# Appendix E – Geotechnical Investigation

# GEOTECHNICAL INVESTIGATION
# PROPOSED E-COMMERCE DEVELPOMENT

Cherry Avenue, West of Fabian Way
Beaumont, California
For
Exeter Property Group

SoCalGeo
SOUTHERN
CALIFORNIA
GEOTECHNICAL
A California Corporation

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

August 12, 2021

Exeter Property Group
4602 East University Drive, Suite 185
Phoenix, Arizona 85034

Attention: Mr. Andrew Greybar
Senior Project Manager

Project No.: **21G133-1**

Subject: **Geotechnical Investigation**
Proposed E-Commerce Development
Cherry Valley Avenue, West of Fabian Lane
Beaumont, California

Mr. Greybar

In accordance with your request, we have conducted a geotechnical investigation at the subject site. We are pleased to present this report summarizing the conclusions and recommendations developed from our investigation.

We sincerely appreciate the opportunity to be of service on this project. We look forward to providing additional consulting services during the course of the project. If we may be of further assistance in any manner, please contact our office.

Respectfully Submitted,

SOUTHERN CALIFORNIA GEOTECHNICAL, INC.

Pablo Montes Jr.
Staff Engineer

Daryl Kas, CEG 2467
Senior Geologist

PROFESSIONAL GEOLOGIST DARYL R. KAS No. 2467 CERTIFIED ENGINEERING GEOLOGIST STATE OF CALIFORNIA

Robert G. Trazo, GE 2655
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER ROBERT TRAZO No. 2655 GEOTECHNICAL STATE OF CALIFORNIA

Distribution: (1) Addressee

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# 1.0 EXECUTIVE SUMMARY

Presented below is a brief summary of the conclusions and recommendations of this investigation. Since this summary is not all inclusive, it should be read in complete context with the entire report.

**Geotechnical Design Considerations.**

- Portions of the western and southern areas of the subject site are located within mapped zones of moderate liquefaction hazard. However, based on the subsurface profile identified in this report, the proposed grading, and the available groundwater data, liquefaction is not considered a design concern for this project.
- Artificial fill soils were encountered at several of the boring and trench locations, extending to depths of 1½ to 12± feet. These soils are considered to consist of undocumented fill materials. One of the borings identified artificial fill soils, extending to a depth of 29½± feet. The deeper fill soils are located within a former drainage canyon which appears to have been filled-in to establish the currently existing site grades. The fill soils are underlain by native alluvium, extending at least to the maximum depth explored of 50± feet.
- The proposed buildings will require cuts of up to 45 feet and fills of up to 65 feet to achieve the new building pad elevations.
- Field and laboratory testing indicates that some of the younger alluvial soils are moderately compressible, especially when exposed to the loads that will be exerted by the relatively deep new fills.
- The alluvial soils located within the southwest draining canyons and the existing undocumented fill materials are not considered suitable for support of the proposed fills and structures.
- Remedial grading is recommended to consist of overexcavation of existing fill, and alluvial soils, due to collapse/consolidation potential. These soils should be replaced as compacted fill.

**Site Preparation**

- Initial site preparation should include stripping of any surficial vegetation. The surficial vegetation, trees, and any organic soils should be properly disposed of off-site.
- Remedial grading is recommended to be performed within the new building pad areas. The existing soils within the building pad areas should be overexcavated to a depth of 6 feet below proposed pad grade. All existing artificial fill materials should also be removed from the new building pad areas. The soils within the proposed foundation influence zones should be overexcavated to a depth of at least 6 feet below proposed foundation bearing grades.
- Additional remedial grading (10 to 30 feet below existing grade) should be performed in the proposed deep fill areas to remove compressible alluvial soils that could result in significant settlements if allowed to remain in place.
- The recommended areas and depths of overexcavation are illustrated on Plate 4 of this report.
- The new pavement and flatwork subgrade soils are recommended to be scarified to a depth of 12± inches, moisture conditioned and recompacted to at least 90 percent of the ASTM D-1557 maximum dry density.

**Building Foundations**

- Conventional shallow foundations, supported in newly placed compacted fill.
- 3,000 lbs/ft$^2$ maximum allowable soil bearing pressure.
- Reinforcement consisting of at least four (4) No. 5 rebars (2 top and 2 bottom) in strip footings. Additional reinforcement may be necessary for structural considerations.

**Building Floor Slabs**

- Conventional Slab-on-Grade, 6 inches thick.
- Modulus of Subgrade Reaction: k = 100 psi/in.
- Reinforcement is not required for geotechnical conditions. The actual floor slab reinforcement should be determined by the structural engineer, based on the imposed slab loading.

**Pavement Design Recommendations**

| ASPHALT PAVEMENTS (R=40) | | | | | |
|---|---|---|---|---|---|
| **Materials** | **Thickness (inches)** | | | | |
| | Auto Parking and Auto Drive Lanes (TI = 4.0 to 5.0) | Truck Traffic | | | |
| | | TI = 6.0 | TI = 7.0 | TI = 8.0 | TI = 9.0 |
| Asphalt Concrete | 3 | 3½ | 4 | 5 | 5½ |
| Aggregate Base | 4 | 6 | 7 | 8 | 10 |
| Compacted Subgrade | 12 | 12 | 12 | 12 | 12 |

| PORTLAND CEMENT CONCRETE PAVEMENTS (R=40) | | | | |
|---|---|---|---|---|
| **Materials** | **Thickness (inches)** | | | |
| | Autos and Light Truck Traffic (TI = 6.0 or less) | Truck Traffic | | |
| | | TI = 7.0 | TI = 8.0 | TI = 9.0 |
| PCC | 5 | 5½ | 6½ | 8 |
| Compacted Subgrade (95% minimum compaction) | 12 | 12 | 12 | 12 |

# 2.0 SCOPE OF SERVICES

The scope of services performed for this project was in accordance with our Proposal No. 21P157, dated February 11, 2021 and our Change Order No. 21G133-CO, dated July 14, 2021. The scope of services included a visual site reconnaissance, subsurface exploration, field and laboratory testing, and geotechnical engineering analysis to provide criteria for preparing the design of the building foundations, building floor slab, and parking lot pavements along with site preparation recommendations and construction considerations for the proposed development. The evaluation of the environmental aspects of this site was beyond the scope of services for this geotechnical investigation.

Based on the grading plan prepared by Albert A. Webb Associates, the project will utilize new retaining walls ranging from 10 to 50± feet in height. These walls will be utilized in conjunction with new cut and fill slopes which will be required to establish the new site grades. It is recommended that an analysis be performed once grading and foundation plans become available to determine the stability of the proposed retaining wall and slope configurations. It may be necessary to perform an additional subsurface exploration in order to provide specific geotechnical design considerations for the new retaining wall systems.

# 3.0 SITE AND PROJECT DESCRIPTION

## 3.1 Site Conditions

The subject site is located on the south side of Cherry Valley Boulevard, 1,500± feet west of the intersection of Cherry Valley Boulevard and Fabian Lane in Beaumont, California. The site is bounded to the north by Cherry Valley Boulevard, to the east by single-family residences (SFRs) and vacant lots, to the south by Brookside Avenue, to the southwest by the Redlands Freeway (Interstate 10) and to the west by vacant land. The general location of the site is illustrated on the Site Location Map, enclosed as Plate 1 in Appendix A of this report.

The overall site consists of several irregular to rectangular-shaped parcels which total 178.4± acres in size. The site is presently developed with three (3) single-family residences and several small abandoned buildings located in the northeastern area of the site. Remnants of shade structures including Portland cement concrete panels and sawed-off poles are present throughout the northeastern areas of the site. Several above-ground storage tanks are also present throughout the northeastern area of the site. One of the smaller abandoned structures possesses a below-grade room with what appears to be a turbine. The remaining areas of the site are presently vacant and undeveloped. Five (5) circular to oval-shaped leech ponds are located in the west-central area of the site. Two (2) additional leech ponds are located in the south-central area of the site. Ground surface cover consist of exposed soil and moderate to dense native grass and weed growth. Several large trees are located in the southern areas of the site. Limited areas of trash and debris are located throughout the site.

Detailed topographic information was obtained from the conceptual grading plan prepared by Albert A. Webb Associates (Webb). Based on the provided plan, the northeastern to northern two-thirds of the site slopes downward to the southwest at a gradient of 4± percent. The seven (7) circular leech ponds located in the west-central and south-central areas of the site are surrounded by a berm that is 5± feet higher than the surrounding topography. The northwestern area of the site possesses several east-west and southeast-northwest trending drainage courses. The drainage features possess gradual to steep side walls with elevation differences of up to 15± feet below the surrounding topography. To the south of the leech pits, the site slopes towards the south to southwest at a gradient of 10± percent. The topography descends by 50± feet in this area. Another significant east-west trending drainage is located at the base of the descending slope, located in the southern-most region of the site. The drainage possesses gradual to steep side walls with an elevation difference up 10± feet below the surrounding topography. A hill, located to the southeast of this drainage, is approximately 20 to 30 feet higher than the surrounding topography. The hill possesses slope gradients ranging from 14 to 40± percent. To the south of the hill, the site topography slopes gently to the west at a gradient of 3.5± percent, where it meets up with a tributary drainage to the previously mentioned bisecting drainage. The area to the southwest of the bisecting drainage slopes to the west a gradient of 2.5± percent. Another hill with a north-facing descending slope is located at the southwest corner of the site. The slope has a gradient of 20± percent. The maximum site elevation is 2581± feet mean sea level (msl), in the northeast corner of the site. The minimum site elevation is 2406± feet msl, located in drainage swale channel located in the southern-most region of the site.

## 3.2 Proposed Development

Based on the conceptual site plan prepared by Webb, the site will be developed with three (3) new E-Commerce buildings. Building 1 will be 985,860± $ft^2$ in size, located in the western area of the site. Building 2 will be 1,254,000± $ft^2$ in size, located in the east-central region of the site. Lastly, Building 3 will be 358,370± $ft^2$ in size, located in the north-central area of the site. A cross-dock configuration will be constructed on Building 1 and Building 2, along the east/west and north/south building walls, respectively. Dock-high doors will be constructed along a portion of the southern building wall of Building 3. The buildings will be surrounded by asphaltic concrete pavements in the automobile parking and drive areas, Portland cement concrete (PCC) pavements in the truck court, and areas of concrete flatwork and landscape planters. Several new fill and cut slopes will be constructed along all permitters, as well as within the site. The new fill slopes will range from 10 to 40± feet in height and will possess slope inclinations not to exceed 2h:1v (horizontal to vertical). New retaining walls will also be required to establish the new site grades. The new retaining walls will possess maximum retained heights ranging from 10 to 50± feet.

Detailed structural information has not been provided. We assume that the new buildings will be single-story structures of tilt-up concrete construction, typically supported on a conventional shallow foundation system with a concrete slab-on-grade floor. Based on the assumed construction, maximum column and wall loads are expected to be on the order of 100 kips and 5 to 7 kips per linear foot, respectively.

No significant amounts of below-grade construction, such as basements or crawl spaces, are expected to be included in the proposed development. Based on the assumed topography, cuts of 45± feet and fills of up to 65± feet are expected to be necessary to achieve the proposed site grades.

# 4.0 SUBSURFACE EXPLORATION

## 4.1 Scope of Exploration/Sampling Methods

The subsurface exploration conducted for this project consisted of forty-four (44) borings advanced to depths of 10 to 50± feet, and seven (7) trenches excavated to depths of 6½ to 10½± feet below the existing site grades. Four (4) of the borings were advanced to a depth of 50± feet, as a part of the liquefaction evaluation. All of the borings and trenches were logged during the drilling and excavation by members of our staff.

The borings were advanced with hollow-stem augers, by a truck-mounted drilling rig. The trenches were excavated using a backhoe with a 36-inch-wide bucket. Representative bulk and undisturbed soil samples were taken during drilling. Relatively undisturbed samples were taken with a split barrel "California Sampler" containing a series of one inch long, 2.416± inch diameter brass rings. This sampling method is described in ASTM Test Method D-3550. Samples were also taken using a 1.4± inch inside diameter split spoon sampler, in general accordance with ASTM D-1586. Both of these samplers are driven into the ground with successive blows of a 140-pound weight falling 30 inches. The blow counts obtained during driving are recorded for further analysis. Bulk samples were collected in plastic bags to retain their original moisture content. The relatively undisturbed ring samples were placed in molded plastic sleeves that were then sealed and transported to our laboratory.

The approximate locations of the borings (identified as Boring Nos. B-1 through B-44) and trenches (identified as Trench Nos. T-1 through T-7) are indicated on the Boring and Trench Location Plan, included as Plate 2 in Appendix A of this report. The Boring and Trench Logs, which illustrate the conditions encountered at the boring and trench locations, as well as the results of some of the laboratory testing, are included in Appendix B.

## 4.2 Geotechnical Conditions

Pavements

Portland Cement Concrete (PCC) was encountered at the ground surface of Boring Nos. B-14, B-19 and B-25. The pavement sections consist of 2± inches of PCC. Boring Nos. B-19 and B-25 encountered 2± inches of slurry beneath the existing PCC pavements.

Artificial Fill

Artificial fill soils were encountered at the ground surface of several boring locations and one trench location, extending to depths of 1½ to 29½± feet below ground surface. The fill soils generally consist of loose to medium dense silty fine sand and clayey fine to medium sand. Occasional layers of medium dense silty fine to coarse sand and soft to stiff fine sandy clays were encountered. Varying amounts of fine root fibers were encountered in the silty fine sand layers. The fill soil possesses a disturbed and mottled appearance, resulting in their classification as artificial fill. The deepest fill soils were encountered within Boring No. B-43, in the area of a former drainage channel. At this locations, the artificial fill soils included rubber and concrete debris.

Alluvium

Native alluvium was encountered beneath the artificial fill soils or at the ground surface at all of the boring locations. The alluvial soils extend to depths of 1½ to 12± feet below ground surface in the northern areas of the site, and 25 to 50± feet below ground surface in the southern areas of the site. The alluvial soils generally consist of loose to very dense silty fine sands and silty fine to medium sands. These soils possess fine root fibers near the ground surface and occasional porosity. Occasional layers of medium dense silty fine sand to fine sandy silt, fine to coarse sand, clayey silt, fine sandy silt and medium stiff silty clay were encountered in the deeper borings located in the southern areas.

Older Alluvium

Older alluvial deposits were encountered at the ground surface, or beneath the artificial fill and alluvium at all of the boring locations, extending to at least the maximum depth explored of 50± feet below ground surface. The older alluvial soils generally consist of medium dense to very dense silty fine sands, silty fine to medium sands, silty fine to coarse sands and silty fine sands to fine sandy silts. Several layers of medium dense to dense clayey fine sands, clayey fine to coarse sands and very stiff to hard fine sandy clays were encountered. Occasional layers of medium dense to dense fine sandy silts, fine to coarse sands and stiff fine to medium sandy clay were encountered.

Groundwater

Groundwater was not encountered at any of the boring or trench locations. Based on the lack of any water within the borings and trenches, and the moisture contents of the recovered soil samples, the static groundwater table is considered to have existed at a depth in excess of 50± feet below existing site grades at the time of the subsurface investigation.

As part of our research, we reviewed available groundwater data in order to determine the historic high groundwater level and recent groundwater level for the site. The primary reference used to determine the groundwater depths in this area is the California Department of Water Resources website, http://www.water.ca.gov/waterdatalibrary/. The nearest monitoring wells in this database are located in the northeast corner of the site. Water level readings within one of these monitoring wells indicates a historic high groundwater level of 317± feet below the ground surface in September 1990. Water level readings within another of these monitoring wells indicates a recent high groundwater level of 412± feet below the ground surface in December 2020.

## 4.3 Regional Geology

The subject site is located within the Peninsular Ranges province. The Peninsular Ranges province consists of several northwesterly-trending ranges in the southwestern California. The province is truncated to the north by the east-west trending Transverse Ranges. Prior to the mid-Mesozoic, the region was covered by seas and thick marine sedimentary and volcanic sequences were deposited. The bedrock geology that dominates the elevated areas of the Peninsular Ranges consists of high-grade metamorphic rocks intruded by Mesozoic plutons. During the Cretaceous, extensive mountain building occurred during the emplacement of the southern California batholith. The Peninsular Ranges have been significantly disrupted by Tertiary and Quaternary strike-slip faulting along the Elsinore and San Jacinto faults. This tectonic activity has resulted in the present terrain.

## 4.4 Geologic Conditions

Regional geologic conditions were obtained from the Geologic Map of the El Casco 7.5' Quadrangle, Riverside County, California, by Thomas W. Dibblee, Jr., 2003 (Plate 3a) and Geologic and Geophysical Map of the El Casco 7.5' Quadrangle, Riverside County, California, with Accompanying Geologic-Map Database, Geologic Map by Jonathan C. Matti and Pamela M. Cossette, Digital Database by Douglas M. Hirshchberg, Jordan G. Matti and Pamela M. Cossette, 2015 (Plate 3b). Plate 3a indicates that the site is underlain by alluvial deposits (Map Symbol Qa) in the southwestern area of the site and older alluvium (Map Symbol Qoa) in the northeastern area of the site. The alluvium is described as alluvial sand, gravel and clay, covered by residual soil. The older alluvium is described as light reddish brown alluvial gravel and sand, of granitic and gneissic detritus of San Bernardino Mountains in north areas, and brownish gray in south areas. Plate 3b indicates that the site is underlain by young axial-valley deposits and very young wash deposits (Map Symbols Qvywm and Qya5) in southwestern area of the site and old alluvial-fan deposits and very old alluvial-fan deposits (Map Symbols Qof2 and Qvof3) in the northwestern area of the site. The very young wash deposits are described as very slightly to slightly consolidated sandy and gravelly sediment in active channels. The remaining units were not described in detail.

Based on the materials encountered at the boring locations, the northeastern portion of the site is underlain by older alluvium and the southwestern portion of the site is underlain by alluvium. It is in our opinion that the material encountered throughout the site is consistent with the mapped geologic units.

# 5.0 LABORATORY TESTING

The soil samples recovered from the subsurface exploration were returned to our laboratory for further testing to determine selected physical and engineering properties of the soils. The tests are briefly discussed below. It should be noted that the test results are specific to the actual samples tested, and variations could be expected at other locations and depths.

Classification

All recovered soil samples were classified using the Unified Soil Classification System (USCS), in accordance with ASTM D-2488. The field identifications were then supplemented with additional visual classifications and/or by laboratory testing. The USCS classifications are shown on the Boring Logs and are periodically referenced throughout this report.

Density and Moisture Content

The density has been determined for selected relatively undisturbed ring samples. These densities were determined in general accordance with the method presented in ASTM D-2937. The results are recorded as dry unit weight in pounds per cubic foot. The moisture contents are determined in accordance with ASTM D-2216, and are expressed as a percentage of the dry weight. These test results are presented on the Boring and Trench Logs.

Consolidation

Selected soil samples were tested to determine their consolidation potential, in accordance with ASTM D-2435. The testing apparatus is designed to accept either natural or remolded samples in a one-inch high ring, approximately 2.416 inches in diameter. Each sample is then loaded incrementally in a geometric progression and the resulting deflection is recorded at selected time intervals. Porous stones are in contact with the top and bottom of the sample to permit the addition or release of pore water. The samples are typically inundated with water at an intermediate load to determine their potential for collapse or heave. The results of the consolidation testing are plotted on Plates C-1 through C-42 in Appendix C of this report.

Expansion Index

The expansion potential of the on-site soils was determined in general accordance with ASTM D-4829. The testing apparatus is designed to accept a 4-inch diameter, 1-in high, remolded sample. The sample is initially remolded to 50± 1 percent saturation and then loaded with a surcharge equivalent to 144 pounds per square foot. The sample is then inundated with water and allowed to swell against the surcharge. The resultant swell or consolidation is recorded after a 24-hour period. The results of the EI testing are as follows:

| Sample Identification | Expansion Index | Expansive Potential |
|---|---|---|
| B-20 @ 0 to 5 feet | 45 | Low |
| B-22 @ 0 to 5 feet | 28 | Low |

Maximum Dry Density and Optimum Moisture Content

Representative bulk samples have been tested for their maximum dry density and optimum moisture content. The results have been obtained using the Modified Proctor procedure, per ASTM D-1557 and are presented on Plates C-43 through C-45 in Appendix C of this report. This test is generally used to compare the in-situ densities of undisturbed field samples, and for later compaction testing. Additional testing of other soil types or soil mixes may be necessary at a later date.

Direct Shear

Direct shear testing was performed on one representative sample to determine its shear strength parameters. The test was performed in accordance with ASTM D-3080. The testing apparatus is designed to accept either natural or remolded samples in a one-inch high ring, approximately 2.416 inches in diameter. Each of the three samples are then loaded with different normal loads and the resulting shear strength is determined for that particular normal load. The shearing of the samples is performed at a rate slow enough to permit the dissipation of excess pore water pressure. Porous stones are in contact with the top and bottom of the sample to permit the addition or release of pore water. The results of the direct shear test are presented on Plate C-46 in Appendix C of this report

Soluble Sulfates

Representative samples of the near-surface soil were submitted to a subcontracted analytical laboratory for determination of soluble sulfate content. Soluble sulfates are naturally present in soils, and if the concentration is high enough, can result in degradation of concrete which comes into contact with these soils. The results of the soluble sulfate testing are presented below, and are discussed further in a subsequent section of this report.

| **Sample Identification** | **Soluble Sulfates (%)** | **Sulfate Classification** |
|---|---|---|
| B-4 @ 0 to 5 feet | 0.001 | Not Applicable (S0) |
| B-20 @ 0 to 5 feet | 0.002 | Not Applicable (S0) |
| B-25 @ 0 to 5 feet | 0.002 | Not Applicable (S0) |

Corrosivity Testing

Representative bulk samples of the near-surface soils were submitted to a subcontracted corrosion engineering laboratory to identify potentially corrosive characteristics with respect to common construction materials. The corrosivity testing included a determination of the electrical resistivity, pH, and chloride and nitrate concentrations of the soils, as well as other tests. The results of some of these tests are presented below.

| **Sample Identification** | **Saturated Resistivity (ohm-cm)** | **pH** | **Chlorides (mg/kg)** | **Nitrates (mg/kg)** |
|---|---|---|---|---|
| B-4 @ 0 to 5 feet | 4,800 | 7.3 | 5.5 | 4.3 |
| B-20 @ 0 to 5 feet | 4,800 | 7.5 | 7.7 | 17 |
| B-25 @ 0 to 5 feet | 5,200 | 7.6 | 5.6 | 4.1 |

R-value Testing

R-value testing was conducted on one (1) representative soil sample recovered from the site. The R-(resistance) value was determined for representative soils samples in accordance with CA Test Method 301. This test provides a measure of the pavement support characteristics of the soils, and is used in the pavement thickness design procedure. The results of the R-value testing are as follows:

| **Sample Identification** | **Soil Classification** | **R-Value** |
|---|---|---|
| B-4 @ 0 to 5 feet | Brown Silty Sand | 60 |

# 6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of our review, field exploration, laboratory testing and geotechnical analysis, the proposed development is considered feasible from a geotechnical standpoint. The recommendations contained in this report should be taken into the design, construction, and grading considerations.

The recommendations are contingent upon all grading and foundation construction activities being monitored by the geotechnical engineer of record. The recommendations are provided with the assumption that an adequate program of client consultation, construction monitoring, and testing will be performed during the final design and construction phases to verify compliance with these recommendations. Maintaining Southern California Geotechnical, Inc., (SCG) as the geotechnical consultant from the beginning to the end of the project will provide continuity of services. The geotechnical engineering firm providing testing and observation services shall assume the responsibility of Geotechnical Engineer of Record.

The Grading Guide Specifications, included as Appendix D, should be considered part of this report, and should be incorporated into the project specifications. The contractor and/or owner of the development should bring to the attention of the geotechnical engineer any conditions that differ from those stated in this report, or which may be detrimental for the development.

## 6.1 Seismic Design Considerations

The subject site is located in an area which is subject to strong ground motions due to earthquakes. The performance of a site-specific seismic hazards analysis was beyond the scope of this investigation. However, numerous faults capable of producing significant ground motions are located near the subject site. Due to economic considerations, it is not generally considered reasonable to design a structure that is not susceptible to earthquake damage. Therefore, significant damage to structures may be unavoidable during large earthquakes. The proposed structures should, however, be designed to resist structural collapse and thereby provide reasonable protection from serious injury, catastrophic property damage and loss of life.

### Faulting and Seismicity

Research of available maps indicates that the subject site is not located within an Alquist-Priolo Earthquake Fault Zone. In addition, our review of the Riverside County RCIT GIS website that the site is not located within a Riverside County fault zone. Therefore, the possibility of significant fault rupture on the site is considered to be low.

### Seismic Design Parameters

Based on standards in place at the time of this report, the proposed development is expected to be designed in accordance with the requirements of the 2019 edition of the California Building Code (CBC), which was adopted on January 1, 2020. The 2019 California Building Code (CBC) provides procedures for earthquake resistant structural design that include considerations for on-site soil conditions, occupancy, and the configuration of the structure including the structural system and height. The seismic design parameters presented below are based on the soil profile and the proximity of known faults with respect to the subject site.

The 2019 CBC Seismic Design Parameters have been generated using the SEAOC/OSHPD Seismic Design Maps Tool, a web-based software application available at the website www.seismicmaps.org. This software application calculates seismic design parameters in accordance with several building code reference documents, including ASCE 7-16, upon which the 2019 CBC is based. The application utilizes a database of risk-targeted maximum considered earthquake ($MCE_R$) site accelerations at 0.01-degree intervals for each of the code documents. The table below was created using data obtained from the application. The output generated from this program is included as Plate E-1 in Appendix E of this report.

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 0.2. However, Section 11.4.8 of ASCE 7-16 also indicates an exception to the requirement for a site-specific ground motion hazard analysis for certain structures on Site Class D sites. The commentary for Section 11 of ASCE 7-16 (Page 534 of Section C11 of ASCE 7-16) indicates 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 development, the seismic design parameters presented below were calculated assuming that the exception in Section 11.4.8 applies to the proposed structure at this site. However, the structural engineer should verify that this exception is applicable to the proposed structure.** Based on the 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.

**2019 CBC SEISMIC DESIGN PARAMETERS**

| Parameter | | Value |
|---|---|---|
| Mapped Spectral Acceleration at 0.2 sec Period | $S_S$ | 2.091 |
| Mapped Spectral Acceleration at 1.0 sec Period | $S_1$ | 0.718 |
| Site Class | --- | D |
| Site Modified Spectral Acceleration at 0.2 sec Period | $S_{MS}$ | 2.509 |
| Site Modified Spectral Acceleration at 1.0 sec Period | $S_{M1}$ | 1.221 |
| Design Spectral Acceleration at 0.2 sec Period | $S_{DS}$ | 1.673 |
| Design Spectral Acceleration at 1.0 sec Period | $S_{D1}$ | 0.814 |

It should be noted that the site coefficient $F_v$ and the parameters $S_{M1}$ and $S_{D1}$ were not included in the SEAOC/OSHPD Seismic Design Maps Tool output for the 2019 CBC. We calculated these parameters-based on Table 1613.2.3(2) in Section 16.4.4 of the 2019 CBC using the value of $S_1$ obtained from the Seismic Design Maps Tool, assuming that a site-specific ground motion hazards analysis is not required for the proposed building at this site.

Liquefaction

Liquefaction is the loss of the strength in generally cohesionless, saturated soils when the pore-water pressure induced in the soil by a seismic event becomes equal to or exceeds the overburden pressure. The primary factors which influence the potential for liquefaction include groundwater table elevation, soil type and grain size characteristics, relative density of the soil, initial confining pressure, and intensity and duration of ground shaking. The depth within which the occurrence of liquefaction may impact surface improvements is generally identified as the upper 50 feet below the existing ground surface. Liquefaction potential is greater in saturated, loose, poorly graded fine sands with a mean ($d_{50}$) grain size in the range of 0.075 to 0.2 mm (Seed and Idriss, 1971). Clayey (cohesive) soils or soils which possess clay particles (d<0.005mm) in excess of 20 percent (Seed and Idriss, 1982) are generally not considered to be susceptible to liquefaction, nor are those soils which are above the historic static groundwater table.

The Riverside County GIS website indicates that an isolated portions of the western and southern-most regions of the site are located within a zone of moderate liquefaction susceptibility. However, based on underlying soil conditions (which include moderate strength older alluvium), the proposed grading which includes fills of up to 65± feet, and the groundwater research performed for this site which indicates that the long-term groundwater table is considered to exist at a depth in excess of 50± feet, liquefaction is not considered to be a design concern for this project.

## 6.2 Geotechnical Design Considerations

General

The ground surface of the subject site is generally underlain by younger native alluvial soils, which are underlain at depth by moderate strength older alluvium. Some areas of the site are covered with a layer of undocumented fill soils extending to depths of 1½ to 12± feet. These soils are considered to consist of undocumented fill materials. One of the borings identified artificial fill soils, extending to a depth of 29½± feet. These deeper fill soils are located within a former drainage canyon which is expected to have been filled-in to establish the currently existing site grades. These undocumented fill soils are not suitable to support the foundations loads of the new structures, and should be removed in their entirety.

Based on the grading plan prepared by Webb, the proposed grading will require deep fill soils ranging from 15 to 65± feet in order to establish the new site grades in the western region of the site. The western region of the site includes several south-west drainage canyons which will require removal of the moderately compressible younger native alluvium, extending between the depths of 12 to 22± feet below the existing site grades. The existing older alluvium at greater depths possess moderate strengths and are expected to be encountered following removal of the younger alluvium. In addition, the deep cuts located in the eastern region of the site are expected to encounter the moderate strength alluvium. Some of the buildings, will be underlain by older alluvium on one side, and deep fill soils on the other side. This condition increases the possibility of excessive differential settlements. Remedial grading will be necessary to mitigate this condition.

Settlement

The recommended remedial grading will remove all of the existing undocumented fill soils and most of the near-surface compressible/collapsible younger alluvial soils, and replace these materials as compacted fill soils. The underlying moderate strength older alluvium which will remain in-place are note expected to be susceptible to settlement from the foundations of the proposed structures. Provided that the recommended remedial grading is completed, the post-construction static settlements of the proposed structures are expected to be within tolerable limits.

Deep Fill Areas

Based on the conceptual grading plan prepared by Webb, the proposed grading will include fills of up to 65± feet within the building pads. In order to reduce the settlement potential of the newly placed fill soils to acceptable levels and avoid excessive differential settlements, fill soils placed at depths greater than 20 feet below proposed pad grade within the building pads should be compacted to at least 95 percent of the ASTM D-1557 maximum dry density.

Settlement of Deep Fill Soils

Subsequent to the proposed grading, the proposed development areas will be underlain by engineered fill soils (design plus remedial), extending to depths of 50 to 85± feet. The primary settlement associated with these fill soils is expected to occur relatively quickly due to the generally granular nature of the on-site soils. Minor amounts of additional settlement may occur due to secondary consolidation effects. The extent of secondary consolidation is difficult to assess precisely, and will be reduced by the proposed mitigation measures recommended herein, but may be in the range of 0.1 to 0.3 percent of the fill thickness. Based on the differential fill thickness that will exist across the building footprints, the structural design will need to consider the distortions that could be caused by the secondary consolidation of the fill soils. Provided that the grading and foundation design recommendations presented in this report are implemented, these settlements are expected to be within the structural tolerances of the proposed buildings.

This report includes recommendations to install settlement monuments within the deep fill areas of Buildings 1 and 2. These monuments will be used to verify that primary consolidation of the remaining alluvial soils is complete, prior to initiating construction of the new buildings.

Cut/Fill Transitions

The conceptual grading plan indicates that several cut/fill transitions will be created within the proposed building pads by the proposed grading. The differing support conditions of the native soils versus the newly compacted fill soils may result in excessive differential settlements if not mitigated. Remedial grading will be required to eliminate the cut/fill transitions which will occur at building pad and foundation bearing grade as well as to reduce the inclinations of the underlying cut/fill contacts.

Expansion

The near-surface soils consist of silty sands and sandy silts with no appreciable clay content. However, some isolated strata of sandy clays and clayey sands were encountered. Expansion

Index (EI) values at the site range from 28 to 45. Mass grading of the site is expected to blend the on-site soils, resulting in a very low to low expansive potential. We recommend that additional expansion index testing be performed at the time of rough grading in order to confirm the expansion potential of the near-surface soils at this site.

Slope Stability

The grading plan indicates that the new slopes (both cut and fill) will occur at inclinations of 2h:1v or flatter. Newly constructed fill slopes, comprised of properly compacted engineered fill, at inclinations of 2h:1v will possess adequate gross and surficial stability.

Cut slopes excavated within the existing granular alluvial soils may be subject to surficial instability due to the lack of cohesion within these materials. Therefore, stability fills may be required within these areas. This condition may affect the proposed cut slopes at the site. The need for stability fills should be determined by SCG as part of the future detailed grading plan review.

Based on the grading plan prepared by Webb, new retaining walls ranging from 10 to 50± feet in height will be utilized in conjunction with new cut and fill slopes at the site. An additional review of the proposed site configuration may be required once detailed grading and foundation plans become available in order to determine the stability of the new retaining wall systems. An additional subsurface exploration may also be required as part of the analysis of the new retaining wall structures.

Soluble Sulfates

The result of the soluble sulfate testing indicates that the selected samples of the on-site soils possess concentrations of sulfates that correspond to Class S0 with respect to the American Concrete Institute (ACI) Publication 318-05 Building Code Requirements for Structural Concrete and Commentary, Section 4.3. Therefore, specialized concrete mix designs are not considered to be necessary, with regard to sulfate protection purposes. It is, however, recommended that additional soluble sulfate testing be conducted at the completion of rough grading to verify the soluble sulfate concentrations of the soils which are present at pad grade within the building areas.

Corrosion Potential

The results of laboratory testing indicate that the tested samples of the on-site soils possess saturated resistivity values of 4,800 to 5,200 ohm-cm, and pH values of 7.3 to 7.6. These test results have been evaluated in accordance with guidelines published by the Ductile Iron Pipe Research Association (DIPRA). The DIPRA guidelines consist of a point system by which characteristics of the soils are used to quantify the corrosivity characteristics of the site. Sulfides, and redox potential are factors that are also used in the evaluation procedure. We have evaluated the corrosivity characteristics of the on-site soils using resistivity, pH, and moisture content. Based on these factors, and utilizing the DIPRA procedure, the on-site soils are not considered to be corrosive to ductile iron pipe.

Relatively low concentrations (5.5 to 7.7 mg/kg) of chlorides were detected in the samples submitted for corrosivity testing. In general, soils possessing chloride concentrations in excess of 500 parts per million (ppm) are considered to be corrosive with respect to steel reinforcement within reinforced concrete. Based on the lack of any significant chlorides in the tested samples, the site is considered to have a C1 chloride exposure in accordance with the American Concrete Institute (ACI) Publication 318 Building Code Requirements for Structural Concrete and Commentary. Therefore, a specialized concrete mix design for reinforced concrete for protection against chloride exposure is not considered warranted.

Nitrates present in soil can be corrosive to copper tubing at concentrations greater than 50 mg/kg. The tested samples possess nitrate concentrations ranging from 4.1 to 17 mg/kg. Based on this test result, the on-site soils are not considered to be corrosive to copper pipe.

**It should be noted that SCG does not practice in the area of corrosion engineering. Therefore, the client may also wish to contact a corrosion engineer to provide a more thorough evaluation of these conditions.**

Shrinkage/Subsidence

Removal and recompaction of the near-surface fill and younger alluvial soils (located in the southwestern region of the site) is estimated to result in an average shrinkage of 6 to 14 percent. This assumes average compaction of 92 percent within the new engineered fill soils. Removal and recompaction of the existing older alluvial soils located in the south and west regions of the site is estimated to result in an average shrinkage of 0 to 8 percent. Engineering fills more than 20 feet below finished grade, where 95 percent compaction is recommended, should be assumed to result in shrinkage of 13 to 20 percent. It should be noted that these shrinkage estimates are based on dry density testing performed on small-diameter samples taken at the boring locations. If a more accurate and precise shrinkage estimate is desired, SCG can perform a shrinkage study involving several excavated test pits where in-place densities are determined using in-situ testing methods instead of laboratory density testing on small-diameter samples. Please contact SCG for details and a cost estimate regarding a shrinkage study, if desired.

These estimates are based on previous experience with nearby projects and the subsurface conditions encountered at the boring and trench locations. The actual amount of subsidence is expected to be variable and will be dependent on the type of machinery used, repetitions of use, and dynamic effects, all of which are difficult to assess precisely.

Foundation and Grading Plan Review

Based on our review of the preliminary grading plans prepared by Webb, new retaining walls with maximum heights of up to 50± feet will be constructed as part of the new development. It is recommended that additional review of the global stability of the proposed site grading be performed by SCG once more detailed rough grading plans become available. An additional subsurface exploration may be required to evaluate the geotechnical design considerations of the retaining wall and new slope configurations.

It is recommended that we be provided with copies of all future foundation and grading plans, when they become available, for review with regard to the conclusions, recommendations, and assumptions contained within this report.

## 6.3 Site Grading Recommendations

The grading recommendations presented below are based on the subsurface conditions encountered at the boring and trench locations, and our understanding of the proposed development. We recommend that all grading activities be completed in accordance with the Grading Guide Specifications included as Appendix D of this report, unless superseded by site-specific recommendations presented below.

Site Stripping and Demolition

Initial site stripping should include removal of any surficial vegetation and topsoil. This should include any weeds, grasses, shrubs, and trees. Removal of trees should also include any associated root masses. The actual extent of site stripping should be determined in the field by the geotechnical engineer, based on the organic content and stability of the materials encountered. The scattered trash and debris that is present on the site should be collected and disposed of off-site.

Demolition of minor existing improvements such as buildings, retaining walls, concrete slabs and foundations will be required. Demolition debris should be disposed of off-site. Concrete may also be crushed to a maximum 2-inch particle size and incorporated into new structural fills.

Treatment of Existing Soils: Building Pads

Remedial grading should be performed within the proposed development area in order to remove all of the existing undocumented fill soils. Based on conditions encountered at the boring and trench locations, the undocumented fill soils extend to depths of up to 12± feet. At one of the boring locations, the existing undocumented fill soils extend to a depth of 29½± feet. It is possible that undocumented fill soils may extend to greater depths in unexplored areas of the site. Additional remedial grading should be performed in the deep proposed fill areas (the west and southwest areas of Buildings 1 and 2) to remove the compressible younger alluvial soils that could result in significant settlements if allowed to remain in place. These recommended overexcavations generally range from 12 to 22± feet below existing grade.

Within the influence zones of the new foundations, the overexcavation should extend to a depth of at least 6 feet below proposed foundation bearing grades. The overexcavation area should extend at least 5 feet beyond the building and foundation perimeters, and to an extent equal to the depth of fill below the new foundations. If the proposed structure incorporates any exterior columns (such as for a canopy or overhang) the area of overexcavation should also encompass these areas.

Additional remedial grading is also recommended to mitigate the native/fill transitions that will be created by the proposed grading. There for the proposed buildings within the cut portion of the site are recommended to be overexcavated to a depth of 10 feet below proposed pad grade and 6 feet below footing grade.

The recommended areas and depths of overexcavation are illustrated on Plate 4 of this report.

To mitigate the relatively steep inclination of the underlying cut/fill contact in the areas of the southwest draining canyons, benching of the sidewalls will be required during fill placement. The horizontal extent of the benching should be sufficient to reduce the inclination of the native fill contact to 3h:1v or flatter. This additional benching is not required outside the areas of the proposed building foundation influence zones.

Following completion of the overexcavations, the subgrade should be evaluated by the geotechnical engineer to verify its suitability to serve as the structural fill subgrade. Some localized areas of deeper excavation may be required if loose, porous, or low-density materials are encountered at the base of the overexcavation. Materials suitable to serve as the structural fill subgrade within the building area should consist of moderate strength alluvial soils which possess an in-situ density equal to at least 85 percent of the ASTM D-1557 maximum dry density. These materials should be moisture conditioned to 0 to 4 percent above optimum moisture content prior to placement of any new fill soils. The previously excavated soils may then be replaced as compacted structural fill.

Deep Fill Areas

In order to reduce the settlement potential of the newly placed fill soils to acceptable levels and avoid excessive differential settlements, fill soils placed at depths greater than 20 feet below proposed building pad grades should be compacted to at least 95 percent of the ASTM D-1557 maximum dry density.

Treatment of Existing Soils: Cut and Fill Slopes

New cut and fill slopes will be constructed within and around the perimeter of the project. All slopes should be at an inclination of 2h:1v or flatter. A keyway should be excavated at the toe of new fill slopes which are not located in fill areas. The keyway should be at least 15 feet wide and 3 feet deep. The recommended width of the keyway is based on 1.5 times the width of typical grading equipment. If smaller equipment is utilized, a smaller keyway may be suitable, at the discretion of the geotechnical engineer. The base of the keyway should slope at least 1 foot downward into the slope. Following completion of the keyway cut, the subgrade soils should be evaluated by the geotechnical engineer to verify that the keyway is founded into competent materials. The resulting subgrade soils should then be scarified to a depth of 10 to 12 inches, moisture conditioned to 0 to 4 percent above optimum moisture content and recompacted. During construction of the new fill slopes, any existing slopes should be benched in accordance with the detail presented on Plate D-4. Benches less than 4 feet in height may be used at the discretion of the geotechnical engineer.

Stability fills for cut slopes will provide a more uniform appearance and allow landscaping on the slope. Should a stability fill for cut slope be necessary, the recommendations for the stability fill will be the same as the recommendations for the fill slopes, mentioned above.

Treatment of Existing Soils: Retaining Walls and Site Walls

The existing soils within the areas of any proposed retaining walls and site walls should be overexcavated to a depth of 3 feet below foundation bearing grade and replaced as compacted structural fill as discussed above for the proposed building pad. Any undocumented fill soils or disturbed native alluvium within any of these foundation areas should be removed in their entirety. Retaining wall footings may also be supported directly within bedrock materials, with no overexcavation required. The overexcavation areas should extend at least 5 feet beyond the foundation perimeters, and to an extent equal to the depth of fill below the new foundations. Any erection pads for tilt-up concrete walls are considered to be part of the foundation system. Therefore, these overexcavation recommendations are applicable to erection pads. The overexcavation subgrade soils should be evaluated by the geotechnical engineer prior to scarifying, moisture conditioning to within 0 to 4 percent above the optimum moisture content, and recompacting the upper 12 inches of exposed subgrade soils. The previously excavated soils may then be replaced as compacted structural fill.

If the full lateral recommended remedial grading cannot be completed for the proposed retaining walls and site walls located along property lines, the foundations for those walls should be designed using a reduced allowable bearing pressure. Furthermore, the contractor should take necessary precautions to protect the adjacent structures during rough grading. Specialized grading techniques, such as A-B-C slot cuts, will likely be required during remedial grading. The geotechnical engineer of record should be contacted if additional recommendations, such as shoring design recommendations, are required during grading.

Treatment of Existing Soils: Flatwork, Parking and Drive Areas

Based on economic considerations, overexcavation of the existing near-surface existing soils in the new flatwork, parking and drive areas is not considered warranted, with the exception of areas where lower strength or unstable soils are identified by the geotechnical engineer during grading. Subgrade preparation in the new flatwork, parking and drive areas should initially consist of removal of all soils disturbed during stripping and demolition operations.

The geotechnical engineer should then evaluate the subgrade to identify any areas of additional unsuitable soils. Any such materials should be removed to a level of firm and unyielding soil. The exposed subgrade soils should then be scarified to a depth of 12± inches, moisture conditioned to 0 to 4 percent above the optimum moisture content, and recompacted to at least 90 percent of the ASTM D-1557 maximum dry density. Based on the presence of variable strength surficial soils throughout the site, it is expected that some isolated areas of additional overexcavation may be required to remove zones of lower strength, unsuitable soils.

The grading recommendations presented above for the proposed flatwork, parking and drive areas assume that the owner and/or developer can tolerate minor amounts of settlement within these areas. The grading recommendations presented above do not mitigate the extent of undocumented fill or compressible/collapsible native alluvium in the flatwork, parking and drive areas. As such, some settlement and associated pavement distress could occur. Typically, repair of such distressed areas involves significantly lower costs than completely mitigating these soils at the time of construction. If the owner cannot tolerate the risk of such settlements, the flatwork, parking and drive areas should be overexcavated to a depth of 2 feet below proposed pavement subgrade elevation, with the resulting soils replaced as compacted structural fill.

Fill Placement

- Fill soils should be placed in thin (6± inches), near-horizontal lifts, moisture conditioned to 0 to 4 percent of the optimum moisture content, and compacted.

- On-site soils may be used for fill provided they are cleaned of any debris to the satisfaction of the geotechnical engineer.
- All grading and fill placement activities should be completed in accordance with the requirements of the current CBC and the grading code of the city of Beaumont.
- All fill soils should be compacted to at least 90 percent of the ASTM D-1557 maximum dry density, unless noted otherwise. Fill soils placed at depths greater than 20 feet below proposed rough grade should be compacted to at least 95 percent of the ASTM d-1557 maximum dry density. Fill soils should be well mixed.
- Compaction tests should be performed periodically by the geotechnical engineer as random verification of compaction and moisture content. These tests are intended to aid the contractor. Since the tests are taken at discrete locations and depths, they may not be indicative of the entire fill and therefore should not relieve the contractor of his responsibility to meet the job specifications.

Imported Structural Fill

All imported structural fill should consist of very low to non-expansive (EI < 20), well graded soils possessing at least 10 percent fines (that portion of the sample passing the No. 200 sieve). Additional specifications for structural fill are presented in the Grading Guide Specifications, included as Appendix D.

Utility Trench Backfill

In general, all utility trench backfill should be compacted to at least 90 percent of the ASTM D-1557 maximum dry density. Compacted trench backfill should conform to the requirements of the local grading code, and more restrictive requirements may be indicated by the city of Beaumont. All utility trench backfills should be witnessed by the geotechnical engineer. The trench backfill soils should be compaction tested where possible; probed and visually evaluated elsewhere.

Utility trenches which parallel a footing, and extending below a 1h:1v plane projected from the outside edge of the footing should be backfilled with structural fill soils, compacted to at least 90 percent of the ASTM D-1557 standard. Pea gravel backfill should not be used for these trenches. Any soils used to backfill voids around subsurface utility structures, such as manholes or vaults, should be placed as compacted structural fill. If it is not practical to place compacted fill in these areas, then such void spaces may be backfilled with lean concrete slurry. Uncompacted pea gravel or sand is not recommended for backfilling these voids since these materials have a potential to settle and thereby cause distress of pavements placed around these subterranean structures.

## 6.4 Construction Considerations

Excavation Considerations

The near-surface soils generally consist of silty sands and clayey sands. These materials will be subject to caving within shallow excavations. Where caving occurs within shallow excavations, flattened excavation slopes may be sufficient to provide excavation stability. On a preliminary basis, temporary excavation slopes should be made no steeper than 2h:1v. Deeper excavations may require some form of external stabilization such as shoring or bracing. Maintaining adequate moisture content within the near-surface soils will improve excavation stability. All excavation activities on this site should be conducted in accordance with Cal-OSHA regulations.

Groundwater

The static groundwater table is considered to exist at a depth greater than 50± feet or more below the existing grades. Therefore, groundwater is not expected to impact the grading or foundation construction activities.

Slopes

Cut slopes within the native alluvium, and manufactured fill slopes will be prone to erosion. Provisions for surface drainage, terrace drains, slope planting and other measures in accordance with CBC requirements should be provided to improve long-term protection of the new slopes. These measures may include installation and maintenance of Hydro seed, polymers or other erosion control measures to provide slope protection until healthy plant grown is established.

Subdrains

Subdrains may be required at the site, particularly in the canyon/drainage areas where deep removals will be required. Specific subdrain recommendations can be provided based on a review of the final development plans, and based on conditions encountered during grading.

Settlement Monitoring

Based upon our understanding of proposed grading, fills on the order of about 80± feet deep (design plus remedial grading will be required. Engineered fills deeper than 20 feet should incorporate a minimum relative compaction of 95 percent, and a moisture content of at least two percentage points above optimum moisture content. A settlement monitoring program should be implemented, consisting of the surveying of surface monuments to monitor settlement of alluvial soils left in-place and/or proposed fills deeper than 30 feet (design plus remedial grading). Survey monument readings for both deep fill areas and for fill over compressible natural ground (Qal) should be conducted following the completion of fill placement. Survey monument locations should be selected by the geotechnical consultant. Survey readings should be taken weekly for the first month and on a weekly basis thereafter until vertical movement of the fill mass achieve 90 percent of primary compression, begin secondary compression or the estimated remaining settlement is less than one inch. Construction of proposed structures should not commence until approved by the geotechnical consultant based on the results of the settlement monitoring. The survey bench marks used for the monitoring should be confirmed with the geotechnical consultant prior to initial readings being performed.

## 6.5 Foundation Design and Construction

Based on the preceding grading recommendations, it is assumed that the new building pads will be underlain by newly placed structural fill soils, extending to a depth of at least 6 feet below foundation bearing grade, which are underlain by native alluvial soils. Based on this subsurface profile, the proposed structures may be supported on shallow foundations.

Conventional Spread Footing Foundation Design Parameters

New square and rectangular footings may be designed as follows:

- Maximum, net allowable soil bearing pressure: 3,000 $lbs/ft^2$.
- Minimum wall/column footing width: 14 inches/24 inches.
- Minimum longitudinal steel reinforcement within strip footings: Four (4) No. 5 rebars (2 top and 2 bottom), due to the differential fill depths.
- Minimum foundation embedment: 12 inches into newly placed structural fill soils, and at least 24 inches below adjacent exterior grade.
- It is recommended that the perimeter building foundations be continuous across all exterior doorways. Any flatwork adjacent to the exterior doors should be doweled into the perimeter foundations in a manner determined by the structural engineer.

The allowable bearing pressure presented above may be increased by one-third when considering short duration wind or seismic loads. The minimum steel reinforcement recommended above is based on geotechnical considerations; additional reinforcement may be necessary for structural considerations. The actual design of the foundations should be determined by the structural engineer.

Foundation Construction

The foundation subgrade soils should be evaluated at the time of overexcavation, as discussed in Section 6.3 of this report. It is further recommended that the foundation subgrade soils be evaluated by the geotechnical engineer immediately prior to steel or concrete placement. Soils suitable for direct foundation support should consist of newly placed structural fill, compacted to at least 90 percent of the ASTM D-1557 maximum dry density. Any unsuitable materials should be removed to a depth of suitable bearing compacted structural fill or suitable native alluvium (where reduced bearing pressures are utilized), with the resulting excavations backfilled with compacted fill soils. As an alternative, lean concrete slurry (500 to 1,500 psi) may be used to backfill such isolated overexcavations.

The foundation subgrade soils should also be properly moisture conditioned to 0 to 4 percent above the Modified Proctor optimum, to a depth of at least 12 inches below bearing grade. Since it is typically not feasible to increase the moisture content of the floor slab and foundation subgrade soils once rough grading has been completed, care should be taken to maintain the moisture content of the building pad subgrade soils throughout the construction process.

Estimated Foundation Settlements

Post-construction total and differential settlements of shallow foundations designed and constructed in accordance with the previously presented recommendations are estimated to be less than 1.0 and 0.5 inches, respectively. Differential movements are expected to occur over a 60-foot span, thereby resulting in an angular distortion of less than 0.002 inches per inch (1/500 deflection ratio).

Lateral Load Resistance

Lateral load resistance will be developed by a combination of friction acting at the base of foundations and slabs and the passive earth pressure developed by footings below grade. The following friction and passive pressure may be used to resist lateral forces:

- Passive Earth Pressure: 300 lbs/ft$^3$
- Friction Coefficient: 0.30

These are allowable values, and include a factor of safety. When combining friction and passive resistance, the passive pressure component should be reduced by one-third. These values assume that footings will be poured directly against compacted structural fill. The maximum allowable passive pressure is 2,500 lbs/ft$^2$.

## 6.6 Floor Slab Design and Construction

Subgrades which will support new floor slabs should be prepared in accordance with the recommendations contained in the ***Site Grading Recommendations*** section of this report. Based on the anticipated grading which will occur at this site, the floors of the proposed structures may be constructed as a conventional slabs-on-grade supported on newly placed structural fill, which is underlain by moderate strength alluvium. Based on geotechnical considerations, the floor slabs may be designed as follows:

- Minimum slab thickness: 6 inches.

- Modulus of Subgrade Reaction: k = 100 psi/in.

- Minimum slab reinforcement: Reinforcement is not required for geotechnical conditions. However, slab reinforcement may be required for structural design considerations. The actual floor slab reinforcement should be determined by the structural engineer, based upon the imposed loading, and the settlement estimates provided previously.

- Slab underlayment: If moisture sensitive floor coverings will be used then minimum slab underlayment should consist of a moisture vapor barrier constructed below the entire slab area where such moisture sensitive floor coverings are expected. The moisture vapor barrier should meet or exceed the Class A rating as defined by ASTM E 1745-97 and have a permeance rating less than 0.01 perms as described in ASTM E 96-95 and ASTM E 154-88. A polyolefin material such as 15 mil Stego® Wrap Vapor Barrier or equivalent will meet these specifications. The moisture vapor barrier should be properly constructed in accordance with all applicable manufacturer specifications. Given that a rock free subgrade is anticipated and that a capillary break is not required, sand below the barrier is not required. The need for sand and/or the amount of sand above the moisture vapor barrier should be specified by the structural engineer or concrete contractor. The selection of sand above the barrier is not a geotechnical engineering issue and hence outside our purview. Where moisture sensitive floor coverings are not anticipated, the vapor barrier may be eliminated.

- Moisture condition the floor slab subgrade soils to 0 to 4 percent above the Modified Proctor optimum moisture content, to a depth of 12 inches. The moisture content of the floor slab subgrade soils should be verified by the geotechnical engineer within 24 hours prior to concrete placement.

- Proper concrete curing techniques should be utilized to reduce the potential for slab curling or the formation of excessive shrinkage cracks.

- The floor slabs should be structurally connected to the foundations as detailed by the structural engineer.

The actual design of the floor slab should be completed by the structural engineer to verify adequate thickness and reinforcement.

## 6.7 Retaining Wall Design and Construction

The grading plan prepared by Webb indicates that the site will utilize several retaining walls along the perimeters of the site. Retaining walls are also expected within the truck dock areas of the proposed buildings. The parameters recommended for use in the design of these walls are presented below.

Retaining Wall Design Parameters

Based on the soil conditions encountered at the trench and boring locations, the following parameters may be used in the design of new retaining walls for this site. We have provided parameters assuming the use of on-site soils for retaining wall backfill. These near-surface soils generally consist of sands and silty sands and occasional clayey sands. These materials are expected to possess friction angles of at least 30 degrees when compacted to 90 percent of the ASTM-1557 maximum dry density.

If desired, SCG could provide design parameters for an alternative select backfill material behind the retaining walls. The use of select backfill material could result in lower lateral earth pressures. In order to use the design parameters for the imported select fill, this material must be placed within the entire active failure wedge. This wedge is defined as extending from the heel of the retaining wall upwards at an angle of approximately 60° from horizontal. If select backfill material behind the retaining wall is desired, SCG should be contacted for supplementary recommendations.

**RETAINING WALL DESIGN PARAMETERS**

| Design Parameter | | Soil Type<br>On-Site Silty Sands |
|---|---|---|
| Internal Friction Angle ($\phi$) | | 30° |
| Unit Weight | | 132 lbs/ft$^3$ |
| Equivalent Fluid Pressure: | Active Condition (level backfill) | 44 lbs/ft$^3$ |
| | At-Rest Condition (level backfill) | 66 lbs/ft$^3$ |
| | Active Condition (2h:1v backfill) | 71 lbs/ft$^3$ |

The walls should be designed using a soil-footing coefficient of friction of 0.30 and an equivalent passive pressure of 300 lbs/ft$^3$. The structural engineer should incorporate appropriate factors of safety in the design of the retaining walls.

The active earth pressure may be used for the design of retaining walls that do not directly support structures or support soils that in turn support structures and which will be allowed to deflect. The at-rest earth pressure should be used for walls that will not be allowed to deflect such as those which will support foundation bearing soils, or which will support foundation loads directly.

Where the soils on the toe side of the retaining wall are not covered by a "hard" surface such as a structure or pavement, the upper 1 foot of soil should be neglected when calculating passive resistance due to the potential for the material to become disturbed or degraded during the life of the structure.

Seismic Lateral Earth Pressures

In accordance with the 2019 CBC, any retaining walls more than 6 feet in height must be designed for seismic lateral earth pressures. The recommended seismic pressure distribution is triangular in shape, assumed to occur at the top of the wall, decreasing to 0 at the base of the wall. For a level backfill condition behind the top of the wall, the seismic lateral earth pressure is 44H lbs/ft$^2$, where H is the overall height of the wall. Where the ground surface above the wall consists of a 2h:1v sloping condition, the seismic lateral earth pressure is 71H lbs/ft$^2$. The seismic pressure distribution is based on the Mononobe-Okabe equation, utilizing the $PGA_M$ ground acceleration of 1.024g. The 2019 CBC does not provide definitive guidance on determination of the design acceleration to be used in generating the seismic lateral earth pressure. In accordance with standard geotechnical practice, we have calculated the design acceleration as $^2/_3$ of the $PGA_M$. However, for combinations of high ground motion and steep slopes above the wall, the Mononobe-Okabe equation gives unrealistic high estimates of active earth pressures. Therefore, the seismic earth pressure for the sloping condition presented above was calculated using a design acceleration equal to 50% of the $PGA_M$.

Retaining Wall Foundation Design

The retaining wall foundations should be underlain by at least 3 feet of newly placed structural fill. Foundations to support new retaining walls should be designed in accordance with the general Foundation Design Parameters presented in a previous section of this report.

Backfill Material

On-site sands and silty sands may be used to backfill the retaining walls. However, all backfill material placed within 3 feet of the back wall face should have a particle size no greater than 3 inches. The retaining wall backfill materials should be well graded.

It is recommended that a minimum 1-foot thick layer of free-draining granular material (less than 5 percent passing the No. 200 sieve) be placed against the face of the retaining walls. This material should extend from the top of the retaining wall footing to within 1 foot of the ground surface on the back side of the retaining wall. This material should be approved by the geotechnical engineer. In lieu of the 1-foot thick layer of free-draining material, a properly installed prefabricated drainage composite such as the MiraDRAIN 6000XL (or approved equivalent), which is specifically designed for use behind retaining walls, may be used. If the layer of free-draining material is not covered by an impermeable surface, such as a structure or pavement, a 12-inch thick layer of a low permeability soil should be placed over the backfill to reduce surface water migration to the underlying soils. The layer of free draining granular material should be separated from the backfill soils by a suitable geotextile, approved by the geotechnical engineer.

All retaining wall backfill should be placed and compacted under engineering controlled conditions in the necessary layer thicknesses to ensure an in-place density between 90 and 93 percent of the maximum dry density as determined by the Modified Proctor test (ASTM D1557-91). Care should be taken to avoid over-compaction of the soils behind the retaining walls, and the use of heavy compaction equipment should be avoided.

Subsurface Drainage

As previously indicated, the retaining wall design parameters are based upon drained backfill conditions. Consequently, some form of permanent drainage system will be necessary in conjunction with the appropriate backfill material. Subsurface drainage may consist of either:

- A weep hole drainage system typically consisting of a series of 4-inch diameter holes in the wall situated slightly above the ground surface elevation on the exposed side of the wall and at an approximate 20-foot on-center spacing. The weep holes should include a 2 cubic foot pocket of open graded gravel, surrounded by an approved geotextile fabric, at each weep hole location.

- A 4-inch diameter perforated pipe surrounded by 2 cubic feet of gravel per linear foot of drain placed behind the wall, above the retaining wall footing. The gravel layer should be wrapped in a suitable geotextile fabric to reduce the potential for migration of fines. The footing drain should be extended to daylight or tied into a storm drainage system.

## 6.8 Pavement Design Parameters

Site preparation in the pavement area should be completed as previously recommended in the ***Site Grading Recommendations*** section of this report. The subsequent pavement recommendations assume proper drainage and construction monitoring, and are based on either PCA or CALTRANS design parameters for a twenty (20) year design period. However, these designs also assume a routine pavement maintenance program to obtain the anticipated 20-year pavement service life.

Pavement Subgrades

It is anticipated that the new pavements will be primarily supported on a layer of compacted structural fill, consisting of scarified, thoroughly moisture conditioned and recompacted existing soils. The near-surface soils generally consist of silty sands and clayey sands. Based on their classification, these materials are expected to possess good pavement support characteristics. The results of the R-value testing indicate that a sample of these soils possesses an R-value of 60. In order to allow for areas of lower strength soils, the subsequent pavement design is based upon an assumed R-value of 40. Any fill material imported to the site should have support characteristics equal to or greater than that of the on-site soils and be placed and compacted under engineering-controlled conditions. It is recommended that R-value testing be performed after completion of rough grading. Depending upon the results of the R-value testing, it may be feasible to use thinner pavement sections in some areas of the site.

Asphaltic Concrete

Presented below are the recommended thicknesses for new flexible pavement structures consisting of asphaltic concrete over a granular base. The pavement designs are based on the traffic indices (TI's) indicated. The client and/or civil engineer should verify that these TI's are representative of the anticipated traffic volumes. If the client and/or civil engineer determine that the expected traffic volume will exceed the applicable traffic index, we should be contacted for supplementary recommendations. The design traffic indices equate to the following approximate daily traffic volumes over a 20-year design life, assuming six operational traffic days per week.

| Traffic Index | No. of Heavy Trucks per Day |
|---|---|
| 4.0 | 0 |
| 5.0 | 1 |
| 6.0 | 3 |
| 7.0 | 11 |
| 8.0 | 35 |
| 9.0 | 93 |

For the purpose of the traffic volumes indicated above, a truck is defined as a 5-axle tractor trailer unit with one 8-kip axle and two 32-kip tandem axles. All of the traffic indices allow for 1,000 automobiles per day.

| ASPHALT PAVEMENTS (R=40) | | | | | |
|---|---|---|---|---|---|
| **Materials** | **Thickness (inches)** | | | | |
| | Auto Parking and Auto Drive Lanes (TI = 4.0 to 5.0) | Truck Traffic | | | |
| | | TI = 6.0 | TI = 7.0 | TI = 8.0 | TI = 9.0 |
| Asphalt Concrete | 3 | 3½ | 4 | 5 | 5½ |
| Aggregate Base | 4 | 6 | 7 | 8 | 10 |
| Compacted Subgrade | 12 | 12 | 12 | 12 | 12 |

The aggregate base course should be compacted to at least 95 percent of the ASTM D-1557 maximum dry density. The asphaltic concrete should be compacted to at least 95 percent of the Marshall maximum density, as determined by ASTM D-2726. The aggregate base course may consist of crushed aggregate base (CAB) or crushed miscellaneous base (CMB), which is a recycled gravel, asphalt and concrete material. The gradation, R-Value, Sand Equivalent, and Percentage Wear of the CAB or CMB should comply with appropriate specifications contained in the current edition of the "Greenbook" Standard Specifications for Public Works Construction.

Portland Cement Concrete

The preparation of the subgrade soils within concrete pavement areas should be performed as previously described for proposed asphalt pavement areas. The minimum recommended thicknesses for the Portland Cement Concrete pavement sections are as follows:

| PORTLAND CEMENT CONCRETE PAVEMENTS (R=40) | | | | |
|---|---|---|---|---|
| **Materials** | **Thickness (inches)** | | | |
| | Autos and Light Truck Traffic (TI = 6.0 or less) | Truck Traffic | | |
| | | TI = 7.0 | TI = 8.0 | TI = 9.0 |
| PCC | 5 | 5½ | 6½ | 8 |
| Compacted Subgrade (95% minimum compaction) | 12 | 12 | 12 | 12 |

The concrete should have a 28-day compressive strength of at least 3,000 psi. Any reinforcement within the PCC pavements should be determined by the project structural engineer. The maximum joint spacing within all of the PCC pavements is recommended to be equal to or less than 30 times the pavement thickness.

# 7.0 GENERAL COMMENTS

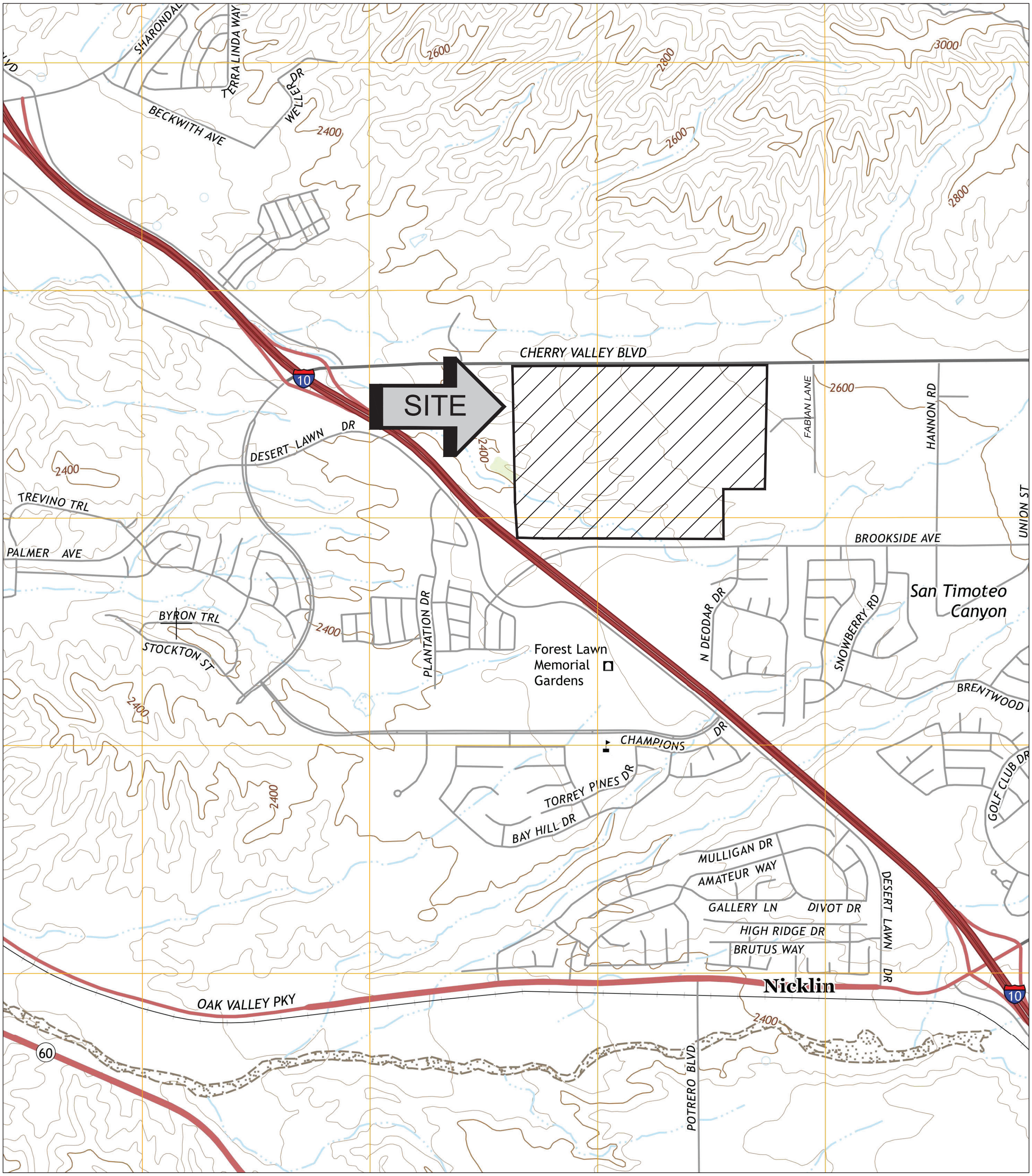
This report has been prepared as an instrument of service for use by the client, in order to aid in the evaluation of this property and to assist the architects and engineers in the design and preparation of the project plans and specifications. This report may be provided to the contractor(s) and other design consultants to disclose information relative to the project. However, this report is not intended to be utilized as a specification in and of itself, without appropriate interpretation by the project architect, civil engineer, and/or structural engineer. The reproduction and distribution of this report must be authorized by the client and Southern California Geotechnical, Inc. Furthermore, any reliance on this report by an unauthorized third party is at such party's sole risk, and we accept no responsibility for damage or loss which may occur. The client(s)' reliance upon this report is subject to the Engineering Services Agreement, incorporated into our proposal for this project.

The analysis of this site was based on a subsurface profile interpolated from limited discrete soil samples. While the materials encountered in the project area are considered to be representative of the total area, some variations should be expected between boring locations and sample depths. If the conditions encountered during construction vary significantly from those detailed herein, we should be contacted immediately to determine if the conditions alter the recommendations contained herein.

This report has been based on assumed or provided characteristics of the proposed development. It is recommended that the owner, client, architect, structural engineer, and civil engineer carefully review these assumptions to ensure that they are consistent with the characteristics of the proposed development. If discrepancies exist, they should be brought to our attention to verify that they do not affect the conclusions and recommendations contained herein. We also recommend that the project plans and specifications be submitted to our office for review to verify that our recommendations have been correctly interpreted.

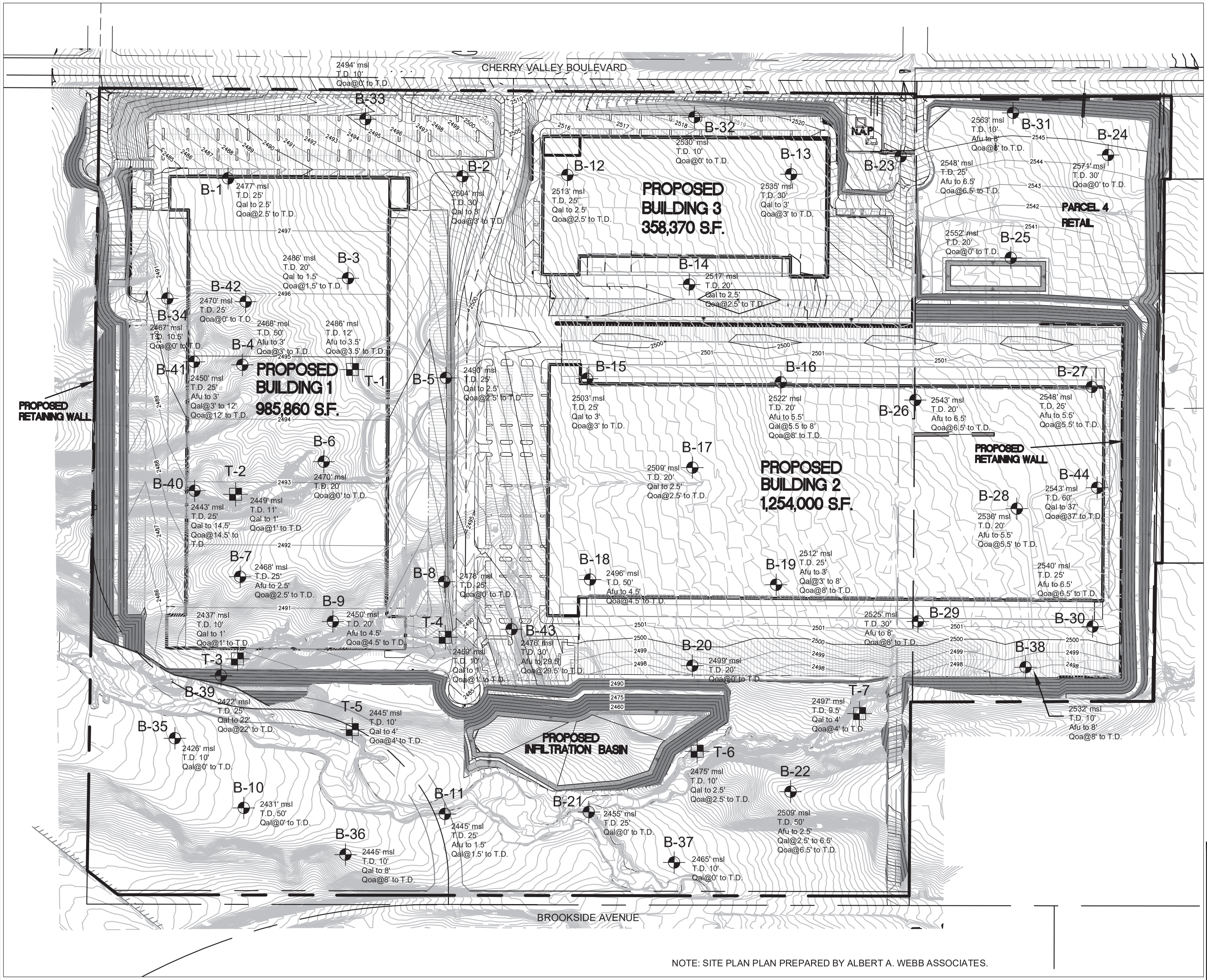
The analysis, conclusions, and recommendations contained within this report have been promulgated in accordance with generally accepted professional geotechnical engineering practice. No other warranty is implied or expressed.

# APPENDIX A




SOURCE: USGS TOPOGRAPHIC MAP OF THE EL CASCO QUADRANGLE, RIVERSIDE COUNTY, CALIFORNIA, 2015.

| SITE LOCATION MAP | |
|---|---|
| PROPOSED E-COMMERCE DEVELOPMENT | |
| BEAUMONT, CALIFORNIA | |
| SCALE: 1" = 2000' | SOUTHERN CALIFORNIA GEOTECHNICAL |
| DRAWN: MD<br>CHKD: RGT | |
| SCG PROJECT<br>21G133-1 | |
| **PLATE 1** | |




NOTE: SITE PLAN PLAN PREPARED BY ALBERT A. WEBB ASSOCIATES.

## GEOTECHNICAL LEGEND

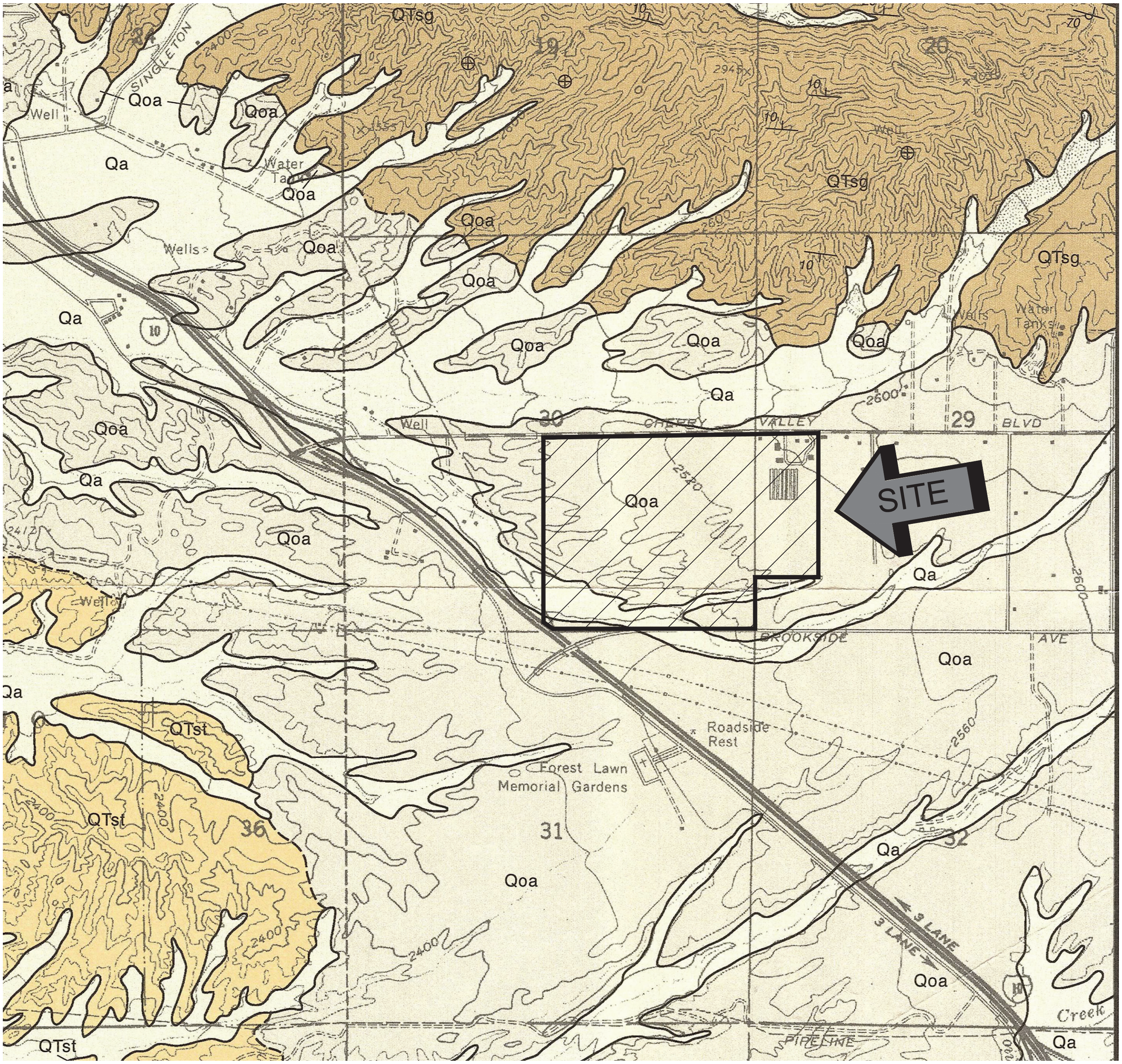
- BORING LOCATION
- TRENCH LOCATION

Afu - ARTIFICIAL FILL
Qal - ALLUVIUM
Qoa - OLDER ALLUVIUM

**BORING AND TRENCH LOCATION PLAN**
PROPOSED E-COMMERCE DEVELOPMENT
BEAUMONT, CALIFORNIA

SCALE: 1" = 300'
DRAWN: JAH
CHKD: RGT
SCG PROJECT 21G133-1
**PLATE 2**

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL




## LEGEND

Qg
Qa

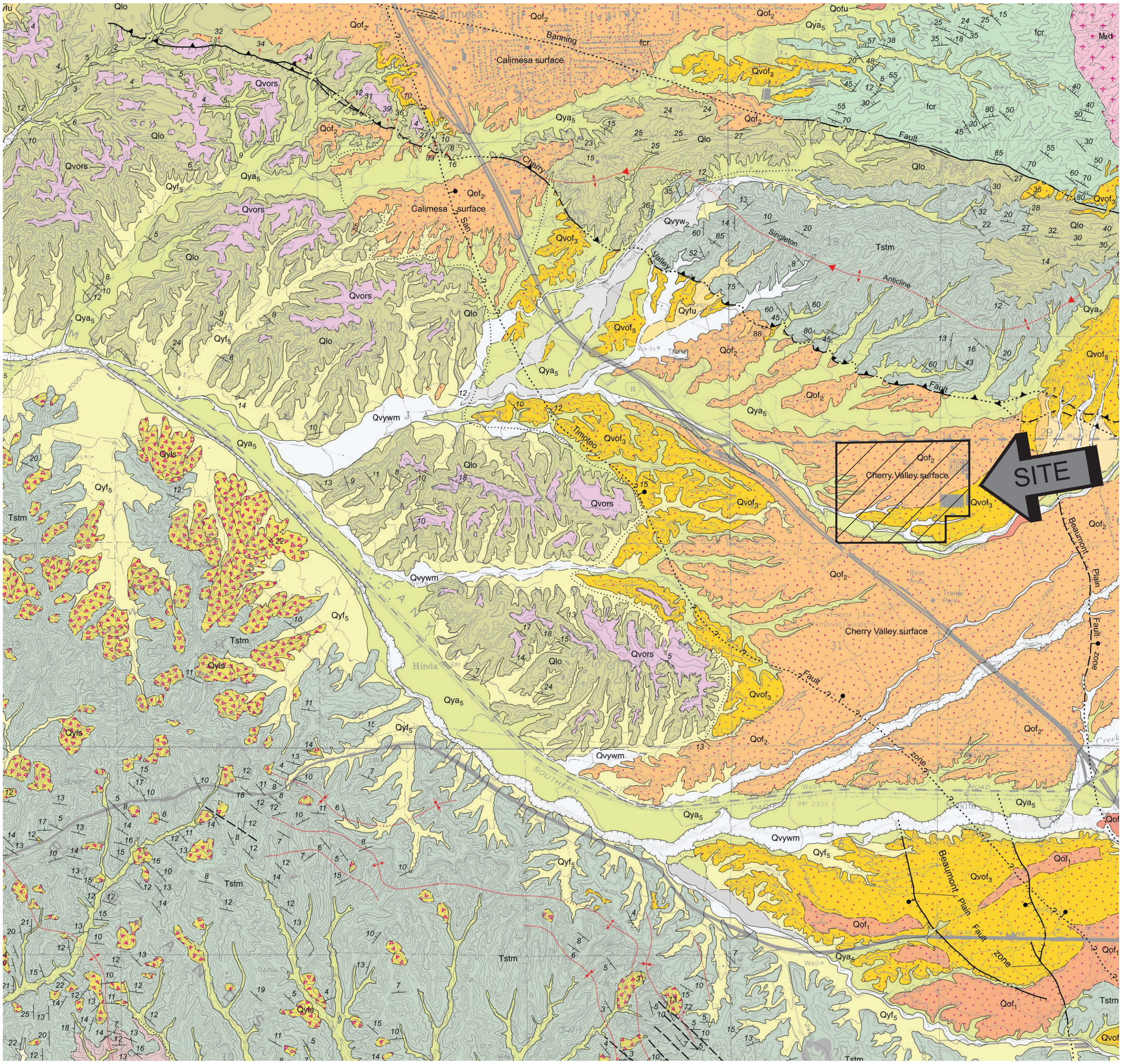
**SURFICIAL SEDIMENTS**
*Unindurated, undissected*
**Qg** *Alluvial gravel and sand of stream channels*
**Qa** *Alluvial sand, gravel and clay of level areas, covered by residual soil*

Qoa

**OLDER SURFICIAL SEDIMENTS**
*Weakly indurated alluvial fan deposits derived from local terrains*
**Qoa** *Alluvial gravel and sand, light reddish brown and of granititc and gneissic detritus of San Bernardino Mountains in north areas, brownish gray in south area; top surface slopes slightly from source terrains*

SOURCE: "GEOLOGIC MAP OF THE EL CASCO 7.5' QUADRANGLE, RIVERSIDE COUNTY, CALIFORNIA" BY THOMAS W. DIBBLE, JR., 2003.

| | |
|---|---|
| **GEOLOGIC MAP** | |
| PROPOSED E-COMMERCE DEVELOPMENT | |
| BEAUMONT, CALIFORNIA | |
| SCALE: 1" = 2000' | SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL |
| DRAWN: JAH<br>CHKD: RGT | |
| SCG PROJECT<br>21G133-1 | |
| **PLATE 3a** | |




CORRELATION OF MAP UNITS

| | |
|---|---|
| Qvywm | **Very young wash deposits, modern**—Very slightly to slightly consolidated sandy and gravelly sediment in active channels |
| Qya5 | **Young axial-valley deposits, unit 5 (uppermost Holocene)** |
| Qof2 | **Old alluvial-fan deposits, unit 2 (upper to middle Pleistocene)** |
| Qvof3 | **Very old alluvial-fan deposits, unit 3 (middle Pleistocene)** |

SOURCE: "GEOLOGIC AND GEOPHYSICAL MAP OF THE EL CASCO 7.5' QUADRANGLE, RIVERSIDE COUNTY, CALIFORNIA, WITH ACCOMPANYING GEOLOGIC-MAP DATABASE" GEOLOGIC MAP BY JONATHAN C. MATTI, AND PAMELA M. COSSETTE, DIGITAL DATABASE BY DOUGLAS M. HIRSHCHBERG, JORDAN G. MATTI, AND PAMELA M. COSSETTE, 2015.

**GEOLOGIC MAP**

PROPOSED E-COMMERCE DEVELOPMENT

BEAUMONT, CALIFORNIA

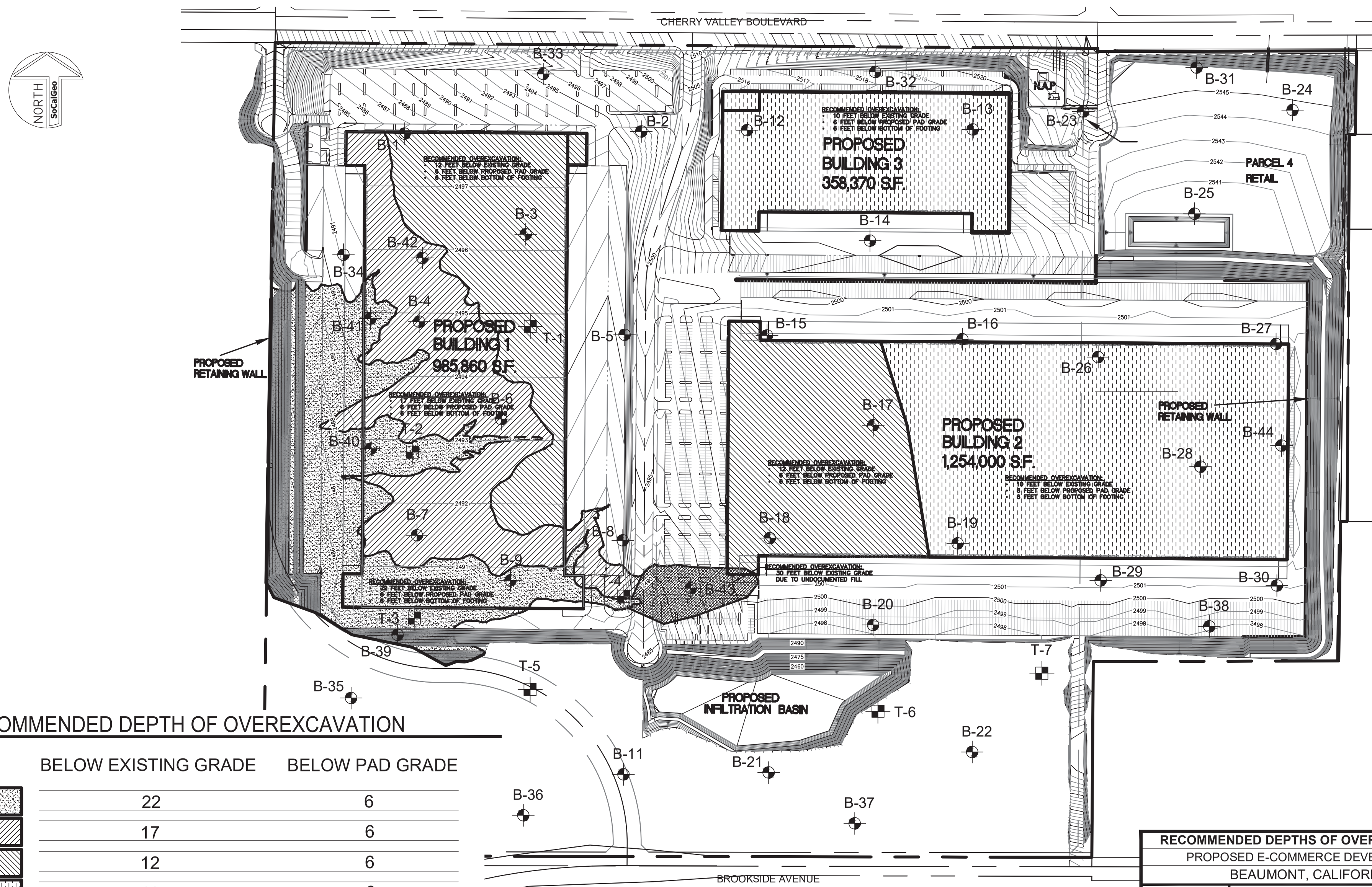
SCALE: 1" = 2000'

DRAWN: JAH
CHKD: RGT

SCG PROJECT
21G133-1

**PLATE 3b**

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL




## RECOMMENDED DEPTH OF OVEREXCAVATION

| BELOW EXISTING GRADE | BELOW PAD GRADE |
|---|---|
| 22 | 6 |
| 17 | 6 |
| 12 | 6 |
| 10 | 6 |
| 30 | 6 |

NOTE: SITE PLAN PLAN PREPARED BY ALBERT A. WEBB ASSOCIATES.

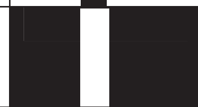
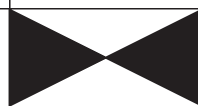
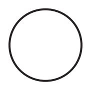
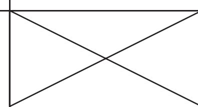
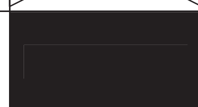
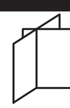
**RECOMMENDED DEPTHS OF OVEREXCAVATION**
PROPOSED E-COMMERCE DEVELOPMENT
BEAUMONT, CALIFORNIA

SCALE: 1" = 300'
DRAWN: PM
CHKD: RGT
SCG PROJECT 21G133-1
PLATE 4

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL

# APPENDIX B

# BORING LOG LEGEND

| SAMPLE TYPE | GRAPHICAL SYMBOL | SAMPLE DESCRIPTION |
|---|---|---|
| **AUGER** |  | SAMPLE COLLECTED FROM AUGER CUTTINGS, NO FIELD MEASUREMENT OF SOIL STRENGTH. (DISTURBED) |
| **CORE** |  | ROCK CORE SAMPLE: TYPICALLY TAKEN WITH A DIAMOND-TIPPED CORE BARREL. TYPICALLY USED ONLY IN HIGHLY CONSOLIDATED BEDROCK. |
| **GRAB** |  | SOIL SAMPLE TAKEN WITH NO SPECIALIZED EQUIPMENT, SUCH AS FROM A STOCKPILE OR THE GROUND SURFACE. (DISTURBED) |
| **CS** |  | CALIFORNIA SAMPLER: 2-1/2 INCH I.D. SPLIT BARREL SAMPLER, LINED WITH 1-INCH HIGH BRASS RINGS. DRIVEN WITH SPT HAMMER. (RELATIVELY UNDISTURBED) |
| **NSR** |  | NO RECOVERY: THE SAMPLING ATTEMPT DID NOT RESULT IN RECOVERY OF ANY SIGNIFICANT SOIL OR ROCK MATERIAL. |
| **SPT** |  | STANDARD PENETRATION TEST: SAMPLER IS A 1.4 INCH INSIDE DIAMETER SPLIT BARREL, DRIVEN 18 INCHES WITH THE SPT HAMMER. (DISTURBED) |
| **SH** |  | SHELBY TUBE: TAKEN WITH A THIN WALL SAMPLE TUBE, PUSHED INTO THE SOIL AND THEN EXTRACTED. (UNDISTURBED) |
| **VANE** |  | VANE SHEAR TEST: SOIL STRENGTH OBTAINED USING A 4 BLADED SHEAR DEVICE. TYPICALLY USED IN SOFT CLAYS-NO SAMPLE RECOVERED. |

**COLUMN DESCRIPTIONS**

**DEPTH**: Distance in feet below the ground surface.

**SAMPLE**: Sample Type as depicted above.

**BLOW COUNT**: Number of blows required to advance the sampler 12 inches using a 140 lb hammer with a 30-inch drop. 50/3" indicates penetration refusal (>50 blows) at 3 inches. WH indicates that the weight of the hammer was sufficient to push the sampler 6 inches or more.

**POCKET PEN.**: Approximate shear strength of a cohesive soil sample as measured by pocket penetrometer.

**GRAPHIC LOG**: Graphic Soil Symbol as depicted on the following page.

**DRY DENSITY**: Dry density of an undisturbed or relatively undisturbed sample in lbs/ft$^3$.

**MOISTURE CONTENT**: Moisture content of a soil sample, expressed as a percentage of the dry weight.

**LIQUID LIMIT**: The moisture content above which a soil behaves as a liquid.

**PLASTIC LIMIT**: The moisture content above which a soil behaves as a plastic.

**PASSING #200 SIEVE**: The percentage of the sample finer than the #200 standard sieve.

**UNCONFINED SHEAR**: The shear strength of a cohesive soil sample, as measured in the unconfined state.

# SOIL CLASSIFICATION CHART

| MAJOR DIVISIONS | | | SYMBOLS | | TYPICAL DESCRIPTIONS |
|---|---|---|---|---|---|
| | | | GRAPH | LETTER | |
| COARSE GRAINED SOILS | GRAVEL AND GRAVELLY SOILS | CLEAN GRAVELS | | GW | WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES |
| | | (LITTLE OR NO FINES) | | GP | POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES |
| | MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE | GRAVELS WITH FINES | | GM | SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES |
| | | (APPRECIABLE AMOUNT OF FINES) | | GC | CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES |
| MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE | SAND AND SANDY SOILS | CLEAN SANDS | | SW | WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES |
| | | (LITTLE OR NO FINES) | | SP | POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES |
| | MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE | SANDS WITH FINES | | SM | SILTY SANDS, SAND - SILT MIXTURES |
| | | (APPRECIABLE AMOUNT OF FINES) | | SC | CLAYEY SANDS, SAND - CLAY MIXTURES |
| FINE GRAINED SOILS | SILTS AND CLAYS | LIQUID LIMIT LESS THAN 50 | | ML | INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY |
| | | | | CL | INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS |
| | | | | OL | ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY |
| MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE | SILTS AND CLAYS | LIQUID LIMIT GREATER THAN 50 | | MH | INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS |
| | | | | CH | INORGANIC CLAYS OF HIGH PLASTICITY |
| | | | | OH | ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS |
| HIGHLY ORGANIC SOILS | | | | PT | PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS |

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-1

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward

WATER DEPTH: Dry
CAVE DEPTH: 17 feet
READING TAKEN: At Completion

| FIELD RESULTS | | | | | DESCRIPTION | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | SURFACE ELEVATION: 2477 feet MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | ALLUVIUM: Brown Silty fine Sand, trace clay, little fine root fibers, porous, medium dense-damp | | | | | | | |
| | X | 28 | | | | 108 | 8 | | | | | |
| | | | | | OLDER ALLUVIUM: Red Brown Clayey fine Sand, little Silt, trace medium Sand, dense-damp | | | | | | | |
| | X | 64 | | | | 114 | 7 | | | | | |
| 5 | X | 76/11" | | | | 116 | 8 | | | | | |
| | | | | | Red Brown Silty fine Sand, trace medium Sand, medium dense to very dense-damp | | | | | | | |
| | X | 76 | | | | 108 | 5 | | | | | |
| | X | 64 | | | | | 5 | | | | | |
| 10 | | | | | | | | | | | | |
| | X | 22 | | | | | 6 | | | | | |
| 15 | | | | | | | | | | | | |
| | | | | | Gray Brown Silty fine to medium Sand, trace coarse Sand, trace fine Gravel, medium dense-damp to moist | | | | | | | |
| | X | 18 | | | | | 10 | | | | | |
| 20 | | | | | | | | | | | | |
| | X | 19 | | | | | 3 | | | | | |
| 25 | | | | | | | | | | | | |
| | | | | | Boring Terminated at 25' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-2

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward

WATER DEPTH: Dry
CAVE DEPTH: 22 feet
READING TAKEN: At Completion

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION<br>SURFACE ELEVATION: 2504 feet MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | ALLUVIUM: Brown Silty fine Sand, trace to little Clay, little fine root fibers, medium dense-damp to moist | | | | | | | |
| | X | 18 | | | | | 8 | | | | | EI = 41 @ 0 to 5 feet |
| | | | | | OLDER ALLUVIUM: Brown Clayey fine Sand, little Silt, trace medium Sand, medium dense to dense-damp to moist | | | | | | | |
| | X | 28 | | | | | 10 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 36 | | | | | 8 | | | | | |
| | | | | | Brown to Red Brown Silty fine Sand, trace medium Sand, medium dense-damp to moist | | | | | | | |
| | X | 19 | | | | | 4 | | | | | |
| 10 | | | | | | | | | | | | |
| | X | 27 | | | @13½ feet, trace Clay, trace, trace fine to coarse Gravel | | 10 | | | | | |
| 15 | | | | | | | | | | | | |
| | X | 22 | | | | | 6 | | | | | |
| 20 | | | | | | | | | | | | |
| | X | 26 | | | | | 6 | | | | | |
| 25 | | | | | | | | | | | | |
| | | | | | Red Brown fine Sandy Clay, little medium Sand, trace coarse Sand, medium dense-moist | | | | | | | |
| | X | 21 | 4.5 | | | | 11 | | | | | |
| 30 | | | | | Boring Terminated at 30' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

# BORING NO. B-3

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/16/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward

WATER DEPTH: Dry
CAVE DEPTH: 17 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2486 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ALLUVIUM: Dark Brown Silty fine Sand, slightly porous, little fine root fibers, medium dense-damp to moist | | | | | | | |
| | X | 21 | | | | 104 | 8 | | | | | |
| | | | | | OLDER ALLUVIUM: Red Brown Silty fine Sand, trace Clay, trace medium Sand, medium dense-moist | | | | | | | |
| | X | 42 | | | | 112 | 10 | | | | | |
| | | | | | Red Brown Clayey fine Sand, little Silt, slightly cemented, medium dense-moist | | | | | | | |
| 5 | X | 44 | | | | 115 | 9 | | | | | |
| | | | | | Red Brown, Silty fine Sand, trace medium to coarse Sand, medium dense-damp | | | | | | | |
| | X | 42 | | | | 108 | 7 | | | | | |
| | X | 44 | | | | 119 | 6 | | | | | |
| 10 | | | | | | | | | | | | |
| | X | 10 | | | @ 13½ feet, little medium to coarse Sand, trace fine Gravel | | 5 | | | | | |
| 15 | | | | | | | | | | | | |
| | | | | | Red Brown Silty fine Sand to fine Sandy Silt, medium dense-moist | | | | | | | |
| | X | 14 | | | | | 9 | | | | | |
| 20 | | | | | | | | | | | | |

Boring Terminated at 20'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-4

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DRILLING DATE: 3/16/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward
WATER DEPTH: Dry
CAVE DEPTH: 41 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2468 feet MSL

| DEPTH (FEET) | BLOW COUNT | POCKET PEN. (TSF) | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | FILL: Red Brown Silty fine Sand, little Clay, trace fine root fibers, mottled, medium dense-moist | | | | | | | |
| | 26 | | | | 10 | | | | | |
| | | | FILL: Red Brown fine to medium Sandy Clay, cemented, very stiff-moist | | | | | | | |
| | | | OLDER ALLUVIUM: Red Brown fine to medium Sand, cemented, very dense-dry | | | | | | | |
| | 50/5" | | | | 11 | | | | | |
| | | 1.5 | Red Brown fine to medium Sandy Clay, cemented, very dense-damp | | 6 | | | | | |
| 5 | 78 | 4.5 | | | 7 | | | | | |
| | | | Red Brown Silty fine to medium Sand, trace to little Clay, dense-damp | | | | | | | |
| | 32 | | | | 7 | | | | | |
| | 37 | | @ 9 feet, little fine to coarse Gravel | | 6 | | | | | |
| 10 | | | | | | | | | | |
| | | | Red Brown Silty fine to coarse Sand, little fine to coarse Gravel, dense-damp | | | | | | | |
| | 43 | | | | 5 | | | | | |
| 15 | | | | | | | | | | |
| | | | Red Brown Silty fine Sand, medium dense-moist to very moist | | | | | | | |
| | 20 | | | | 10 | | | | | |
| 20 | | | | | | | | | | |
| | 36 | | | | 15 | | | | | |
| 25 | | | | | | | | | | |
| | 34 | | | | 14 | | | | | |
| | | | Gray Brown fine to coarse Sand, little to fine Gravel, dense-dry | | | | | | | |
| 30 | | | | | | | | | | |
| | | | Red Brown fine Sandy Silt, medium dense-moist | | | | | | | |
| | 22 | | | | 15 | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

**BORING NO. B-4**

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/16/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward

WATER DEPTH: Dry
CAVE DEPTH: 41 feet
READING TAKEN: At Completion

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION (Continued) | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | Red Brown fine Sandy Silt, medium dense-moist to very moist | | | | | | | |
| | | | | | Gray Brown Silty fine to coarse Sand, trace fine Gravel, very dense-damp | | | | | | | |
| | X | 58 | | | | | 6 | | | | | |
| 40 | | | | | | | | | | | | |
| | | | | | Red Brown to Gray Brown fine to coarse Sand, very dense-dry to damp | | | | | | | |
| 45 | X | 57 | | | | | 4 | | | | | |
| | X | 50/5" | | | | | 6 | | | | | |
| 50 | | | | | | | | | | | | |
| | | | | | Boring Terminated at 50' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

**TEST BORING LOG**

**PLATE B-4b**

SOUTHERN CALIFORNIA GEOTECHNICAL
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# BORING NO. B-5

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward

WATER DEPTH: Dry
CAVE DEPTH: 21 feet
READING TAKEN: At Completion

| FIELD RESULTS | | | | | DESCRIPTION | LABORATORY RESULTS | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | SURFACE ELEVATION: 2489 feet MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | |
| | | 32 | | | ALLUVIUM: Brown Silty fine Sand, trace medium to coarse Sand, slightly porous, trace fine root fibers, medium dense-moist | 95 | 11 | | | | | |
| | | 38 | 4.5 | | OLDER ALLUVIUM: Red Brown fine Sandy Clay, medium dense-moist | 107 | 10 | | | | | |
| 5 | | 34 | | | Red Brown Silty fine Sand to fine Sandy Silt, medium dense-moist | 104 | 10 | | | | | |
| | | 42 | | | | 115 | 10 | | | | | |
| 10 | | 37 | | | @ 9 feet, little Clay, trace fine Gravel | 105 | 16 | | | | | |
| 15 | | 50 | | | Red Brown Silty fine Sand, trace to little Clay, dense to very dense-moist | | 12 | | | | | |
| 20 | | 20 | | | Gray Brown fine to coarse Sand, little fine to coarse Gravel, trace Clay, medium dense-dry to damp | | 3 | | | | | |
| 25 | | 32 | | | Gray Brown Silty fine Sand, dense-damp | | 7 | | | | | |

Boring Terminated at 25'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

**BORING NO. B-6**

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward
WATER DEPTH: Dry
CAVE DEPTH: 14 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2470 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | OLDER ALLUVIUM: Red Brown fine Sandy Clay to Clayey fine Sand, trace fine root fibers, slightly cemented, hard to dense-damp to moist | | | | | | | |
| | | 61 | 4.5 | | | 100 | 8 | | | | | |
| | | 67 | 4.5 | | | 124 | 10 | | | | | |
| 5 | | 50 | 4.5 | | | 107 | 9 | | | | | |
| | | 49 | 4.5 | | | 112 | 9 | | | | | |
| | | | | | Red Brown Silty fine to medium Sand, trace coarse Gravel, medium dense-moist | | | | | | | |
| 10 | | 41 | | | | 94 | 12 | | | | | |
| | | | | | Red Brown Silty fine to coarse Sand, trace coarse Gravel, medium dense to dense-damp | | | | | | | |
| 15 | | 28 | | | | | 8 | | | | | |
| | | | | | Red Brown Clayey fine Sand, 2" Clay lense, dense-moist | | | | | | | |
| 20 | | 38 | | | | | 13 | | | | | |

Boring Terminated at 20'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-7

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer
WATER DEPTH: Dry
CAVE DEPTH: 16 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2468 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | FILL: Red Brown Clayey fine to medium Sand, little Silt, medium dense-moist | | | | | | | |
| | X | 32 | | | | 115 | 14 | | | | | |
| | | | | | OLDER ALLUVIUM: Red Brown Clayey fine to coarse Sand, little Silt, trace fine Gravel, dense to very dense-damp to moist | | | | | | | |
| | X | 72/10" | | | | 116 | 7 | | | | | |
| 5 | X | 49 | | | | 113 | 8 | | | | | |
| | | | | | Gray Brown Silty fine to medium Sand, little Clay , trace coarse Sand, dense-damp | | | | | | | |
| | X | 58 | | | | 113 | 6 | | | | | |
| | | | | | Light Brown Silty fine Sand, trace to little medium to coarse Sand, medium dense-damp | | | | | | | |
| | X | 23 | | | | 105 | 5 | | | | | |
| 10 | | | | | | | | | | | | |
| | | | | | Red Brown Silty fine Sand to fine Sandy Silt, trace Calcareous nodules, dense-moist | | | | | | | |
| | X | 38 | | | | | 10 | | | | | |
| 15 | | | | | | | | | | | | |
| | | | | | Light Brown Silty fine to coarse Sand, trace fine to coarse Gravel, very dense-damp | | | | | | | |
| | X | 74/11" | | | | | 4 | | | | | |
| 20 | | | | | | | | | | | | |
| | X | 73/11" | | | @23½ feet, trace fine Gravel | | 6 | | | | | |
| 25 | | | | | | | | | | | | |

Boring Terminated at 25'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-8

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 11 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2478 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | OLDER ALLUVIUM: Red Brown Clayey fine to coarse Sand, trace to little Silt, medium dense to dense-moist | | | | | | | |
| | X | 16 | | | | | 13 | | | | | |
| | X | 42 | | | | | 13 | | | | | |
| 5 | | | | | | | | | | | | |
| | | | | | Brown Silty fine Sand, trace medium to coarse Sand, medium dense-moist | | | | | | | |
| | X | 23 | | | | | 9 | | | | | |
| | | | | | Brown Silty fine to coarse Sand, trace fine Gravel, dense-damp | | | | | | | |
| | X | 36 | | | | | 6 | | | | | |
| 10 | | | | | | | | | | | | |
| | | | | | Red Brown Silty fine Sand, trace medium Sand, trace fine root fibers, medium dense-moist | | | | | | | |
| | X | 24 | | | | | 12 | | | | | |
| 15 | | | | | | | | | | | | |
| | X | 27 | | | @18½ feet, trace Clay nodules | | 10 | | | | | |
| 20 | | | | | | | | | | | | |
| | | | | | Gray Brown Silty fine to coarse Sand, trace fine Gravel, dense-damp | | | | | | | |
| | X | 36 | | | | | 7 | | | | | |
| 25 | | | | | | | | | | | | |

Boring Terminated at 25'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-9

| | | |
|---|---|---|
| JOB NO.: 21G133-1 | DRILLING DATE: 3/15/21 | WATER DEPTH: Dry |
| PROJECT: Proposed E-Commerce Development | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 12 feet |
| LOCATION: Beaumont, California | LOGGED BY: Ryan Bremer | READING TAKEN: At Completion |

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION<br>SURFACE ELEVATION: 2450 feet MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | 18 | | | FILL: Dark Brown Silty fine Sand, trace medium to coarse Sand, trace fine root fibers, trace Clay, medium dense-moist | 114 | 11 | | | | | |
| | | 40 | | | FILL: Brown Clayey fine to coarse Sand, little Silt, medium dense-damp | 114 | 6 | | | | | |
| 5 | | 27 | | | OLDER ALLUVIUM: Red Brown Silty fine to medium Sand, trace coarse Sand, trace Calcareous nodules, medium dense-damp | 100 | 6 | | | | | |
| | | 51 | | | Red Brown Silty fine to coarse Sand, trace Calcareous nodules, dense-damp | 96 | 5 | | | | | |
| 10 | | 48 | | | | 111 | 5 | | | | | |
| 15 | | 46 | | | Red Brown Silty fine Sand, trace to little medium to coarse Sand, trace Calcareous nodules, dense-moist | | 9 | | | | | |
| 20 | | 53 | | | Gray Brown Silty fine to coarse Sand, trace Calcareous nodules, very dense-damp | | 5 | | | | | |
| | | | | | Boring Terminated at 20' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-10

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/16/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward

WATER DEPTH: Dry
CAVE DEPTH: 36 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2431 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ALLUVIUM: Brown Silty fine Sand, trace medium Sand, trace fine root fibers, loose to medium dense-damp to moist | | | | | | | |
| | X | 10 | | | | | 10 | | | | | |
| | X | 12 | | | @3½ feet, trace fine Gravel, little to medium Sand | | 3 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 13 | | | | | 5 | | | | | |
| | X | 16 | | | | | 5 | | | | | |
| 10 | | | | | | | | | | | | |
| | | | | | Brown Silty fine Sand to fine Sandy Silt, trace medium to coarse Sand, trace fine Gravel, medium dense-damp | | | | | | | |
| | X | 10 | | | | | 7 | | | | | |
| 15 | | | | | | | | | | | | |
| | | | | | Red Brown to Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, medium dense-damp | | | | | | | |
| | X | 14 | | | | | 7 | | | | | |
| 20 | | | | | | | | | | | | |
| | | | | | Gray Brown fine to coarse Sand, trace Silt, trace fine Gravel, medium dense-damp | | | | | | | |
| | X | 15 | | | | | 3 | | | | | |
| 25 | | | | | | | | | | | | |
| | | | | | Dark Red Brown Silty fine to medium Sand, trace to little Clay, trace coarse Sand, little fine Gravel, medium dense-moist | | | | | | | |
| | X | 11 | | | | | 9 | | | | | |
| 30 | | | | | | | | | | | | |
| | | | | | Gray Brown fine to coarse Sand, little to some fine to coarse Gravel, medium dense-damp | | | | | | | |
| | X | 20 | | | | | 5 | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-10

| | | |
|---|---|---|
| JOB NO.: 21G133-1 | DRILLING DATE: 3/16/21 | WATER DEPTH: Dry |
| PROJECT: Proposed E-Commerce Development | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 36 feet |
| LOCATION: Beaumont, California | LOGGED BY: Jaime Hayward | READING TAKEN: At Completion |

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION (Continued) | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Gray Brown fine to coarse Sand, little to some fine to coarse Gravel, medium dense-damp | | | | | | | |
| | X | 74/10" | | | @ 38½ feet, very dense | | 6 | | | | | |
| 40 | | | | | | | | | | | | |
| | | | | | Brown Clayey Silt, very stiff to hard-moist to very moist | | | | | | | |
| | X | 24 | 2.0 | | | | 20 | | | | | |
| 45 | | | | | | | | | | | | |
| | X | 46 | | | | | 13 | | | | | |
| 50 | | | | | | | | | | | | |
| | | | | | Boring Terminated at 50' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

**BORING NO. B-11**

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DRILLING DATE: 3/16/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward
WATER DEPTH: Dry
CAVE DEPTH: 15 feet
READING TAKEN: At Completion

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION<br>SURFACE ELEVATION: 2445 feet MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | FILL: Dark Brown Silty fine Sand, some fine root fibers, loose-very moist | | | | | | | |
| | | 10 | | | | 112 | 17 | | | | | |
| | | | | | ALLUVIUM: Gray Brown Silty fine to medium Sand, trace coarse Sand, trace coarse Gravel, trace fine root fibers, loose to medium dense-moist | | | | | | | |
| | | 26 | | | | 113 | 14 | | | | | |
| | | | | | Red Brown Silty fine Sand, trace Clay, slightly porous, medium dense-damp to moist | | | | | | | |
| 5 | | 23 | | | | 100 | 6 | | | | | |
| | | 15 | | | | 108 | 5 | | | | | |
| | | 26 | | | @ 9 feet, little medium Sand | 98 | 11 | | | | | |
| 10 | | | | | | | | | | | | |
| | | | | | Gray Brown fine to coarse Sand, trace Silt, trace fine Gravel, medium dense-damp | | | | | | | |
| | | 18 | | | | 118 | 5 | | | | | |
| 15 | | | | | | | | | | | | |
| | | 21 | | | @ 18½ feet, little Silt | | 8 | | | | | |
| 20 | | | | | | | | | | | | |
| | | 19 | | | | | 7 | | | | | |
| 25 | | | | | | | | | | | | |
| | | | | | Boring Terminated at 25' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-12

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward

WATER DEPTH: Dry
CAVE DEPTH: 19 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2513 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 5 | | | ALLUVIUM: Brown Silty fine Sand, trace medium Sand, little Clay, very loose-very moist | 112 | 17 | | | | | |
| | | 58 | 4.5 | | OLDER ALLUVIUM: Dark Red Brown fine Sandy Clay, trace medium Sand, little Silt, hard-moist | 113 | 14 | | | | | |
| 5 | | 42 | | | Red Brown Silty fine Sand, trace medium Sand, slightly porous, trace fine root fibers, medium dense-damp | 100 | 6 | | | | | |
| | | 28 | | | Brown Silty fine to medium Sand, trace coarse Sand, medium dense-damp | 108 | 5 | | | | | |
| 10 | | 20 | | | Red Brown Silty fine Sand, medium dense-moist | 98 | 11 | | | | | |
| | | | | | Gray Brown Silty fine to coarse Sand, medium dense-damp | | | | | | | |
| 15 | | 36 | | | | 118 | 5 | | | | | |
| 20 | | 18 | | | | | 8 | | | | | |
| | | | | | Light Brown Silty fine to medium Sand, little Clay, dense-damp | | | | | | | |
| 25 | | 30 | | | | | 7 | | | | | |

Boring Terminated at 25'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

**TEST BORING LOG**

**PLATE B-12**

**BORING NO. B-13**

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward

WATER DEPTH: Dry
CAVE DEPTH: 23 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2534 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ALLUVIUM: Brown Silty fine Sand, trace Clay, little fine root fibers, medium dense-moist | | | | | | | |
| | X | 13 | | | | | 11 | | | | | |
| | | | | | OLDER ALLUVIUM: Red Brown Clayey fine Sand, trace medium Sand, medium dense-moist | | | | | | | |
| | X | 21 | | | | | 11 | | | | | |
| 5 | | | | | | | | | | | | |
| | | | | | Red Brown Silty fine Sand, trace medium Sand, medium dense-damp to moist | | | | | | | |
| | X | 15 | | | | | 7 | | | | | |
| | X | 15 | | | | | 10 | | | | | |
| 10 | | | | | | | | | | | | |
| | | | | | Brown Silty fine to medium Sand, trace fine to coarse Gravel, medium dense-damp | | | | | | | |
| | X | 20 | | | | | 7 | | | | | |
| 15 | | | | | | | | | | | | |
| | X | 19 | | | | | 7 | | | | | |
| 20 | | | | | | | | | | | | |
| | | | | | Red Brown Silty fine Sand to fine Sandy Silt, medium dense to dense-damp to moist | | | | | | | |
| | X | 19 | | | | | 10 | | | | | |
| 25 | | | | | | | | | | | | |
| | X | 34 | | | | | 8 | | | | | |
| | | | | | Red Brown Silty fine to coarse Sand, trace fine to coarse Gravel, dense-very moist | | 43 | | | | | |
| 30 | | | | | | | | | | | | |

Boring Terminated at 30'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

**TEST BORING LOG**

**PLATE B-13**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-14

JOB NO.: 21G133-1 | DRILLING DATE: 3/16/21 | WATER DEPTH: Dry
PROJECT: Proposed E-Commerce Development | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 13 feet
LOCATION: Beaumont, California | LOGGED BY: Ryan Bremer | READING TAKEN: At Completion

| FIELD RESULTS | | | | | DESCRIPTION | LABORATORY RESULTS | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | SURFACE ELEVATION: 2516 feet MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | |
| | | | | | 2± inches Portland Cement Concrete | | | | | | | |
| | X | 26 | 3.5 | | ALLUVIUM: Brown fine Sandy Clay, trace medium to coarse Sand, little Silt, very stiff-very moist | 115 | 16 | | | | | |
| | X | 31 | | | OLDER ALLUVIUM: Brown Silty fine to medium Sand, trace coarse Sand, trace fine Gravel, medium dense-very moist | 96 | 15 | | | | | |
| 5 | X | 25 | | | @ 5 feet, trace Clay, no fine Gravel | 117 | 13 | | | | | |
| | X | 29 | | | Brown Silty fine Sand, trace medium Sand, medium dense-moist | 113 | 10 | | | | | |
| | X | 45 | | | | 119 | 11 | | | | | |
| 10 | | | | | | | | | | | | |
| | X | 16 | | | | | 9 | | | | | |
| 15 | | | | | | | | | | | | |
| | X | 28 | | | @ 18½ feet, little medium to coarse Sand | | 6 | | | | | |
| 20 | | | | | | | | | | | | |

Boring Terminated at 20'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

**TEST BORING LOG** **PLATE B-14**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-15

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward
WATER DEPTH: Dry
CAVE DEPTH: 20 feet
READING TAKEN: At Completion

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION<br>SURFACE ELEVATION: 2503 feet MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ALLUVIUM: Brown Silty fine Sand, medium dense-damp | | | | | | | |
| | X | 18 | | | | | 7 | | | | | |
| | | | | | OLDER ALLUVIUM: Red Brown Silty fine Sand, little Clay, medium dense-moist | | | | | | | |
| | X | 15 | | | | | 13 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 17 | | | | | 11 | | | | | |
| | | | | | Red Brown Silty fine Sand to fine Sandy Silt, trace Clay, medium dense-damp | | | | | | | |
| | X | 28 | | | | | 14 | | | | | |
| 10 | | | | | | | | | | | | |
| | | | | | Red Brown fine Sandy Silt, little to some Clay, medium dense-moist to very moist | | | | | | | |
| | X | 26 | | | | | 17 | | | | | |
| 15 | | | | | | | | | | | | |
| | | | | | Red Brown Silty fine Sand to fine Sandy Silt, medium dense to dense-moist | | | | | | | |
| | X | 31 | | | | | 11 | | | | | |
| 20 | | | | | | | | | | | | |
| | X | 23 | | | | | 10 | | | | | |
| 25 | | | | | | | | | | | | |
| | | | | | Boring Terminated at 25' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

**TEST BORING LOG** **PLATE B-15**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-16

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 14 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2522 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | X | 7 | | | FILL: Dark Brown Silty fine Sand, little Clay, trace medium to coarse Sand, occasional Cobbles, loose-very moist | | 17 | | | | | |
| 5 | X | 24 | | | FILL: Dark Brown Silty fine Sand, trace Clay, trace fine to coarse Gravel, medium dense-moist | | 12 | | | | | |
| | X | 16 | | | ALLUVIUM: Brown Silty fine to medium Sand, little Clay, trace coarse Sand, medium dense-moist | | 11 | | | | | |
| 10 | X | 43 | | | OLDER ALLUVIUM: Red Brown Silty fine Sand, trace medium to coarse Sand, little Clay, dense-moist | | 13 | | | | | |
| 15 | X | 16 | | | Red Brown Silty fine to medium Sand, trace coarse Sand, medium dense-damp | | 7 | | | | | |
| 20 | X | 20 | | | Red Brown Silty fine Sand, trace to little medium to coarse Sand, medium dense-damp to moist | | 8 | | | | | |

Boring Terminated at 20'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-17

JOB NO.: 21G133-1 | DRILLING DATE: 3/16/21 | WATER DEPTH: Dry
PROJECT: Proposed E-Commerce Development | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 20 feet
LOCATION: Beaumont, California | LOGGED BY: Ryan Bremer | READING TAKEN: At Completion

SURFACE ELEVATION: 2509 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ALLUVIUM: Dark Brown Silty fine Sand, trace medium to coarse sand, trace fine Gravel, medium dense-moist | | | | | | | |
| | | 17 | | | | 106 | 11 | | | | | |
| | | | | | OLDER ALLUVIUM: Brown Clayey fine to medium Sand, trace coarse Sand, trace fine Gravel, medium dense-damp to moist | | | | | | | |
| | | 42 | | | | 111 | 14 | | | | | |
| 5 | | 25 | | | | 116 | 6 | | | | | |
| | | | | | Red Brown Silty fine to medium Sand, trace coarse Sand, trace fine Gravel, trace Clay, medium dense-moist | | | | | | | |
| | | 31 | | | | 119 | 11 | | | | | |
| | | | | | Brown Silty fine Sand to fine Sandy Silt, trace medium to coarse Sand, medium dense to dense-moist to very moist | | | | | | | |
| | | 31 | | | | 99 | 24 | | | | | |
| 10 | | | | | | | | | | | | |
| | | 24 | | | | | 11 | | | | | |
| 15 | | | | | | | | | | | | |
| | | 48 | | | @ 18½ feet, little medium to coarse Sand | | 12 | | | | | |
| 20 | | | | | | | | | | | | |

Boring Terminated at 20'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

## TEST BORING LOG

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-18

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward

WATER DEPTH: Dry
CAVE DEPTH: 38 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2496 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | FILL: Red Brown fine to medium Sandy Clay, trace fine root fibers, medium stiff to stiff-very moist | | | | | | | |
| | | 6 | 3.0 | | | 101 | 15 | | | | | |
| | | 15 | 3.0 | | | 116 | 14 | | | | | |
| 5 | | | | | OLDER ALLUVIUM: Red Brown SIlty fine to coarse Sand, little Clay, trace fine to coarse Gravel, loose to medium dense-damp to moist | | | | | | | |
| | | 14 | | | | 114 | 12 | | | | | |
| | | 24 | | | | 95 | 8 | | | | | |
| | | | | | Red Brown fine to medium Sandy Clay, medium stiff to stiff-very moist | | | | | | | |
| | | 13 | | | | 109 | 16 | | | | | |
| 10 | | | | | | | | | | | | |
| | | 10 | 1.5 | | | | 15 | | | | | |
| 15 | | | | | | | | | | | | |
| | | 20 | | | | | 17 | | | | | |
| 20 | | | | | | | | | | | | |
| | | | | | Red Brown Silty fine to coarse Sand, trace fine to coarse Gravel, medium dense-damp | | | | | | | |
| | | 24 | | | | | 5 | | | | | |
| 25 | | | | | | | | | | | | |
| | | | | | Red Brown Silty fine Sand to fine Sandy Silt, medium dense-moist | | | | | | | |
| | | 15 | | | | | 13 | | | | | |
| 30 | | | | | | | | | | | | |
| | | | | | Red Brown Silty fine Sand, dense-damp | | | | | | | |
| | | 36 | | | | | 7 | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-18

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward

WATER DEPTH: Dry
CAVE DEPTH: 38 feet
READING TAKEN: At Completion

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION (Continued) | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | Red Brown Silty fine Sand, dense-damp | | | | | | | |
| | | | | | Red Brown Silty fine Sand to fine Sandy Silt, dense-damp | | | | | | | |
| | X | 41 | | | | | 7 | | | | | |
| 40 | | | | | | | | | | | | |
| | X | 24 | | | @ 43½ feet, trace medium to coarse Sand, medium dense | | 6 | | | | | |
| 45 | | | | | | | | | | | | |
| | | | | | Brown Silty fine to medium Sand to fine to medium Sandy Silt, trace to little coarse Sand, medium dense-damp to moist | | | | | | | |
| | X | 19 | | | | | 9 | | | | | |
| 50 | | | | | | | | | | | | |
| | | | | | Boring Terminated at 50' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
*A California Corporation*

# BORING NO. B-19

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer
WATER DEPTH: Dry
CAVE DEPTH: 22 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2512 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2± inches Portland Cement Concrete | | | | | | | |
| | | | | | 2± inches Slurry | | | | | | | |
| | X | 4 | | | FILL: Brown Silty fine Sand, little medium Sand, very loose-very moist | | 31 | | | | | Poor Recovery |
| | X | 9 | | | ALLUVIUM: Brown Silty fine to medium Sand, little Silt, trace coarse Sand, trace Calcareous nodules, loose to medium dense-very moist | | 14 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 23 | | | | | 14 | | | | | |
| | X | 10 | | | OLDER ALLUVIUM: Red Brown Silty fine Sand, little Clay, trace medium to coarse Sand, trace fine to coarse Gravel, loose to medium dense-moist | | 11 | | | | | |
| 10 | | | | | | | | | | | | |
| | | | | | Red Brown Silty fine to coarse Sand, trace fine to coarse Gravel, dense-damp | | | | | | | |
| | X | 40 | | | | | 4 | | | | | |
| 15 | | | | | | | | | | | | |
| | | | | | Brown Silty fine Sand, trace Clay, little medium to coarse Sand, medium dense-moist | | | | | | | |
| | X | 29 | | | | | 10 | | | | | |
| 20 | | | | | | | | | | | | |
| | X | 21 | | | | | 12 | | | | | |
| 25 | | | | | | | | | | | | |

Boring Terminated at 25'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-20

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 15 feet
READING TAKEN: At Completion

FIELD RESULTS / LABORATORY RESULTS

SURFACE ELEVATION: 2498 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | OLDER ALLUVIUM: Red Brown Clayey fine to coarse Sand, little Silt, dense-moist | | | | | | | |
| | | 52 | | | | 119 | 8 | | | | | EI = 45 @ 0 to 5 feet |
| | | | | | Red Brown Clayey fine Sand little Silt, trace fine root fibers, trace fine Gravel, medium dense-moist | | | | | | | |
| | | 38 | | | | 118 | 12 | | | | | |
| | | | | | Red Brown Silty fine to coarse Sand, trace fine Gravel, dense-moist | | | | | | | |
| 5 | | 73 | | | | 119 | 12 | | | | | |
| | | | | | Gray Brown Silty fine to coarse Sand, trace fine Gravel, medium dense to dense-damp | | | | | | | |
| | | 42 | | | | 114 | 6 | | | | | |
| | | 67 | | | | 121 | 4 | | | | | |
| 10 | | | | | | | | | | | | |
| | | 25 | | | | | 4 | | | | | |
| 15 | | | | | | | | | | | | |
| | | 58 | | | | | 8 | | | | | |
| 20 | | | | | Boring Terminated at 20' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

# BORING NO. B-21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 21G133-1 | DRILLING DATE: 3/16/21 | WATER DEPTH: Dry
PROJECT: Proposed E-Commerce Development | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 22 feet
LOCATION: Beaumont, California | LOGGED BY: Jaime Hayward | READING TAKEN: At Completion

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION<br>SURFACE ELEVATION: 2458 feet MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ALLUVIUM: Brown Silty fine Sand, trace medium to coarse Sand, trace fine root fibers, medium dense-damp to moist | | | | | | | |
| | | 14 | | | | | 10 | | | | | |
| | | 13 | | | @ 3½ to 12 feet, little medium to coarse Sand | | 6 | | | | | |
| 5 | | | | | | | | | | | | |
| | | 17 | | | | | 7 | | | | | |
| | | 10 | | | | | 7 | | | | | |
| 10 | | | | | | | | | | | | |
| | | | | | Brown Silty fine Sand to fine Sandy Silt, trace medium to coarse Sand, loose to medium dense-damp to moist | | | | | | | |
| | | | | | | | 9 | | | | | |
| 15 | | 116 | | | | | 7 | | | | | |
| | | 23 | | | | 107 | 8 | | | | | |
| 20 | | | | | | | | | | | | |
| | | | | | Gray Brown Silty fine to coarse Sand, little fine to coarse Gravel, very dense-damp to moist | | | | | | | |
| | | 71 | | | | | 9 | | | | | |
| 25 | | | | | | | | | | | | |
| | | | | | Boring Terminated at 25' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

**TEST BORING LOG** PLATE B-21

# BORING NO. B-22

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 21G133-1 | DRILLING DATE: 3/16/21 | WATER DEPTH: Dry
PROJECT: Proposed E-Commerce Development | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 41 feet
LOCATION: Beaumont, California | LOGGED BY: Jaime Hayward | READING TAKEN: At Completion

SURFACE ELEVATION: 2508 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | FILL: Brown fine Sandy Clay, trace medium Sand, little to some fine root fibers, stiff-very moist | | | | | | | |
| | | 22 | 4.5 | | | 112 | 14 | | | | | EI = 28 @ 0 to 5 feet |
| | | | | | ALLUVIUM: Gray Brown Silty fine to medium Sand, trace coarse Sand, trace fine Gravel, slightly cemented, loose to medium dense-damp | | | | | | | |
| | | 13 | | | | 102 | 5 | | | | | |
| 5 | | 30 | | | | 112 | 5 | | | | | |
| | | | | | OLDER ALLUVIUM: Red Brown fine Sandy Clay, trace fine root fibers, hard-moist | | | | | | | |
| | | 74 | 4.5 | | | 112 | 12 | | | | | |
| | | 81/11" | 4.5 | | | 119 | 9 | | | | | |
| 10 | | | | | | | | | | | | |
| | | | | | Gray Brown to Red Brown Silty fine to coarse Sand, little fine to Coarse Gravel, medium dense to dense-damp to moist | | | | | | | |
| | | 31 | | | | | 8 | | | | | |
| 15 | | | | | | | | | | | | |
| | | 23 | | | | | 7 | | | | | |
| 20 | | | | | | | | | | | | |
| | | | | | Red Brown Silty fine Sand to fine Sandy Silt, medium dense-moist | | | | | | | |
| | | 23 | | | | | 11 | | | | | |
| 25 | | | | | | | | | | | | |
| | | 18 | | | | | 12 | | | | | |
| 30 | | | | | | | | | | | | |
| | | 24 | | | | | 8 | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-22

JOB NO.: 21G133-1 | DRILLING DATE: 3/16/21 | WATER DEPTH: Dry
PROJECT: Proposed E-Commerce Development | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 41 feet
LOCATION: Beaumont, California | LOGGED BY: Jaime Hayward | READING TAKEN: At Completion

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION (Continued) | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | Red Brown Silty fine Sand to fine Sandy Silt, medium dense-damp | | | | | | | |
| | | | | | Gray Brown fine Sandy Silt, trace medium Sand, dense-damp | | | | | | | |
| | X | 32 | | | | | 7 | | | | | |
| 40 | | | | | | | | | | | | |
| | | | | | Gray Brown Silty fine Sand, trace medium Sand, medium dense-damp | | | | | | | |
| | X | 23 | | | | | 7 | | | | | |
| 45 | | | | | | | | | | | | |
| | | | | | Gray Brown Silty fine Sand to fine Sandy Silt, medium dense-damp | | | | | | | |
| | X | 18 | | | | | 15 | | | | | |
| 50 | | | | | | | | | | | | |
| | | | | | Boring Terminated at 50' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-23

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/12/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 21 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2547 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | FILL: Red Brown Silty fine Sand, trace medium to coarse Sand, slightly porous, loose to medium dense-damp | | | | | | | |
| | X | 15 | | | | 105 | 6 | | | | | |
| | X | 42 | | | | 117 | 6 | | | | | |
| 5 | X | 20 | | | @ 5 feet, trace to little Clay, trace fine Gravel | 103 | 7 | | | | | |
| | X | 18 | | | OLDER ALLUVIUM: Red Brown Silty fine to coarse Sand, medium dense-damp | 112 | 4 | | | | | |
| 10 | X | 24 | | | Red Brown Silty fine Sand, trace medium Sand, medium dense-moist | 108 | 9 | | | | | |
| | | | | | Red Brown Silty fine to coarse Sand, trace fine to coarse Gravel, medium dense-damp | | | | | | | |
| 15 | X | 27 | | | | | 5 | | | | | |
| 20 | X | 18 | | | | | 3 | | | | | |
| | | | | | Red Brown Silty fine Sand to fine Sandy Silt, trace medium to coarse Sand, medium dense-damp | | | | | | | |
| 25 | X | 16 | | | | | 7 | | | | | |

Boring Terminated at 25'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-24

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DRILLING DATE: 3/12/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer
WATER DEPTH: Dry
CAVE DEPTH: 22 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2570 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | X | 13 | | | ALLUVIUM: Red Brown Silty fine to medium Sand, trace medium to coarse Sand, loose-very moist | | 15 | | | | | |
| 5 | X | 6 | | | Red Brown Silty fine Sand, trace medium to coarse Sand, loose-moist | | 10 | | | | | |
| | X | 13 | | | Red Brown Silty fine to coarse Sand, trace fine to coarse Gravel, medium dense-moist | | 10 | | | | | |
| 10 | X | 12 | | | Brown Silty fine Sand, trace medium to coarse Sand, trace fine to coarse Gravel, medium dense-damp | | 10 | | | | | |
| 15 | X | 16 | | | Red Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, medium dense-damp to moist | | 6 | | | | | |
| 20 | X | 14 | | | | | 8 | | | | | |
| 25 | X | 15 | | | | | 7 | | | | | |
| 30 | X | 15 | | | | | 11 | | | | | |
| | | | | | Boring Terminated at 30' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-25

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DRILLING DATE: 3/12/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer
WATER DEPTH: Dry
CAVE DEPTH: 16 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2551 feet MSL

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | 2± inches Portland Cement Concrete | | | | | | | |
| | | | | | 2± inches slurry | | | | | | | |
| | X | 9 | | | ALLUVIUM: Red Brown Clayey fine Sand, trace medium Sand, little Silt, loose to medium dense-very moist | 115 | 15 | | | | | |
| | X | 10 | | | @ 3 feet, trace fine coarse Gravel | 121 | 15 | | | | | |
| 5 | X | 22 | | | | 116 | 10 | | | | | |
| | X | 17 | | | Red Brown Silty fine Sand, trace medium to coarse Sand, medium dense-moist | 117 | 9 | | | | | |
| 10 | X | 28 | | | Gray Brown Silty fine to coarse Sand, trace fine Gravel, loose to medium dense-moist | 121 | 9 | | | | | |
| | | | | | Brown Silty fine Sand, trace medium to coarse Sand, loose to medium dense-moist | | | | | | | |
| 15 | X | 12 | | | | | 10 | | | | | |
| 20 | X | 9 | | | | | 12 | | | | | |
| | | | | | Boring Terminated at 20' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

TEST BORING LOG

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-26

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DRILLING DATE: 3/12/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer
WATER DEPTH: Dry
CAVE DEPTH: 15 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2533 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | FILL: Red Brown Silty fine Sand, trace fine root fibers, trace medium Sand, loose-damp | | | | | | | |
| | | 9 | | | | 107 | 7 | | | | | |
| | | | | | FILL: Red Brown Clayey fine to medium Sand, trace coarse Sand, loose to medium dense-moist | | | | | | | |
| | | 9 | | | | 123 | 11 | | | | | |
| 5 | | 40 | | | | 121 | 12 | | | | | |
| | | | | | ALLUVIUM: Brown Silty fine Sand, trace medium Sand, trace Clay, medium dense-moist | | | | | | | |
| | | 22 | | | | 117 | 13 | | | | | |
| | | 22 | | | @ 9 feet, little Clay | 117 | 12 | | | | | |
| 10 | | | | | | | | | | | | |
| | | 11 | | | @ 13½ to 20 feet, trace fine to coarse Gravel, medium dense-damp | | 8 | | | | | |
| 15 | | | | | | | | | | | | |
| | | 16 | | | | | 7 | | | | | |
| 20 | | | | | | | | | | | | |

Boring Terminated at 20'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

TEST BORING LOG

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-27

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/12/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 22 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2548 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | FILL: Red Brown Silty fine Sand, trace medium Sand, trace fine Gravel, trace fine root fibers, medium dense-moist | | | | | | | |
| | X | 28 | | | | | 9 | | | | | |
| | X | 16 | | | @ 3½ feet, little medium to coarse Sand | | 9 | | | | | |
| 5 | | | | | | | | | | | | |
| | | | | | OLDER ALLUVIUM: Red Brown Silty fine to medium Sand, trace coarse Sand, trace fine Gravel, medium dense-moist | | | | | | | |
| | X | 12 | | | | | 11 | | | | | |
| | | | | | Red Brown Silty fine Sand, trace medium to coarse Sand, medium dense-moist | | | | | | | |
| | X | 14 | | | | | 10 | | | | | |
| 10 | | | | | | | | | | | | |
| | X | 13 | | | | | 9 | | | | | |
| 15 | | | | | | | | | | | | |
| | X | 10 | | | | | 9 | | | | | |
| 20 | | | | | | | | | | | | |
| | | | | | Red Brown Clayey fine to coarse Sand, little Silt, little fine to coarse Gravel, dense-moist | | | | | | | |
| | X | 46 | | | | | 11 | | | | | |
| 25 | | | | | | | | | | | | |

Boring Terminated at 25'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-28

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/12/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 16 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2536 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | FILL: Red Brown Clayey fine to coarse Sand, little Silt to fine root fibers, medium dense-moist | | | | | | | |
| | X | 16 | | | | | 13 | | | | | |
| | X | 22 | | | @ 3½ feet, fine to little fine to coarse Gravel, medium dense-damp | | 13 | | | | | |
| 5 | | | | | | | | | | | | |
| | | | | | OLDER ALLUVIUM: Brown Silty fine Sand, little Clay, little medium to coarse Sand, trace fine Gravel, medium dense-moist | | | | | | | |
| | X | 19 | | | | | 12 | | | | | |
| | X | 11 | | | | | 9 | | | | | |
| 10 | | | | | | | | | | | | |
| | X | 14 | | | | | 7 | | | | | |
| 15 | | | | | | | | | | | | |
| | X | 14 | | | | | 10 | | | | | |
| 20 | | | | | Boring Terminated at 20' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

# BORING NO. B-29

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/12/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 21 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2524 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | FILL: Dark Brown Silty fine Sand, trace medium to coarse Sand, loose-moist | | | | | | | |
| | X | 6 | | | | | 12 | | | | | |
| | X | 11 | | | @ 3½ feet. trace Clay | | 11 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 12 | | | FILL: Red Brown Silty fine Sand, trace to little medium to coarse Sand, trace fine Gravel, trace Clay nodules, medium dense-moist | | 14 | | | | | |
| | X | 20 | | | OLDER ALLUVIUM: Red Brown Clayey fine to coarse Sand, trace fine Gravel, medium dense-moist to very moist | | 16 | | | | | |
| 10 | | | | | | | | | | | | |
| | | | | | Red Brown Clayey fine to coarse Sand, little Silt, trace fine Gravel, trace calcareous nodules, dense-moist | | | | | | | |
| | X | 35 | | | | | 12 | | | | | |
| 15 | | | | | | | | | | | | |
| | | | | | Red Brown Silty fine to coarse Sand, little Clay, trace fine Gravel, very dense-moist | | | | | | | |
| | X | 63 | | | | | 9 | | | | | |
| 20 | | | | | | | | | | | | |
| | | | | | Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, medium dense to dense-damp to moist | | | | | | | |
| | X | 21 | | | | | 14 | | | | | |
| 25 | | | | | | | | | | | | |
| | X | 32 | | | | | 8 | | | | | |
| 30 | | | | | | | | | | | | |
| | | | | | Boring Terminated at 30' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-30

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DRILLING DATE: 3/12/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer
WATER DEPTH: Dry
CAVE DEPTH: 20 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2540 feet MSL

| FIELD RESULTS: DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | LABORATORY RESULTS: DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | FILL: Brown Silty fine to coarse Sand, trace fine root fibers, dense-damp to moist | | | | | | | |
| | | 56 | | | | 125 | 7 | | | | | |
| | | 50 | | | @ 3 feet, trace fine to coarse Gravel, trace rope | 126 | 8 | | | | | |
| 5 | | 49 | | | | 118 | 11 | | | | | |
| | | 39 | | | OLDER ALLUVIUM: Brown Silty fine to coarse Sand, trace fine Gravel, medium dense-damp | 104 | 7 | | | | | |
| 10 | | 40 | | | @ 9 feet, occasional Cobbles | | 5 | | | | | Disturbed Sample |
| | | | | | Brown Silty fine Sand, little Clay, trace to little medium to coarse Sand, trace fine to coarse Gravel, medium dense-moist | | | | | | | |
| 15 | | 15 | | | | | 15 | | | | | |
| | | | | | Brown Silty fine Sand to fine Sandy Silt, trace Clay, medium dense-moist | | | | | | | |
| 20 | | 17 | | | | | 17 | | | | | |
| | | | | | Red Brown Clayey fine to coarse Sand, little Silt, trace fine to coarse Gravel, dense-moist | | | | | | | |
| 25 | | 38 | | | | | 14 | | | | | |

Boring Terminated at 25'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-31

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 9 feet
READING TAKEN: At Completion

| FIELD RESULTS | | | | | DESCRIPTION | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | SURFACE ELEVATION: 2562 feet MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | X | 9 | | | FILL: Red Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, trace fine root fibers, loose to dense-damp | | 7 | | | | | |
| | X | 19 | | | | | 7 | | | | | |
| 5 | X | 36 | | | | | 7 | | | | | |
| | X | 18 | | | OLDER ALLUVIUM: Light Red Brown Silty fine to coarse Sand, medium dense-damp | | 5 | | | | | |
| 10 | | | | | Boring Terminated at 10' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-32

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 8 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2530 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | OLDER ALLUVIUM: Red Brown to Brown Silty fine Sand, trace medium to coarse Sand, medium dense to very dense-damp | | | | | | | |
| | X | 14 | | | | | 7 | | | | | |
| | X | 57 | | | @ 3½ feet little medium to coarse Sand | | 6 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 25 | | | | | 6 | | | | | |
| | X | 36 | | | @ 8½ feet, trace fine Gravel | | 6 | | | | | |
| 10 | | | | | | | | | | | | |

Boring Terminated at 10'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-33

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/16/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward

WATER DEPTH: Dry
CAVE DEPTH: 9 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2494 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | OLDER ALLUVIUM: Red Brown, Silty fine Sand, trace medium Sand, trace Clay, trace fine root fibers, medium dense-damp | | | | | | | |
| | X | 20 | | | | | 5 | | | | | |
| | | | | | Red Brown Clayey fine Sand to fine Sandy Clay, trace fine Gravel, dense-dry to damp | | | | | | | |
| | X | 32 | 4.5 | | | | 3 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 58 | 2.5 | | | | 6 | | | | | |
| | | | | | Red Brown Silty fine Sand, trace Clay, dense-damp | | | | | | | |
| | X | 40 | | | | | 5 | | | | | |
| 10 | | | | | | | | | | | | |

Boring Terminated at 10'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

TEST BORING LOG

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-34

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/16/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward

WATER DEPTH: Dry
CAVE DEPTH: 7 feet
READING TAKEN: At Completion

| FIELD RESULTS | | | | | DESCRIPTION | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | SURFACE ELEVATION: 2467 feet MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | X | 34 | | | OLDER ALLUVIUM: Red Brown Silty fine Sand, little fine root fibers, dense-damp | | 6 | | | | | |
| | X | 55 | 4.5 | | Red Brown Clayey fine Sand to fine Silty Clay, little Silt, trace medium to coarse Sand, dense to very dense-dry | | 8 | | | | | |
| 5 | X | 60 | 4.5 | | | | 8 | | | | | |
| | X | 37 | 4.5 | | | | 8 | | | | | |
| 10 | X | 26 | | | Red Brown Silty fine Sand, dense-damp | | 7 | | | | | |

Boring Terminated at 10½'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-35

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DRILLING DATE: 3/16/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward
WATER DEPTH: Dry
CAVE DEPTH: 7 feet
READING TAKEN: At Completion

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION<br>SURFACE ELEVATION: 2425 feet MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | ALLUVIUM: Brown Silty fine Sand, trace to little medium Sand, trace fine root fibers, loose to medium dense-dry | | | | | | | |
| | X | 8 | | | | | 5 | | | | | |
| | X | 8 | | | | | 3 | | | | | |
| 5 | X | 13 | | | | | 4 | | | | | |
| | X | 7 | | | | | 7 | | | | | |
| 10 | | | | | Boring Terminated at 10' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-36

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/16/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jaime Hayward

WATER DEPTH: Dry
CAVE DEPTH: 8 feet
READING TAKEN: At Completion

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION<br>SURFACE ELEVATION: 2445 feet MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ALLUVIUM: Dark Brown to Brown, Silty fine to medium Sand, trace to little coarse Sand, trace to little coarse Sand, trace fine root fibers, loose to medium dense-damp | | | | | | | |
| | X | 4 | | | | | 8 | | | | | |
| | X | 12 | | | @ 3½ feet, slightly porous | | 5 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 12 | | | | | 6 | | | | | |
| | | | | | OLDER ALLUVIUM: Red Brown fine Sandy Clay, slightly cemented, very stiff-damp | | | | | | | |
| | X | 16 | 2.0 | | | | 6 | | | | | |
| 10 | | | | | | | | | | | | |

Boring Terminated at 10'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-37

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 3/15/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 7 feet
READING TAKEN: At Completion

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION<br>SURFACE ELEVATION: 2465 feet MSL | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | ALLUVIUM: Dark Brown to Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, trace fine root fibers, medium dense-moist | | | | | | | |
| | X | 18 | | | | | 9 | | | | | |
| | X | 13 | | | @ 3½ feet, trace Clay | | 10 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 16 | | | | | 7 | | | | | |
| | | | | | Brown fine Sandy Silt, trace medium to coarse Sand, medium dense-damp to moist | | | | | | | |
| | X | 15 | | | | | 8 | | | | | |
| 10 | | | | | | | | | | | | |
| | | | | | Boring Terminated at 10' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

# BORING NO. B-38

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 21G133-1 | DRILLING DATE: 3/12/21 | WATER DEPTH: Dry
PROJECT: Proposed E-Commerce Development | DRILLING METHOD: Hollow Stem Auger | CAVE DEPTH: 7 feet
LOCATION: Beaumont, California | LOGGED BY: Ryan Bremer | READING TAKEN: At Completion

SURFACE ELEVATION: 2532 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | FILL: Red Brown fine Sandy Clay, trace medium to coarse Sand, trace fine root fibers, trace fine Gravel, loose-very moist | | | | | | | |
| | X | 9 | 1.5 | | | | 19 | | | | | |
| | | | | | FILL: Red Brown Silty fine to coarse Sand, little Clay, medium dense-moist | | | | | | | |
| | X | 20 | | | | | 13 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 20 | | | | | 10 | | | | | |
| | | | | | OLDER ALLUVIUM: Red Brown Silty fine to coarse Sand, trace fine Gravel, medium dense-damp | | | | | | | |
| | X | 18 | | | | | 5 | | | | | |
| 10 | | | | | | | | | | | | |

Boring Terminated at 10'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
SoCalGeo
A California Corporation

# BORING NO. B-39

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 7/16/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jamie Hayward

WATER DEPTH: Dry
CAVE DEPTH: 21 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2421 feet MSL

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | ALLUVIUM: Brown Silty fine Sand, trace medium to coarse Sand, trace fine root fibers, medium dense-dry to damp | | | | | | | |
| | X | 17 | | | | 105 | 2 | | | | | |
| | | | | | Gray Brown fine Sand, medium dense-dry to damp | | | | | | | |
| | | | | | Brown Silty fine Sand, medium dense-dry to damp | | | | | | | |
| 5 | X | 20 | | | | 108 | 2 | | | | | |
| | | | | | Gray Brown Silty fine to coarse Sand, trace fine Gravel, medium dense-dry | | | | | | | |
| | | | | | Brown Silty fine to medium Sand, trace coarse Sand, trace fine Gravel, medium dense-damp | | | | | | | |
| 10 | X | 19 | | | | 104 | 6 | | | | | |
| | | | | | Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, loose to medium dense-damp to moist | | | | | | | |
| 15 | X | 14 | | | | 104 | 7 | | | | | |
| 20 | X | 21 | | | | 105 | 11 | | | | | |
| | | | | | Gray Brown fine Sand, trace medium to coarse Sand, trace fine Gravel, medium dense-moist | | | | | | | |
| | | | | | OLDER ALLUVIUM: Brown Silty fine Sand, trace Clay, medium dense-very moist | | | | | | | |
| 25 | X | 39 | | | | 99 | 21 | | | | | |

Boring Terminated at 25'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

# TEST BORING LOG

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-40

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DRILLING DATE: 7/16/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jamie Hayward
WATER DEPTH: Dry
CAVE DEPTH: 22 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2443 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ALLUVIUM: Brown Silty fine to medium Sand, trace coarse Sand, medium dense-dry to damp | | | | | | | |
| | X | 22 | | | | 113 | 2 | | | | | |
| | | | | | Brown Clayey fine Sand, trace medium Sand, medium stiff-dry to damp | | | | | | | |
| 5 | X | 20 | | | | 103 | 2 | | | | | |
| | | | | | Brown Silty fine Sand, trace medium Sand, medium dense-damp | | | | | | | |
| 10 | X | 18 | | | | 105 | 4 | | | | | |
| 15 | X | 25 | | | | 107 | 4 | | | | | |
| | | | | | OLDER ALLUVIUM: Gray Brown fine to coarse Sand, medium dense to dense-damp | | | | | | | |
| 20 | X | 57 | | | | 117 | 3 | | | | | |
| | | | | | Gray Brown Silty fine Sand, trace Silt, trace medium to coarse Sand, medium dense-damp to moist | | | | | | | |
| 25 | X | 37 | | | | 115 | 8 | | | | | |
| | | | | | Red Brown fine Sandy Clay, little to some Silt, trace medium to coarse Sand, slightly cemented, very stiff-damp | | | | | | | |

Boring Terminated at 25'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-41

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 7/16/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jamie Hayward

WATER DEPTH: Dry
CAVE DEPTH: 20 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2450 feet MSL

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | | | | | FILL: Brown Silty fine Sand, trace medium to coarse Sand, mottled, loose-moist | | | | | | | |
| | X | 12 | | | | 126 | 9 | | | | | |
| | | | | | ALLUVIUM: Brown Silty fine Sand to fine Sandy Silt, trace medium to coarse Sand, loose to medium dense-damp | | | | | | | |
| | X | 14 | | | | 102 | 4 | | | | | |
| 5 | | | | | | | | | | | | |
| | X | 16 | | | | 102 | 5 | | | | | |
| 10 | | | | | Brown to Red Brown Silty fine to coarse Sand, trace fine Gravel, medium dense-damp | | | | | | | |
| | | | | | OLDER ALLUVIUM: Brown Silty fine Sand, trace Clay, trace medium to coarse Sand, medium dense-dry to damp | | | | | | | |
| | X | 27 | | | | 105 | 2 | | | | | |
| 15 | | | | | | | | | | | | |
| | X | 30 | | | | 94 | 6 | | | | | |
| 20 | | | | | | | | | | | | |
| | | | | | Gray Brown Silty fine to coarse Sand, medium dense-damp | | | | | | | |
| | X | 34 | | | | 110 | 4 | | | | | |
| 25 | | | | | | | | | | | | |
| | | | | | Boring Terminated at 25' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

# BORING NO. B-42

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DRILLING DATE: 7/14/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jamie Hayward
WATER DEPTH: Dry
CAVE DEPTH: 22 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2470 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | OLDER ALLUVIUM: Red Brown Silty fine Sand, medium dense-damp | | | | | | | |
| | X | 19 | | | | 100 | 5 | | | | | |
| | | | | | Red Brown fine Sandy Clay, little medium Sand, weakly cemented, slightly porous, very stiff-damp | | | | | | | |
| 5 | X | 31 | | | | 113 | 7 | | | | | |
| 10 | X | 34 | | | @ 9 feet, little medium Sand | 108 | 5 | | | | | |
| | | | | | Brown Silty fine Sand, medium dense-damp | | | | | | | |
| 15 | X | 24 | | | | 109 | 6 | | | | | |
| | | | | | Gray Brown fine Sand, trace Silt, medium dense-very moist | | | | | | | |
| 20 | X | 40 | | | | 97 | 15 | | | | | |
| | | | | | Brown Silty fine Sand, medium dense-very moist | | | | | | | |
| 25 | X | 62 | | | @ 24 feet, trace coarse Sand, trace fine Gravel, dense-damp | 113 | 6 | | | | | |

Boring Terminated at 25'

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

**TEST BORING LOG** **PLATE B-42**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-43

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 7/16/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jamie Hayward

WATER DEPTH: Dry
CAVE DEPTH: 26 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2476 feet MSL

| FIELD RESULTS | | | | | | LABORATORY RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
| | X | 53 | 4.5 | | FILL: Brown to Red Brown fine Sandy Clay, trace medium Sand, trace fine Gravel, slightly cemented, mottled, medium stiff to hard-damp to very moist | 114 | 6 | | | | | |
| 5 | X | 47 | 4.5 | | @ 4 feet, little Portland cement concrete (PCC) fragments | 92 | 7 | | | | | |
| 10 | X | 8 | 4.5 | | | 104 | 18 | | | | | |
| 15 | X | 26 | 4.5 | | @ 14 feet, little PCC fragments | 118 | 5 | | | | | |
| 20 | X | 12 | 3.5 | | | 110 | 11 | | | | | |
| 25 | X | 54 | 4.5 | | | | 10 | | | | | Poor Recovery |
| | | | | | @ 27 feet, trace tire tread | | | | | | | |
| 30 | X | 50/5" | 4.5 | | OLDER ALLUVIUM: Brown fine to medium Sand, little Silt, trace coarse Sand, trace coarse Gravel, slightly cemented, very dense-moist | 121 | 11 | | | | | |
| | | | | | Boring Terminated at 30' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

**BORING NO. B-44**

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 7/16/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jamie Hayward

WATER DEPTH: Dry
CAVE DEPTH: 53 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2543 feet MSL

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ALLUVIUM: Brown to Red Brown Silty fine Sand, trace fine root fibers, loose-damp | | | | | | | |
| | X | 9 | | | | | 6 | | | | | |
| | | | | | Brown fine Sandy Clay, trace medium Sand, slightly cemented, stiff to very stiff-damp to moist | | | | | | | |
| 5 | X | 19 | | | | | 8 | | | | | |
| 10 | X | 12 | | | | | 9 | | | | | |
| | | | | | Red Brown Silty fine Sand, little Clay, trace medium to coarse Sand, trace fine Gravel, medium dense-moist | | | | | | | |
| 15 | X | 12 | | | | | 9 | | | | | |
| | | | | | Red Brown fine Sandy Clay, little Silt, stiff-moist | | | | | | | |
| 20 | X | 12 | | | | | 10 | | | | | |
| | | | | | Red Brown Silty fine Sand, medium dense-moist | | | | | | | |
| 25 | X | 11 | | | | | 10 | | | | | |
| 30 | X | 19 | | | | | 12 | | | | | |
| | | | | | Brown fine to medium Sand, trace coarse Sand, medium dense-damp | | | | | | | |
| | X | 24 | | | | | 3 | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

# BORING NO. B-44

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California

DRILLING DATE: 7/16/21
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Jamie Hayward

WATER DEPTH: Dry
CAVE DEPTH: 53 feet
READING TAKEN: At Completion

| DEPTH (FEET) | SAMPLE | BLOW COUNT | POCKET PEN. (TSF) | GRAPHIC LOG | DESCRIPTION (Continued) | DRY DENSITY (PCF) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PASSING #200 SIEVE (%) | ORGANIC CONTENT (%) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Brown fine to medium Sand, trace coarse Sand, medium dense-damp | | | | | | | |
| | | | | | OLDER ALLUVIUM: Gray Brown fine to coarse Sand, trace fine to coarse Gravel, dense-damp | | | | | | | |
| | | 43 | | | | | 3 | | | | | |
| 40 | | | | | | | | | | | | |
| | | 45 | | | | | 4 | | | | | |
| 45 | | | | | | | | | | | | |
| | | | | | Gray Brown fine Sand, trace Silt, dense-damp | | | | | | | |
| | | 56 | | | | 107 | 6 | | | | | |
| | | | | | Brown Silty fine to coarse Sand, trace fine to coarse Gravel, slightly cemented, dense to very dense-damp | | | | | | | |
| | | 67/12" | | | | 121 | 7 | | | | | |
| 50 | | 97/11" | | | | 110 | 5 | | | | | |
| | | 50/5" | | | | 113 | 4 | | | | | |
| 55 | | 50/4" | | | | 112 | 3 | | | | | |
| 60 | | 32 | | | | | | | | | | No Sample Recovery |
| | | | | | Boring Terminated at 60' | | | | | | | |

TBL 21G133.GPJ SOCALGEO.GDT 8/12/21

# SOUTHERN CALIFORNIA GEOTECHNICAL

**TRENCH NO. T-1**

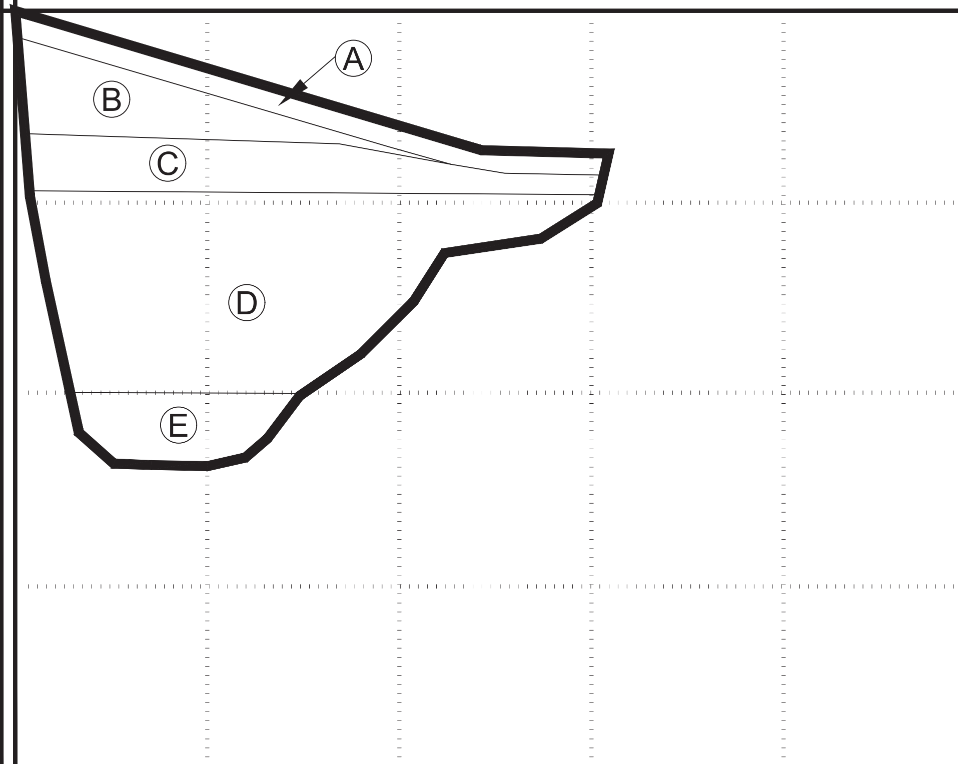
| | | |
|---|---|---|
| JOB NO.: 21G133-1 | EQUIPMENT USED: Backhoe | WATER DEPTH: Dry |
| PROJECT: Proposed E-Commerce Development | LOGGED BY: Daryl Kas | SEEPAGE DEPTH: Dry |
| LOCATION: Beaumont, California | ORIENTATION: S 50 W | READINGS TAKEN: At Completion |
| DATE: 3/16/2021 | ELEVATION: 2485 feet msl | |

| DEPTH | SAMPLE | DRY DENSITY (PCF) | MOISTURE (%) | EARTH MATERIALS DESCRIPTION |
|---|---|---|---|---|
| | b | | 6 | A: FILL: Dark Brown Silty fine Sand, trace fine root fibers, abundantly porous, damp - loose |
| | | | | B: FILL: Gray Brown fine Sandy Silt, damp - medium dense |
| | b | | 10 | C: OLDER ALLUVIUM: Brown Clayey fine Sand, moist - medium dense |
| 5 | b | | 9 | |
| | | | | D: OLDER ALLUVIUM: Brown Silty fine Sand, damp - medium dense |
| | b | | 7 | |
| 10 | | | | E: OLDER ALLUVIUM: Brown Clayey fine Sand, moist - medium dense to dense |
| | b | | 12 | |
| | | | | Trench Terminated @ 12 feet |
| 15 | | | | |

## GRAPHIC REPRESENTATION

S 50 W

SCALE: 1" = 5'




KEY TO SAMPLE TYPES:
B - BULK SAMPLE (DISTURBED)
R - RING SAMPLE 2-1/2" DIAMETER (RELATIVELY UNDISTURBED)

**TRENCH LOG**

**PLATE B-45**

# SOUTHERN CALIFORNIA GEOTECHNICAL

**TRENCH NO. T-2**

JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DATE: 3/16/2021

EQUIPMENT USED: Backhoe
LOGGED BY: Daryl Kas
ORIENTATION: N 20 E
ELEVATION: 2448 feet msl

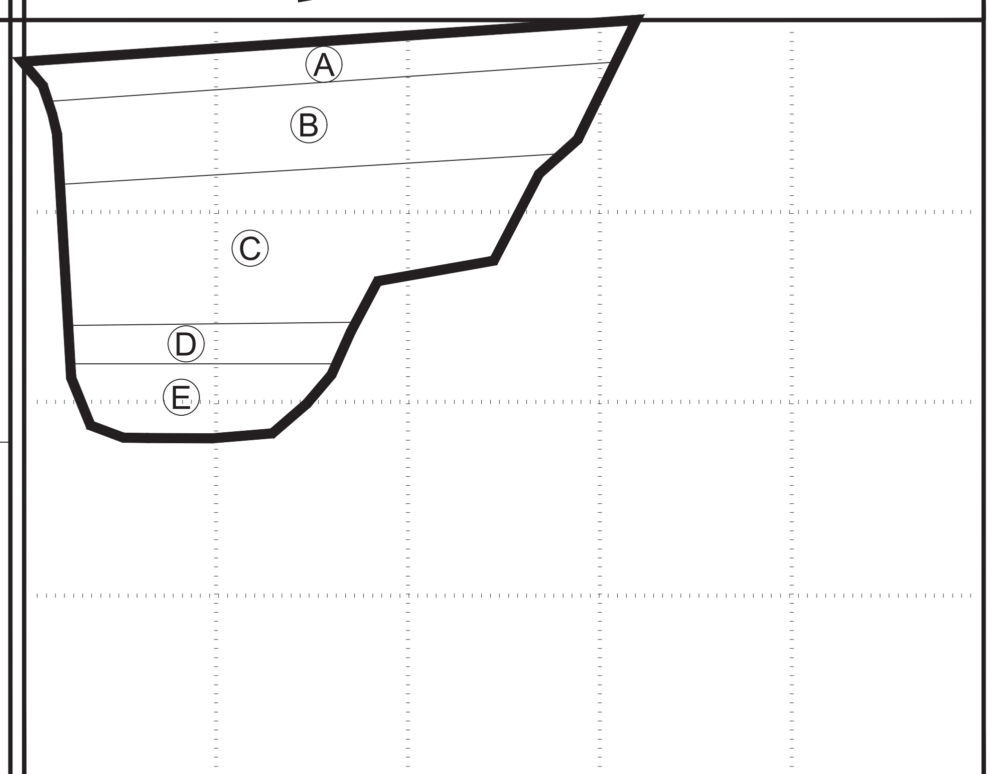
WATER DEPTH: Dry
SEEPAGE DEPTH: Dry
READINGS TAKEN: At Completion

| DEPTH | SAMPLE | DRY DENSITY (PCF) | MOISTURE (%) | EARTH MATERIALS DESCRIPTION |
|---|---|---|---|---|
| | b | | 6 | |
| | b | | 5 | A: ALLUVIUM: Gray Brown Silty fine Sand, abundant root fibers, abundantly porous, damp - loose<br>B: OLDER ALLUVIUM: Red Brown Clayey fine Sand, little medium to coarse Sand, moist - medium dense |
| | b | | 10 | |
| 5 | b | | 4 | C: OLDER ALLUVIUM: Brown Silty fine Sand, little medium Sand, damp - medium dense |
| | b | | 3 | D: OLDER ALLUVIUM: Brown fine to coarse Sand, trace Silt, dry to damp - medium dense |
| 10 | b | | 5 | E: OLDER ALLUVIUM: Brown Silty fine to medium Sand, little coarse Sand, trace fine to coarse Gravel, damp - medium dense |
| | | | | Trench Terminated @ 11 feet |
| 15 | | | | |

## GRAPHIC REPRESENTATION

N 20 E

SCALE: 1" = 5'




KEY TO SAMPLE TYPES:
B - BULK SAMPLE (DISTURBED)
R - RING SAMPLE 2-1/2" DIAMETER
(RELATIVELY UNDISTURBED)

**TRENCH LOG**

**PLATE B-46**

# SOUTHERN CALIFORNIA GEOTECHNICAL

**TRENCH NO.**
**T-3**

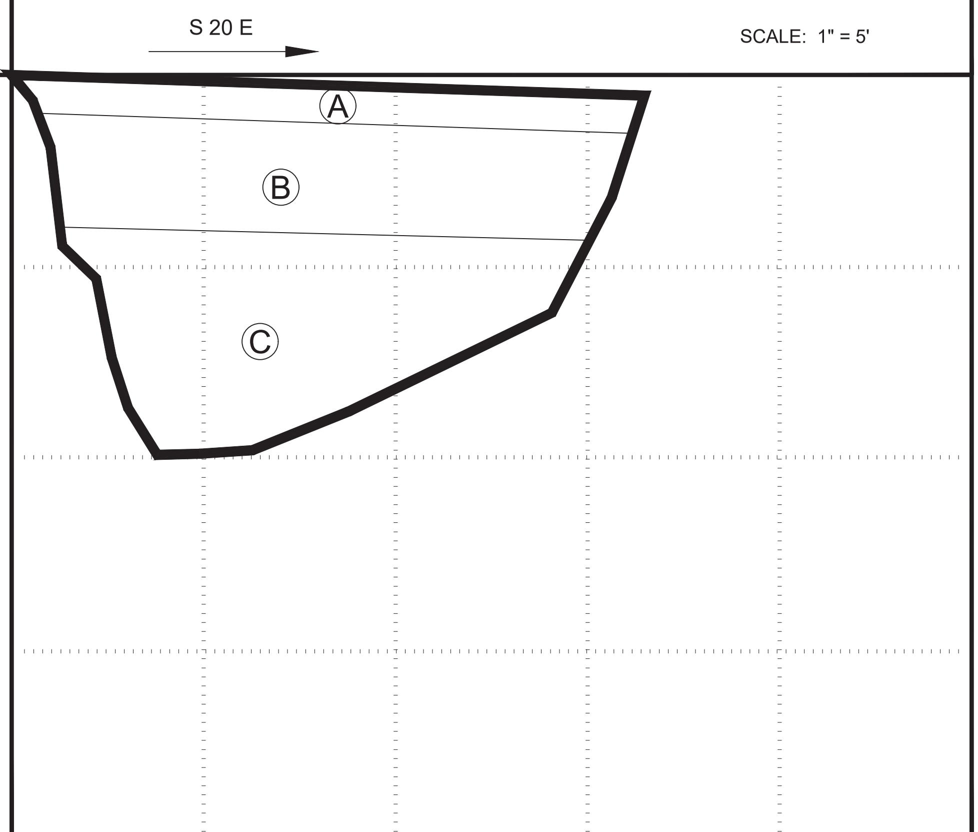
JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DATE: 3/16/2021

EQUIPMENT USED: Backhoe
LOGGED BY: Daryl Kas
ORIENTATION: S 20 E
ELEVATION: 2435 feet msl

WATER DEPTH: Dry
SEEPAGE DEPTH: Dry
READINGS TAKEN: At Completion

| DEPTH | SAMPLE | DRY DENSITY (PCF) | MOISTURE (%) | EARTH MATERIALS DESCRIPTION |
|---|---|---|---|---|
| | b | | 4 | A: ALLUVIUM: Gray Brown Silty fine Sand, abundant root fibers, porous, damp - loose |
| | b | | 10 | B: OLDER ALLUVIUM: Gray Brown Silty fine to medium Sand, little coarse Sand, trace fine Gravel, moist - moist |
| 5 | b | | 5 | |
| | | | | C: OLDER ALLUVIUM: Red Brown to Gray Brown Clayey fine to medium Sand, trace coarse Sand, slightly cemented, damp - dense |
| | b | | 5 | |
| 10 | b | | 5 | |
| | | | | Trench Terminated @ 10 feet |
| 15 | | | | |

## GRAPHIC REPRESENTATION




KEY TO SAMPLE TYPES:
B - BULK SAMPLE (DISTURBED)
R - RING SAMPLE 2-1/2" DIAMETER
(RELATIVELY UNDISTURBED)

**TRENCH LOG**

**PLATE B-47**

# SOUTHERN CALIFORNIA GEOTECHNICAL

## TRENCH NO. T-4

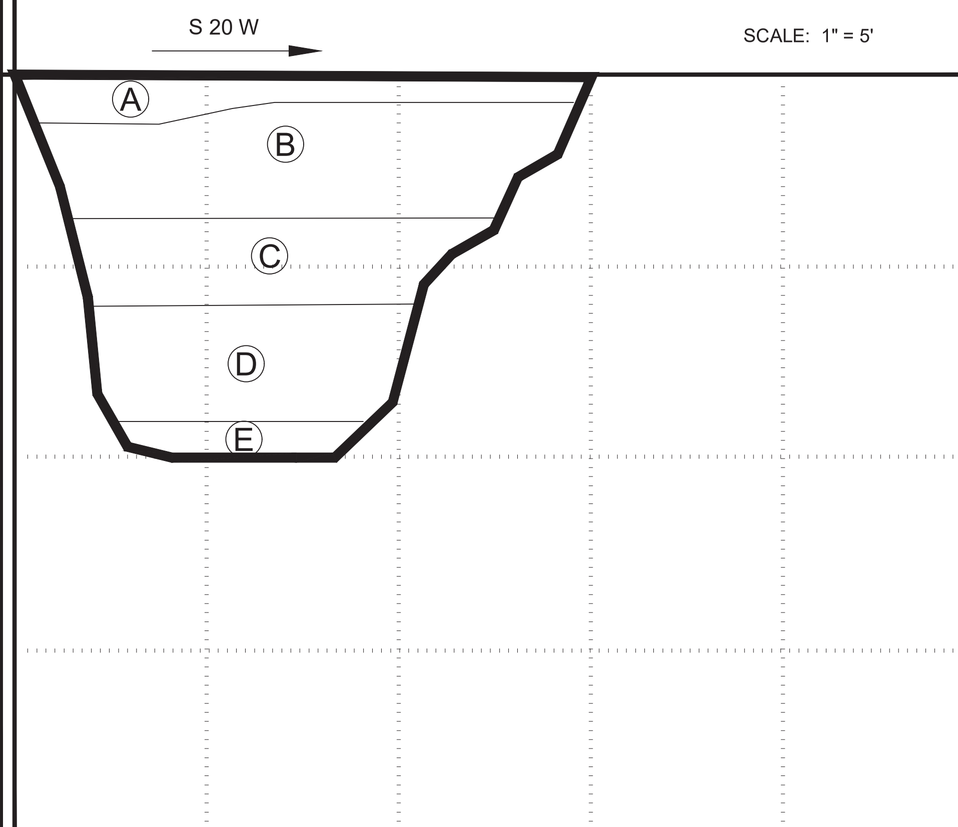
JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION:Beaumont, California
DATE: 3/16/2021

EQUIPMENT USED: Backhoe
LOGGED BY: Daryl Kas
ORIENTATION: S 20 W
ELEVATION: 2470 feet msl

WATER DEPTH: Dry
SEEPAGE DEPTH: Dry
READINGS TAKEN: At Completion

| DEPTH | SAMPLE | DRY DENSITY (PCF) | MOISTURE (%) | EARTH MATERIALS DESCRIPTION |
|---|---|---|---|---|
| | b | | 17 | A: ALLUVIUM: Dark Brown Clayey fine to medium Sand, trace fine root fibers, abundantly porous, moist to very moist - loose |
| | b | | 10 | B: OLDER ALLUVIUM: Gray Brown Silty fine to medium Sand, little coarse Sand, trace fine to coarse Gravel, moist - medium dense |
| 5 | b | | 5 | C: OLDER ALLUVIUM: Red Brown Clayey fine to medium Sand, damp - dense |
| | b | | 3 | D: OLDER ALLUVIUM: Brown Silty fine Sand, trace Clay, slightly cemented, damp - dense |
| | | | | E: OLDER ALLUVIUM: Brown Silty fine to medium Sand, little coarse Sand, trace fine to coarse Gravel, slightly cemented, damp - dense |
| 10 | | | | Trench Terminated @ 10 feet |
| 15 | | | | |

GRAPHIC REPRESENTATION




KEY TO SAMPLE TYPES:
B - BULK SAMPLE (DISTURBED)
R - RING SAMPLE 2-1/2" DIAMETER
(RELATIVELY UNDISTURBED)

TRENCH LOG

PLATE B-48

# SOUTHERN CALIFORNIA GEOTECHNICAL

**TRENCH NO. T-5**

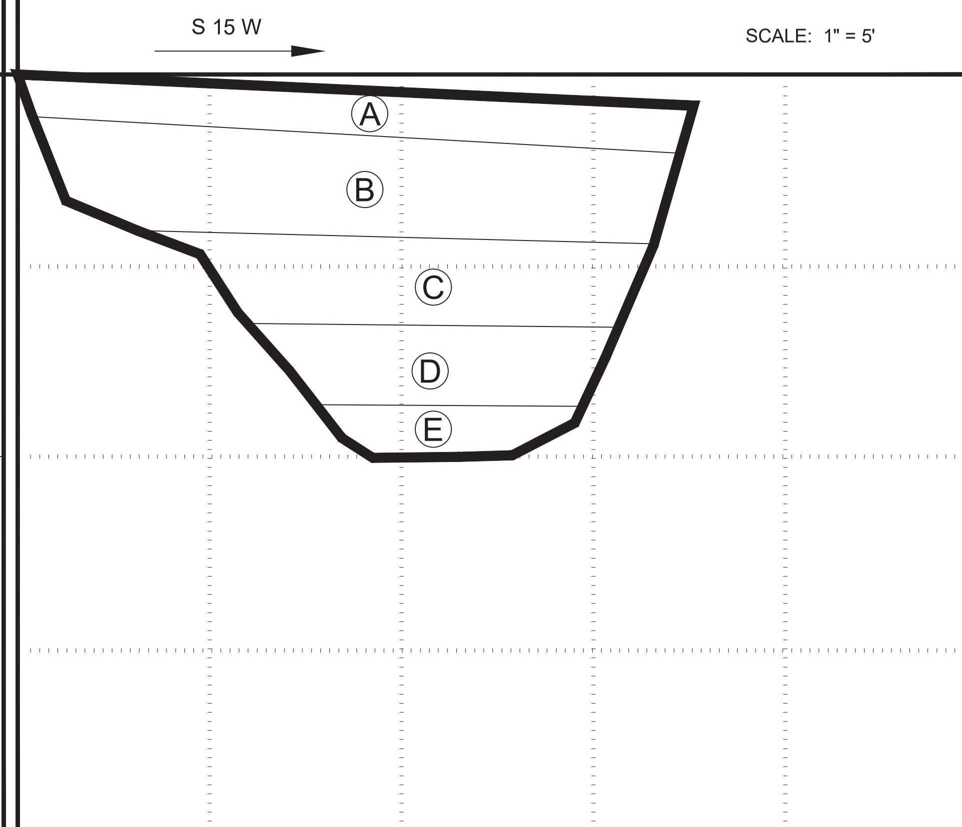
JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DATE: 3/16/2021

EQUIPMENT USED: Backhoe
LOGGED BY: Daryl Kas
ORIENTATION: S 15 W
ELEVATION: 2444 feet msl

WATER DEPTH: Dry
SEEPAGE DEPTH: Dry
READINGS TAKEN: At Completion

| DEPTH | SAMPLE | DRY DENSITY (PCF) | MOISTURE (%) | EARTH MATERIALS DESCRIPTION |
|---|---|---|---|---|
| | b | | 11 | A: ALLUVIUM: Dark Brown Silty fine to medium Sand, abundant fine root fibers, porous, moist - loose |
| | b | | 10 | B: ALLUVIUM: Gray Brown Silty fine to medium Sand, little coarse Sand, trace fine Gravel, trace fine root fibers, moist - loose to medium dense |
| 5 | | | | C: OLDER ALLUVIUM: Red Brown to Gray Brown Clayey fine Sand, damp to moist - dense |
| | b | | 4 | D: OLDER ALLUVIUM Brown Clayey fine to medium Sand, little coarse Sand, damp - dense |
| | b | | 2 | E: OLDER ALLUVIUM: Brown fine to coarse Sand, little fine to coarse Gravel, trace Silt, dry to damp - dense |
| 10 | | | | Trench Terminated @ 10 feet |
| 15 | | | | |

## GRAPHIC REPRESENTATION




KEY TO SAMPLE TYPES:
B - BULK SAMPLE (DISTURBED)
R - RING SAMPLE 2-1/2" DIAMETER
(RELATIVELY UNDISTURBED)

**TRENCH LOG**

**PLATE B-49**

# SOUTHERN CALIFORNIA GEOTECHNICAL

**TRENCH NO.**
**T-6**

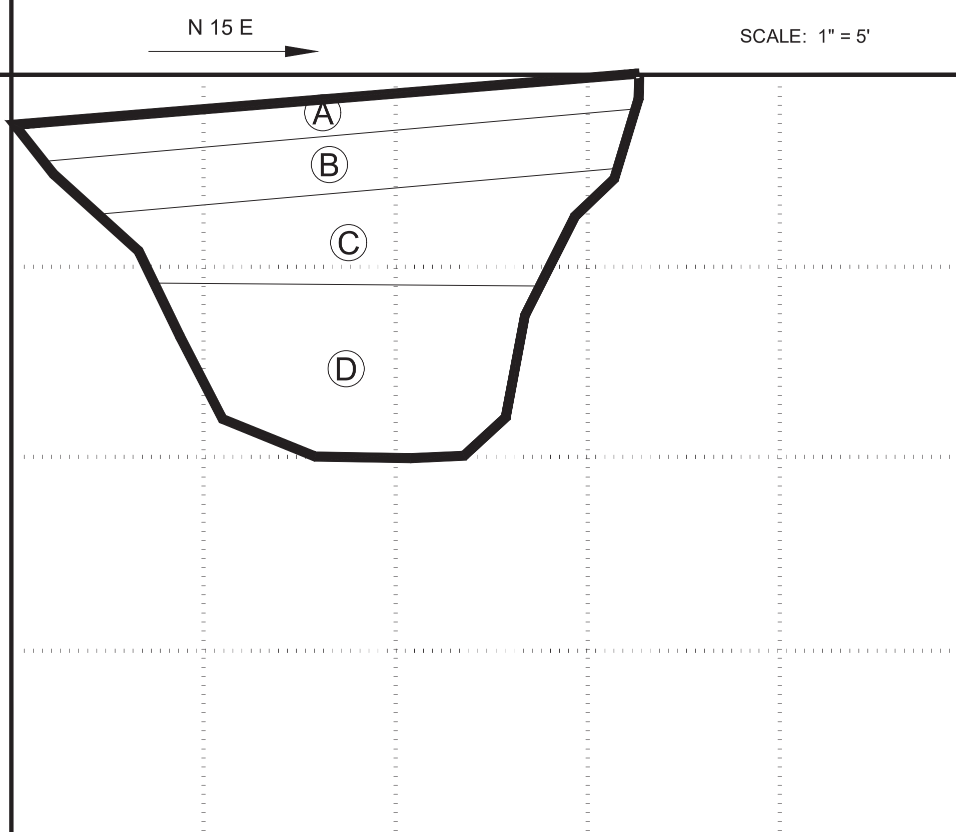
JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DATE: 3/16/2021

EQUIPMENT USED: Backhoe
LOGGED BY: Daryl Kas
ORIENTATION: N 15 E
ELEVATION: 2475 feet msl

WATER DEPTH: Dry
SEEPAGE DEPTH: Dry
READINGS TAKEN: At Completion

| DEPTH | SAMPLE | DRY DENSITY (PCF) | MOISTURE (%) | EARTH MATERIALS DESCRIPTION |
|---|---|---|---|---|
| | b | | 12 | A: ALLUVIUM: Brown Clayey fine Sand, trace medium to coarse Sand, trace fine root fibers, slightly porous, moist - loose |
| | | | | B: ALLUVIUM: Brown Silty fine to medium Sand, moist - damp |
| | b | | 10 | C: OLDER ALLUVIUM: Red Brown to Brown Clayey fine to medium sand, trace coarse Sand, slightly cemented, damp - dense |
| 5 | b | | 5 | |
| | b | | 5 | D: OLDER ALLUVIUM: Silty fine to medium Sand: Brown Silty fine to coarse Sand, damp - dense |
| 10 | b | | 5 | Trench Terminated @ 10 feet |
| 15 | | | | |

GRAPHIC REPRESENTATION




KEY TO SAMPLE TYPES:
B - BULK SAMPLE (DISTURBED)
R - RING SAMPLE 2-1/2" DIAMETER
(RELATIVELY UNDISTURBED)

**TRENCH LOG**

**PLATE B-50**

# SOUTHERN CALIFORNIA GEOTECHNICAL

**TRENCH NO.
T-7**

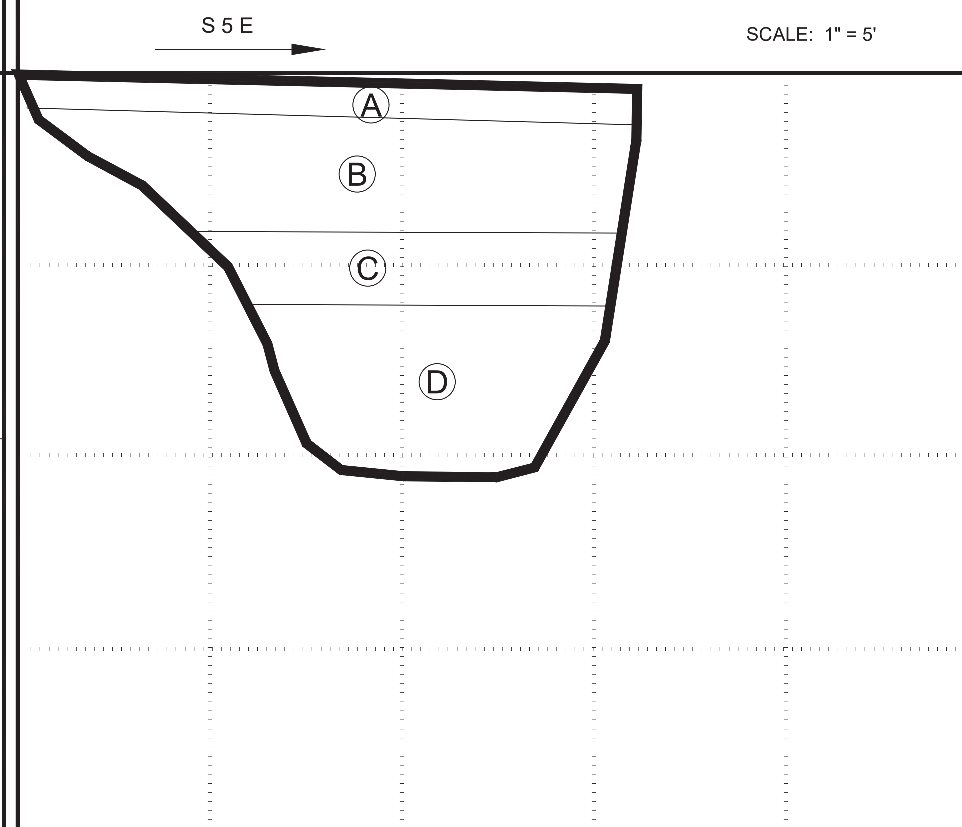
JOB NO.: 21G133-1
PROJECT: Proposed E-Commerce Development
LOCATION: Beaumont, California
DATE: 3/16/2021

EQUIPMENT USED: Backhoe
LOGGED BY: Daryl Kas
ORIENTATION: S 5 E
ELEVATION: 2497 feet msl

WATER DEPTH: Dry
SEEPAGE DEPTH: Dry
READINGS TAKEN: At Completion

| DEPTH | SAMPLE | DRY DENSITY (PCF) | MOISTURE (%) | EARTH MATERIALS DESCRIPTION |
|---|---|---|---|---|
| | b | | 10 | A: ALLUVIUM: Dark Brown Clayey fine to medium Sand, abundant root fibers, porous, damp to moist - loose |
| | b | | 10 | B: ALLUVIUM: Brown Silty fine to medium Sand, little coarse Sand, trace fine root fibers, slightly porous, damp to moist - loose to medium dense |
| 5 | b | | 7 | C: OLDER ALLUVIUM: Brown Silty fine to medium Sand, little coarse Sand, damp - medium dense |
| | b | | 4 | |
| | b | | 4 | D: OLDER ALLUVIUM: Brown fine to coarse Sand, little fine to coarse Sand, trace Silt, damp - medium dense |
| 10 | | | | Trench Terminated @ 9.5 feet |
| 15 | | | | |

GRAPHIC REPRESENTATION



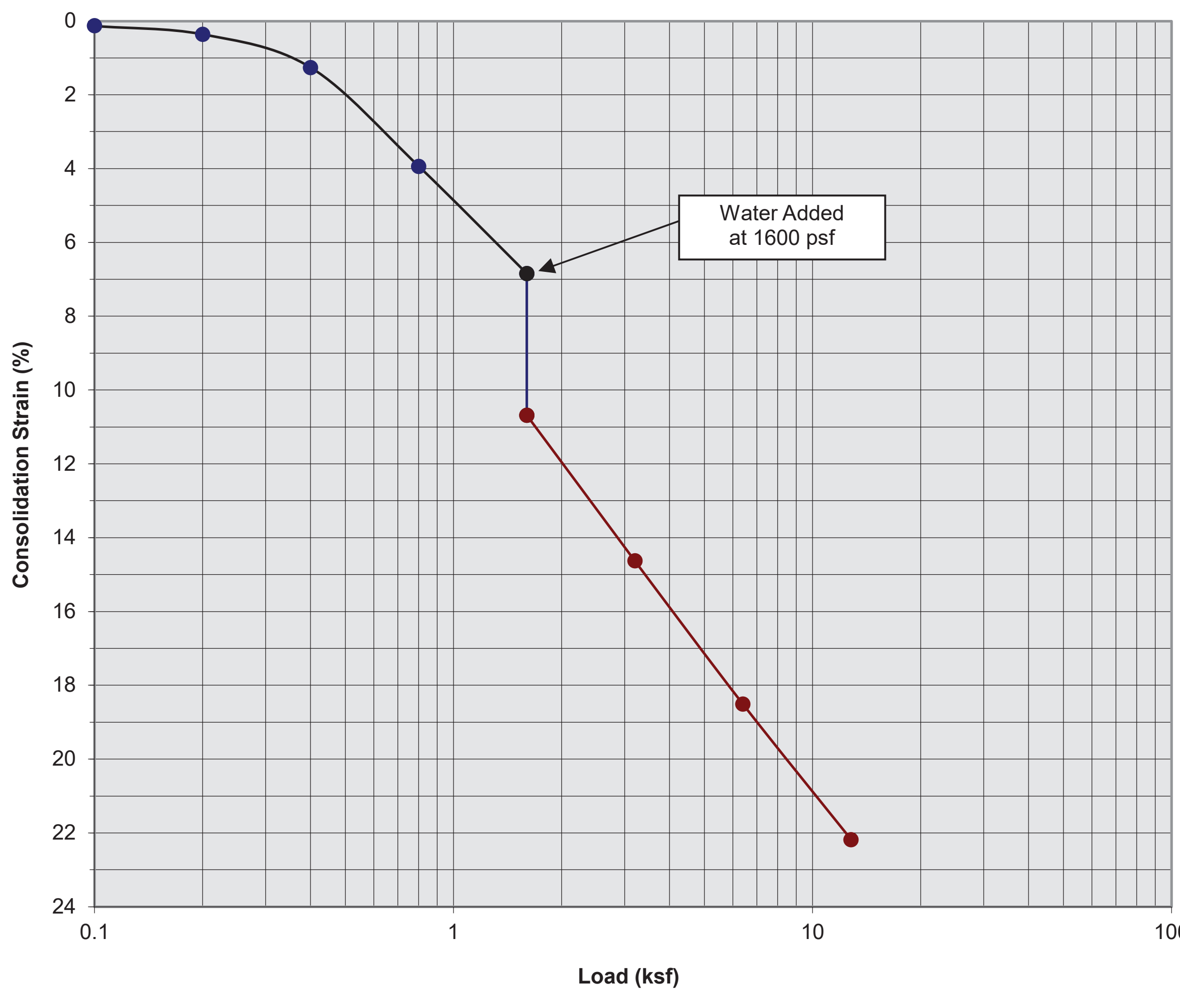

KEY TO SAMPLE TYPES:
B - BULK SAMPLE (DISTURBED)
R - RING SAMPLE 2-1/2" DIAMETER
(RELATIVELY UNDISTURBED)

**TRENCH LOG**

**PLATE B-51**

# APPENDIX C

## Consolidation/Collapse Test Results




Classification: Red Brown fine Sandy Clay

| | | | |
|---|---|---|---|
| Boring Number: | B-5 | Initial Moisture Content (%) | 10 |
| Sample Number: | --- | Final Moisture Content (%) | 17 |
| Depth (ft) | 3 to 4 | Initial Dry Density (pcf) | 107.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 137.2 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 3.84 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 1**

SOUTHERN CALIFORNIA GEOTECHNICAL
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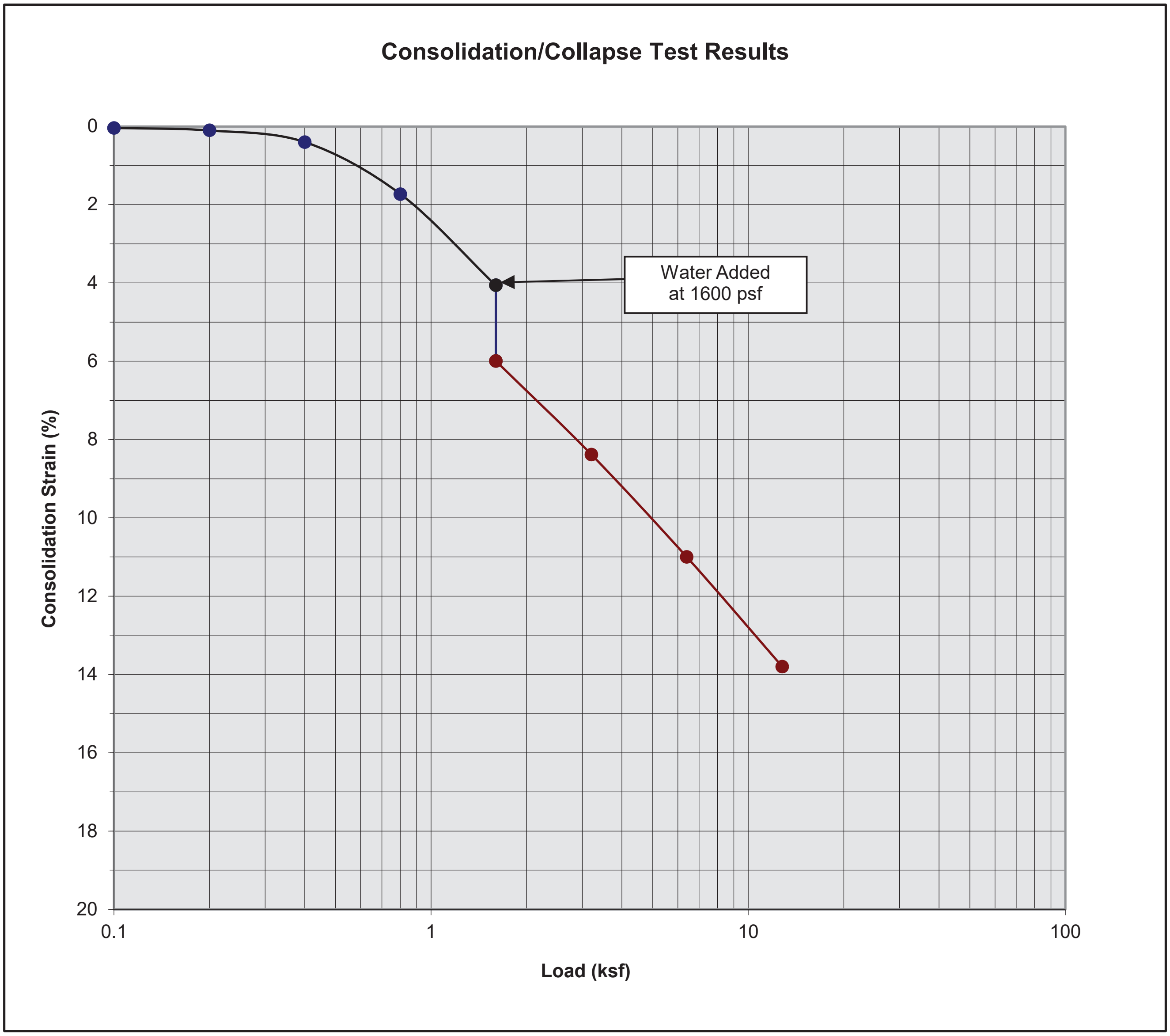


Classification: Red Brown Silty fine Sand to fine Sandy Silt

| | | | |
|---|---|---|---|
| Boring Number: | B-5 | Initial Moisture Content (%) | 10 |
| Sample Number: | --- | Final Moisture Content (%) | 15 |
| Depth (ft) | 5 to 6 | Initial Dry Density (pcf) | 104.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 120.3 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 1.93 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 2**

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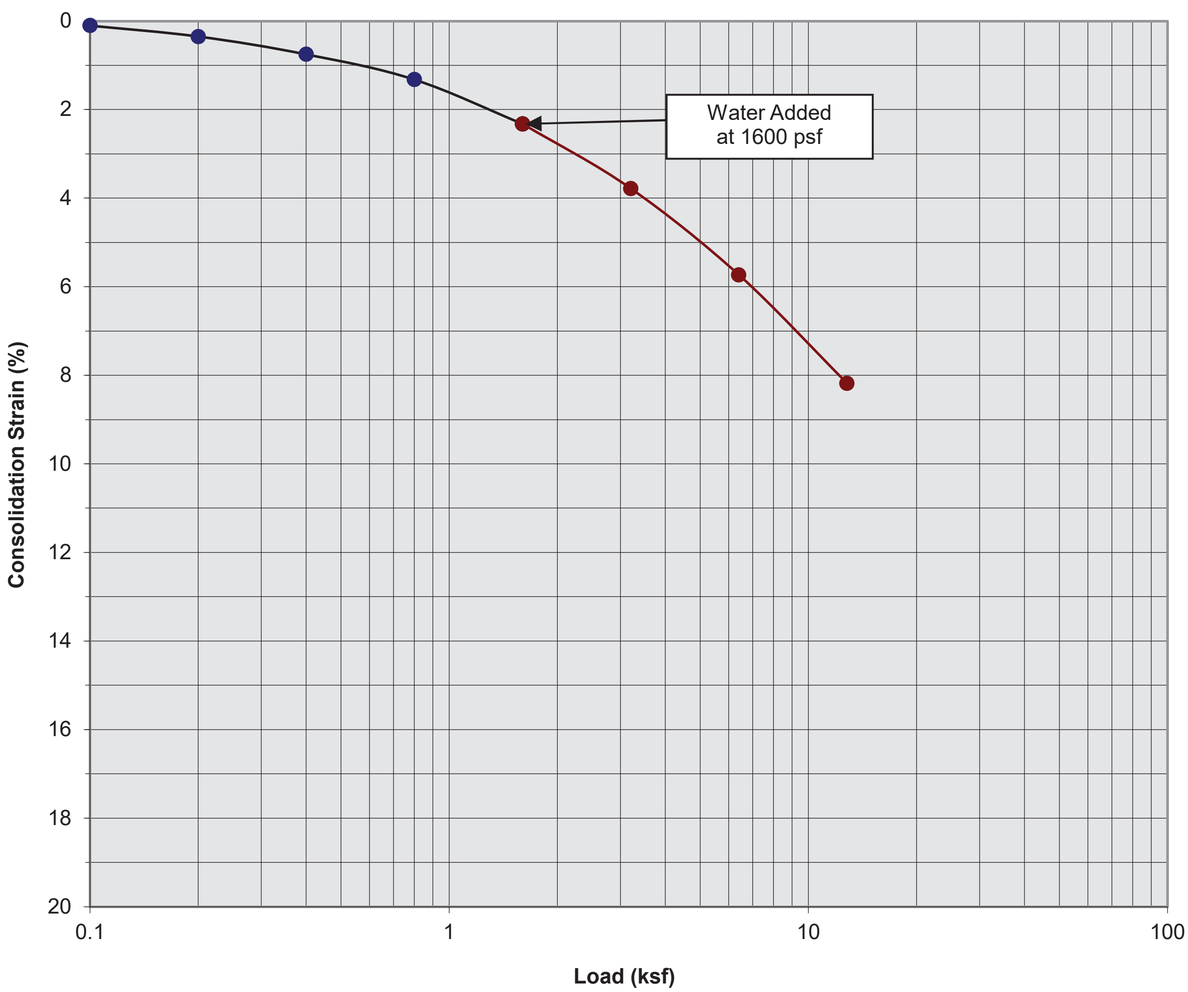
## Consolidation/Collapse Test Results




Classification: Red Brown Silty fine Sand to fine Sandy Silt

| | | | |
|---|---|---|---|
| Boring Number: | B-5 | Initial Moisture Content (%) | 10 |
| Sample Number: | --- | Final Moisture Content (%) | 15 |
| Depth (ft) | 7 to 8 | Initial Dry Density (pcf) | 115.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 125.0 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.00 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 3**

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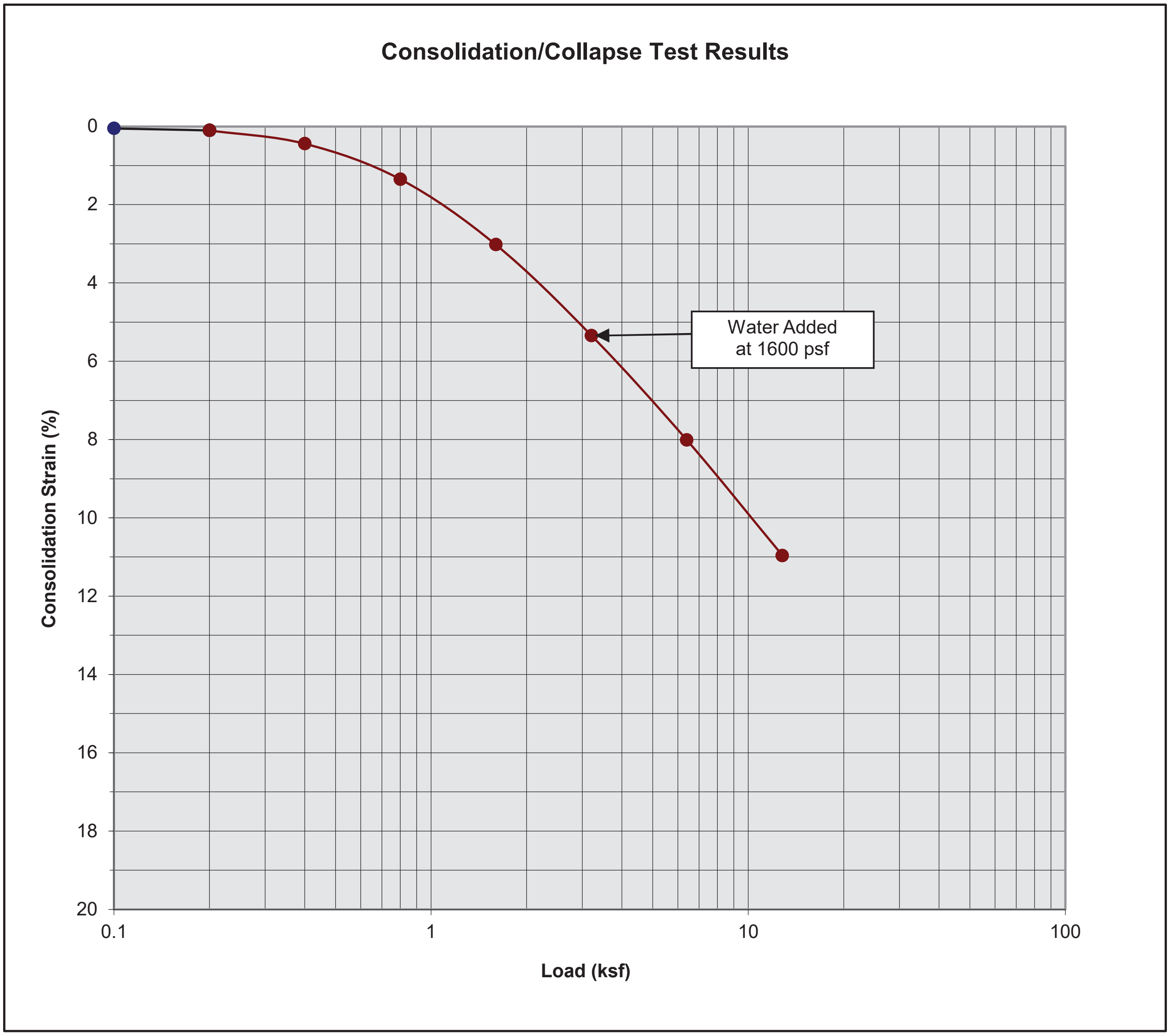


Classification: Red Brown Silty fine Sand to fine Sandy Silt, little Clay, trace fine Gravel

| | | | |
|---|---|---|---|
| Boring Number: | B-5 | Initial Moisture Content (%) | 16 |
| Sample Number: | --- | Final Moisture Content (%) | 18 |
| Depth (ft) | 9 to 10 | Initial Dry Density (pcf) | 105.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 117.5 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.00 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 4**

SOUTHERN CALIFORNIA GEOTECHNICAL
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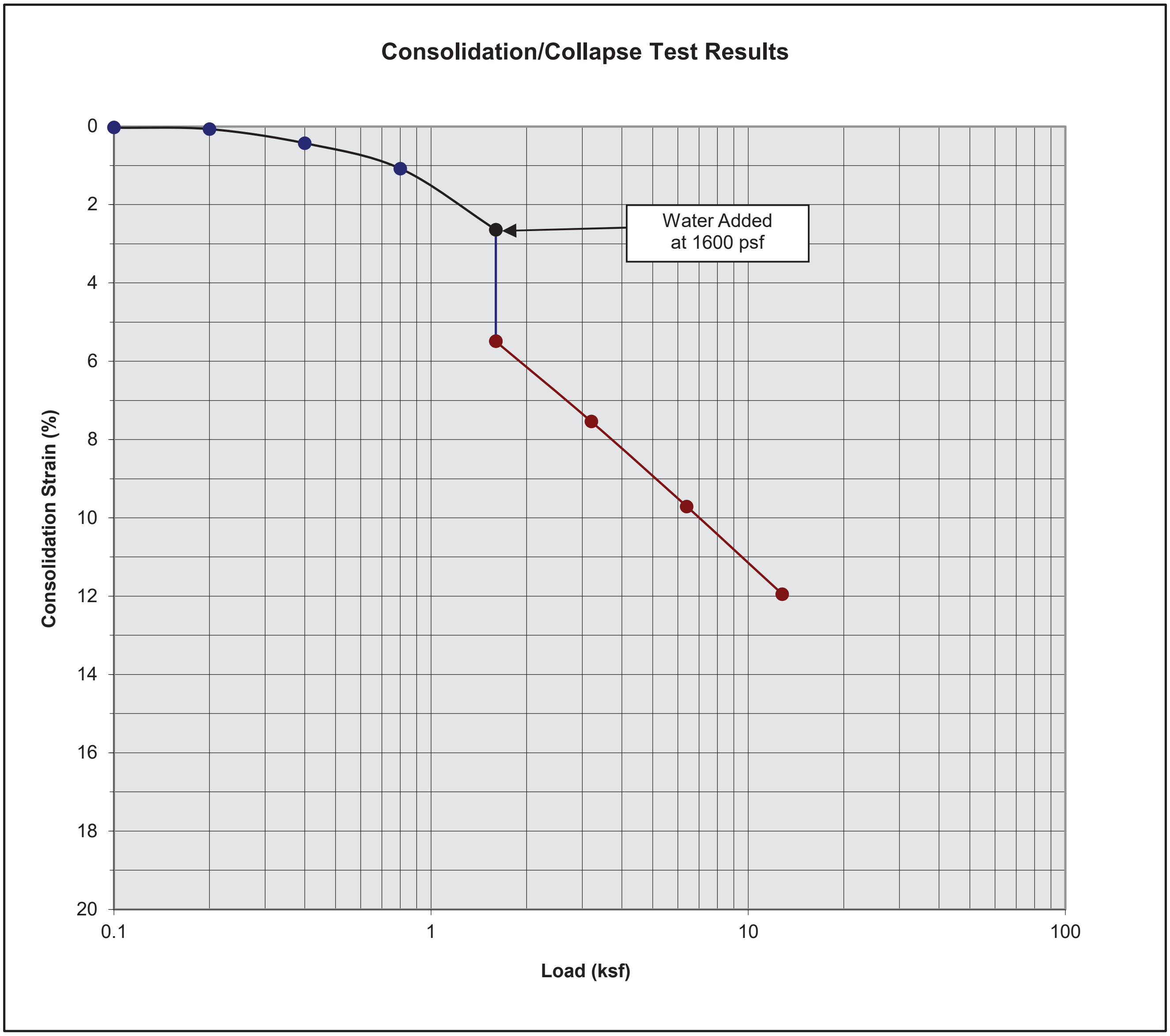


Classification: Gray Brown Silty fine to medium Sand, trace coarse Sand, trace coarse Gravel

| | | | |
|---|---|---|---|
| Boring Number: | B-11 | Initial Moisture Content (%) | 14 |
| Sample Number: | --- | Final Moisture Content (%) | 18 |
| Depth (ft) | 3 to 4 | Initial Dry Density (pcf) | 113.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 128.1 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 2.85 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 5**

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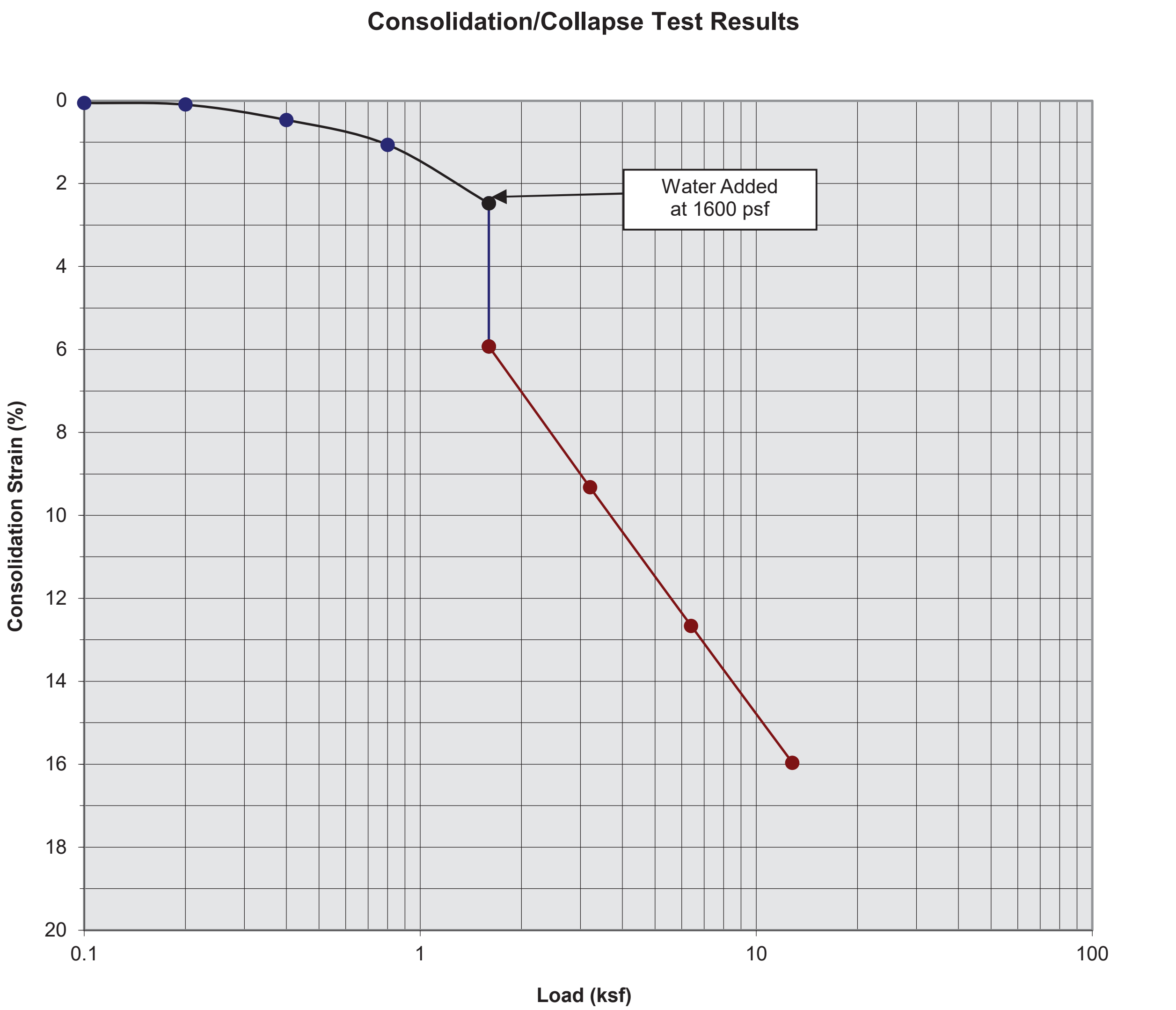


Classification: Red Brown Silty fine Sand, trace Clay

| | | | |
|---|---|---|---|
| Boring Number: | B-11 | Initial Moisture Content (%) | 6 |
| Sample Number: | --- | Final Moisture Content (%) | 17 |
| Depth (ft) | 5 to 6 | Initial Dry Density (pcf) | 100.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 118.7 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 3.45 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 6**

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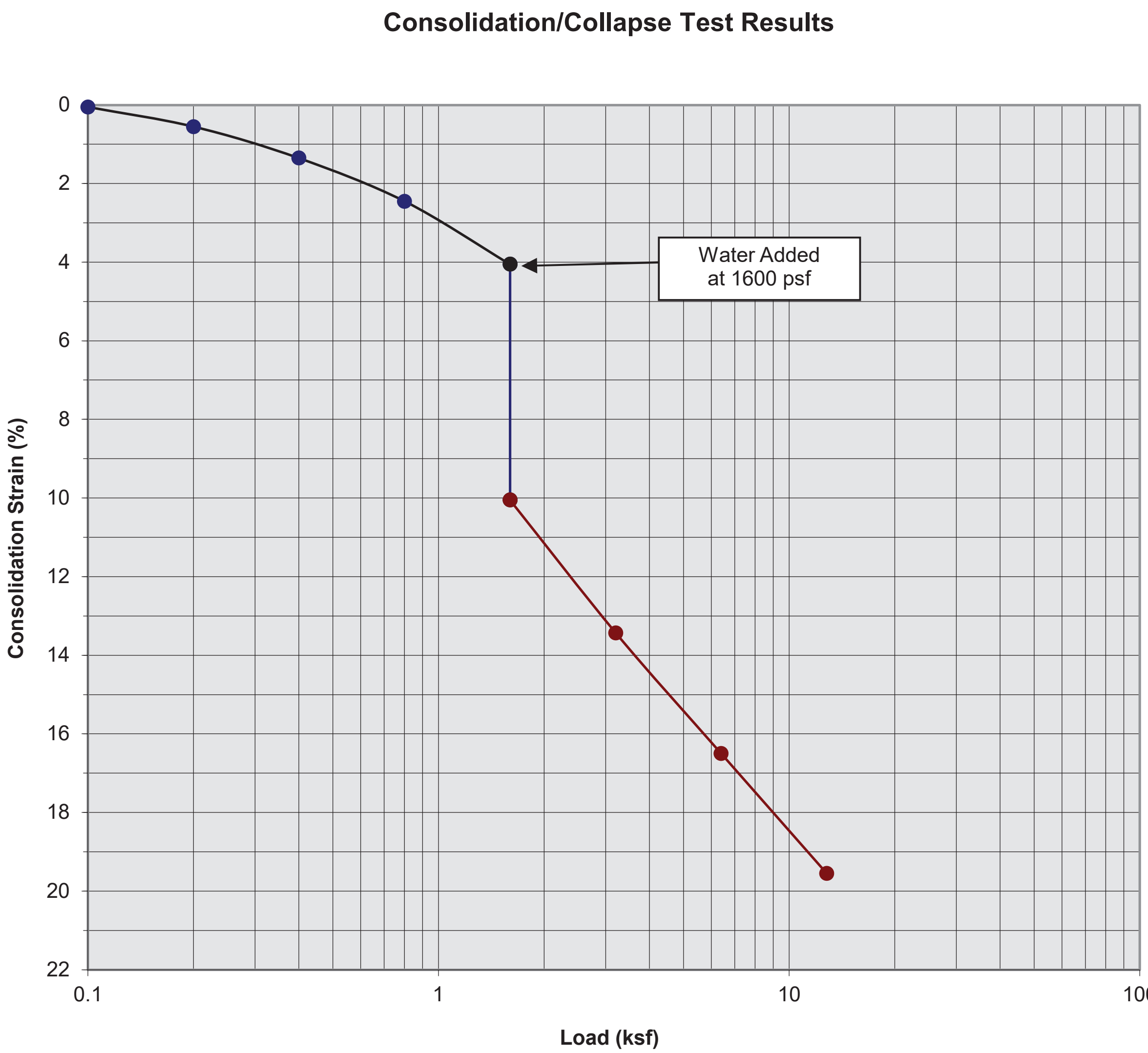


Classification: Red Brown Silty fine Sand, trace Clay

| | | | |
|---|---|---|---|
| Boring Number: | B-11 | Initial Moisture Content (%) | 6 |
| Sample Number: | --- | Final Moisture Content (%) | 16 |
| Depth (ft) | 7 to 8 | Initial Dry Density (pcf) | 108.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 133.9 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 6.00 |

Proposed E-Commerce Development
Beaumont, California
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**PLATE C- 7**

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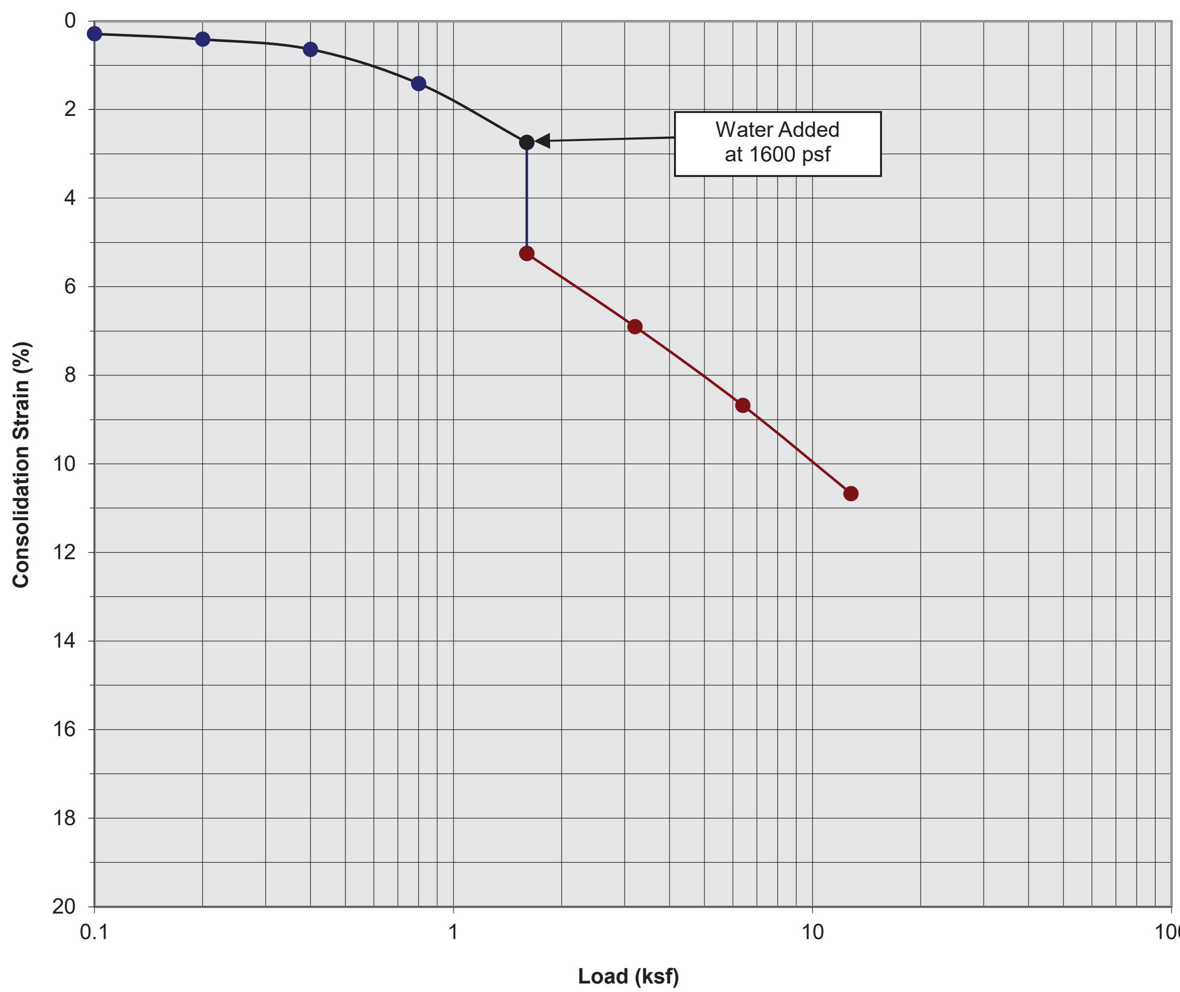
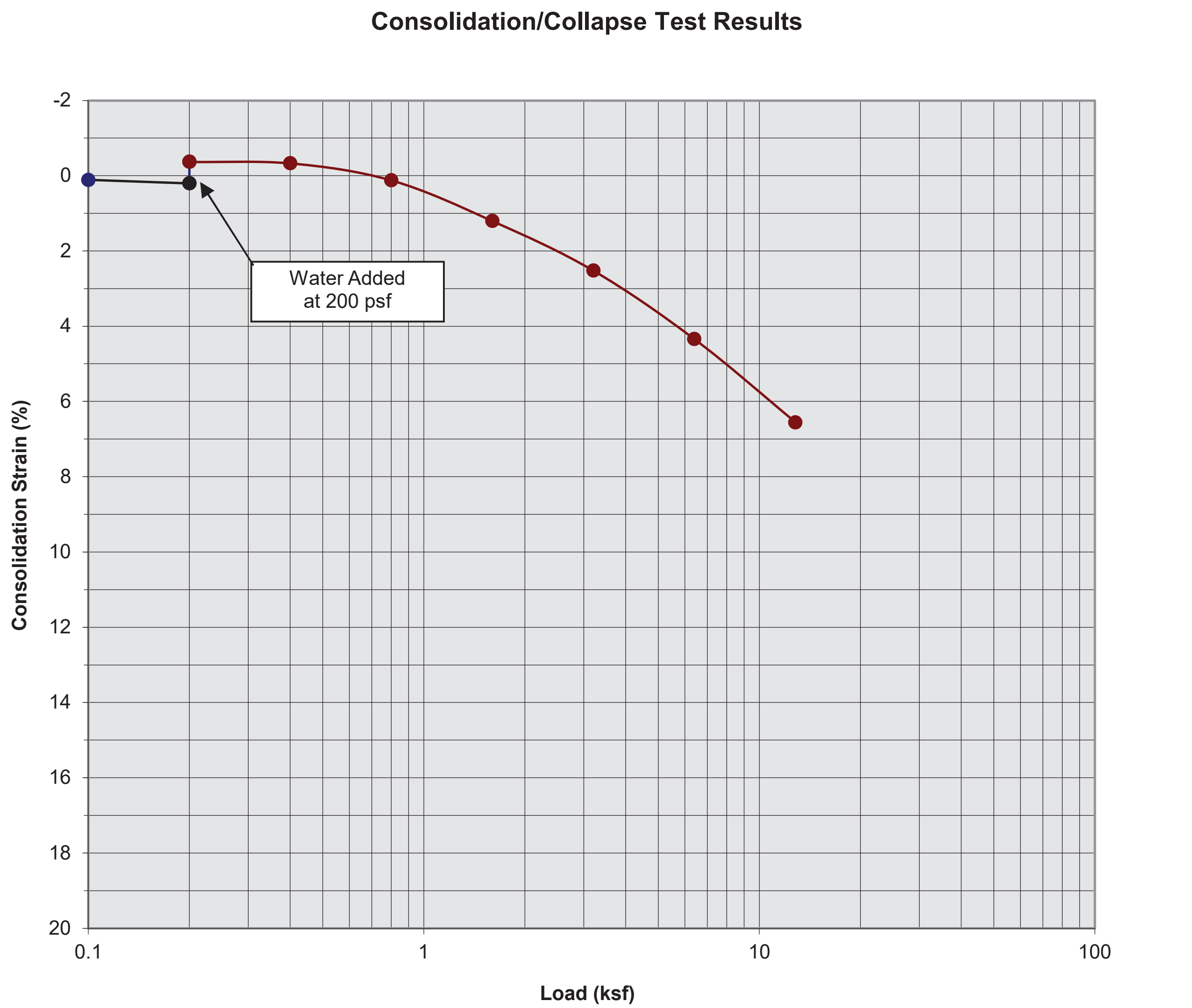
## Consolidation/Collapse Test Results




Classification: Red Brown Silty fine Sand, trace Clay

| | | | |
|---|---|---|---|
| Boring Number: | B-11 | Initial Moisture Content (%) | 11 |
| Sample Number: | --- | Final Moisture Content (%) | 16 |
| Depth (ft) | 9 to 10 | Initial Dry Density (pcf) | 98.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 109.0 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 2.51 |




Classification: Dark Red Brown fine Sandy Clay, trace medium Sand, trace Silt

| | | | |
|---|---|---|---|
| Boring Number: | B-12 | Initial Moisture Content (%) | 14 |
| Sample Number: | --- | Final Moisture Content (%) | 18 |
| Depth (ft) | 3 to 4 | Initial Dry Density (pcf) | 113.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 120.2 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | -0.57 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 9**

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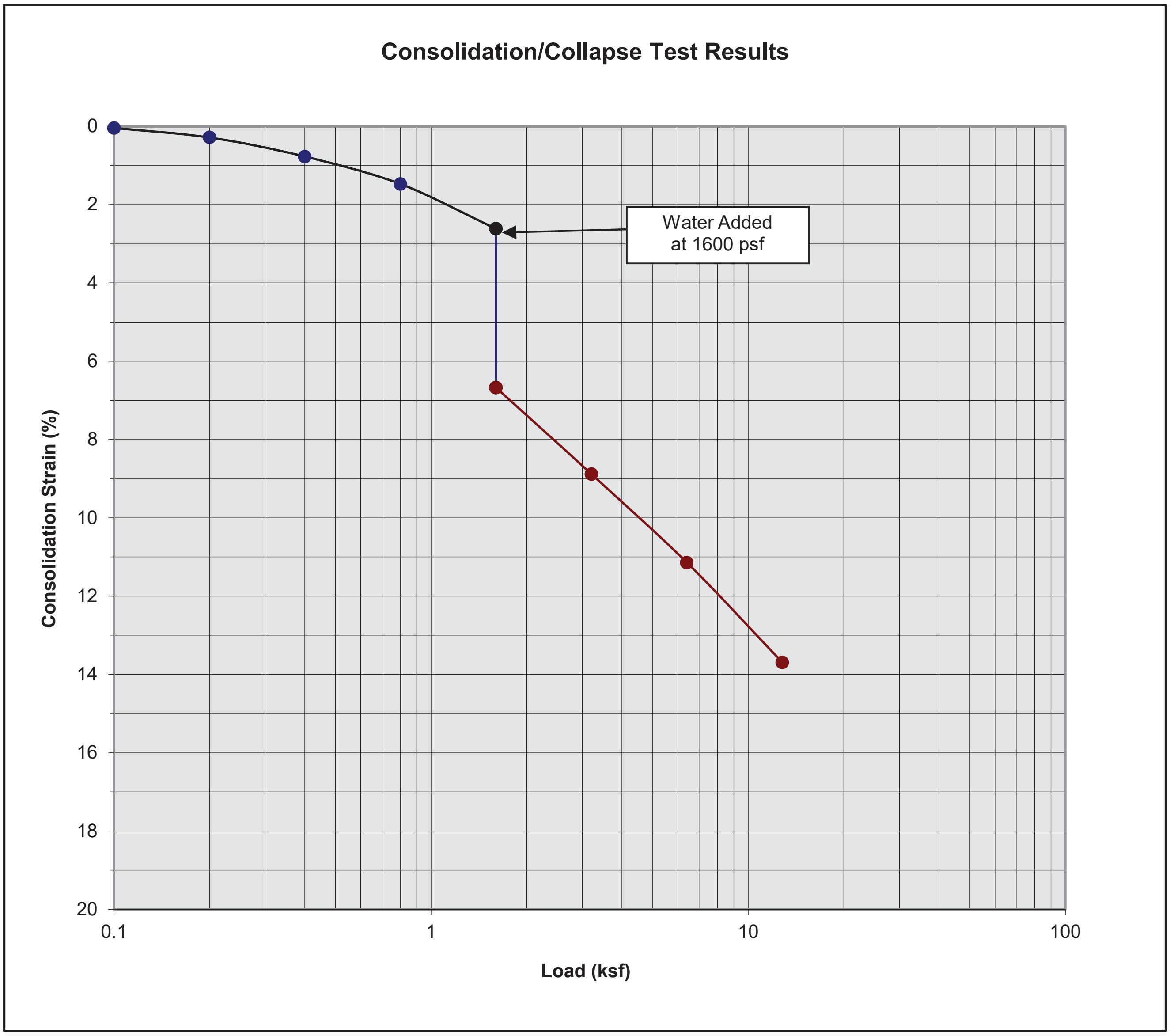


Classification: Red Brown Silty fine Sand, trace medium Sand

| | | | |
|---|---|---|---|
| Boring Number: | B-12 | Initial Moisture Content (%) | 6 |
| Sample Number: | --- | Final Moisture Content (%) | 17 |
| Depth (ft) | 5 to 6 | Initial Dry Density (pcf) | 100.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 115.6 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 4.06 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 10**

SOUTHERN CALIFORNIA GEOTECHNICAL
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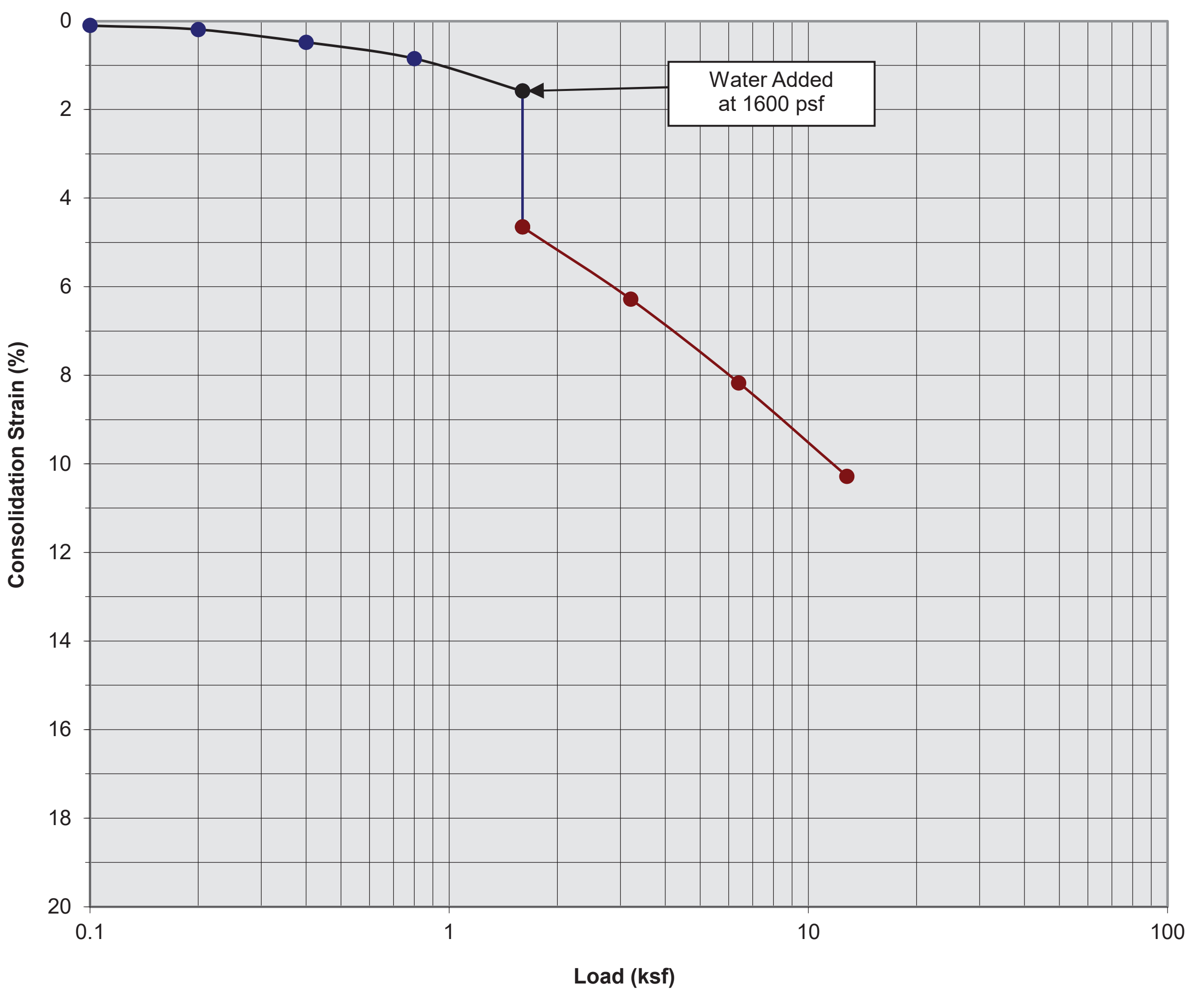
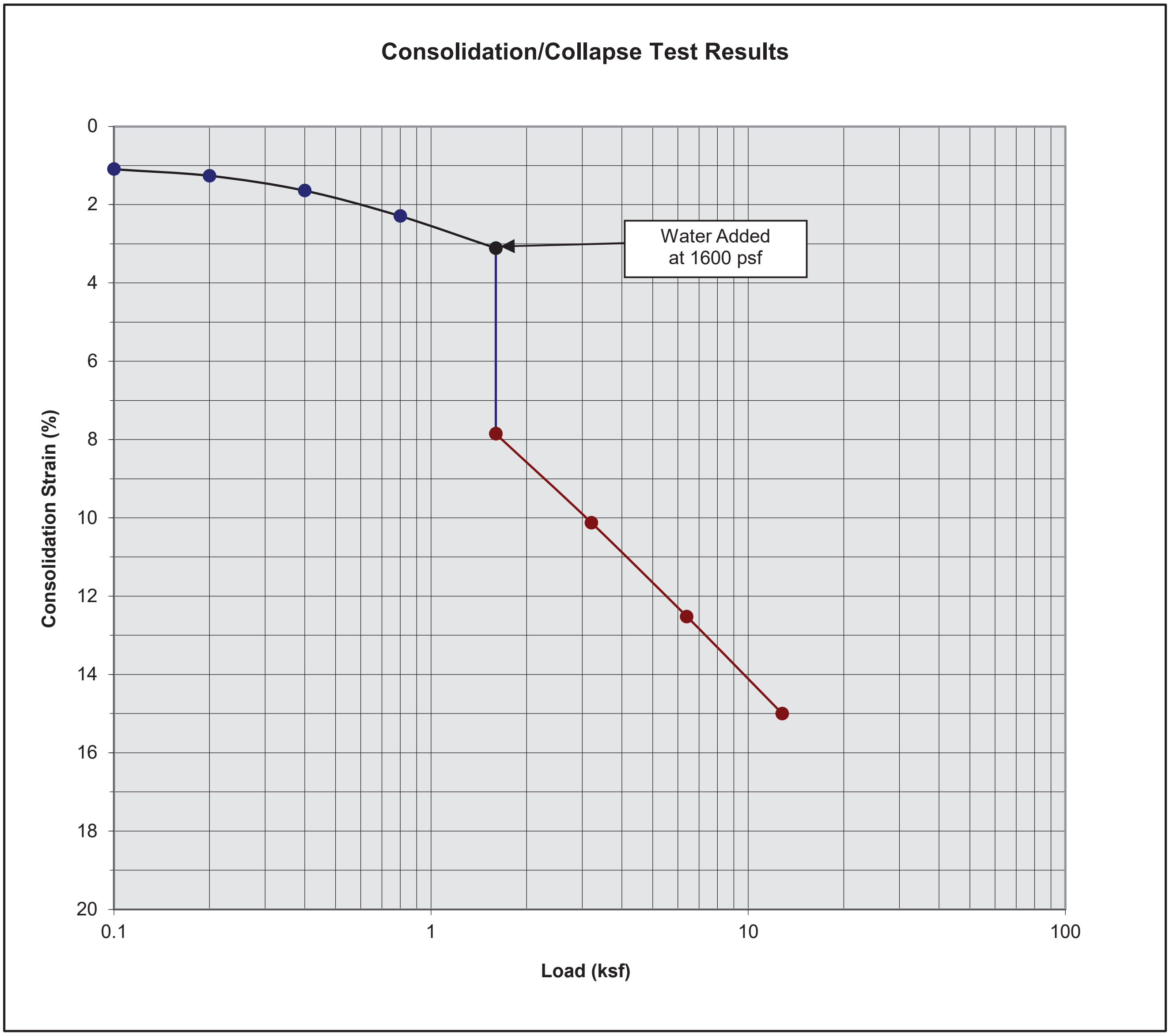
## Consolidation/Collapse Test Results




Classification: Brown Silty fine to medium Sand, trace coarse Sand

| | | | |
|---|---|---|---|
| Boring Number: | B-12 | Initial Moisture Content (%) | 5 |
| Sample Number: | --- | Final Moisture Content (%) | 15 |
| Depth (ft) | 7 to 8 | Initial Dry Density (pcf) | 108.1 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 119.1 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 3.07 |




Classification: Red Brown Silty fine Sand

| | | | |
|---|---|---|---|
| Boring Number: | B-12 | Initial Moisture Content (%) | 11 |
| Sample Number: | --- | Final Moisture Content (%) | 16 |
| Depth (ft) | 9 to 10 | Initial Dry Density (pcf) | 98.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 115.2 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 4.74 |

Proposed E-Commerce Development
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Project No. 21G133-1
**PLATE C- 12**

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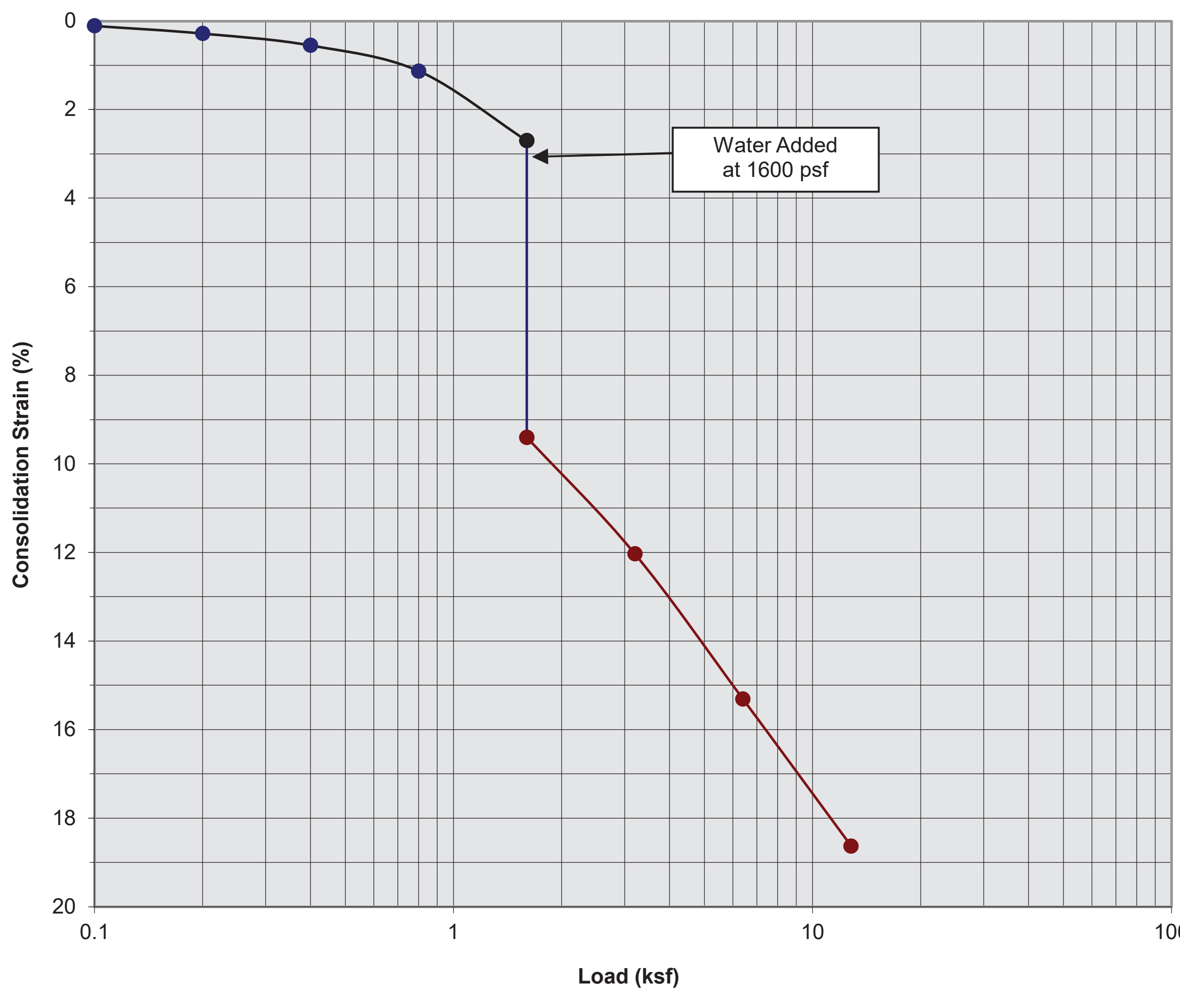
## Consolidation/Collapse Test Results




Classification: Gray Brown Silty fine to coarse Sand

| | | | |
|---|---|---|---|
| Boring Number: | B-12 | Initial Moisture Content (%) | 5 |
| Sample Number: | --- | Final Moisture Content (%) | 14 |
| Depth (ft) | 14 to 15 | Initial Dry Density (pcf) | 118.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 133.7 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 6.70 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 13**

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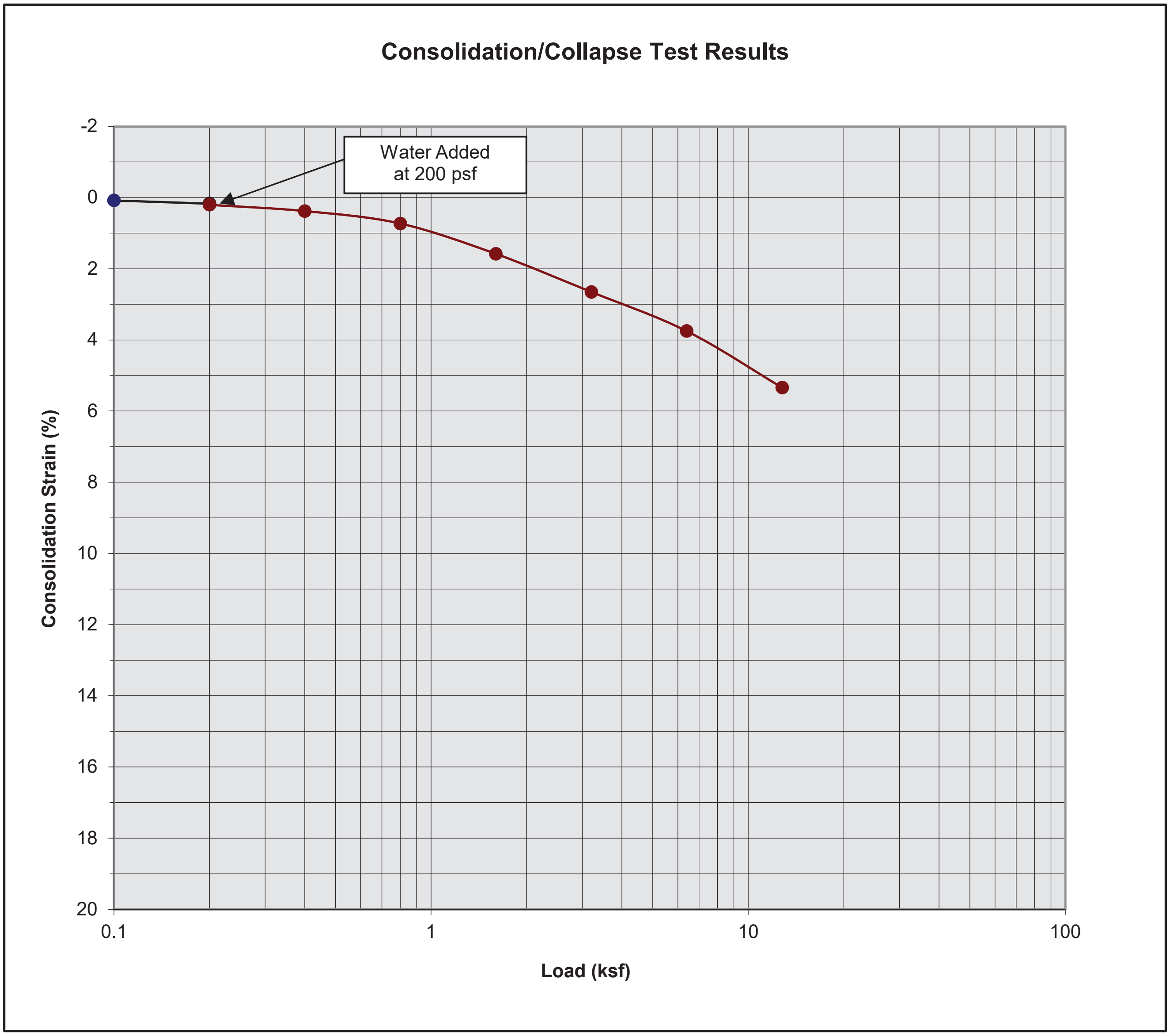


Classification: FILL: Red Brown fine to medium Sandy Clay

| | | | |
|---|---|---|---|
| Boring Number: | B-18 | Initial Moisture Content (%) | 15 |
| Sample Number: | --- | Final Moisture Content (%) | 14 |
| Depth (ft) | 3 to 4 | Initial Dry Density (pcf) | 114.9 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 121.7 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.03 |

Proposed E-Commerce Development
Beaumont, California
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**PLATE C- 14**

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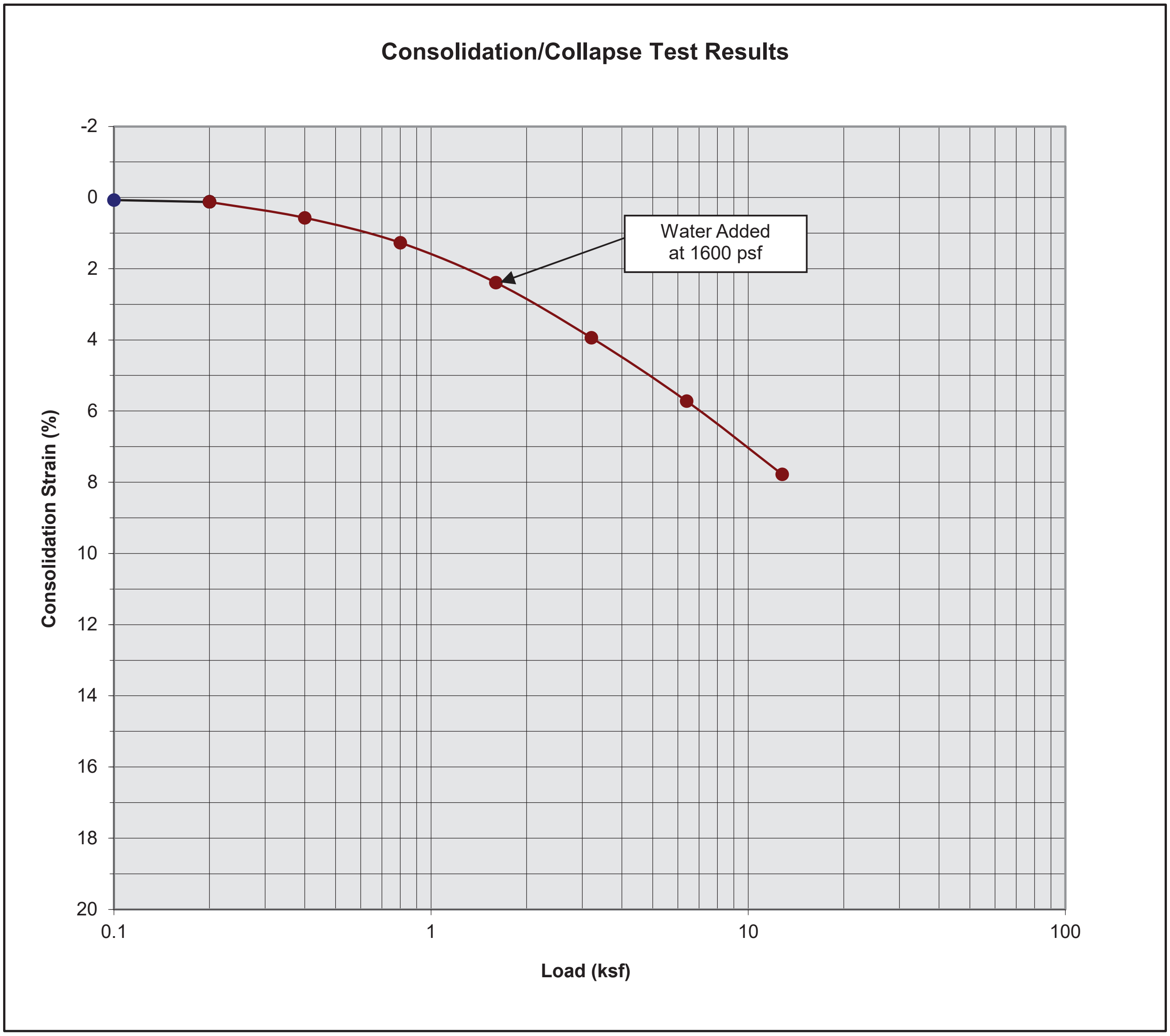


Classification: Red Brown Silty fine to coarse Sand, little Clay

| | | | |
|---|---|---|---|
| Boring Number: | B-18 | Initial Moisture Content (%) | 12 |
| Sample Number: | --- | Final Moisture Content (%) | 14 |
| Depth (ft) | 5 to 6 | Initial Dry Density (pcf) | 114.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 123.5 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.00 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 15**

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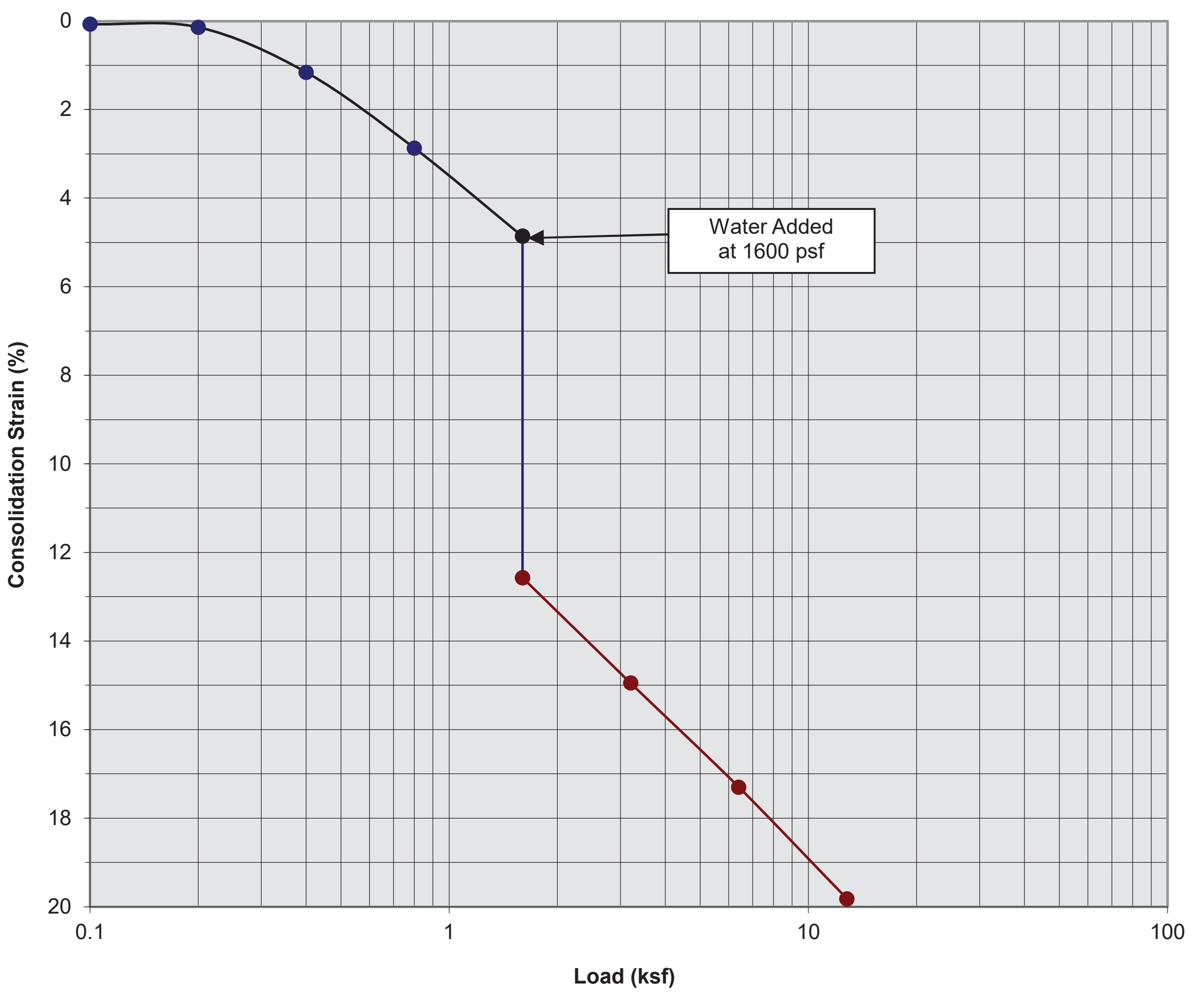
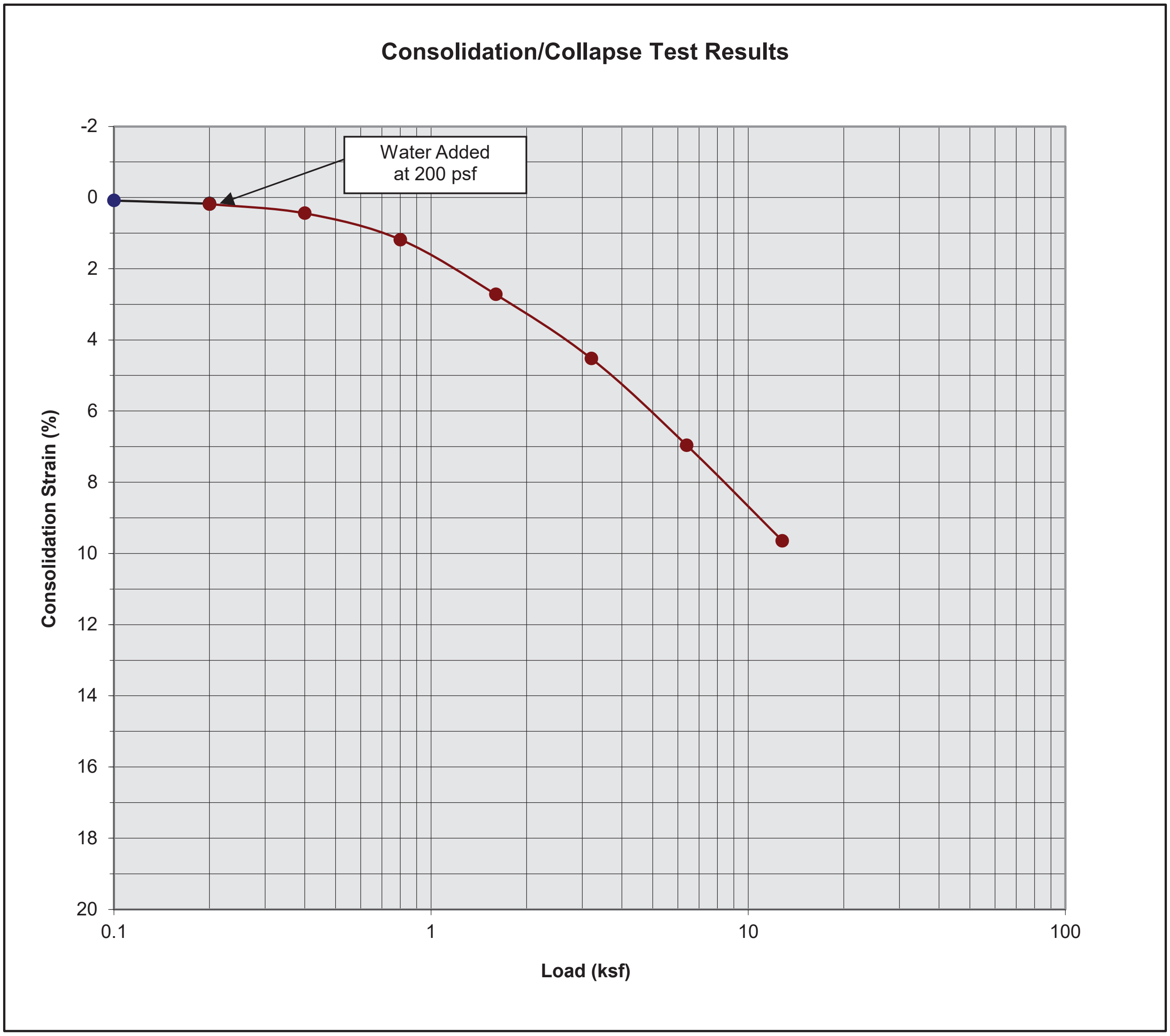
## Consolidation/Collapse Test Results




Classification: Red Brown Silty fine to coarse Sand, little Clay

| | | | |
|---|---|---|---|
| Boring Number: | B-18 | Initial Moisture Content (%) | 10 |
| Sample Number: | --- | Final Moisture Content (%) | 14 |
| Depth (ft) | 7 to 8 | Initial Dry Density (pcf) | 94.3 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 119.5 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 7.71 |




Classification: Red Brown fine to medium Sandy Clay

| | | | |
|---|---|---|---|
| Boring Number: | B-18 | Initial Moisture Content (%) | 14 |
| Sample Number: | --- | Final Moisture Content (%) | 16 |
| Depth (ft) | 9 to 10 | Initial Dry Density (pcf) | 108.3 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 119.5 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.01 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 17**

SoCalGeo
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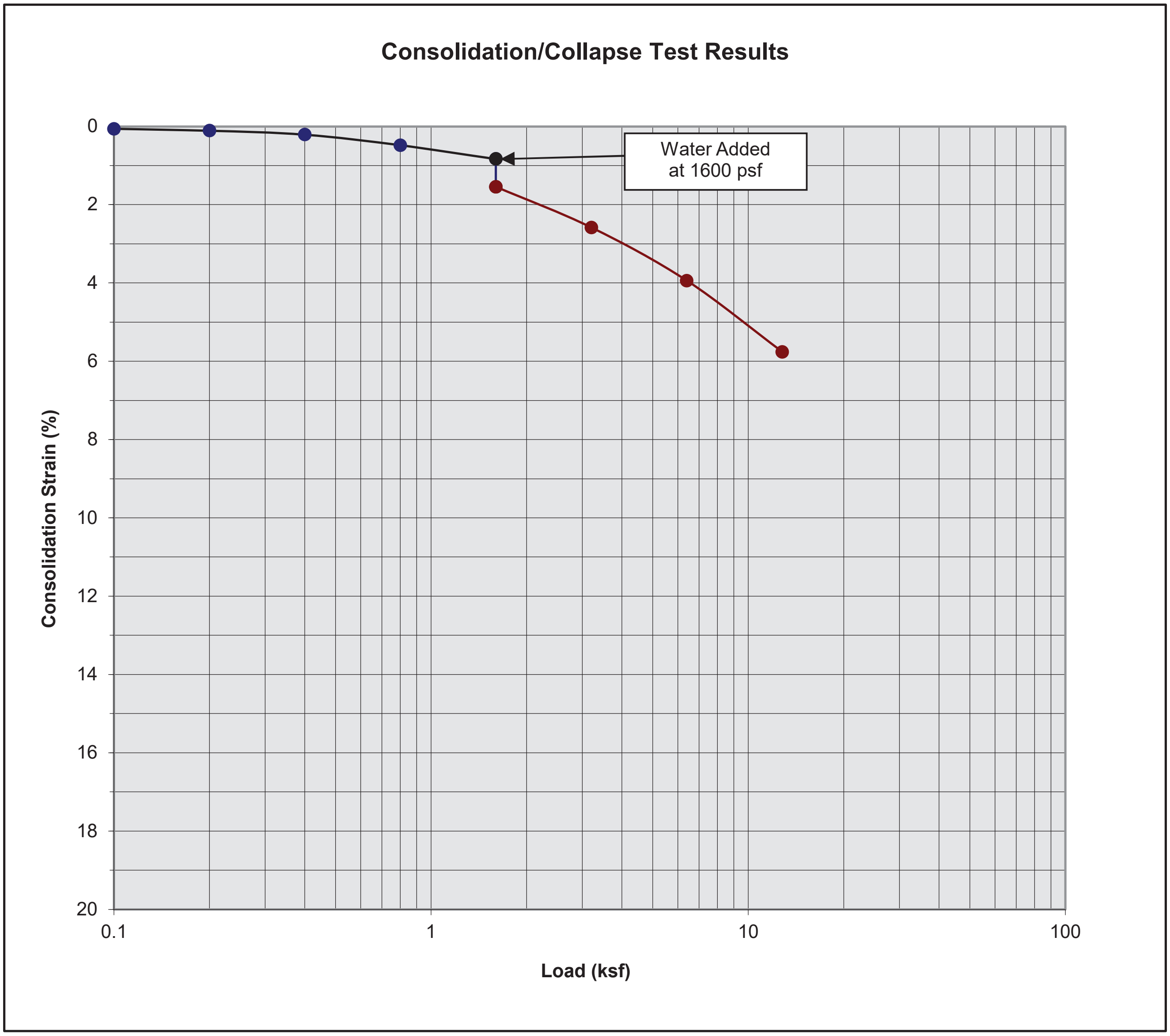


Classification: Brown Silty fine Sand to fine Sandy Silt

| | | | |
|---|---|---|---|
| Boring Number: | B-21 | Initial Moisture Content (%) | 8 |
| Sample Number: | --- | Final Moisture Content (%) | 17 |
| Depth (ft) | 19 to 20 | Initial Dry Density (pcf) | 107.3 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 113.7 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.71 |

Proposed E-Commerce Development
Beaumont, California
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**PLATE C- 18**

SoCalGeo
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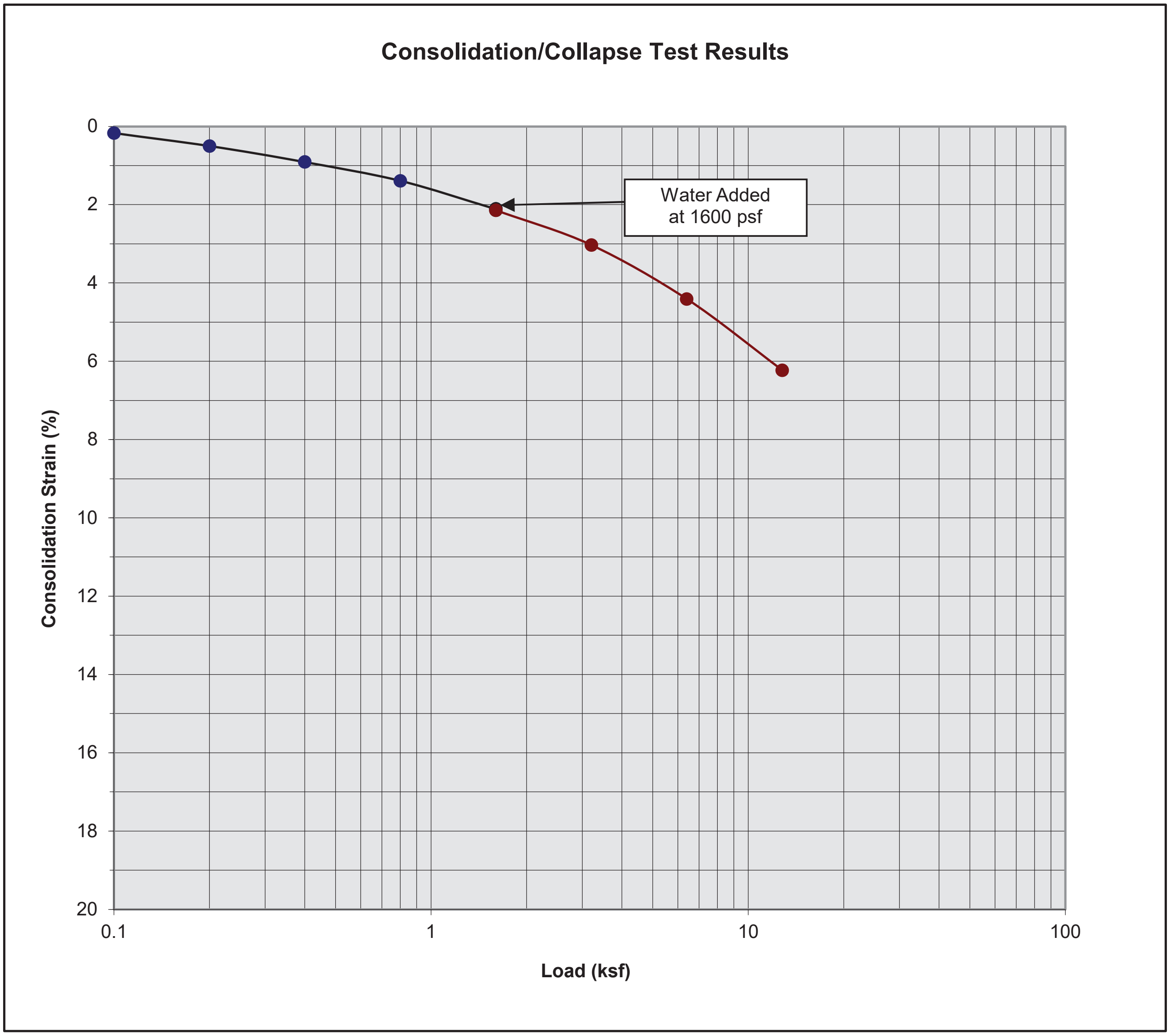
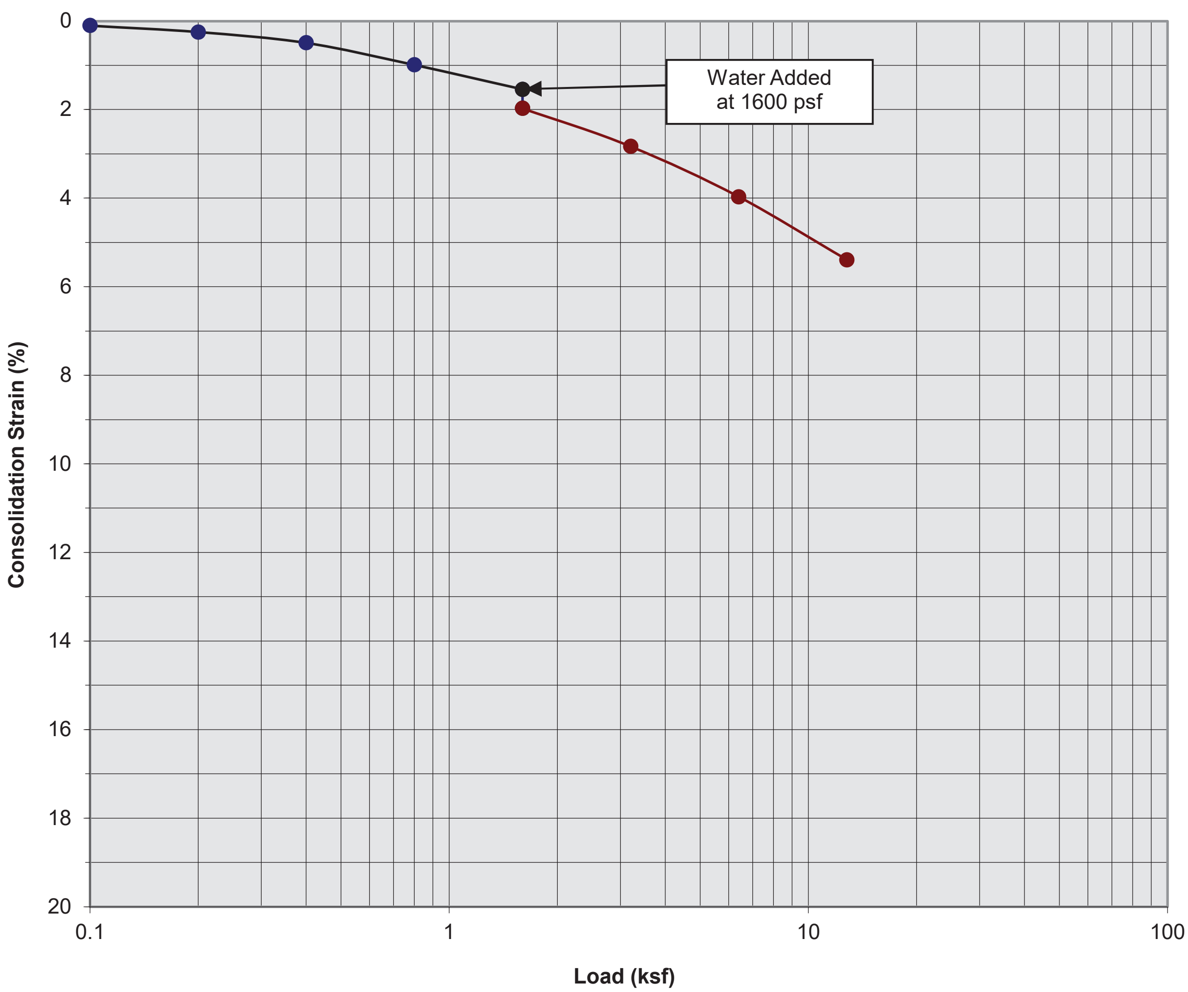



Classification: Red Brown Clayey fine Sand, trace medium Sand, little Silt

| | | | |
|---|---|---|---|
| Boring Number: | B-25 | Initial Moisture Content (%) | 14 |
| Sample Number: | --- | Final Moisture Content (%) | 14 |
| Depth (ft) | 3 to 4 | Initial Dry Density (pcf) | 120.5 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 127.6 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.03 |

## Consolidation/Collapse Test Results




Classification: Red Brown Clayey fine Sand, trace medium Sand

| | | | |
|---|---|---|---|
| Boring Number: | B-25 | Initial Moisture Content (%) | 10 |
| Sample Number: | --- | Final Moisture Content (%) | 14 |
| Depth (ft) | 5 to 6 | Initial Dry Density (pcf) | 116.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 122.2 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.43 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 20**

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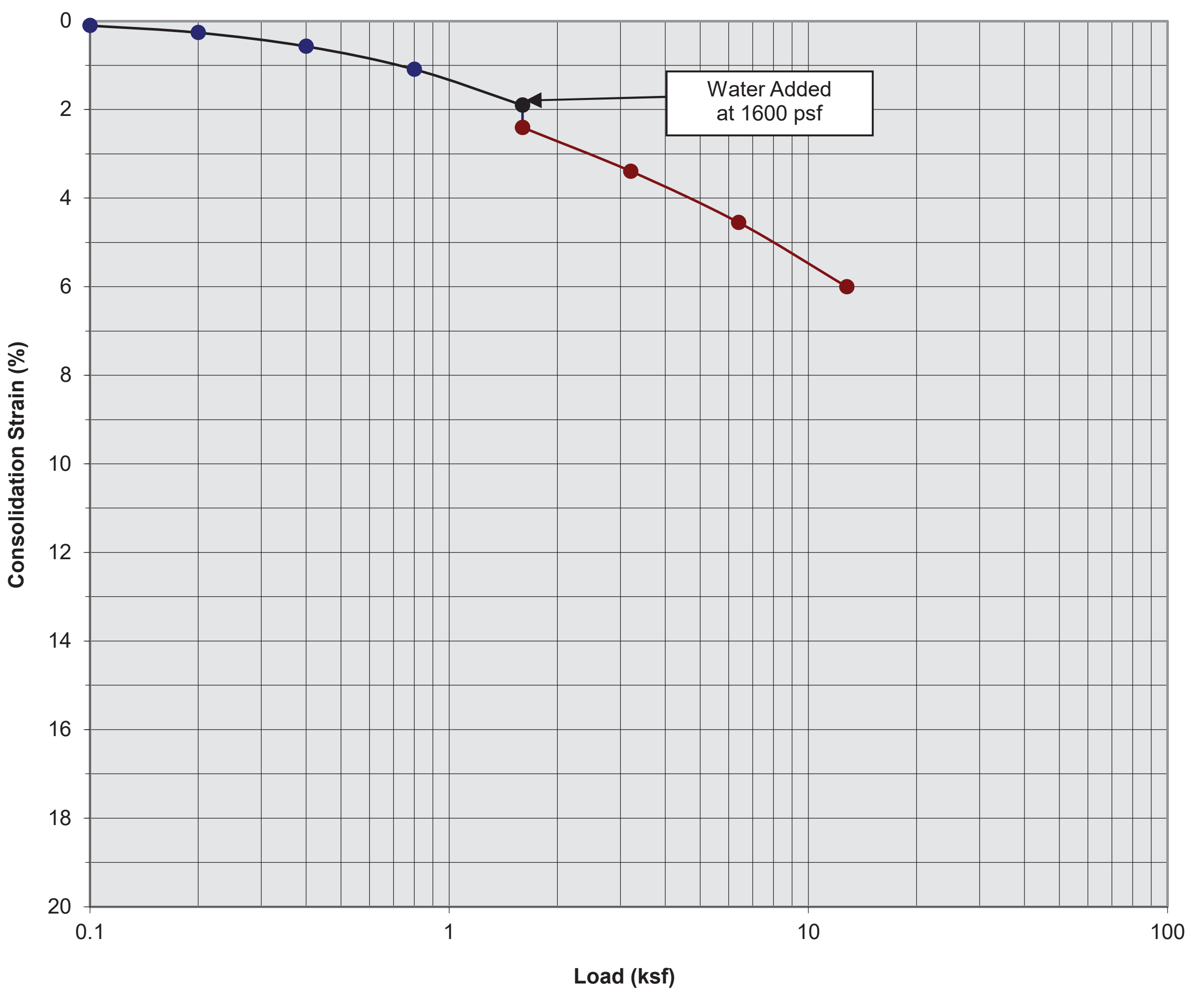
## Consolidation/Collapse Test Results




Classification: Red Brown Silty fine Sand, trace medium to coarse Sand

| | | | |
|---|---|---|---|
| Boring Number: | B-25 | Initial Moisture Content (%) | 9 |
| Sample Number: | --- | Final Moisture Content (%) | 16 |
| Depth (ft) | 7 to 8 | Initial Dry Density (pcf) | 117.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 124.3 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.50 |

Proposed E-Commerce Development
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**PLATE C- 21**

SoCalGeo
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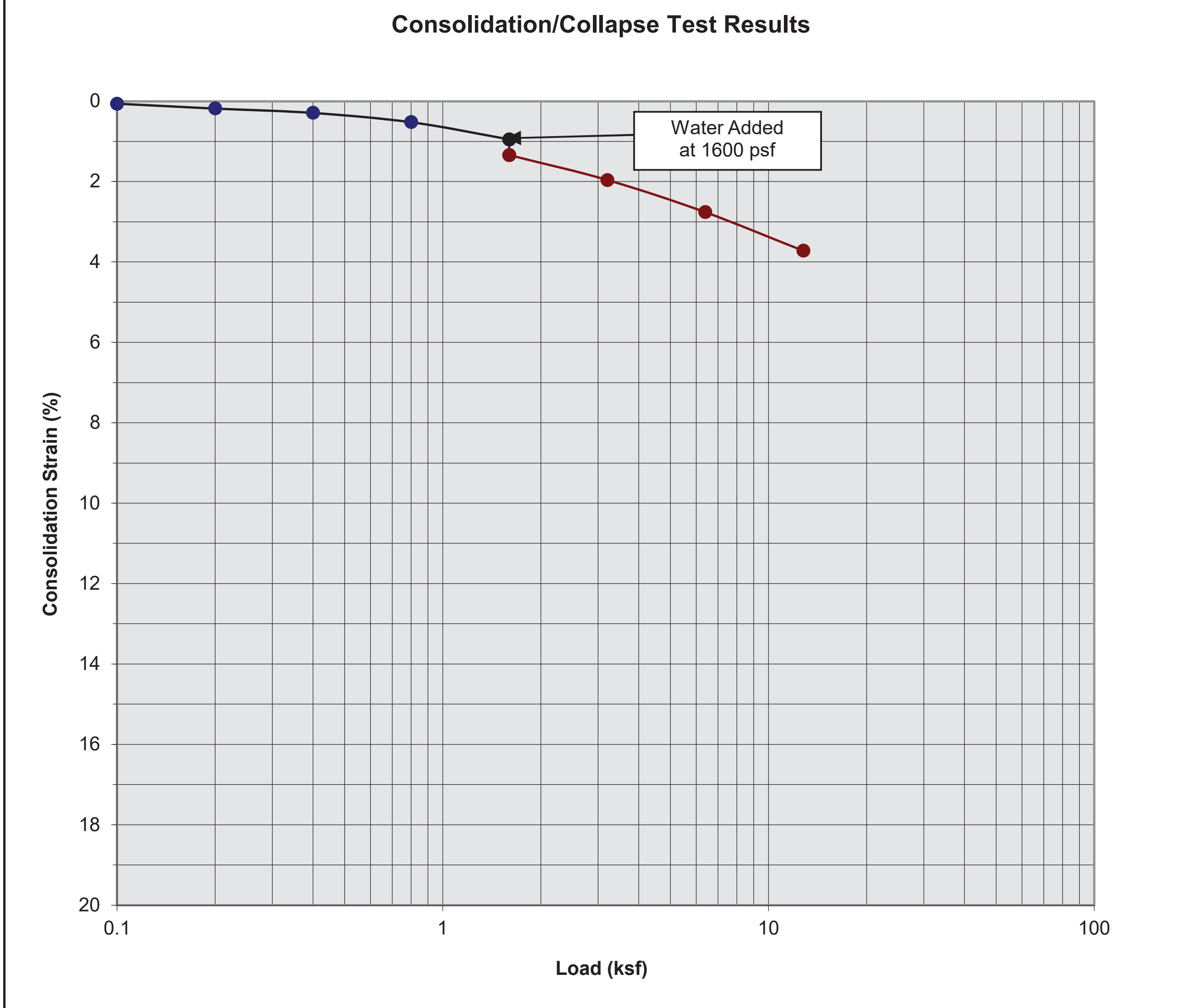


Classification: Gray Brown Silty fine to coarse Sand, trace fine Gravel

| | | | |
|---|---|---|---|
| Boring Number: | B-25 | Initial Moisture Content (%) | 9 |
| Sample Number: | --- | Final Moisture Content (%) | 14 |
| Depth (ft) | 9 to 10 | Initial Dry Density (pcf) | 121.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 125.1 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.39 |

Proposed E-Commerce Development
Beaumont, California
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**PLATE C- 22**

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
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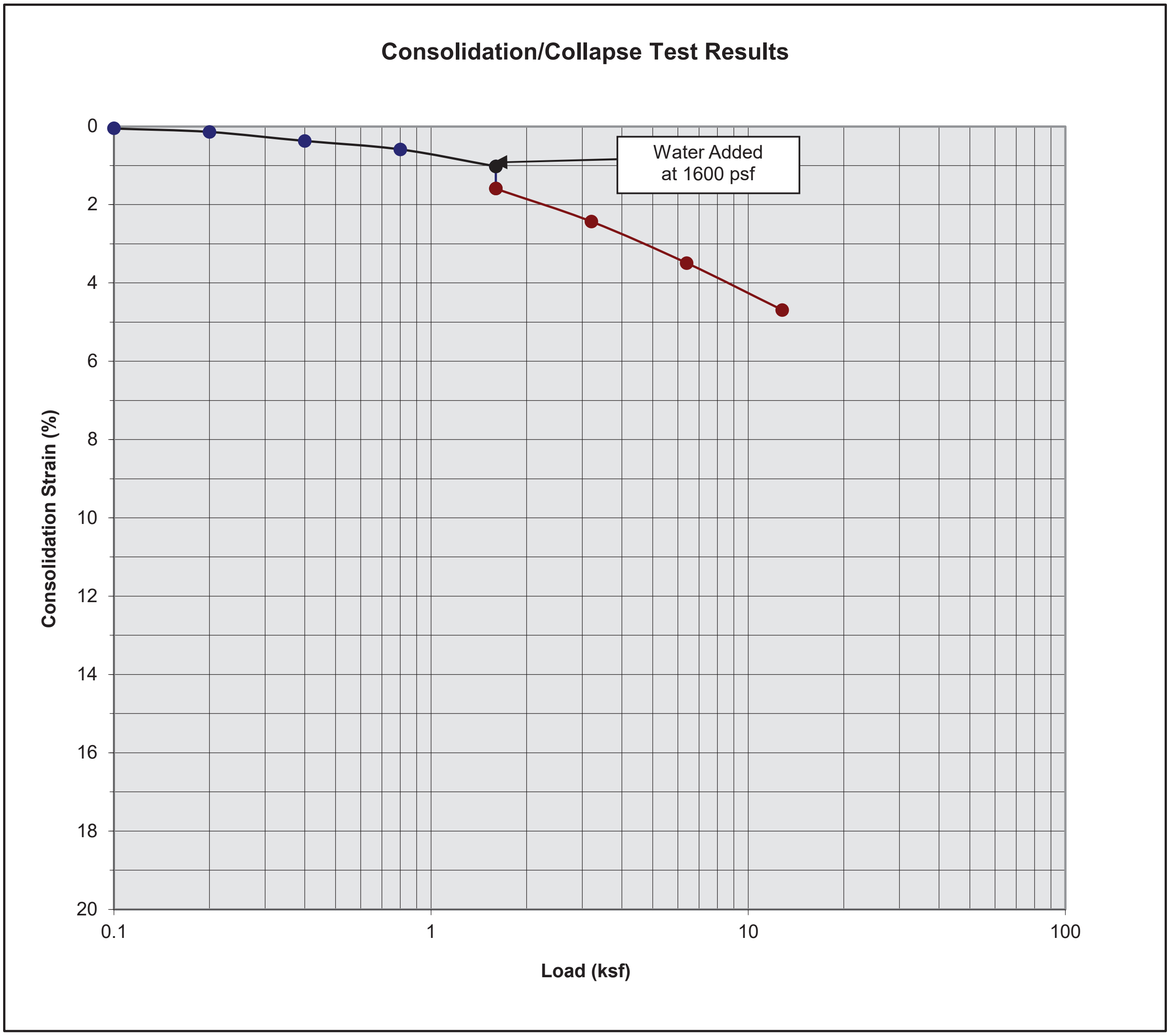


Classification: FILL: Red Brown Clayey fine to medium Sand, trace coarse Sand

| | | | |
|---|---|---|---|
| Boring Number: | B-26 | Initial Moisture Content (%) | 11 |
| Sample Number: | --- | Final Moisture Content (%) | 15 |
| Depth (ft) | 3 to 4 | Initial Dry Density (pcf) | 123.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 129.5 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.57 |

Proposed E-Commerce Development
Beaumont, California
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**PLATE C- 23**

SOUTHERN CALIFORNIA GEOTECHNICAL
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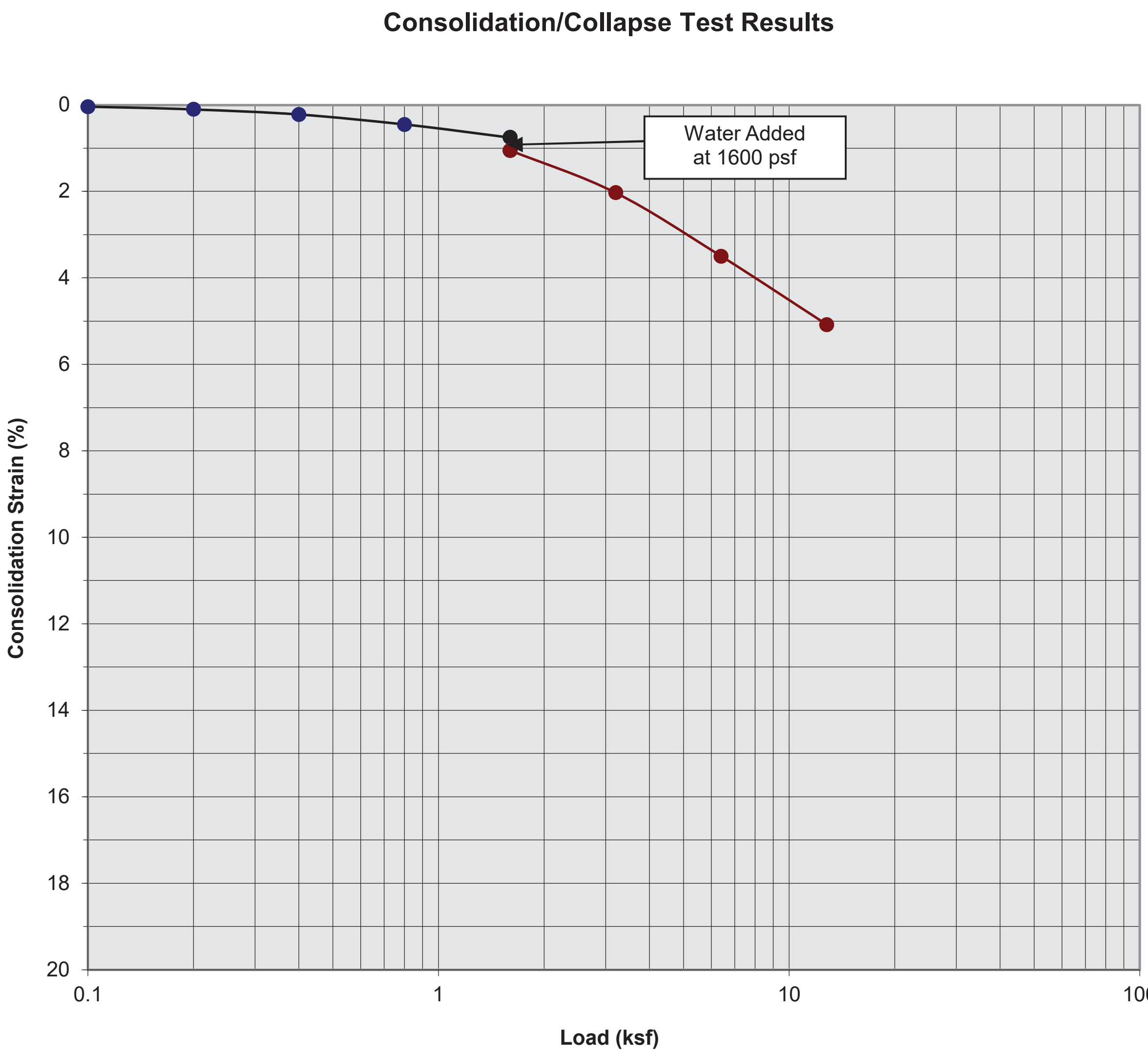


Classification: FILL: Red Brown Clayey fine to medium Sand, trace coarse Sand

| | | | |
|---|---|---|---|
| Boring Number: | B-26 | Initial Moisture Content (%) | 12 |
| Sample Number: | --- | Final Moisture Content (%) | 15 |
| Depth (ft) | 5 to 6 | Initial Dry Density (pcf) | 121.8 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 127.8 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.30 |

Proposed E-Commerce Development
Beaumont, California
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**PLATE C- 24**

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
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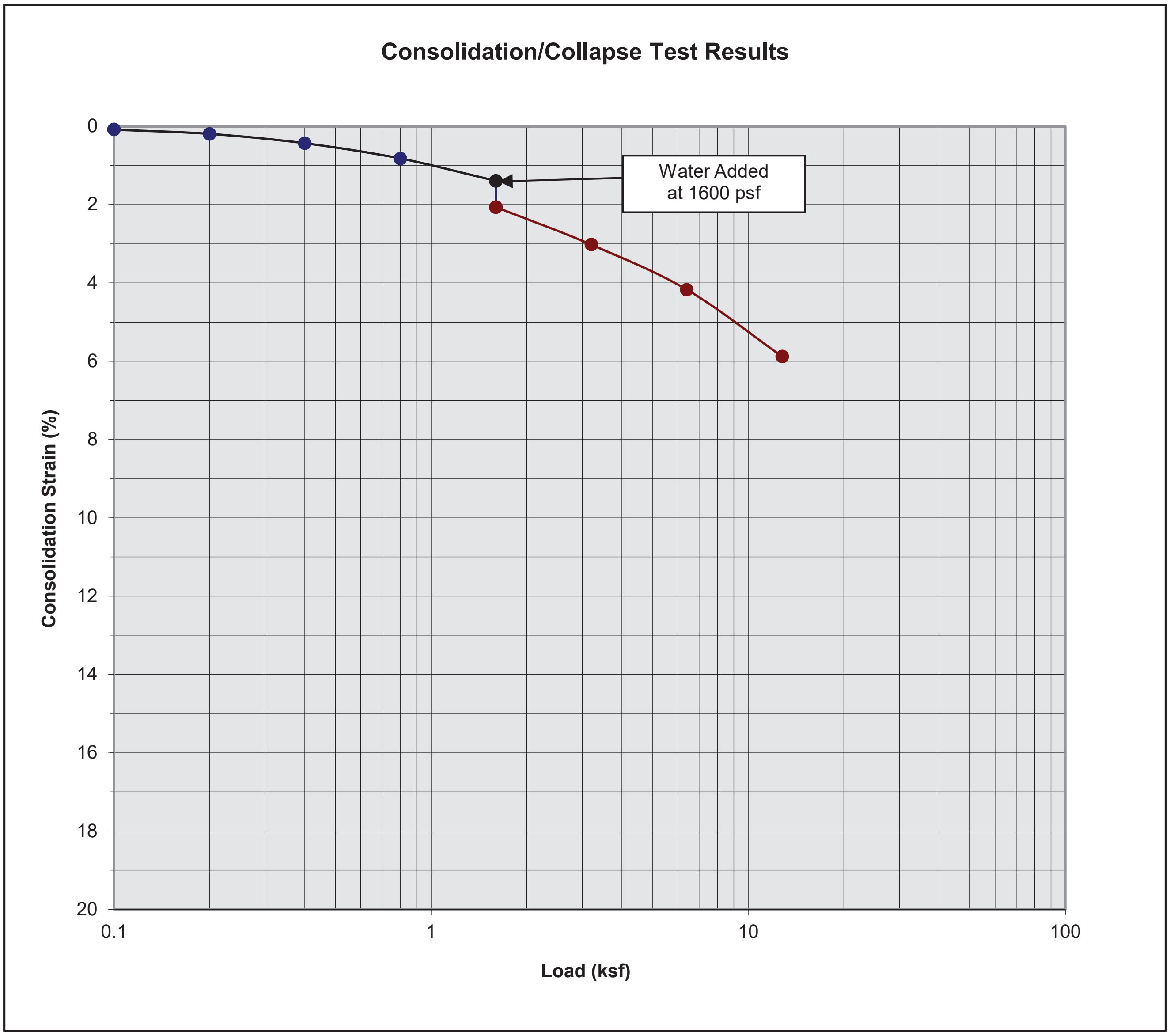


Classification: Brown Silty fine Sand, trace medium Sand, trace Clay

| | | | |
|---|---|---|---|
| Boring Number: | B-26 | Initial Moisture Content (%) | 13 |
| Sample Number: | --- | Final Moisture Content (%) | 17 |
| Depth (ft) | 7 to 8 | Initial Dry Density (pcf) | 116.4 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 125.2 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.67 |

Proposed E-Commerce Development
Beaumont, California
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**PLATE C- 25**

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
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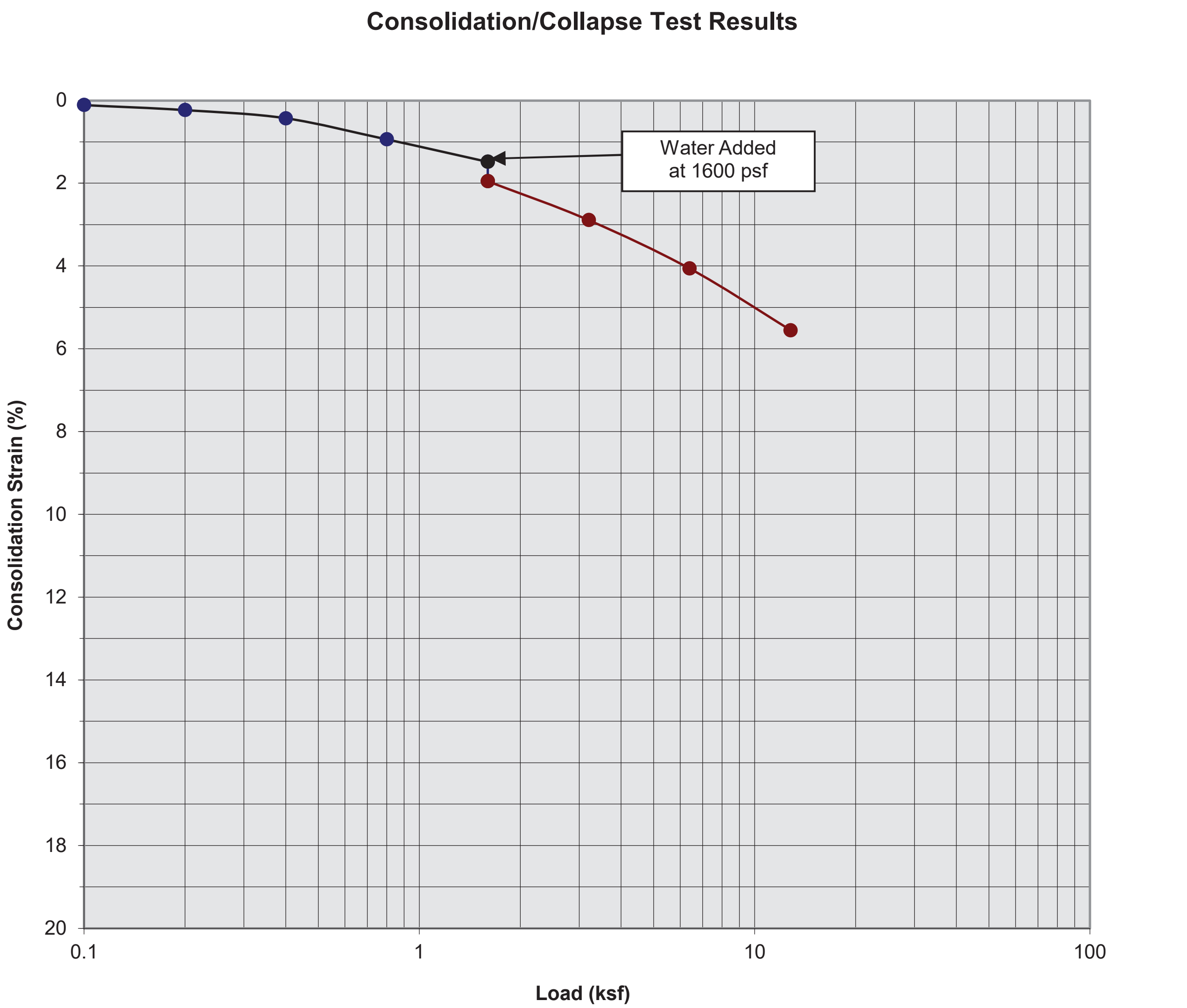
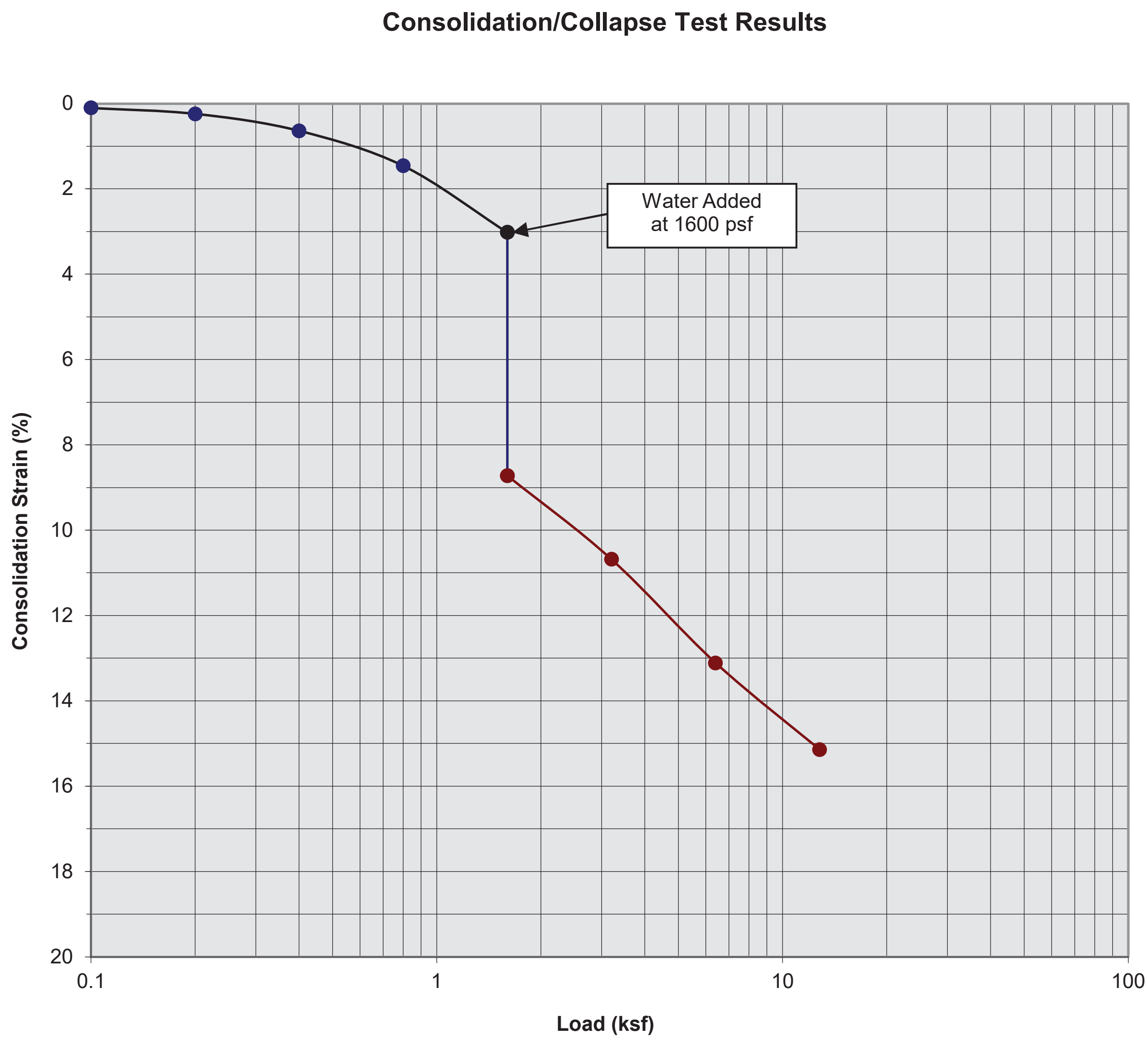



Classification: Brown Silty fine Sand, trace medium Sand, little Clay

| | | | |
|---|---|---|---|
| Boring Number: | B-26 | Initial Moisture Content (%) | 12 |
| Sample Number: | --- | Final Moisture Content (%) | 17 |
| Depth (ft) | 9 to 10 | Initial Dry Density (pcf) | 117.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 123.5 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.47 |




Classification: Brown Silty fine Sand

| | | | |
|---|---|---|---|
| Boring Number: | B-39 | Initial Moisture Content (%) | 2 |
| Sample Number: | --- | Final Moisture Content (%) | 13 |
| Depth (ft) | 4 to 5 | Initial Dry Density (pcf) | 108.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 127.3 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 5.70 |

Proposed E-Commerce Development
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**PLATE C- 27**

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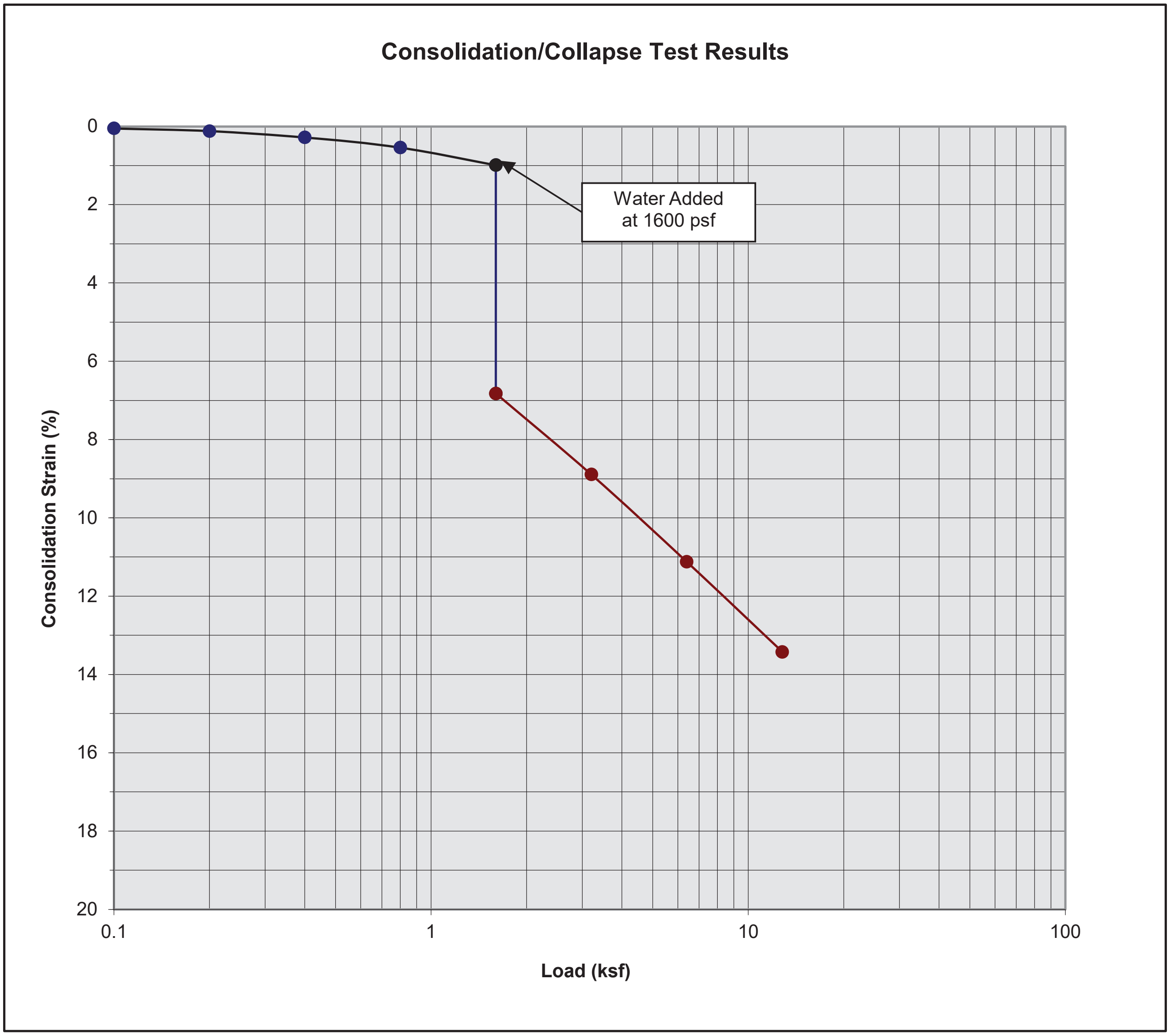


Classification: Brown Silty fine to medium Sand, trace coarse Sand, trace fine Gravel

| | | | |
|---|---|---|---|
| Boring Number: | B-39 | Initial Moisture Content (%) | 6 |
| Sample Number: | --- | Final Moisture Content (%) | 14 |
| Depth (ft) | 9 to 10 | Initial Dry Density (pcf) | 104.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 120.1 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 5.83 |

Proposed E-Commerce Development
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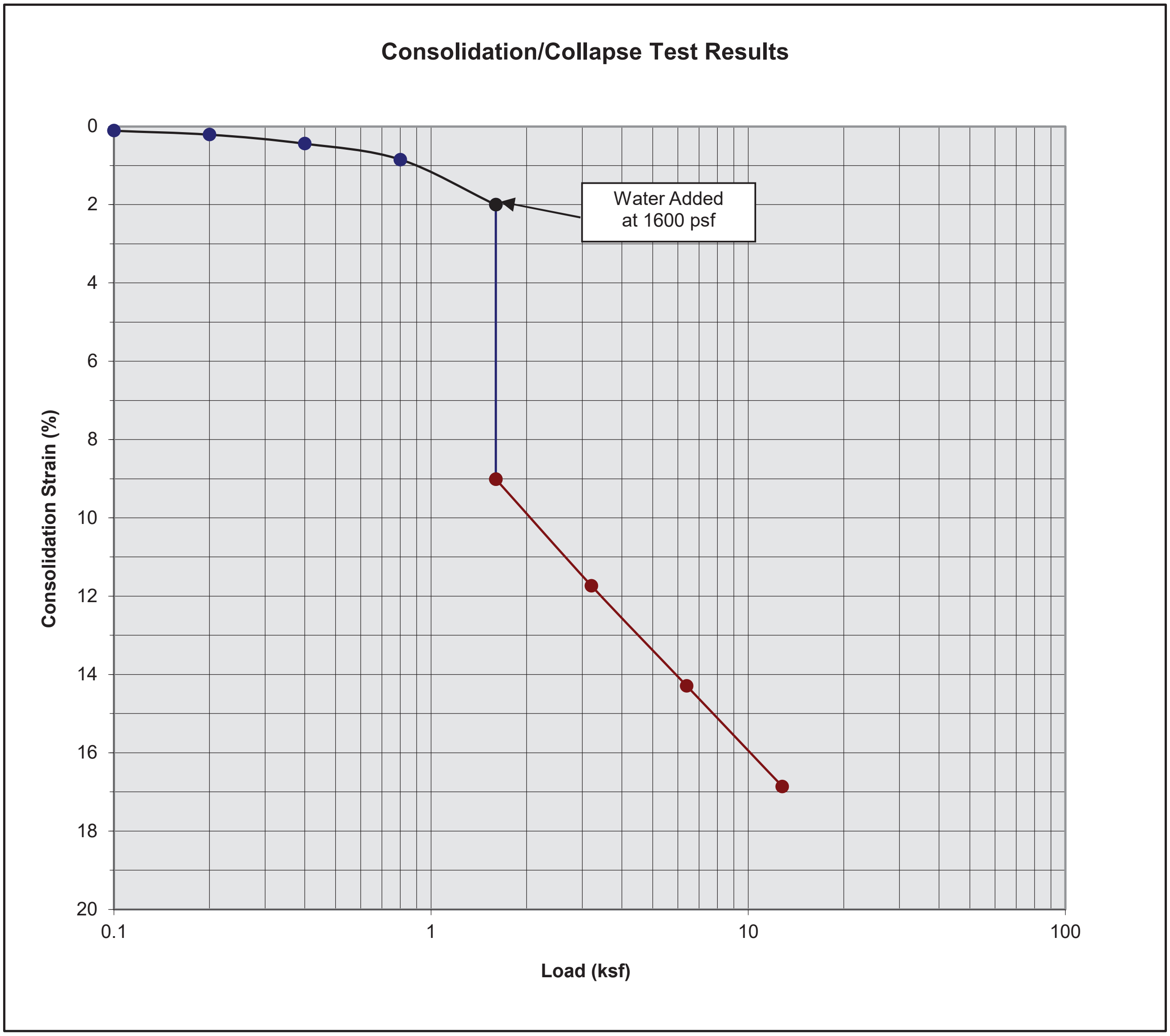
Project No. 21G133-1
**PLATE C- 28**

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation




Classification: Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel

| | | | |
|---|---|---|---|
| Boring Number: | B-39 | Initial Moisture Content (%) | 7 |
| Sample Number: | --- | Final Moisture Content (%) | 14 |
| Depth (ft) | 14 to 15 | Initial Dry Density (pcf) | 104.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 125.1 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 7.01 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 29**

SOUTHERN CALIFORNIA GEOTECHNICAL
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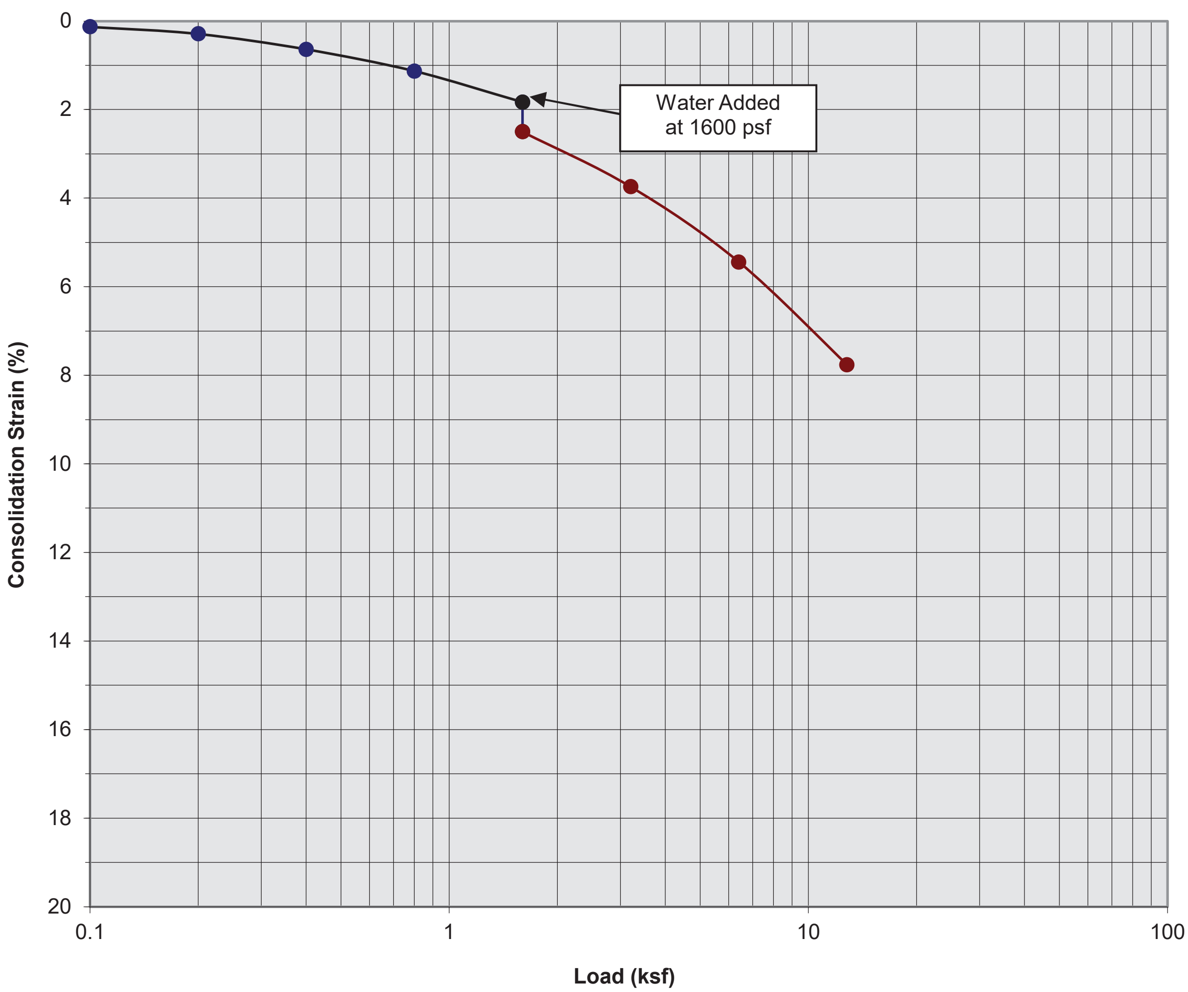
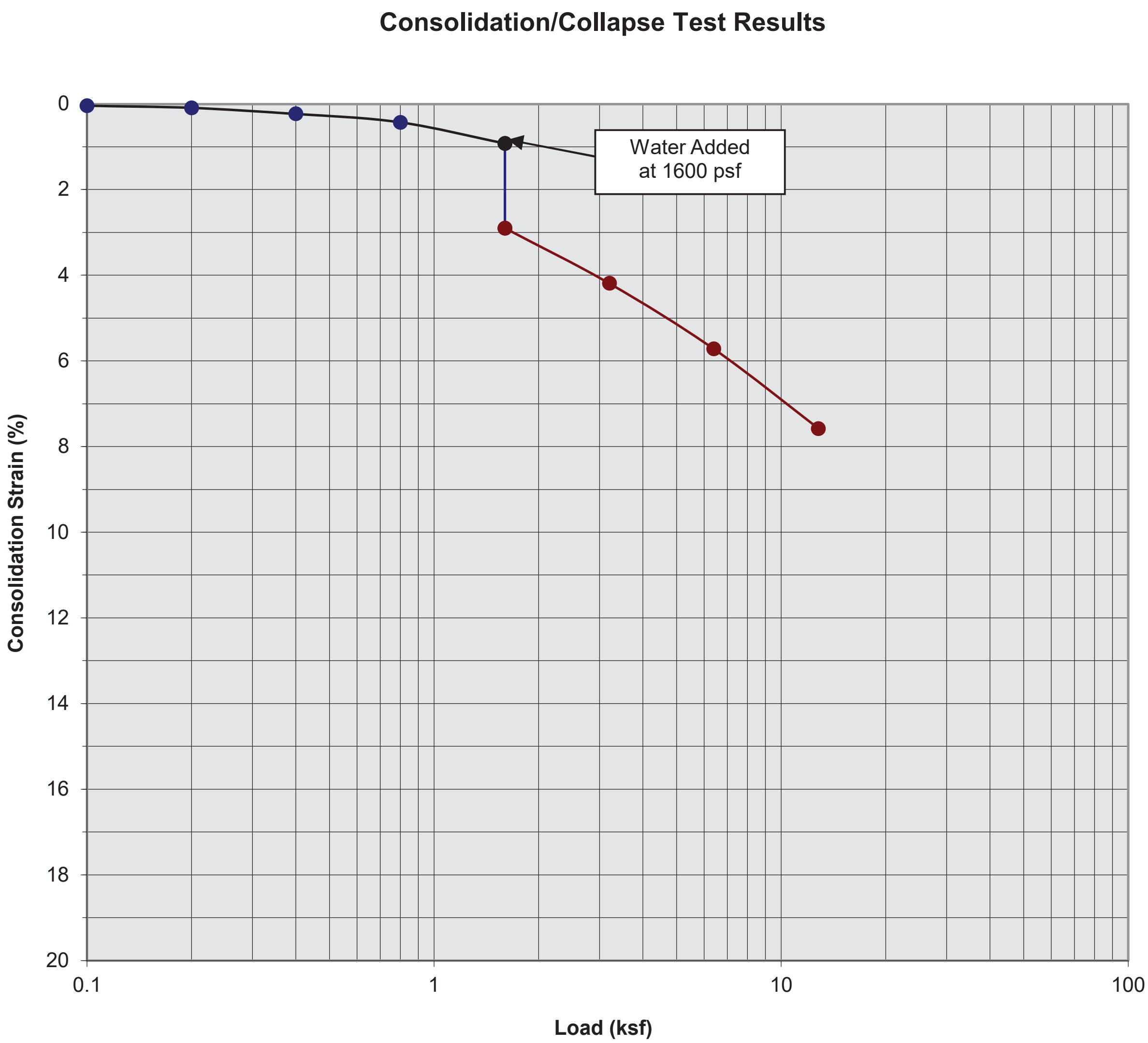
## Consolidation/Collapse Test Results




Classification: Gray Brown fine Sand, trace medium to coarse Sand, trace fine Gravel

| | | | |
|---|---|---|---|
| Boring Number: | B-39 | Initial Moisture Content (%) | 11 |
| Sample Number: | --- | Final Moisture Content (%) | 19 |
| Depth (ft) | 19 to 20 | Initial Dry Density (pcf) | 105.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 113.9 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.67 |




Classification: FILL: Brown Silty fine Sand, trace medium to coarse Sand

| | | | |
|---|---|---|---|
| Boring Number: | B-41 | Initial Moisture Content (%) | 9 |
| Sample Number: | --- | Final Moisture Content (%) | 14 |
| Depth (ft) | 1 to 2 | Initial Dry Density (pcf) | 126.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 136.3 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 1.98 |



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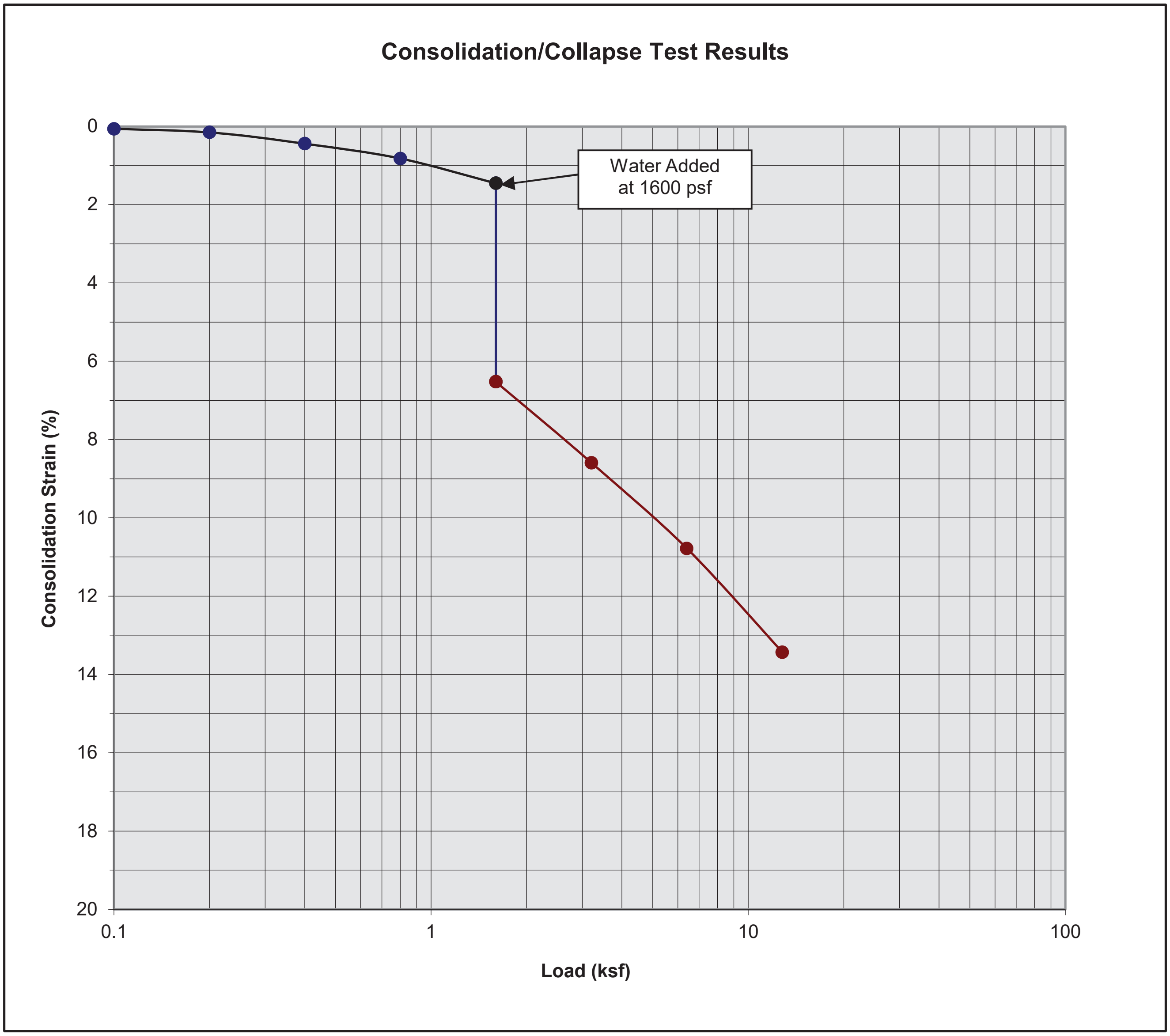
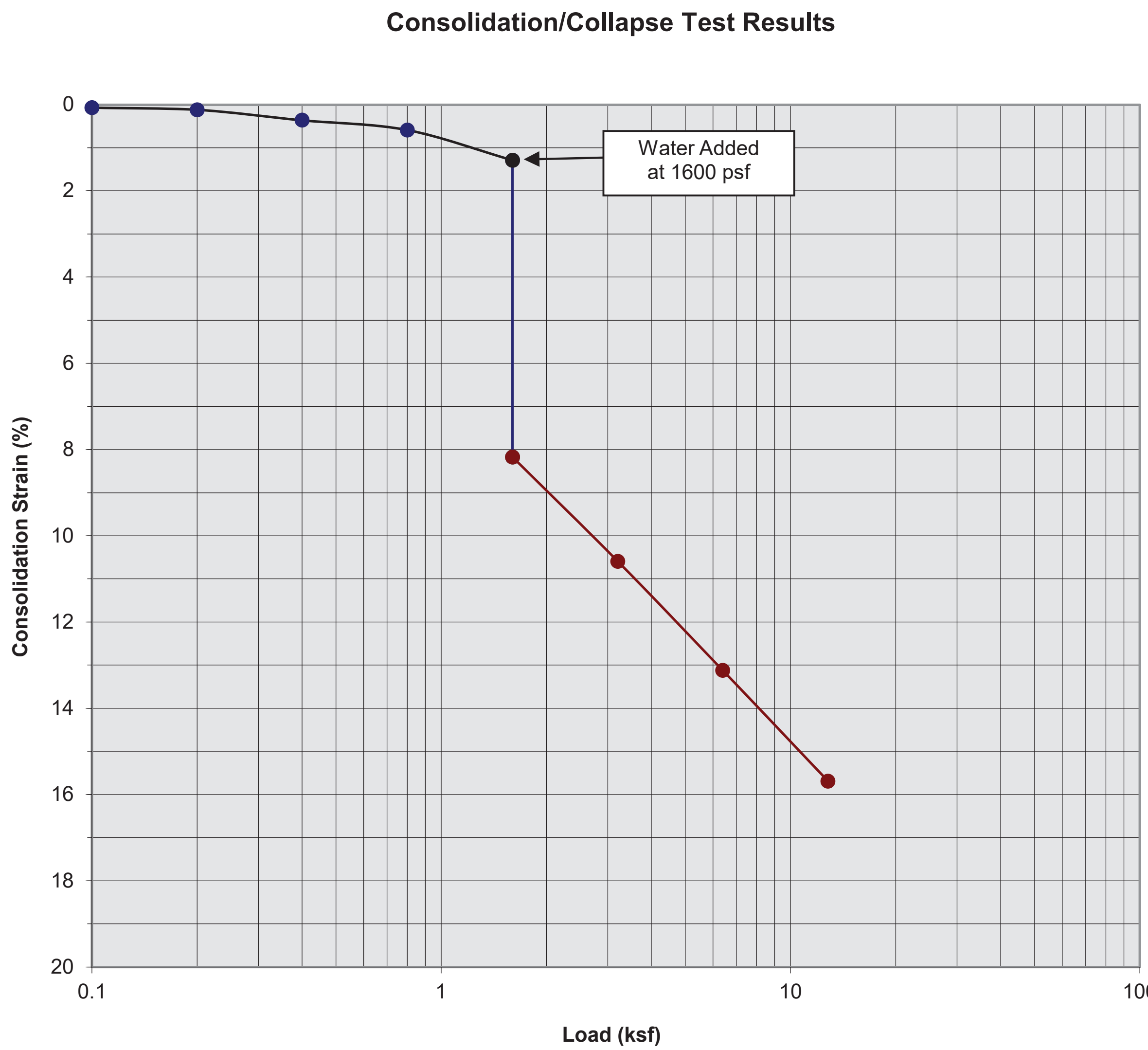


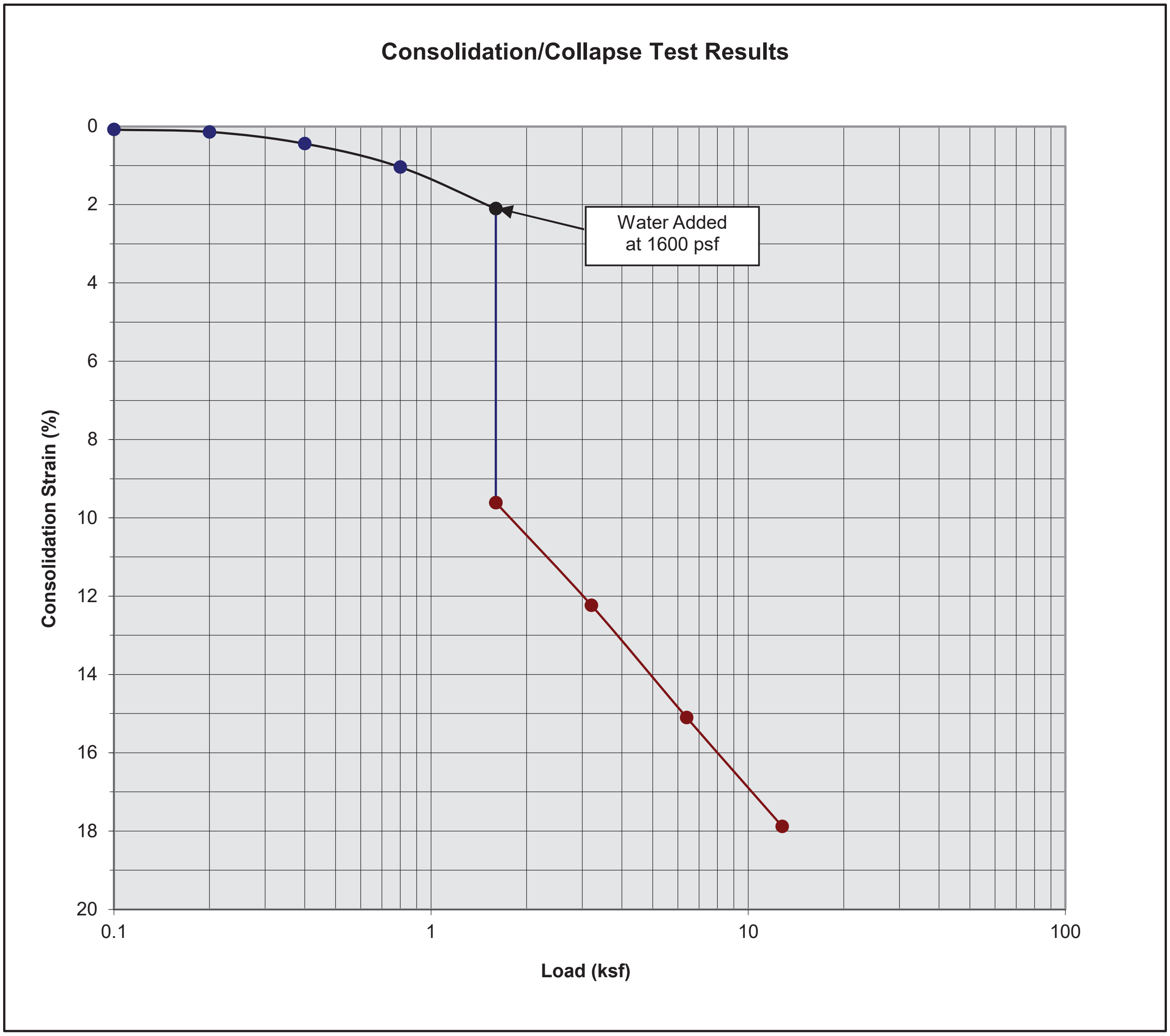

Classification: Brown Silty fine Sand to fine Sandy Silt, trace medium to coarse Sand

| | | | |
|---|---|---|---|
| Boring Number: | B-41 | Initial Moisture Content (%) | 4 |
| Sample Number: | --- | Final Moisture Content (%) | 14 |
| Depth (ft) | 4 to 5 | Initial Dry Density (pcf) | 102.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 117.9 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 5.07 |




Classification: Brown to Red Brown Silty fine to coarse Sand, trace fine Gravel

| | | | |
|---|---|---|---|
| Boring Number: | B-41 | Initial Moisture Content (%) | 5 |
| Sample Number: | --- | Final Moisture Content (%) | 16 |
| Depth (ft) | 9 to 10 | Initial Dry Density (pcf) | 101.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 119.8 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 6.88 |




Classification: Brown Silty fine Sand, trace Clay, trace medium to coarse Sand

| | | | |
|---|---|---|---|
| Boring Number: | B-41 | Initial Moisture Content (%) | 2 |
| Sample Number: | --- | Final Moisture Content (%) | 16 |
| Depth (ft) | 14 to 15 | Initial Dry Density (pcf) | 105.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 121.4 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 7.51 |

Proposed E-Commerce Development
Beaumont, California
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**PLATE C- 34**

SOUTHERN CALIFORNIA GEOTECHNICAL
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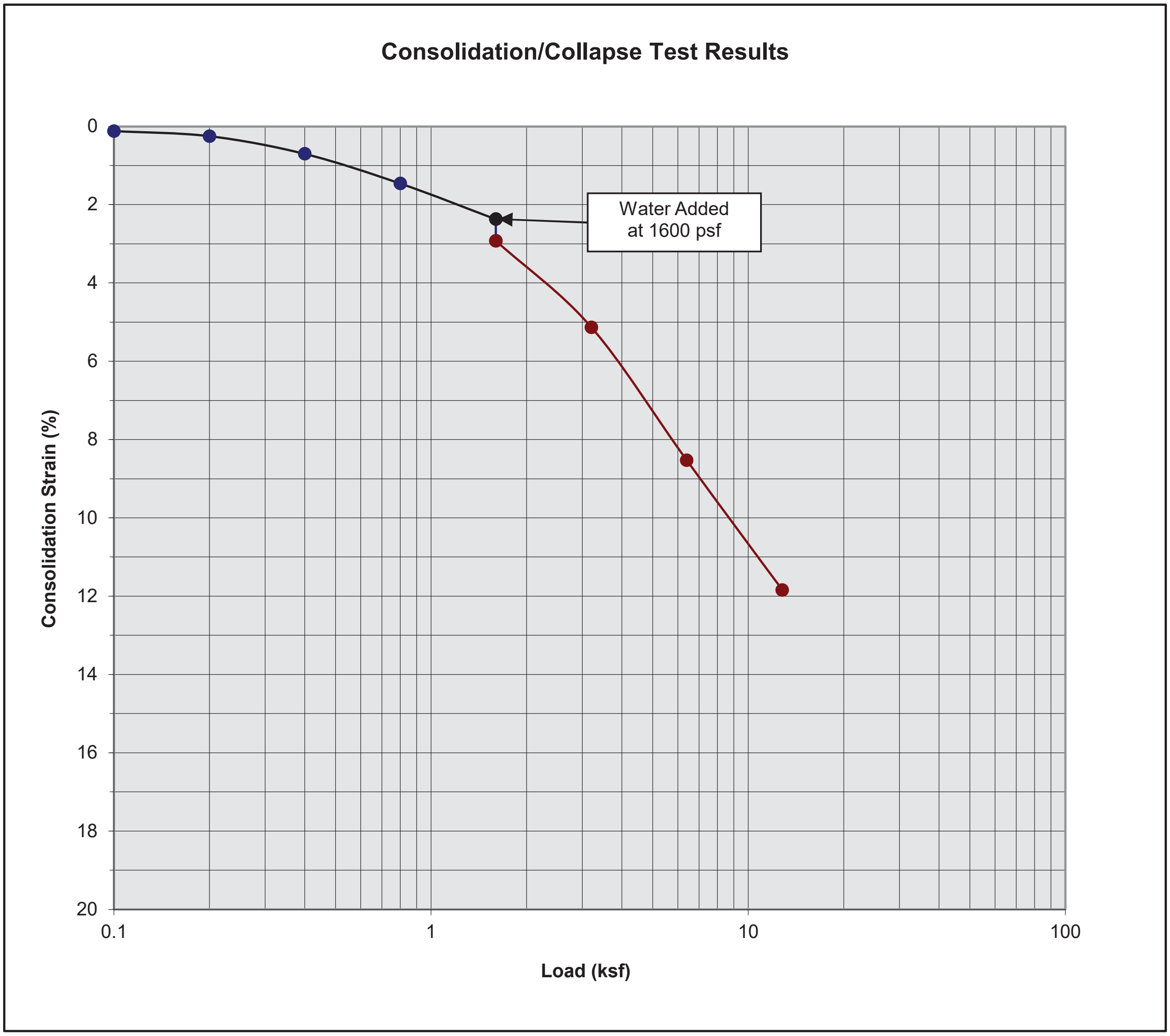
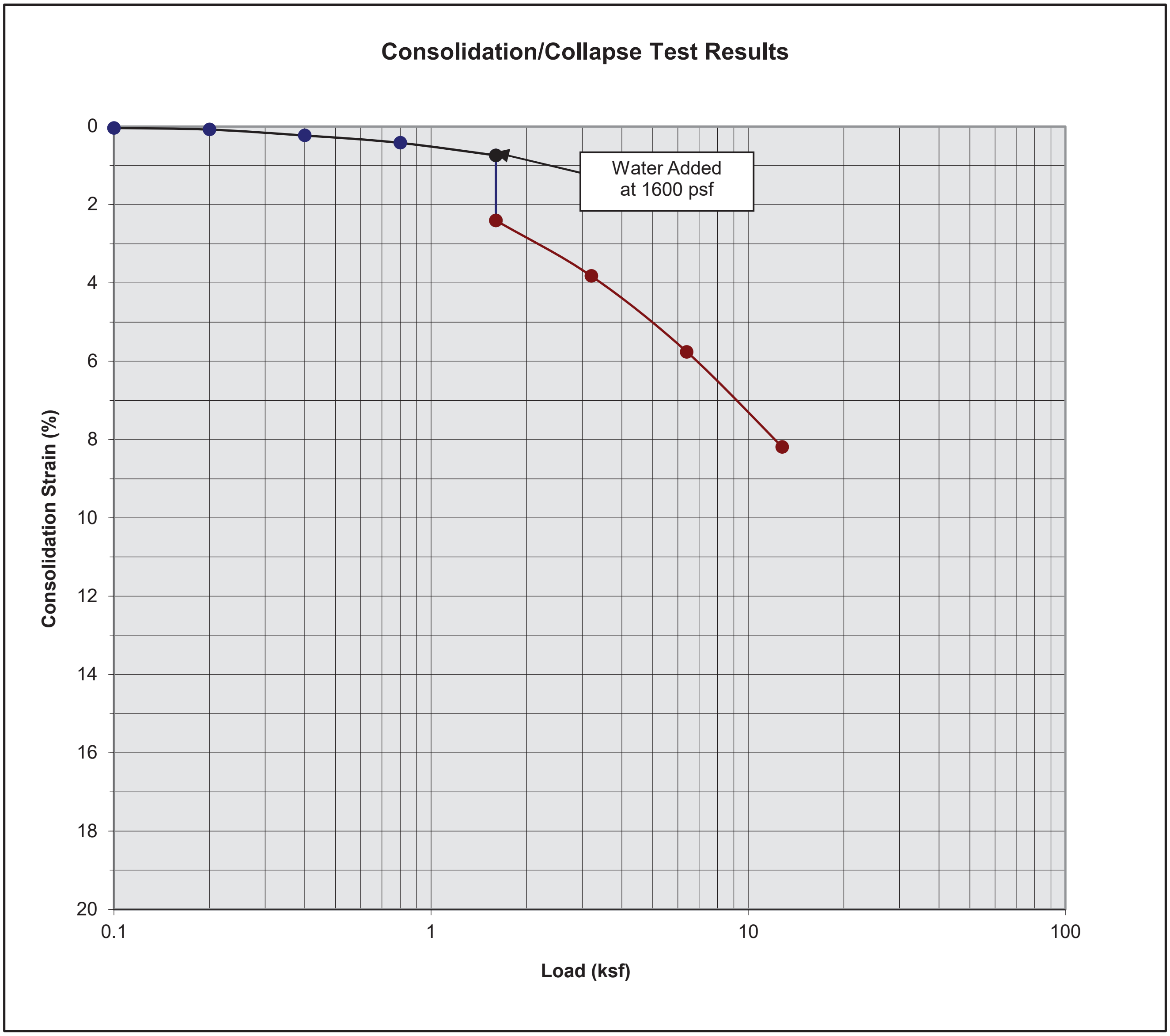



Classification: Red Brown fine Sandy Clay, little medium Sand

| | | | |
|---|---|---|---|
| Boring Number: | B-42 | Initial Moisture Content (%) | 5 |
| Sample Number: | --- | Final Moisture Content (%) | 14 |
| Depth (ft) | 1 to 2 | Initial Dry Density (pcf) | 100.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 113.4 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.55 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 35**

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

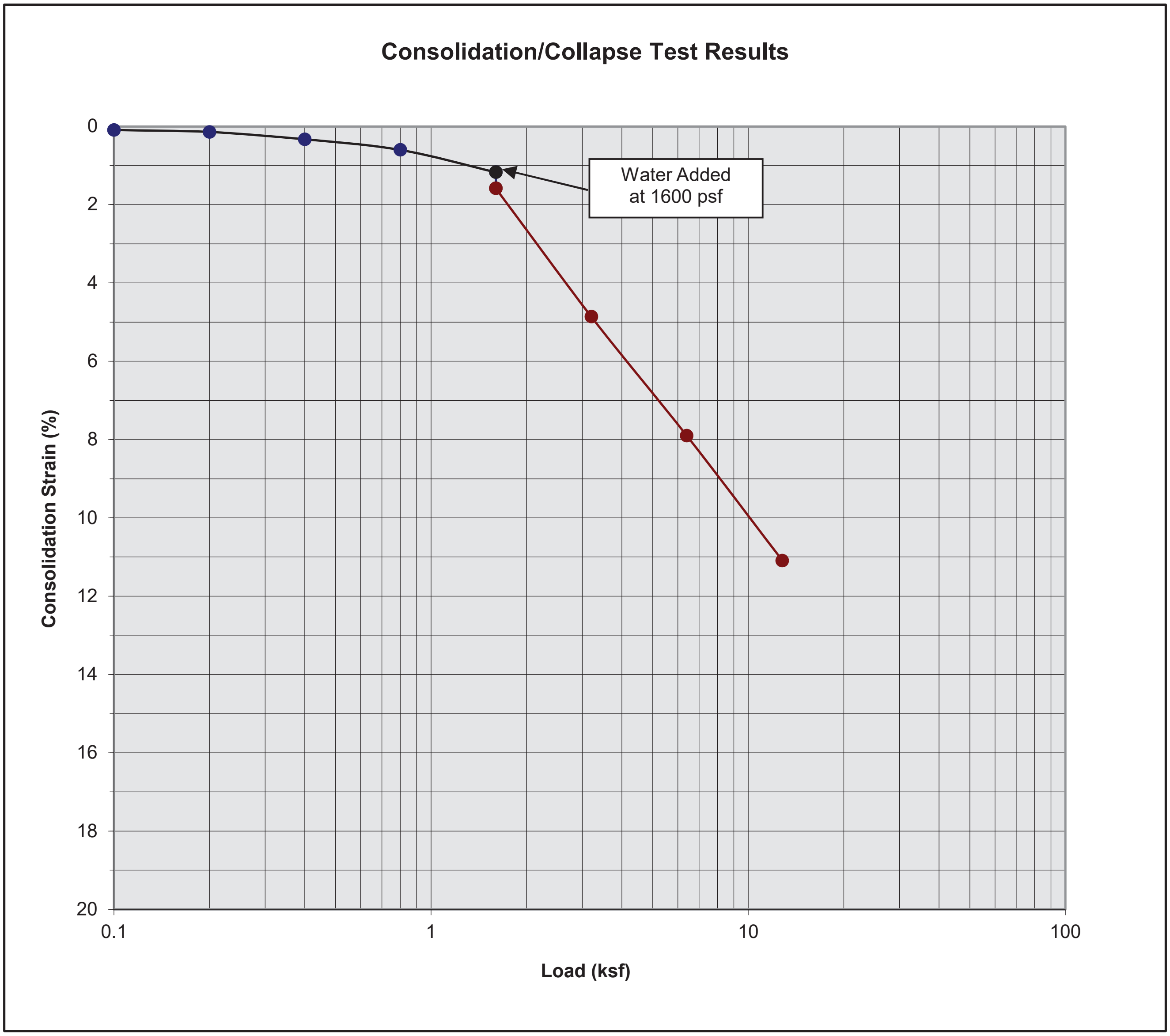



Classification: Red Brown fine Sandy Clay, little medium Sand

| | | | |
|---|---|---|---|
| Boring Number: | B-42 | Initial Moisture Content (%) | 7 |
| Sample Number: | --- | Final Moisture Content (%) | 14 |
| Depth (ft) | 4 to 5 | Initial Dry Density (pcf) | 113.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 120.9 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 1.66 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 36**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

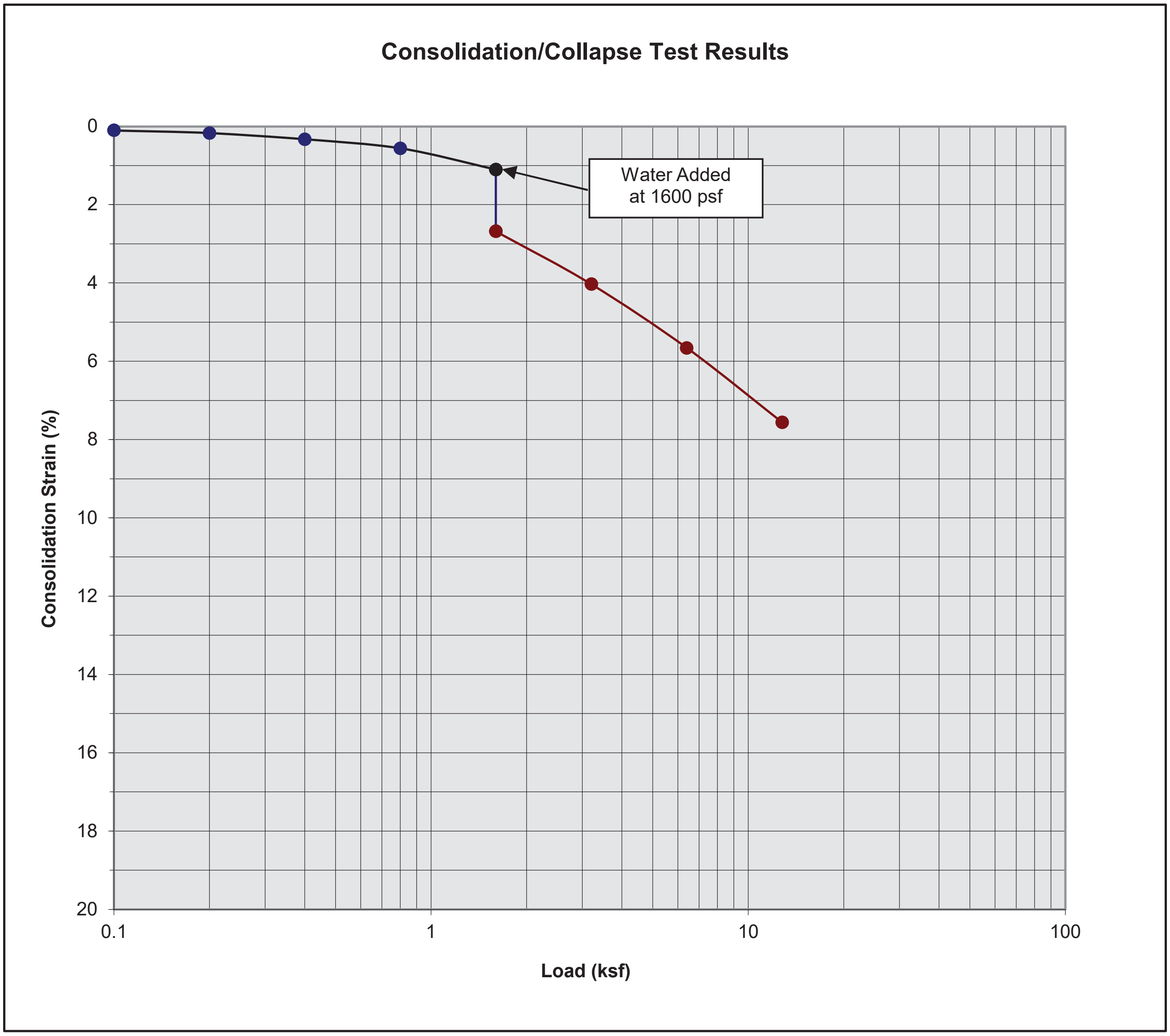



Classification: Red Brown fine Sandy Clay, little medium Sand

| | | | |
|---|---|---|---|
| Boring Number: | B-42 | Initial Moisture Content (%) | 5 |
| Sample Number: | --- | Final Moisture Content (%) | 12 |
| Depth (ft) | 9 to 10 | Initial Dry Density (pcf) | 108.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 121.5 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.41 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 37**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation




Classification: Brown Silty fine Sand

| | |
|---|---|
| Boring Number: | B-42 |
| Sample Number: | --- |
| Depth (ft) | 14 to 15 |
| Specimen Diameter (in) | 2.4 |
| Specimen Thickness (in) | 1.0 |

| | |
|---|---|
| Initial Moisture Content (%) | 6 |
| Final Moisture Content (%) | 14 |
| Initial Dry Density (pcf) | 109.0 |
| Final Dry Density (pcf) | 117.9 |
| Percent Collapse (%) | 1.58 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1

**PLATE C- 38**

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
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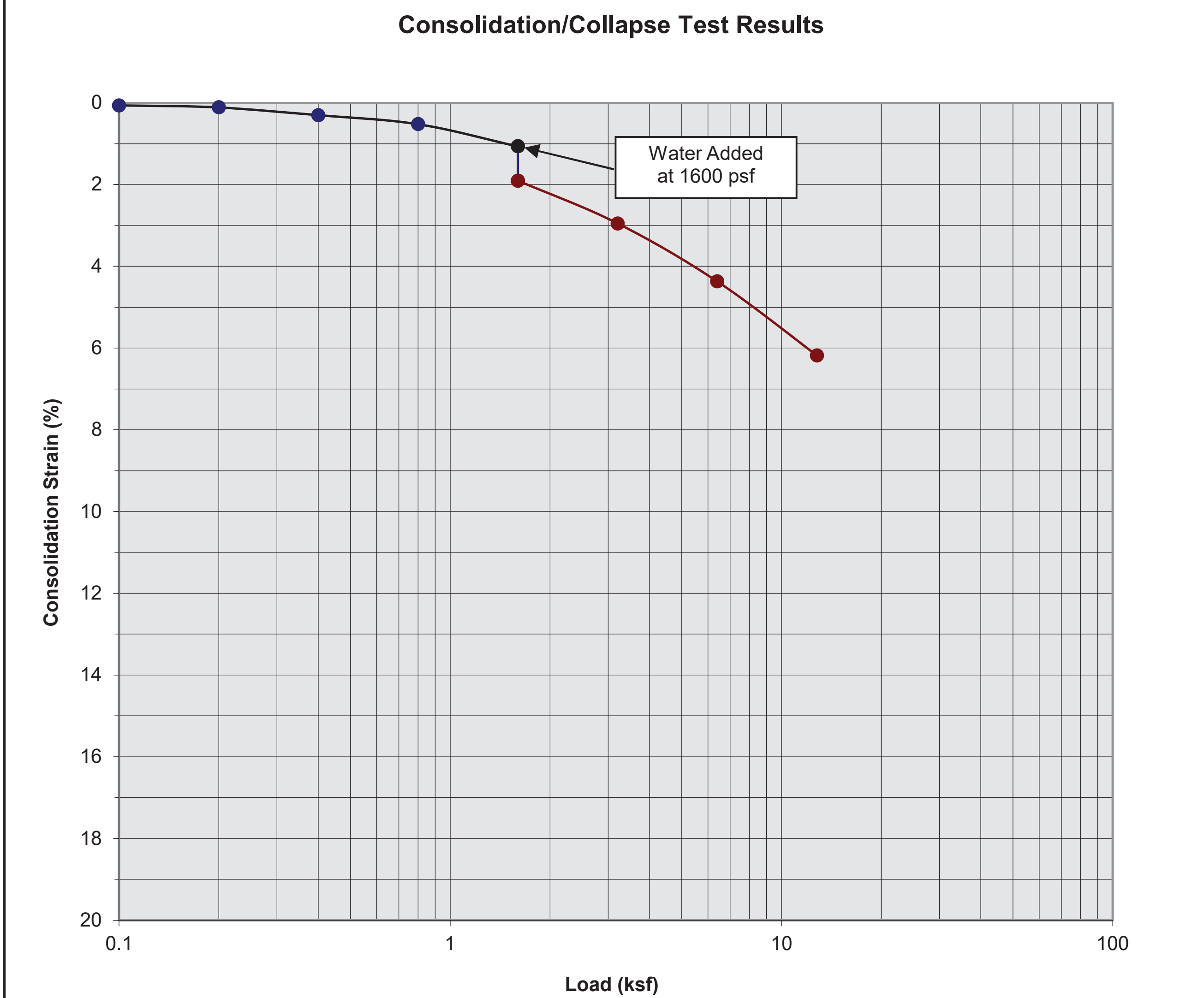
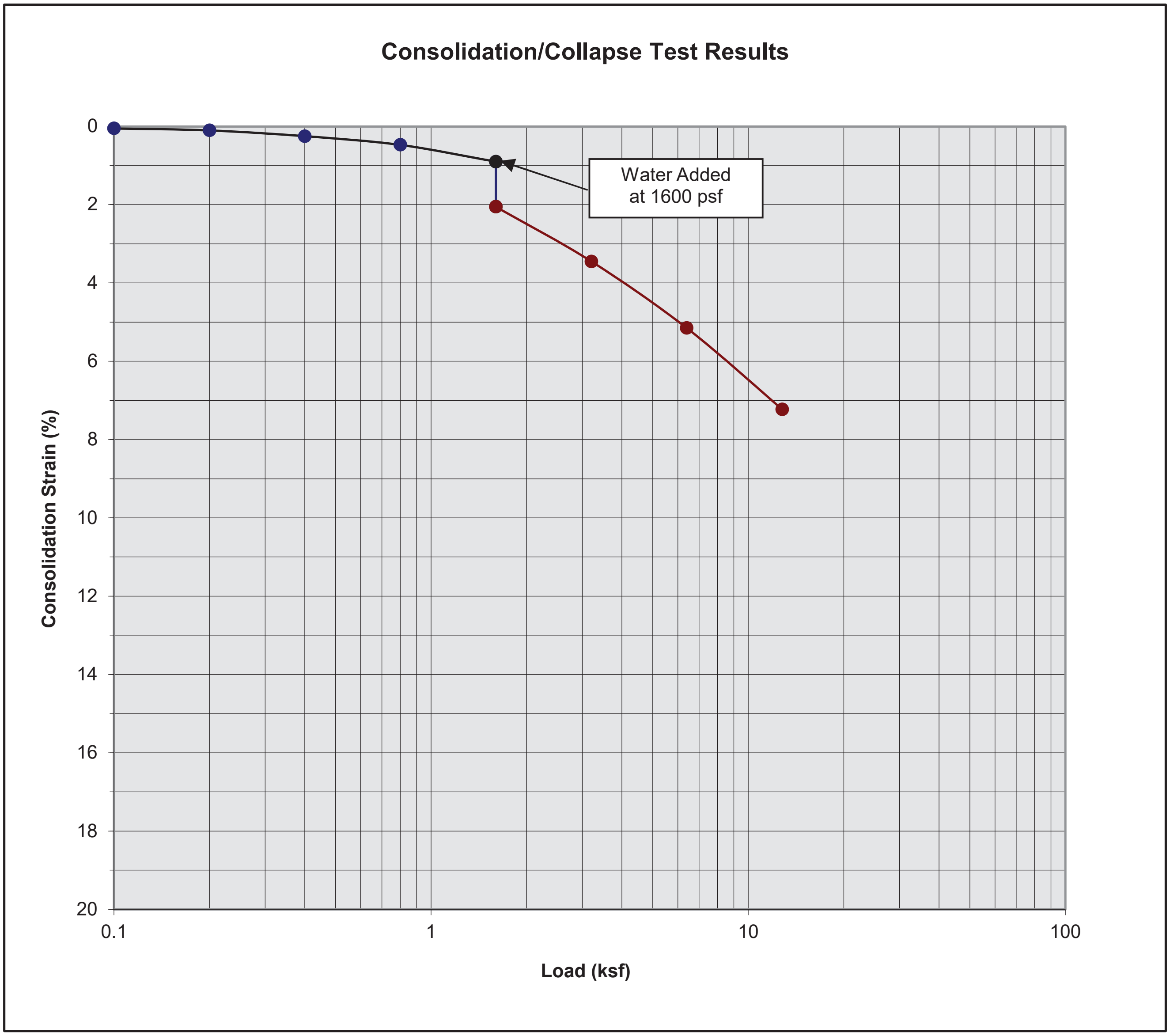



Classification: Gray Brown fine Sand, trace Silt

| | | | |
|---|---|---|---|
| Boring Number: | B-44 | Initial Moisture Content (%) | 6 |
| Sample Number: | --- | Final Moisture Content (%) | 17 |
| Depth (ft) | 46 to 47 | Initial Dry Density (pcf) | 107.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 114.1 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.84 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 39**

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation




Classification: Brown Silty fine to coarse Sand, trace fine to coarse Gravel

| | | | |
|---|---|---|---|
| Boring Number: | B-44 | Initial Moisture Content (%) | 7 |
| Sample Number: | --- | Final Moisture Content (%) | 12 |
| Depth (ft) | 48 to 49 | Initial Dry Density (pcf) | 121.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 130.4 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 1.15 |

Proposed E-Commerce Development
Beaumont, California
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**PLATE C- 40**

SOUTHERN CALIFORNIA GEOTECHNICAL
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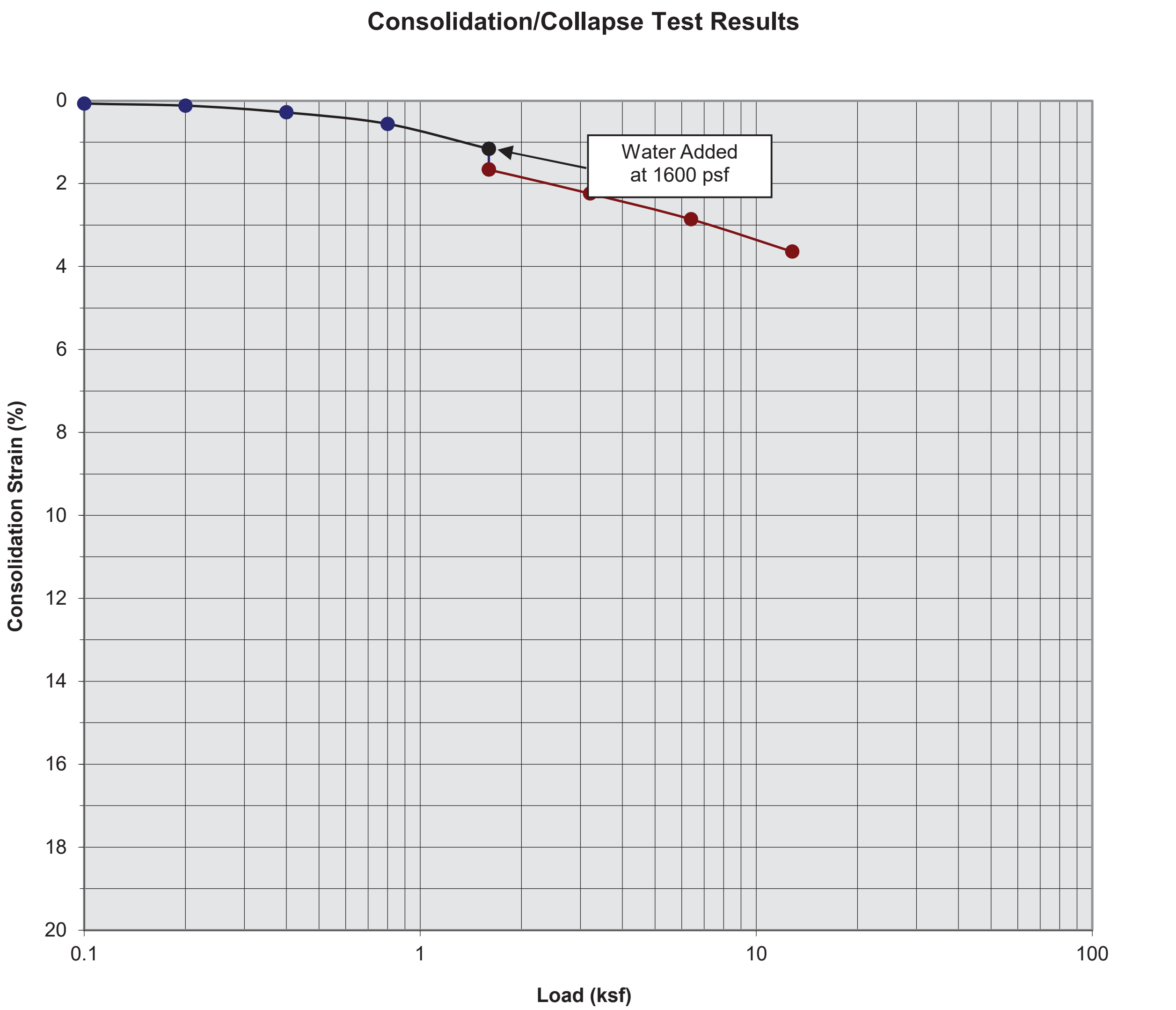


Classification: Brown Silty fine to coarse Sand, trace fine to coarse Gravel

| | | | |
|---|---|---|---|
| Boring Number: | B-44 | Initial Moisture Content (%) | 5 |
| Sample Number: | --- | Final Moisture Content (%) | 13 |
| Depth (ft) | 50 to 51 | Initial Dry Density (pcf) | 110.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 114.2 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.50 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 41**

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
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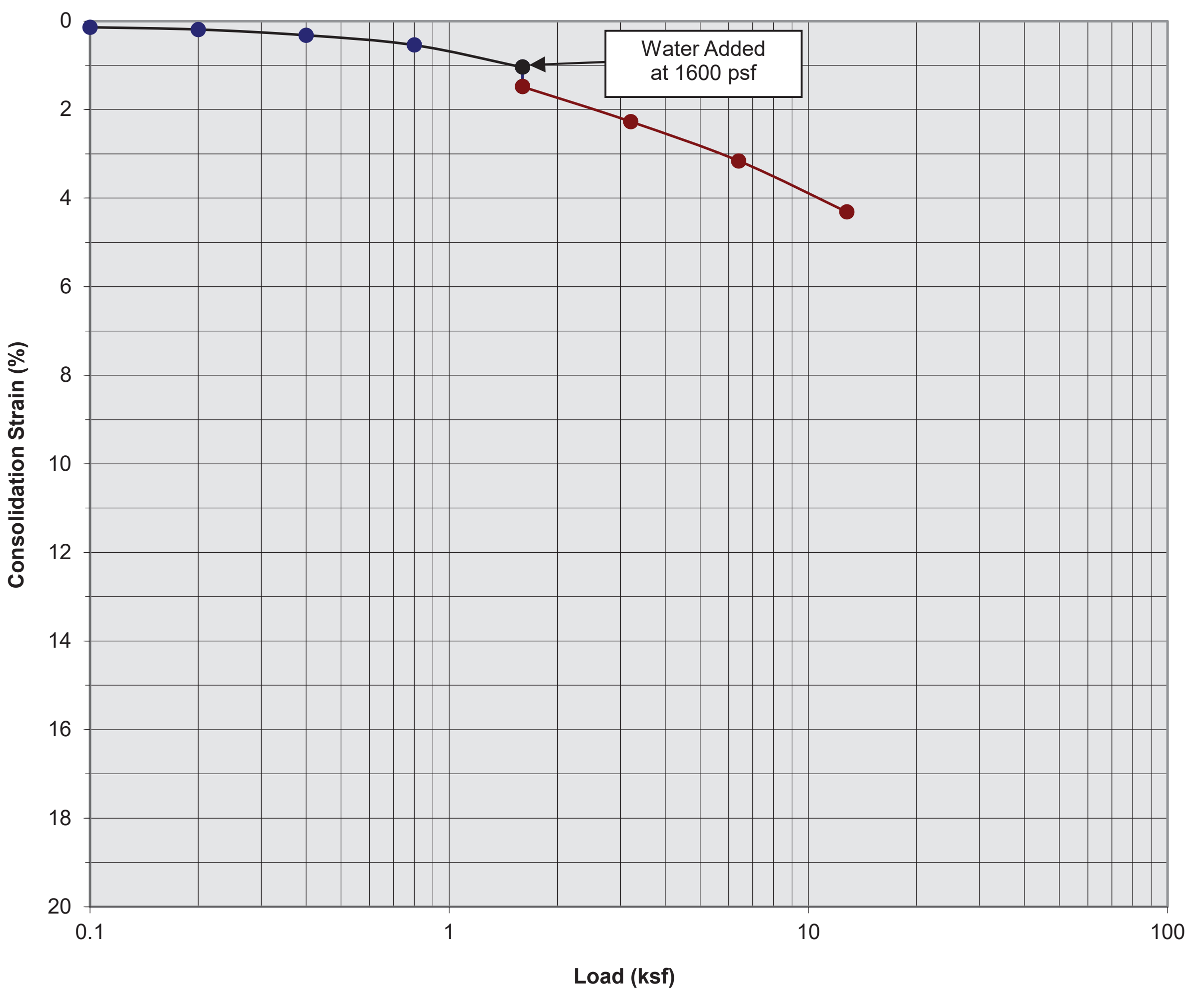
## Consolidation/Collapse Test Results

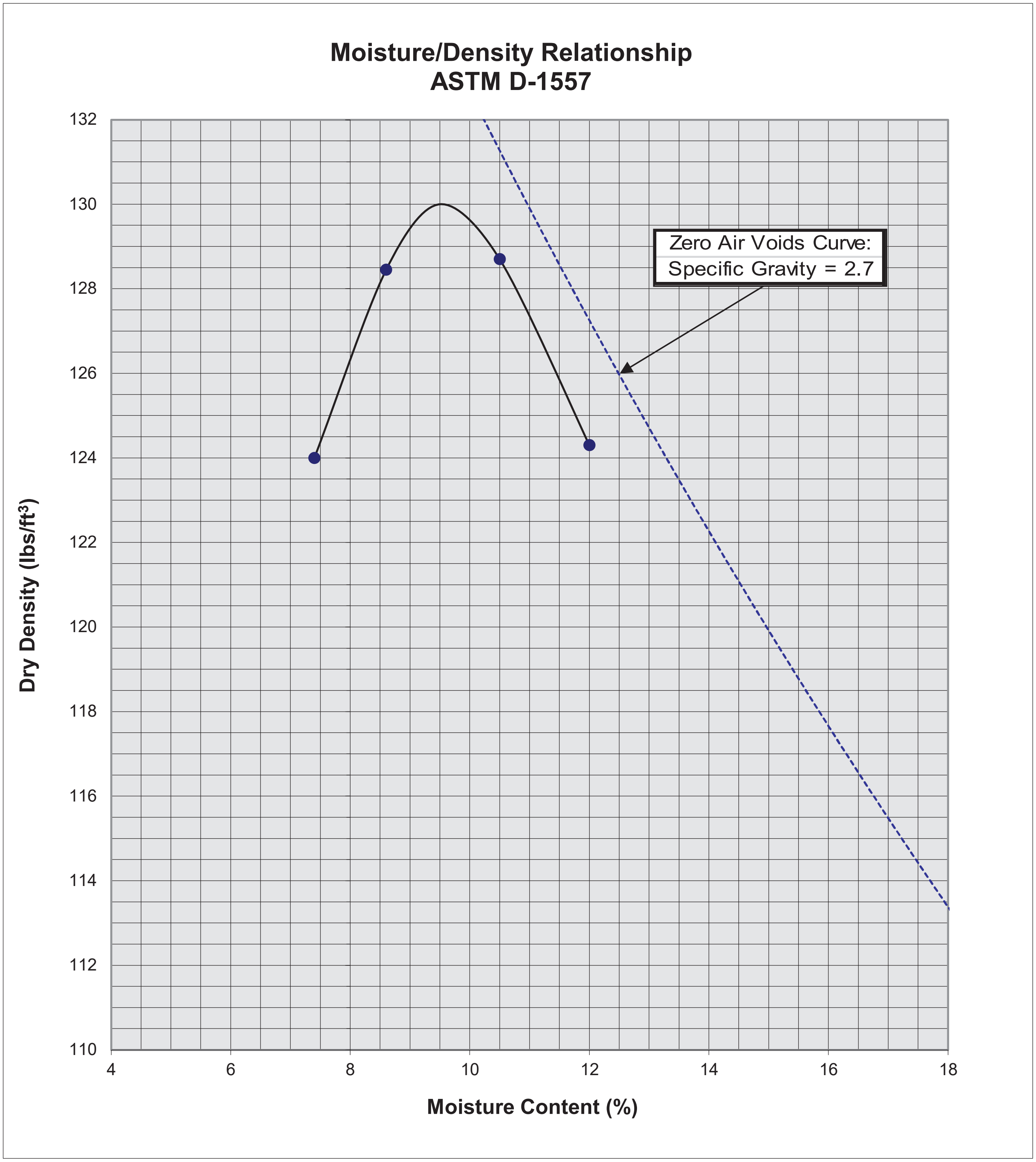



Classification: Brown Silty fine to coarse Sand, trace fine Gravel

| | | | |
|---|---|---|---|
| Boring Number: | B-44 | Initial Moisture Content (%) | 4 |
| Sample Number: | --- | Final Moisture Content (%) | 13 |
| Depth (ft) | 52 to 53 | Initial Dry Density (pcf) | 113.0 |
| Specimen Diameter (in) | 2.4 | Final Dry Density (pcf) | 118.1 |
| Specimen Thickness (in) | 1.0 | Percent Collapse (%) | 0.44 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133-1
**PLATE C- 42**

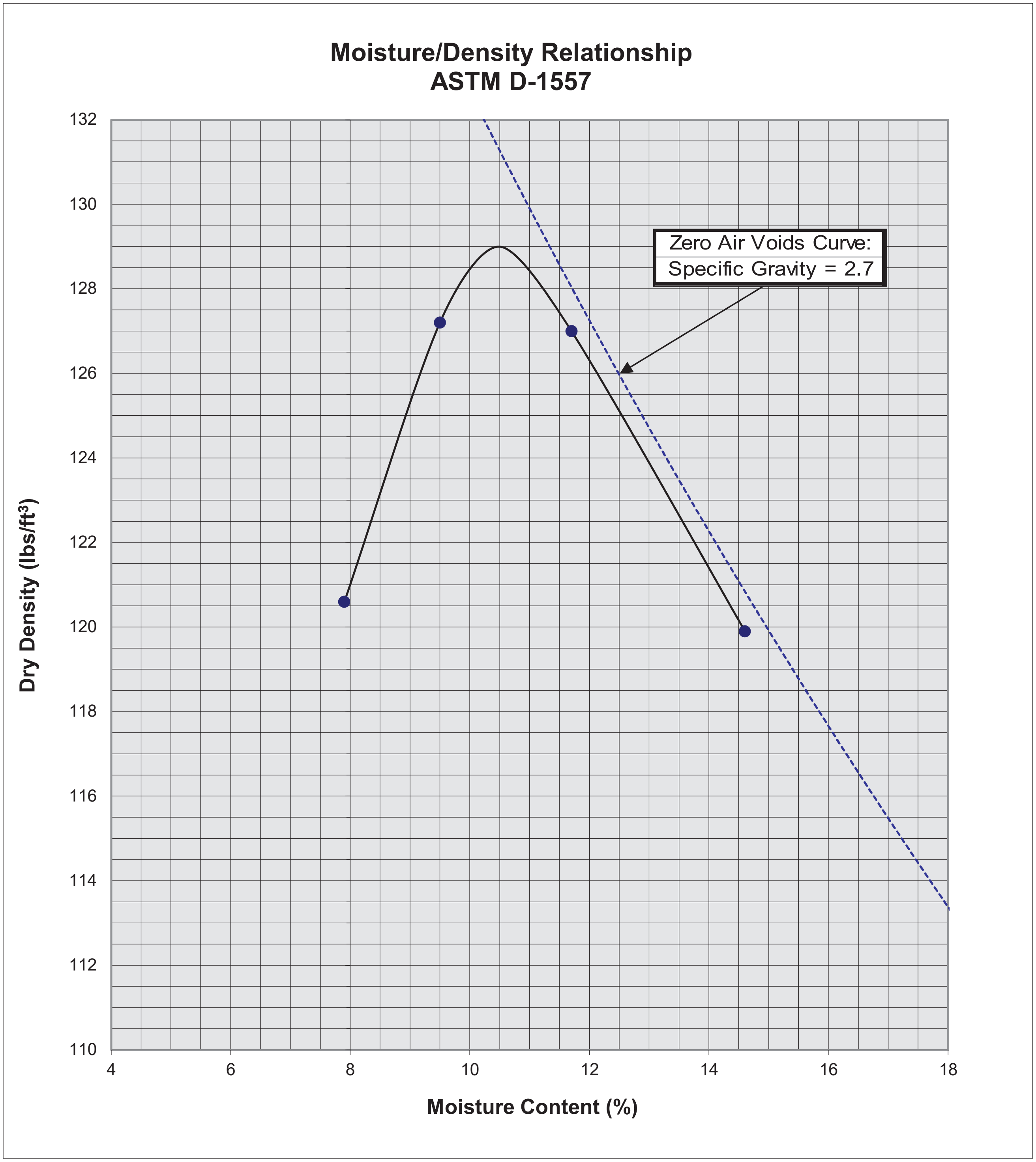
SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation




| | |
|---|---|
| Soil ID Number | B-14 @ 0-5' |
| Optimum Moisture (%) | 9.5 |
| Maximum Dry Density (pcf) | 130 |
| Soil Classification | Brown fine Sandy Clay, trace medium to coarse Sand, little Silt |

Proposed E-Commerce Develoment
Beaumont, California
Project No. 21G133-1
**PLATE C-43**

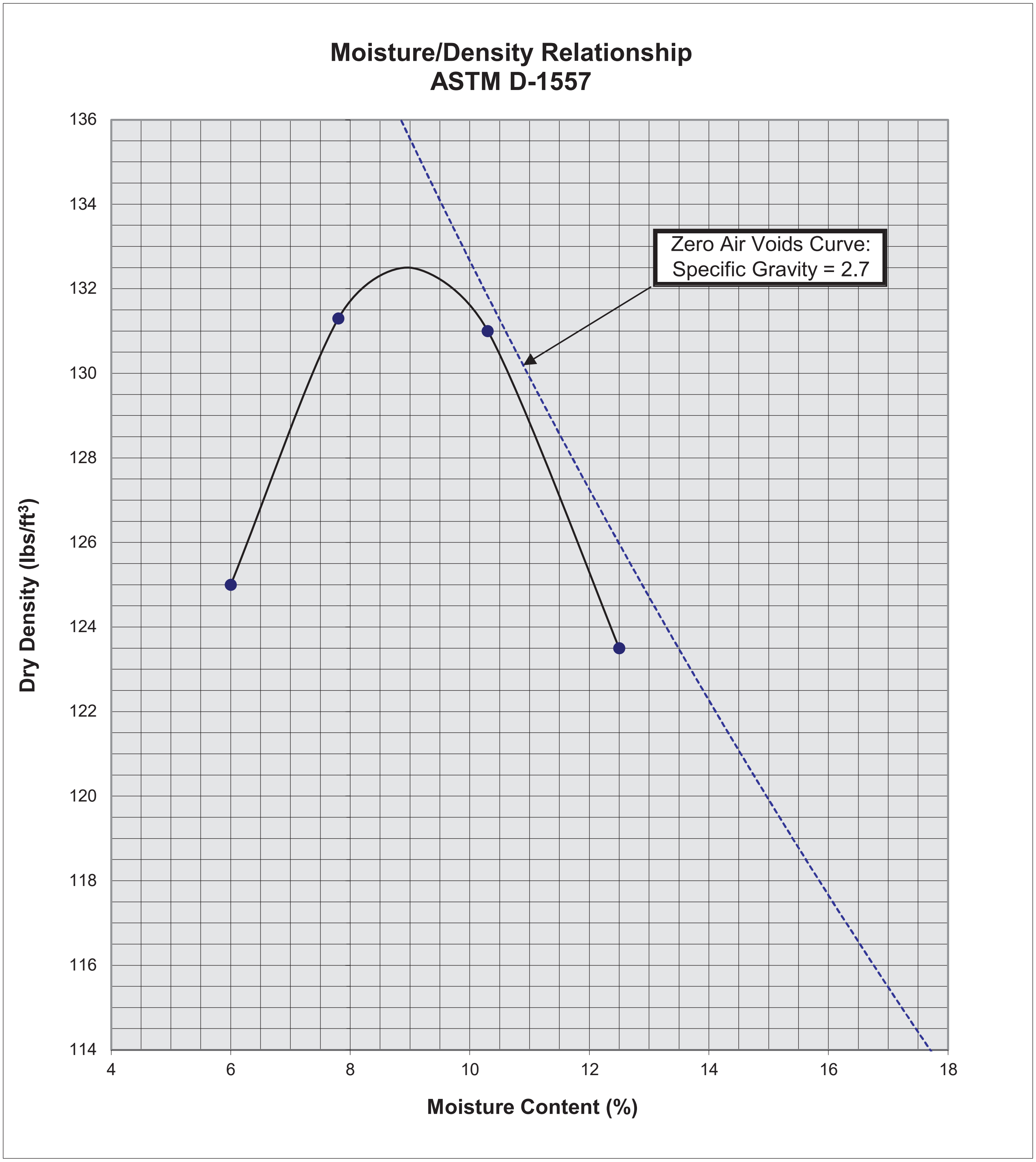
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation




| Soil ID Number | | B-17 @ 0-5' |
|---|---|---|
| Optimum Moisture (%) | | 10.5 |
| Maximum Dry Density (pcf) | | 129 |
| Soil Classification | Dark Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel | |

Proposed E-Commerce Develoment
Beaumont, California
Project No. 21G133-1
**PLATE C-44**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation




| Soil ID Number | B-25 @ 0-5' |
|---|---|
| Optimum Moisture (%) | 9 |
| Maximum Dry Density (pcf) | 132.5 |
| Soil Classification | Red Brown Clayey fine Sand, trace medium Sand, little Silt |

Proposed E-Commerce Develoment
Beaumont, California
Project No. 21G133-1

**PLATE C-45**

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
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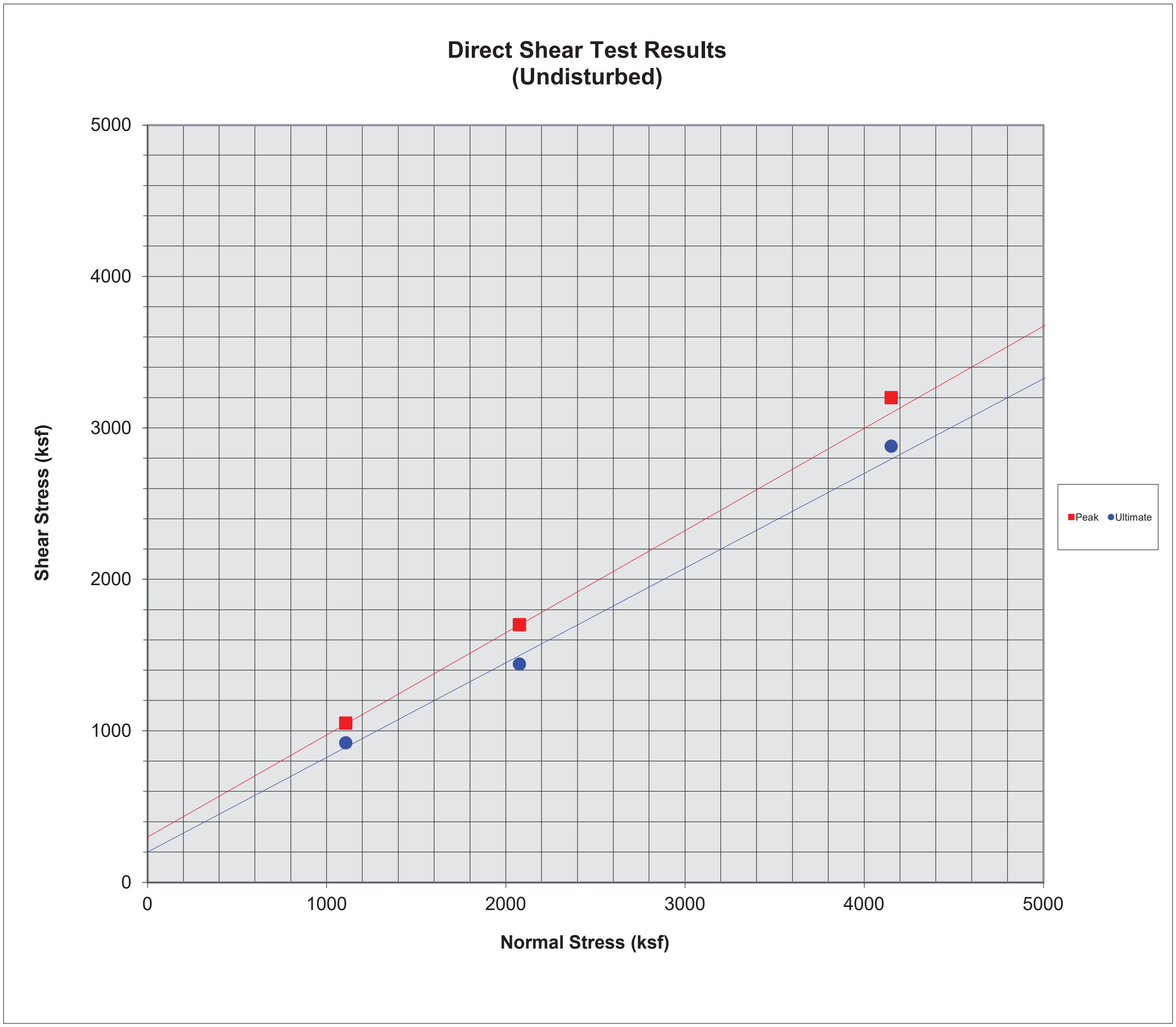


Sample Description: B-22 @ 5 to 6 feet

Classification: Gray Brown Silty fine to medium Sand, trace coarse Sand, trace fine Gravel

| Sample Data | |
|---|---|
| Initial Moisture Content | 5.0 |
| Final Moisture Content | 16.0 |
| Initial Dry Density | 112.0 |
| Final Dry Density | --- |
| Specimen Diameter (in) | 2.4 |
| Specimen Thickness (in) | 1.0 |

**Test Results**

| | Peak | Ultimate |
|---|---|---|
| φ (°) | 34.0 | 32.0 |
| C (psf) | 300 | 200 |

Proposed E-Commerce Development
Beaumont, California
Project No. 21G133
**PLATE C-46**

SoCalGeo
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A California Corporation

# APPENDIX D

# GRADING GUIDE SPECIFICATIONS

These grading guide specifications are intended to provide typical procedures for grading operations. They are intended to supplement the recommendations contained in the geotechnical investigation report for this project. Should the recommendations in the geotechnical investigation report conflict with the grading guide specifications, the more site specific recommendations in the geotechnical investigation report will govern.

## General

- The Earthwork Contractor is responsible for the satisfactory completion of all earthwork in accordance with the plans and geotechnical reports, and in accordance with city, county, and applicable building codes.

- The Geotechnical Engineer is the representative of the Owner/Builder for the purpose of implementing the report recommendations and guidelines. These duties are not intended to relieve the Earthwork Contractor of any responsibility to perform in a workman-like manner, nor is the Geotechnical Engineer to direct the grading equipment or personnel employed by the Contractor.

- The Earthwork Contractor is required to notify the Geotechnical Engineer of the anticipated work and schedule so that testing and inspections can be provided. If necessary, work may be stopped and redone if personnel have not been scheduled in advance.

- The Earthwork Contractor is required to have suitable and sufficient equipment on the job-site to process, moisture condition, mix and compact the amount of fill being placed to the approved compaction. In addition, suitable support equipment should be available to conform with recommendations and guidelines in this report.

- Canyon cleanouts, overexcavation areas, processed ground to receive fill, key excavations, subdrains and benches should be observed by the Geotechnical Engineer prior to placement of any fill. It is the Earthwork Contractor's responsibility to notify the Geotechnical Engineer of areas that are ready for inspection.

- Excavation, filling, and subgrade preparation should be performed in a manner and sequence that will provide drainage at all times and proper control of erosion. Precipitation, springs, and seepage water encountered shall be pumped or drained to provide a suitable working surface. The Geotechnical Engineer must be informed of springs or water seepage encountered during grading or foundation construction for possible revision to the recommended construction procedures and/or installation of subdrains.

## Site Preparation

- The Earthwork Contractor is responsible for all clearing, grubbing, stripping and site preparation for the project in accordance with the recommendations of the Geotechnical Engineer.

- If any materials or areas are encountered by the Earthwork Contractor which are suspected of having toxic or environmentally sensitive contamination, the Geotechnical Engineer and Owner/Builder should be notified immediately.

- Major vegetation should be stripped and disposed of off-site. This includes trees, brush, heavy grasses and any materials considered unsuitable by the Geotechnical Engineer.

- Underground structures such as basements, cesspools or septic disposal systems, mining shafts, tunnels, wells and pipelines should be removed under the inspection of the Geotechnical Engineer and recommendations provided by the Geotechnical Engineer and/or city, county or state agencies. If such structures are known or found, the Geotechnical Engineer should be notified as soon as possible so that recommendations can be formulated.

- Any topsoil, slopewash, colluvium, alluvium and rock materials which are considered unsuitable by the Geotechnical Engineer should be removed prior to fill placement.

- Remaining voids created during site clearing caused by removal of trees, foundations basements, irrigation facilities, etc., should be excavated and filled with compacted fill.

- Subsequent to clearing and removals, areas to receive fill should be scarified to a depth of 10 to 12 inches, moisture conditioned and compacted

- The moisture condition of the processed ground should be at or slightly above the optimum moisture content as determined by the Geotechnical Engineer. Depending upon field conditions, this may require air drying or watering together with mixing and/or discing.

Compacted Fills

- Soil materials imported to or excavated on the property may be utilized in the fill, provided each material has been determined to be suitable in the opinion of the Geotechnical Engineer. Unless otherwise approved by the Geotechnical Engineer, all fill materials shall be free of deleterious, organic, or frozen matter, shall contain no chemicals that may result in the material being classified as "contaminated," and shall be very low to non-expansive with a maximum expansion index (EI) of 50. The top 12 inches of the compacted fill should have a maximum particle size of 3 inches, and all underlying compacted fill material a maximum 6-inch particle size, except as noted below.

- All soils should be evaluated and tested by the Geotechnical Engineer. Materials with high expansion potential, low strength, poor gradation or containing organic materials may require removal from the site or selective placement and/or mixing to the satisfaction of the Geotechnical Engineer.

- Rock fragments or rocks less than 6 inches in their largest dimensions, or as otherwise determined by the Geotechnical Engineer, may be used in compacted fill, provided the distribution and placement is satisfactory in the opinion of the Geotechnical Engineer.

- Rock fragments or rocks greater than 12 inches should be taken off-site or placed in accordance with recommendations and in areas designated as suitable by the Geotechnical Engineer. These materials should be placed in accordance with Plate D-8 of these Grading Guide Specifications and in accordance with the following recommendations:

    - Rocks 12 inches or more in diameter should be placed in rows at least 15 feet apart, 15 feet from the edge of the fill, and 10 feet or more below subgrade. Spaces should be left between each rock fragment to provide for placement and compaction of soil around the fragments.

    - Fill materials consisting of soil meeting the minimum moisture content requirements and free of oversize material should be placed between and over the rows of rock or concrete. Ample water and compactive effort should be applied to the fill materials as they are placed in order that all of the voids between each of the fragments are filled and compacted to the specified density.

  - Subsequent rows of rocks should be placed such that they are not directly above a row placed in the previous lift of fill. A minimum 5-foot offset between rows is recommended.

  - To facilitate future trenching, oversized material should not be placed within the range of foundation excavations, future utilities or other underground construction unless specifically approved by the soil engineer and the developer/owner representative.

- Fill materials approved by the Geotechnical Engineer should be placed in areas previously prepared to receive fill and in evenly placed, near horizontal layers at about 6 to 8 inches in loose thickness, or as otherwise determined by the Geotechnical Engineer for the project.

- Each layer should be moisture conditioned to optimum moisture content, or slightly above, as directed by the Geotechnical Engineer. After proper mixing and/or drying, to evenly distribute the moisture, the layers should be compacted to at least 90 percent of the maximum dry density in compliance with ASTM D-1557-78 unless otherwise indicated.

- Density and moisture content testing should be performed by the Geotechnical Engineer at random intervals and locations as determined by the Geotechnical Engineer. These tests are intended as an aid to the Earthwork Contractor, so he can evaluate his workmanship, equipment effectiveness and site conditions. The Earthwork Contractor is responsible for compaction as required by the Geotechnical Report(s) and governmental agencies.

- Fill areas unused for a period of time may require moisture conditioning, processing and recompaction prior to the start of additional filling. The Earthwork Contractor should notify the Geotechnical Engineer of his intent so that an evaluation can be made.

- Fill placed on ground sloping at a 5-to-1 inclination (horizontal-to-vertical) or steeper should be benched into bedrock or other suitable materials, as directed by the Geotechnical Engineer. Typical details of benching are illustrated on Plates D-2, D-4, and D-5.

- Cut/fill transition lots should have the cut portion overexcavated to a depth of at least 3 feet and rebuilt with fill (see Plate D-1), as determined by the Geotechnical Engineer.

- All cut lots should be inspected by the Geotechnical Engineer for fracturing and other bedrock conditions. If necessary, the pads should be overexcavated to a depth of 3 feet and rebuilt with a uniform, more cohesive soil type to impede moisture penetration.

- Cut portions of pad areas above buttresses or stabilizations should be overexcavated to a depth of 3 feet and rebuilt with uniform, more cohesive compacted fill to impede moisture penetration.

- Non-structural fill adjacent to structural fill should typically be placed in unison to provide lateral support. Backfill along walls must be placed and compacted with care to ensure that excessive unbalanced lateral pressures do not develop. The type of fill material placed adjacent to below grade walls must be properly tested and approved by the Geotechnical Engineer with consideration of the lateral earth pressure used in the design.

Foundations

- The foundation influence zone is defined as extending one foot horizontally from the outside edge of a footing, and proceeding downward at a ½ horizontal to 1 vertical (0.5:1) inclination.

- Where overexcavation beneath a footing subgrade is necessary, it should be conducted so as to encompass the entire foundation influence zone, as described above.

- Compacted fill adjacent to exterior footings should extend at least 12 inches above foundation bearing grade. Compacted fill within the interior of structures should extend to the floor subgrade elevation.

Fill Slopes

- The placement and compaction of fill described above applies to all fill slopes. Slope compaction should be accomplished by overfilling the slope, adequately compacting the fill in even layers, including the overfilled zone and cutting the slope back to expose the compacted core

- Slope compaction may also be achieved by backrolling the slope adequately every 2 to 4 vertical feet during the filling process as well as requiring the earth moving and compaction equipment to work close to the top of the slope. Upon completion of slope construction, the slope face should be compacted with a sheepsfoot connected to a sideboom and then grid rolled. This method of slope compaction should only be used if approved by the Geotechnical Engineer.

- Sandy soils lacking in adequate cohesion may be unstable for a finished slope condition and therefore should not be placed within 15 horizontal feet of the slope face.

- All fill slopes should be keyed into bedrock or other suitable material. Fill keys should be at least 15 feet wide and inclined at 2 percent into the slope. For slopes higher than 30 feet, the fill key width should be equal to one-half the height of the slope (see Plate D-5).

- All fill keys should be cleared of loose slough material prior to geotechnical inspection and should be approved by the Geotechnical Engineer and governmental agencies prior to filling.

- The cut portion of fill over cut slopes should be made first and inspected by the Geotechnical Engineer for possible stabilization requirements. The fill portion should be adequately keyed through all surficial soils and into bedrock or suitable material. Soils should be removed from the transition zone between the cut and fill portions (see Plate D-2).

Cut Slopes

- All cut slopes should be inspected by the Geotechnical Engineer to determine the need for stabilization. The Earthwork Contractor should notify the Geotechnical Engineer when slope cutting is in progress at intervals of 10 vertical feet. Failure to notify may result in a delay in recommendations.

- Cut slopes exposing loose, cohesionless sands should be reported to the Geotechnical Engineer for possible stabilization recommendations.

- All stabilization excavations should be cleared of loose slough material prior to geotechnical inspection. Stakes should be provided by the Civil Engineer to verify the location and dimensions of the key. A typical stabilization fill detail is shown on Plate D-5.

- Stabilization key excavations should be provided with subdrains. Typical subdrain details are shown on Plates D-6.

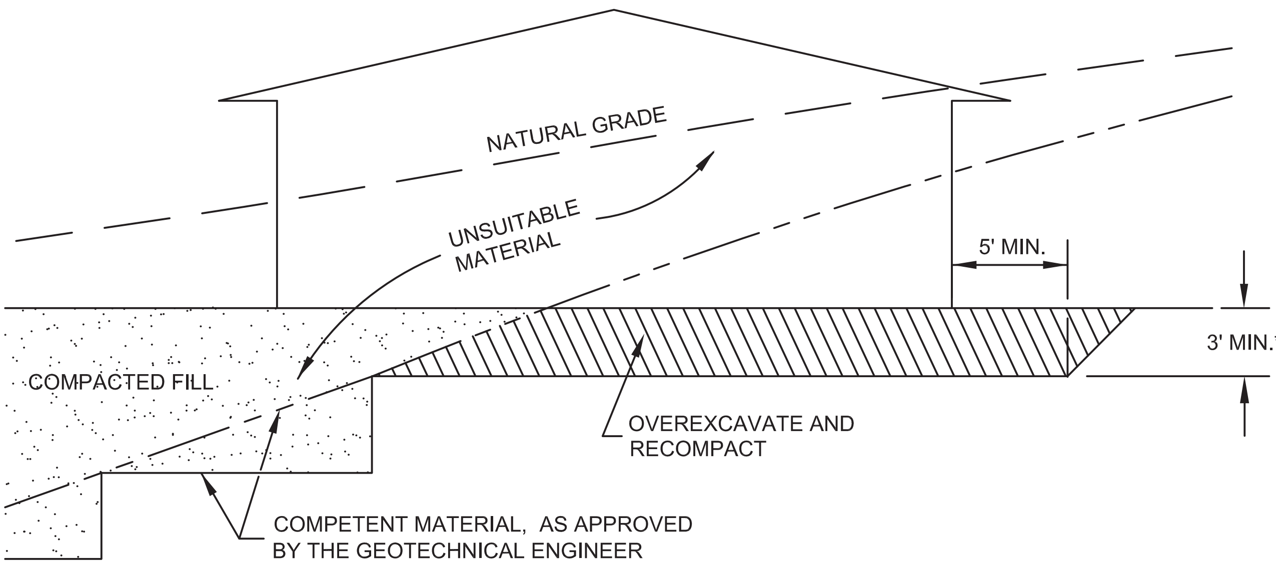
Subdrains

- Subdrains may be required in canyons and swales where fill placement is proposed. Typical subdrain details for canyons are shown on Plate D-3. Subdrains should be installed after approval of removals and before filling, as determined by the Soils Engineer.

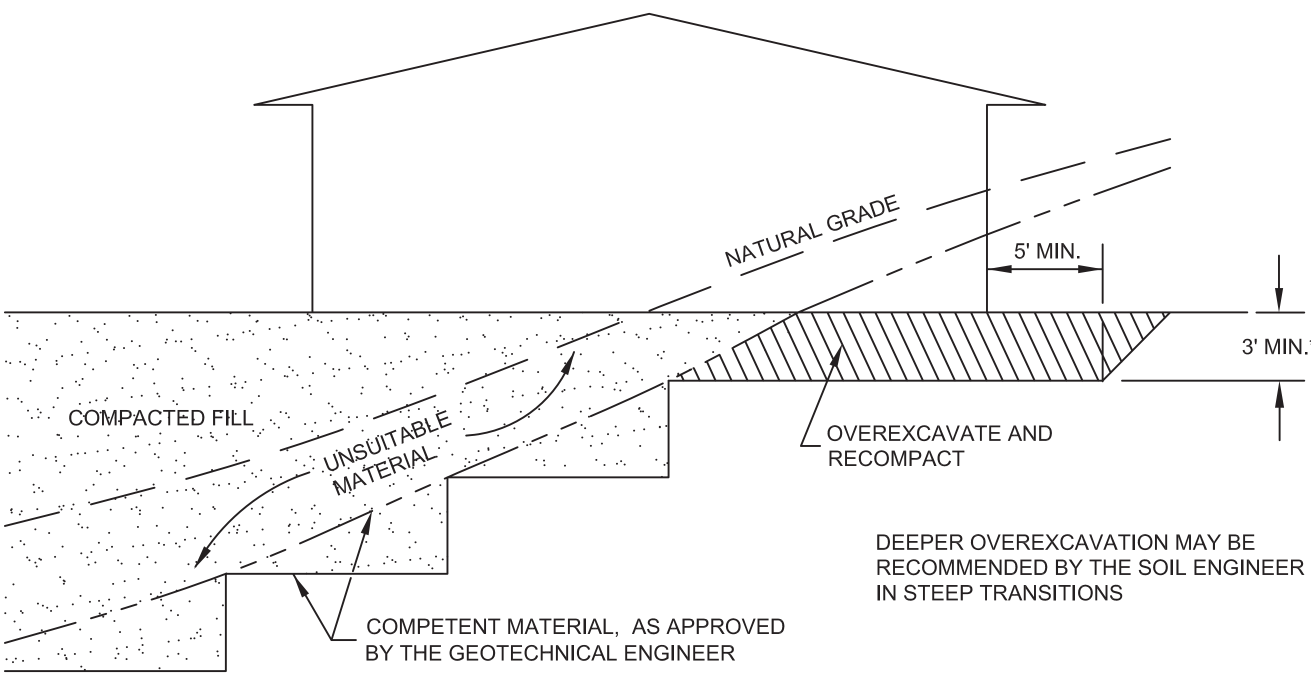
- Plastic pipe may be used for subdrains provided it is Schedule 40 or SDR 35 or equivalent. Pipe should be protected against breakage, typically by placement in a square-cut (backhoe) trench or as recommended by the manufacturer.

- Filter material for subdrains should conform to CALTRANS Specification 68-1.025 or as approved by the Geotechnical Engineer for the specific site conditions. Clean ¾-inch crushed rock may be used provided it is wrapped in an acceptable filter cloth and approved by the Geotechnical Engineer. Pipe diameters should be 6 inches for runs up to 500 feet and 8 inches for the downstream continuations of longer runs. Four-inch diameter pipe may be used in buttress and stabilization fills.

## CUT LOT




## CUT/FILL LOT (TRANSITION)




DEEPER OVEREXCAVATION MAY BE RECOMMENDED BY THE SOIL ENGINEER IN STEEP TRANSITIONS

*SEE TEXT OF REPORT FOR SPECIFIC RECOMMENDATION.
ACTUAL DEPTH OF OVEREXCAVATION MAY BE GREATER.

**TRANSITION LOT DETAIL**

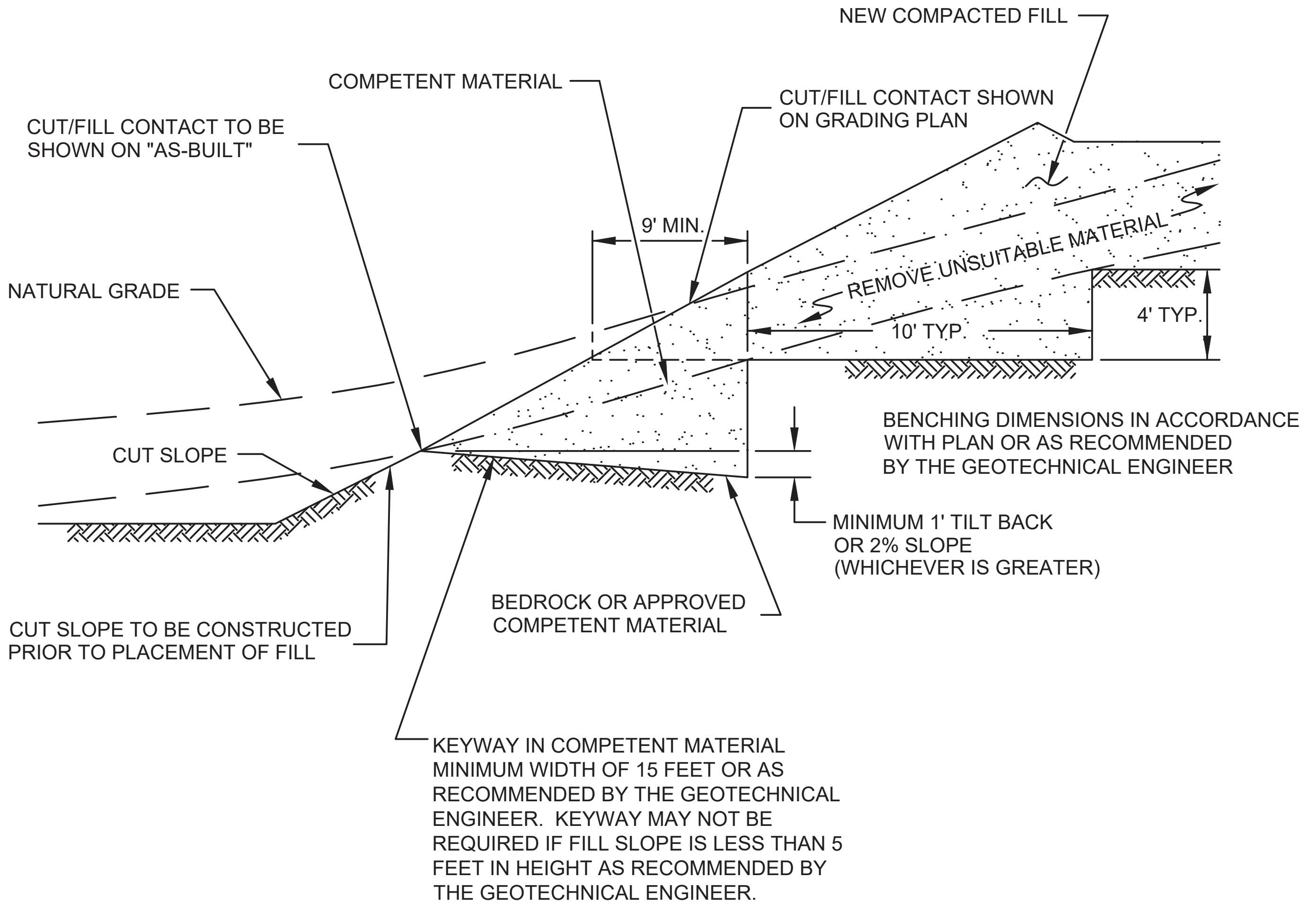
GRADING GUIDE SPECIFICATIONS

NOT TO SCALE

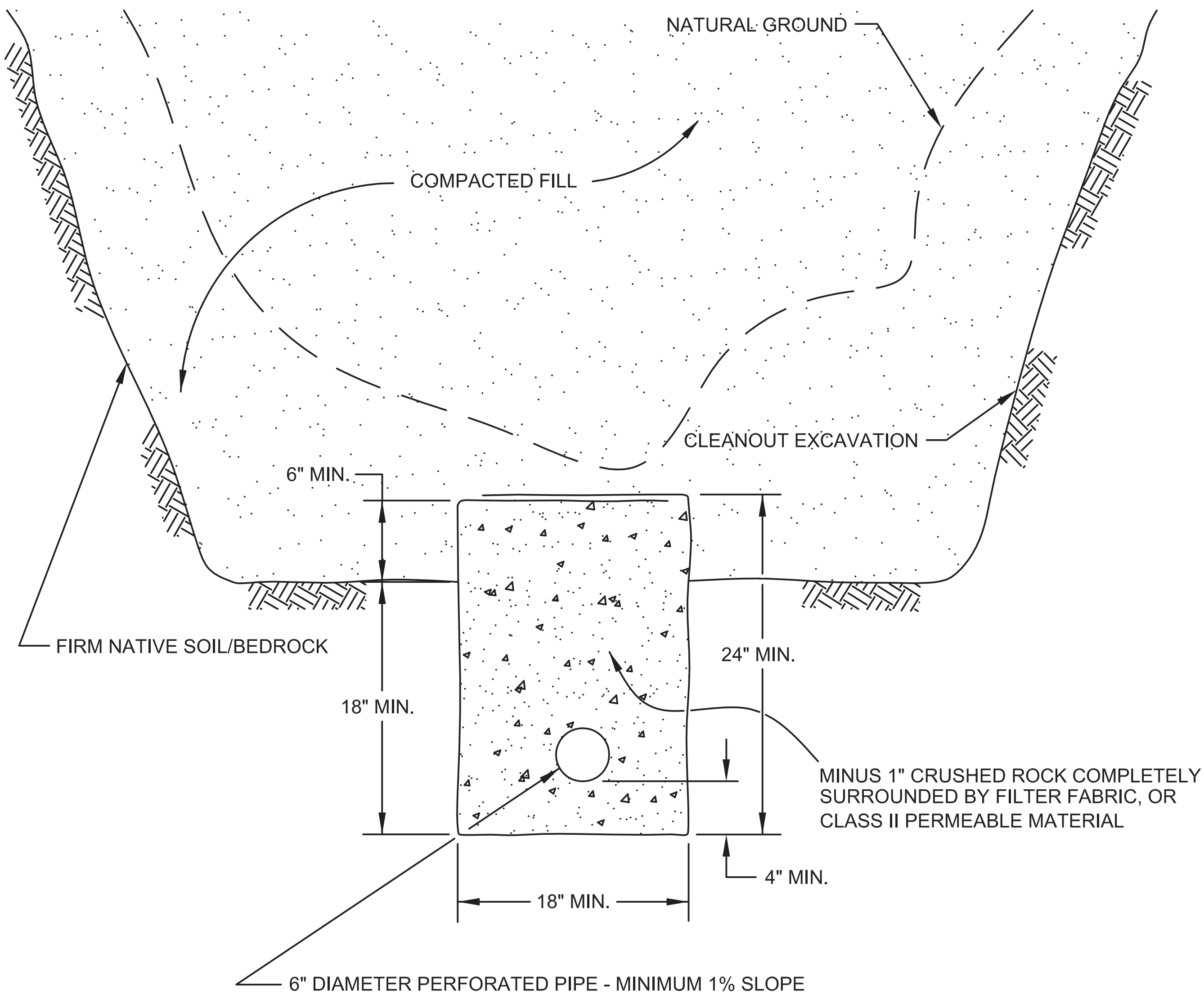
DRAWN: JAS
CHKD: GKM

**PLATE D-1**

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL




| FILL ABOVE CUT SLOPE DETAIL | |
|---|---|
| GRADING GUIDE SPECIFICATIONS | |
| NOT TO SCALE | SOUTHERN CALIFORNIA GEOTECHNICAL |
| DRAWN: JAS<br>CHKD: GKM | |
| PLATE D-2 | |




| PIPE MATERIAL | DEPTH OF FILL OVER SUBDRAIN |
|---|---|
| ADS (CORRUGATED POLETHYLENE) | 8 |
| TRANSITE UNDERDRAIN | 20 |
| PVC OR ABS: SDR 35 | 35 |
| SDR 21 | 100 |

**SCHEMATIC ONLY**
**NOT TO SCALE**

**CANYON SUBDRAIN DETAIL**

GRADING GUIDE SPECIFICATIONS

NOT TO SCALE

DRAWN: JAS
CHKD: GKM

**PLATE D-3**

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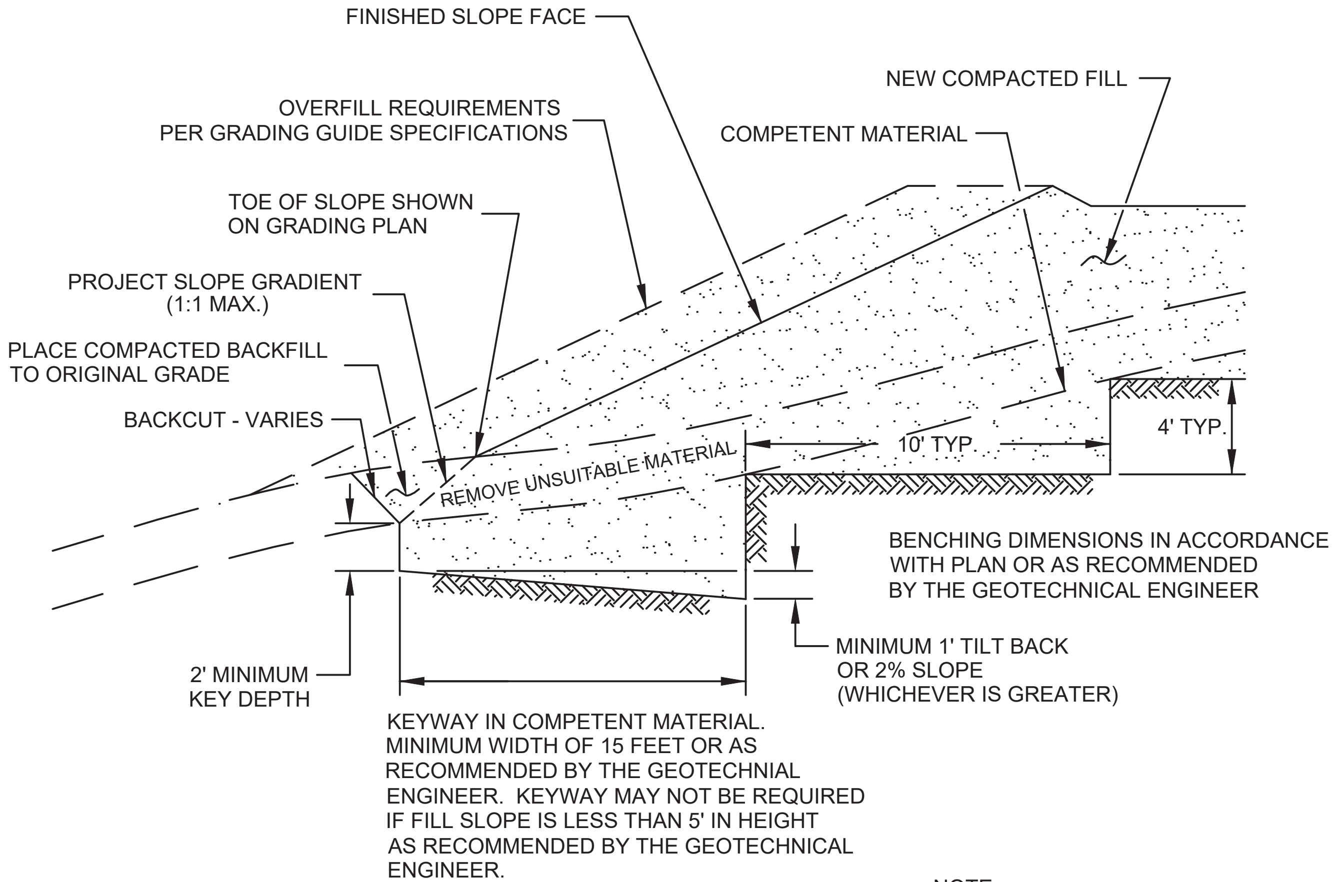
SOUTHERN CALIFORNIA GEOTECHNICAL




NOTE:
BENCHING SHALL BE REQUIRED WHEN NATURAL SLOPES ARE EQUAL TO OR STEEPER THAN 5:1 OR WHEN RECOMMENDED BY THE GEOTECHNICAL ENGINEER.

**FILL ABOVE NATURAL SLOPE DETAIL**

GRADING GUIDE SPECIFICATIONS

NOT TO SCALE

DRAWN: JAS
CHKD: GKM

**PLATE D-4**

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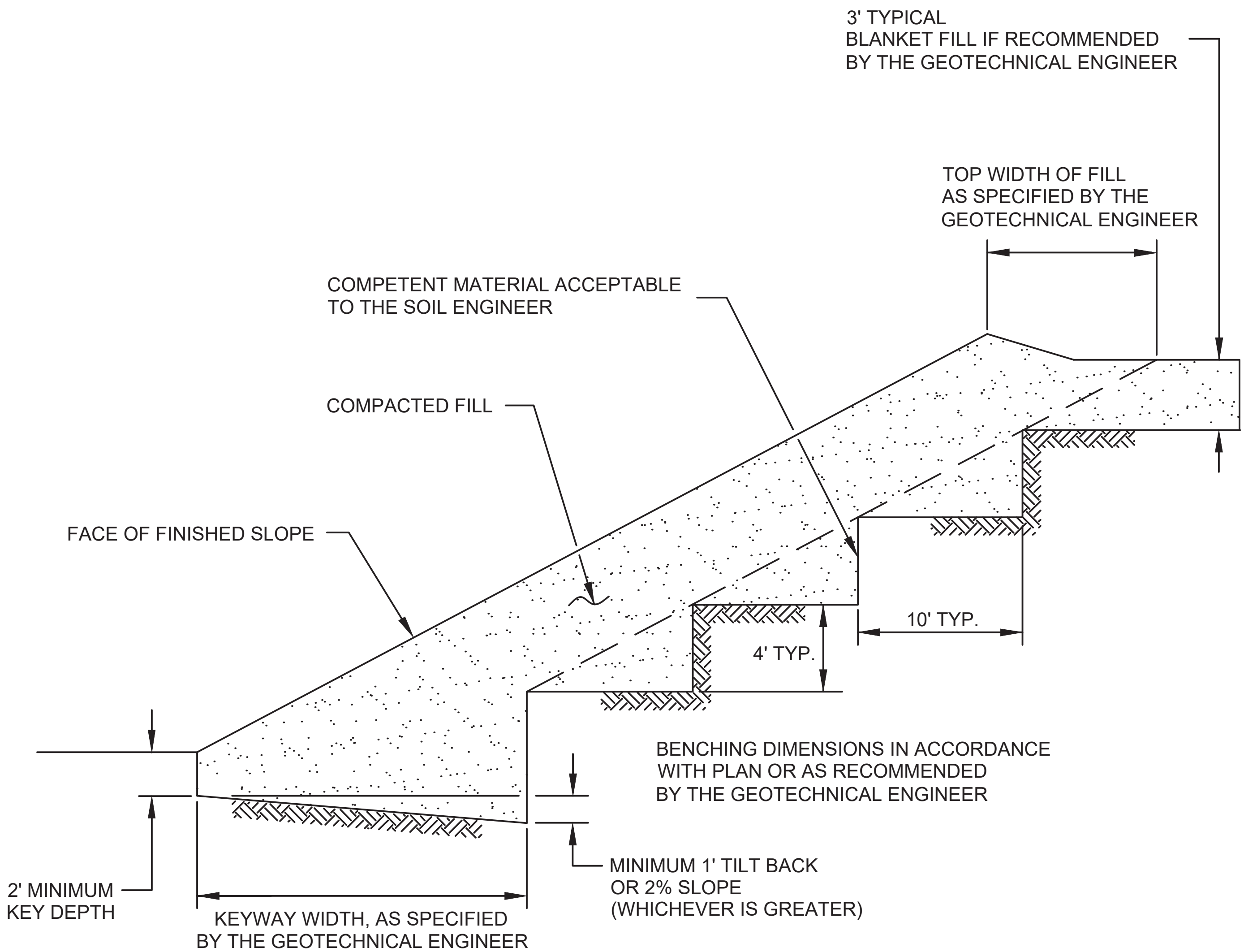
SOUTHERN CALIFORNIA GEOTECHNICAL




**STABILIZATION FILL DETAIL**

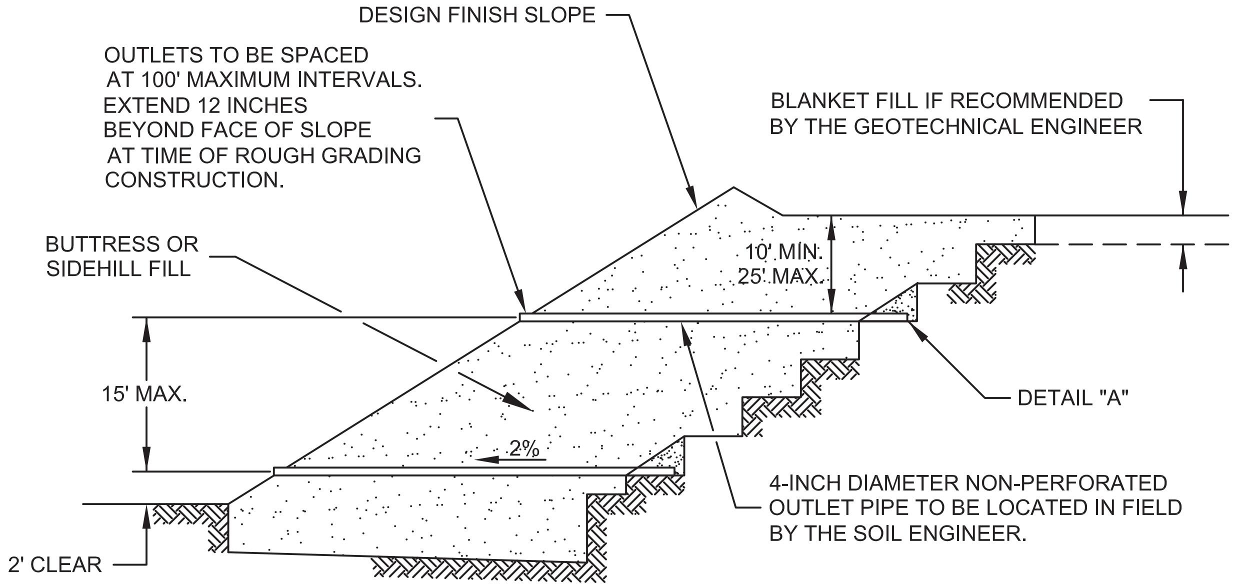
GRADING GUIDE SPECIFICATIONS

NOT TO SCALE

DRAWN: JAS
CHKD: GKM

**PLATE D-5**

SOUTHERN CALIFORNIA GEOTECHNICAL



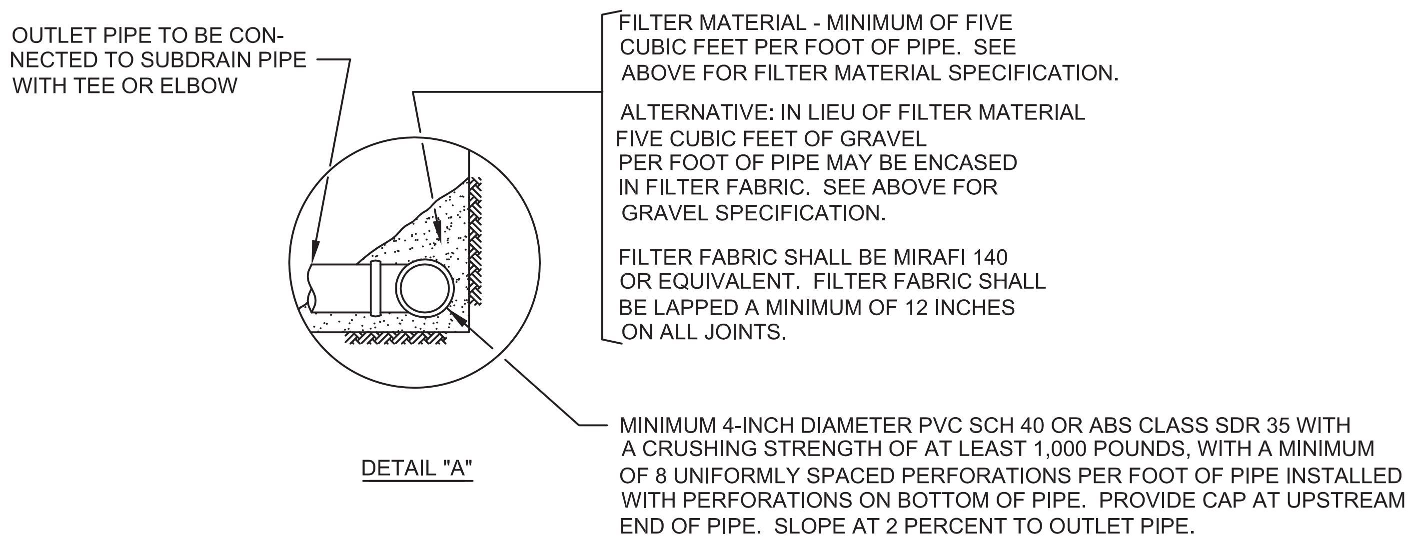

"FILTER MATERIAL" TO MEET FOLLOWING SPECIFICATION OR APPROVED EQUIVALENT: (CONFORMS TO EMA STD. PLAN 323)

| SIEVE SIZE | PERCENTAGE PASSING |
|---|---|
| 1" | 100 |
| 3/4" | 90-100 |
| 3/8" | 40-100 |
| NO. 4 | 25-40 |
| NO. 8 | 18-33 |
| NO. 30 | 5-15 |
| NO. 50 | 0-7 |
| NO. 200 | 0-3 |

"GRAVEL" TO MEET FOLLOWING SPECIFICATION OR APPROVED EQUIVALENT:

| SIEVE SIZE | MAXIMUM PERCENTAGE PASSING |
|---|---|
| 1 1/2" | 100 |
| NO. 4 | 50 |
| NO. 200 | 8 |

SAND EQUIVALENT = MINIMUM OF 50




DETAIL "A"

NOTES:
1. TRENCH FOR OUTLET PIPES TO BE BACKFILLED WITH ON-SITE SOIL.

**SLOPE FILL SUBDRAINS**

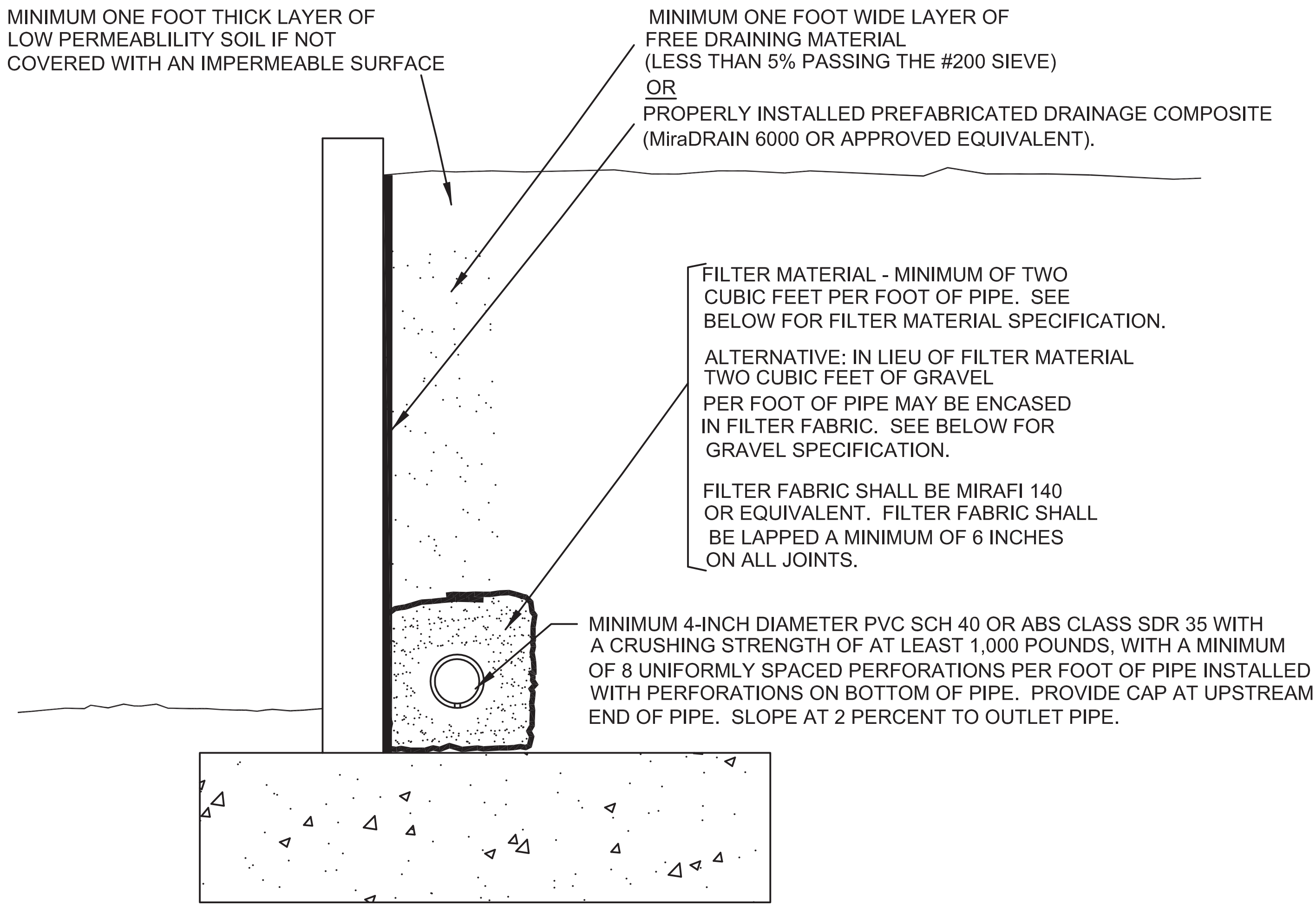
GRADING GUIDE SPECIFICATIONS

NOT TO SCALE

DRAWN: JAS
CHKD: GKM

**PLATE D-6**

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL




"FILTER MATERIAL" TO MEET FOLLOWING SPECIFICATION OR APPROVED EQUIVALENT: (CONFORMS TO EMA STD. PLAN 323)

| SIEVE SIZE | PERCENTAGE PASSING |
|---|---|
| 1" | 100 |
| 3/4" | 90-100 |
| 3/8" | 40-100 |
| NO. 4 | 25-40 |
| NO. 8 | 18-33 |
| NO. 30 | 5-15 |
| NO. 50 | 0-7 |
| NO. 200 | 0-3 |

"GRAVEL" TO MEET FOLLOWING SPECIFICATION OR APPROVED EQUIVALENT:

| SIEVE SIZE | MAXIMUM PERCENTAGE PASSING |
|---|---|
| 1 1/2" | 100 |
| NO. 4 | 50 |
| NO. 200 | 8 |

SAND EQUIVALENT = MINIMUM OF 50

**RETAINING WALL BACKDRAINS**

GRADING GUIDE SPECIFICATIONS

NOT TO SCALE

DRAWN: JAS
CHKD: GKM

**PLATE D-7**

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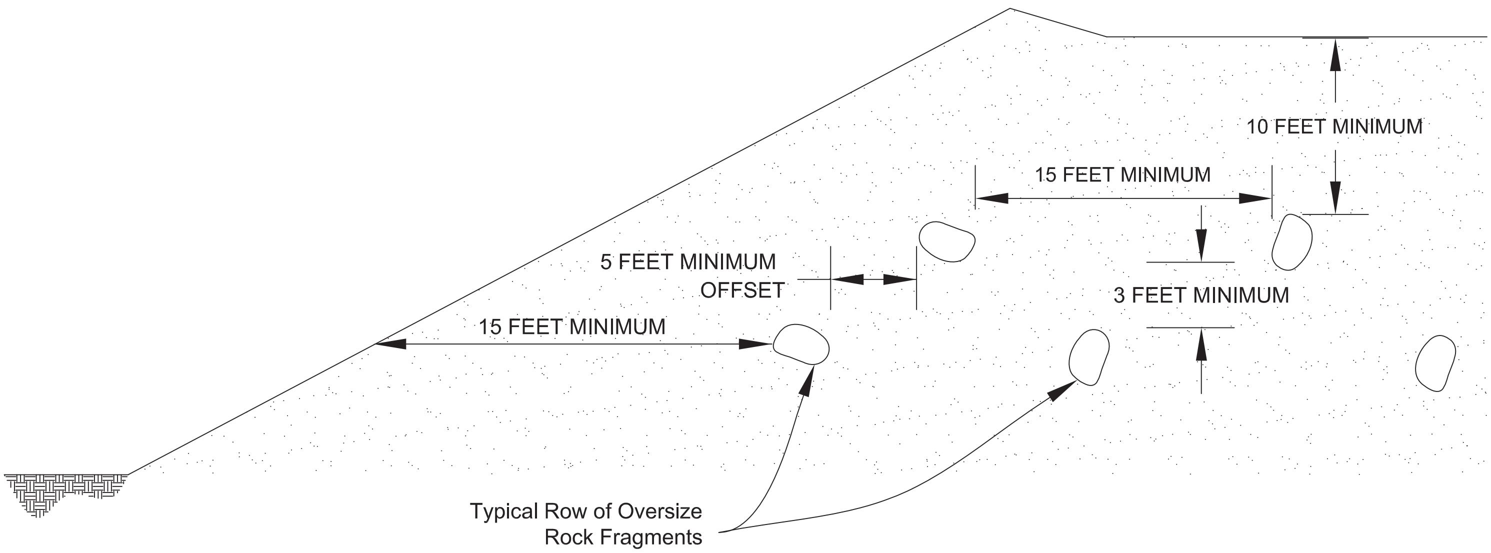
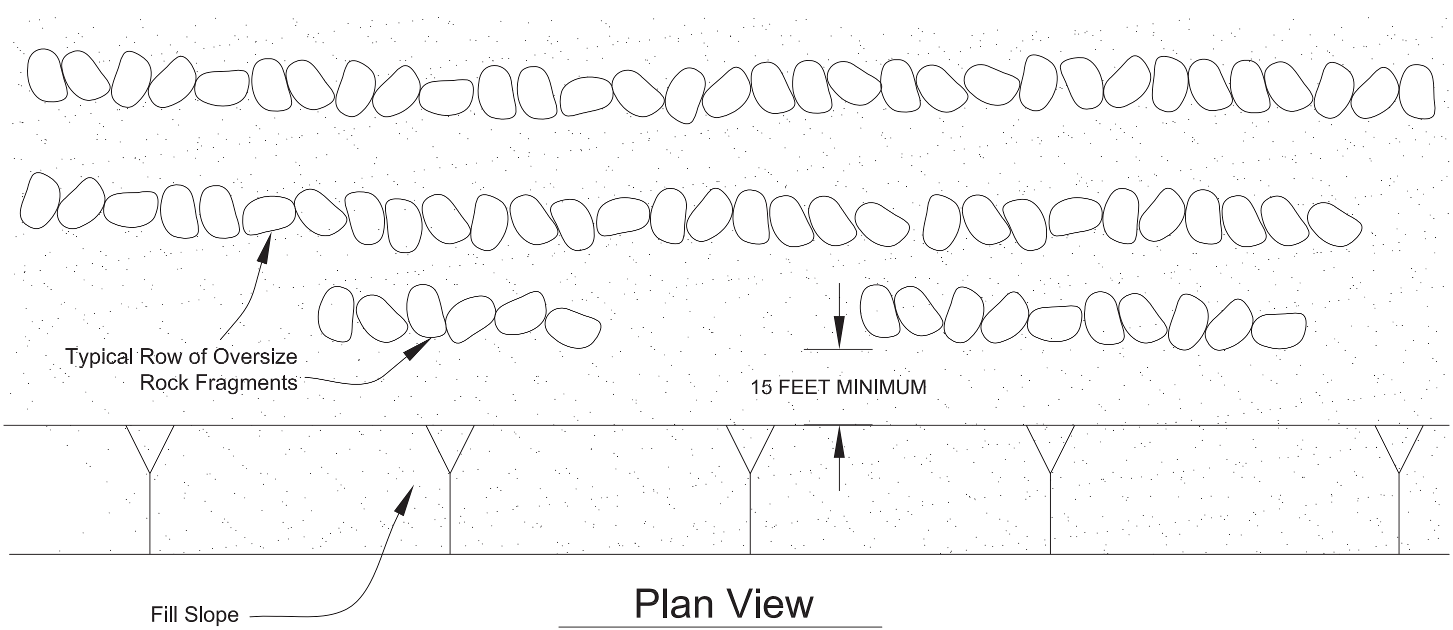
SOUTHERN CALIFORNIA GEOTECHNICAL




## Section View




## Plan View

**PLACEMENT OF OVERSIZED MATERIAL**

GRADING GUIDE SPECIFICATIONS

NOT TO SCALE

DRAWN: PM
CHKD: GKM

**PLATE D-8**

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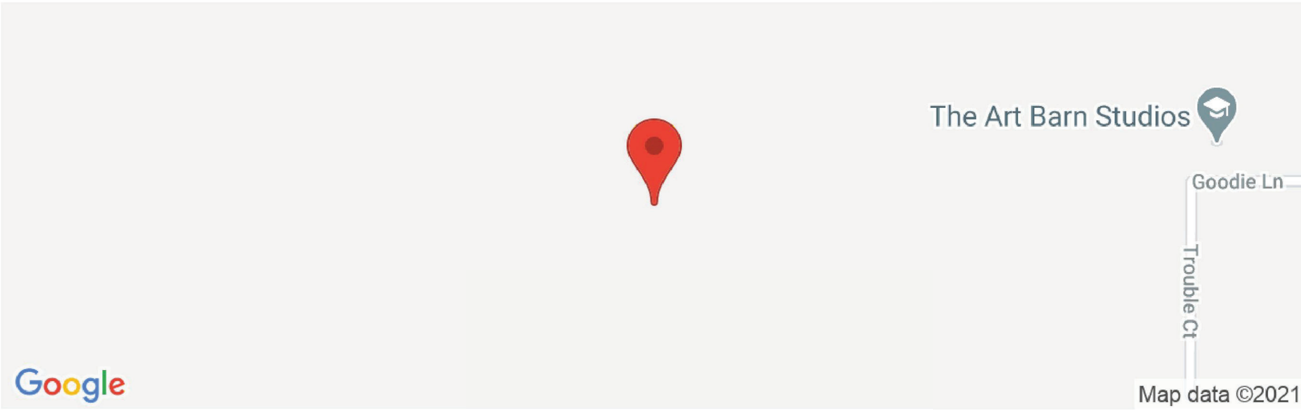
SOUTHERN CALIFORNIA GEOTECHNICAL

# APPENDIX E

**Latitude, Longitude: 33.966227, -117.018379**




| | |
|---|---|
| **Date** | 4/5/2021, 2:24:01 PM |
| **Design Code Reference Document** | ASCE7-16 |
| **Risk Category** | III |
| **Site Class** | D - Default (See Section 11.4.3) |

| Type | Value | Description |
|---|---|---|
| $S_S$ | 2.091 | $MCE_R$ ground motion. (for 0.2 second period) |
| $S_1$ | 0.718 | $MCE_R$ ground motion. (for 1.0s period) |
| $S_{MS}$ | 2.509 | Site-modified spectral acceleration value |
| $S_{M1}$ | null -See Section 11.4.8 | Site-modified spectral acceleration value |
| $S_{DS}$ | 1.673 | Numeric seismic design value at 0.2 second SA |
| $S_{D1}$ | null -See Section 11.4.8 | Numeric seismic design value at 1.0 second SA |

| Type | Value | Description |
|---|---|---|
| SDC | null -See Section 11.4.8 | Seismic design category |
| $F_a$ | 1.2 | Site amplification factor at 0.2 second |
| $F_v$ | null -See Section 11.4.8 | Site amplification factor at 1.0 second |
| PGA | 0.853 | $MCE_G$ peak ground acceleration |
| $F_{PGA}$ | 1.2 | Site amplification factor at PGA |
| $PGA_M$ | 1.024 | Site modified peak ground acceleration |
| $T_L$ | 8 | Long-period transition period in seconds |
| SsRT | 2.212 | Probabilistic risk-targeted ground motion. (0.2 second) |
| SsUH | 2.411 | Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration |
| SsD | 2.091 | Factored deterministic acceleration value. (0.2 second) |
| S1RT | 0.852 | Probabilistic risk-targeted ground motion. (1.0 second) |
| S1UH | 0.956 | Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration. |
| S1D | 0.718 | Factored deterministic acceleration value. (1.0 second) |
| PGAd | 0.853 | Factored deterministic acceleration value. (Peak Ground Acceleration) |
| $C_{RS}$ | 0.917 | Mapped value of the risk coefficient at short periods |
| $C_{R1}$ | 0.891 | Mapped value of the risk coefficient at a period of 1 s |

SOURCE: SEAOC/OSHPD Seismic Design Maps Tool
<https://seismicmaps.org/>

**SEISMIC DESIGN PARAMETERS - 2019 CBC**

PROPOSED E-COMMERCE DEVELOPMENT

BEAUMONT, CALIFORNIA

DRAWN: JAH
CHKD: RGT

SCG PROJECT
21G133-1

**PLATE E-1**

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SOUTHERN CALIFORNIA GEOTECHNICAL