

January 27, 2022

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Attn: Ms. Rocio Budetta  
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Re: Geotechnical Engineering Report  
Proposed Industrial Development  
South of W Acacia Ave. and West of S Kirby St.  
Hemet, California  
Terracon Project No. CB215163

Dear Ms. Budetta:

We have completed the Geotechnical Engineering services for the above referenced project. This study was performed in general accordance with Terracon Proposal No. PCB215163 dated November 5, 2021. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork, the design and construction of foundations, floor slabs, pavement and stormwater infiltration results 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.**

  
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Geotechnical Project Engineer



Keith P. Askew, P.E., G.E.  
Department Manager

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

## ATTACHMENTS

**EXPLORATION AND TESTING PROCEDURES**  
**SITE LOCATION AND EXPLORATION PLANS**  
**EXPLORATION RESULTS**  
**SUPPORTING INFORMATION**

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

**Geotechnical Engineering Report**  
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**South of W Acacia Ave. and West of S Kirby St.**  
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## **INTRODUCTION**

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed Warehouse facility to be located at South of W Acacia Ave. and West of S Kirby St. in Hemet, California. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- 2019 California Building Code (CBC) seismic design parameters
- Seismic settlement
- Site preparation and earthwork
- Excavation considerations
- Seismic site classification
- Lateral earth pressures
- Foundation design and concrete slabs-on-grade
- Pavement section design
- Infiltration and drainage

The geotechnical engineering Scope of Services for this project included the advancement of twenty-one (21) test borings to depths ranging from approximately 5 to 51½ feet below existing site grades.

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

## **SITE CONDITIONS**

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

Item	Description
<b>Parcel Information</b>	<p>The project is located South of W Acacia Ave. and West of S Kirby St. in Hemet, California. APN: 456-030-020.</p> <p>The property is approximately 43.56 acres.</p> <p>Latitude 33.7398°N/Longitude 117.0001°W (approximate)</p> <p>See <b>Site Location</b></p>
<b>Existing Improvements</b>	<p>The project site generally consists of an undeveloped tract of land. The land is currently vacant and from historical images available from Google Earth minimum ground work has been performed for leveling. A large retail shopping center is located approximately 1,000 ft northwest of the site.</p>
<b>Current Ground Cover</b>	<p>The project site is primarily underlain with native soils with a light growth of grass and vegetation at the surface.</p>
<b>Existing Topography</b>	<p>The site generally slopes to the west with elevations ranging from about 1,533 feet in the east to about 1,527 feet in the west.</p>

## PROJECT DESCRIPTION

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
<b>Project Description</b>	<p>The project generally consists of the construction of a large warehouse facility. The warehouse building will have a footprint area of approximately 825,440 square feet (sf). The project will also include truck-trailer parking, car parking, utilities, and driveways. We assume loading docks on the order of 4 feet will be included.</p> <p>We assume that stormwater diversion structures such as culverts, open channels, and storm drains will also be constructed on the site.</p> <p>Development will also include on-site Low Impact Development (LID) infiltration structures. The Conceptual Site Plan was appended with three concept chamber locations and provided to us on October 28, 2021.</p>
<b>Proposed Structures</b>	<p>Warehouse building with an approximate area of 825,440 square feet. New concept plans in preparation may change the size slightly.</p>
<b>Building Construction</b>	<p>Concrete construction founded on conventional continuous and spread footings with concrete slabs on grade.</p>
<b>Finished Floor Elevation</b>	<p>We assume the final floor elevations will be within 5 feet of existing grades.</p>
<b>Maximum Loads (assumed)</b>	<ul style="list-style-type: none"> <li>■ Columns: 50 to 250 kips</li> <li>■ Walls: 2 to 5 kips per linear foot (klf)</li> <li>■ Slabs: 150 pounds per square foot (psf). This loading is for conventional live loads and does not include storage racks loads or forklift vehicular loads.</li> </ul>

Item	Description
<b>Grading/Slopes</b>	Grading is anticipated to consist of cuts and fills with maximum thicknesses of approximately 10 feet, excluding remedial grading requirements. Cut and fill slopes with heights less than 5 feet and inclinations of 2:1 (horizontal:vertical) are expected to achieve final grades.
<b>Below-Grade Structures</b>	Culverts and storm drain lines; sizes and depths are unknown.
<b>Infiltration Systems</b>	Low Impact Development (LID) structures for stormwater infiltration are proposed within the project site.
<b>Free-Standing Retaining Walls</b>	Retaining walls with maximum heights of 5 feet are expected to be constructed as part of site development to achieve final grades.
<b>Pavements</b>	<p>We understand new pavements will be constructed as parking areas and travel lanes and are included in this project.</p> <p>Assumed traffic indices (TIs) are as follows:</p> <ul style="list-style-type: none"> <li>■ Auto Parking Areas: TI=5.0</li> <li>■ Auto Drive Lanes: TI=5.5</li> <li>■ Truck Parking areas: TI=7.0</li> <li>■ Truck Drive Lanes: TI=8.0</li> <li>■ Pavement design period: 20 years</li> </ul>

## GEOTECHNICAL CHARACTERIZATION

### Site Geology

The site is located within the San Jacinto Valley, part of the Peninsular Ranges geomorphic province. Most of the Peninsular Ranges is underlain by batholithic rocks of granitic composition. The San Jacinto Valley is characterized by a downdropped structural block between two major strike-slip faults of the San Jacinto fault zone: the Claremont fault and the Casa Loma fault. The site is located west of the Claremont fault and is on the Perris structural block.

The site is underlain by Holocene- and late Pleistocene-age alluvial fan deposits of Bautista Canyon (Morton and Matti, 2005, [https://ngmdb.usgs.gov/Prodesc/proddesc\\_72184.htm](https://ngmdb.usgs.gov/Prodesc/proddesc_72184.htm)). These materials are described as unconsolidated and consisting predominantly of gravel, sand and silt.

### Subsurface Profile

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

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

Stratum	Approximate Depth to Bottom of Stratum (feet)	Material Description <sup>1</sup>	Consistency/Relative Density
Stratum I	51 ½ (Maximum depth of exploration)	Interbedded layers of silty sand, sandy silt, lean clay with sand, sandy lean clay and well graded sand with silt, brown and olive brown	---

1. The soil materials encountered are not expected to experience substantial volumetric changes (shrink/swell) with fluctuations in moisture content.

## Groundwater Conditions

The borings were advanced using continuous flight auger drilling techniques that allow short-term groundwater observations to be made while drilling. Groundwater was not encountered during the course of drilling. 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.

The site is located in the Eastern Municipal Water District of Riverside groundwater management area. The historical-high groundwater depth beneath the site is approximately 187 feet bgs based on historical groundwater monitoring well information obtained from the State Groundwater Management Agency (SGMA), Well No. EMWD10521, located approximately 0.45 miles northwest of the site. Data for this well indicate groundwater depths at approximately 187 feet bgs at the location of the well (elevation 1525 feet) for the time period from 2012 to 2021.

## Hydro-consolidation

To evaluate the potential deformation that may be caused by the addition of water to subsurface soils, hydroconsolidation testing was performed on a selected, representative relatively undisturbed samples. The results are shown in **Exploration Results** section. The test results indicate collapse potentials of -1.5% (expansion) (B-2 at 15 feet), 2% (B-3 at 10 feet), 0.1% (B-4 at 7.5 feet), 1.25% (B-9 at 10 feet), 1.0% (B-11 at 10 feet) and 6.5% (B-12 at 7.5 feet), boring number and sample depths summarized in parentheses. all samples were saturated under a

confining pressure of 2,000 psf. The risk of hydro collapse can be mitigated by removal and replacement of the top 5 feet of on-site soil with engineered fill.

## SEISMIC CONSIDERATIONS

Based on the soil properties encountered at the site and as described on the exploration logs and results, it is our opinion that the Seismic Site Classification is D. The 2019 California Building Code (CBC) Seismic Design Parameters have been generated using the SEAOC/OSHPD Seismic Design Maps Tool. This web-based software application calculates seismic design parameters in accordance with ASCE 7-16 and 2019 CBC. The 2019 CBC requires that a site-specific ground motion study be performed in accordance with Section 11.4.8 of ASCE 7-16 for Site Class D sites with a mapped  $S_1$  value greater than or equal 0.2.

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

Based on this exception, the spectral response accelerations presented below were calculated using the site coefficients ( $F_a$  and  $F_v$ ) from Tables 1613.2.3(1) and 1613.2.3(2) presented in Section 16.4.4 of the 2019 CBC.

Description	Value
Site Classification (CBC) <sup>1</sup>	D <sup>2</sup>
Site Latitude (°N)	33.7398
Site Longitude (°W)	117.0001
$S_s$ Spectral Acceleration for a 0.2-Second Period	1.81
$S_1$ Spectral Acceleration for a 1-Second Period	0.71
$F_a$ Site Coefficient for a 0.2-Second Period	1.0
$F_v$ Site Coefficient for a 1-Second Period	1.7
Site Modified Peak Ground Acceleration	0.842g
De-aggregated Mode Magnitude <sup>3</sup>	8.1

Description	Value
1. Seismic site classification in general accordance with the <i>2019 California Building Code</i> .	
2. The 2019 California Building Code (CBC) requires a site soil profile determination extending to a depth of 100 feet for seismic site classification. The current scope does not include the required 100-foot soil profile determination. Our borings were extended to a maximum depth of 51½ feet. This seismic site class definition considers that similar or denser soils continue below the maximum depth of the subsurface exploration. Additional exploration to deeper depths would be required to confirm the conditions below the current depth of exploration.	
3. These values were obtained using on-line Unified Hazard Tool by the USGS ( <a href="https://earthquake.usgs.gov/hazards/interactive/">https://earthquake.usgs.gov/hazards/interactive/</a> ) for return period of 2% in 50 years accessed	

A site-specific ground motion study may reduce design values and consequently construction costs. We recommend consulting with a structural engineer to evaluate the need for such study and its potential impact on construction costs. Terracon should be contacted if a site-specific ground motion study is desired.

### **Faulting and Estimated Ground Motions**

The site is located in the seismically active southern California area. The type and magnitude of seismic hazards affecting the site are dependent on the distance to causative faults, the intensity, and the magnitude of the seismic event. As calculated using the USGS Unified Hazard Tool, the San Jacinto Fault, which is considered to have the most significant effect at the site from a design standpoint, has a maximum earthquake magnitude of 7.9 and is located approximately 5.8 kilometers from the site.

Based on the USGS Design Maps Summary Report, using the American Society of Civil Engineers (ASCE 7-16) standard, the peak ground acceleration (PGA<sub>M</sub>) at the project site is expected to be 0.842 g. Based on the USGS Unified Hazard Tool, the project site has a de-aggregated modal magnitude of 8.1. The site is not located within an Alquist-Priolo Earthquake Fault Zone based on our review of the State Fault Hazard Maps.

## **LIQUEFACTION AND SEISMIC SETTLEMENT**

### **Liquefaction Potential**

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

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The subsurface materials generally consist of Interbedded layers of silty sand, sandy silt, lean clay with sand, sandy lean clay and well graded sand with silt extending to the maximum depth of the borings approximately 51½ feet bgs. Groundwater was not encountered during the course of drilling and has historically been greater than 100 feet bgs.

According to the County of Riverside geologic hazard GIS map, the site is located within an area having a moderate liquefaction potential. Based on the County of Riverside map, and the subsurface conditions encountered, we performed a liquefaction evaluation using the data from boring B-1.

### Seismic Settlement

To determine the amount of seismic settlement, we utilized the software “LiquefyPro” by CivilTech Software, seismic settlement was estimated using the soil profile from exploratory boring B-1. A Peak Ground Acceleration (PGA) of 1.105g and the de-aggregated mode magnitude of 8.1 were utilized as input into the liquefaction analysis program. Settlement analysis used the Ishihara / Yoshimine method and the fines percentage were corrected for liquefaction using the Modify Stark/Olson method. Groundwater was not encountered within the maximum depths of exploration during or at the completion of drilling and has historically been greater than 100 feet bgs.

Based on the calculation results, seismically induced settlement (dry sand settlement) is estimated to be on the order of 4 inches. Earthwork recommendations to remove and recompact the upper zones of the subgrade soils are provided below to lower the total seismic settlement to be on the order of 3 inches. The maximum differential seismic settlement could be on the order of half of total seismic settlement over a distance of 50 feet.

## GEOTECHNICAL OVERVIEW

The site appears suitable for the proposed construction based upon geotechnical conditions encountered in the test borings, provided that the recommendations provided in this report are implemented in the design and construction phases of this project.

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

Based on the conditions encountered, the proposed buildings can be supported on shallow foundations, such as spread footings, provided the structures are designed to tolerate the anticipated total and differential seismic settlements.

Groundwater was not encountered during the course of drilling.

The **General Comments** section provides an understanding of the report limitations.

## **EARTHWORK**

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

Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project. The **General Comments** section provides an understanding of the report limitations.

### **Site Preparation**

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

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

### **Subgrade Preparation**

Due to the presence of relatively loose and soft soils and potential for seismic settlement in the upper zones of the on-site soils, we recommend that the proposed structures be supported on engineered fill extending to a minimum depth of 3 feet below the bottom of foundations, or 5 feet below existing grades, whichever is greater. Engineered fill placed beneath the entire footprint of the structures should extend horizontally a minimum distance of 5 feet beyond the outside edge of perimeter footings.

Subgrade soils beneath exterior slabs and pavements should be removed and replaced to a depth of 1 foot below the proposed pavement section, or 1 foot below existing grade, whichever is deeper.

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Exposed areas which will receive fill, once properly cleared and benched where necessary, should be scarified to a minimum depth of 10 inches, moisture conditioned as necessary and compacted per the compaction requirements in this report. Compacted fill soils should then be placed to the design grades, and the moisture content and compaction of soils should be maintained until slab, pavement, or proposed improvements are constructed.

Based upon the subsurface conditions determined from the geotechnical exploration, the on-site soils are suitable for the proposed fill soils, and are anticipated to be relatively workable. However, the workability of the soils may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workable may be improved by scarifying and drying.

### Excavation

We anticipate that excavations for the proposed construction can be accomplished with conventional earthmoving equipment. The bottom of excavations should be thoroughly cleaned of loose soils and disturbed materials prior to backfill placement and/or construction.

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

### Fill Material Types

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

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

■ general site grading	■ foundation backfill
■ foundation areas	■ pavement areas
■ interior floor slab areas	■ exterior slab areas

If imported soils are used as fill materials to raise grades, these soils should conform to low volume change materials and should conform to the following requirements:

<b>Gradation</b>	<b>Percent Finer by Weight (ASTM C 136)</b>
3" .....	100
No. 4 Sieve .....	50 - 100
No. 200 Sieve .....	20 - 50
■ Liquid Limit .....	30 (max)

- Plasticity Index ..... 15 (max)
  - Maximum Expansive Index\* ..... 20 (max)
- \*ASTM D 4829

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

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

**Fill Compaction Requirements**

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

Material Type and Location	Per the Modified Proctor Test (ASTM D 1557)		
	Minimum Compaction Requirement (%)	Range of Moisture Contents for Compaction Above Optimum	
		Minimum	Maximum
On-site soils and/or low volume change imported fill:			
Beneath foundations:	90	0%	+2%
Beneath interior slabs:	90	0%	+2%
Miscellaneous backfill and behind retained walls:	90	0%	+2%
Beneath pavements:	95	0%	+2%
Utility Trenches*:	90	0%	+2%
Bottom of excavation receiving fill:	90	0%	+2%
Aggregate base (beneath pavements):	95	0%	+2%

\* Upper 12 inches should be compacted to 95% within pavement and structural areas.

## **Utility Trenches**

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

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

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

## **Grading and Drainage**

Positive drainage should be provided during construction and maintained throughout the life of the development. Infiltration of water into utility trenches or foundation excavations should be prevented during construction. Planters and other surface features which could retain water in areas adjacent to the building or pavements should be sealed or eliminated. In areas where sidewalks or paving do not immediately adjoin the structure, we recommend that protective slopes be provided with a minimum grade of approximately 5 percent for at least 10 feet from perimeter walls. Backfill against footings, exterior walls, and in utility and sprinkler line trenches should be well compacted and free of all construction debris to reduce the possibility of moisture infiltration.

We recommend a minimum horizontal setback distance of 10 feet from the perimeter of any building and the high-water elevation of the nearest storm-water retention basin.

Roof drainage should discharge into splash blocks or extensions when the ground surface beneath such features is not protected by exterior slabs or paving. Sprinkler systems and landscaped irrigation should not be installed within 5 feet of foundation walls.

## **Exterior Slab Design and Construction**

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

- minimizing moisture increases in the backfill;
- controlling moisture-density during placement of backfill;

- using designs which allow vertical movement between the exterior features and adjoining structural elements;
- placing effective control joints on relatively close centers.

## **Construction Considerations**

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

Onsite soils contains zones of cohesionless sandy soils. Such soils have the tendency to cave and slough during excavations. Therefore, formwork may be needed for foundation excavations.

Should unstable subgrade conditions develop stabilization measures may need to be employed. Stabilization measures may include placement of aggregate base and multi-axial geogrid. Use of lime, fly ash, kiln dust or cement could also be considered as a stabilization technique. Laboratory evaluation is recommended to determine the effect of chemical stabilization on subgrade soils prior to construction.

We recommend that the earthwork portion of this project be completed during extended periods of dry weather if possible. If earthwork is completed during the wet season (typically November through April) it may be necessary to take extra precautionary measures to protect subgrade soils. Wet season earthwork operations may require additional mitigative measures beyond that which would be expected during the drier summer and fall months. This could include diversion of surface runoff around exposed soils and draining of ponded water on the site. Once subgrades are established, it may be necessary to protect the exposed subgrade soils from construction traffic.

As a safety measure, no equipment should be operated within 5 feet of the edge of the excavation and no materials should be stockpiled within 10 feet of the excavation. Excavations should not approach closer than a distance equal to the depth of excavation from existing structures/facilities without some form of protection for the facilities. Proper berming or ditching should be performed to divert any surface runoff away from the excavation.

## **Construction Observation and Testing**

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation,

proof-rolling, placement and compaction of controlled compacted fills, backfilling of excavations to the completed subgrade.

The exposed subgrade and each lift of compacted fill should be tested, evaluated, and reworked as necessary until approved by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 2,500 square feet of compacted fill in the building areas and 5,000 square feet in pavement areas. One density and water content test for every 50 linear feet of compacted utility trench backfill.

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

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

## SHALLOW FOUNDATIONS

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

Item	Description
<b>Foundation Support</b>	Engineered fill extending 3 feet below the bottom of foundations, or 5 feet below existing grades, whichever is greater.
<b>Net Allowable Bearing pressure<sup>1, 2</sup> (On-site soils or structural fill)</b>	2,500 psf
<b>Minimum Foundation Dimensions</b>	Columns: 24 inches Continuous: 18 inches
<b>Minimum Footing Depth</b>	18" below finished grade
<b>Ultimate Passive Resistance<sup>4</sup></b>	375 pcf
<b>Ultimate Coefficient of Sliding Friction<sup>5</sup></b>	0.36
<b>Estimated Total Static Settlement from Structural Loads<sup>2</sup></b>	about 1 inch
<b>Estimated Total Seismic Settlement</b>	about 3 inches
<b>Estimated Differential Settlement<sup>2, 6</sup></b>	about 1/2 of total settlement

Item	Description
1.	The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. An appropriate factor of safety has been applied.
2.	Values provided are for maximum loads noted in <b>Project Description</b> . The foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of compacted fill, and the quality of the earthwork operations.
3.	Unsuitable or soft soils should be over-excavated and replaced per the recommendations presented in the <b>Earthwork</b> .
4.	Use of passive earth pressures requires the footing forms be removed and compacted structural fill be placed against the vertical footing face. A factor of safety of 2.0 is recommended.
5.	Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions. A factor of safety of 1.5 is recommended.
6.	Differential settlements are as measured over a span of 40 feet.

## Foundation Construction Considerations

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

If unsuitable bearing soils are encountered at the base of the planned footing excavation, the excavation should be extended deeper to suitable soils, and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations.

To ensure foundations have adequate support, special care should be taken when footings are located adjacent to trenches. The bottom of such footings should be at least 1 foot below an imaginary plane with an inclination of 1.5 horizontal to 1.0 vertical extending upward from the nearest edge of adjacent trenches.

## FLOOR SLABS

DESCRIPTION	RECOMMENDATION
<b>Interior floor system</b>	Slab-on-grade concrete
<b>Floor slab support</b>	Engineered fill extending 3 feet below the bottom of associated foundations, or 5 feet below existing grades, whichever is greater.
<b>Subbase</b>	Minimum 4-inches of Aggregate Base
<b>Modulus of subgrade reaction</b>	200 pounds per square inch per inch (psi/in) (The modulus was obtained based on estimates obtained from NAVFAC 7.1 design charts). This value is for a small loaded area (1 Sq. ft or less) such as for forklift wheel loads or point loads and should be adjusted for larger loaded areas.

The use of a vapor retarder should be considered beneath concrete slabs on grade covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

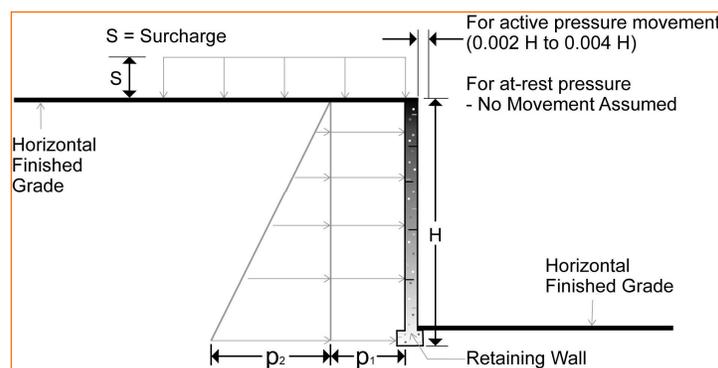
Saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual. Joints or cracks should be sealed with a water-proof, non-extruding compressible compound specifically recommended for heavy duty concrete pavement and wet environments.

Where floor slabs are tied to perimeter walls or turn-down slabs to meet structural or other construction objectives, our experience indicates differential movement between the walls and slabs will likely be observed in adjacent slab expansion joints or floor slab cracks beyond the length of the structural dowels. The Structural Engineer should account for potential differential settlement through use of sufficient control joints, appropriate reinforcing or other means.

## LATERAL EARTH PRESSURES

### Design Parameters

Structures with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to values indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown in the diagram below. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The “at-rest” condition assumes no wall movement and is commonly used for basement walls, loading dock walls, or other walls restrained at the top. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls (unless stated).



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For on-site or import materials that are compacted as recommended in this report, we recommend the following preliminary lateral earth pressure parameters

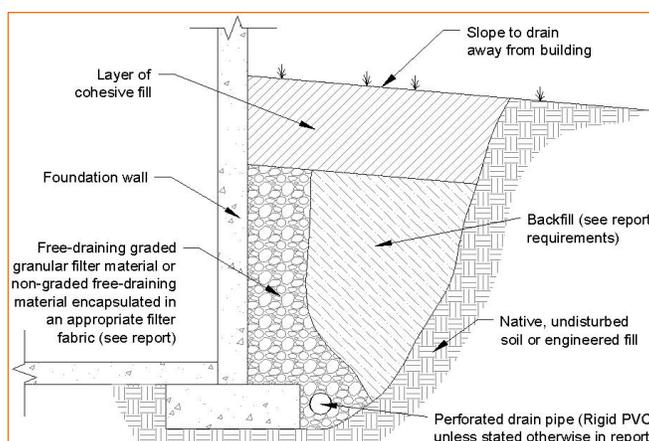
ITEM <sup>1,2</sup>	EFFECTIVE FLUID PRESSURE <sup>5</sup> (UNSATURATED) <sup>6</sup>
Active ( $K_a$ )	42 psf/ft
Passive ( $K_p$ )	375 psf/ft
At-Rest ( $K_0$ )	63 psf/ft
Surcharge Loads <sup>3,4</sup>	0.33 x (S) psf
Coefficient of Friction**	0.36
Wall Foundation Support	Engineered fill extending 2-feet below the bottom of wall foundation
Net Allowable Bearing Pressure <sup>7</sup>	2,200 psf

1. For active earth pressure, wall must rotate about base, with top lateral movements 0.002 H to 0.004 H, where H is wall height. For passive earth pressure conditions, wall movement in a range of 0.005H to 0.01H (H is the height of the wall) is required to fully mobilize passive earth pressures. If this scale of wall movement is not expected, a reduction factor of 50% may be used for passive earth pressure condition design.
2. Uniform, horizontal backfill, compacted to at least 90 percent of the ASTM D1557 maximum dry density, rendering a maximum unit weight of 125 pcf.
3. Uniform surcharge, where S is surcharge pressure. The project structural engineer should provide any surcharge loading.
4. Loading from heavy compaction equipment is not included.
5. No safety factor is included in these values.
6. To achieve "Unsaturated" conditions, follow guidelines in Retaining Wall Drainage below. Terracon should be contacted if drainage systems will not be installed behind retaining walls or if the walls will be located below groundwater.
7. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. An appropriate factor of safety has been applied.

Backfill placed against structures should consist of granular soils. For the granular values to be valid, the granular backfill must extend out and up from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the active and passive cases, respectively.

## Subsurface Drainage for Below-Grade Walls

A perforated rigid plastic drain line installed behind the base of walls and extends below adjacent grade is recommended to prevent hydrostatic loading on the walls. The invert of a drain line around a below-grade building area or exterior retaining wall should be placed near foundation bearing level. The drain line should be sloped to provide positive gravity drainage to daylight or to a sump pit and pump. The drain line should be surrounded by clean, free-draining granular material having less than 5% passing the No. 200 sieve. The free-draining aggregate should be encapsulated in a filter fabric. The granular fill should extend to within 2 feet of final grade, where it should be capped with compacted cohesive fill to reduce infiltration of surface water into the drain system.



As an alternative to free-draining granular fill, a pre-fabricated drainage structure may be used. A pre-fabricated drainage structure is a plastic drainage core or mesh which is covered with filter fabric to prevent soil intrusion, and is fastened to the wall prior to placing backfill.

## Subsurface Drainage for Below Grade Walls

Backfill behind retaining walls should consist of a soil of granularity sufficient that the backfill will properly drain. The granular soil should be classified per the USCS as GW, GP, SW, SP, SW-SM or SP-SM. Surface drainage should be provided to prevent ponding of water behind walls. A drainage system consisting of either or both of the following should be installed behind all retaining walls:

- A 4-inch-diameter perforated PVC (Schedule 40) pipe or equivalent at the base of the stem encased in 2 cubic feet of granular drain material per linear foot of pipe or
- Synthetic drains such as Enkadrain, Miradrain, Hydraway 300 or equivalent.

Perforations in the PVC pipe should be 3/8 inch in diameter and should be placed facing down. Granular drain material should be wrapped with filter cloth such as Mirafi 140 or equivalent to

prevent clogging of the drains with fines. Walls should be waterproofed to prevent nuisance seepage and damage. Water should outlet to an approved drain.

## **PAVEMENTS**

### **General Pavement Comments**

Pavement designs are provided for the traffic conditions and pavement life conditions as noted in **Project Description** and in the following sections of this report. A critical aspect of pavement performance is site preparation. Pavement designs noted in this section must be applied to the site which has been prepared as recommended in the **Earthwork** section.

### **Pavement Design Parameters**

Design of asphalt concrete (AC) pavements is based on the procedures outlined in the Caltrans "Highway Design Manual for Safety Roadside Rest Areas" (Caltrans, 2016). Design of Portland cement concrete (PCC) pavements are based upon American Concrete Institute (ACI) 330R-08; "Guide for Design and Construction of Concrete Parking Lots."

Laboratory R-value tests were performed on two samples retrieved from the exploratory borings. The tests resulted in R-values of 16, and 19. An R-value of 16 was used for the design of pavement sections. A modulus of rupture of 600 psi was used for pavement concrete.

The structural sections are predicated upon proper compaction of the utility trench backfills and the subgrade soils as prescribed by in **Earthwork**, with the upper 12 inches of subgrade soils and all aggregate base material brought to a minimum relative compaction of 95 percent in accordance with ASTM D 1557 prior to paving. The aggregate base should meet Caltrans requirements for Class 2 base.

The pavement designs were based upon the results of preliminary sampling and testing and should be verified by additional sampling and testing (specifically R-value testing) during construction when the actual subgrade soils are exposed. Additionally, the preliminary sections provided are minimums based on procedures previously referenced. The project civil engineer should confirm minimum Traffic Indices and sections required by local agencies or jurisdictions if applicable.

### **Pavement Section Thicknesses**

The following table provides options for AC and PCC Sections:

Asphalt Concrete Design		
Usage	Assumed Traffic Index	Recommended Structural Section
Auto Parking Areas	5.0	3" HMA <sup>1</sup> /8" Class 2 AB <sup>2</sup>
Auto Roads	5.5	3" HMA <sup>1</sup> /10" Class 2 AB <sup>2</sup>
Truck Roads	7.0	4" HMA <sup>1</sup> /13" Class 2 AB <sup>2</sup>
Truck Loading Areas	8.0	4.5" HMA <sup>1</sup> /16" Class 2 AB <sup>2</sup>

1. HMA = hot mix asphalt
2. AB = aggregate base

Portland Cement Concrete Design			
Layer	Thickness (inches)		
	Light Duty <sup>1</sup>	Medium Duty <sup>2</sup>	Heavy Duty <sup>3</sup>
PCC	5.0	6.0	7.5
Aggregate Base <sup>4</sup>	--	--	--

1. Car Parking and Access Lanes, Average Daily Truck Traffic (ADTT) = 1 (Category A).
2. Truck Parking Areas, Multiple Units, ADTT = 25 (Category B)
3. In areas of anticipated heavy traffic, fire trucks, delivery trucks, or concentrated loads (e.g., dumpster pads), and areas with repeated turning or maneuvering of heavy vehicles, ADTT = 700 (Category C).
4. Aggregate base is not required. Compacted on-site material is considered competent.

Recommended structural sections were calculated based on assumed TIs and our preliminary sampling and testing.

Terracon does not practice traffic engineering. We recommend that the project civil engineer or traffic engineer verify that the TIs and ADTT traffic indices used are appropriate for this project.

Areas for parking of heavy vehicles, concentrated turn areas, and start/stop maneuvers could require thicker pavement sections. Edge restraints (i.e. concrete curbs or aggregate shoulders) should be planned along curves and areas of maneuvering vehicles. A maintenance program including surface sealing, joint cleaning and sealing, and timely repair of cracks and deteriorated areas will increase the pavement's service life. As an option, thicker sections could be constructed to decrease future maintenance.

Concrete for rigid pavements should have a minimum 28-day compressive strength of 4,000 psi, and be placed with a maximum slump of 4 inches. Although not required for structural support, a

minimum 4-inch-thick base course layer is recommended to help reduce potential for slab curl, shrinkage cracking, and subgrade pumping through joints. Proper joint spacing will also be required to prevent excessive slab curling and shrinkage cracking. Joints should be sealed to prevent entry of foreign material and doweled where necessary for load transfer.

Where practical, we recommend early-entry cutting of crack-control joints in PCC pavements. Cutting of the concrete in its “green” state typically reduces the potential for micro-cracking of the pavements prior to the crack control joints being formed, compared to cutting the joints after the concrete has fully set. Micro-cracking of pavements may lead to crack formation in locations other than the sawed joints, and/or reduction of fatigue life of the pavement.

Openings in pavements, such as decorative landscaped areas, are sources for water infiltration into surrounding pavement systems. Water can collect in the islands and migrate into the surrounding subgrade soils thereby degrading support of the pavement. This is especially applicable for islands with raised concrete curbs, irrigated foliage, and low permeability near-surface soils. The civil design for the pavements with these conditions should include features to restrict or collect and discharge excess water from the islands. Examples of features are edge drains connected to the storm water collection system, longitudinal subdrains, or other suitable outlets and impermeable barriers preventing lateral migration of water such as a cutoff wall installed to a depth below the pavement structure.

Dishing in parking lots surfaced with ACC is usually observed in frequently-used parking stalls (such as near the front of buildings), and occurs under the wheel footprint in these stalls. The use of higher-grade asphalt cement, or surfacing these areas with PCC, should be considered. The dishing is exacerbated by factors such as irrigated islands or planter areas, sheet surface drainage to the front of structures, and placing the ACC directly on a compacted clay subgrade.

PCC pavement details for joint spacing, joint reinforcement, and joint sealing should be prepared in accordance with ACI 330 and ACI 325. PCC pavements should be provided with mechanically reinforced joints (doweled or keyed) in accordance with ACI 330.

## **Pavement Drainage**

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section. Appropriate sub-drainage or connection to a suitable daylight outlet should be provided to remove water from the granular subbase.

## **Pavement Maintenance**

The pavement sections represent minimum recommended thicknesses and, as such, periodic maintenance should be anticipated. Therefore, preventive maintenance should be planned and

provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Maintenance consists of both localized maintenance (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing). Preventive maintenance is usually the priority when implementing a pavement maintenance program. Additional engineering observation is recommended to determine the type and extent of a cost-effective program. Even with periodic maintenance, some movements and related cracking may still occur and repairs may be required.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Final grade adjacent to paved areas should slope down from the edges at a minimum 2 percent.
- Subgrade and pavement surfaces should have a minimum 2 percent slope to promote proper surface drainage.
- Install below pavement drainage systems surrounding areas anticipated for frequent wetting.
- Install joint sealant and seal cracks immediately.
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.
- Place compacted, low permeability backfill against the exterior side of curb and gutter.
- Place curb, gutter and/or sidewalk directly on clay subgrade soils rather than on unbound granular base course materials.

## **STORM WATER MANAGEMENT**

Three (3) in-situ percolation tests (falling head borehole permeability) were performed at approximate depths of 5 and 10 feet bgs. The objective of the testing is to provide infiltration rates for designing the proposed storm water infiltration system.

A 2-inch thick, 3/8-inch gravel layer was placed in the bottom of each boring after the borings were drilled to investigate the soil profile. Three-inch diameter perforated pipes were installed on top of the gravel layer. Gravel was used to backfill between the perforated pipes and the boring sidewall. The borings were then filled with water for a pre-soak period.

At the beginning of each test, the pipes were refilled with water and readings were taken at periodic time intervals as the water level dropped. The soil at the percolation test locations was classified in the field using a visual/manual procedure. The infiltration velocity is presented as the infiltration rate and is summarized in the following table. The infiltration rates provided do not include safety factors.

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Test Location	Boring Depth (ft.) <sup>1</sup>	Test Depth Range (ft.) <sup>1</sup>	Soil Type	Water Head (ft)	Measured Percolation Rate Average (in./hr.)	Design Infiltration Rate Average (in./hr.) <sup>2</sup>
P-1	10	5 to 10	CL/SC	5	20.4	0.72
P-2	10	5 to 10	SC	5	5.4	0.18
P-3	5	0 to 5	CL	5	12.6	0.45

1. Below existing ground surface.

2. If proposed infiltration system will mainly rely on vertical downward seepage, the correlated infiltration rates should be used. The correlated infiltration rates were calculated using the Porchet method.

The rate obtained at specific location and depth is representative of the location and depth tested. If these rates are used for infiltration designed structures, an application of an appropriate safety factor is prudent to account for subsoil inconsistencies, possible compaction related to site grading, and potential silting of the percolating soils, depending on the application.

The design engineer should also check with the local agency for the limitation of the infiltration rate allowed in the design. If the maximum allowable design infiltration rate is lower than the above recommended rate, the maximum allowable design infiltration rate should be used. The designer of the basins should also consider other possible site variability in the design.

The percolation tests were performed with clear water, whereas the storm water will likely not be clear, but may contain organics, fines, and grease/oil. The presence of these deleterious materials will tend to decrease the rate that water percolates from the infiltration systems. Design of any storm water infiltration systems should account for the presence of these materials and should incorporate structures/devices to remove these deleterious materials

Based on the soils encountered in our borings, we expect the percolation rates of the soils could be different than measured in the field due to variations in the fines content of the subsurface soils encountered. The design elevation and size of the proposed infiltration system (if used) should account for this expected variability in infiltration rates.

If infiltration type structures for storm water management are used on the site, infiltration testing may be performed after construction of the infiltration system to verify the design infiltration rates. It should be noted that siltation and vegetation growth along with other factors may affect the infiltration rates of the infiltration areas. The actual infiltration rate may vary from the values reported here. Infiltration systems should be located at least 10 feet from any existing or proposed foundation system. Infiltration rates can be affected by silt buildup, debris, degree of soil saturation, site variability and other factors.

## CORROSION

The following table lists the laboratory electrical resistivity (standard and as-received), chlorides, soluble sulfates, and pH testing results. These values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

Boring	Depth (feet)	Soluble Sulfate (mg/kg)	Soluble Chloride (mg/kg)	Total Salts (mg/kg)	pH	Resistivity (as-received) (Ohm-cm)	Resistivity (saturated) (Ohm-cm)
B-7	0 - 5	135	70	465	8.59	47,045	4,171
B-16	0 - 5	88	78	579	8.64	67,900	3,395

Results of soluble sulfate testing indicate the samples tested possess negligible sulfate concentrations when classified in accordance with Table 4.3.1 of the ACI Design Manual. Concrete should be designed in accordance with the provisions of the ACI Design Manual, Section 318, Chapter 4.

For protection against corrosion to buried metals, Terracon recommends that an experienced corrosion engineer be retained to design a suitable corrosion protection system for underground metal structures or components. If corrosion of buried metal is critical, it should be protected using a non-corrosive backfill, wrapping, coating, sacrificial anodes, or a combination of these methods, as designed by a qualified corrosion engineer.

## GENERAL COMMENTS

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

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

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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.

## **ATTACHMENTS**

## EXPLORATION AND TESTING PROCEDURES

### Field Exploration

Terracon conducted 21 soil-testing borings as shown on the Exploration Plan. These borings were drilled at the locations and to depths indicated in the table below.

Boring Nos.	Boring Depth (feet) <sup>1</sup>	Location
2 (B-1 and B-13)	51 ½	Building footprint
8 (B-2 to B-5, B-7, B-9, B-10 and B-12)	26 ½	Building footprint
1 (B-6)	21 ½	Building footprint
2 (B-8 and B-11)	31 ½	Building footprint
2 (B-14 and B-15)	6 ½	Parking area
3 (B-16 to B-18)	11 ½	Parking area
2 (P-1 and P-2)	10 ½	Infiltration basin
1 (P-3)	5 ½	Infiltration basin

1. Below ground surface.
2. Auger refusal was encountered in boring B-4.

**Boring Layout and Elevations:** Unless otherwise noted, Terracon personnel provided the boring layout. Coordinates were obtained with a handheld GPS unit (estimated horizontal accuracy of about ±10 feet) and approximate elevations were obtained by interpolation from the Google Earth. If elevations and a more precise boring layout are desired, we recommend borings be surveyed following completion of fieldwork.

**Subsurface Exploration Procedures:** We advance the borings with a truck-mounted drill rig using hollow-stem augers. Both a standard penetration test (SPT) sampler (2-inch outer diameter and 1-3/8-inch inner diameter) and a modified California ring-lined sampler (3-inch outer diameter and 2-3/8-inch inner diameter) are utilized in our investigation. The penetration resistance is recorded on the boring logs as the number of hammer blows used to advance the sampler in 6-inch increments (or less if noted). The samplers are driven with an automatic hammer that drops a 140-pound weight 30 inches for each blow. After the required seating, samplers are advanced up to 18 inches, providing up to three sets of blowcounts at each sampling interval. The sampling depths, penetration distances, and other sampling information are recorded on the field boring logs. The recorded blows are raw numbers without any corrections for hammer type (automatic vs. manual cathead) or sampler size (ring sampler vs. SPT sampler). Relatively undisturbed and bulk samples of the soils

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encountered are placed in sealed containers and returned to the laboratory for testing and evaluation.

We observe and record groundwater levels during drilling and sampling. For safety purposes, all borings are backfilled with auger cuttings after their completion.

Our exploration team prepares field boring logs as part of the drilling operations. These field logs include visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs are prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

### Laboratory Testing

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

- Water (Moisture) Content of Soil by Mass
- Laboratory Determination of Density (Unit Weight) of Soil Specimens
- Modified Proctor test
- Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis
- Atterberg Limits
- Direct Shear Strength
- Consolidation/Hydrocollapse
- R-value
- Corrosion suite

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

## **SITE LOCATION AND EXPLORATION PLANS**

### **Contents:**

Site Location Plan

Exploration Plan A & B (2 pages)

Note: All attachments are one page unless noted above.

**SITE LOCATION**

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

MAP PROVIDED BY MICROSOFT BING MAPS

**EXPLORATION PLAN A**

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

MAP PROVIDED BY MICROSOFT BING MAPS

## **EXPLORATION RESULTS**

# BORING LOG NO. B-1

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB215163 PROPOSED INDUSTRIAL GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7413° Longitude: -117.001°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	
								LL-PL-PI	PERCENT FINES
	<p>DEPTH</p> <p><b>SILTY SAND (SM)</b>, fine to coarse grained, olive brown, very loose</p> <p>fine to medium grained, loose, with occasional clay lenses</p> <p>frequent clay lenses</p> <p><b>SANDY SILT (ML)</b>, olive brown, medium stiff</p> <p><b>SILTY SAND (SM)</b>, fine to medium grained, olive brown, loose</p> <p><b>LEAN CLAY WITH SAND (CL)</b>, olive brown, stiff</p> <p><b>SANDY LEAN CLAY (CL)</b>, olive brown, stiff</p> <p>silt and sand lenses</p> <p>reddish brown, very stiff</p> <p><b>WELL GRADED SAND WITH SILT (SW-SM)</b>, fine to coarse grained, reddish brown, medium dense</p>	<p>5</p> <p>7.0</p> <p>10.0</p> <p>15.0</p> <p>20</p> <p>25</p> <p>30</p>	<p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p> <p>X</p>	<p>3-3-4 N=7</p> <p>3-3-3 N=6</p> <p>3-3-4 N=7</p> <p>3-3-4 N=7</p> <p>2-2-3 N=5</p> <p>3-3-5 N=8</p> <p>6-8-9 N=17</p>	<p>13</p>	<p>26-19-7</p>	<p>27</p> <p>65</p> <p>33</p> <p>76</p> <p>62</p>		

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

Groundwater not encountered



1355 E Cooley Dr, Ste C  
Colton, CA

Boring Started: 12-01-2021

Boring Completed: 12-01-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

# BORING LOG NO. B-1

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB215163 PROPOSED INDUSTRIAL GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7413° Longitude: -117.001°	DEPTH (Ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	
								LL-PL-PI	PERCENT FINES
DEPTH									
33.0	<b>WELL GRADED SAND WITH SILT (SW-SM)</b> , fine to coarse grained, reddish brown, medium dense ( <i>continued</i> )			X	7-11-12 N=23				8
36.5	<b>SILTY SAND (SM)</b> , fine grained, olive brown, dense	35		X	13-21-13 N=34	9		NP	41
39.0	<b>LEAN CLAY WITH SAND (CL)</b> , olive brown, hard								
48.0	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, medium dense	40		X	6-12-14 N=26				19
51.5	grayish brown <b>SANDY LEAN CLAY (CL)</b> , olive, stiff	45		X	6-11-14 N=25				36
	<b>Boring Terminated at 51.5 Feet</b>	50		X	2-3-4 N=7				62

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

Groundwater not encountered



Boring Started: 12-01-2021

Boring Completed: 12-01-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

# BORING LOG NO. B-2

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB215163 PROPOSED INDUSTRIAL GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7417° Longitude: -117°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS		PERCENT FINES
								LL-PL-PI		
	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, loose									
	clay lens			X	5-8-10	7	97			
	occasional clay lenses			X	2-3-2 N=5					
	7.0									
	<b>SANDY SILT (ML)</b> , olive brown, very stiff				X	6-9-13	3	104		
	10.0									
	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, loose				X	3-4-5 N=9				
	3" clay lens				X	3-4-4 N=8				
	15.0									
	<b>LEAN CLAY (CL)</b> , olive, very stiff				X	3-8-14				86
20										
stiff				X	2-4-6 N=10					
silty sand lens										
23.0										
<b>SANDY LEAN CLAY (CL)</b> , reddish brown, stiff										
25										
26.5										
<b>Boring Terminated at 26.5 Feet</b>										

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

Groundwater not encountered



1355 E Cooley Dr, Ste C  
Colton, CA

Boring Started: 12-01-2021

Boring Completed: 12-01-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

# BORING LOG NO. B-3

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL. CB215163 PROPOSED INDUSTRIAL GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7413° Longitude: -116.9991°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS		PERCENT FINES
								LL-PL-PI		
DEPTH										
Silty Sand (SM)	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, very loose									
	loose			X	2-4-4 N=8					
	occasional clay lenses	5		X	3-7-11	3	105			
Sandy Silt (ML)	<b>SANDY SILT (ML)</b> , olive brown, stiff									
		7.0								
Silty Sand (SM)	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, medium dense									
		10.0								
	fine to coarse grained, loose	15		X	5-6-3 N=9					14
Lean Clay with Sand (CL)	<b>LEAN CLAY WITH SAND (CL)</b> , olive brown, medium stiff, with occasional silt lenses									
		18.0								
		20		X	2-3-4 N=7					72
Sandy Lean Clay (CL)	<b>SANDY LEAN CLAY (CL)</b> , reddish brown, stiff									
		23.0								
		25		X	5-5-6 N=11					
	<b>Boring Terminated at 26.5 Feet</b>	26.5								

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

Groundwater not encountered



Boring Started: 12-01-2021

Boring Completed: 12-01-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

# BORING LOG NO. B-4

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL. CB215163 PROPOSED INDUSTRIAL GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7408° Longitude: -117°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	
								LL-PL-PI	PERCENT FINES
DEPTH									
7.0	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, very loose  medium dense	5		X	6-11-14	2	107		
7.0				X	4-5-4 N=9				
10.0	<b>SANDY SILT (ML)</b> , olive brown, very stiff, with pinholes	10		X	9-14-17	4	106		
10.0				X	4-3-4 N=7				
15.5	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, loose	15		X	3-3-4 N=7			35-22-13	79
15.5	<b>LEAN CLAY WITH SAND (CL)</b> , olive, medium stiff			X	2-3-4 N=7				
18.0	<b>SANDY LEAN CLAY (CL)</b> , olive brown, medium stiff	20		X	5-7-8 N=15				
21.5	<b>SILTY SAND (SM)</b> , fine to coarse grained, reddish brown, medium dense	25		X					24
26.5	<b>SILTY SAND (SM)</b> , fine to coarse grained, reddish brown, medium dense			X					
	<b>Boring Terminated at 26.5 Feet</b>								

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

Groundwater not encountered



Boring Started: 12-01-2021

Boring Completed: 12-01-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

# BORING LOG NO. B-5

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL. CB215163 PROPOSED INDUSTRIAL GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7402° Longitude: -117.001°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES	
	DEPTH							LL-PL-PI		
	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, very loose  loose  medium dense	5			3-3-4 N=7					
	<b>SANDY SILT (ML)</b> , olive brown, medium stiff	6.5			6-8-12	4	106			
	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, loose	9.5			3-3-4 N=7					
	<b>SANDY SILT (ML)</b> , olive brown, medium stiff	10			4-8-9	5	102			
	<b>LEAN CLAY WITH SAND (CL)</b> , olive brown, medium stiff	14.0			2-2-3 N=5					
	<b>SANDY LEAN CLAY (CL)</b> , fine to coarse grained, olive brown to reddish brown, stiff  1" lean clay lens	18.0			3-4-8 N=12				54	
	<b>LEAN CLAY (CL)</b> , stiff	25.5			6-6-7 N=13					
	<b>LEAN CLAY (CL)</b> , stiff	26.5								
	<b>Boring Terminated at 26.5 Feet</b>									

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

Groundwater not encountered



1355 E Cooley Dr, Ste C  
Colton, CA

Boring Started: 12-01-2021

Boring Completed: 12-01-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

# BORING LOG NO. B-6

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL. CB215163 PROPOSED INDUSTRIAL GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION <small>See Exploration Plan</small>	DEPTH (Ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
	Latitude: 33.74° Longitude: -117°							LL-PL-PI	
DEPTH									
7.0	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, very loose								
	medium dense, pinholes	5		X	4-7-13				33
	loose, with occasional silt lenses			X	4-4-4 N=8				
9.5	<b>SANDY SILT (ML)</b> , olive brown, very stiff				9-12-16	4	101		
	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, loose	10		X	5-4-5 N=9				35
15.0	<b>SANDY LEAN CLAY (CL)</b> , olive, stiff	15		X	3-4-5 N=9				55
18.0	<b>SILTY SAND (SM)</b> , fine to coarse grained, olive brown to reddish brown, medium dense	20		X	4-5-8 N=13				
21.5	<b>Boring Terminated at 21.5 Feet</b>								

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

Hammer Type: Automatic

<p>Advancement Method: 6" Hollow-Stem Auger</p> <p>Abandonment Method: Boring backfilled with auger cuttings upon completion.</p>	<p>See <a href="#">Exploration and Testing Procedures</a> for a description of field and laboratory procedures used and additional data (If any).</p> <p>See <a href="#">Supporting Information</a> for explanation of symbols and abbreviations.</p>	<p>Notes:</p>
<p><b>WATER LEVEL OBSERVATIONS</b></p> <p>Groundwater not encountered</p>	<p>1355 E Cooley Dr, Ste C Colton, CA</p>	
	<p>Boring Started: 12-01-2021</p> <p>Drill Rig: CME 75</p> <p>Project No.: CB215163</p>	<p>Boring Completed: 12-01-2021</p> <p>Driller: Martini Driller</p>

# BORING LOG NO. B-7

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB215163 PROPOSED INDUSTRIAL GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.74° Longitude: -116.9991°	DEPTH (Ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS		PERCENT FINES
	DEPTH							LL-PL-PI		
	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, very loose									
	loose	5			3-3-3 N=6					
					4-7-7					
	<b>SANDY SILT (ML)</b> , olive brown, stiff	6.5				2-2-2 N=4				
	very stiff	10			3-7-12	6	93			
	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, medium dense	11.0								
		15			2-3-4 N=7					
<b>SANDY LEAN CLAY (CL)</b> , olive, medium stiff	15.5									
stiff	20				3-5-5 N=10	15		33-19-14	61	
6" silty sand lens	23.0									
<b>SILTY SAND (SM)</b> , fine to coarse grained, reddish brown, medium dense	23.0									
		25			4-7-9 N=16					
<b>Boring Terminated at 26.5 Feet</b>										

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

Groundwater not encountered



Boring Started: 12-01-2021

Boring Completed: 12-01-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

# BORING LOG NO. B-8

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB215163 PROPOSED INDUSTRIAL GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7391° Longitude: -117.001°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	
	DEPTH							LL-PL-PI	PERCENT FINES
0.0 - 3.0	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, very loose								
3.0 - 9.5	<b>SANDY SILT (ML)</b> , olive brown, very stiff, pinholes  stiff, with 1" clay lens	5		6-12-16	6-12-16	5	98		
9.5 - 14.0	<b>SILTY SAND (SM)</b> , fine grained, olive brown, loose	10		9-4-4 N=8	9-4-4 N=8				
14.0 - 23.0	<b>SANDY LEAN CLAY (CL)</b> , olive brown, medium stiff  reddish brown	15		3-6-8	3-6-8			30-20-10	67
23.0 - 28.0	<b>SILTY SAND (SM)</b> , fine grained, brown, loose	20		2-3-3 N=6	2-3-3 N=6	14			
28.0 - 30.0	<b>SILTY SAND (SM)</b> , fine grained, brown, medium dense	25		3-3-3 N=6	3-3-3 N=6				
30.0 - 30.0	<b>SILTY SAND (SM)</b> , fine grained, brown, medium dense	25		3-5-5 N=10	3-5-5 N=10	11		20-18-2	37

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

Groundwater not encountered



1355 E Cooley Dr, Ste C  
Colton, CA

Boring Started: 12-01-2021

Boring Completed: 12-01-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

# BORING LOG NO. B-8

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a>	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
	DEPTH							LL-PL-PI	
31.5	<b>SILTY SAND (SM)</b> , fine grained, brown, medium dense ( <i>continued</i> )			X	4-7-8 N=15				35
	<b>Boring Terminated at 31.5 Feet</b>								
Stratification lines are approximate. In-situ, the transition may be gradual.					Hammer Type: Automatic				

Advancement Method: 6" Hollow-Stem Auger	See <a href="#">Exploration and Testing Procedures</a> for a description of field and laboratory procedures used and additional data (if any).  See <a href="#">Supporting Information</a> for explanation of symbols and abbreviations.	Notes:
Abandonment Method: Boring backfilled with auger cuttings upon completion.		
<b>WATER LEVEL OBSERVATIONS</b> <i>Groundwater not encountered</i>	<p style="font-size: 0.8em; color: #800000;">1355 E Cooley Dr, Ste C Colton, CA</p>	Boring Started: 12-01-2021 Boring Completed: 12-01-2021  Drill Rig: CME 75 Driller: Martini Driller  Project No.: CB215163

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL\_CB215163 PROPOSED INDUSTRIAL.GPJ TERRACON\_DATATEMPLATE.GDT 1/27/22

# BORING LOG NO. B-9

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL: CB215163 PROPOSED INDUSTRIAL GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7391° Longitude: -117.0001°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
	DEPTH							LL-PL-PI	
2.0	<b>SILTY SAND (SM)</b> , fine grained, olive brown, loose								
5.0	<b>SANDY LEAN CLAY (CL)</b> , olive brown, medium stiff  stiff  silty sand lens  medium stiff  stiff  silty sand lens	5		X	3-4-3 N=7				
10.0		10		X	2-2-3 N=5				
13.0	<b>LEAN CLAY WITH SAND (CL)</b> , olive brown, medium stiff			X	4-7-9	9	98		
15.0		15		X	2-2-3 N=5				
18.0	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, loose								
20.5	<b>SANDY LEAN CLAY (CL)</b> , reddish brown, stiff			X	3-5-4 N=9				
25.0		25		X	5-6-8 N=14				
26.5	<b>Boring Terminated at 26.5 Feet</b>								

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

Groundwater not encountered



1355 E Cooley Dr, Ste C  
Colton, CA

Boring Started: 12-02-2021

Boring Completed: 12-02-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

# BORING LOG NO. B-10

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB215163 PROPOSED INDUSTRIAL GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.739° Longitude: -116.9991°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS		PERCENT FINES
								LL-PL-PI		
	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, loose									
	3.5 <b>SANDY LEAN CLAY (CL)</b> , olive brown, stiff				4-7-10	5	96			
	7.0 <b>LEAN CLAY (CL)</b> , olive brown, very stiff				4-4-4 N=8					
	10.0 <b>LEAN CLAY WITH SAND (CL)</b> , olive brown, medium stiff				5-8-11	13	114			
	stiff				4-4-3 N=7					
	18.0 <b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, medium dense									
	21.5 <b>SANDY LEAN CLAY (CL)</b> , reddish brown, stiff				2-3-5 N=8					
	24.0 <b>SILTY SAND (SM)</b> , fine to coarse grained, reddish brown, medium dense				2-5-7 N=12					
	26.5 <b>SILTY SAND (SM)</b> , fine to coarse grained, reddish brown, medium dense				4-8-12 N=20					
	<b>Boring Terminated at 26.5 Feet</b>									

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

Groundwater not encountered



1355 E Cooley Dr, Ste C  
Colton, CA

Boring Started: 12-02-2021

Boring Completed: 12-02-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

# BORING LOG NO. B-11

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL. CB215163 PROPOSED INDUSTRIAL GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7381° Longitude: -117.001°	DEPTH (Ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	
								LL-PL-PI	PERCENT FINES
DEPTH									
0	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, loose								
2.5	<b>LEAN CLAY WITH SAND (CL)</b> , olive brown, stiff			X	4-6-6 N=12				
4.5	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, medium dense	5		X	5-9-12	7	91		
6.5	<b>LEAN CLAY WITH SAND (CL)</b> , olive brown, medium stiff occasional silt and silty sand lenses			X	2-2-2 N=4				
10	silty sand lens	10		X	3-5-6				
13.0	<b>LEAN CLAY WITH SAND (CL)</b> , olive, soft			X	2-1-2 N=3	19		39-20-19	78
18.0	<b>SANDY LEAN CLAY (CL)</b> , reddish brown, stiff	20		X	3-4-5 N=9				
23.0	<b>SILTY SAND (SM)</b> , fine to coarse grained, olive brown, loose	25		X	2-4-5 N=9	16		28-23-5	35
		30							

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

Groundwater not encountered



1355 E Cooley Dr, Ste C  
Colton, CA

Boring Started: 12-02-2021

Boring Completed: 12-02-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

# BORING LOG NO. B-11

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7381° Longitude: -117.001°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
DEPTH									
31.5	<b>SILTY SAND (SM)</b> , fine to coarse grained, olive brown, loose ( <i>continued</i> )			X	4-5-8 N=13				
	<b>Boring Terminated at 31.5 Feet</b>								

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

Hammer Type: Automatic

Advancement Method: 6" Hollow-Stem Auger	See <a href="#">Exploration and Testing Procedures</a> for a description of field and laboratory procedures used and additional data (If any).  See <a href="#">Supporting Information</a> for explanation of symbols and abbreviations.	Notes:
Abandonment Method: Boring backfilled with auger cuttings upon completion.		
<b>WATER LEVEL OBSERVATIONS</b> <i>Groundwater not encountered</i>	 1355 E Cooley Dr, Ste C Colton, CA	Boring Started: 12-02-2021 Boring Completed: 12-02-2021 Drill Rig: CME 75 Driller: Martini Driller Project No.: CB215163

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL\_CB215163 PROPOSED INDUSTRIAL.GPJ TERRACON\_DATATEMPLATE.GDT 1/27/22

# BORING LOG NO. B-12

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL. CB215163 PROPOSED INDUSTRIAL GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a>	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
	DEPTH							LL-PL-PI	
2.5	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, loose								
2.5	<b>SANDY LEAN CLAY (CL)</b> , olive brown, very stiff			◆	3-12-19	4	98		
stiff				X	4-4-5 N=9				
10.5	<b>SILTY SAND (SM)</b> , fine grained, olive brown, loose			◆	4-7-7				
13.0	<b>LEAN CLAY WITH SAND (CL)</b> , olive brown, medium stiff			X	2-3-2 N=5				
18.0	<b>SANDY LEAN CLAY (CL)</b> , reddish brown, stiff			X	2-3-4 N=7				72
25.0	<b>WELL GRADED SAND (SW)</b> , medium to coarse grained, tan, medium dense			X	5-4-6 N=10				
26.5	<b>Boring Terminated at 26.5 Feet</b>			X	5-8-9 N=17				5

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

Groundwater not encountered



1355 E Cooley Dr, Ste C  
Colton, CA

Boring Started: 12-02-2021

Boring Completed: 12-02-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

# BORING LOG NO. B-13

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL. CB215163 PROPOSED INDUSTRIAL GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7381° Longitude: -116.9991°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	
								LL-PL-PI	PERCENT FINES
	DEPTH								
1.0	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, very loose								
	<b>SANDY LEAN CLAY (CL)</b> , olive brown, stiff				4-5-5 N=10				47
5.5	6" silty sand lens <b>LEAN CLAY WITH SAND (CL)</b> , olive brown, medium stiff				3-3-4 N=7				78
	2" silty sand lens				2-2-2 N=4	12		30-21-9	73
	olive, occasional silt lenses				1-2-3 N=5				76
18.0	<b>SILTY SAND (SM)</b> , fine to coarse grained, reddish brown, medium dense				2-2-2 N=4			43-33-10	85
	1" lean clay lens				4-7-11 N=18	8		NP	37
25.0	<b>SANDY LEAN CLAY (CL)</b> , brown, very stiff				5-7-8 N=15				57
28.0	<b>CLAYEY SAND (SC)</b> , fine to coarse grained, olive brown, medium dense								

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

Groundwater not encountered



1355 E Cooley Dr, Ste C  
Colton, CA

Boring Started: 12-02-2021

Boring Completed: 12-02-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

# BORING LOG NO. B-13

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL CB215163 PROPOSED INDUSTRIAL GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7381° Longitude: -116.9991°	DEPTH (Ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
								LL-PL-PI	
	<b>CLAYEY SAND (SC)</b> , fine to coarse grained, olive brown, medium dense <i>(continued)</i>	35		X	3-7-5 N=12				46
	<b>SANDY SILTY CLAY (CL-ML)</b> , olive, stiff	38.0		X	5-11-13 N=24				
	<b>CLAYEY SAND (SC)</b> , fine to medium grained, olive brown, medium dense	43.0		X	3-4-5 N=9	19		28-21-7	51
	<b>CLAYEY SAND (SC)</b> , fine to medium grained, olive brown, medium dense	45		X	6-10-8 N=18				42
	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, medium dense	48.0		X	8-10-7 N=17				24
	2" sandy clay lens <b>Boring Terminated at 51.5 Feet</b>	51.5		X					

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

Groundwater not encountered



1355 E Cooley Dr, Ste C  
Colton, CA

Boring Started: 12-02-2021

Boring Completed: 12-02-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

# BORING LOG NO. B-14

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7375° Longitude: -116.9994°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
	DEPTH							LL-PL-PI	
3.5	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, very loose  medium dense	5		X	6-10-13	5	101		
6.5	<b>SANDY LEAN CLAY (CL)</b> , olive brown, stiff			X	5-8-10	9	88		
<b>Boring Terminated at 6.5 Feet</b>									

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**  
*Groundwater not encountered*



Boring Started: 12-02-2021

Boring Completed: 12-02-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL\_CB215163 PROPOSED INDUSTRIAL.GPJ TERRACON\_DATATEMPLATE.GDT 1/27/22

# BORING LOG NO. B-15

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7371° Longitude: -117.001°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
	LL-PL-PI								
DEPTH									
2.0	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, loose								
6.5	<b>SANDY LEAN CLAY (CL)</b> , olive brown, very stiff	5		X	3-7-12	7	90		
6.5	<b>Boring Terminated at 6.5 Feet</b>			X	7-10-11	7	100		

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**  
*Groundwater not encountered*



Boring Started: 12-02-2021

Boring Completed: 12-02-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL\_CB215163 PROPOSED INDUSTRIAL.GPJ TERRACON\_DATATEMPLATE.GDT 1/27/22

# BORING LOG NO. B-16

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

GRAPHIC LOG	LOCATION <small>See <a href="#">Exploration Plan</a></small>	DEPTH (Ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
	Latitude: 33.739° Longitude: -117.0016°							LL-PL-PI	
DEPTH									
2.0	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, loose								
5	<b>SANDY LEAN CLAY (CL)</b> , olive brown, very stiff			X	10-12-14	5	97		
8				X	8-13-16	7	94		
11.5				X	5-9-11	9	94		
<b>Boring Terminated at 11.5 Feet</b>									

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

Hammer Type: Automatic

<p>Advancement Method: 6" Hollow-Stem Auger</p> <p>Abandonment Method: Boring backfilled with auger cuttings upon completion.</p>	<p>See <a href="#">Exploration and Testing Procedures</a> for a description of field and laboratory procedures used and additional data (if any).</p> <p>See <a href="#">Supporting Information</a> for explanation of symbols and abbreviations.</p>	<p>Notes:</p>
<p><b>WATER LEVEL OBSERVATIONS</b></p> <p><i>Groundwater not encountered</i></p>	<p>1355 E Cooley Dr, Ste C Colton, CA</p>	
	<p>Boring Started: 12-03-2021</p> <p>Drill Rig: CME 75</p> <p>Project No.: CB215163</p>	<p>Boring Completed: 12-03-2021</p> <p>Driller: Martini Driller</p>

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL\_CB215163 PROPOSED INDUSTRIAL.GPJ TERRACON DATATEMPLATE.GDT 1/27/22

# BORING LOG NO. B-17

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL\_CB215163 PROPOSED INDUSTRIAL.GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7407° Longitude: -117.0015°	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
	DEPTH							LL-PL-PI	
	<p><b>SILTY SAND (SM)</b>, fine to medium grained, olive brown, loose</p> <p>medium dense</p> <p>sandy clay lens</p>	5		5-8-11	4	100			
		8.0		7-10-11	3	104			
	<p><b>SANDY LEAN CLAY (CL)</b>, olive brown, very stiff</p>	10		5-8-14					
	<p><b>Boring Terminated at 11.5 Feet</b></p>	11.5							

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**  
*Groundwater not encountered*



Boring Started: 12-03-2021

Boring Completed: 12-03-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

# BORING LOG NO. B-18

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL\_CB215163 PROPOSED INDUSTRIAL.GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a>	DEPTH (Ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
	DEPTH							LL-PL-PI	
5.0 - 5.5	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, loose	5		X	8-9-9	2	112		
5.5 - 8.0	<b>SANDY LEAN CLAY (CL)</b> , olive, stiff	8.0		X	3-4-6	5	96		
8.0 - 11.5	<b>SILTY SAND (SM)</b>	10		X	4-5-8	7	101		
<b>Boring Terminated at 11.5 Feet</b>									

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**  
*Groundwater not encountered*



Boring Started: 12-03-2021

Boring Completed: 12-03-2021

Drill Rig: CME 75

Driller: Martini Driller

Project No.: CB215163

# BORING LOG NO. P-1

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL\_CB215163 PROPOSED INDUSTRIAL.GPJ TERRACON DATATEMPLATE.GDT 1/27/22

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7417° Longitude: -117.0016°	DEPTH (Ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
DEPTH									
0.0 - 3.0	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, loose	3.0							
3.0 - 6.0	<b>SANDY LEAN CLAY (CL)</b> , olive brown	6.0							
6.0 - 10.2	<b>CLAYEY SAND (SC)</b> , fine grained, olive brown	10.2							43
	<b>Boring Terminated at 10.2 Feet</b>								

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

Hammer Type: Automatic

<p>Advancement Method: 6" Hollow-Stem Auger</p>	<p>See <a href="#">Exploration and Testing Procedures</a> for a description of field and laboratory procedures used and additional data (If any).</p> <p>See <a href="#">Supporting Information</a> for explanation of symbols and abbreviations.</p>	<p>Notes:</p>						
<p>Abandonment Method: Boring backfilled with auger cuttings upon completion.</p>								
<p><b>WATER LEVEL OBSERVATIONS</b> <i>Groundwater not encountered</i></p>	<p>1355 E Cooley Dr, Ste C Colton, CA</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Boring Started: 12-03-2021</td> <td style="width: 50%;">Boring Completed: 12-03-2021</td> </tr> <tr> <td>Drill Rig: CME 75</td> <td>Driller: Martini Driller</td> </tr> <tr> <td>Project No.: CB215163</td> <td></td> </tr> </table>	Boring Started: 12-03-2021	Boring Completed: 12-03-2021	Drill Rig: CME 75	Driller: Martini Driller	Project No.: CB215163	
Boring Started: 12-03-2021	Boring Completed: 12-03-2021							
Drill Rig: CME 75	Driller: Martini Driller							
Project No.: CB215163								

# BORING LOG NO. P-2

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

GRAPHIC LOG	LOCATION See <a href="#">Exploration Plan</a> Latitude: 33.7394° Longitude: -116.9983°	DEPTH (Ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
	DEPTH							LL-PL-PI	
3.0	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, loose								
10.2	<b>CLAYEY SAND (SC)</b> , fine to medium grained, olive brown	5 10							44
	<b>Boring Terminated at 10.2 Feet</b>								

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

Hammer Type: Automatic

<p>Advancement Method: 6" Hollow-Stem Auger</p>	<p>See <a href="#">Exploration and Testing Procedures</a> for a description of field and laboratory procedures used and additional data (if any).</p> <p>See <a href="#">Supporting Information</a> for explanation of symbols and abbreviations.</p>	<p>Notes:</p>						
<p>Abandonment Method: Boring backfilled with auger cuttings upon completion.</p>								
<p><b>WATER LEVEL OBSERVATIONS</b> <i>Groundwater not encountered</i></p>	<p>1355 E Cooley Dr, Ste C Colton, CA</p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Boring Started: 12-03-2021</td> <td style="width: 50%;">Boring Completed: 12-03-2021</td> </tr> <tr> <td>Drill Rig: CME 75</td> <td>Driller: Martini Driller</td> </tr> <tr> <td>Project No.: CB215163</td> <td></td> </tr> </table>	Boring Started: 12-03-2021	Boring Completed: 12-03-2021	Drill Rig: CME 75	Driller: Martini Driller	Project No.: CB215163	
Boring Started: 12-03-2021	Boring Completed: 12-03-2021							
Drill Rig: CME 75	Driller: Martini Driller							
Project No.: CB215163								

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL\_CB215163 PROPOSED INDUSTRIAL.GPJ TERRACON DATATEMPLATE.GDT 1/27/22

# BORING LOG NO. P-3

**PROJECT:** Proposed Industrial Development

**CLIENT:** Newland Capital Group LLC  
Irvine, CA

**SITE:** S. Kirby Street  
Hemet, CA

GRAPHIC LOG	LOCATION <small>See <a href="#">Exploration Plan</a></small>	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS	PERCENT FINES
	DEPTH							LL-PL-PI	
1.5	<b>SILTY SAND (SM)</b> , fine to medium grained, olive brown, loose								
1.5 5.2	<b>SANDY LEAN CLAY (CL)</b> , olive brown								55
	<b>Boring Terminated at 5.2 Feet</b>	5							

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

Hammer Type: Automatic

Advancement Method:  
6" Hollow-Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:  
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

**WATER LEVEL OBSERVATIONS**

*Groundwater not encountered*



1355 E Cooley Dr, Ste C  
Colton, CA

Boring Started: 12-03-2021

Boring Completed: 12-03-2021

Drill Rig: CME 75

Driller: Martini Driller

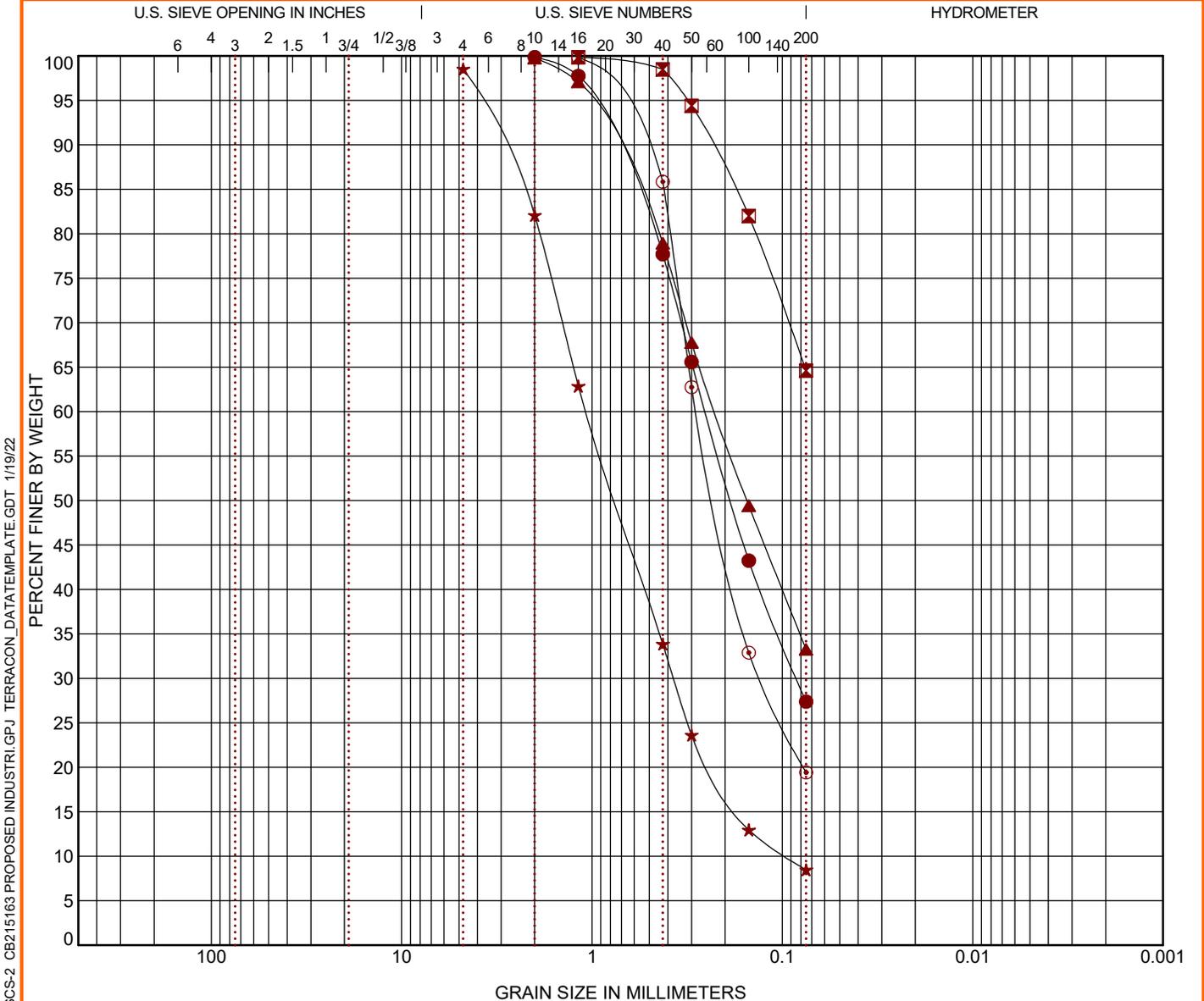
Project No.: CB215163

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL\_CB215163 PROPOSED INDUSTRIAL.GPJ TERRACON\_DATATEMPLATE.GDT 1/27/22



# GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring ID	Depth	USCS Classification				WC (%)	LL	PL	PI	Cc	Cu
● B-1	0 - 5										
☒ B-1	7.5 - 9										
▲ B-1	10 - 11.5										
★ B-1	30 - 31.5									1.37	11.23
⊙ B-1	40 - 41.5										

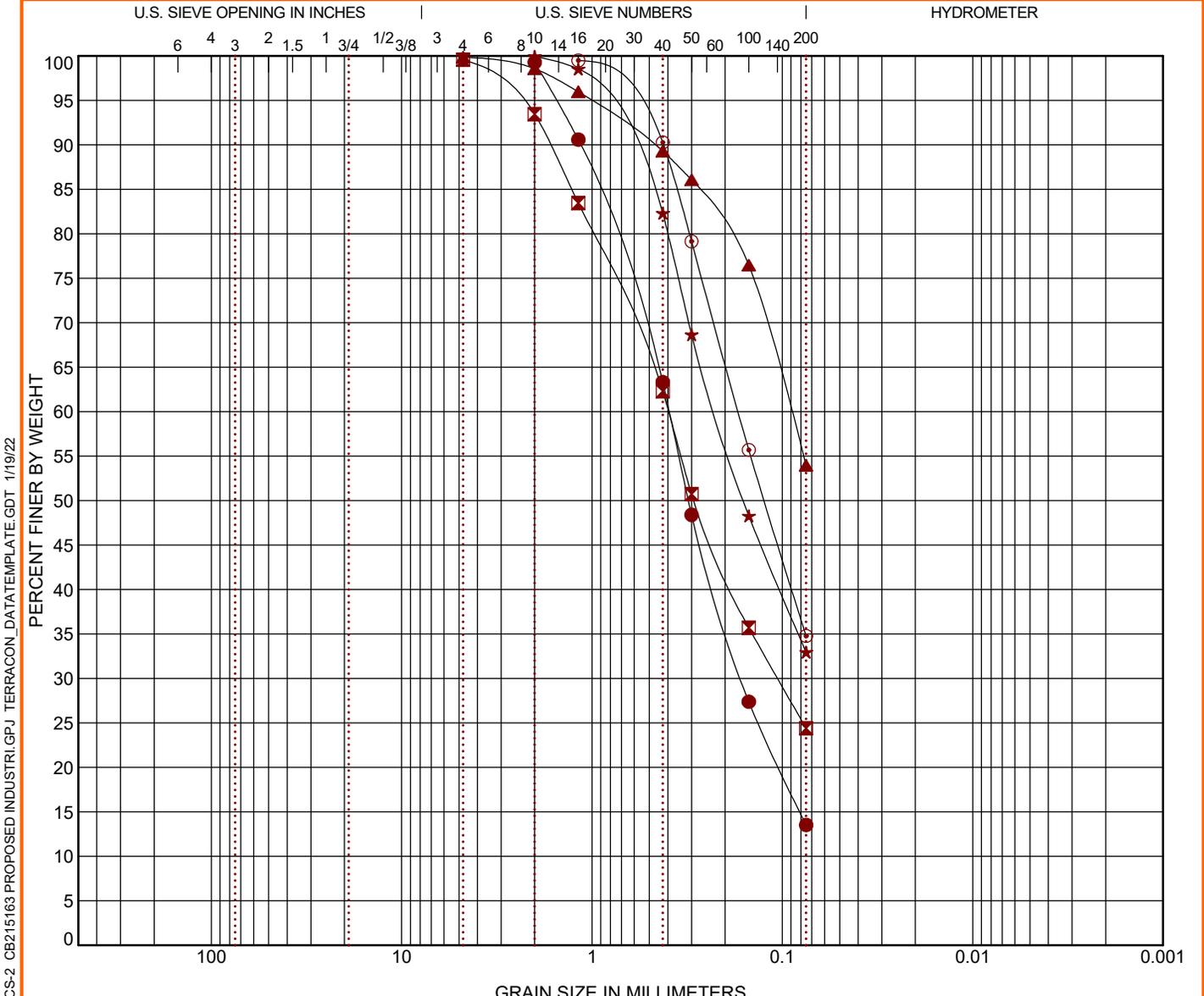
Boring ID	Depth	D <sub>100</sub>	D <sub>60</sub>	D <sub>30</sub>	D <sub>10</sub>	%Cobbles	%Gravel	%Sand	%Silt	%Fines	%Clay
● B-1	0 - 5	2	0.252	0.084				72.5		27.4	
☒ B-1	7.5 - 9	1.18						35.2		64.6	
▲ B-1	10 - 11.5	2	0.224					66.5		33.3	
★ B-1	30 - 31.5	4.75	1.066	0.373	0.095			90.1		8.5	
⊙ B-1	40 - 41.5	1.18	0.281	0.129				80.4		19.4	

PROJECT: Proposed Industrial Development	 1355 E Cooley Dr, Ste C Colton, CA	PROJECT NUMBER: CB215163
SITE: S. Kirby Street Hemet, CA		CLIENT: Newland Capital Group LLC Irvine, CA

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 CB215163 PROPOSED INDUSTRIAL.GPJ TERRACON\_DATA\_TEMPLATE.GDT 1/19/22

# GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring ID	Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
● B-3	15 - 16.5							
☒ B-4	25 - 26.5							
▲ B-5	20 - 21.5							
★ B-6	2.5 - 4							
⊙ B-6	10 - 11.5							

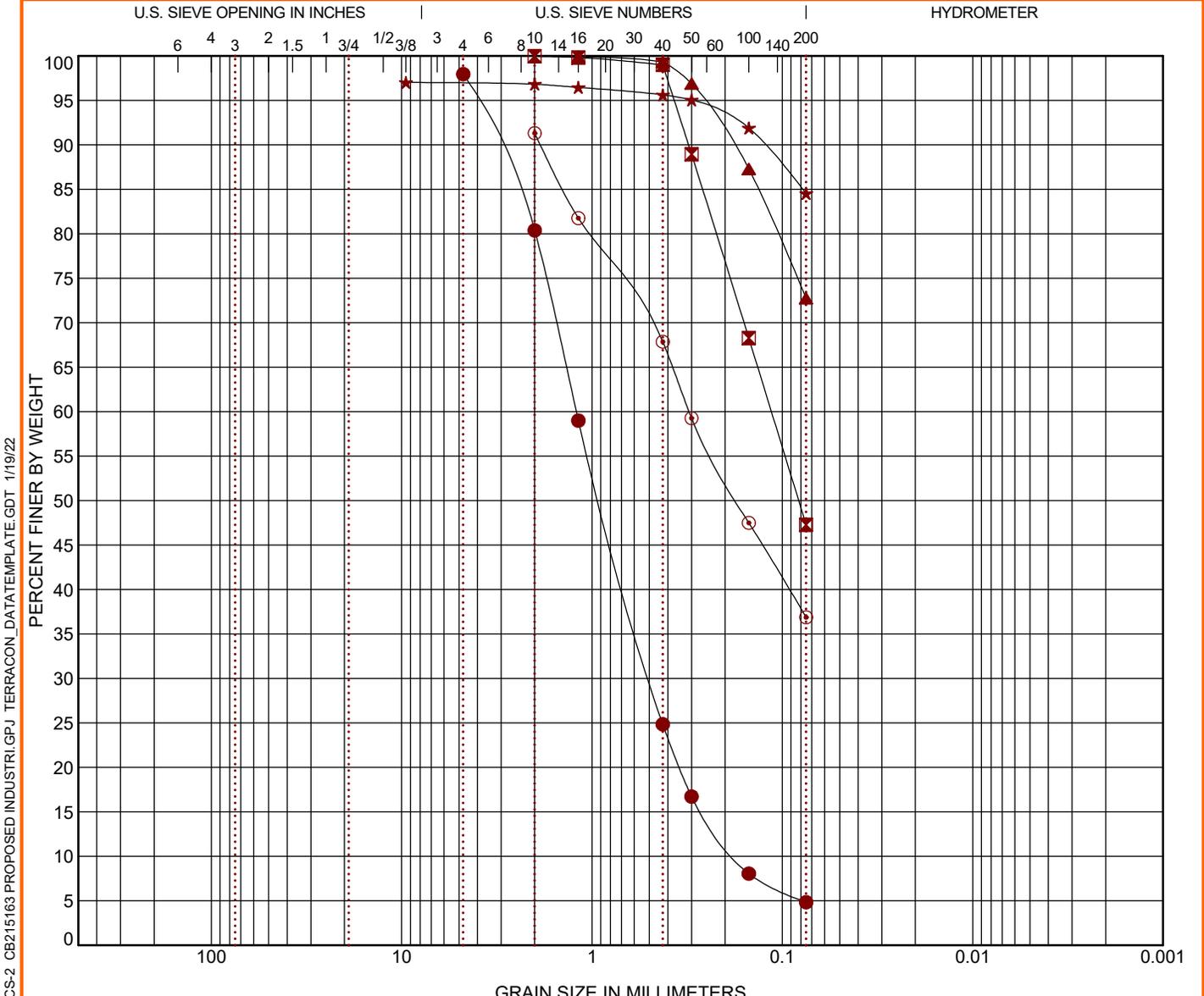
Boring ID	Depth	D <sub>100</sub>	D <sub>60</sub>	D <sub>30</sub>	D <sub>10</sub>	%Cobbles	%Gravel	%Sand	%Silt	%Fines	%Clay
● B-3	15 - 16.5	2	0.393	0.164				85.8		13.5	
☒ B-4	25 - 26.5	4.75	0.397	0.106				75.2		24.4	
▲ B-5	20 - 21.5	4.75	0.09					45.9		54.0	
★ B-6	2.5 - 4	2	0.223					67.0		33.0	
⊙ B-6	10 - 11.5	1.18	0.17					64.7		34.8	

PROJECT: Proposed Industrial Development  SITE: S. Kirby Street Hemet, CA	1355 E Cooley Dr, Ste C Colton, CA	PROJECT NUMBER: CB215163  CLIENT: Newland Capital Group LLC Irvine, CA
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LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 CB215163 PROPOSED INDUSTRIAL.GPJ TERRACON\_DATA\_TEMPLATE.GDT 1/19/22

# GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring ID	Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
● B-12	25 - 26.5	WELL-GRADED SAND (SW)					1.16	6.90
☒ B-13	0 - 5							
▲ B-13	7.5 - 9		11.6					
★ B-13	15 - 16.5		27.9					
⊙ B-13	20 - 21.5		8.2					

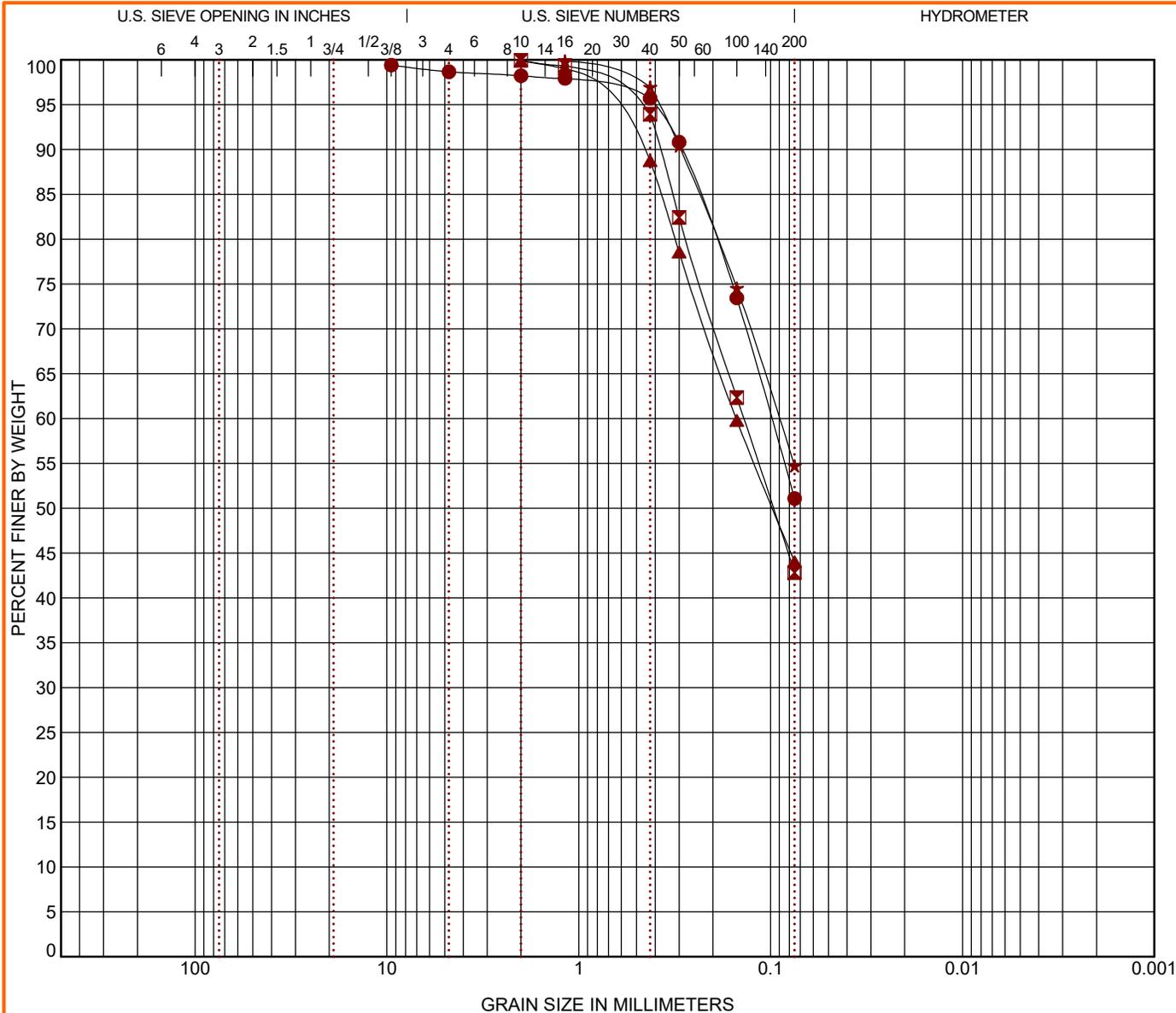
Boring ID	Depth	D <sub>100</sub>	D <sub>60</sub>	D <sub>30</sub>	D <sub>10</sub>	%Cobbles	%Gravel	%Sand	%Silt	%Fines	%Clay
● B-12	25 - 26.5	4.75	1.21	0.496	0.175			93.1		4.8	
☒ B-13	0 - 5	2	0.114					52.7		47.3	
▲ B-13	7.5 - 9	1.18						27.2		72.7	
★ B-13	15 - 16.5	9.5					0.1	12.4		84.5	
⊙ B-13	20 - 21.5	2	0.309					54.4		36.9	

PROJECT: Proposed Industrial Development  SITE: S. Kirby Street Hemet, CA	1355 E Cooley Dr, Ste C Colton, CA	PROJECT NUMBER: CB215163  CLIENT: Newland Capital Group LLC Irvine, CA
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LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 CB215163 PROPOSED INDUSTRIAL.GPJ TERRACON\_DATATEMPLATE.GDT 1/19/22

# GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring ID	Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
● B-13	40 - 41.5		19.0					
☒ P-1	5 - 10							
▲ P-2	5 - 10							
★ P-3	0 - 5							

Boring ID	Depth	D <sub>100</sub>	D <sub>60</sub>	D <sub>30</sub>	D <sub>10</sub>	%Cobbles	%Gravel	%Sand	%Silt	%Fines	%Clay
● B-13	40 - 41.5	9.5	0.099			0.7	47.6			51.1	
☒ P-1	5 - 10	2	0.138				57.1			42.8	
▲ P-2	5 - 10	2	0.151				55.8			44.0	
★ P-3	0 - 5	1.18	0.09				45.2			54.7	

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 CB215163 PROPOSED INDUSTRIAL.GPJ TERRACON\_DATA\_TEMPLATE.GDT 1/19/22

PROJECT: Proposed Industrial Development

SITE: S. Kirby Street  
Hemet, CA



PROJECT NUMBER: CB215163

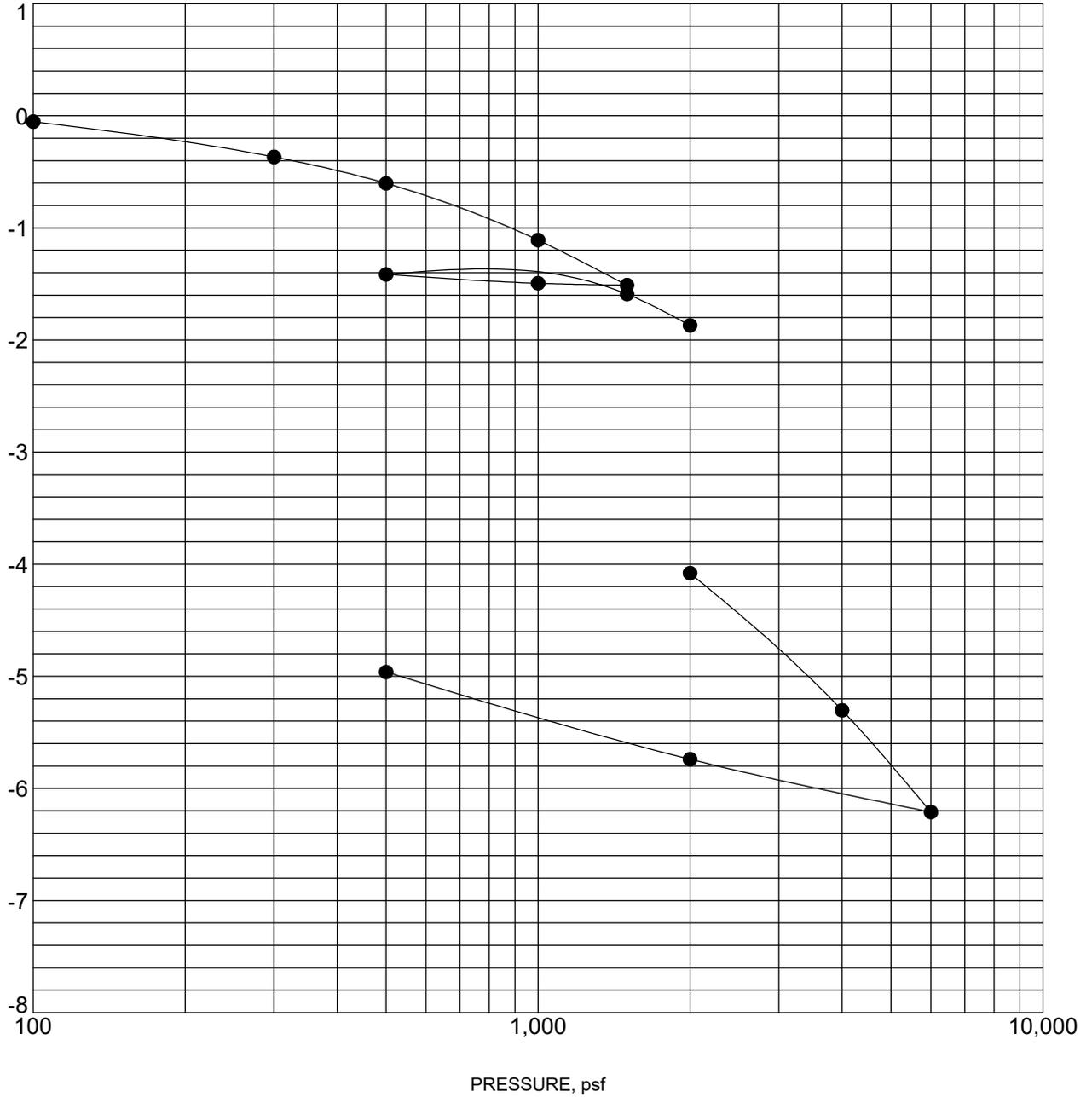
CLIENT: Newland Capital Group LLC  
Irvine, CA

# SWELL CONSOLIDATION TEST

ASTM D2435

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. TC\_CONSOL\_STRAIN-USCS\_CB215163\_PROPOSED INDUSTRIAL.GPJ TERRACON\_DATATEMPLATE.GDT 1/19/22

AXIAL STRAIN, %



Specimen Identification	Classification	$\gamma_d$ , pcf	WC, %
● B-3 10 - 11.5 ft		108	2.4

NOTES:

PROJECT: Proposed Industrial Development

SITE: S. Kirby Street  
Hemet, CA



PROJECT NUMBER: CB215163

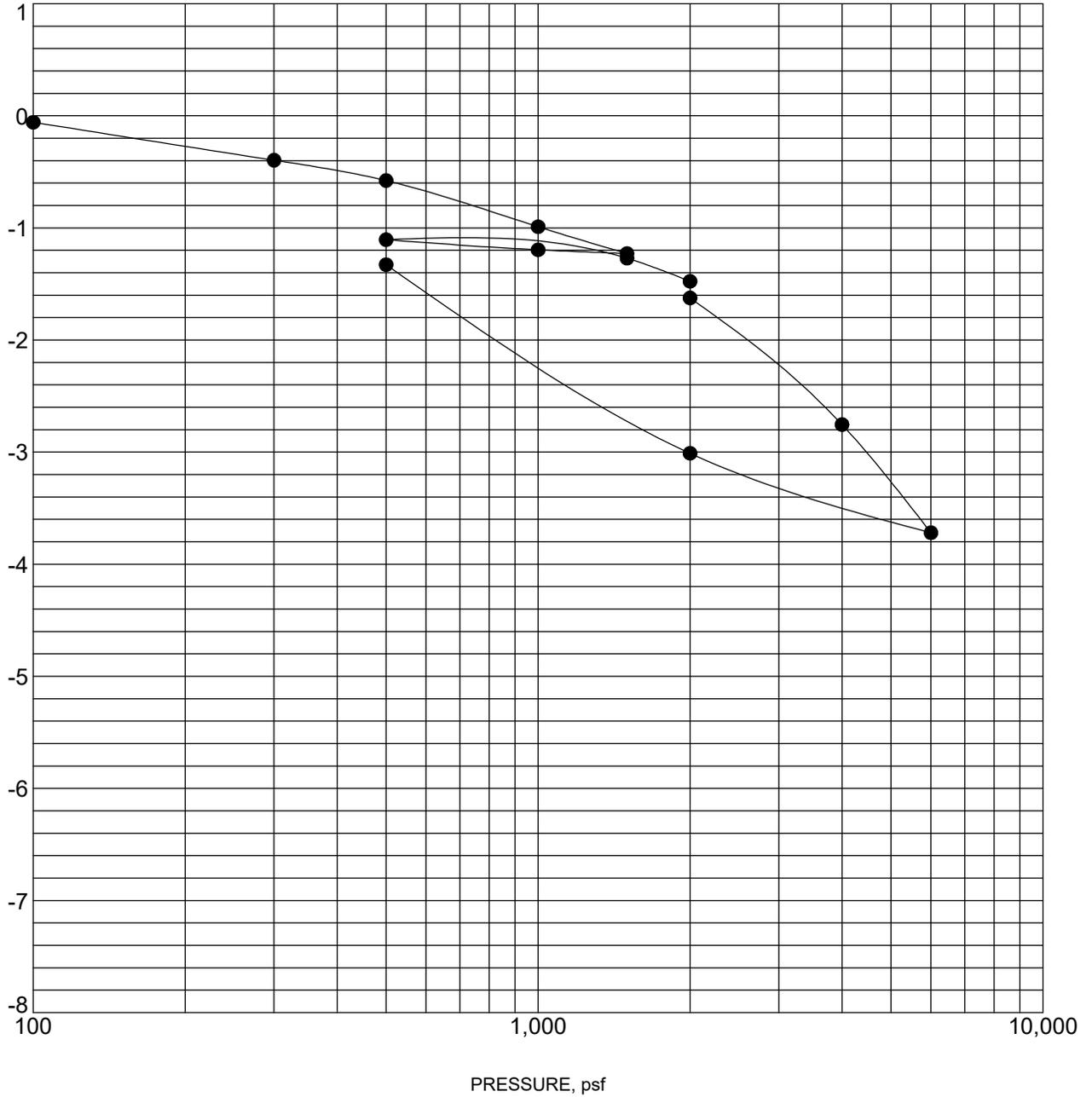
CLIENT: Newland Capital Group LLC  
Irvine, CA

# SWELL CONSOLIDATION TEST

ASTM D2435

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. TC\_CONSOL\_STRAIN-USCS CB215163 PROPOSED INDUSTRIAL.GPJ TERRACON\_DATATEMPLATE.GDT 1/19/22

AXIAL STRAIN, %



Specimen Identification		Classification	$\gamma_d$ , pcf	WC, %
●	B-4      7.5 - 9 ft		106	3.9

NOTES:

PROJECT: Proposed Industrial Development

SITE: S. Kirby Street  
Hemet, CA



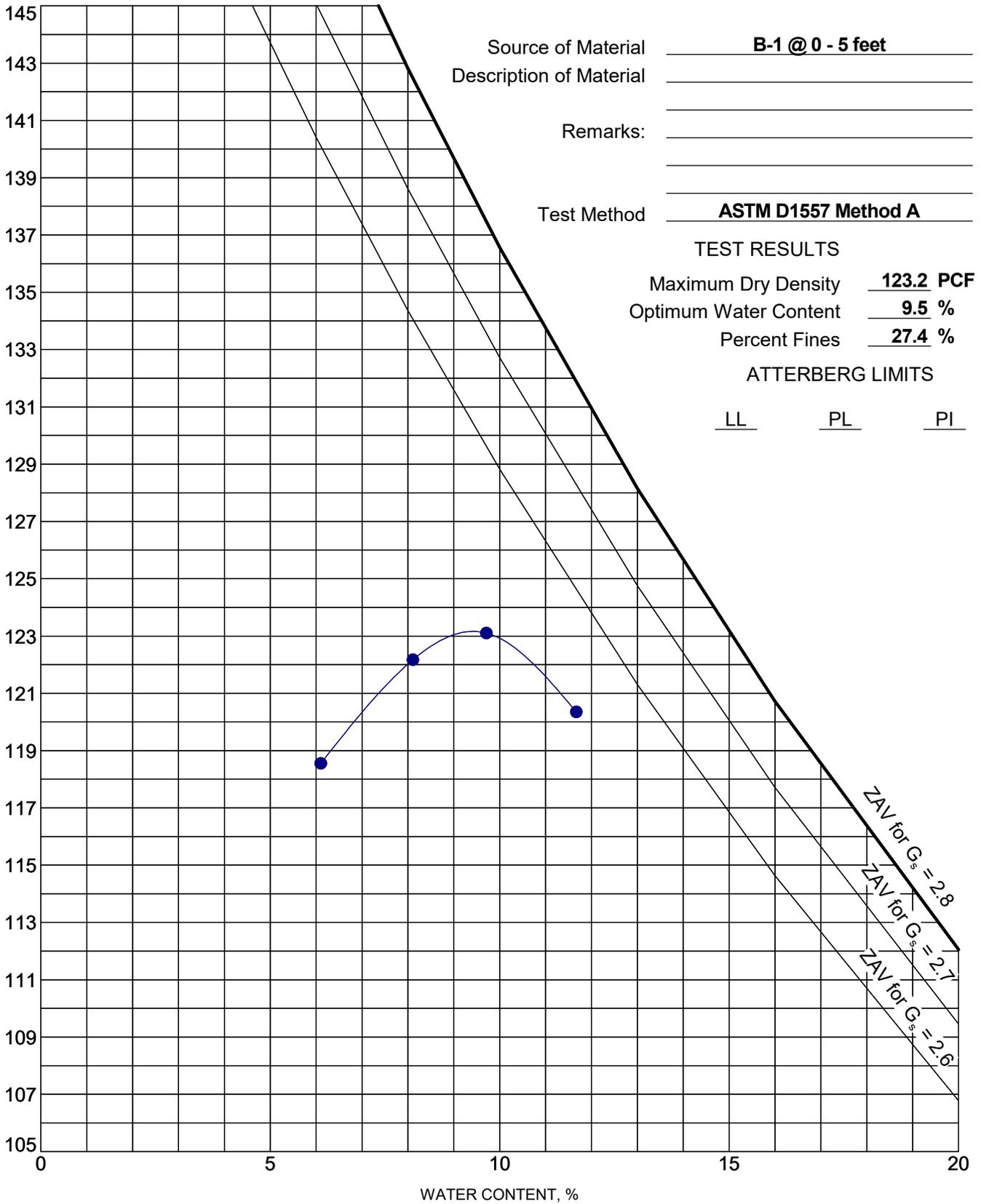
PROJECT NUMBER: CB215163

CLIENT: Newland Capital Group LLC  
Irvine, CA

# MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V1 CB215163 PROPOSED INDUSTRIAL.GPJ TERRACON\_DATATEMPLATE.GDT 1/19/22



PROJECT: Proposed Industrial Development

SITE: S. Kirby Street  
Hemet, CA



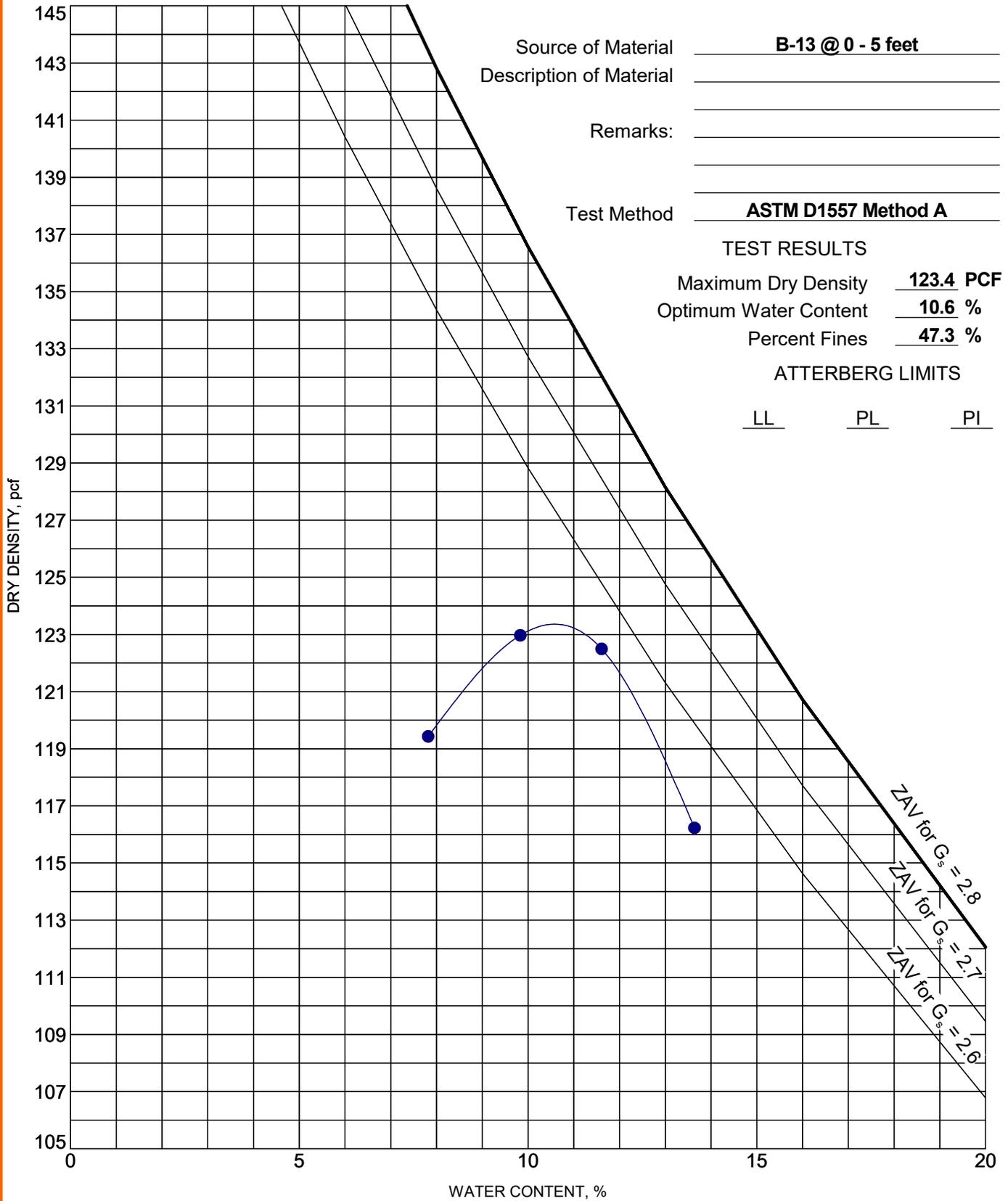
PROJECT NUMBER: CB215163

CLIENT: Newland Capital Group LLC  
Irvine, CA

# MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V1 CB215163 PROPOSED INDUSTRIAL DEVELOPMENT TERRACON\_DATATEMPLATE.GDT 1/19/22



PROJECT: Proposed Industrial Development

SITE: S. Kirby Street  
Hemet, CA



PROJECT NUMBER: CB215163

CLIENT: Newland Capital Group LLC  
Irvine, CA

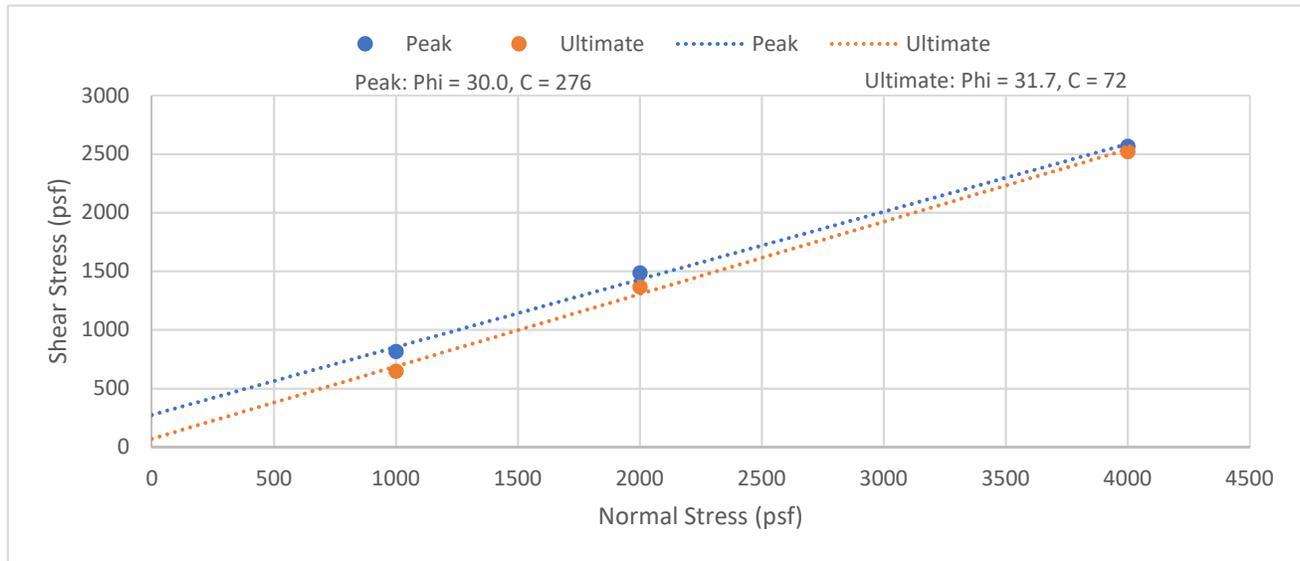
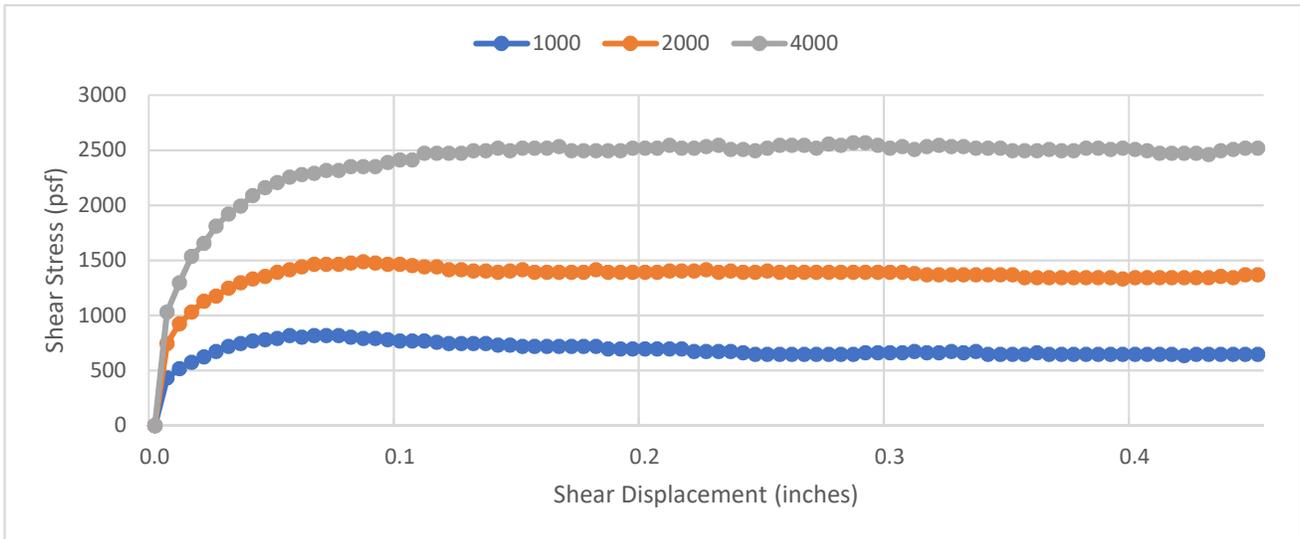
**Direct Shear Test Results  
ASTM D3080**

**Client:** Newland Capital Group LLC  
**Project Name:** Proposed Industrial Development  
**Project No.:** CB215163  
**Boring No.:** B-1  
**Sample No.:** 1-A      **Depth:** 0 ft  
**Soil Description:** Silty Sand (SM)



**Test Date:** 1/9/2022

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Moisture (%)	Normal Stress (psf)	Peak Shear Stress (psf)	Ultimate Shear Stress (psf)
129	117	9.5	1000	816	648
			2000	1488	1368
			4000	2568	2520



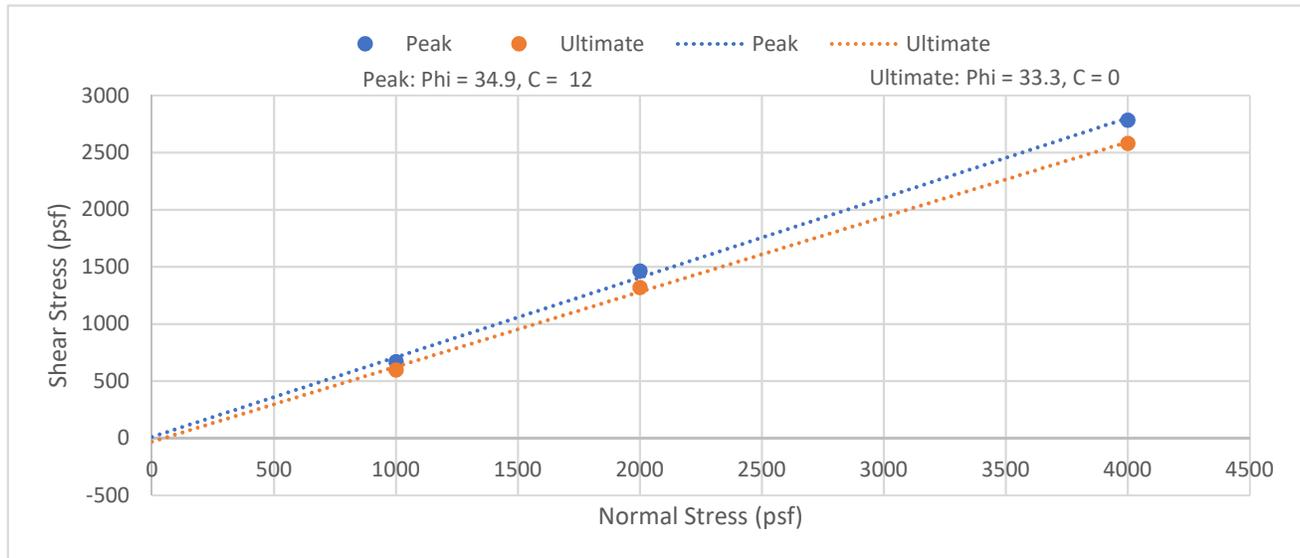
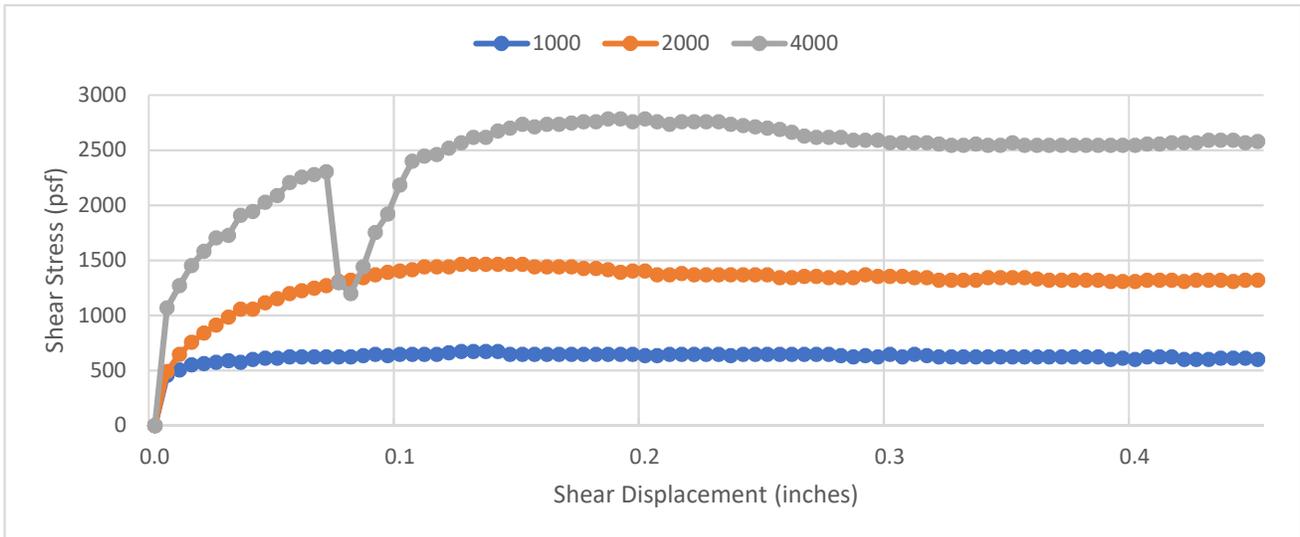
## Direct Shear Test Results ASTM D3080

**Client:** Newland Capital Group LLC  
**Project Name:** Proposed Industrial Development  
**Project No.:** CB215163  
**Boring No.:** B-7  
**Sample No.:** 7-2      **Depth:** 5 ft  
**Soil Description:** Silty Sand (SM)



**Test Date:** 1/7/2022

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Moisture (%)	Normal Stress (psf)	Peak Shear Stress (psf)	Ultimate Shear Stress (psf)
129	117	9.5	1000	672	600
			2000	1464	1320
			4000	2784	2580



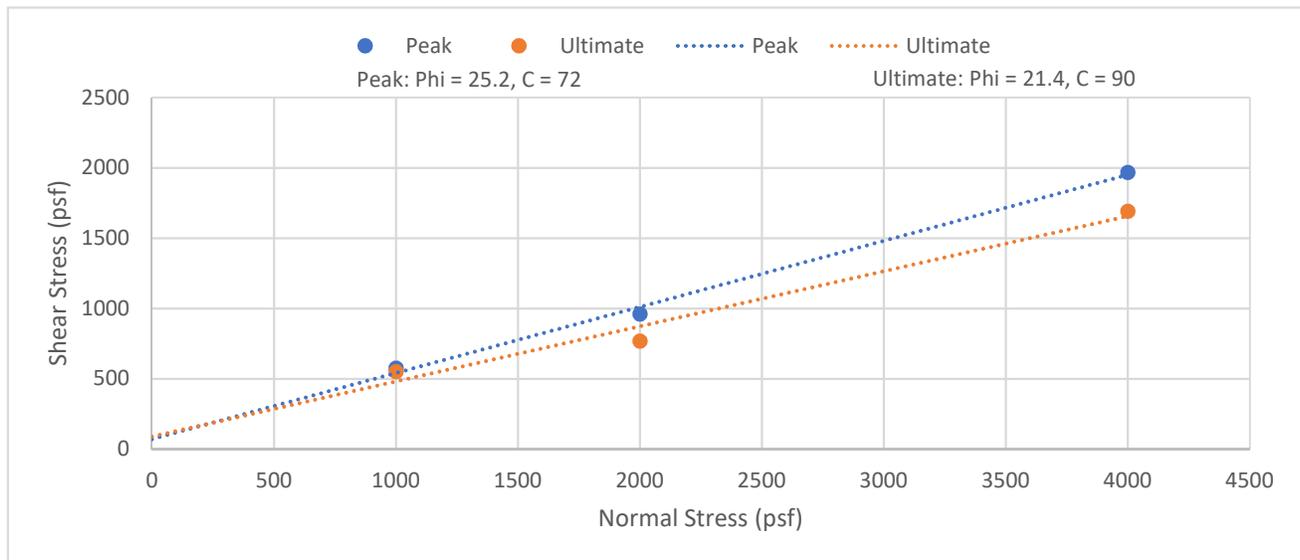
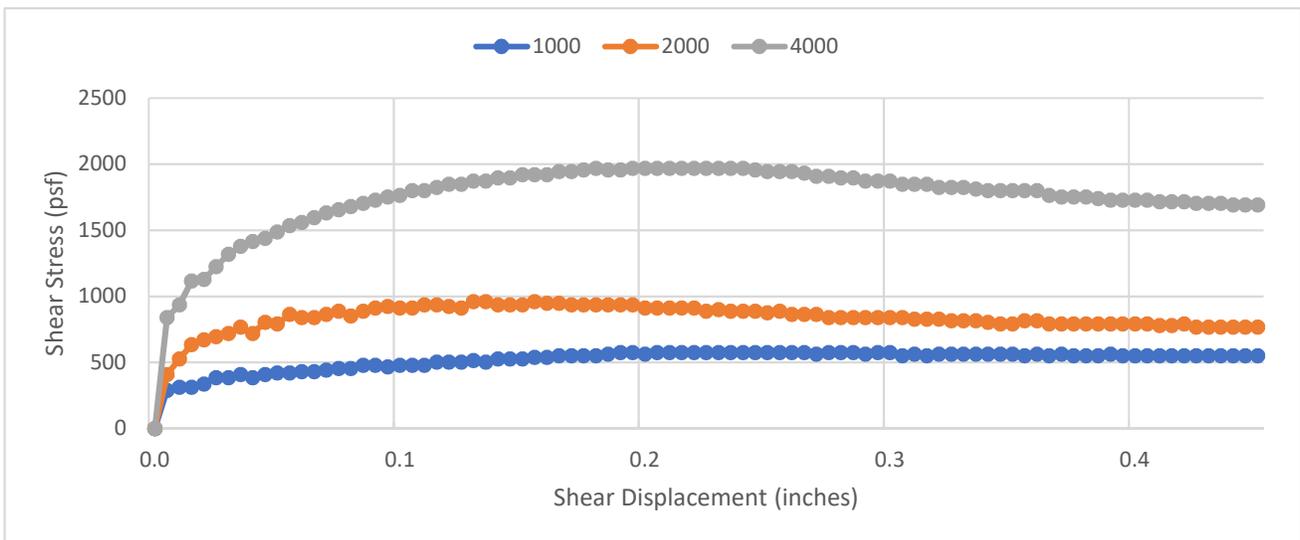
**Direct Shear Test Results  
ASTM D3080**

**Client:** Newland Capital Group LLC  
**Project Name:** Proposed Industrial Development  
**Project No.:** CB215163  
**Boring No.:** B-8  
**Sample No.:** 8-3      **Depth:** 7.5 ft  
**Soil Description:** Sandy Silt (ML)



**Test Date:** 1/19/2022

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Moisture (%)	Normal Stress (psf)	Peak Shear Stress (psf)	Ultimate Shear Stress (psf)
			1000	576	552
			2000	960	768
			4000	1968	1692



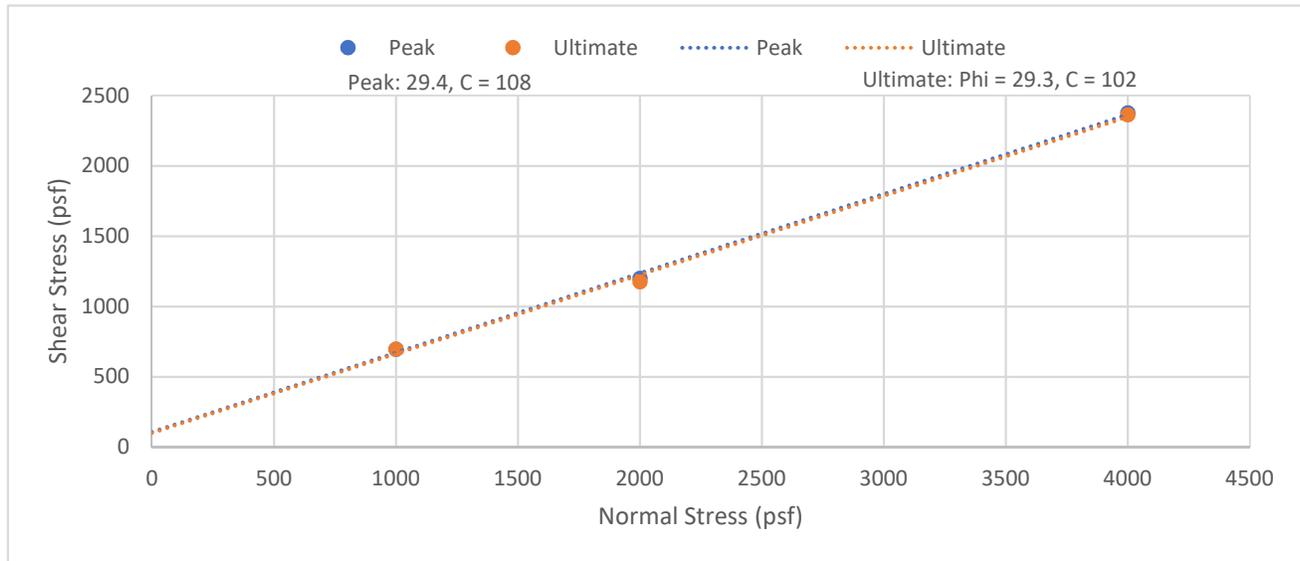
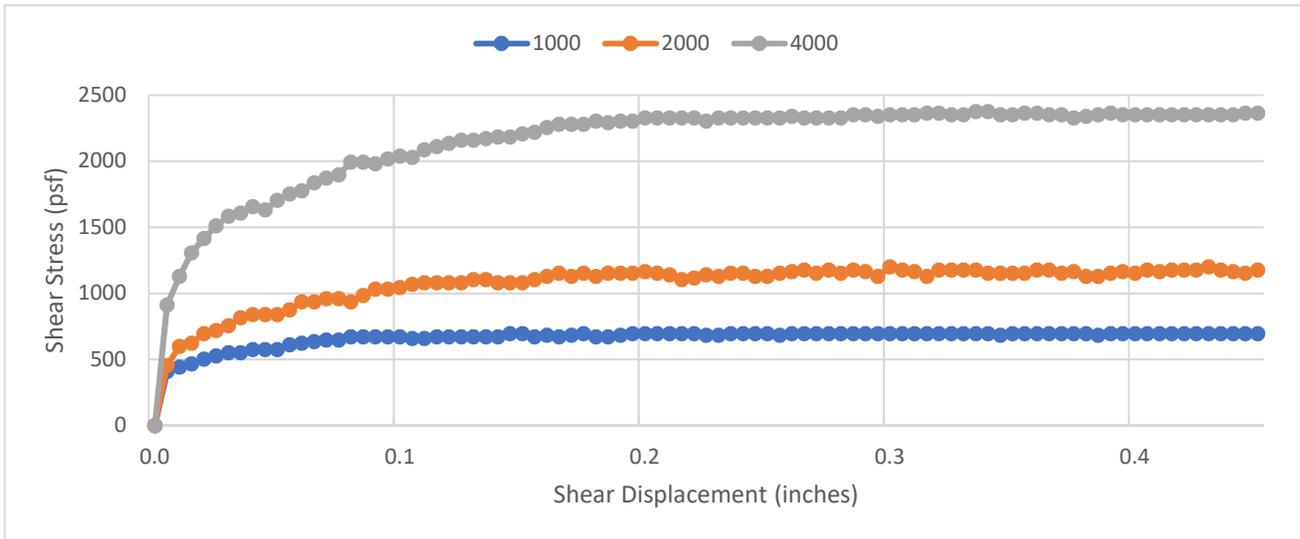
**Direct Shear Test Results  
ASTM D3080**

**Client:** Newland Capital Group LLC  
**Project Name:** Proposed Industrial Development  
**Project No.:** CB215163  
**Boring No.:** B-13  
**Sample No.:** 13-A     **Depth:** 0 ft  
**Soil Description:** Silty Sand (SM)/Sandy Lean Clay (CL)



**Test Date:** 1/19/2022

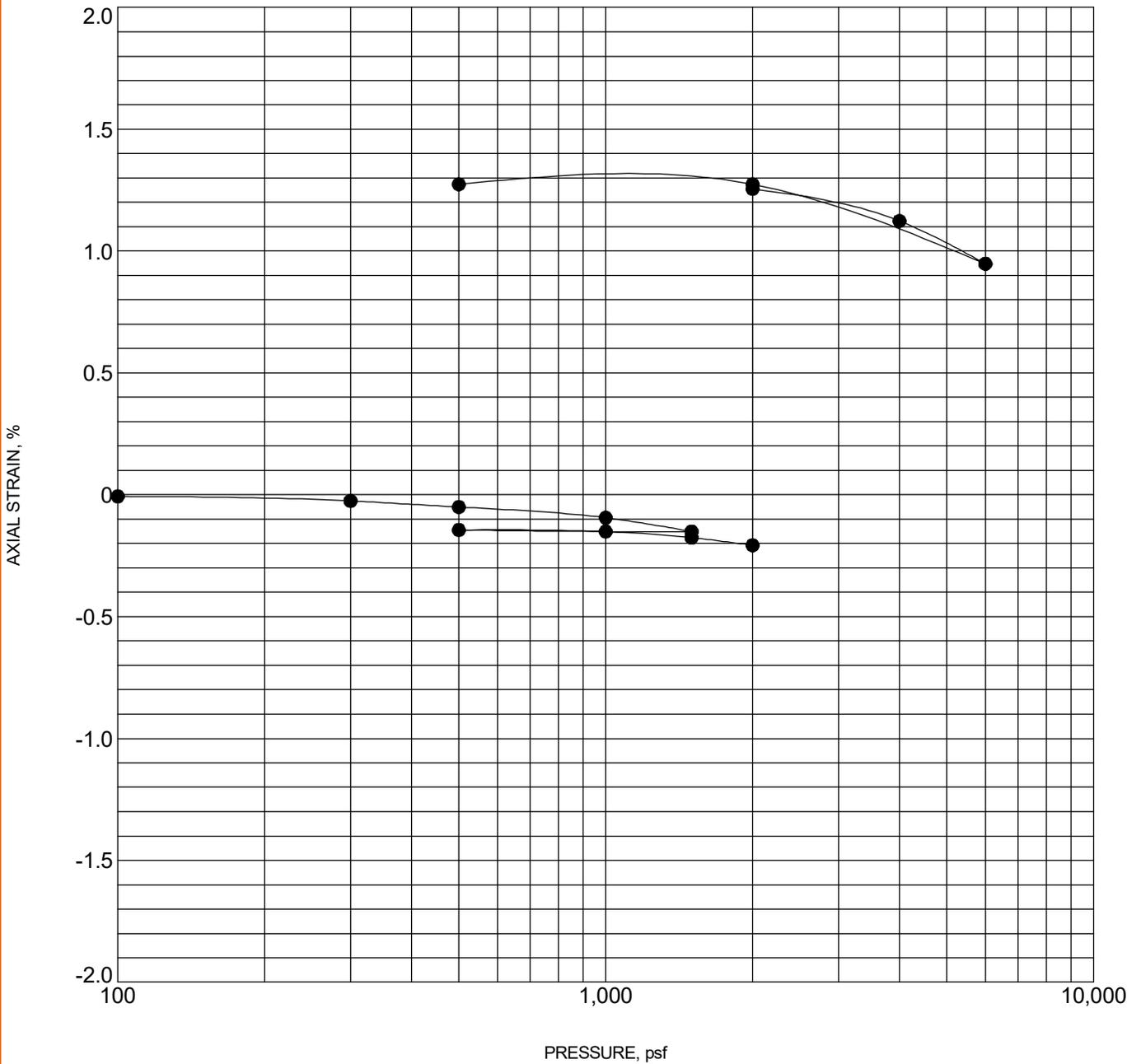
Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Moisture (%)	Normal Stress (psf)	Peak Shear Stress (psf)	Ultimate Shear Stress (psf)
131	117	10.6	1000	696	696
			2000	1200	1176
			4000	2376	2364



# SWELL CONSOLIDATION TEST

ASTM D2435

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. TC\_CONSOL\_STRAIN-USCS CB215163 PROPOSED INDUSTRI.GPJ TERRACON\_DATATEMPLATE.GDT 1/25/22



Specimen Identification	Classification	$\gamma_d$ , pcf	WC, %
● B-2 15 - 16.5 ft			

NOTES: sample was saturated at pressure of 2,000 psf

PROJECT: Proposed Industrial Development

SITE: S. Kirby Street  
Hemet, CA



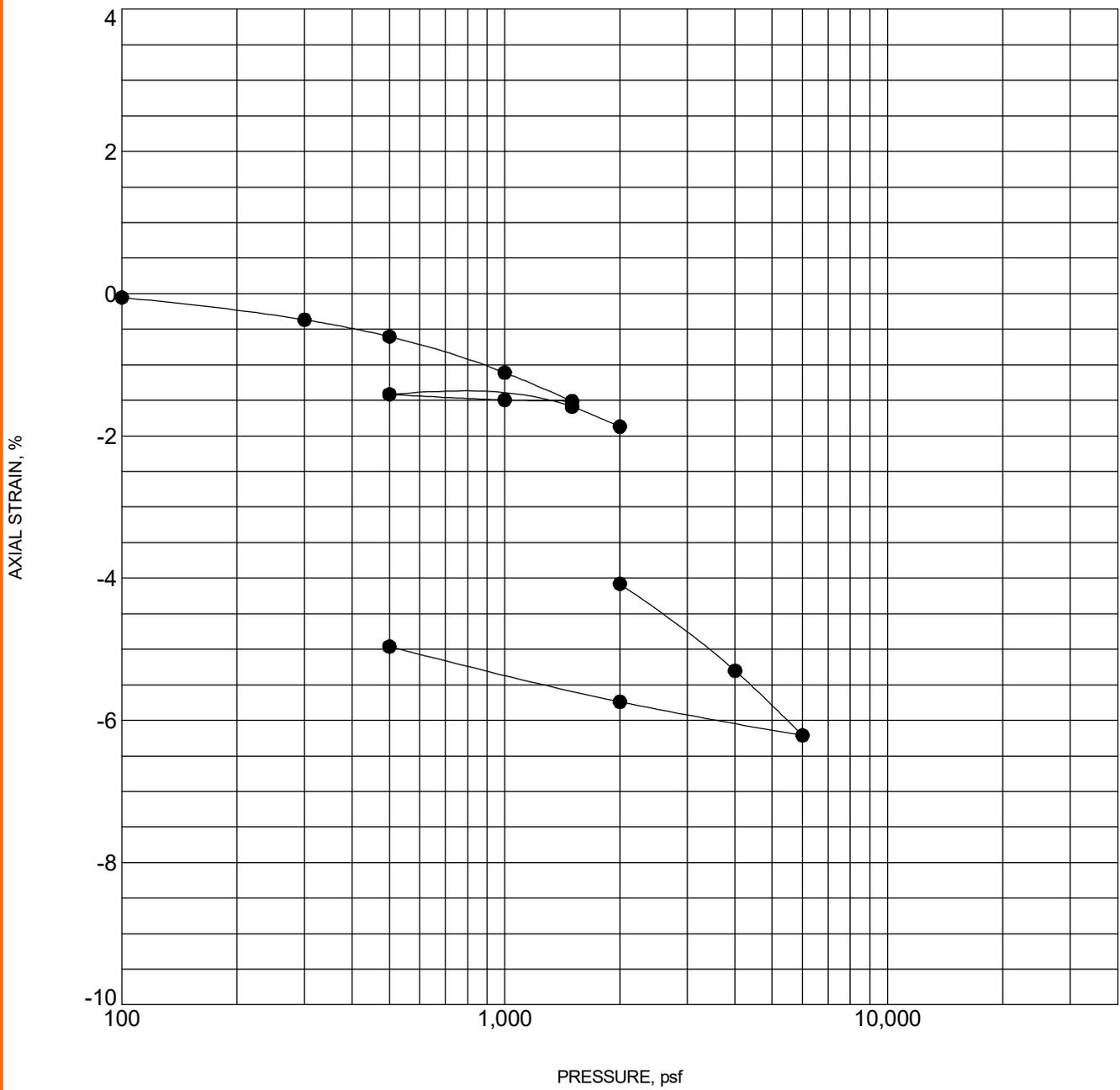
PROJECT NUMBER: CB215163

CLIENT: Newland Capital Group LLC  
Irvine, CA

# SWELL CONSOLIDATION TEST

ASTM D2435

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. TC\_CONSOL\_STRAIN-USCS CB215163 PROPOSED INDUSTRI.GPJ TERRACON\_DATATEMPLATE.GDT 1/25/22



Specimen Identification	Classification	$\gamma_d$ , pcf	WC, %
● B-3 10 - 11.5 ft		108	2

NOTES:

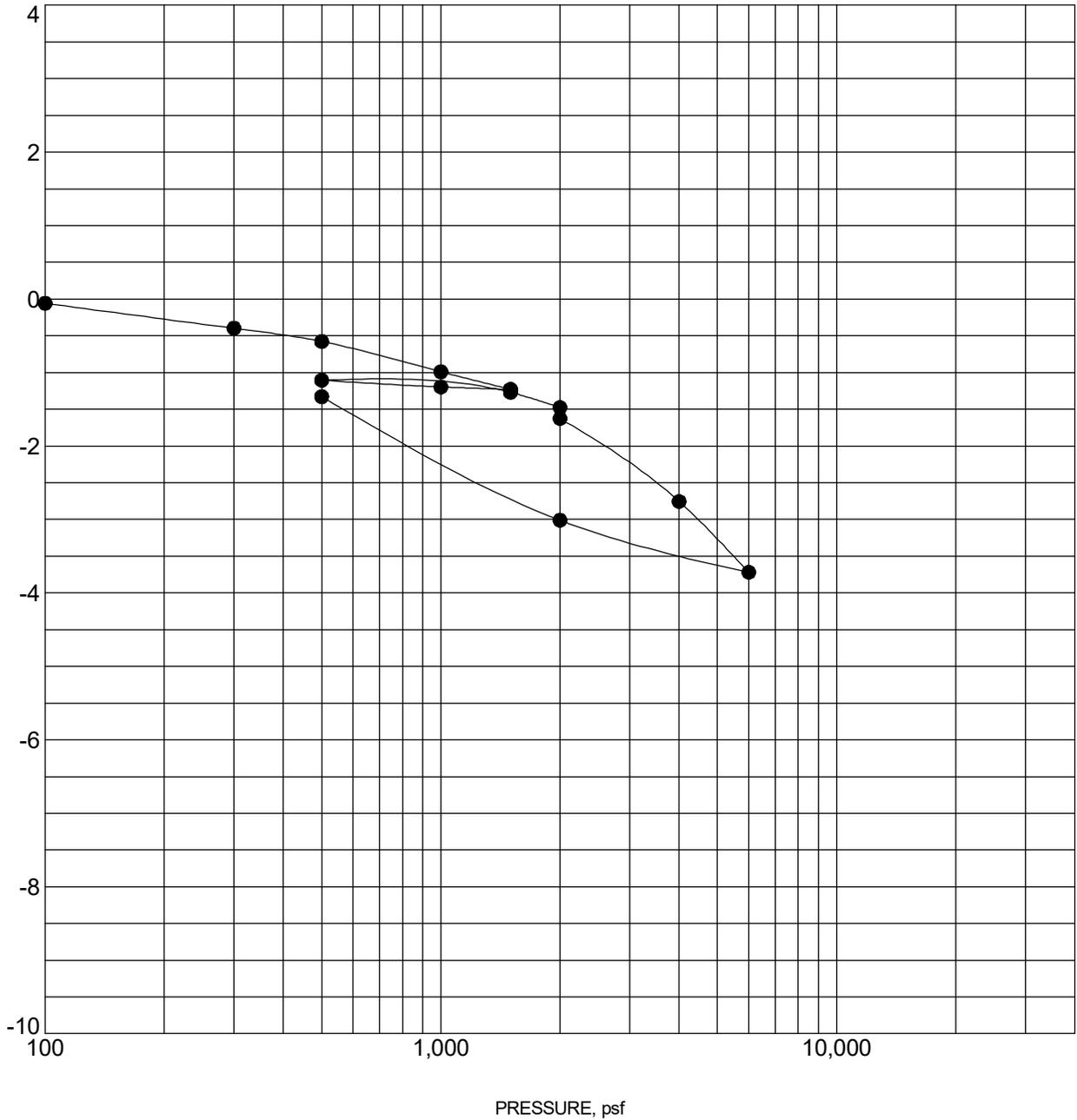
PROJECT: Proposed Industrial Development	 <small>1355 E Cooley Dr, Ste C Colton, CA</small>	PROJECT NUMBER: CB215163
SITE: S. Kirby Street Hemet, CA		CLIENT: Newland Capital Group LLC Irvine, CA

# SWELL CONSOLIDATION TEST

ASTM D2435

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. TC\_CONSOL\_STRAIN-USCS CB215163 PROPOSED INDUSTRI.GPJ TERRACON\_DATATEMPLATE.GDT 1/25/22

AXIAL STRAIN, %



Specimen Identification		Classification	$\gamma_d$ , pcf	WC, %
●	B-4 7.5 - 9 ft		106	4

NOTES:

PROJECT: Proposed Industrial Development

SITE: S. Kirby Street  
Hemet, CA



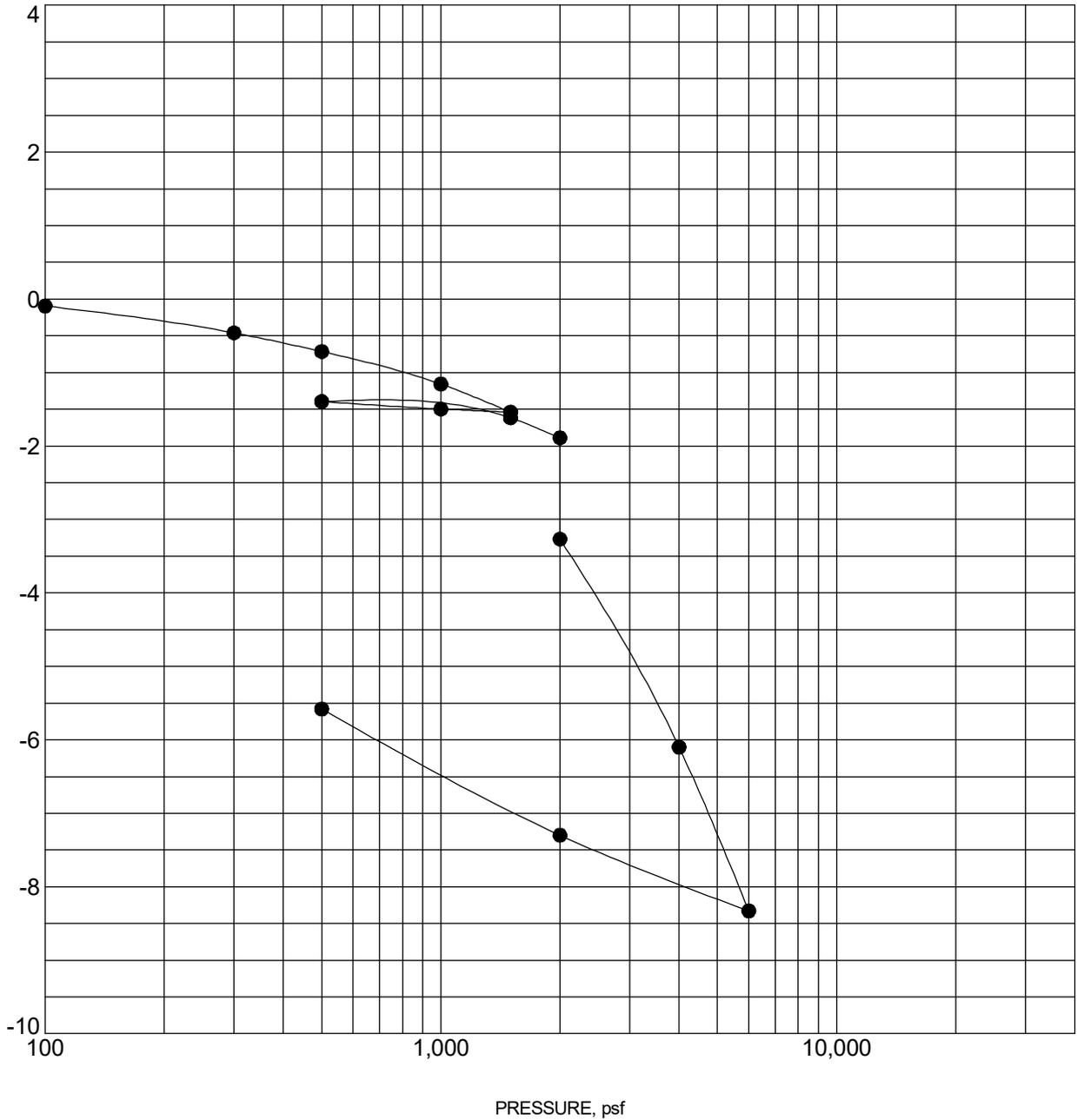
PROJECT NUMBER: CB215163

CLIENT: Newland Capital Group LLC  
Irvine, CA

# SWELL CONSOLIDATION TEST

ASTM D2435

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. TC\_CONSOL\_STRAIN-USCS CB215163 PROPOSED INDUSTRI.GPJ TERRACON\_DATATEMPLATE.GDT 1/25/22



Specimen Identification	Classification	$\gamma_d$ , pcf	WC, %
● B-9    10 - 11.5 ft			

NOTES: Sample was saturated at pressure of 2,000 psf

PROJECT: Proposed Industrial Development

SITE: S. Kirby Street  
Hemet, CA



PROJECT NUMBER: CB215163

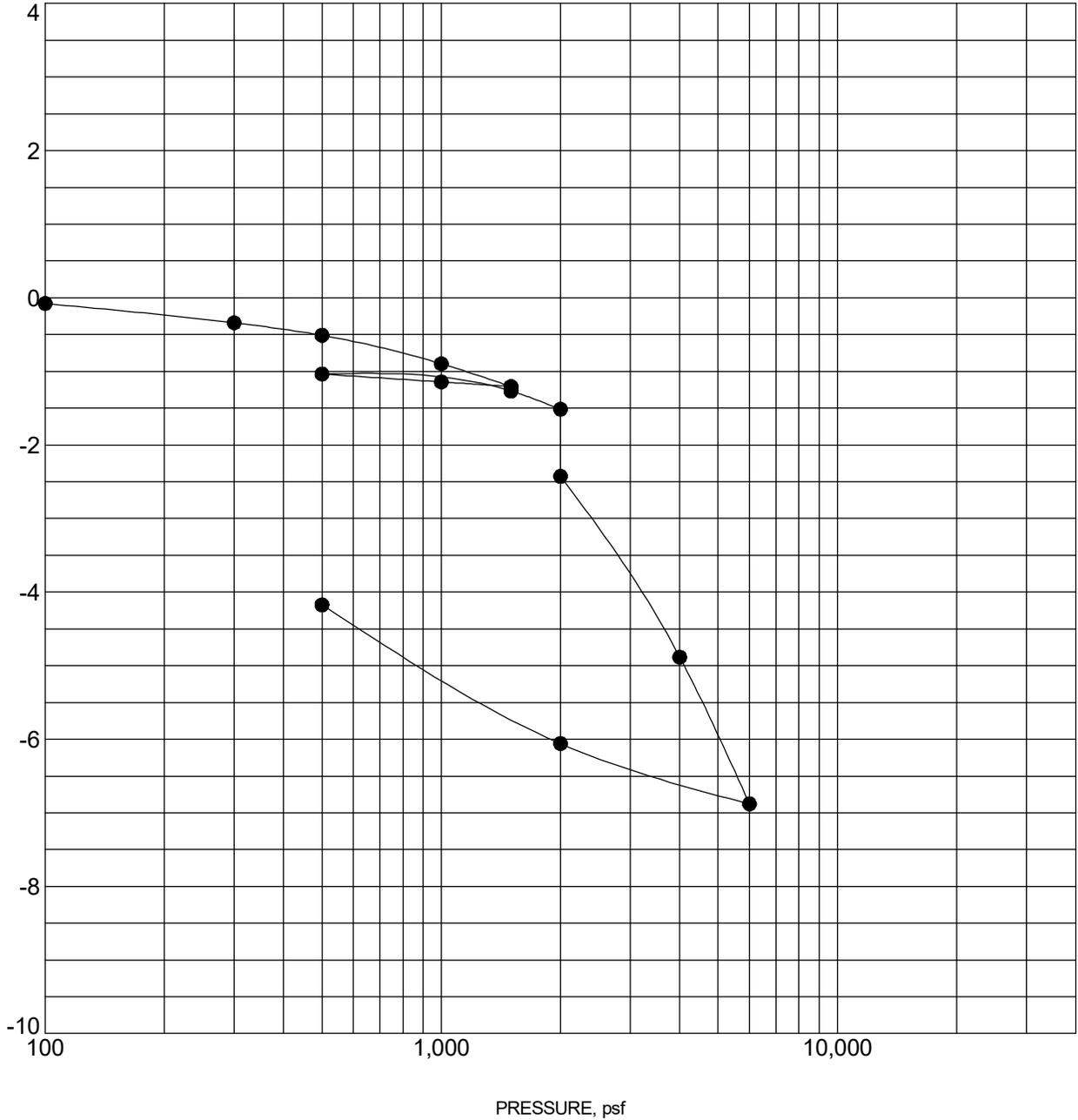
CLIENT: Newland Capital Group LLC  
Irvine, CA

# SWELL CONSOLIDATION TEST

ASTM D2435

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. TC\_CONSOL\_STRAIN-USCS CB215163 PROPOSED INDUSTRI.GPJ TERRACON\_DATATEMPLATE.GDT 1/25/22

AXIAL STRAIN, %



Specimen Identification	Classification	$\gamma_d$ , pcf	WC, %
● B-11 10 - 11.5 ft			

NOTES: sample was saturated at pressure of 2,000 psf

PROJECT: Proposed Industrial Development

SITE: S. Kirby Street  
Hemet, CA



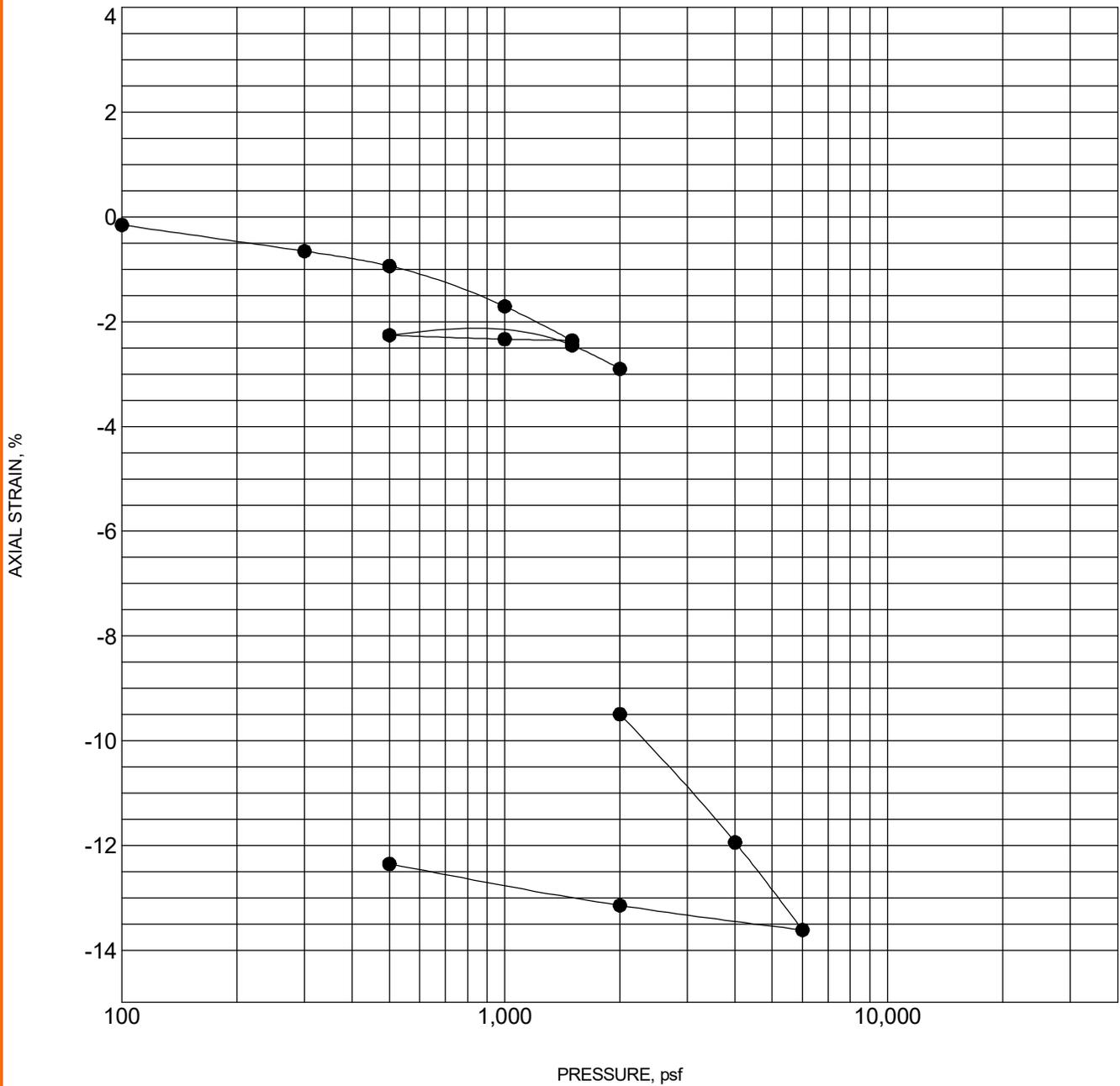
PROJECT NUMBER: CB215163

CLIENT: Newland Capital Group LLC  
Irvine, CA

# SWELL CONSOLIDATION TEST

ASTM D2435

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. TC\_CONSOL\_STRAIN-USCS CB215163 PROPOSED INDUSTRI.GPJ TERRACON\_DATATEMPLATE.GDT 1/25/22



Specimen Identification	Classification	$\gamma_d$ , pcf	WC, %
● B-12    7.5 - 9 ft			

NOTES: sample was saturated at pressure of 2,000 psf

PROJECT: Proposed Industrial Development

SITE: S. Kirby Street  
Hemet, CA



PROJECT NUMBER: CB215163

CLIENT: Newland Capital Group LLC  
Irvine, CA

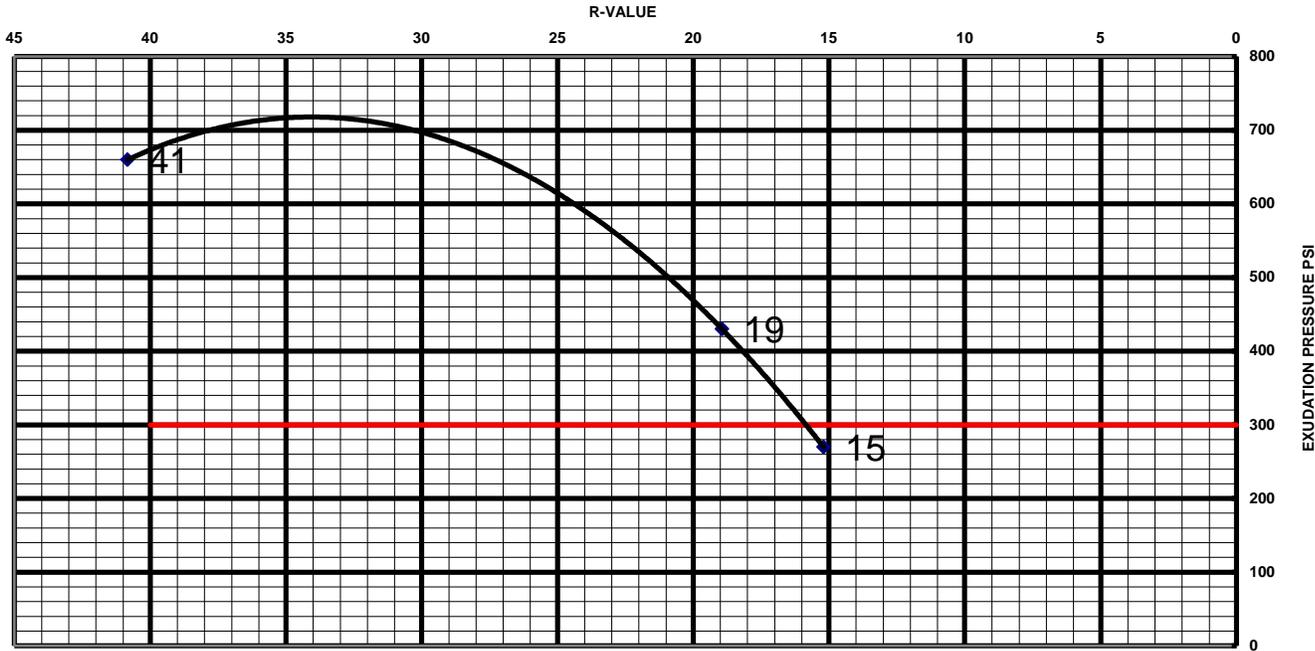
**LABORATORY RECORD OF TESTS MADE ON  
 BASE, SUBBASE, AND BASEMENT SOILS**

**CLIENT:** Newland Capital Group LLC  
**PROJECT:** Proposed Industrial Development  
**LOCATION:**  
**R-VALUE # :** 15A  
**T.I. :**

COMPACTOR AIR PRESSURE P.S.I.  
 INITIAL MOISTURE %  
 WATER ADDED, ML  
 WATER ADDED %  
 MOISTURE AT COMPACTION %  
 HEIGHT OF BRIQUETTE  
 WET WEIGHT OF BRIQUETTE  
 DENSITY LB. PER CU.FT.  
 STABILOMETER PH AT 1000 LBS.  
 2000 LBS.  
 DISPLACEMENT  
 R-VALUE  
 EXUDATION PRESSURE  
 THICK. INDICATED BY STAB.  
 EXPANSION PRESSURE  
 THICK. INDICATED BY E.P.

A	B	C	D
150	250	350	
4.9	4.9	4.9	
110	100	90	
10.3	9.3	8.5	
15.2	14.2	13.4	
2.55	2.55	2.46	
1119	1128	1116	
115.4	117.4	121.3	
52	48	34	
113	107	68	
5.80	5.30	4.90	
15	19	41	
270	430	660	
0.00	0.00	0.00	
35	50	88	
1.17	1.67	2.93	

**EXUDATION CHART**



**R-Value: 16**

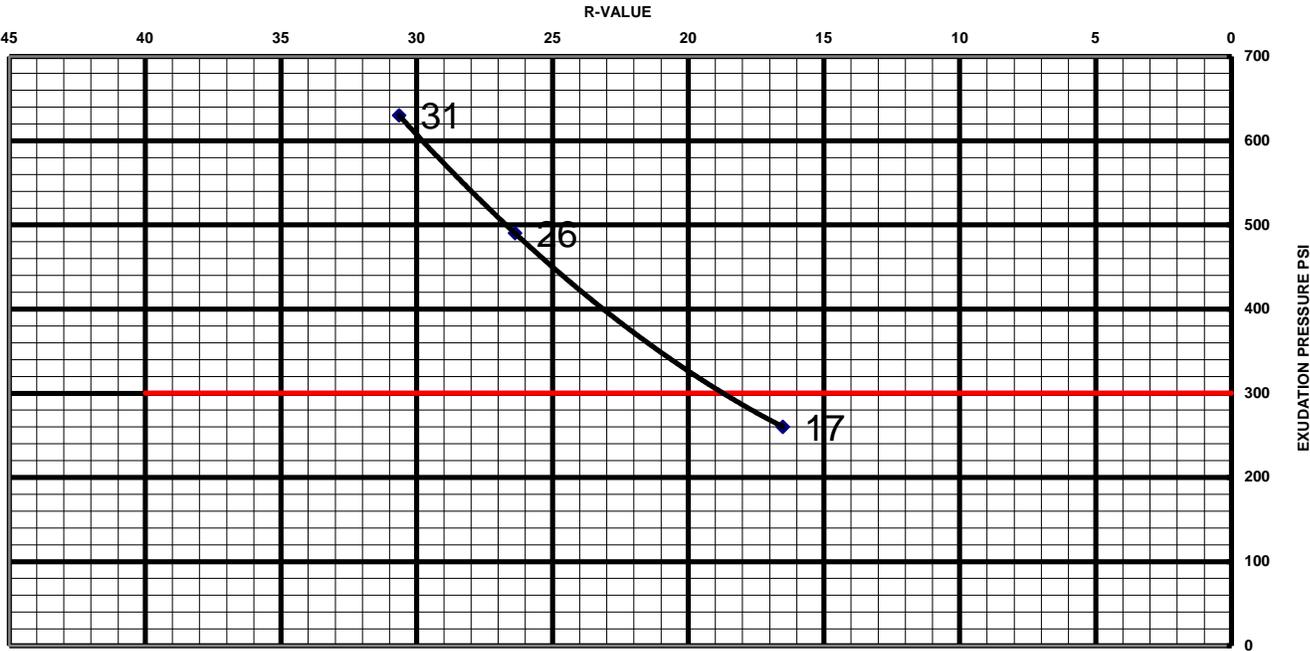
**LABORATORY RECORD OF TESTS MADE ON  
 BASE, SUBBASE, AND BASEMENT SOILS**

**CLIENT:** Newland Capital Group LLC  
**PROJECT** Proposed Industrial Development  
**LOCATION:**  
**R-VALUE # :** 16A  
**T.I. :**

COMPACTOR AIR PRESSURE P.S.I.  
 INITIAL MOISTURE %  
 WATER ADDED, ML  
 WATER ADDED %  
 MOISTURE AT COMPACTION %  
 HEIGHT OF BRIQUETTE  
 WET WEIGHT OF BRIQUETTE  
 DENSITY LB. PER CU.FT.  
 STABILOMETER PH AT 1000 LBS.  
 2000 LBS.  
 DISPLACEMENT  
 R-VALUE  
 EXUDATION PRESSURE  
 THICK. INDICATED BY STAB.  
 EXPANSION PRESSURE  
 THICK. INDICATED BY E.P.

A	B	C	D
175	275	350	
4.2	4.2	4.2	
105	90	80	
9.7	8.3	7.4	
13.9	12.5	11.6	
2.52	2.48	2.47	
1123	1128	1127	
118.5	122.5	123.9	
49	41	29	
114	94	90	
5.10	4.90	4.40	
17	26	31	
260	490	630	
0.00	0.00	0.00	
32	37	47	
1.07	1.23	1.57	

**EXUDATION CHART**



**R-Value: 19**

**PERCOLATION TEST DATA**

BORING NUMBER: P-1  
 LOT No: N/A  
 TRACT No: N/A

CLIENT: Newland Capital  
 PROJECT: Proposed Industrial Development

DATE OF DRILLING: December 3, 2021      DEPTH BEFORE (ft.): 10.0  
 DATE OF PRESOAK: December 12, 2021      DEPTH AFTER (ft.): 10.0  
 DATE OF TEST: December 13, 2021      PVC PIPE DIA. (in.): 3.0  
 TESTED BY: GA      PERC HOLE DIA. (in.): 8.0

Time Interval (min.)	Total Elapsed Time (min.)	Initial Water Level (in.)	Final Water Level (in.)	Change in Water Level (in.)	Initial Hole Depth (in.)	Final Hole Depth (in.)	Percolation Rate (in/hr)	Infiltration rate (Porchet Method) (in/hr)
1535	1535	54.0	122.4	68.4	120.0	120.0	2.7	0.16
25	1560	60.0	65.7	5.7	120.0	120.0	13.7	0.46
25	1585	60.0	66.0	6.0	120.0	120.0	14.4	0.49
30	1615	60.0	67.5	7.5	120.0	120.0	15.0	0.52
30	1645	60.0	68.7	8.7	120.0	120.0	17.4	0.60
30	1675	60.0	69.6	9.6	120.0	120.0	19.2	0.67
30	1705	60.0	70.2	10.2	120.0	120.0	20.4	0.72
30	1735	60.0	71.1	11.1	120.0	120.0	22.2	0.79
30	1765	60.0	70.8	10.8	120.0	120.0	21.6	0.76
30	1795	60.0	70.8	10.8	120.0	120.0	21.6	0.76
30	1825	60.0	70.5	10.5	120.0	120.0	21.0	0.74
30	1855	60.0	70.5	10.5	120.0	120.0	21.0	0.74
30	1885	60.0	70.2	10.2	120.0	120.0	20.4	0.72
30	1915	60.0	70.2	10.2	120.0	120.0	20.4	0.72
30	1945	60.0	70.2	10.2	120.0	120.0	20.4	0.72

**PERCOLATION TEST DATA**

BORING NUMBER: P-2  
 LOT No: N/A  
 TRACT No: N/A

CLIENT: Newland Capital  
 PROJECT: Proposed Industrial Development

DATE OF DRILLING: December 3, 2021      DEPTH BEFORE (ft.): 9.9  
 DATE OF PRESOAK: December 12, 2021      DEPTH AFTER (ft.): 9.9  
 DATE OF TEST: December 13, 2021      PVC PIPE DIA. (in.): 3.0  
 TESTED BY: GA      PERC HOLE DIA. (in.): 8.0

Time Interval (min.)	Total Elapsed Time (min.)	Initial Water Level (in.)	Final Water Level (in.)	Change in Water Level (in.)	Initial Hole Depth (in.)	Final Hole Depth (in.)	Percolation Rate (in/hr)	Infiltration rate (Porchet Method) (in/hr)
1525	1525	54.0	119.1	65.1	119.1	119.1	2.6	0.15
25	1550	60.0	62.7	2.7	119.1	119.1	6.5	0.22
25	1575	60.0	63.0	3.0	119.1	119.1	7.2	0.24
30	1605	60.0	63.0	3.0	119.1	119.1	6.0	0.20
30	1635	60.0	63.3	3.3	119.1	119.1	6.6	0.22
30	1665	60.0	63.0	3.0	119.1	119.1	6.0	0.20
30	1695	60.0	62.7	2.7	119.1	119.1	5.4	0.18
30	1725	60.0	62.7	2.7	119.1	119.1	5.4	0.18
30	1755	60.0	62.7	2.7	119.1	119.1	5.4	0.18
30	1785	60.0	63.0	3.0	119.1	119.1	6.0	0.20
30	1815	60.0	62.7	2.7	119.1	119.1	5.4	0.18
30	1845	60.0	62.7	2.7	119.1	119.1	5.4	0.18
30	1875	60.0	62.7	2.7	119.1	119.1	5.4	0.18
30	1905	60.0	62.4	2.4	119.1	119.1	4.8	0.16
30	1935	60.0	62.7	2.7	119.1	119.1	5.4	0.18

**PERCOLATION TEST DATA**

BORING NUMBER: P-3  
 LOT No: N/A  
 TRACT No: N/A

CLIENT: Newland Capital  
 PROJECT: Proposed Industrial Development

DATE OF DRILLING: December 3, 2021  
 DATE OF PRESOAK: December 12, 2021  
 DATE OF TEST: December 13, 2021  
 TESTED BY: GA

DEPTH BEFORE (ft.): 4.8  
 DEPTH AFTER (ft.): 4.8  
 PVC PIPE DIA. (in.): 3.0  
 PERC HOLE DIA. (in.): 8.0

Time Interval (min.)	Total Elapsed Time (min.)	Initial Water Level (in.)	Final Water Level (in.)	Change in Water Level (in.)	Initial Hole Depth (in.)	Final Hole Depth (in.)	Percolation Rate (in/hr)	Infiltration rate (Porchet Method) (in/hr)
1530	1530	0.0	57.0	57.0	57.0	57.0	2.2	0.15
25	1555	0.0	5.7	5.7	57.0	57.0	13.7	0.49
25	1580	0.0	5.7	5.7	57.0	57.0	13.7	0.49
30	1610	0.0	6.3	6.3	57.0	57.0	12.6	0.45
30	1640	0.0	6.6	6.6	57.0	57.0	13.2	0.47
30	1670	0.0	6.6	6.6	57.0	57.0	13.2	0.47
30	1700	0.0	6.6	6.6	57.0	57.0	13.2	0.47
30	1730	0.0	6.6	6.6	57.0	57.0	13.2	0.47
30	1760	0.0	6.3	6.3	57.0	57.0	12.6	0.45
30	1790	0.0	6.3	6.3	57.0	57.0	12.6	0.45
30	1820	0.0	6.6	6.6	57.0	57.0	13.2	0.47
30	1850	0.0	6.3	6.3	57.0	57.0	12.6	0.45
30	1880	0.0	6.3	6.3	57.0	57.0	12.6	0.45
30	1910	0.0	6.3	6.3	57.0	57.0	12.6	0.45
30	1940	0.0	6.3	6.3	57.0	57.0	12.6	0.45

**Client**

Newland Capital Group LLC

**Project**

Proposed Industrial Development

**Sample Submitted By:** Terracon (CB)

**Date Received:** 12/27/2021

**Lab No.:** 22-0018

**Results of Corrosion Analysis**

<b>Sample Number</b>	7-A	16-A
<b>Sample Location</b>	B-7	B-16
<b>Sample Depth (ft.)</b>	0.0-5.0	0.0-5.0
pH Analysis, ASTM G 51	8.59	8.64
Water Soluble Sulfate (SO <sub>4</sub> ), ASTM C 1580 (mg/kg)	135	88
Chlorides, ASTM D 512, (mg/kg)	70	78
Total Salts, AWWA 2540, (mg/kg)	465	579
As-Received Resistivity, ASTM G 57, (ohm-cm)	47045	67900
Saturated Minimum Resistivity, ASTM G 57, (ohm-cm)	4171	3395



**Analyzed By:**

Nathan Campo  
Engineering Technician II

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

## **SUPPORTING INFORMATION**

### **Contents:**

General Notes

Unified Soil Classification System

Note: All attachments are one page unless noted above.

SAMPLING	WATER LEVEL	FIELD TESTS
 Auger Cuttings  Grab Sample  Modified California Ring Sampler  Standard Penetration Test	 Water Initially Encountered  Water Level After a Specified Period of Time  Water Level After a Specified Period of Time  Cave In Encountered <p>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.</p>	<p><b>N</b> Standard Penetration Test Resistance (Blows/Ft.)</p> <p><b>(HP)</b> Hand Penetrometer</p> <p><b>(T)</b> Torvane</p> <p><b>(DCP)</b> Dynamic Cone Penetrometer</p> <p><b>UC</b> Unconfined Compressive Strength</p> <p><b>(PID)</b> Photo-Ionization Detector</p> <p><b>(OVA)</b> Organic Vapor Analyzer</p>

**DESCRIPTIVE SOIL CLASSIFICATION**

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

**LOCATION AND ELEVATION NOTES**

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See [Exploration and Testing Procedures](#) in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS						
RELATIVE DENSITY OF COARSE-GRAINED SOILS <small>(More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance</small>			CONSISTENCY OF FINE-GRAINED SOILS <small>(50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance</small>			
Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength Qu, (tsf)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.
Very Loose	0 - 3	0 - 6	Very Soft	less than 0.25	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	0.25 to 0.50	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium Stiff	0.50 to 1.00	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	1.00 to 2.00	8 - 15	10 - 18
Very Dense	> 50	> 99	Very Stiff	2.00 to 4.00	15 - 30	19 - 42
			Hard	> 4.00	> 30	> 42

**RELEVANCE OF SOIL BORING LOG**

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

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

<sup>A</sup> Based on the material passing the 3-inch (75-mm) sieve.

<sup>B</sup> If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

<sup>C</sup> 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.

<sup>D</sup> 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.

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

<sup>F</sup> If soil contains  $\geq 15\%$  sand, add "with sand" to group name.

<sup>G</sup> If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

<sup>H</sup> If fines are organic, add "with organic fines" to group name.

<sup>I</sup> If soil contains  $\geq 15\%$  gravel, add "with gravel" to group name.

<sup>J</sup> If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

<sup>K</sup> If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

<sup>L</sup> If soil contains  $\geq 30\%$  plus No. 200 predominantly sand, add "sandy" to group name.

<sup>M</sup> If soil contains  $\geq 30\%$  plus No. 200, predominantly gravel, add "gravelly" to group name.

<sup>N</sup>  $PI \geq 4$  and plots on or above "A" line.

<sup>O</sup>  $PI < 4$  or plots below "A" line.

<sup>P</sup>  $PI$  plots on or above "A" line.

<sup>Q</sup>  $PI$  plots below "A" line.

