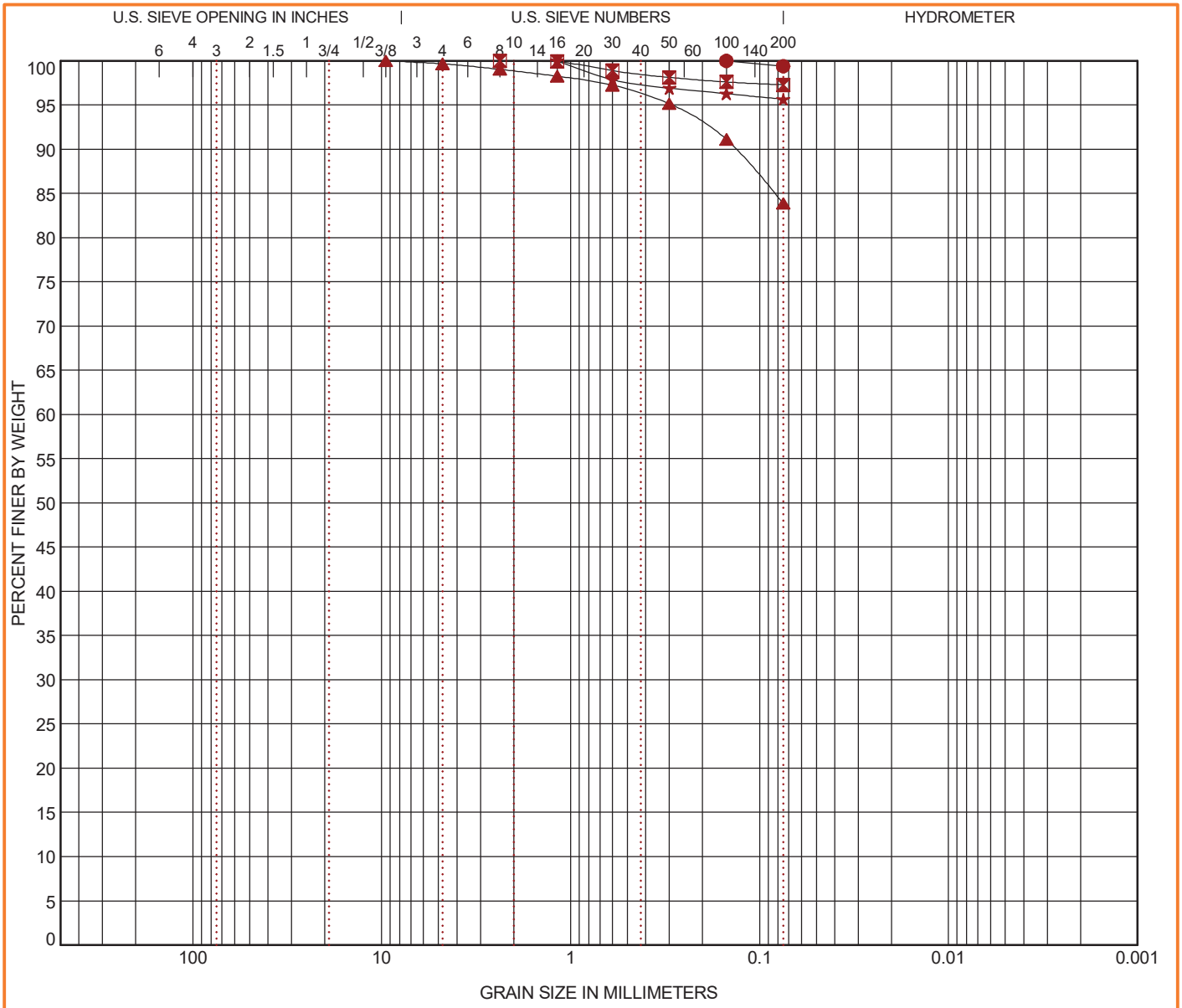
Exhibit C-16

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	WC (%)	LL	PL	PI	Cc	Cu
●	1b-6	7 - 8	LEAN CLAY (CL)	A-7-6 (24)	13.4	44	22	22		
⊠	2-1	4 - 5	LEAN CLAY (CL)	A-7-6 (21)	14.2	44	25	19		
▲	2-5	1 - 5	LEAN CLAY with SAND (CL)	A-7-6 (24)		46	18	28		
★	3-3	2 - 3	FAT CLAY (CH)	A-7-6 (26)	15.3	50	27	23		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
●	1b-6	7 - 8	0.15				0.0	0.6		99.4	
⊠	2-1	4 - 5	2.36				0.0	2.7		97.3	
▲	2-5	1 - 5	9.5				0.3	15.8		83.9	
★	3-3	2 - 3	1.18				0.0	4.3		95.7	

PROJECT: CO465 - Pike Solar

PROJECT NUMBER: 23205109

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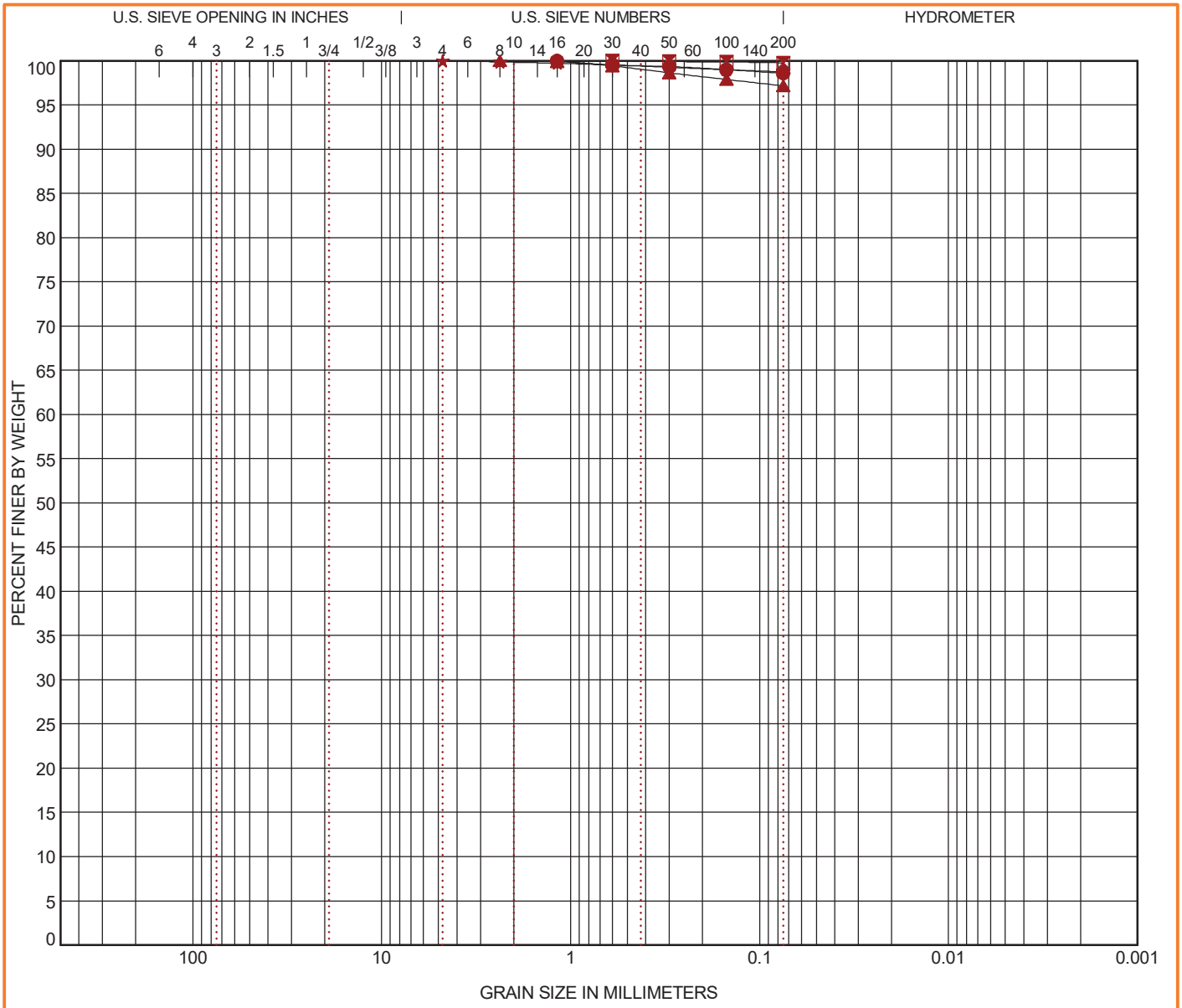
Exhibit C-17

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	WC (%)	LL	PL	PI	Cc	Cu
●	4-4	4 - 5	LEAN CLAY (CL)	A-7-6 (25)	12.1	46	24	22		
⊠	4b-1	4 - 5	LEAN CLAY (CL)	A-7-6 (27)	10.1	44	19	25		
▲	4b-2	7 - 8	LEAN CLAY (CL)	A-7-6 (25)	13.1	45	22	23		
★	5-4	7 - 8	LEAN CLAY (CL)	A-7-6 (24)	12.4	45	24	21		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
●	4-4	4 - 5	1.18				0.0	1.4		98.6	
⊠	4b-1	4 - 5	0.6				0.0	0.2		99.8	
▲	4b-2	7 - 8	2.36				0.0	2.8		97.2	
★	5-4	7 - 8	4.75				0.0	1.2		98.8	

PROJECT: CO465 - Pike Solar

PROJECT NUMBER: 23205109

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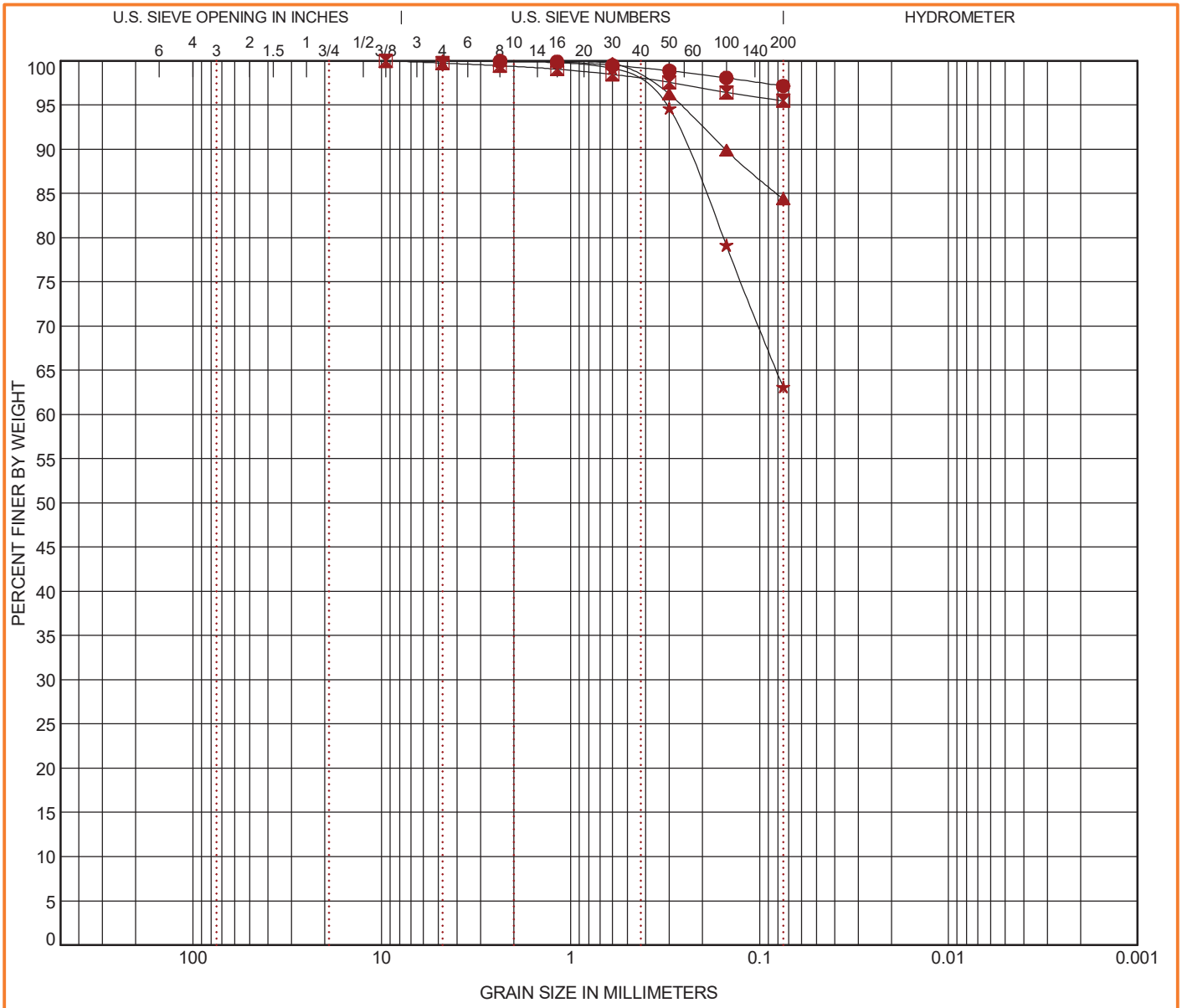
GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	WC (%)	LL	PL	PI	Cc	Cu
●	6-1	4 - 5	FAT CLAY (CH)	A-7-6 (30)	14.0	50	22	28		
⊠	6-8	4 - 5	LEAN CLAY (CL)	A-7-6 (29)	10.3	47	19	28		
▲	7-1	7 - 8	LEAN CLAY with SAND (CL)	A-6 (12)	8.7	29	12	17		
★	7-3	1 - 5	SANDY SILTY CLAY (CL-ML)	A-4 (2)		23	16	7		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
●	6-1	4 - 5	2.36				0.0	2.8		97.2	
⊠	6-8	4 - 5	9.5				0.2	4.3		95.5	
▲	7-1	7 - 8	2.36				0.0	15.6		84.4	
★	7-3	1 - 5	4.75				0.0	36.9		63.1	

PROJECT: CO465 - Pike Solar

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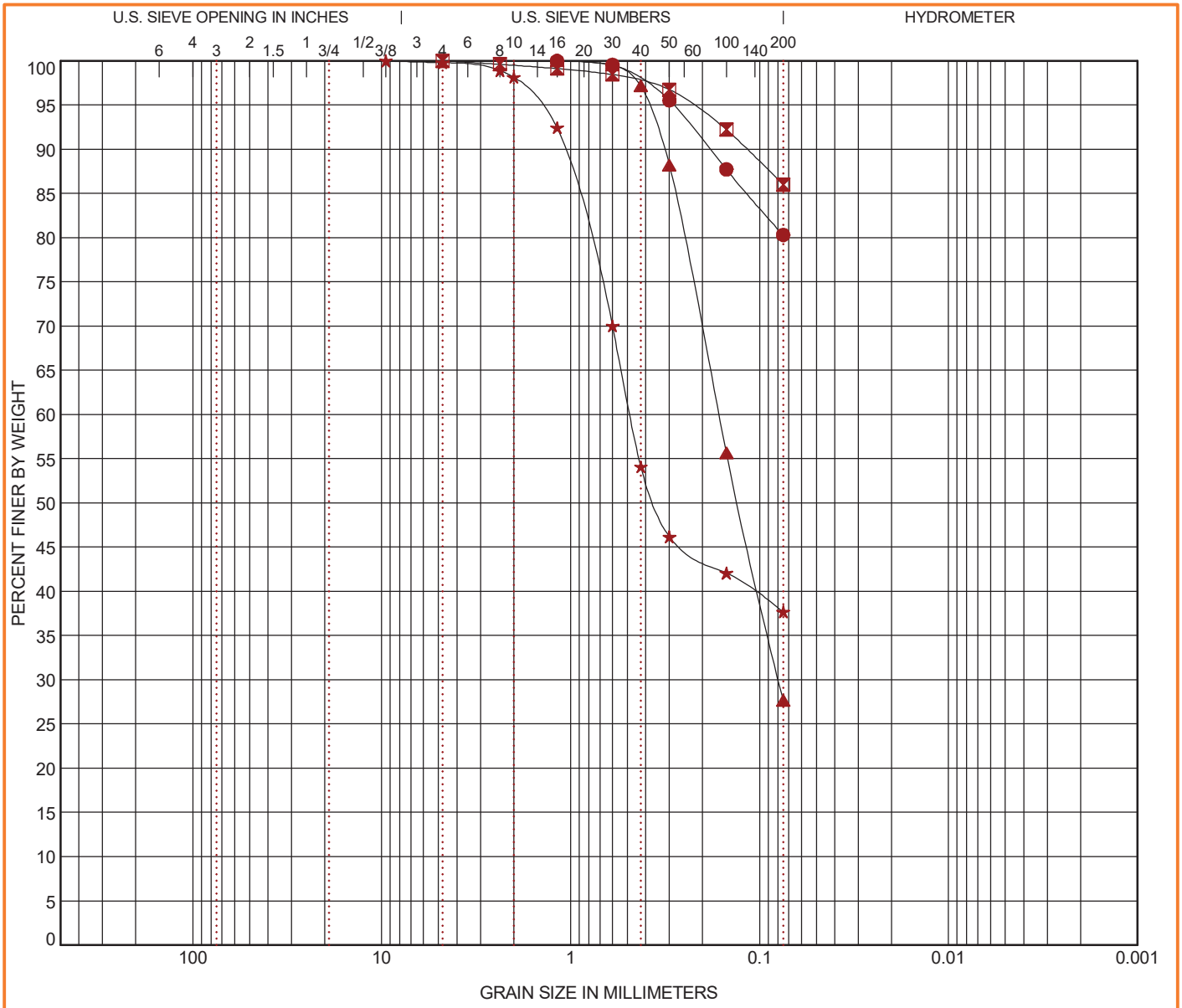
GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	WC (%)	LL	PL	PI	Cc	Cu
●	7-8	4 - 5	LEAN CLAY with SAND (CL)	A-4 (5)	5.4	24	14	10		
⊠	7-10	4 - 5	LEAN CLAY (CL)	A-6 (13)	9.0	31	14	17		
▲	TP1-1	3	SILTY SAND (SM)	A-2-4 (0)		NP	NP	NP		
★	TP1b-2	3	CLAYEY SAND (SC)	A-6 (2)		28	13	15		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
●	7-8	4 - 5	1.18				0.0	19.7		80.3	
⊠	7-10	4 - 5	4.75				0.0	14.0		86.0	
▲	TP1-1	3	1.18	0.164	0.079		0.0	72.3		27.7	
★	TP1b-2	3	9.5	0.483			0.2	62.1		37.7	

PROJECT: CO465 - Pike Solar

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CLIENT: JSI Construction Group LLC

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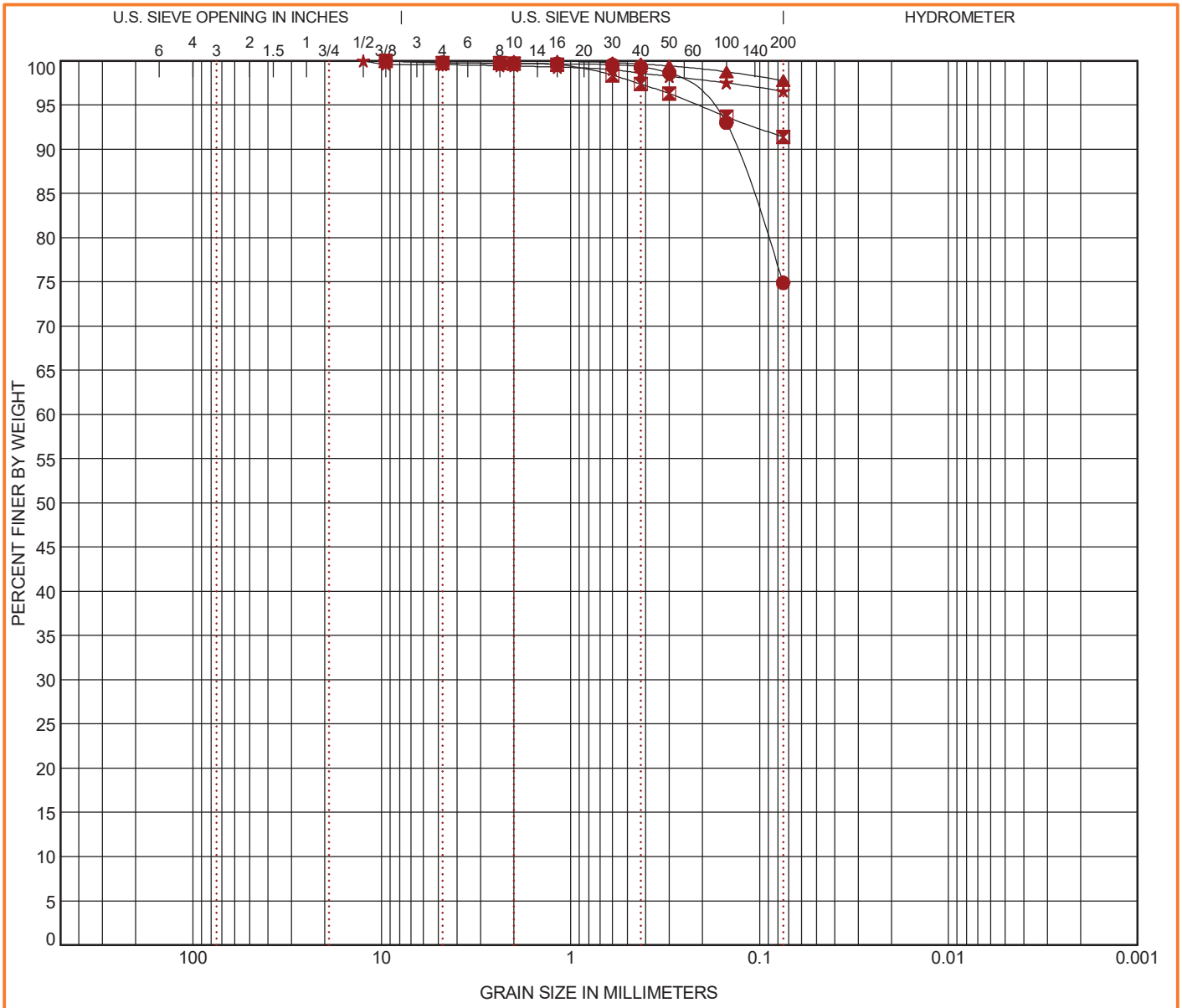
Exhibit C-20

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	WC (%)	LL	PL	PI	Cc	Cu
●	TP1b-4	3	LEAN CLAY with SAND (CL)	A-6 (12)		34	16	18		
⊠	TP2-1	3	FAT CLAY (CH)	A-7-6 (31)		51	19	32		
▲	TP4-1	3	LEAN CLAY (CL)	A-7-6 (28)		46	20	26		
★	TP4-2	3	FAT CLAY (CH)	A-7-6 (34)		54	23	31		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
●	TP1b-4	3	9.5				0.2	24.9		74.9	
⊠	TP2-1	3	9.5				0.2	8.4		91.4	
▲	TP4-1	3	2				0.0	2.2		97.8	
★	TP4-2	3	12.5				0.4	3.0		96.6	

PROJECT: CO465 - Pike Solar

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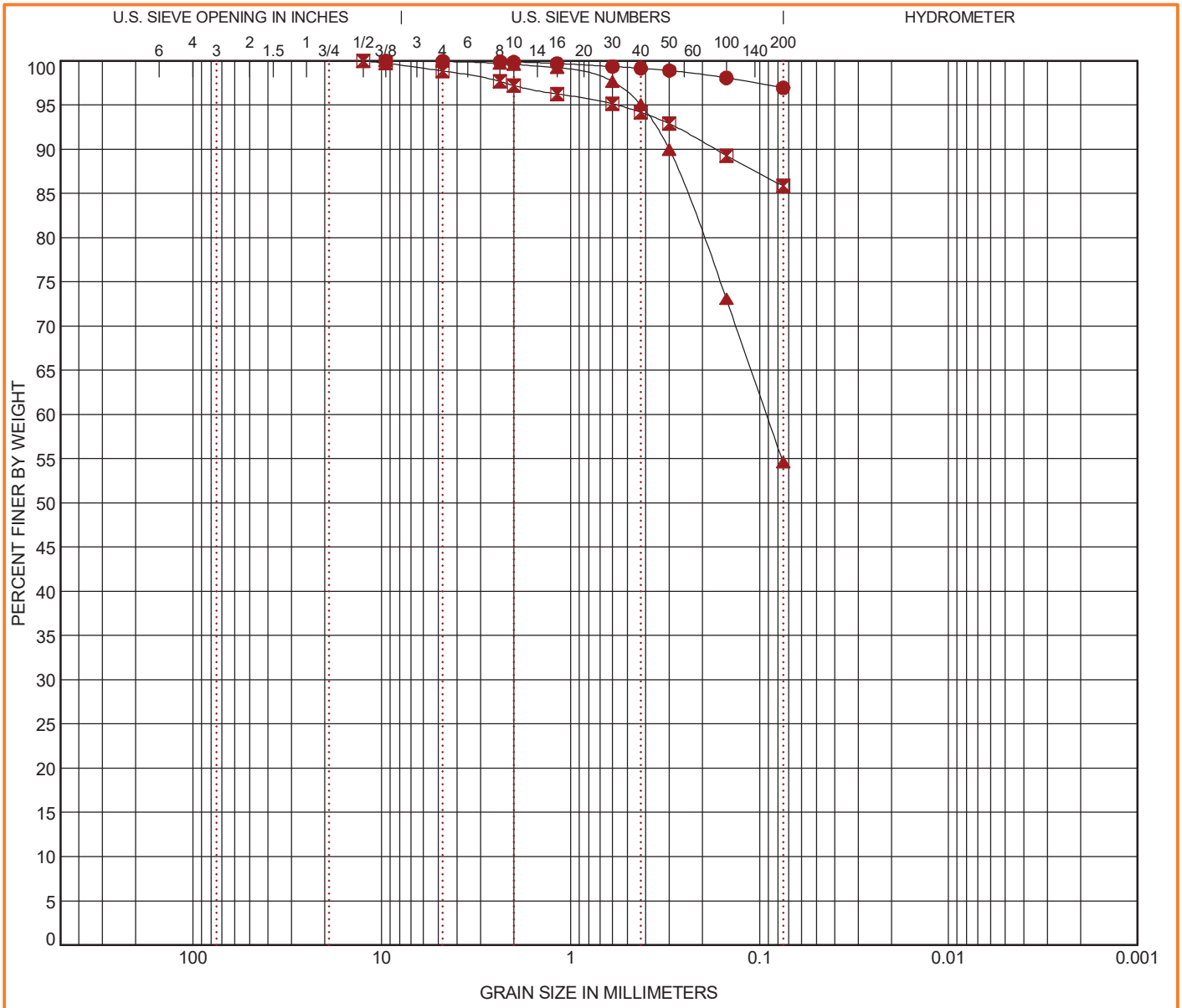
GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	WC (%)	LL	PL	PI	Cc	Cu
●	TP6-2	3	FAT CLAY (CH)	A-7-6 (33)		52	21	31		
⊠	TP7-1	3	LEAN CLAY (CL)	A-7-6 (25)		47	19	28		
▲	TP7-3	3	SANDY LEAN CLAY (CL)	A-6 (4)		27	15	12		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Fines	%Clay
●	TP6-2	3	9.5				0.0	3.0		97.0	
⊠	TP7-1	3	12.5				1.1	13.0		85.9	
▲	TP7-3	3	9.5	0.092			0.1	45.3		54.6	

PROJECT: CO465 - Pike Solar

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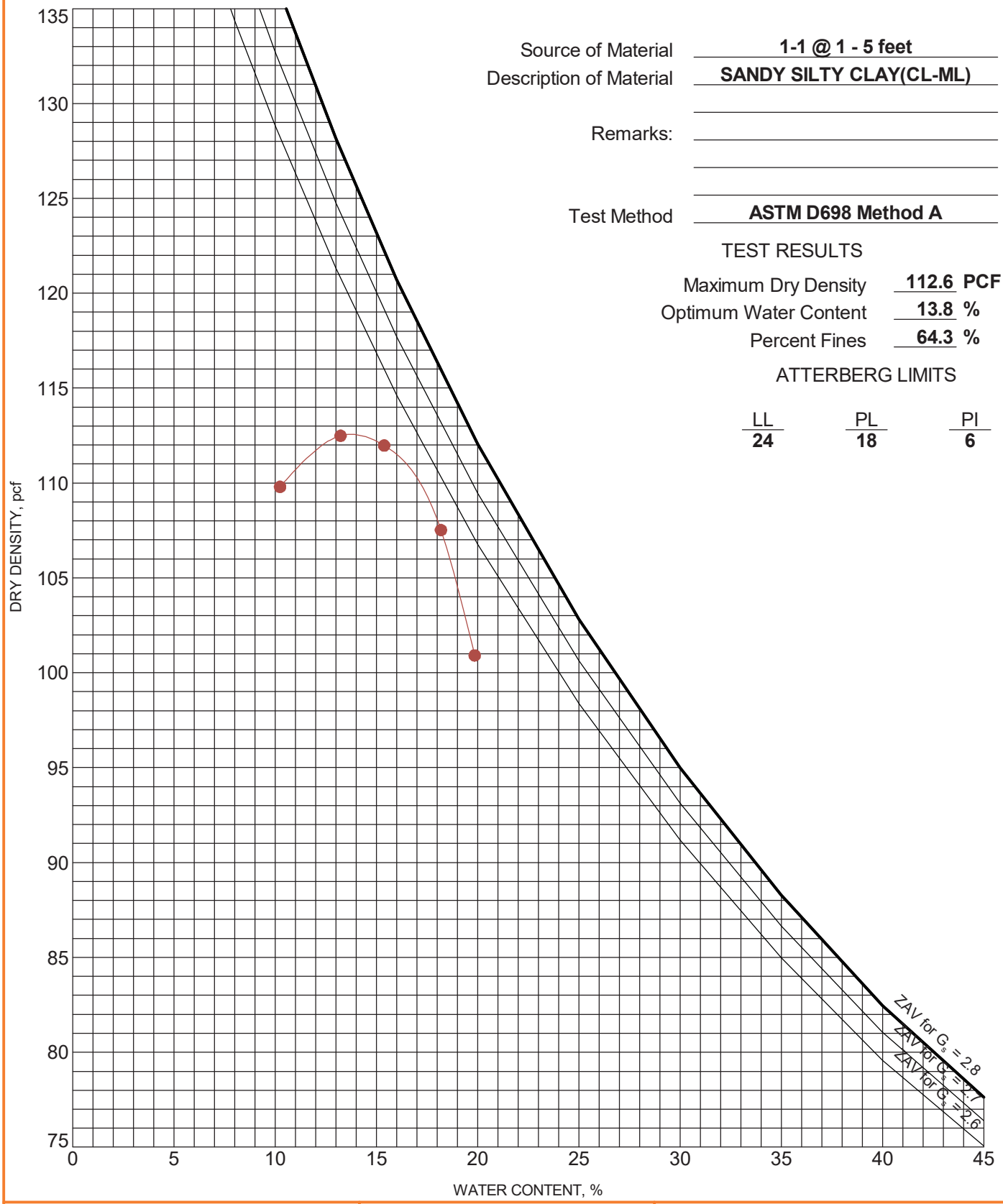
Exhibit C-22

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**1-1 @ 1 - 5 feet**
Description of Material	**SANDY SILTY CLAY(CL-ML)**
Remarks:	
Test Method	**ASTM D698 Method A**

TEST RESULTS

Maximum Dry Density	**112.6**	**PCF**
Optimum Water Content	**13.8**	**%**
Percent Fines	**64.3**	**%**

ATTERBERG LIMITS

LL	PL	PI
24	**18**	**6**

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 23205109 PIKE SOLAR PROJEC:2020-12-15.GPJ TERRACON_DATATEMPLATE.GDT 12/15/20

PROJECT: CO465 - Pike Solar

PROJECT NUMBER: 23205109

SITE: E of Birdsall Rd and Moonshadow Ln
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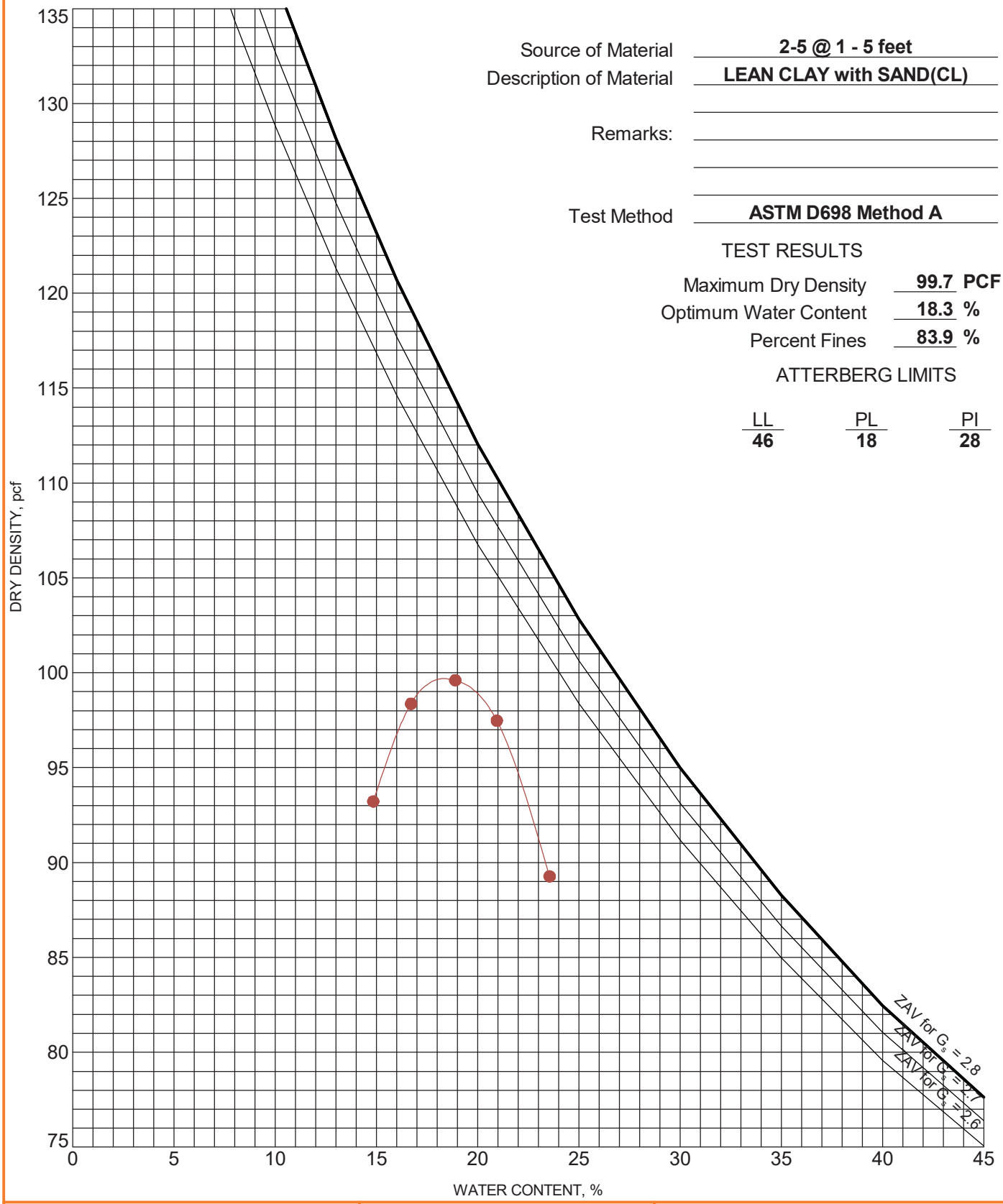
Colorado Springs, CO

CLIENT: JSI Construction Group LLC

Exhibit C-23

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**2-5 @ 1 - 5 feet**
Description of Material	**LEAN CLAY with SAND(CL)**
Remarks:	
Test Method	**ASTM D698 Method A**

TEST RESULTS

Maximum Dry Density	**99.7**	**PCF**
Optimum Water Content	**18.3**	**%**
Percent Fines	**83.9**	**%**

ATTERBERG LIMITS

LL	PL	PI
46	**18**	**28**

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PROJECT: CO465 - Pike Solar

PROJECT NUMBER: 23205109

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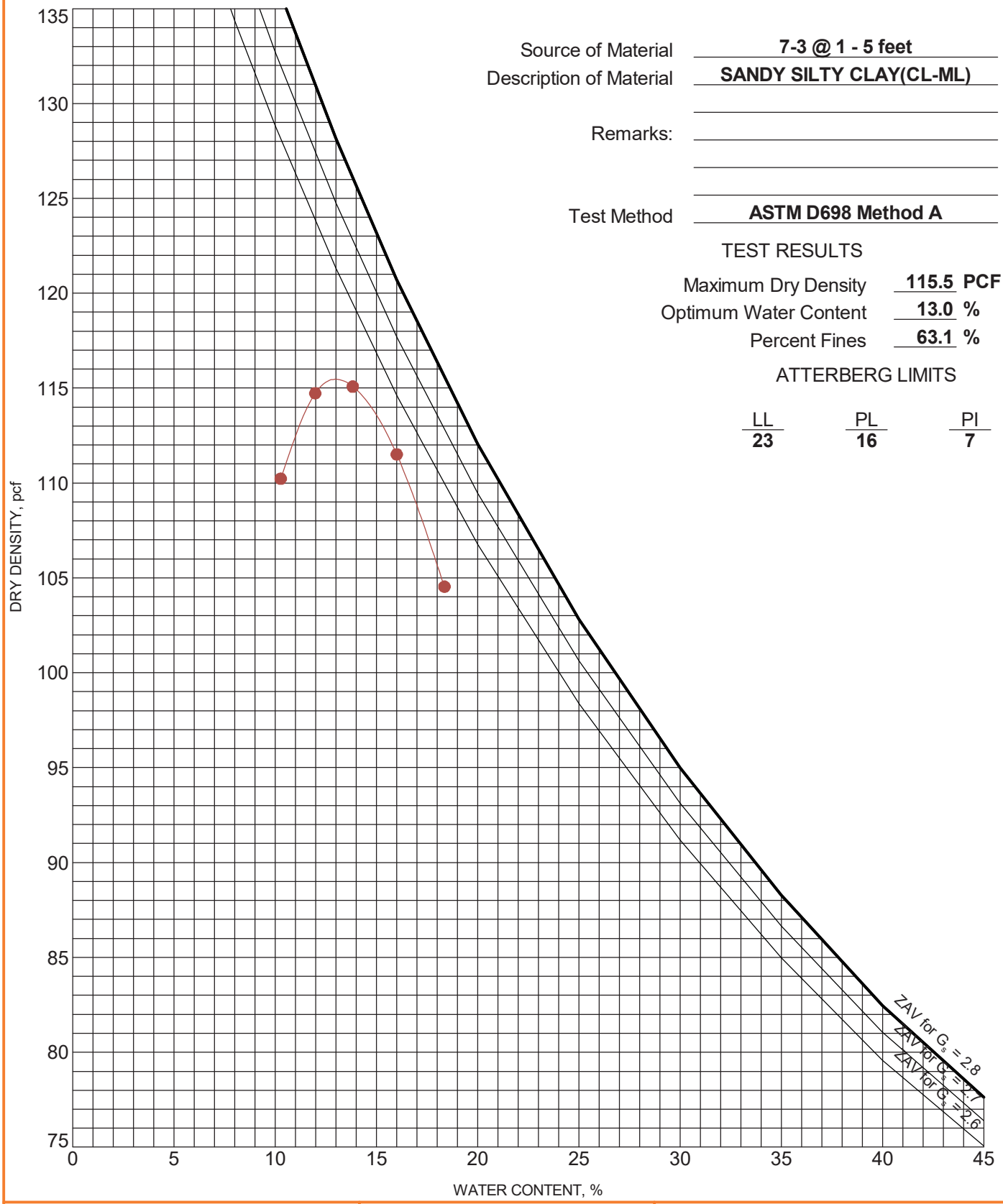
Colorado Springs, CO

CLIENT: JSI Construction Group LLC

Exhibit C-24

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**7-3 @ 1 - 5 feet**
Description of Material	**SANDY SILTY CLAY(CL-ML)**
Remarks:	
Test Method	**ASTM D698 Method A**

TEST RESULTS

Maximum Dry Density	**115.5 PCF**
Optimum Water Content	**13.0 %**
Percent Fines	**63.1 %**

ATTERBERG LIMITS

LL	PL	PI
23	**16**	**7**

PROJECT: CO465 - Pike Solar

PROJECT NUMBER: 23205109

SITE: E of Birdsall Rd and Moonshadow Ln
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Terracon
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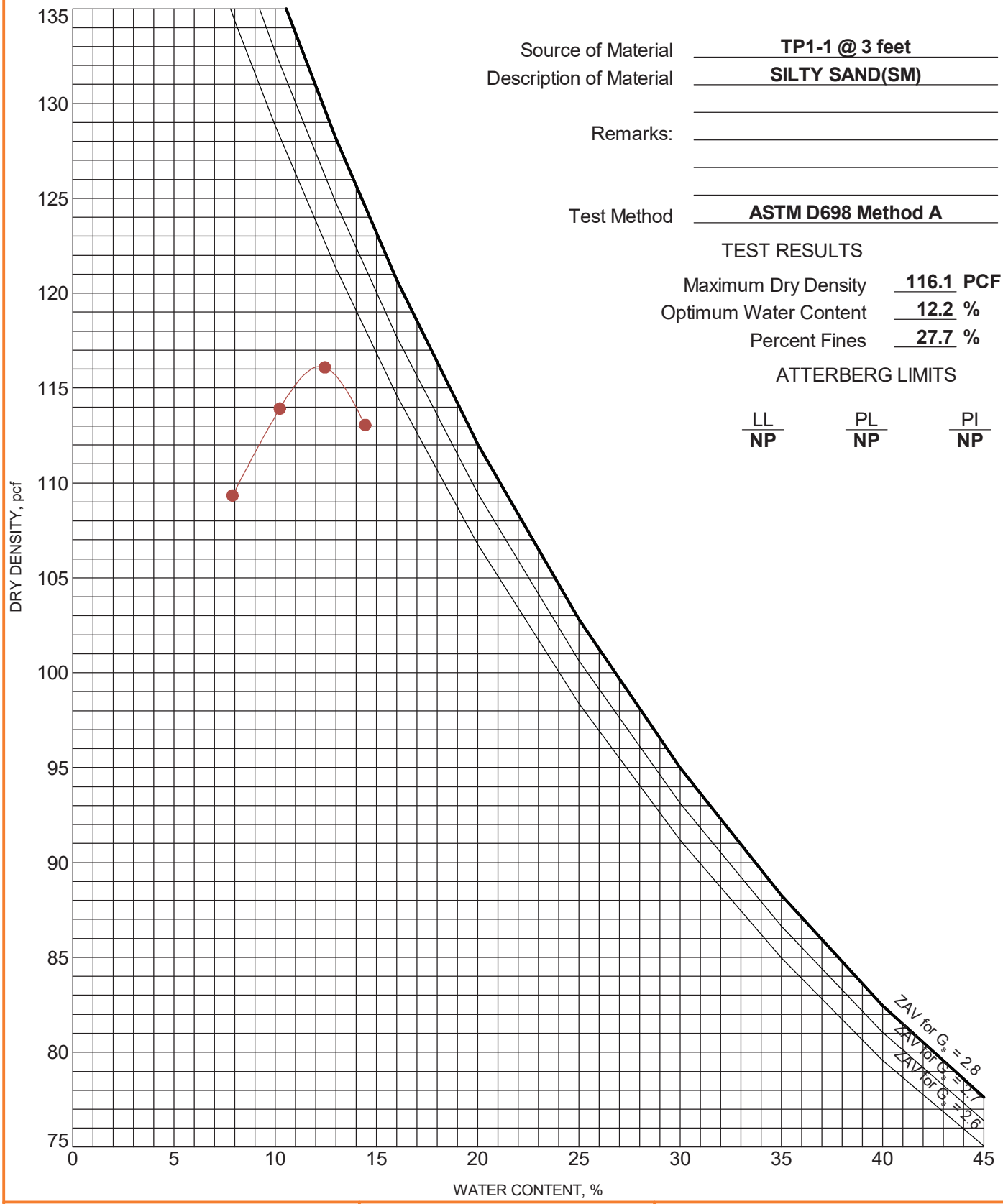
Colorado Springs, CO

CLIENT: JSI Construction Group LLC

Exhibit C-25

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**TP1-1 @ 3 feet**
Description of Material	**SILTY SAND(SM)**
Remarks:	
Test Method	**ASTM D698 Method A**

TEST RESULTS

Maximum Dry Density	**116.1 PCF**
Optimum Water Content	**12.2 %**
Percent Fines	**27.7 %**

ATTERBERG LIMITS

LL	PL	PI
NP	**NP**	**NP**

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PROJECT: CO465 - Pike Solar

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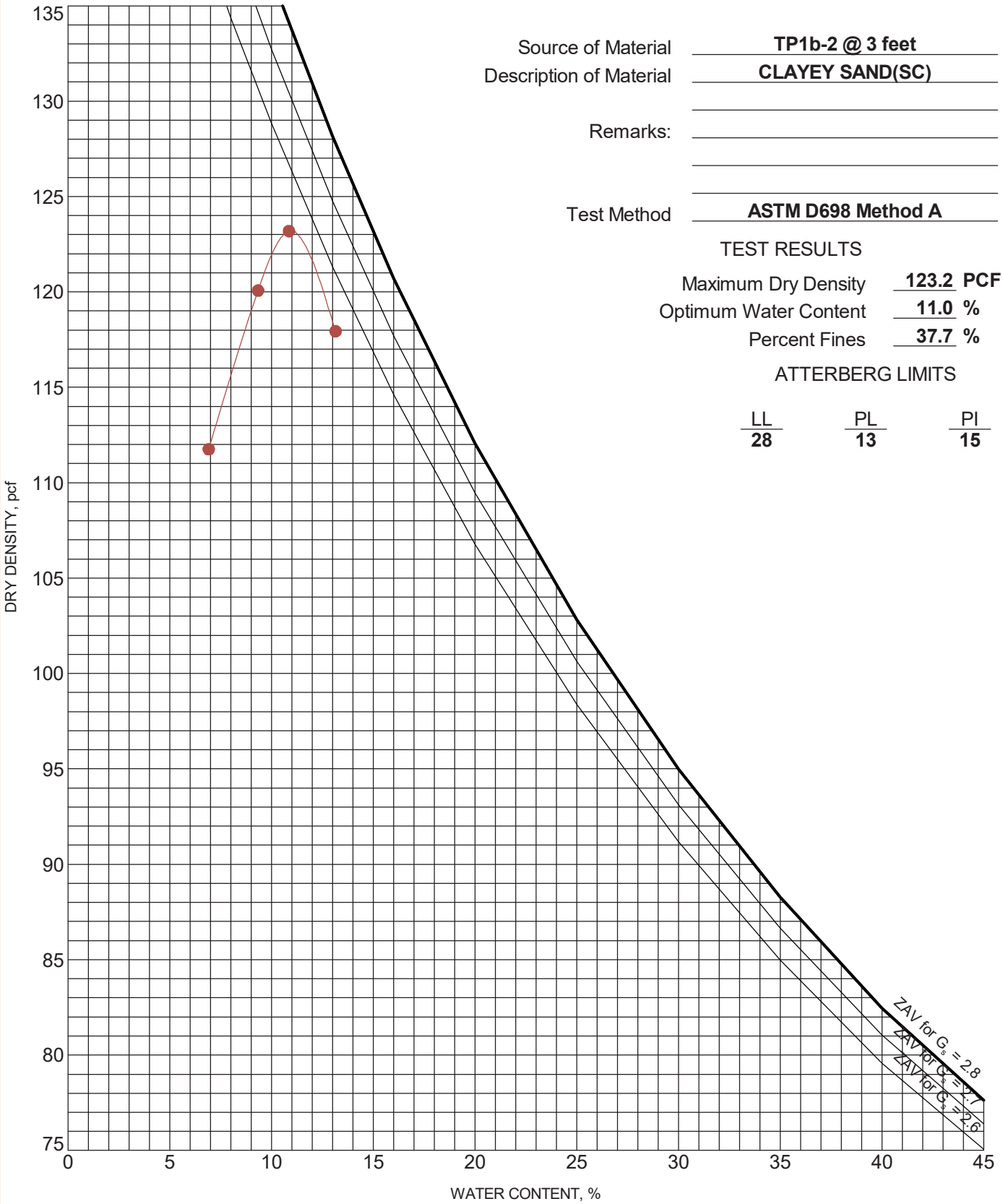
MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**TP1b-2 @ 3 feet**
Description of Material	**CLAYEY SAND(SC)**
Remarks:	
Test Method	**ASTM D698 Method A**

TEST RESULTS

Maximum Dry Density	**123.2**	**PCF**
Optimum Water Content	**11.0**	**%**
Percent Fines	**37.7**	**%**

ATTERBERG LIMITS

LL	PL	PI
28	**13**	**15**

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 23205109 PIKE SOLAR PROJEC:2020-12-15.GPJ TERRACON_DATATEMPLATE.GDT 12/15/20

PROJECT: CO465 - Pike Solar

PROJECT NUMBER: 23205109

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

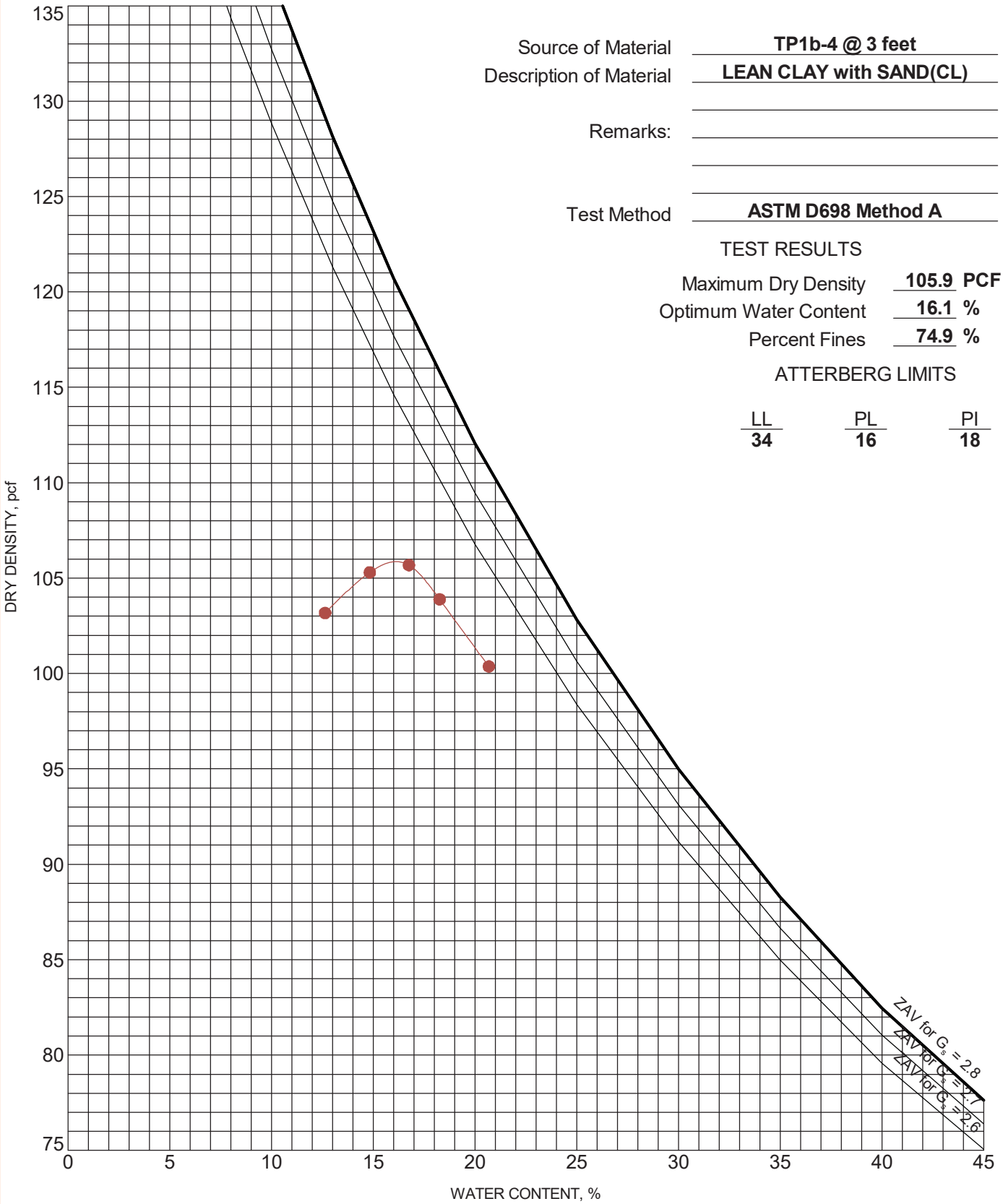
Terracon
4172 Center Park Dr
Colorado Springs, CO

CLIENT: JSI Construction Group LLC

Exhibit C-27

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**TP1b-4 @ 3 feet**
Description of Material	**LEAN CLAY with SAND(CL)**
Remarks:	
Test Method	**ASTM D698 Method A**

TEST RESULTS

Maximum Dry Density	**105.9 PCF**
Optimum Water Content	**16.1 %**
Percent Fines	**74.9 %**

ATTERBERG LIMITS

LL	PL	PI
34	**16**	**18**

PROJECT: CO465 - Pike Solar

PROJECT NUMBER: 23205109

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

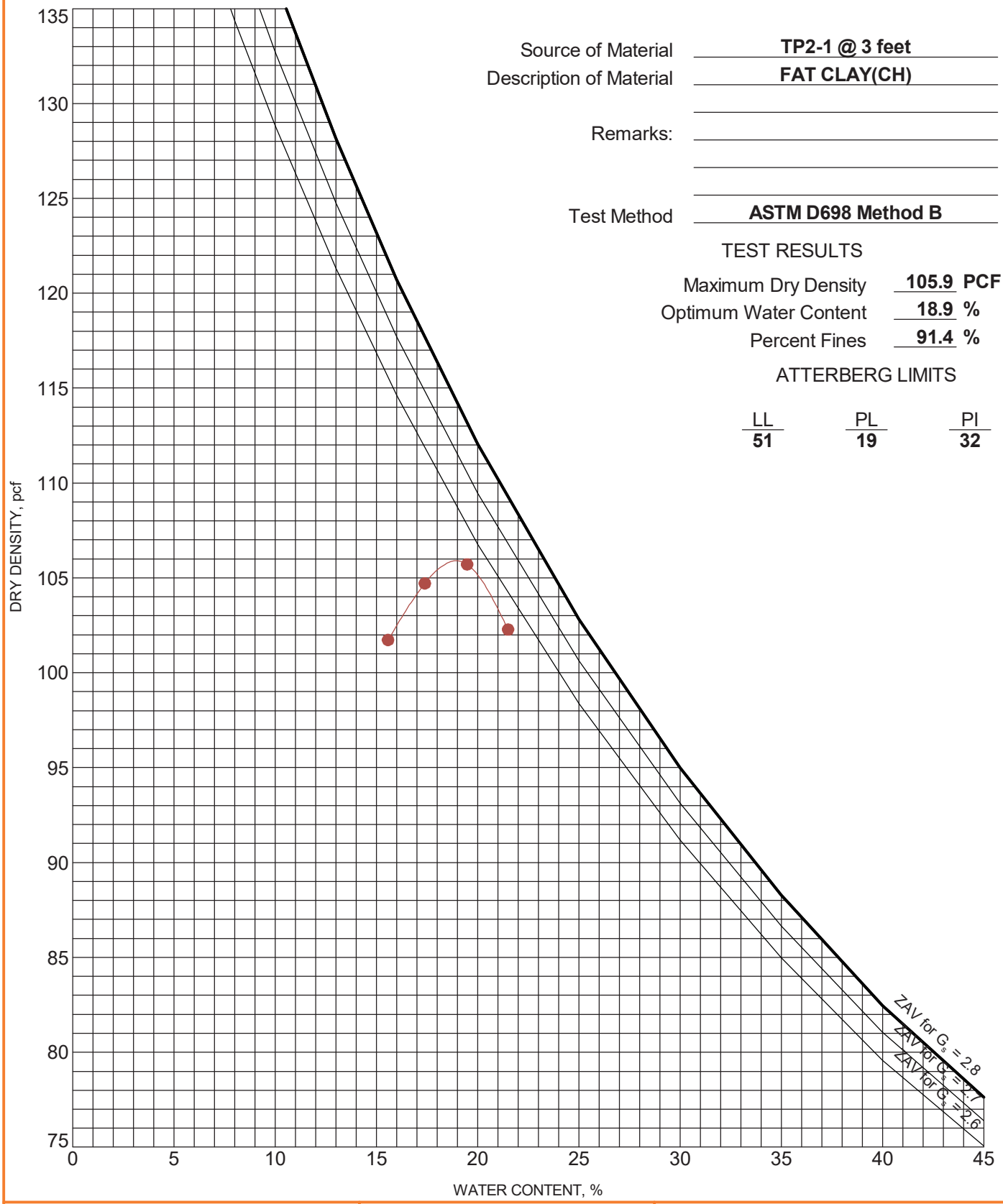
Terracon
4172 Center Park Dr
Colorado Springs, CO

CLIENT: JSI Construction Group LLC

Exhibit C-28

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**TP2-1 @ 3 feet**
Description of Material	**FAT CLAY(CH)**
Remarks:	
Test Method	**ASTM D698 Method B**

TEST RESULTS

Maximum Dry Density	**105.9 PCF**
Optimum Water Content	**18.9 %**
Percent Fines	**91.4 %**

ATTERBERG LIMITS

LL	PL	PI
51	**19**	**32**

PROJECT: CO465 - Pike Solar

PROJECT NUMBER: 23205109

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

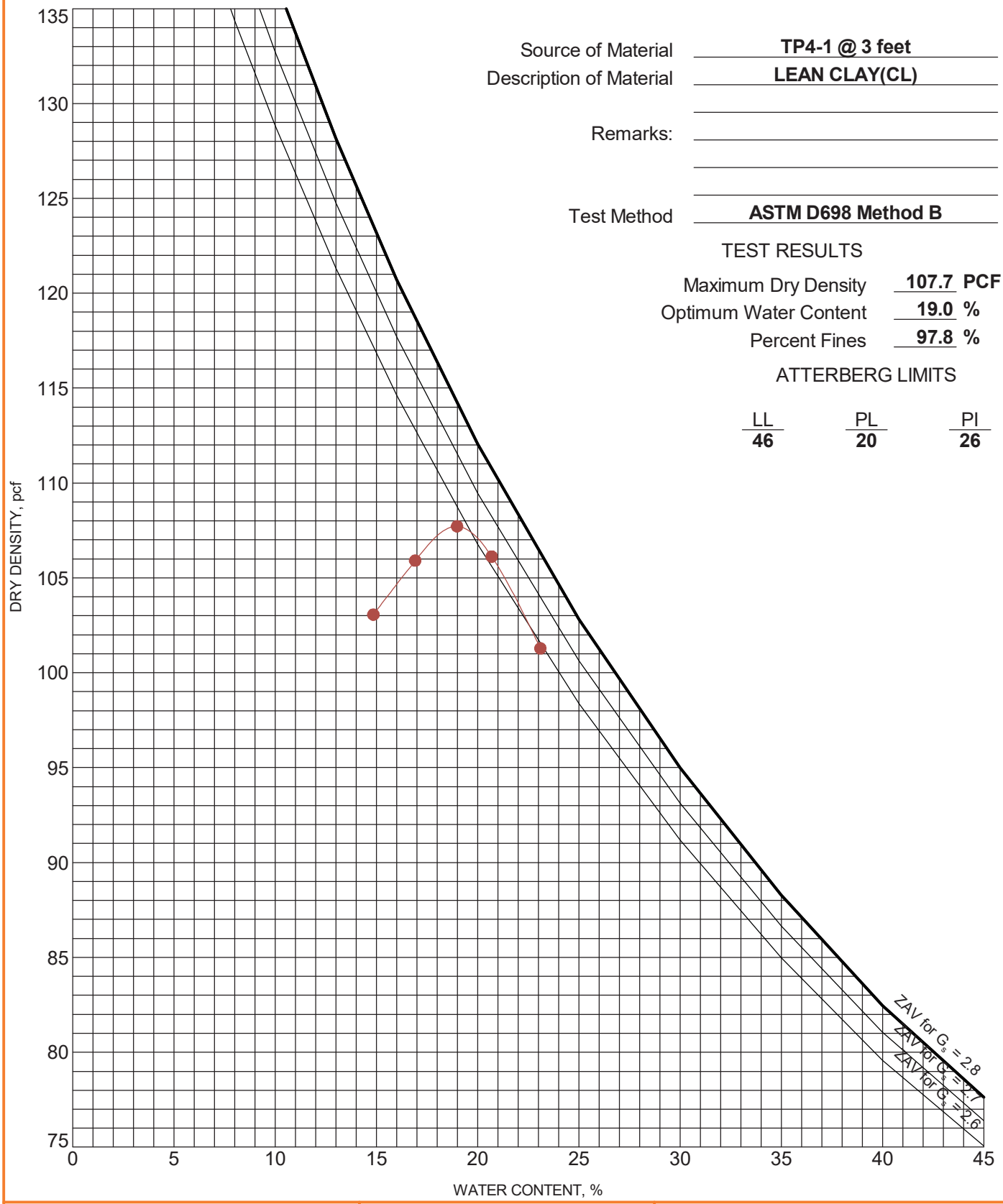
Terracon
4172 Center Park Dr
Colorado Springs, CO

CLIENT: JSI Construction Group LLC

Exhibit C-29

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**TP4-1 @ 3 feet**
Description of Material	**LEAN CLAY(CL)**
Remarks:	
Test Method	**ASTM D698 Method B**

TEST RESULTS

Maximum Dry Density	**107.7 PCF**
Optimum Water Content	**19.0 %**
Percent Fines	**97.8 %**

ATTERBERG LIMITS

LL	PL	PI
46	**20**	**26**

PROJECT: CO465 - Pike Solar

PROJECT NUMBER: 23205109

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

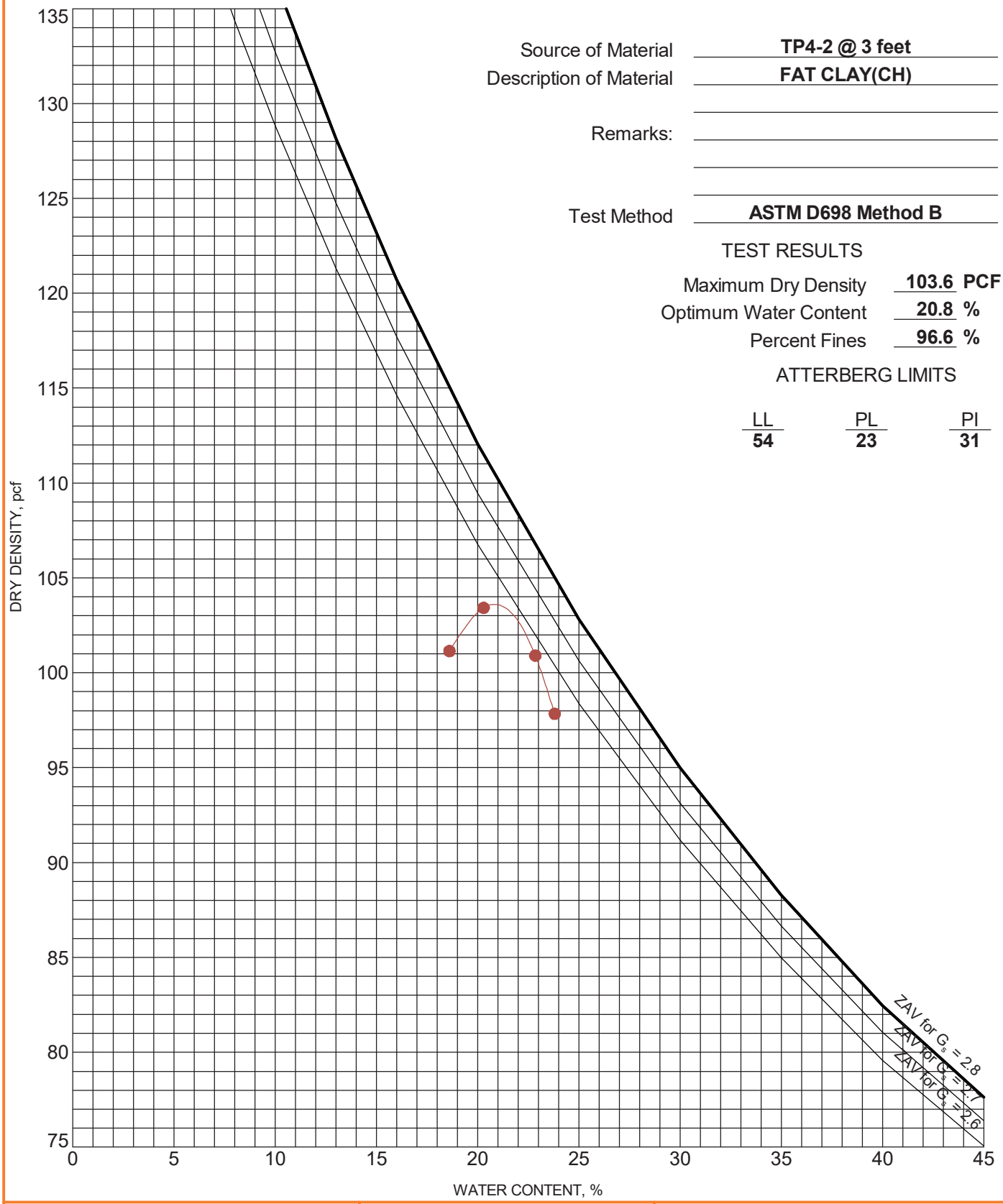
Terracon
4172 Center Park Dr
Colorado Springs, CO

CLIENT: JSI Construction Group LLC

Exhibit C-30

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**TP4-2 @ 3 feet**
Description of Material	**FAT CLAY(CH)**
Remarks:	
Test Method	**ASTM D698 Method B**

TEST RESULTS

Maximum Dry Density	**103.6 PCF**
Optimum Water Content	**20.8 %**
Percent Fines	**96.6 %**

ATTERBERG LIMITS

LL	PL	PI
54	**23**	**31**

PROJECT: CO465 - Pike Solar

PROJECT NUMBER: 23205109

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

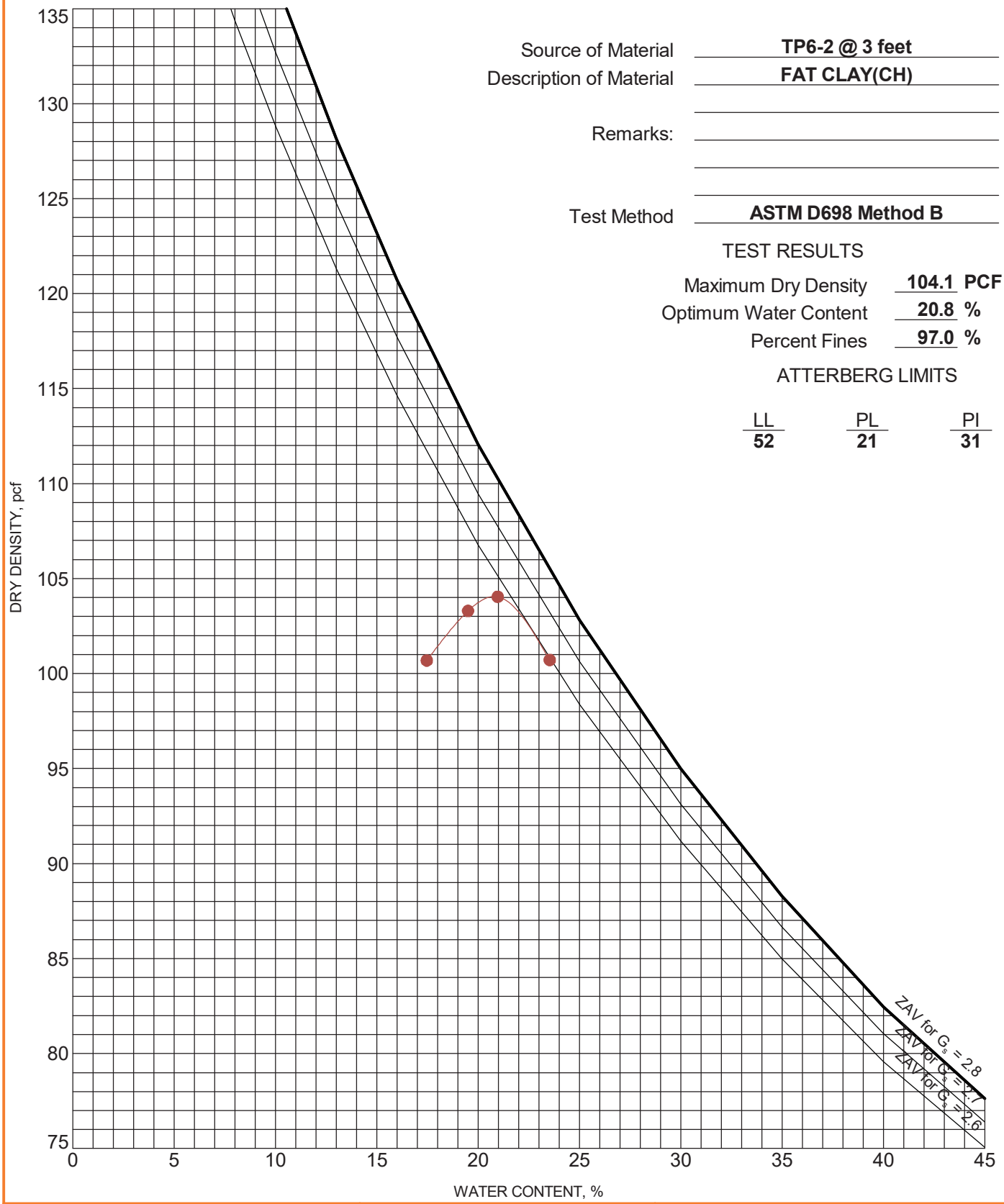
Terracon
4172 Center Park Dr
Colorado Springs, CO

CLIENT: JSI Construction Group LLC

Exhibit C-31

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**TP6-2 @ 3 feet**
Description of Material	**FAT CLAY(CH)**
Remarks:	
Test Method	**ASTM D698 Method B**

TEST RESULTS

Maximum Dry Density	**104.1 PCF**
Optimum Water Content	**20.8 %**
Percent Fines	**97.0 %**

ATTERBERG LIMITS

LL	PL	PI
52	**21**	**31**

PROJECT: CO465 - Pike Solar

PROJECT NUMBER: 23205109

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

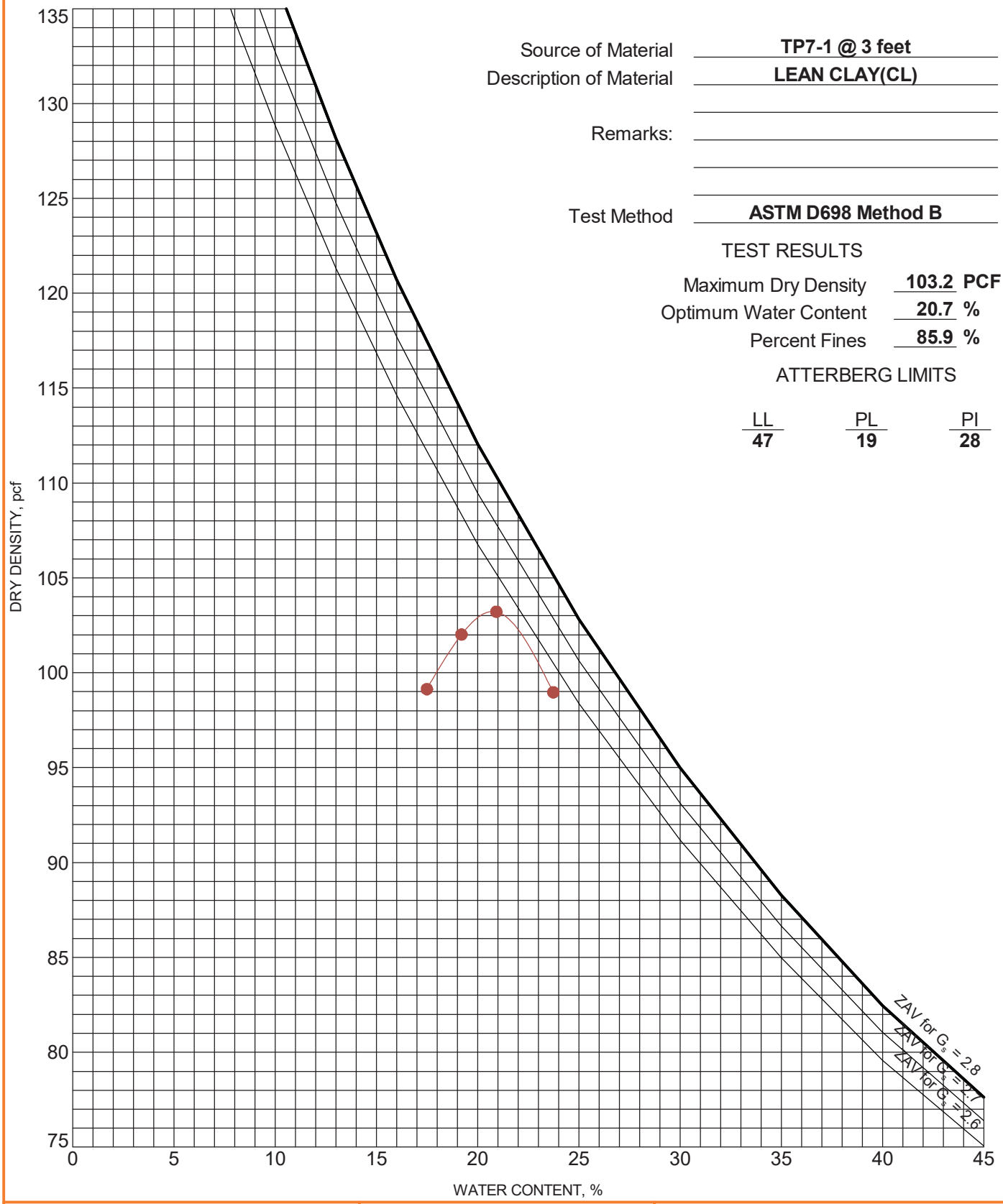
Terracon
4172 Center Park Dr
Colorado Springs, CO

CLIENT: JSI Construction Group LLC

Exhibit C-32

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**TP7-1 @ 3 feet**
Description of Material	**LEAN CLAY(CL)**
Remarks:	
Test Method	**ASTM D698 Method B**

TEST RESULTS

Maximum Dry Density	**103.2**	**PCF**
Optimum Water Content	**20.7**	**%**
Percent Fines	**85.9**	**%**

ATTERBERG LIMITS

LL	PL	PI
47	**19**	**28**

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 23205109 PIKE SOLAR PROJEC:2020-12-15.GPJ TERRACON_DATATEMPLATE.GDT 12/15/20

PROJECT: CO465 - Pike Solar

PROJECT NUMBER: 23205109

SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

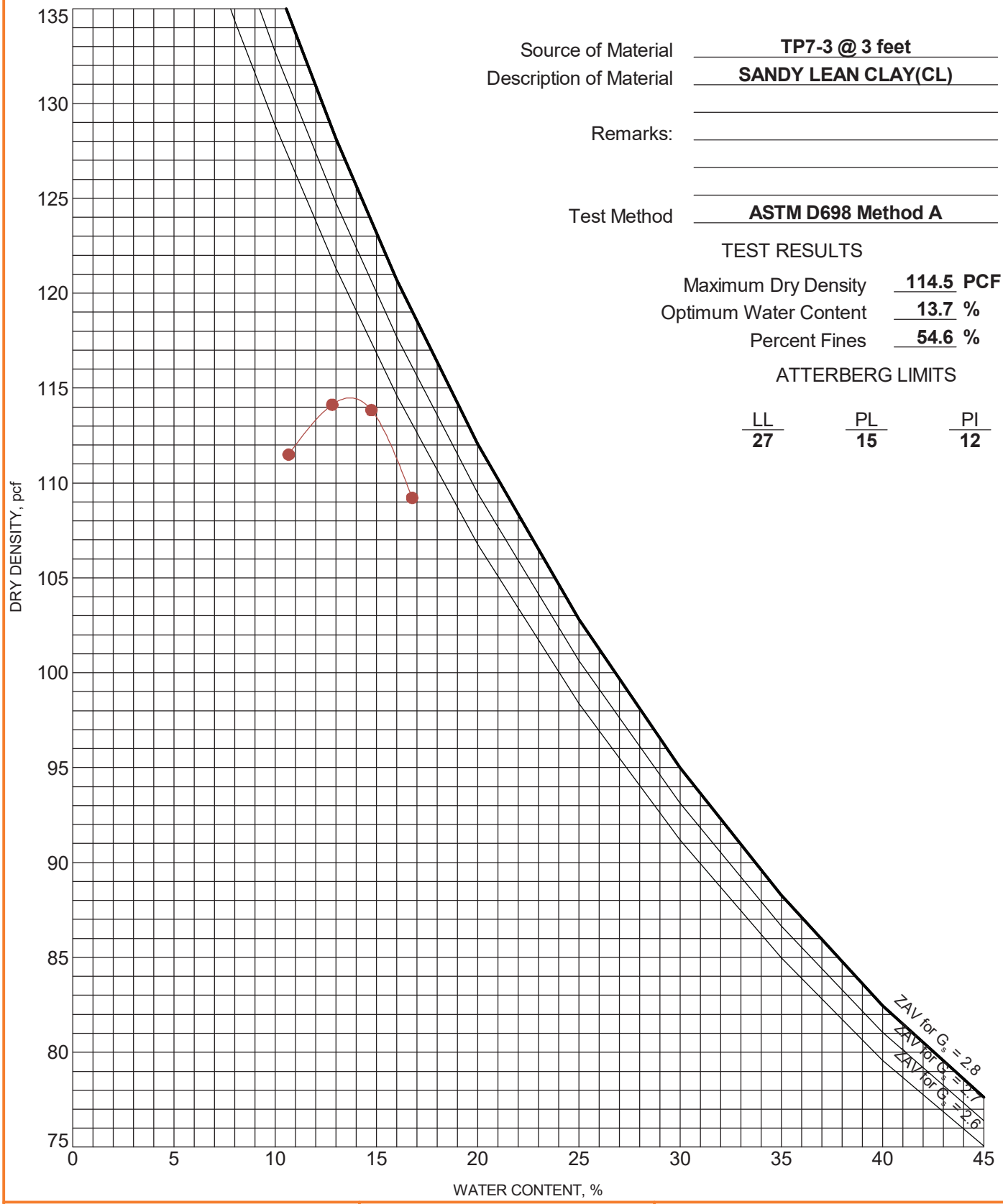
Terracon
4172 Center Park Dr
Colorado Springs, CO

CLIENT: JSI Construction Group LLC

Exhibit C-33

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**TP7-3 @ 3 feet**
Description of Material	**SANDY LEAN CLAY(CL)**
Remarks:	
Test Method	**ASTM D698 Method A**

TEST RESULTS

Maximum Dry Density	**114.5 PCF**
Optimum Water Content	**13.7 %**
Percent Fines	**54.6 %**

ATTERBERG LIMITS

LL	PL	PI
27	**15**	**12**

PROJECT: CO465 - Pike Solar

PROJECT NUMBER: 23205109

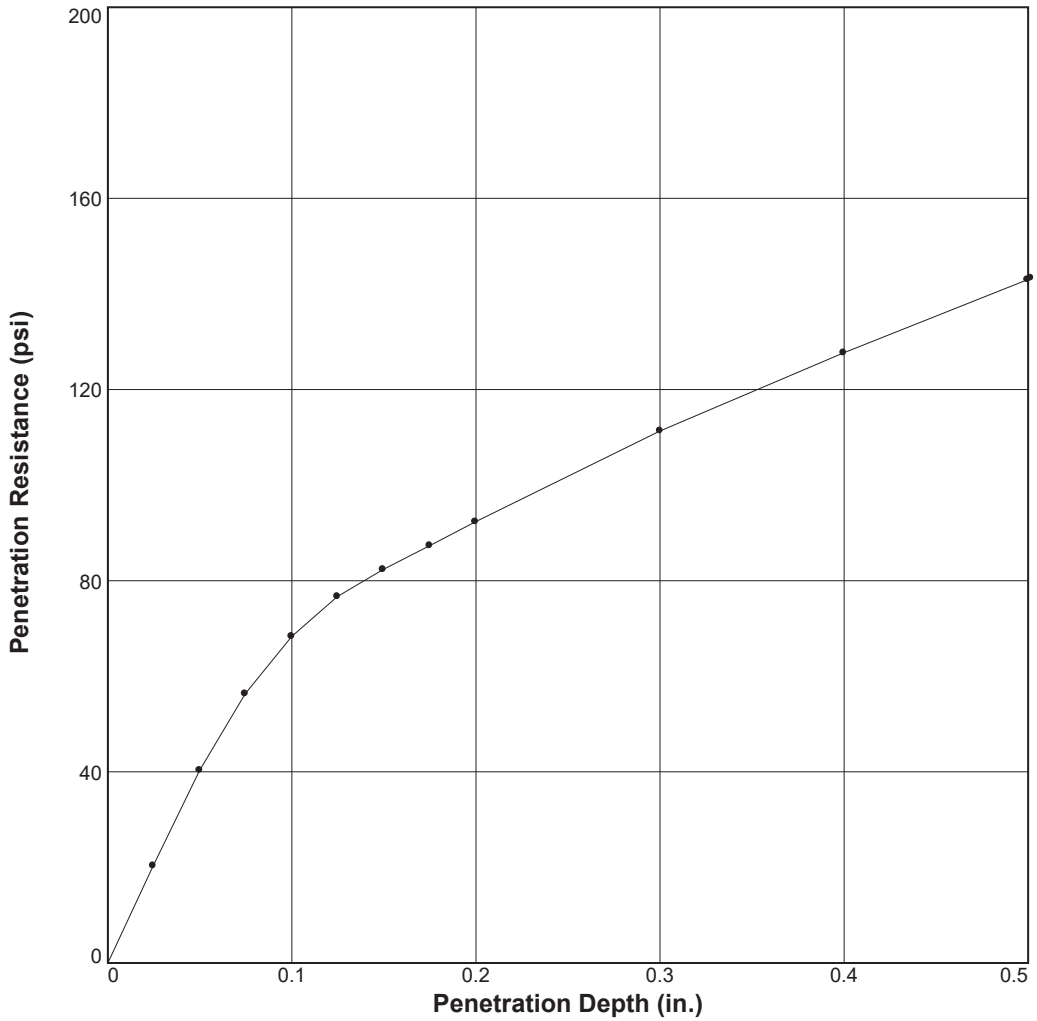
SITE: E of Birdsall Rd and Moonshadow Ln
El Paso County, Colorado

Terracon
4172 Center Park Dr
Colorado Springs, CO

CLIENT: JSI Construction Group LLC

Exhibit C-34

BEARING RATIO TEST REPORT
ASTM D1883-16



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	107.5	95.5	13.3	107.0	95	16.9	6.8	6.2	0.000	10	0.5
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Sandy Silty Clay	CL-ML	112.6	13.8	24	6

Project No: 23205109

Project: CO465 - Pike Solar

Source of Sample: 1-1 **Depth:** 1-5'

Sample Number: Auger

Date: 10/28/2020

BEARING RATIO TEST REPORT

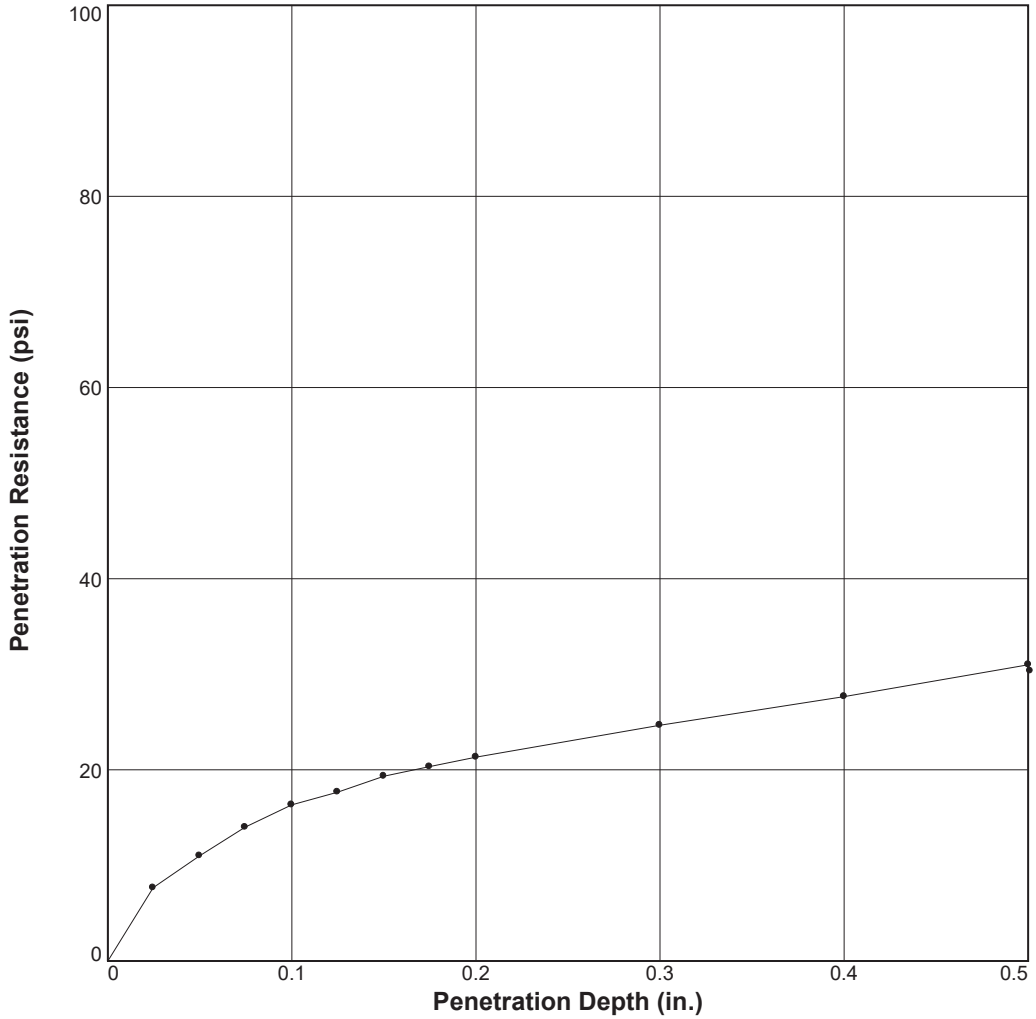
Terracon Consultants, Inc.

Test Description/Remarks:

Compaction based on D698 efforts.

Figure _____

BEARING RATIO TEST REPORT
ASTM D1883-16



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	94.7	95	18.4	90.5	90.8	26.5	1.6	1.4	0.000	10	4.6
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Lean Clay with Sand	CL	99.7	8.3	46	28

Project No: 23205109

Project: CO465 - Pike Solar

Source of Sample: 2-5 **Depth:** 1-5'

Sample Number: Auger

Date: 10/23/2020

BEARING RATIO TEST REPORT

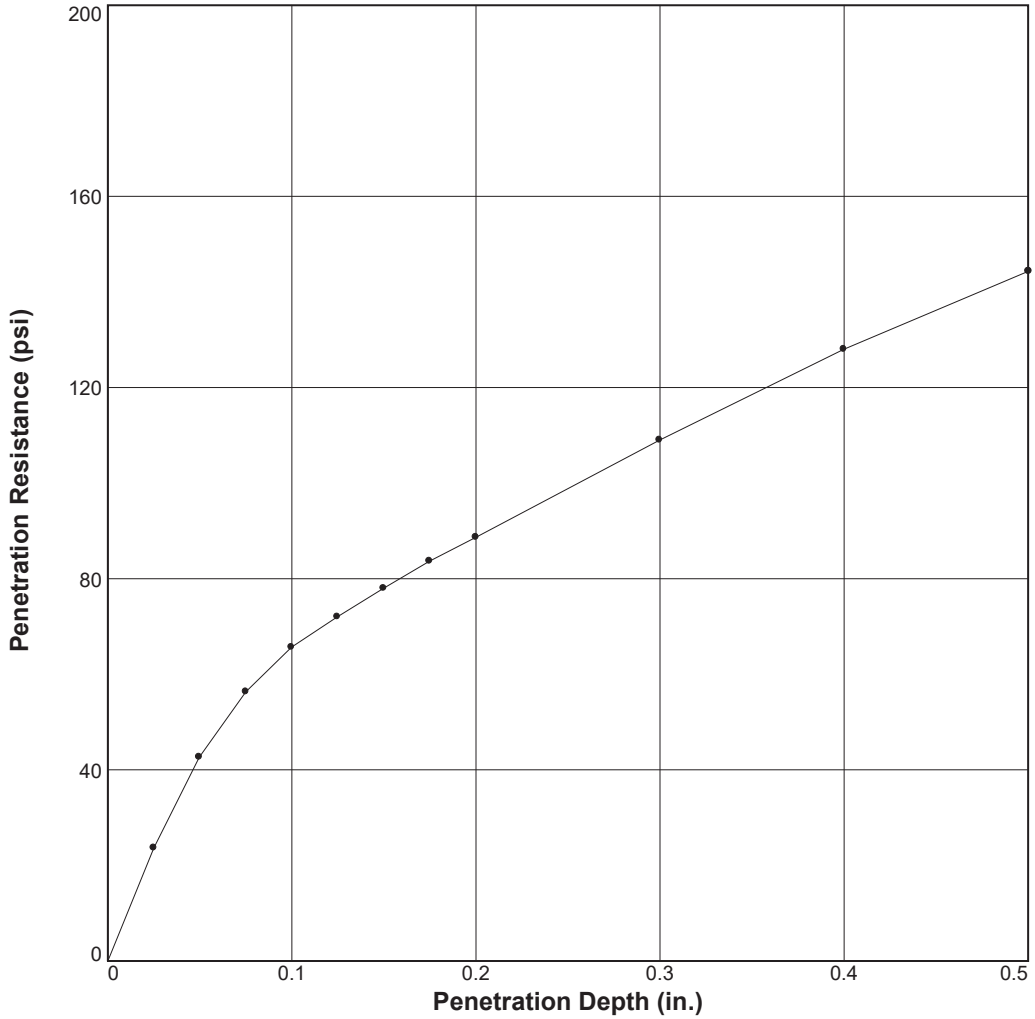
Terracon Consultants, Inc.

Test Description/Remarks:

Compaction based on D698 efforts.

Figure _____

BEARING RATIO TEST REPORT
ASTM D1883-16



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	110.0	95.2	12.8	109.9	95.1	14.5	6.6	5.9	0.000	10	0.1
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Sandy Silty Clay	CL-ML	115.5	13.0	23	7

Project No: 23205109

Project: CO465 - Pike Solar

Source of Sample: 7-3 **Depth:** 1-5'

Sample Number: Auger

Date: 10/23/2020

BEARING RATIO TEST REPORT

Terracon Consultants, Inc.

Test Description/Remarks:

Compaction based on D698 efforts.

Figure _____

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

Terracon GeoReport

Client
JSI Construction Group LLC
Boulder, Colorado

Project
CO465 - Pike Solar

Sample Submitted By: Terracon (23) **Date Received:** 11/2/2020 **Lab No.: 20-1235**

Results of Corrosion Analysis

Sample Number	--	--	--	--
Sample Location	1-1	1-4	1-5	1-7
Sample Depth (ft.)	1.0-5.0	1.0-5.0	1.0-5.0	1.0-5.0
pH Analysis, ASTM G 51	8.18	8.06	8.32	7.79
Water Soluble Sulfate (SO4), ASTM C 1580 (ppm)	156	179	134	65
Sulfides, AWWA 4500-S D, (mg/kg)	Nil	Nil	Nil	Nil
Chlorides, ASTM D 512, (ppm)	48	35	50	50
Red-Ox, ASTM G 200, (mV)	+691	+693	+689	+690
Total Salts, AWWA 2540, (mg/kg)	1033	568	846	761
Resistivity (Saturated), ASTM G 187, (ohm-cm)	2278	3685	2546	2345
Resistivity (As-Received), ASTM G 187, (ohm-cm)	160800	174200	194300	113900

Analyzed By: Trisha Campo

Trisha Campo
Chemist

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

Terracon GeoReport

Client
JSI Construction Group LLC
Boulder, Colorado

Project
CO465 - Pike Solar

Sample Submitted By: Terracon (23) **Date Received:** 11/2/2020 **Lab No.: 20-1235**

Results of Corrosion Analysis

Sample Number	--	--	--	--
Sample Location	1-9	1b-1	1b-3	1b-7
Sample Depth (ft.)	1.0-5.0	1.0-5.0	1.0-5.0	1.0-5.0
pH Analysis, ASTM G 51	7.99	8.41	8.36	8.06
Water Soluble Sulfate (SO4), ASTM C 1580 (ppm)	67	129	7125	116
Sulfides, AWWA 4500-S D, (mg/kg)	Nil	Nil	Nil	Nil
Chlorides, ASTM D 512, (ppm)	47	53	48	67
Red-Ox, ASTM G 200, (mV)	+694	+690	+682	+696
Total Salts, AWWA 2540, (mg/kg)	592	811	11082	306
Resistivity (Saturated), ASTM G 187, (ohm-cm)	3819	2546	590	3618
Resistivity (As-Received), ASTM G 187, (ohm-cm)	127300	167500	107200	13400

Analyzed By: Trisha Campo
Chemist

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

Terracon GeoReport

Client
JSI Construction Group LLC
Boulder, Colorado

Project
CO465 - Pike Solar

Sample Submitted By: Terracon (23) **Date Received:** 11/2/2020 **Lab No.: 20-1235**

Results of Corrosion Analysis

Sample Number	--	--	--	--
Sample Location	2-1	2-3	2-5	3-1
Sample Depth (ft.)	1.0-5.0	1.0-5.0	1.0-5.0	1.0-5.0
pH Analysis, ASTM G 51	7.84	7.97	8.55	8.02
Water Soluble Sulfate (SO4), ASTM C 1580 (ppm)	7729	6336	145	10784
Sulfides, AWWA 4500-S D, (mg/kg)	Nil	Nil	Nil	Nil
Chlorides, ASTM D 512, (ppm)	18	35	65	40
Red-Ox, ASTM G 200, (mV)	+677	+678	+687	+678
Total Salts, AWWA 2540, (mg/kg)	11648	11312	1557	14784
Resistivity (Saturated), ASTM G 187, (ohm-cm)	576	429	1206	422
Resistivity (As-Received), ASTM G 187, (ohm-cm)	140700	113900	147400	113900

Analyzed By: Trisha Campo
Chemist

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Terracon GeoReport

Client
JSI Construction Group LLC
Boulder, Colorado

Project
CO465 - Pike Solar

Sample Submitted By: Terracon (23) **Date Received:** 11/2/2020 **Lab No.: 20-1235**

Results of Corrosion Analysis

Sample Number	--	--	--	--
Sample Location	3-3	4-1	4-3	4-5
Sample Depth (ft.)	1.0-5.0	1.0-5.0	1.0-5.0	1.0-5.0
pH Analysis, ASTM G 51	8.11	8.12	8.01	8.02
Water Soluble Sulfate (SO4), ASTM C 1580 (ppm)	9727	8359	8380	9222
Sulfides, AWWA 4500-S D, (mg/kg)	Nil	Nil	Nil	Nil
Chlorides, ASTM D 512, (ppm)	47	58	58	42
Red-Ox, ASTM G 200, (mV)	+675	+676	+675	+676
Total Salts, AWWA 2540, (mg/kg)	14224	13440	12712	13552
Resistivity (Saturated), ASTM G 187, (ohm-cm)	415	415	583	523
Resistivity (As-Received), ASTM G 187, (ohm-cm)	107200	100500	221100	154100

Analyzed By: Trisha Campo

Trisha Campo
Chemist

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Las Vegas, Nevada 89119
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Client
JSI Construction Group LLC
Boulder, Colorado

Project
CO465 - Pike Solar

Sample Submitted By: Terracon (23) **Date Received:** 11/2/2020 **Lab No.: 20-1235**

Results of Corrosion Analysis

Sample Number	--	--	--	--
Sample Location	4-7	4b-1	5-1	5-3
Sample Depth (ft.)	1.0-5.0	1.0-5.0	1.0-5.0	1.0-5.0
pH Analysis, ASTM G 51	8.05	8.06	7.99	8.12
Water Soluble Sulfate (SO4), ASTM C 1580 (ppm)	8687	9375	10728	12204
Sulfides, AWWA 4500-S D, (mg/kg)	Nil	Nil	Nil	Nil
Chlorides, ASTM D 512, (ppm)	45	165	32	50
Red-Ox, ASTM G 200, (mV)	+675	+673	+670	+667
Total Salts, AWWA 2540, (mg/kg)	13496	15232	15736	17864
Resistivity (Saturated), ASTM G 187, (ohm-cm)	482	342	362	302
Resistivity (As-Received), ASTM G 187, (ohm-cm)	154100	120600	113900	113900

Analyzed By: Trisha Campo
Chemist

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Las Vegas, Nevada 89119
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Terracon GeoReport

Client
JSI Construction Group LLC
Boulder, Colorado

Project
CO465 - Pike Solar

Sample Submitted By: Terracon (23) **Date Received:** 11/2/2020 **Lab No.: 20-1235**

Results of Corrosion Analysis

Sample Number	--	--	--	--
Sample Location	6-1	6-3	6-5	6-7
Sample Depth (ft.)	1.0-5.0	1.0-5.0	1.0-5.0	1.0-5.0
pH Analysis, ASTM G 51	7.84	8.51	8.03	7.78
Water Soluble Sulfate (SO4), ASTM C 1580 (ppm)	11892	132	8657	212
Sulfides, AWWA 4500-S D, (mg/kg)	Nil	Nil	Nil	Nil
Chlorides, ASTM D 512, (ppm)	37	38	82	58
Red-Ox, ASTM G 200, (mV)	+675	+685	+676	+685
Total Salts, AWWA 2540, (mg/kg)	16632	1568	13664	1215
Resistivity (Saturated), ASTM G 187, (ohm-cm)	335	1072	415	1407
Resistivity (As-Received), ASTM G 187, (ohm-cm)	87100	154100	66330	93800

Analyzed By: Trisha Campo
Chemist

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(702) 597-9393

Client
JSI Construction Group LLC
Boulder, Colorado

Project
CO465 - Pike Solar

Sample Submitted By: Terracon (23) **Date Received:** 11/2/2020 **Lab No.: 20-1235**

Results of Corrosion Analysis

Sample Number	--	--	--	--
Sample Location	6-9	7-1	7-3	7-5
Sample Depth (ft.)	1.0-5.0	1.0-5.0	1.0-5.0	1.0-5.0
pH Analysis, ASTM G 51	7.49	7.87	7.94	7.82
Water Soluble Sulfate (SO4), ASTM C 1580 (ppm)	1025	43	116	125
Sulfides, AWWA 4500-S D, (mg/kg)	Nil	Nil	Nil	Nil
Chlorides, ASTM D 512, (ppm)	45	50	45	35
Red-Ox, ASTM G 200, (mV)	+682	+689	+692	+694
Total Salts, AWWA 2540, (mg/kg)	4245	899	3484	724
Resistivity (Saturated), ASTM G 187, (ohm-cm)	630	2010	3484	2747
Resistivity (As-Received), ASTM G 187, (ohm-cm)	234500	268000	288100	261300

Analyzed By: Trisha Campo
Chemist

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Las Vegas, Nevada 89119
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Client
JSI Construction Group LLC
Boulder, Colorado

Project
CO465 - Pike Solar

Sample Submitted By: Terracon (23) **Date Received:** 11/2/2020 **Lab No.: 20-1235**

Results of Corrosion Analysis

Sample Number	--	--
Sample Location	7-7	7-11
Sample Depth (ft.)	1.0-5.0	1.0-5.0
pH Analysis, ASTM G 51	8.27	8.09
Water Soluble Sulfate (SO4), ASTM C 1580 (ppm)	160	10991
Sulfides, AWWA 4500-S D, (mg/kg)	Nil	Nil
Chlorides, ASTM D 512, (ppm)	60	53
Red-Ox, ASTM G 200, (mV)	+693	+665
Total Salts, AWWA 2540, (mg/kg)	263	17024
Resistivity (Saturated), ASTM G 187, (ohm-cm)	4824	322
Resistivity (As-Received), ASTM G 187, (ohm-cm)	227800	80400

Analyzed By: Trisha Campo
Chemist

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Las Vegas, Nevada 89119
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Terracon GeoReport

Client
JSI Construction Group LLC
Boulder, Colorado

Project
CO465 - Pike Solar

Sample Submitted By: Terracon (23) **Date Received: 11/2/2020** **Lab No: 20-1235**

Results of Chemical Analysis

Sample Location	Sample Depth (ft.)	Buffer Capacity, ASTM E1910 (milliequivalents of base per gram of product) *reagent: 0.05 N HCl	Neutral Salts, WREP-125, 4th ed. (dS m^{-1})
1-1	1.0 - 5.0	0.079	1.28E-05
1-4	1.0 - 5.0	0.028	4.43E-06
1-5	1.0 - 5.0	0.025	5.78E-06
1-7	1.0 - 5.0	0.022	5.24E-06
1-9	1.0 - 5.0	0.055	3.97E-06
1b-1	1.0 - 5.0	0.062	6.14E-06
1b-3	1.0 - 5.0	0.029	4.04E-05
1b-7	1.0 - 5.0	0.012	4.42E-06
2-1	1.0 - 5.0	0.022	3.37E-05
2-3	1.0 - 5.0	0.012	6.27E-05
2-5	1.0 - 5.0	0.010	1.25E-05
3-1	1.0 - 5.0	0.015	7.77E-05
3-3	1.0 - 5.0	0.010	5.67E-05
4-1	1.0 - 5.0	0.017	4.67E-05
4-3	1.0 - 5.0	0.028	4.16E-05
4-5	1.0 - 5.0	0.033	4.45E-05
4-7	1.0 - 5.0	0.020	5.13E-05
4b-1	1.0 - 5.0	0.015	6.20E-05
5-1	1.0 - 5.0	0.010	7.68E-05
5-3	1.0 - 5.0	0.032	7.72E-05
6-1	1.0 - 5.0	0.005	6.47E-05
6-3	1.0 - 5.0	0.005	1.48E-05
6-5	1.0 - 5.0	0.014	5.54E-05

Analyzed By Trisha Campo

Trisha Campo
Chemist

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

Client
JSI Construction Group LLC
Boulder, Colorado

Project
CO465 - Pike Solar

Sample Submitted By: Terracon (23) **Date Received: 11/2/2020** **Lab No: 20-1235**

Results of Chemical Analysis

Sample Location	Sample Depth (ft.)	Buffer Capacity, ASTM E1910 (milliequivalents of base per gram of product) *reagent: 0.05 N HCl	Neutral Salts, WREP-125, 4th ed. (dS m^{-1})
6-7	1.0 - 5.0	0.022	9.21E-06
6-9	1.0 - 5.0	0.010	3.31E-05
7-1	1.0 - 5.0	0.029	8.64E-06
7-3	1.0 - 5.0	0.018	5.73E-06
7-5	1.0 - 5.0	0.014	4.00E-06
7-7	1.0 - 5.0	0.005	3.94E-06
7-11	1.0 - 5.0	0.005	6.84E-05

Analyzed By Trisha Campo

Trisha Campo
Chemist

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December 8, 2020

Terracon Consultants, Inc.
4172 Center Park Drive
Colorado Springs, CO 80916
Attn: Tyler A. Compton, P.E.

Re: Thermal Analysis of Native Soil Samples
Pike Solar – Fountain, CO (PO No. 23205109)

The following is the report of thermal dryout characterization tests conducted on a total of twenty (27) samples from the referenced project sent to our laboratory.

Thermal Resistivity Tests: The samples were tested at the specified density and moisture content ***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 13.**

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

Sample ID	Depth (ft)	Effort (%)	Soil Description (Terracon)	Thermal Resistivity (°C-cm/W)		Moisture Content (%)	Dry Density (lb/ft^3)
				Wet	Dry		
TP1-1	3'	80	Clayey sand	89	209	12	93
	3'	90		69	161		105
	5'	specified		84	193	14	96
TP1b-1	5'	specified	Weathered Claystone	98	192	15	103
TP1b-2	3'	80	Clayey sand	76	164	11	99
	3'	90		59	124		111
TP1b-4	3'	80	Weathered claystone	106	262	16	85
	3'	90		90	196		95
	5'	specified		111	231	7	88

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

Sample ID	Depth (ft)	Effort (%)	Soil Description (Terracon)	Thermal Resistivity (°C-cm/W)		Moisture Content (%)	Dry Density (lb/ft^3)
				Wet	Dry		
TP2-1	3'	80	Weathered Claystone	104	276	19	85
	3'	90		90	208		95
	5'	specified		89	187	14	96
TP4-1	3'	80	Weathered Claystone	91	257	19	86
	3'	90		82	188		97
TP4-2	3'	80	Weathered Claystone	101	289	21	83
	3'	90		95	217		93
	5'	specified		80	186	15	103
TP4-4	5'	specified	Weathered Claystone	79	170	15	103
TP6-2	3'	80	Weathered Claystone	96	275	21	83
	3'	90		85	223		94
	5'	specified		84	199	14	96
TP6-4	5'	specified	Silty Sand	106	233	7	88
TP7-1	3'	80	Lean clay	96	236	21	83
	3'	90		89	192		93
TP7-2	5'	specified	Lean clay	115	214	7	88
TP7-3	3'	80	Sandy lean clay	78	227	14	92
	3'	90		70	178		103

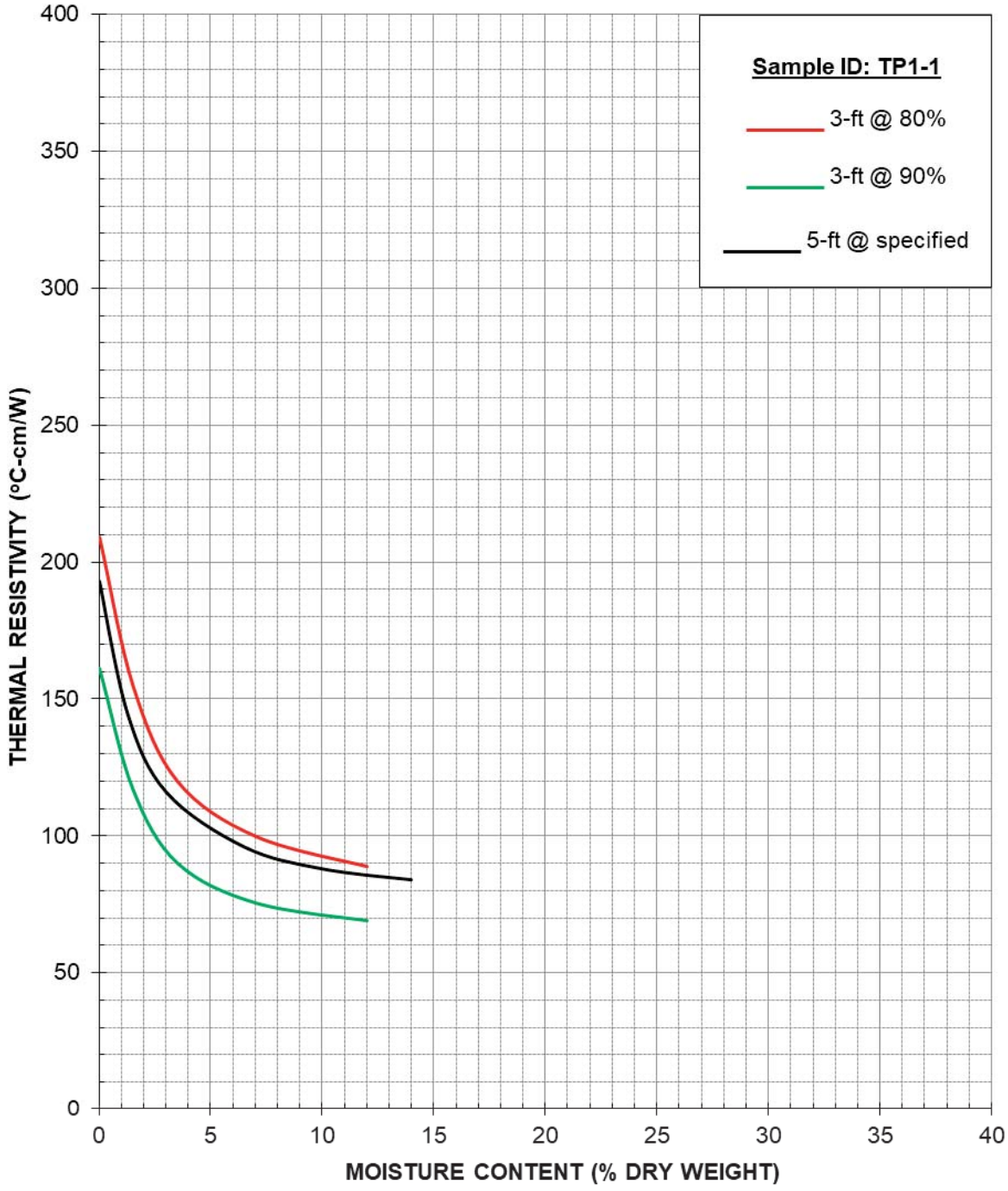
Comments: The thermal characteristic depicted in the dryout curves apply for the soils at their respective test dry density.

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

Geotherm USA

Nimesh Patel

THERMAL DRYOUT CURVES



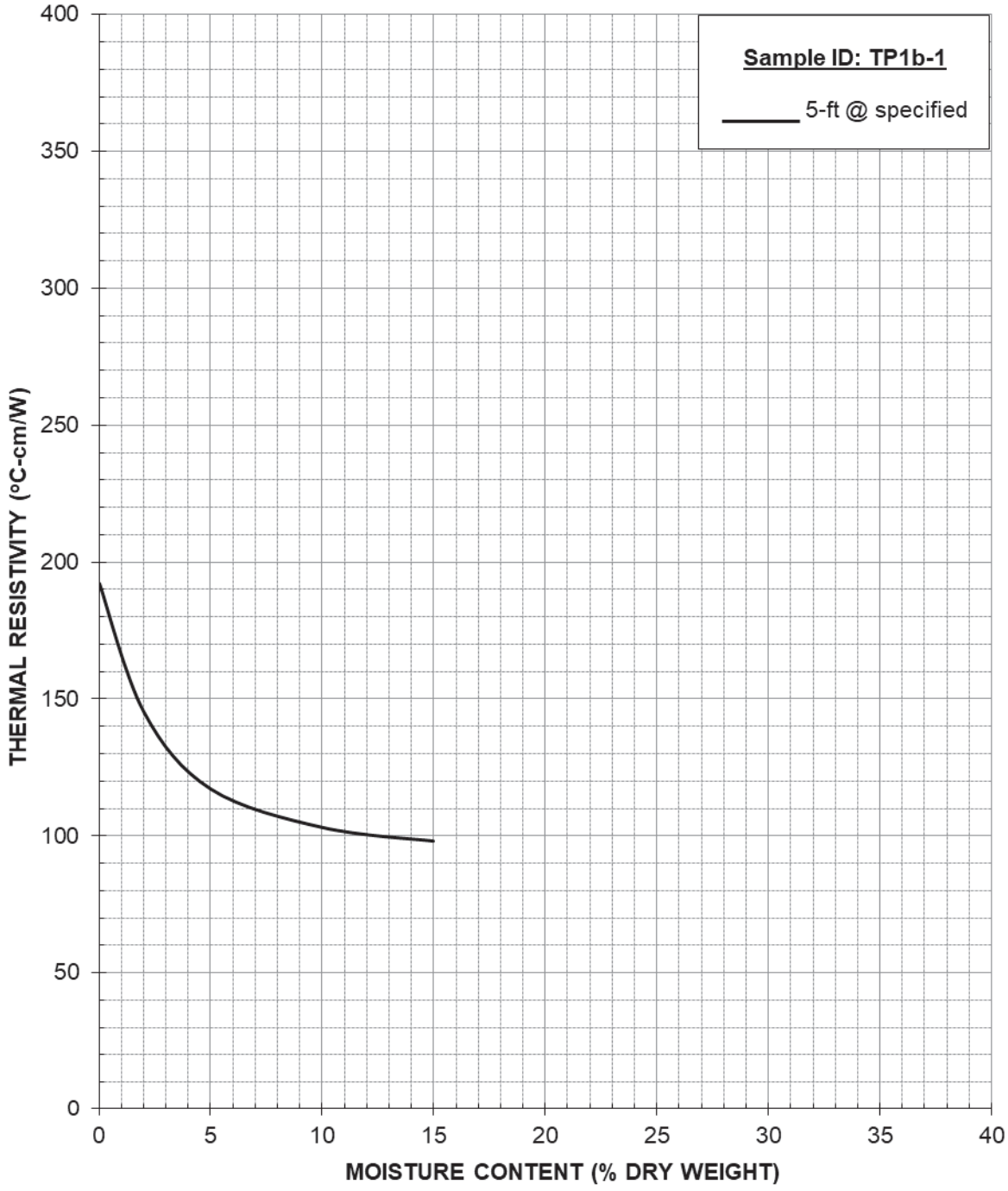
Terracon Consultants, Inc. (Project No. 23205109)

Thermal Analysis of Native Soil

Pike Solar – Fountain, CO

December 2020 **Figure 1**

THERMAL DRYOUT CURVES



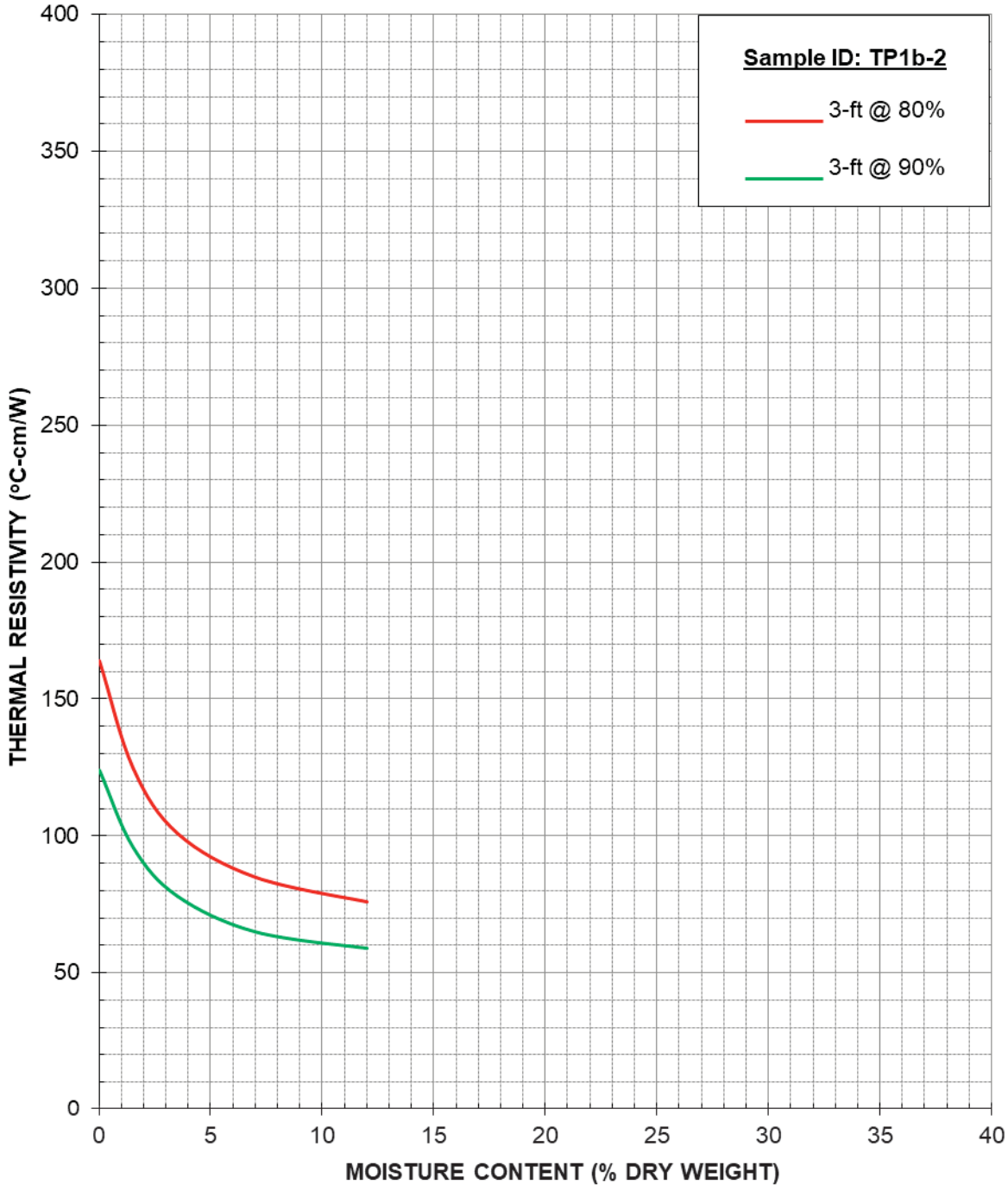
Terracon Consultants, Inc. (Project No. 23205109)

Thermal Analysis of Native Soil

Pike Solar – Fountain, CO

December 2020 **Figure 2**

THERMAL DRYOUT CURVES



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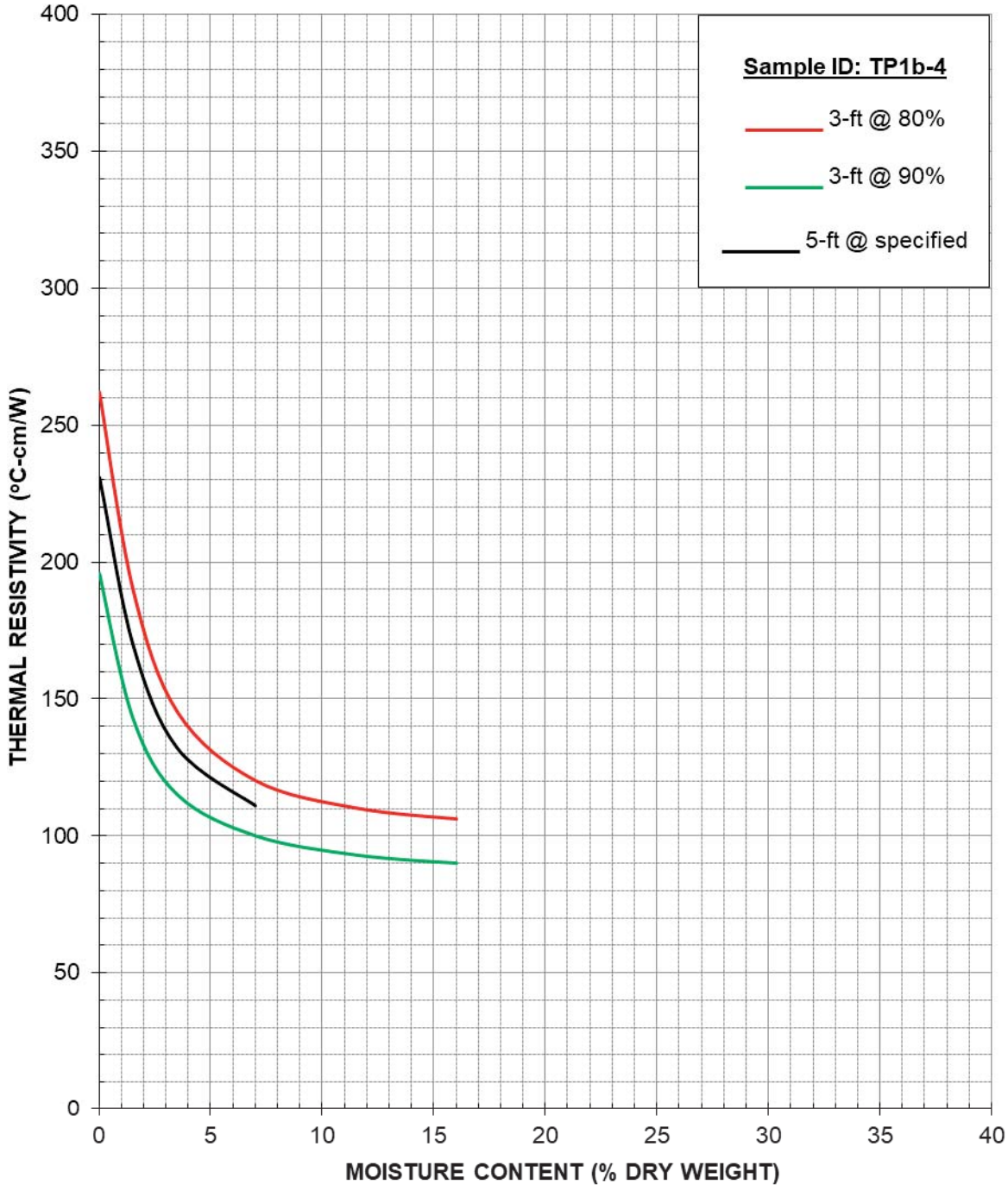
Thermal Analysis of Native Soil

Pike Solar – Fountain, CO

December 2020 **Figure 3**

THERMAL DRYOUT CURVES



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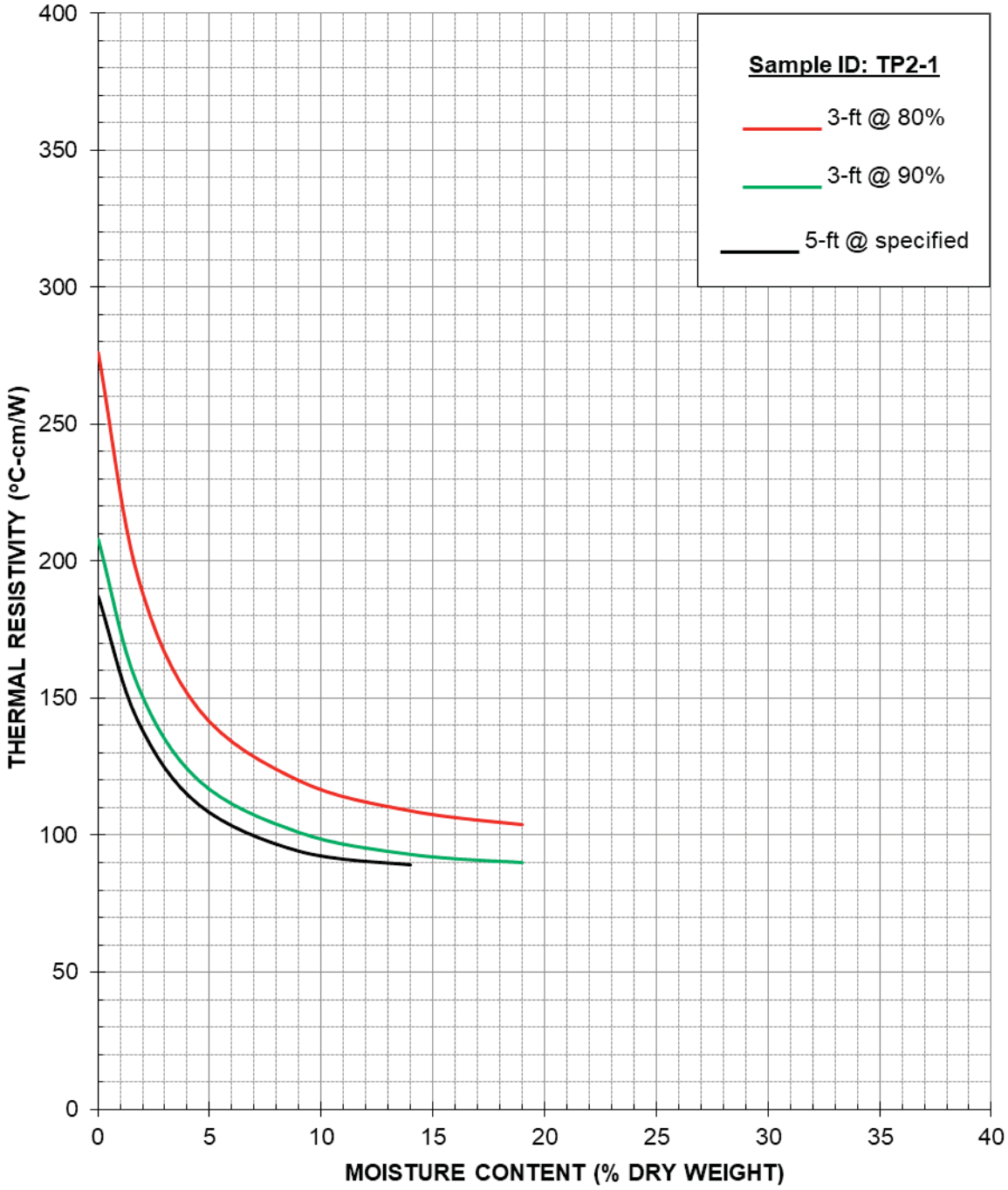
Thermal Analysis of Native Soil

Pike Solar – Fountain, CO

December 2020 **Figure 4**

THERMAL DRYOUT CURVES



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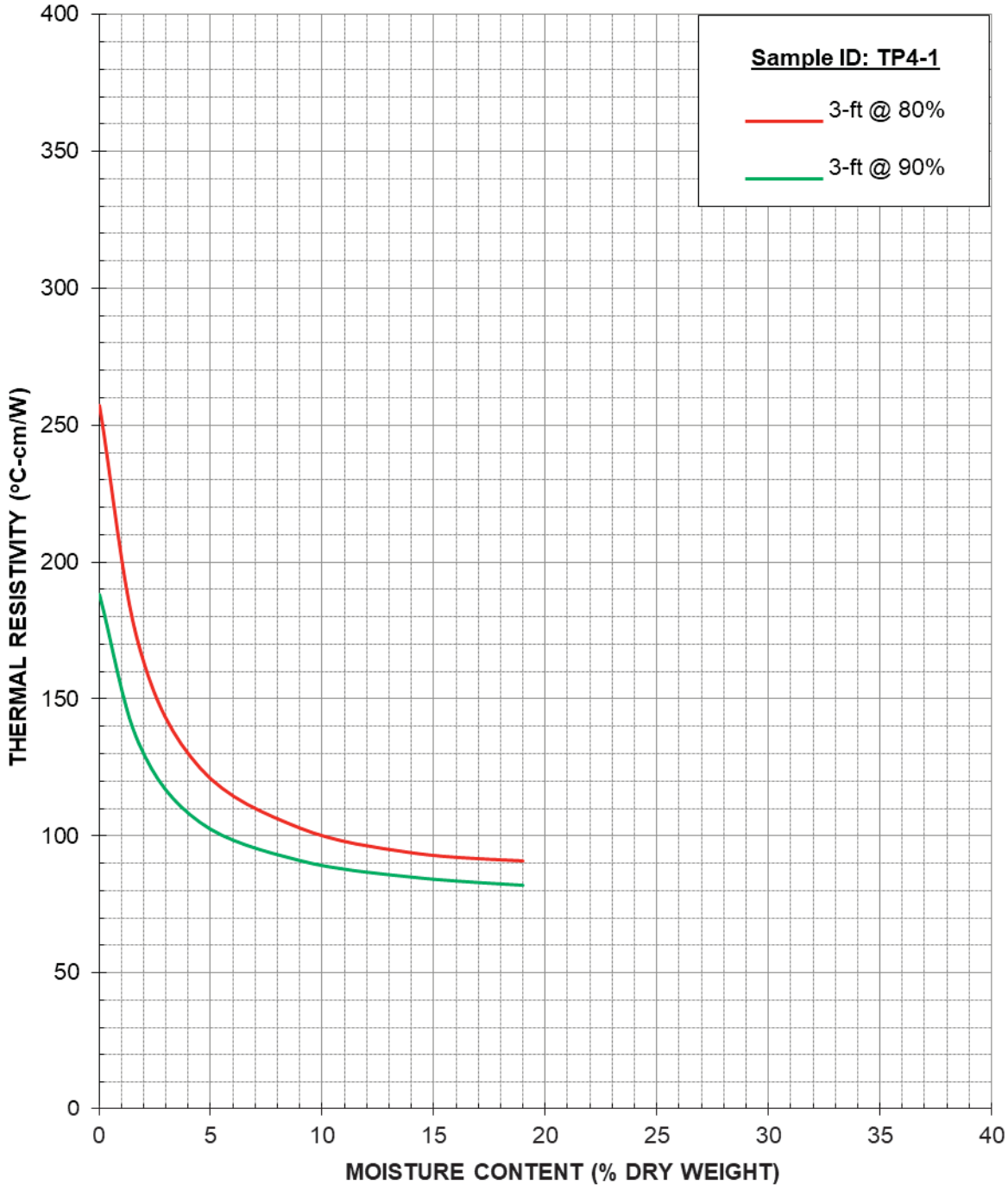
Thermal Analysis of Native Soil

Pike Solar – Fountain, CO

December 2020 **Figure 5**

THERMAL DRYOUT CURVES



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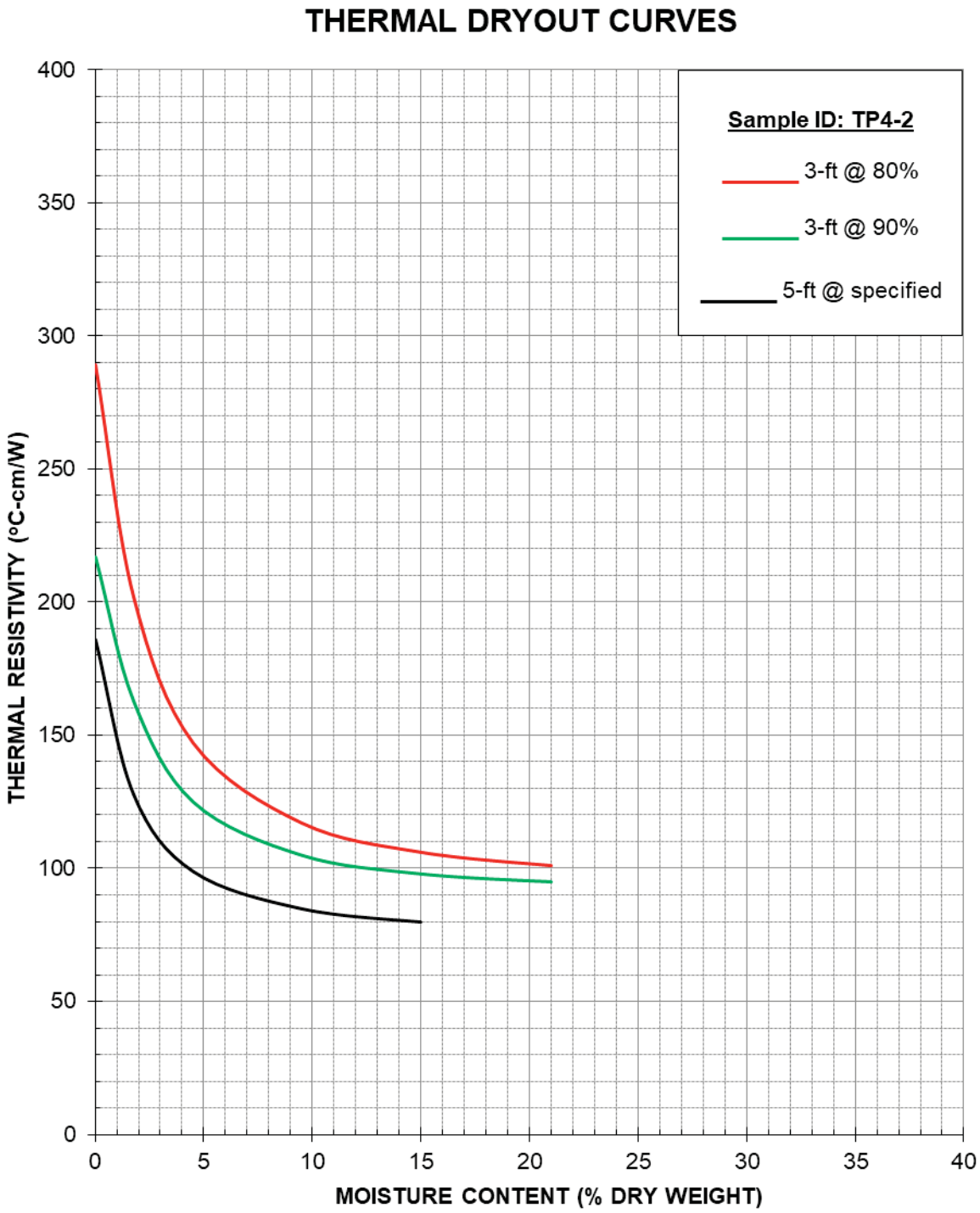
Thermal Analysis of Native Soil

Pike Solar – Fountain, CO

December 2020 **Figure 6**



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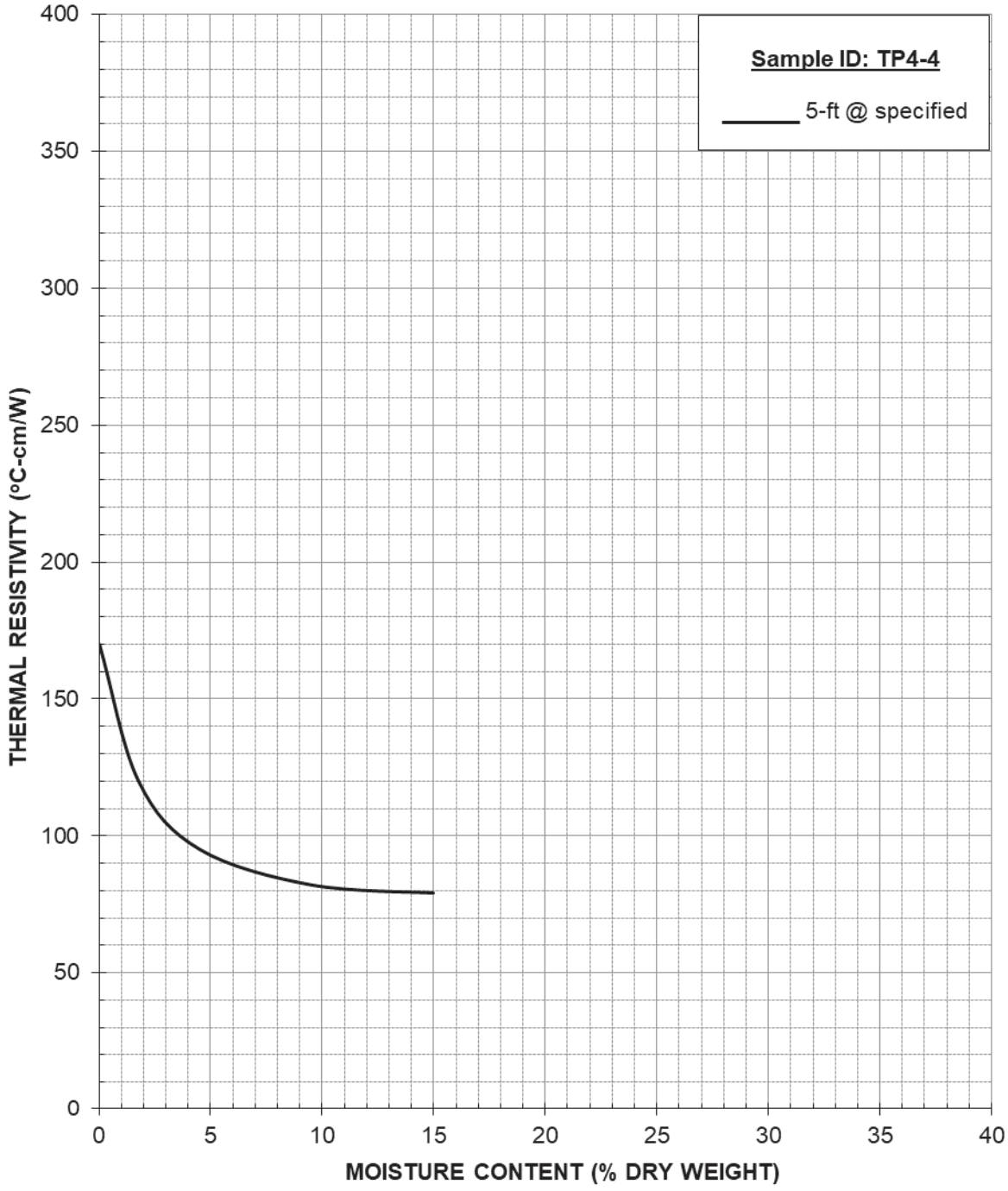
Thermal Analysis of Native Soil

Pike Solar – Fountain, CO

December 2020 **Figure 7**

THERMAL DRYOUT CURVES



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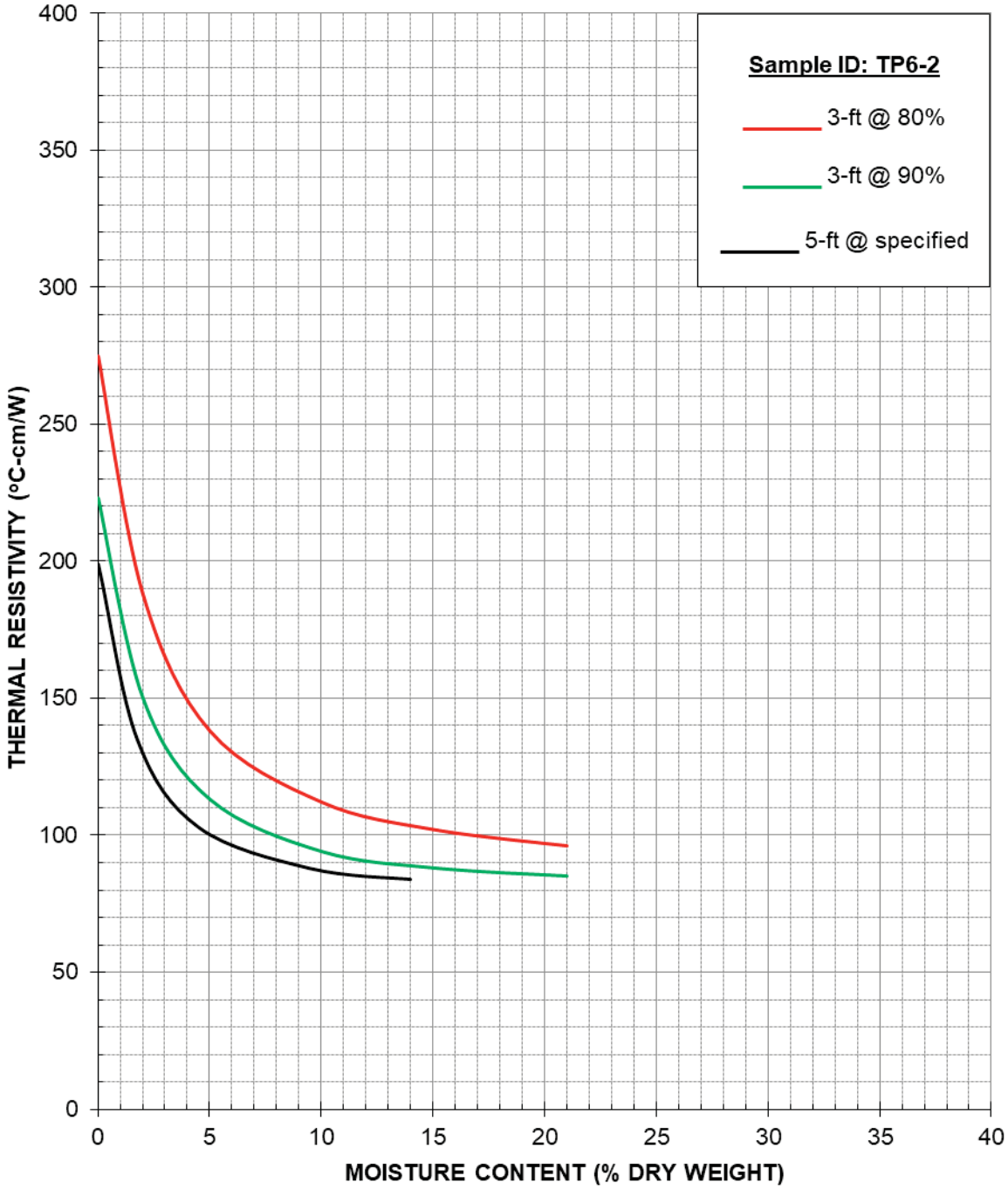
Thermal Analysis of Native Soil

Pike Solar – Fountain, CO

December 2020 **Figure 8**

THERMAL DRYOUT CURVES



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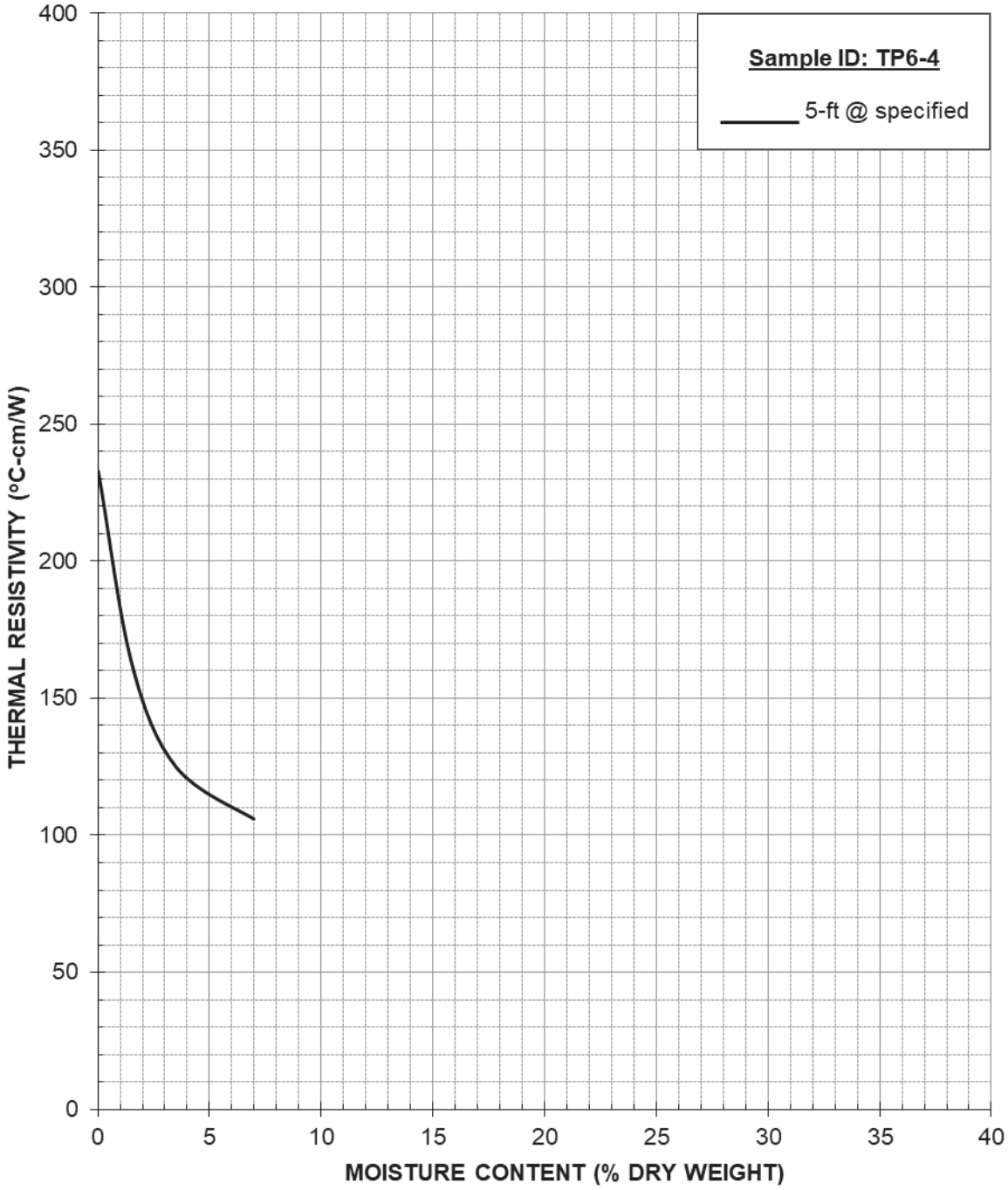
Thermal Analysis of Native Soil

Pike Solar – Fountain, CO

December 2020 **Figure 9**

THERMAL DRYOUT CURVES



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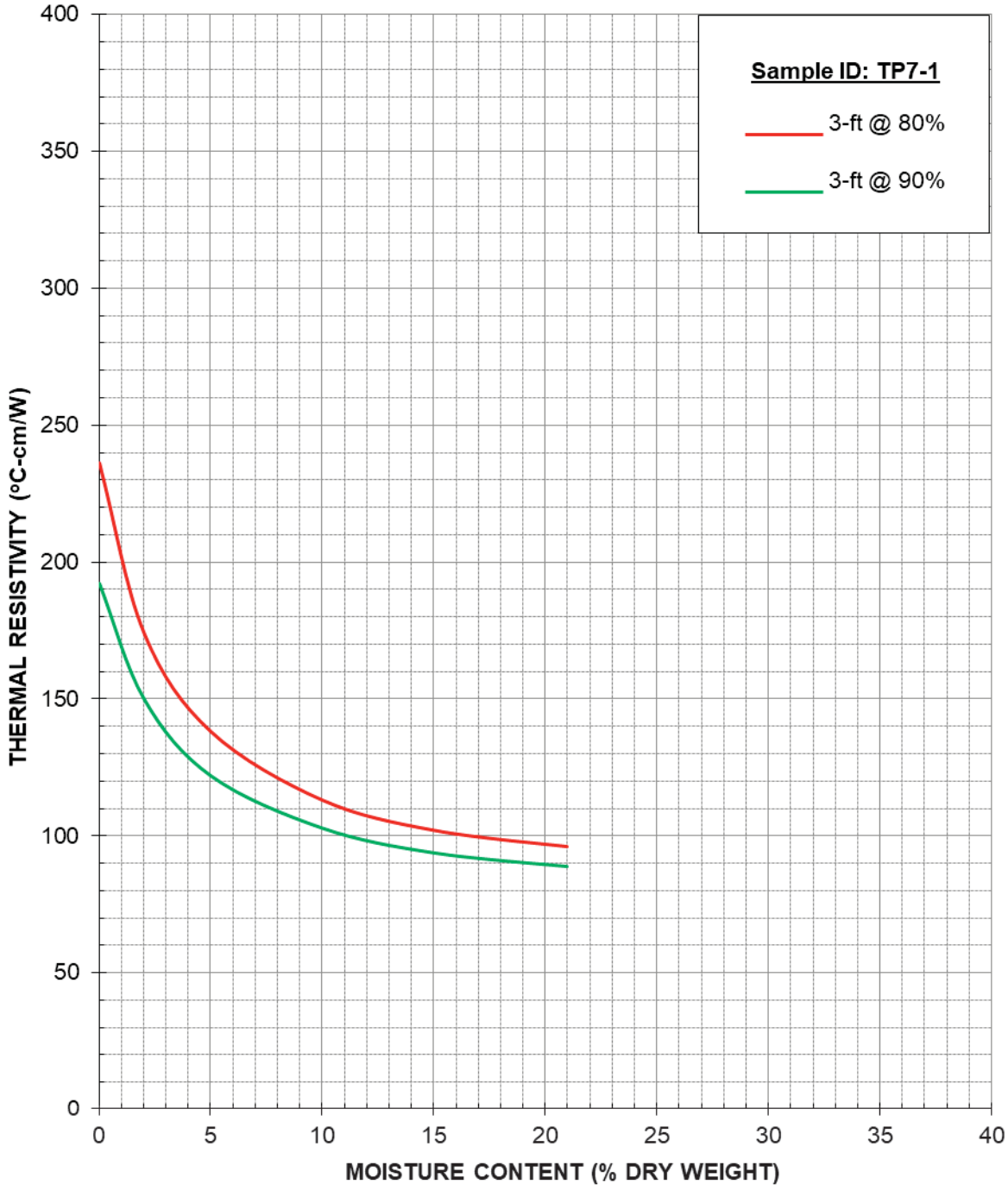
Thermal Analysis of Native Soil

Pike Solar – Fountain, CO

December 2020 **Figure 10**

THERMAL DRYOUT CURVES



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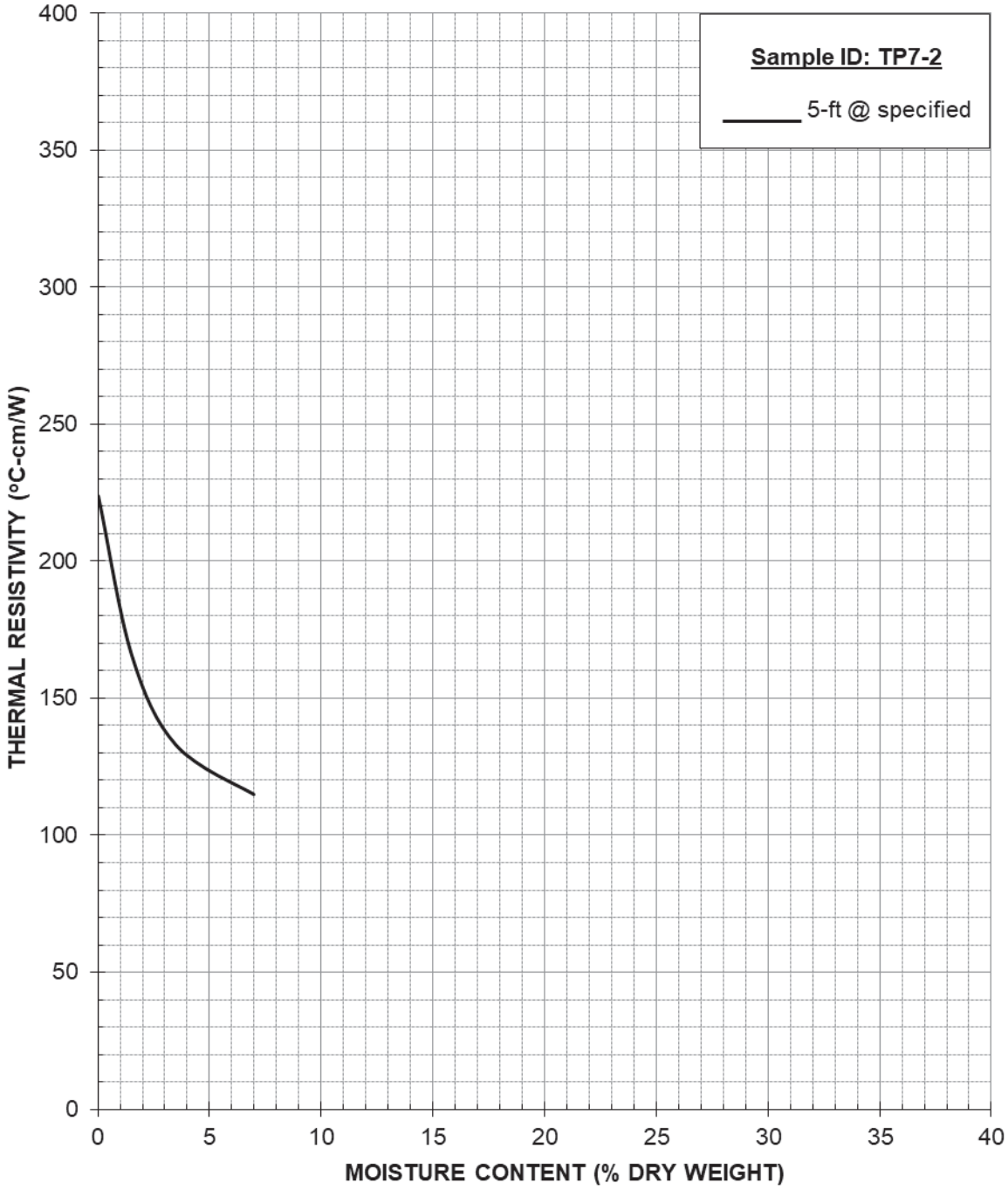
Thermal Analysis of Native Soil

Pike Solar – Fountain, CO

December 2020 **Figure 11**

THERMAL DRYOUT CURVES



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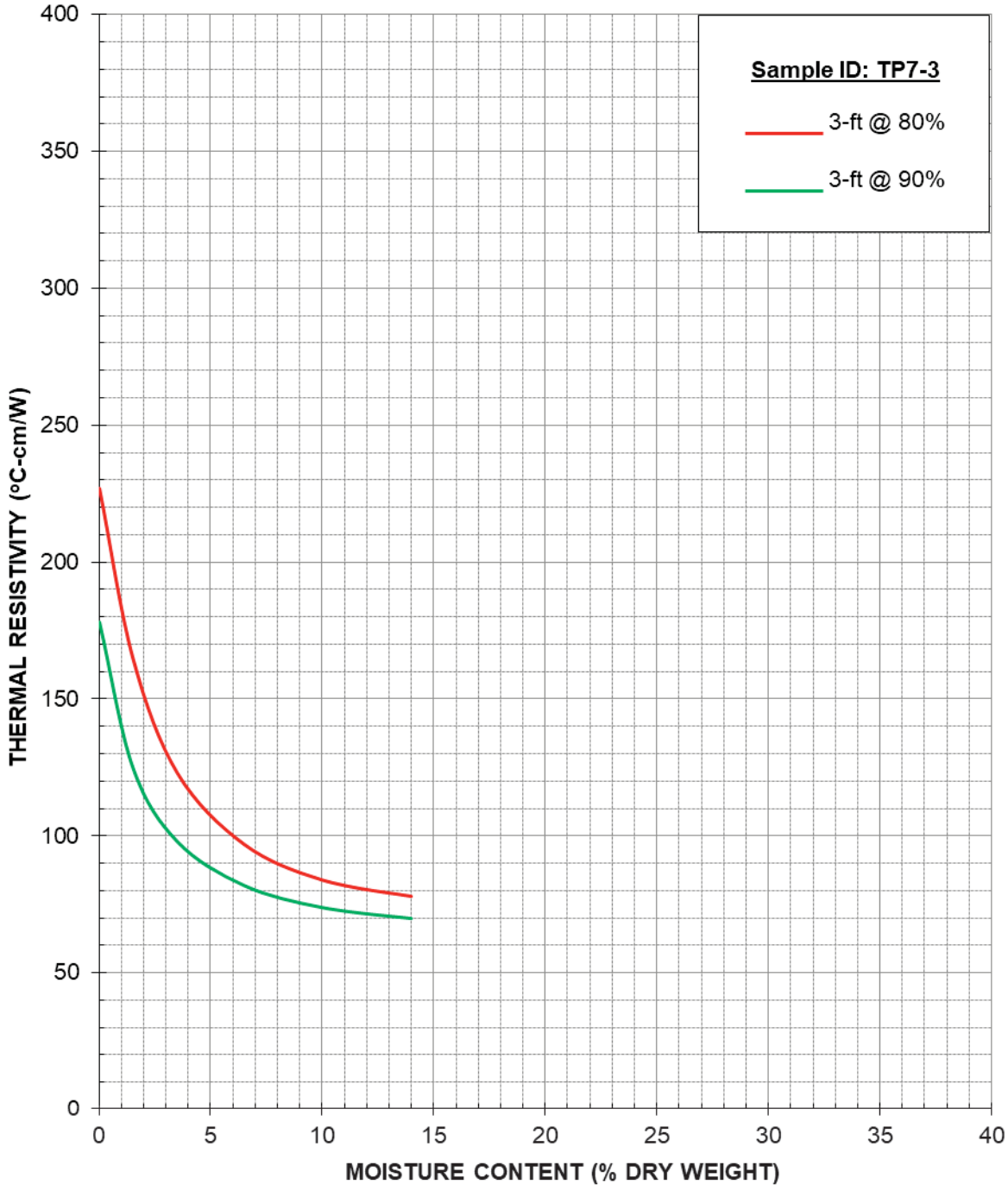
Thermal Analysis of Native Soil

Pike Solar – Fountain, CO

December 2020 **Figure 12**

THERMAL DRYOUT CURVES



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Thermal Analysis of Native Soil

Pike Solar – Fountain, CO

December 2020 **Figure 13**

APPENDIX D – ROADWAY DESIGN CALCULATIONS

Contents:

Note: All attachments are one page unless noted above.

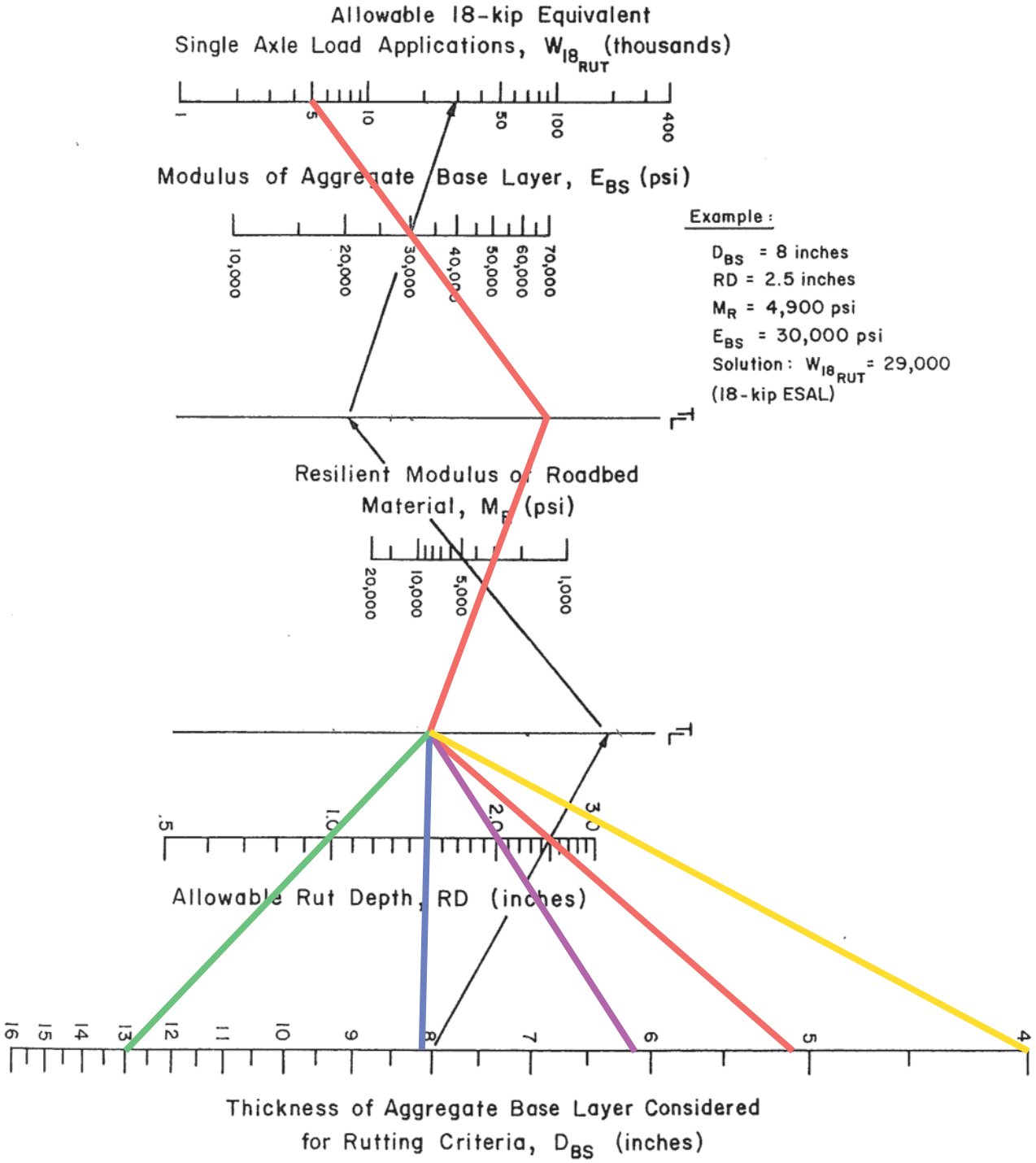

Figure 4.3. Design Chart for Aggregate-Surfaced Roads Considering Allowable Rutting

Exhibit D-1