REVISED GEOTECHNICAL INVESTIGATION
PROPOSED COMMERCIAL/INDUSTRIAL DEVELOPMENT

Calimesa Boulevard, Southeast of Singleton Road
Calimesa, California
for
Birtcher Development

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

December 6, 2023

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Birtcher Development
450 Newport Center Drive, Suite 220
Newport Beach, California 92660

Attention: Mr. Scott Mulkay
President of Construction

Project No.: **20G122-4R2**

Subject: **Revised Geotechnical Investigation**
Proposed Commercial/Industrial Development
Calimesa Boulevard, Southeast of Singleton Road
Calimesa, California

Mr. Mulkay:

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.

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Senior Engineer

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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

- Significant grading will be necessary at this site. Based on the grading plans, cuts and fills of up to 30 to 40± feet will be necessary to achieve the proposed site grades. Maximum cuts of 18± feet and fills of 28± feet are anticipated in the proposed building pad areas.
- All of the borings encountered native alluvium. The native alluvium encountered at this site consists of younger alluvium and older alluvium. The younger alluvial soils possess low strengths and unfavorable consolidation/collapse characteristics. The older alluvial soils possess higher strengths and relative densities. Some soils classified as disturbed alluvium were encountered at the ground surface at some of the borings.
- Younger alluvium was encountered at the ground surface at most of the boring locations extending to depths of 2½ to 35± feet (and to depths of up to 32± feet in the building pad areas). The younger alluvial soils possess low relative densities and low strengths. The results of laboratory testing indicate that the younger alluvium is compressible when loaded and highly collapsible when inundated with water. Soils classified as disturbed alluvium were encountered within the upper 2½ to 7± feet at some of the borings. Disturbed alluvial soils are generally loose and are not considered suitable to support the proposed structures.
- Remedial grading is considered warranted to remove the disturbed alluvium and younger alluvium in its entirety from the proposed building areas.
- The older alluvium possesses relatively high strengths and high relative densities. These materials are generally considered to be suitable for the support of new fill soils and site improvements.
- Based on the anticipated site grading, significant slopes will be needed to achieve the new site grades. The slopes heights are on the order of 20 to 30± feet at various slope ratios less steep than 2h:1v (horizontal:vertical). One slope located in the southwestern portion of the site will possess an inclination of 2h:1v. Several retaining walls of possessing maximum heights of 7 to 19± feet are also planned for the site.
- The site is located within a mapped zone of low to moderate liquefaction susceptibility. However, the site is generally underlain by older alluvium and dense to very dense bedrock materials. Based on the recommended remedial grading recommendations, the upper portion of the loose, younger alluvial sediments that may be susceptible to liquefaction will be removed and replaced as compacted structural fill. In addition, there is no groundwater within the upper 50 feet at the site. Therefore, liquefaction is not considered to be a design concern for this project.
- The proposed development is considered to be feasible with respect to the geotechnical conditions encountered at the boring locations at the site. As discussed above, remedial grading will be necessary in order to support the proposed structures on conventional shallow foundation systems.

Site Preparation Recommendations

- Initial site stripping should include removal of surficial vegetation. This should include weeds, grasses, shrubs, trees and tree roots. These materials should be disposed of off-site. The existing trash, construction debris, concrete rubble, pipes, existing structures and old slabs should also be removed in their entirety.

- Remedial grading will be necessary in the proposed building areas to remove the disturbed alluvium and highly compressible/collapsible younger alluvium soils in their entirety. At the boring locations performed in the building pad areas, the disturbed and younger alluvial soils extend to depths of 8 to 32± feet, where encountered.
- Overexcavation removals are anticipated to extend to depths of 8 to 32± feet, below building pad grades within the proposed building areas. A minimum building pad overexcavation of 8 feet is recommended in order mitigate cut/fill transitions. This includes areas where older alluvium is encountered at the building pad subgrades.
- The proposed foundation influence zones should be overexcavated to a depth of at least 3 feet below proposed foundation bearing grade.
- After overexcavation has been completed, the resulting subgrade soils should be evaluated by the geotechnical engineer to identify additional soils that should be overexcavated, moisture conditioned, and recompacted to at least 90 percent of the ASTM D-1557 maximum dry density. The previously excavated soils may then be replaced as compacted structural fill.
- 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.

Foundation Design Parameters

- Conventional shallow foundations, supported in newly placed compacted fill.
- 2,500 lbs/ft^2 maximum allowable soil bearing pressure. A greater foundation bearing pressure may be allowed based on the conditions that exist after remedial grading is completed.
- Reinforcement consisting of at least four (4) No. 5 rebars (2 top and 2 bottom) in strip footings, due to the presence of potentially expansive soil. Additional reinforcement may be necessary for structural considerations

Building Floor Slab Recommendations

- Conventional Slab-on-Grade: minimum 6 inches thick.
- Modulus of Subgrade Reaction: k = 120 psi/in.
- Minimum slab reinforcement: Reinforcement of the floor slab should consist of No. 3 bars at 18-inches on center in both directions due to the presence of potentially expansive soils. The actual floor slab reinforcement should be determined by the structural engineer, based upon the imposed loading and intended use.

Pavements

ASPHALT PAVEMENTS (R = 20)					
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	8	10	12	14	16
Compacted Subgrade	12	12	12	12	12

PORTLAND CEMENT CONCRETE PAVEMENTS (R = 20)				
Materials	**Thickness (inches)**			
	Autos and Light Truck Traffic (TI = 6.0)	Truck Traffic		
		TI = 7.0	TI = 8.0	TI = 9.0
PCC	5	5½	7	8½
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. 20P145-3R, dated October 6, 2022 and our subsequent change order 20G122-CO, dated December 14, 2022. 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 slabs, 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.

3.0 SITE AND PROJECT DESCRIPTION

3.1 Site Conditions

The subject site is located on the northeast side of Calimesa Boulevard, 450± feet southeast of Singleton Road in Calimesa, California. The site is bounded to the northeast by Beckwith Avenue, to the northwest by a vacant lot, to the southwest by Calimesa Boulevard, and to the southeast by mobile homes and an undeveloped parcel.

The site consists of an irregular-shaped parcel, 95± acres in size. The site is predominately vacant and undeveloped. A single-family residence, approximately 1,600 ft² in size, is located in the west-central region of the site. The residence is a single-story structure of wood frame and stucco construction, presumably supported on conventional shallow foundations with a concrete slab-on-grade floor. The residence is located at the top of an isolated hill, generally surrounded by relatively level terrain in the western and central regions of the site. Two exposed concrete pads ranging from 1,600 to 2,100 ft² in size are located north of the residence. A 3±-foot-deep earthen drainage channel transects the central region of the site, trending northeast-southwest. The site topography in the eastern region of the site is comprised of moderately hilly terrain. The ground surface throughout the site consists of exposed soil with sparse to moderate native grass and weed growth with several large trees in the southeastern region of the property.

Topographic information was obtained from the preliminary conceptual grading plan prepared by Albert A. Webb Associates. The overall site topography generally slopes downward to the west at a gradient of approximately 3 percent. However, as previously discussed, the eastern region of the site is comprised of moderately hilly terrain. In addition, there is one (1) isolated hill in the west-central region of the site. The hills at the site generally range between 15 to 20± feet higher in elevation than the adjacent terrain that is relatively level. The hills throughout the site generally descend downward to the surrounding level terrain at inclinations of 3.5h:1v (horizontal to vertical) to 6h:1v.

3.2 Proposed Development

Preliminary grading plans for Buildings 1 through 4, inclusive, indicate that, the subject site will be developed with four (4) commercial/industrial buildings. The grading plans were prepared by Albert A. Webb and Associates and are dated between June 19, 2023, and November 1, 2023. Based on the current plans, the proposed buildings will have footprints ranging from 236,892± ft^2 to 249,840± ft^2 in size, generally located throughout the southwestern region of the site. The northeastern portion of the site will be developed with two tractor trailer parking lots (identified as Trailer Parking Lot 1 and Trailer Parking Lot 2 on the plans).

Building 1 will be located in the western portion of the site. The grading plan indicates that Building 1 will possess a footprint of 236,892± ft^2. The floor will slope downward to the southwest at a gradient of 0.5 percent with finished floor elevations ranging between 2301.2 and 2304.4 feet, msl. Based on this plan, cuts up to 7± and fills of up to 10± feet will be necessary to achieve the proposed pad grades for Building 1. Building 1 will possess dock-high doors along the southeast wall of the building.

Building 2 will be located east of Building 1, in the south-central portion of the overall site. The current grading plan indicates that Building 2 will possess a footprint of 249,840± ft^2. The floor will slope downward to the southwest at a gradient of 0.5 percent with finished floor elevations ranging between 2302.5 and 2305.9 feet, msl. Based on this plan, cuts of up to 18± feet and fills of up to 7± feet will be necessary to achieve the proposed pad grades for Building 2. Building 2 will be constructed in a cross-dock configuration with dock-high doors along the northwest and southeast building walls.

Building 3 will be located in the central portion of the overall site, east of Building 2 and north of Building 4. The current grading plan indicates that Building 2 will possess a footprint of 249,000± ft^2. The floor will slope downward to the southwest at a gradient of 0.5 percent with finished floor elevations ranging between 2310.2 and 2314.4 feet, msl. Based on this plan, cuts of up to 5± feet and fills of up to 15± feet will be necessary to achieve the proposed pad grades for Building 3. Building 3 will be constructed in a cross-dock configuration with dock-high doors along the northeast and southwest building walls.

Building 4 will be located in the southeast portion of the overall site, east of Building 2 and south of Building 3. The current grading plan indicates that Building 4 will possess a footprint of 246,500± ft^2. The floor will slope downward to the northwest at a gradient of 0.5 percent with finished floor elevations ranging between 2307.3 and 2311.5 feet, msl. Based on this plan, cuts of up to 15± feet and fills of up to 28± feet will be necessary to achieve the proposed pad grades for Building 4. Building 4 will possess dock-high doors along the northeast wall of the building.

We expect that the buildings will be surrounded by asphaltic concrete pavements or Portland cement concrete pavements in automobile parking areas and Portland cement concrete pavements in the truck court areas. Landscape planters and concrete flatwork may also be included ion localized areas throughout the site.

Detailed structural information was not available at the time of this report. It is assumed that the new buildings will be single-story structures of tilt-up concrete construction, typically supported on conventional shallow foundations with concrete slab-on-grade floors. Based on the assumed construction, maximum column and wall loads are expected to be on the order of 100 kips and 4 to 7 kips per linear foot, respectively.

The grading plans also indicate that several new retaining walls will be necessary to facilitate the proposed site grades. One retaining wall, located along the northwest property line of the site will possess a maximum height of 14± feet. A second retaining wall will be constructed north of Buildings 1 and 2, along the boundary of the Trailer Parking Lot 1 with maximum heights height ranging between 16 and 19± feet for the various segments of the wall. Retaining walls will also be constructed along the southwest boundaries of Trailer Parking lot 2, with maximum heights of 7 to 13± feet for the various segments of the wall.

No significant amounts of below-grade construction, such as crawl spaces or basements, are expected to be included in the proposed development. Based on the grading plan, maximum cuts and fills on the order of 35 to 40± feet will be required to achieve the proposed site grades. Slopes will be constructed along portions of the northeastern, northwestern, southwestern property lines. The slopes heights are on the order of 20 to 30± feet at various slope ratios less steep than 2h:1v. One slope located in the southwestern portion of the site will possess an inclination of 2h:1v.

3.3 Previous Studies

SCG previously conducted a geotechnical feasibility study at the subject site. This study was performed in two parts and is referenced as:

Geotechnical Feasibility Study, Proposed Commercial/Industrial Development, Calimesa Boulevard, Southeast of Singleton Road, Calimesa, California, prepared for Birtcher Development, by Southern California Geotechnical, Inc. (SCG), SCG Project No. 20G122-1, dated April 21, 2020.

Geotechnical Feasibility Study, Diocese of San Bernardino, Calimesa Boulevard, Southeast of Singleton Road, Calimesa, California, prepared for Birtcher Development, by Southern California Geotechnical, Inc. (SCG), SCG Project No. 20G123-1, dated June 23, 2020.

As part of these studies, six (6) total borings were advanced to depths of 25 to 50± feet below existing site grades. The six boring logs and laboratory test results from the above mentioned reports are included in Appendix F.

Artificial fill soils were encountered at the ground surface at Boring Nos. B-4, B-5 and B-6, extending to depths of 2½ to 5½± feet below the existing site grades. The artificial fill soils generally consist of loose to medium dense silty fine sands with varying medium to coarse sand and varying clay and gravel content. Additional soils classified as possible fill were encountered beneath the artificial fill soils at Boring No. B-6, extending to a depth of 9½± feet below existing site grades. These materials are comprised of medium dense silty fine sands, with varying coarse sand and fine to coarse gravel content.

Soils classified as younger alluvium were encountered at the ground surface at the Boring Nos. B-1, B-2 and B-3, and beneath the possible fill soils at Boring No. B-6, extending to depths of 25 to 32± feet below existing site grades. The younger alluvium encountered at these boring locations generally consist of loose to medium dense silty fine sands and fine to coarse sands with varying silt and gravel content.

Soils classified as older alluvium were encountered beneath the younger alluvium at Boring Nos. B-1 and B-3, and beneath the fill soils at Boring Nos. B-4 and B-5. The older alluvial soils generally consist of medium dense to very dense silty fine sands, fine to coarse sands, clayey sands, and gravelly sands with varying silt and clay content. The older alluvial soils generally extend to the maximum depth explored at each boring, with the exception of B-5, which encountered bedrock materials at a depth of 22± feet.

Bedrock materials of the San Timoteo Formation were encountered beneath the older alluvium at Boring No. B-5. The weathered bedrock generally consists of very dense silty fine-grained sandstone, with little medium to coarse sand and some gravel content. The bedrock materials were generally weakly cemented and highly friable. The weathered silty fine-grained sandstone bedrock extended to the maximum depth explored of 50± feet below the existing site grades at Boring No. B-5.

Free water was not encountered during drilling of the previous borings. In addition, delayed readings taken within the open boreholes did not identify free water. Based on the lack of water within the borings, and the moisture contents of the recovered soil samples, the static groundwater table was considered to have existed at a depth in excess of 50± feet at the time of the subsurface exploration.

The six boring logs and laboratory test results from the above-mentioned reports are included in Appendix F.

Geotechnical Investigation, Proposed Commercial/Industrial Development, Calimesa Boulevard, Southeast of Singleton Road, Calimesa, California, prepared for Birtcher Development, by Southern California Geotechnical, Inc. (SCG), SCG Project No. 20G122-2, dated November 16, 2022.

The subsurface exploration conducted for this study consisted of sixteen (16) borings (identified as Boring Nos. B-7 through B-22) advanced to depths of 15 to 40± feet below the existing site grades.

The materials encountered at the boring locations for this investigation generally consist of disturbed and native alluvium. The native alluvial soils were classified as younger alluvium and older alluvium depending upon their apparent age, strengths, and relative densities.

Younger alluvium was encountered at the ground surface at most of the borings or beneath a layer of soils described as "disturbed alluvium." The younger alluvial soils generally extended to depths of 8 to 32± feet at the boring locations, where encountered. The results of laboratory testing indicated that the younger alluvial soils generally possess low strengths and unfavorable consolidation/collapse characteristics.

The older alluvium was encountered below the younger alluvium at depths of 8½, 6½ and 12 feet at Boring Nos. B-12, B-14 and B-18, respectively, and at the ground surface at Boring Nos. B-13, B-20, B-21 and B-22. The older alluvial soils possess higher strengths and relative densities. The older alluvial soils generally consist of medium dense to very dense silty fine sands, fine to coarse sands, clayey sands, and gravelly sands with varying silt and clay content. Where encountered, the older alluvial soils extend to the maximum depth explored at each boring location, up to 40± feet.

Free water was not encountered during drilling of the previous borings. In addition, delayed readings taken within the open boreholes did not identify free water. Based on the lack of water within the borings, and the moisture contents of the recovered soil samples, the static groundwater table was considered to have existed at a depth in excess of 40± feet at the time of the subsurface exploration.

4.0 SUBSURFACE EXPLORATION

4.1 Scope of Exploration/Sampling Methods

The subsurface exploration conducted for this project consisted of eleven (11) borings (identified as Boring Nos. B-23 through B-33) advanced to depths of 40 to 55± feet below the existing site grades. The borings were logged during drilling by a member of our staff. The twenty-two previous boring logs (Boring Nos. B-1 through B-22) and laboratory test results from the previous reports discussed above are included in Appendix F.

The borings were advanced with hollow-stem augers, by a conventional truck-mounted drilling rig. Representative bulk and relatively undisturbed soil samples were taken during drilling. Relatively undisturbed soil 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 are indicated on the Geotechnical Map, included as Plate 2 in Appendix A of this report. The Boring Logs, which illustrate the conditions encountered at the boring locations, as well as the results of some of the laboratory testing, are included in Appendix B.

4.2 Geotechnical Conditions

The materials encountered at the boring locations for this investigation generally consist of native alluvium. The native alluvial soils were classified as younger alluvium and older alluvium depending upon their apparent age, strengths, and relative densities. A description of the soil materials encountered at the boring locations is presented below.

Younger Alluvium

Younger native alluvium was encountered at the ground surface at all of the boring locations, extending to depths of 17 to 32± feet. During the previous studies, the younger alluvium was encountered to depths of 8 to 35± feet at the boring locations. These soils generally consist of very loose to medium dense silty sands, sandy silts, and well graded sands. Some of the younger alluvial soils possess trace to little clay content, occasional fine to coarse gravel, and occasional cobbles.

Older Alluvium

The older alluvium was encountered below the younger alluvium at all eleven (11) of the current borings. The older alluvial soils generally consist of medium dense to very dense silty fine sands, fine to coarse sands, clayey sands, and gravelly sands with varying silt and clay content. The older alluvial soils extend to the total depth explored at each boring location, which extended to depths of 40 to 55± feet below the existing site grades.

Bedrock

Bedrock materials of the San Timoteo Formation were encountered during one of the previous studies, beneath the older alluvium at Boring No. B-5. The weathered bedrock generally consists of very dense silty fine-grained sandstone, with little medium to coarse sand and some gravel content. The bedrock materials were generally weakly cemented and highly friable. The weathered silty fine-grained sandstone bedrock extended to the maximum depth explored of 50± feet below the existing site grades at Boring No. B-5.

Groundwater

Free water was not encountered during drilling of the borings. In addition, delayed readings taken within the open boreholes did not identify free water. Based on the lack of water within the borings, and he moisture contents of the recovered soil samples, the static groundwater table is considered to have existed at a depth in excess of 55± feet at the time of the subsurface exploration.

As part of our research, we reviewed available groundwater data in order to evaluate the historic high groundwater level for the site. The primary reference used to evaluate the groundwater depths in this area is the California Department of Water Resources website, http://www.water.ca.gov/waterdatalibrary/. The website indicates that there is one monitoring well located within the limits of the site. The recorded water level measurements for this monitoring well indicate a high groundwater level of 84± feet below the ground surface (April 1998).

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.

The subject site is located within at within the San Gorgonio Pass (SGP), where Quaternary-age contractional deformation in the SGP gives way to transtensional deformation associated with the right-lateral San Jacinto Fault. The major stratigraphic and structural events in this area consist of: 1) Upper Miocene (approximately 5 to 7 Ma) sedimentary unit (Mt. Eden Formation) sourced from nearby Peninsular Ranges rocks which where shed into adjacent alluvial channels and fans. These sedimentary units are offset by the San Andreas Fault (SAF) system. 2) The Plio-Pliestocene (approximately 1.3 to 5 Ma) sedimentary unit (San Timoteo Formation) was sourced from the San Gabriel Mountains rocks to the northwest and dispersed to the southeast on braided streams caused by the westernmost extend of the contractional San Gorgonio Pass Fault (SGPF) zone. 3) Prior to 1.3 MA, the developing San Timoteo Anticline disrupted the San Timoteo sedimentary deposits due to the multiple strands of the San Jacinto Fault (SJF) zone (Matti, 2016).

Regional geologic conditions were obtained from two geologic maps. The first map is the Geologic and Geophysical Maps of the El Casco 7.5' Quadrangle, Riverside County, California, with Accompanying Geologic-map Database, by Jonathan C. Matti and Douglas Morton, 2015 (Plate 3a). This map indicates that the site is located within seven (7) geologic units consisting of very young wash deposits (Qvywn, $Qvyw_1$, $Qvyw_2$), young axial-valley deposits (Qya_5), young alluvial fan deposits (Qyfu), old alluvial fan deposits (Qof_2) and very old alluvial fan deposits ($Qvof_3$). The very young and young alluvial deposits are indicated to consist of very slightly to slightly consolidated sands and gravels while the older alluvial deposits consist of moderately consolidated sands and gravels. The upper to middle Pliocene age San Timoteo Formation (Tstm) is mapped 1,000± feet northeast of the site. The San Timoteo Formation is indicated to consist of non-marine, light gray to white sandstone.

The second map is the Geologic Map of the El Casco 7.5' Quadrangle, Riverside County, California, by Thomas W. Dibblee, Jr., 2003 (Plate 3b). This map indicates that the site is underlain by alluvial sand and gravel (Qa) and older alluvial sediments (Qoa). The alluvium is indicated to consist of sand, gravel, and clay covered by residual soil and the older alluvium is indicated to consist of light reddish-brown sand and gravel of granitic and gneissic detritus of the San Bernardino Mountains. The San Timoteo Formation (QTsg) is mapped 900± feet northeast of the site. The San Timoteo Formation is indicated to consist of brownish-gray crudely bedded, of poorly-sorted clasts pf granitic and gneissic detritus in a sand matrix.

Based on the conditions encountered during drilling, and for the ease of purposes of discussion, the near-surface geologic conditions consist of younger alluvial soils (Qal) consisting of unconsolidated, loose to medium dense silty sands and sands and older alluvial soils (Qoa) consisting of medium dense to dense silty fine sands and sands. At greater depths, the alluvial and older alluvial soils are underlain by very dense silty fine-grained sandstone of the San Timoteo Formation.

4.4 Structural Geology

The main structural geologic feature near the subject site is the Cherry Valley fault (the westernmost portion of the SGPF zone) located approximately 1,000 feet northeast of the subject site. The SGPF zone is a thrust fault which dips north extending from Cabazon to Beaumont. Information presented in https://scedc.caltech.edu/significant/sangorgonio.html has assigned the following parameters to the SGPF zone:

- Length: 35 kilometers
- Slip Rate: Uncertain
- Probable Magnitudes: M_w 6.0-7.0
- Most Recent Rupture: Holocene; Late Quaternary along western extension

- Recurrence Interval: Uncertain

Another fault, San Timoteo fault, is mapped 1,600 to 2,000± feet southeast of the subject site. This fault is indicated to be buried by the overlying geologic units. The northeast side of the fault is considered the down-thrown block of the fault.

The Banning fault is mapped 5,400± feet northeast of the subject site. The Banning fault is a right-lateral strike-slip fault. Information presented in https://scedc.caltech.edu/significnt/banning.html indicates the the following parameters for the Banning fault.

- Length: 40 kilometers
- Slip Rate: Uncertain, part of complex fault system involving the SAF
- Probable Magnitudes: M_w 6.0-7.2
- Most Recent Rupture: Holocene
- Recurrence Interval: Uncertain

Although the site is located near active faults and fault zones (SGPF, San Timoteo, and Banning), no evidence of faulting (such as fault scarps, fault line scarps, drainage offsets, etc.) was observed at the subject site at the time of the investigation. In addition, the site is not located within a mapped fault hazard zone by either the State of California or the County of Riverside. Therefore, the possibility of significant fault rupture on the site is considered to be low.

5.0 LABORATORY TESTING

The soil samples recovered from the subsurface exploration were returned to our laboratory for further testing to evaluate 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

Recovered soil samples were classified using the Unified Soil Classification System (USCS), in accordance with ASTM D-2488. 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 evaluated for selected relatively undisturbed ring samples. These densities were evaluated 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 evaluated in accordance with ASTM D-2216, and are expressed as a percentage of the dry weight. These test results are presented on the Boring Logs.

Consolidation

Selected soil samples have been tested to evaluate 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 evaluate their potential for collapse or heave. The results of the consolidation testing are plotted on Plates C-1 through C-12 in Appendix C of this report. Additional consolidation tests performed at the time of the referenced geotechnical investigation are included in Appendix F of this Report.

Maximum Dry Density and Optimum Moisture Content

Two (2) representative bulk samples were tested for their maximum dry densities and optimum moisture contents at the time of the referenced previous study. The results have been obtained using the Modified Proctor procedure, per ASTM D-1557 and are presented on Sheets C-13 and C-14 in Appendix F of this report. These tests are 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 tests were performed on representative samples of the near-surface soils to evaluate the shear strength parameters 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. Three samples are then loaded with different normal loads and the resulting shear strength is evaluated for that particular normal load. The shearing of the samples is performed at a rate slow enough to allow 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 tests are presented on Plates C-15 and C-16 in Appendix F of this report

Soluble Sulfates

Representative samples of the near-surface soils 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-2 @ 0 to 5 feet (20G122-1)	<0.001	Not Applicable (S0)
B-4 @ 0 to 5 feet (20G122-1)	<0.001	Not Applicable (S0)
B-9 @ 0 to 5 feet (20G122-2)	0.027	Not Applicable (S0)
B-16 @ 0 to 5 feet (20G122-2)	0.012	Not Applicable (S0)
B-19 @ 0 to 5 feet (20G122-2)	0.001	Not Applicable (S0)

Corrosivity Testing

Representative bulk samples of the near-surface soils were submitted to a subcontracted corrosion engineering laboratory to evaluate if the near-surface soils possess corrosive characteristics with respect to common construction materials. The corrosivity testing included an evaluation of the minimum 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)**	**Sulfides (mg/kg)**	**Redox Potential (mV)**
B-2 @ 0 to 5 feet (20G122-1)	18,400	7.0	1.4	43	N/A	N/A
B-4 @ 0 to 5 feet (20G122-1)	5,200	6.8	2.8	22	N/A	N/A
B-9 @ 0 to 5 feet (20G122-2)	12,730	8.8	223	5.1	0.69	122
B-16 @ 0 to 5 feet (20G122-2)	4,556	8.1	85	56.5	0.90	163
B-19 @ 0 to 5 feet (20G122-2)	6,365	7.9	19	9.5	1.86	152

Expansion Index

The expansion potential of the on-site soils was evaluated 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**	**Expansion Potential**
B-4 @ 0 to 5 (20G122-1)	2	Very Low
B-16 @ 0 to 5 feet (20G122-2)	27	Low

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of our review, field exploration, laboratory testing, and geotechnical analysis, the proposed development, which will consist of a new commercial/industrial development. The recommendations contained in this report should be taken into the design, construction, and grading considerations. The recommendations are contingent upon grading and foundation construction activities being monitored by the 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 structure should, however, be designed to resist structural collapse and thereby provide reasonable protection from serious injury, catastrophic property damage and loss of life.

Faulting, Seismicity, and Geologic Hazards

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

Based on the preliminary remedial grading recommendations provided in a subsequent section of this report, the loose and potentially compressible and collapsible younger alluvial soil will be removed and replaced as compacted structural fill. Therefore, the potential for other geologic hazards such as seismically induced settlement, lateral spreading, and subsidence affecting the site is considered low.

The potential for hazards such as tsunamis, inundation and seiches is considered to be very low, because no significant bodies of water are present within several miles of the subject site.

Seismic Design Parameters

The 2022 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. Based on the adoption of the 2022 CBC on January 1, 2023, we expect that the proposed development will be designed in accordance with the 2022 CBC.

The 2022 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 2022 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 attached to this letter.

The 2022 CBC states that for Site Class D sites with a mapped S1 value greater than 0.2, a site-specific ground motion analysis may be required in accordance with Section 11.4.8 of ASCE 7-16. Supplement 3 to ASCE 7-16, modifies Section 11.4.8 of ASCE 7-16 and states that "a ground motion hazard analysis is not required where the value of the parameter SM1 determined by Eq. (11.4-2) is increased by 50% for all applications of SM1 in this Standard. The resulting value of the parameter SD1 determined by Eq. (11.4-4) shall be used for all applications of SD1 in this Standard."

The seismic design parameters presented in the table below were calculated using the site coefficients (Fa and Fv) from Tables 1613.2.3(1) and 1613.2.3(2) presented in Section 16.4.4 of the 2022 CBC. It should be noted that the site coefficient Fv and the parameters SM1 and SD1 were not included in the SEAOC/OSHPD Seismic Design Maps Tool output for the ASCE 7-16 standard. We calculated these parameters-based on Table 1613.2.3(2) in Section 16.4.4 of the 2022 CBC using the value of S1 obtained from the Seismic Design Maps Tool. The values of SM1 and SD1 tabulated below were determined using equations 11.4-2 and 11.4-4 of ASCE 7-16 (Equations 16-20 and 16-23, respectively, of the 2022 CBC) and **do not include a 50 percent increase.** As discussed above, if a site-specific analysis has not been performed, SM1 and SD1 must be increased by 50 percent for all applications with respect to the ASCE 7-16 standard.

2022 CBC SEISMIC DESIGN PARAMETERS

Parameter		Value
Mapped Spectral Acceleration at 0.2 sec Period	S_S	2.207
Mapped Spectral Acceleration at 1.0 sec Period	S_1	0.760
Site Class	---	D
Site Modified Spectral Acceleration at 0.2 sec Period	S_{MS}	2.207
Site Modified Spectral Acceleration at 1.0 sec Period	S_{M1}	1.292*
Design Spectral Acceleration at 0.2 sec Period	S_{DS}	1.471
Design Spectral Acceleration at 1.0 sec Period	S_{D1}	0.861*

*Note: These values must be increased by 50 percent if a site-specific ground motion hazard analysis has not been performed. However, this increase is not expected to affect the design of the structure type proposed for this site. This assumption should be confirmed by the project structural engineer. The values tabulated above do not include a 50-percent increase.

Liquefaction

Liquefaction is the loss of 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 plasticity 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). Non-sensitive clayey (cohesive) soils which possess a plasticity index of at least 18 (Bray and Sancio, 2006) 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 the subject site is located within a zone of low to moderate liquefaction susceptibility. However, the soil conditions encountered at the boring locations are not considered to be conducive to liquefaction. These conditions consist of surficial younger alluvial sediments underlain by medium dense to very dense older alluvium and dense to very dense weathered bedrock. In addition, there is no groundwater within the upper 50± feet below the ground surface. Based on these considerations, liquefaction is not considered to be a design concern for this project.

6.2 Geotechnical Design Considerations

General

Significant grading will be required at this site in order to facilitate the proposed development. Based on the preliminary plan provided to our office, cut and fills ranging from 20 to 40± feet from existing site grades will be necessary.

Disturbed alluvial soils were encountered at six (6) of the boring locations, extending to depths of 2½ to 7± feet. These materials are disturbed, non-uniform and possess unfavorable consolidation/collapse characteristics and therefore, are considered to be unsuitable for the support the proposed structures.

The younger alluvial soils encountered at the boring locations possess relatively low strengths and low relative densities. Based on the results of laboratory testing, these soils are subject to significant consolidation settlement upon loading and significant collapse when inundated with water. Based on these considerations, the younger alluvium, in its present condition, is not considered suitable for the support of new fill soils or new improvements. **Therefore, significant remedial grading will be necessary in order to remove the highly compressible/ collapsible younger alluvial soils and replace these materials as compacted structural fill.** Based on conditions encountered at the boring locations, these overexcavations are anticipated to extend to depths of 2½ to 32± feet in the proposed building pad areas. The underlying older alluvium possess greater strengths and relative densities and are considered to be suitable to support new structural fill and improvements. The results of laboratory testing performed on samples of the older alluvial soils indicates that the older alluvial soils possess more favorable consolidation and collapse characteristics than the overlying younger alluvial soils.

Based on our review of the conceptual grading plans, cut and fill slopes on the order of 20 to 30± feet or more in height will be necessary to facilitate the grading and construction of a new development. Based on our slope stability analysis, new cut and fill slopes should have adequate safety factors. Slopes should not exceed an inclination of 2h:1v.

Settlement

As discussed above, the younger alluvial soils are subject to significant consolidation settlement upon loading and are potentially collapsible when wetted. The underlying older alluvial soils possess more favorable consolidation characteristics and no significant collapse potential. With remedial grading of the unsuitable younger alluvium, it is considered feasible to reduce the projected settlements within the building areas to within tolerable limits.

Deep Fill Areas

Based on the proposed site grading, cuts and fills of more than 20± feet will be required. 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.

Cut/Fill Transitions

Based on the existing site topography, cut/fill transitions will be created within the proposed building and improvement areas. 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 grades as well as to reduce the inclinations of the underlying cut/fill contacts.

Slope Stability

No evidence of landslides or deep-seated slope instability was noted during our investigation. However, the loose granular soils on sloping ground surfaces could be prone to surficial failures.

Newly constructed fill slopes, comprised of properly compacted engineered fill, at inclinations of 2h:1v or flatter will possess adequate gross stability, as discussed in the section below. In addition, cut slopes within alluvium with inclinations of 2h:1v or flatter are expected to possess adequate stability. Further evaluation of cut slope conditions should be evaluated during site grading. Slopes steeper than 2:1 are not recommended.

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 evaluated by SCG as part of the future detailed grading plan review and during site grading.

Expansion

The near-surface on-site soils have been evaluated to possess a very low to low expansion potential (EI = 2 to 27). Based on the presence of expansive soils, adequate moisture conditioning of the subgrade soils and fill soils will be necessary during grading, and special care must be taken to maintaining moisture content of these soils at 0 to 4 percent above the Modified Proctor optimum. This will require the contractor to frequently moisture condition these soils throughout the grading process, unless grading occurs during a period of relatively wet weather. It should be noted that some of the deeper soil layers contain clay that could potentially have a higher expansion potential. We recommend additional testing during grading or after the building pads are completed, as appropriate, to confirm the conditions assumed above.

Soluble Sulfates

The result of the soluble sulfate testing indicates that the tested soil sample possesses a level of soluble sulfates that is considered to be "not applicable" (S0) with respect to the American Concrete Institute (ACI) Publication 318-14 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 on-site soils possess saturated minimum resistivity values ranging from 4,556 to 18,400 ohm-cm, and pH values ranging from 6.8 to 8.8. The soils possess a redox potential of 122 to 163 mV and sulfide concentrations of 0.69 to 1.86 parts per million. 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. Resistivity, pH, sulfide concentration, redox potential, and moisture content the five factors that enter into the evaluation procedure. Based on these factors, the on-site soils are considered to have a low corrosion potential to ductile iron pipe. Therefore, corrosion protection is not expected to be required for cast iron or ductile iron pipes.

Relatively low concentrations (1.4 to 223 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 sample possesses a nitrate concentration of 5.1 to 56.5 mg/kg. Based on these test result, some of the on-site soils are considered to be mildly corrosive to copper pipe. Since SCG does not practice in the area of corrosion engineering, the client should contact a corrosion engineer to provide a more thorough evaluation and appropriate recommendations.

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

Shrinkage/Subsidence

Removal and recompaction of the disturbed alluvium and younger native alluvial soils is estimated to result in an average shrinkage of 10 to 20 percent. Removal and recompaction of the underlying older alluvium is estimate to result in an average shrinkage value of 3 to 10 percent. Shrinkage estimates for the individual samples range between 2 and 22 percent based on the results of density testing and the assumption that the onsite soils will be compacted to about 92 percent of the ASTM D-1557 maximum dry density. It should be noted that the shrinkage estimate is based on the results of dry density testing performed on small-diameter samples of the existing soils 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 evaluated 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.

Minor ground subsidence is expected to occur in the soils below the zone of removal, due to settlement and machinery working. The subsidence is estimated to be 0.1 to 0.15± feet. This estimate may be used for grading in areas that are underlain by native alluvial soils.

These estimates are based on previous experience and the subsurface conditions encountered at the boring 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.

Grading and Foundation Plan Review

As discussed previously, foundation plans were not available at the time of this report. Additionally, as of the date of this revised report, we have reviewed grading plans stamped "preliminary" for Buildings 1 though 4. We recommend that our office be provided with copies of the foundation plans and more up to date grading plans, when they become available, for review with regard to the conclusions, recommendations, and assumptions contained within this report and future geotechnical investigations.

6.3 Site Grading Recommendations

The grading recommendations presented below are based on the subsurface conditions encountered at the boring locations and our understanding of the proposed development, which will consist of a new industrial development. These recommendations are general in nature, and should be confirmed as part of the design-level geotechnical investigation.

Site Stripping and Demolition

Initial site stripping and demolition should include removal of surficial vegetation, structures, foundations, underground utilities, concrete slabs and other existing site improvements. The stripping should include removal of weeds, grasses, trees and tree root systems. The actual extent of site stripping should be evaluated in the field by the geotechnical engineer, based on the organic content and stability of the materials encountered.

Demolition of the existing building and improvements including concrete foundations, slabs and driveways, asphalt pavement, utilities and other associated improvements will be necessary to facilitate the construction of the proposed buildings and pavement areas. Debris resultant from demolition should be disposed of off-site. Alternatively, concrete and asphalt debris may be pulverized to a maximum 2-inch particle size, uniformly well-mixed with the on-site sandy soils, and incorporated into new structural fills.

Treatment of Existing Soils: Building Pads

Remedial grading should be performed within the proposed building pad areas in order to remove the existing disturbed alluvium and younger alluvial soils. As discussed above, the younger alluvial soils possess relatively low strengths and are subject to significant collapse upon wetting and consolidation upon loading**. It is therefore recommended that these younger alluvial soils, within the building areas, be removed and replaced in order to reduce the potential for excessive settlement of the proposed improvements.** The existing soils within the proposed building area are also recommended to be overexcavated to a depth of at least 8 feet below the proposed building pad grade, as discussed below, and to a depth of at least 3 feet below proposed foundation bearing grade, whichever is greater.

Overexcavation removals are anticipated to extend to depths of 8 to 32± feet, below the existing site grades within the building areas. At the boring locations, the younger alluvial soils extend to depths of up to 32± feet. However, based on topographic information shown on Plate 2, provided by the project civil engineer, building pad grading will result in cuts within the younger alluvium of up to 15± feet, which will reduce the overexcavation depth below building pad subgrade elevations in proposed cut areas.

The Geotechnical Map, included as Plate 2 of this report, identifies the approximate extents of the younger alluvium and older alluvium present within the proposed building pad areas. Greater depths of unsuitable soils may be present in unexplored areas of the site. The disturbed alluvium soils encountered at the boring locations are expected to be removed as part of the younger alluvial overexcavation described above. The removals should extend to a depth of firm, competent older alluvium deposits or weathered bedrock/formational soils.

In order to reduce the potential for excessive differential settlement due to the differing support conditions provided by the older alluvium native soils and the newly placed fill soils, the cut portion of the building pads should also be overexcavated. The depth of overexcavation in the cut portions of the building pad area will be dependent upon the depths of the fill and the steepness of the cut/fill transition. **A minimum building pad overexcavation of 8 feet below pad subgrade is recommended in order mitigate cut/fill transitions. The recommended depth should be based on the deepest thickness of fill for each pad divided by a factor of 3, for example, a 30-foot-thick fill will require a 10-foot minimum overexcavation below the building pad subgrade. This includes areas where older alluvium is encountered.** In order to avoid a steep transition between the cut and fill portions of the pad, benching into competent native soils within the cut portion of the pad is recommended to be performed at a slope of 3h:1v (horizontal to vertical) or flatter.

Following completion of the overexcavation, the exposed soils should be evaluated by the geotechnical engineer to confirm their suitability to serve as the structural fill subgrade, as well as to support the foundation loads of the new structures. This evaluation should include proofrolling with a heavy rubber-tired vehicle and probing to identify soft, loose or otherwise unstable soils that must be removed. The materials exposed at the base of overexcavations should possess a minimum relative compaction of 85 percent of the maximum dry density as evaluated by ASTM D-1557 maximum dry density. Some localized areas of deeper excavation may be required if loose, porous, or low-density soils are encountered at the bottom of the overexcavation. The exposed subgrade soils should then be scarified to a depth of 12 inches, moisture conditioned to 0 to 4 percent above optimum moisture content, and recompacted.

Treatment of Existing Soils: Retaining Walls and Site Walls

Retaining walls are expected to be necessary in order to facilitate the development of this site. Overexcavation will also be necessary in these areas to remove lower-strength potentially compressible/collapsible younger alluvium.

Treatment of Existing Soils: Flatwork, Parking and Drive Areas

Based on economic considerations, overexcavation of the existing near-surface existing soils in new parking and drive areas is not considered warranted, with the exception of areas underlain by younger alluvial soils or where lower strength or otherwise 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 soils disturbed during stripping and demolition operations.

The geotechnical engineer should then evaluate the subgrade to identify areas of additional unsuitable soils. 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.

Fill Placement

- Fill soils should be placed in thin (6± inches), near-horizontal lifts, moisture conditioned to 0 to 4 percent above the optimum moisture content, and compacted.
- On-site soils may be used for fill provided they are cleaned of debris to the satisfaction of the geotechnical engineer.
- Grading and fill placement activities should be completed in accordance with the requirements of the 2022 CBC and the grading code of the city of Calimesa and/or the County of Riverside.
- Fill soils should be compacted to at least 90 percent of the ASTM D-1557 maximum dry density. Fill soils should be well mixed.
- 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.

- 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.

Utility Trench Backfill

In general, 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 Calimesa and/or the county of Riverside. 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.

6.4 Construction Considerations

Excavation Considerations

Based on the presence of predominantly granular soils near the surface, minor caving of shallow excavations may occur. Flattened excavation slopes may be sufficient to mitigate caving of shallow excavations. 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. Excavation activities on this site should be conducted in accordance with Cal-OSHA regulations.

Dense to very dense older alluvium was encountered at some the exploratory borings at relatively shallow depths. These materials are expected to be rippable with heavy grading equipment.

Moisture Sensitive Subgrade Soils

Some of the near surface soils possess appreciable silt and clay content and may become unstable if exposed to significant moisture infiltration or disturbance by construction traffic. In addition, based on their granular content, some of the on-site soils will also be susceptible to erosion. The site should, therefore, be graded to prevent ponding of surface water and to prevent water from running into excavations.

If the construction schedule dictates that site grading will occur during a period of wet weather, allowances should be made for costs and delays associated with drying the on-site soils or import of a drier, less moisture sensitive fill material. Grading during wet or cool weather may also increase the depth of overexcavation in the pad area as well as the need for mechanical stabilization. If subgrade stability problems develop, the geotechnical engineer should be contacted to provide stabilization recommendations.

Slope Planting and Maintenance

The natural slopes and manufactured slopes that will be created on site should be planted immediately after construction is completed, to achieve well-established and deep-rooted vegetation. The slopes should be planted with shrubs that will develop root systems to depths of 5 feet or more, such as ground acacia. Intervening areas should be planted with lightweight surface plantings with shallower root systems. Wherever possible, the selected plantings should be lightweight and drought tolerant. Due to its high weight, the use of iceplant is not recommended. It is recommended that a landscape architect be consulted to determine the actual planting materials.

Reasonable precautions should be taken to minimize deep soil moisture penetration within the slope soils. The volume of slope irrigation should be the minimum that is required to maintain plant growth. Surface water runoff from the slopes should be diverted away from the top of the proposed retaining walls. The condition of the slope must be continually maintained to reduce the potential for surficial failures. This includes maintenance of the drainage pathways, diversion structures, maintenance of the vegetation, and repair of rodent damage.

Groundwater

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

6.5 Foundation Design Recommendations

Based on the preceding geotechnical design considerations and preliminary grading recommendations, it is assumed that the new buildings will be underlain by newly placed structural fill soils. Based on the assumed construction and structural loads discussed in Section 3.2 of this report, we expect the proposed structures will be supported on conventional spread footing foundations.

Spread Footing Foundation Design Parameters

New square and rectangular footings may be designed as follows:

- Maximum, net allowable soil bearing pressure: 2,500 lbs/ft^2.
- Minimum wall/column footing width: 14 inches/24 inches.
- Minimum longitudinal steel reinforcement within strip footings: Four (4) No. 5 rebars.
- Minimum foundation embedment: 12 inches into suitable structural fill soils, and at least 18 inches below adjacent exterior grade. Interior column footings may be placed immediately beneath the floor slab.
- It is recommended that the perimeter building foundations be continuous across exterior doorways. Flatwork adjacent to the exterior doors should be doweled into the perimeter foundations in a manner determined by the structural engineer.

General Foundation Design Recommendations

The allowable bearing pressures presented above may be increased by one-third when considering short duration wind or seismic loads. 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. Unsuitable materials should be removed to a depth of suitable bearing compacted structural fill or suitable native older alluvium, 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 static 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, under static conditions. Differential movements are expected to occur over a 30-foot span, thereby resulting in an angular distortion of less than 0.002 inches per inch.

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: 275 lbs/ft^3
- Friction Coefficient: 0.30

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 assumed construction and the anticipated grading which will occur at this site, we expect that the floors for the new structures will consist of conventional slabs-on-grade underlain by newly compacted structural fill soils extending to depth s of at least 8 feet below the proposed pad grade. Based on geotechnical considerations, the floor slabs may be designed as follows:

- Minimum slab thickness: 6 inches.
- Modulus of Subgrade Reaction: k = 120 psi/in.
- Minimum slab reinforcement: No. 3 bars at 18-inches on-center, in both directions, due to presence of potentially expansive soils at this site. The actual floor slab reinforcement should be determined by the structural engineer, based upon the imposed loading, and the potential liquefaction-induced settlements.
- 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 Stego® Wrap Vapor Barrier or equivalent will meet these specifications. The moisture vapor barrier should be properly constructed in accordance with 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 and moisture transmission through the slab is acceptable, 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 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

Several retaining walls may be required to facilitate the new site grades. 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 boring locations, the following parameters may be used for preliminary design of new retaining walls for this site. We have provided parameters assuming the use of on-site soils for retaining wall backfill. The on-site soils generally consist of silty sands and sandy silts with occasional well-graded sands. Based on their classification, these materials are expected to possess a friction angle of at least 30 degrees. The design parameters provided below are based on the assumed friction angle and should be confirmed during the design-level geotechnical investigation.

The select fill 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.

RETAINING WALL DESIGN PARAMETERS

Design Parameter		Soil Type On-Site Silty Sands and Sandy Silts
Internal Friction Angle (ϕ)		30°
Unit Weight		125 lbs/ft^3
Equivalent Fluid Pressure:	Active Condition (level backfill)	42 lbs/ft^3
	Active Condition (2h:1v backfill)	67 lbs/ft^3
	At-Rest Condition (level backfill)	63 lbs/ft^3

The walls should be designed using a soil-footing coefficient of friction of 0.30 and an equivalent passive pressure of 275 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 2022 CBC, 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 40H lbs/ft^2, where H is the overall height of the wall. Where the ground surface above the wall consists of a 2h:1v (horizontal to vertical) sloping condition, the seismic lateral earth pressure is 66H lbs/ft^2. The seismic pressure distribution is based on the Mononobe-Okabe equation, utilizing a design acceleration of 0.661g. The 2022 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 derived using a design acceleration equal to 50% of the PGA_M.

Backfill Material

Retaining wall backfill soils should consist of on-site sands and silty sands or imported granular soils possessing an expansion index less than 20. On-site low to medium expansive soils are not recommended for use as retaining wall backfill. 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 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 against the back 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. 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.

Retaining wall backfill should be placed and compacted under engineering observed conditions in the necessary layer thicknesses to ensure an in-place density between 90 and 93 percent of the maximum dry density as evaluated by the Modified Proctor test (ASTM D1557). 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 2-inch diameter holes in the wall situated slightly above the ground surface elevation on the exposed side of the wall and at an approximate 10-foot on-center spacing. Alternatively, 4-inch diameter holes at an approximate 20-foot on-center spacing can be used for this type of drainage system. In addition, 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. The actual design of this type of system should be determined by the civil engineer to verify that the drainage system possesses the adequate capacity and slope for its intended use.

6.8 Pavement Design Parameters Recommendations

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 sandy silts with limited amounts of clay. These soils are generally considered to possess fair pavement support characteristics with estimated R-values ranging from 20 to 35. The subsequent pavement design is therefore based upon an assumed R-value of 20. 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 observed 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. The traffic indices above allow for 1,000 automobiles per day.

ASPHALT PAVEMENTS (R = 20)					
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	8	10	12	14	16
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 evaluated 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 = 20)				
Materials	**Thickness (inches)**			
	Autos and Light Truck Traffic (TI = 6.0)	Truck Traffic		
		TI = 7.0	TI = 8.0	TI = 9.0
PCC	5	5½	7	8½
Compacted Subgrade (95% minimum compaction)	12	12	12	12

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

7.0 GENERAL COMMENTS

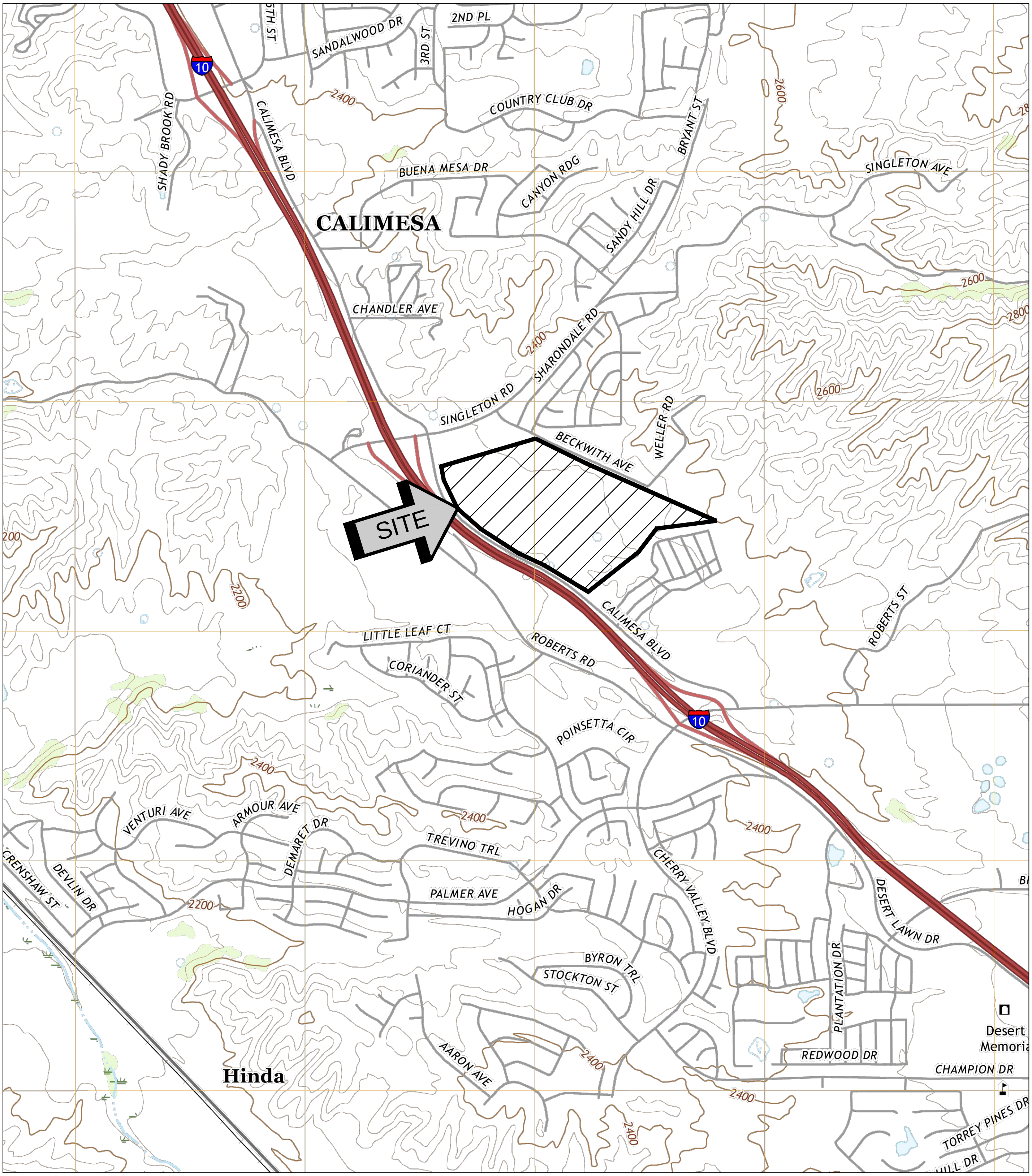
This report has been prepared as an instrument of service for use by the client, in order to aid in the evaluation of this property and to assist the architects and engineers in the design and preparation of the project plans and specifications. This report may be provided to the contractor(s) and other 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 confirm 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 confirm 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, 2022.

SITE LOCATION MAP

PROPOSED COMMERCIAL/INDUSTRIAL DEVELOPMENT

CALIMESA, CALIFORNIA

SCALE: 1" = 2000'	SOUTHERN CALIFORNIA GEOTECHNICAL
DRAWN: RB CHKD: RGT	
SCG PROJECT 20G122-4	
PLATE 1	

GEOTECHNICAL LEGEND

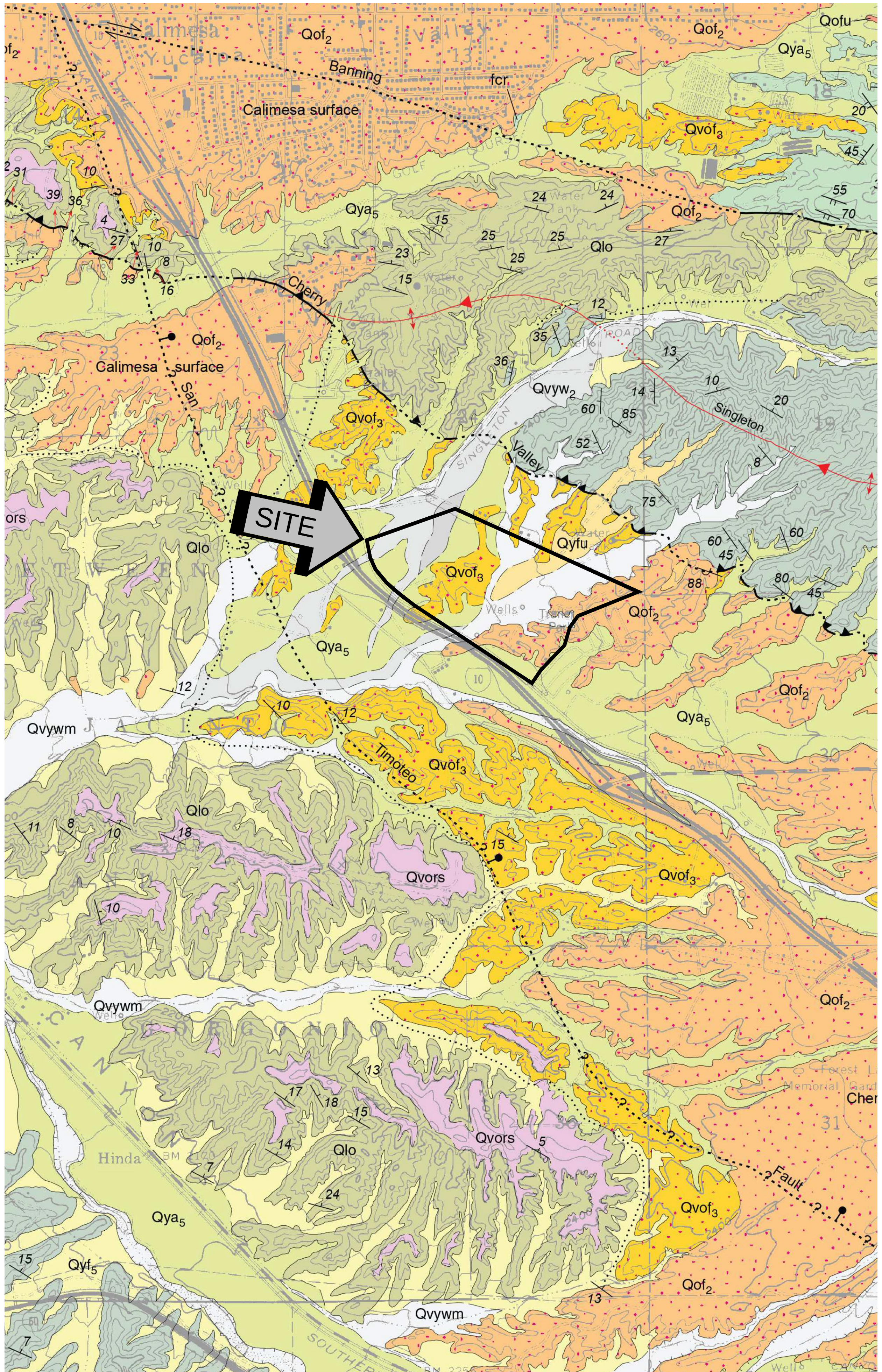
(symbol)	APPROXIMATE BORING LOCATION
(symbol)	APPROXIMATE BORING LOCATION (SCG PROJECT NO. 20G122-2)
(symbol)	PREVIOUS BORING LOCATION (SCG PROJECT NO. 20G122-1)
(symbol)	PREVIOUS BORING LOCATION (SCG PROJECT NO. 20G123-1)
Qal	YOUNGER ALLUVIUM
Qoa	OLDER ALLUVIUM
(dashed line)	GEOLOGIC CONTACT (BASED ON GEOLOGIC MAP AND BORING LOGS)
17'	ANTICIPATED DEPTH OF OVEREXCAVATION (IN FEET)

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation
SoCalGeo
22885 Savi Ranch Parkway
Suite E
Yorba Linda, CA 92887
Phone: (714) 685-1115
Fax: (714) 685-1118
www.socalgeo.com

SCALE: 1" = 120'
DRAWN: OS
CHKD: RGT
SCG PROJECT
20G122-4

GEOTECHNICAL MAP
PROPOSED COMMERCIAL/INDUSTRIAL DEVELOPMENT
CALIMESA, CALIFORNIA

PLATE 2



DESCRIPTION OF MAP UNITS

VERY YOUNG SURFICIAL MATERIALS—Sediment recently transported and deposited in channels and washes, on surfaces of alluvial fans and alluvial plains, in ephemeral lakes, and on hillslopes. Soil-profile development non-existent to weak. Includes:

Very young wash deposits (uppermost Holocene)—Sandy and gravelly sediment associated with stream channels and arroyos that are the sites of very recent sediment transport and deposition. Includes:

Qvywm — **Very young wash deposits, modern**—Very slightly to slightly consolidated sandy and gravelly sediment in active channels

Qvyw2 — **Very young wash deposits, unit 2**—Very slightly to slightly consolidated sandy and gravelly sediment that locally forms slightly elevated terraces along the margins of San Timoteo Creek

Qvyw1 — **Very young wash deposits, unit 1**—Very slightly to slightly consolidated sandy and gravelly sediment that locally forms slightly elevated terraces along the margins of San Timoteo Creek; surface supports mature trees and thin A horizons

Qvyfu — **Very young alluvial-fan deposits, undifferentiated (uppermost Holocene)**—Very slightly to slightly consolidated, undissected deposits of sandy and gravelly sediment that form actively sedimented parts of alluvial fans; occurs only locally

Qvylm — **Very young lacustrine deposits, modern (uppermost Holocene)**—Unconsolidated to slightly consolidated muddy and fine sandy sediment deposited in ephemeral lakes formed in lowlands by overbank flooding of San Jacinto River

YOUNG SURFICIAL DEPOSITS—Sedimentary units that are very slightly to moderately consolidated and slightly to moderately dissected. Alluvial-fan deposits (Qyf series) typically are sandy, but include subordinate gravelly sediment; axial-valley deposits (Qya series) are dominated by sandy sediment, with minor gravelly sediment and uncommon muddy sediment. Upper surfaces capped by slight to moderately developed pedogenic-soil profiles (A/AC to A/AC/Bcambic profiles having oxidized upper C horizon). Soil groups mapped by Knecht (1971) mainly are the Hanford and San Emigdio series, but include the Metz, Tujunga, and Grangeville series:

Young axial-valley deposits (Holocene and uppermost Pleistocene)—Slightly to moderately consolidated sandy, muddy, and gravelly sediment deposited by through-going streams of axial valleys; subunits distinguished on the basis of soil-profile development, relative position in the local terrace-riser succession, and degree of erosional dissection. Includes:

Qya5 — **Young axial-valley deposits, unit 5 (uppermost Holocene)**

Qya4 — **Young axial-valley deposits, unit 4 (upper Holocene)**

Qya3 — **Young axial-valley deposits, unit 3 (middle Holocene)**

Young alluvial-fan deposits (Holocene & uppermost Pleistocene)—Slightly to moderately consolidated sandy, gravelly, and muddy sediment deposited by streams flowing on alluvial-fan landforms. Units distinguished on the basis of soil-profile development and relative position in local terrace-riser succession. Includes:

Qyf5 — **Young alluvial-fan deposits, unit 5 (uppermost Holocene)**

Qyf4 — **Young alluvial-fan deposits, unit 4 (upper Holocene)**

Qyf3 — **Young alluvial-fan deposits, unit 3 (middle Holocene)**

Qyf1 — **Young alluvial-fan deposits, unit 1 (lower Holocene & uppermost Pleistocene)**

Qyfu — **Young alluvial-fan deposits, undifferentiated (lower Holocene & uppermost Pleistocene)**

Qyls — **Young landslide deposits (Holocene & uppermost Pleistocene)**—Slightly dissected slope-movement deposits. Locally may include old landslide material

Qyl5 — **Young lacustrine deposits, unit 5 (uppermost Holocene)**—Unconsolidated to slightly consolidated muddy and fine sandy sediment deposited in an ephemeral lake formed by flooding of San Jacinto River

OLD SURFICIAL DEPOSITS—Sedimentary units (Qof series, Qoa series) that are moderately consolidated, sandy and gravelly, and slightly to moderately dissected. Upper surfaces capped by moderately to well-developed pedogenic soils (A/AB/B/Cox profiles and Bt horizons as much as 1 to 2 m thick and maximum hues typically in the range of 10YR 5/4 and 6/4 [yellowish brown and light yellowish brown] through 7.5YR 6/4 to 4/4 [light brown to dark brown] but reaching 5YR 5/6 [yellowish red]). Soil groups mapped by Knecht (1971) include Greenfield series and weaker soils of Monserate and Ramona series. Includes:

Qosu — **Old surficial deposits, undifferentiated (upper to middle Pleistocene)**—Sandy and gravelly sediment of unspecified genesis

Old axial-valley deposits (upper to middle Pleistocene)—Moderately consolidated sandy and silty sediment and subordinate gravelly sediment deposited by through-going streams of axial valleys

Qoau — **Old axial-valley deposits, undifferentiated (upper to middle Pleistocene)**

Old alluvial-fan deposits (upper to middle Pleistocene)—Sandy, gravelly, and silty sediment deposited by streams that formed alluvial-fan landforms; subunits distinguished on the basis of soil-profile development, relative position in the local terrace-riser succession, and degree of erosional dissection. Includes:

Qof3 — **Old alluvial-fan deposits, unit 3 (upper Pleistocene)**

Qof2 — **Old alluvial-fan deposits, unit 2 (upper to middle Pleistocene)**

Qof1 — **Old alluvial-fan deposits, unit 1 (upper to middle Pleistocene)**

Qofu — **Old alluvial-fan deposits, undifferentiated (upper to middle Pleistocene)**

Qols — **Old landslide deposits (upper to middle Pleistocene)**—Moderately dissected slope-movement deposits. Probably inactive under current climatic and tectonic conditions

VERY OLD SURFICIAL DEPOSITS—Sedimentary units (Qvo series) that are moderately consolidated and moderately to well dissected. Consists mainly of alluvial-fan deposits (Qvof units) that typically are sandy and gravelly, but locally includes muddy sediment. Upper surfaces capped by moderate to well-developed pedogenic soils (A/AB/B/Cox profiles having Bt horizons as much as 2 to 3 m thick and maximum hues in the range of 7.5YR 6/4 to 4/4 [light brown to dark brown] to 2.5YR 5/6 [red]). Soil groups mapped by Knecht (1971) include stronger soils of the Ramona and Placentia series. Includes:

Qvors — **Very old residuum and (or) pedogenic soil (middle to lower Pleistocene)**—Consists of residuum and (or) pedogenic-soil profile developed on Sedimentary deposits of Live Oak Canyon (unit Qlo); has mature A/AB/B soil profile having Bt horizon as much as 3 m thick, and commonly laced with stringers, nodules, and irregular seams of $CaCO_3$ (caliche)

Very old alluvial-fan deposits (middle to lower Pleistocene)—Sandy and gravelly deposits having subunits distinguished from each other on the basis of soil-profile development and relative position in local terrace-riser succession. Includes:

Qvof3 — **Very old alluvial-fan deposits, unit 3 (middle Pleistocene)**

Qvofu — **Very old alluvial-fan deposits, undifferentiated (middle Pleistocene)**

CENOZOIC SEDIMENTARY MATERIALS

Qlo — **Sedimentary deposits of Live Oak Canyon (Pleistocene)**—Unconsolidated and consolidated nonmarine sedimentary material; sediment typically moderately consolidated, rock well consolidated to lithified. Mainly consists of gravelly and conglomeratic material interbedded with subequal sandy sediment and rock; muddy sediment and mudrock minor

San Timoteo formation of Frick (1921) (Pleistocene & Pliocene)—Nonmarine sediment and sedimentary rock referred to by Frick (1921, p. 283, 317) as his "San Timoteo formation" or "Upper San Timoteo Deposition". Sandy and conglomeratic rocks contain clasts derived from crystalline rocks of Transverse Ranges-type; clasts of Peninsular Ranges-type do not occur. Throughout its regional extent, formation ranges in age from Pliocene to early Pleistocene (Albright, 1999). Until a type section is designated and described, map unit is classified informally. Subdivided into:

Tstm — **Middle member (upper and middle Pliocene)**—Forms middle part of San Timoteo formation. Consists of four principal lithologies that recur throughout sequence: (1) thick sheet-like layers of conglomeratic rock; (2) light-gray to white sandstone and slightly conglomeratic sandstone; (3) reddish mudstone and sandstone; and (4) locally significant but minor grayish-green mudrock. Lithologies (1) and (3) distinguish middle member from other members of formation. Lower contact transitional across intervals as thick as 50 m, and unit appears to interfinger southeastward and eastward with underlying lower member; upper contact not exposed in quadrangle, but in adjacent Sunnymead quadrangle the middle member is transitional with overlying upper member. Pliocene age (Blancan) based on magnetostratigraphic correlation and stratigraphic relations with underlying and overlying units that contain vertebrate fossils (Albright, 1999).

Lower member (lower Pliocene)—Forms lower part of San Timoteo formation of Frick (1921). Subdivided into:

Tstls — **Sandstone unit (lower Pliocene)**—Consists dominantly of sandy rock interbedded with sparse conglomeratic rock; mudrock minor, except in stratigraphic sequence west of Moreno Valley strand of San Jacinto Fault at west edge of quadrangle. Rock is well consolidated to lithified, with some intervals cemented by calcareous and (or) siliceous cement. Contact with overlying middle member (unit Tstm) is transitional across stratigraphic interval as much as 50 m thick

Tstlr — **Ripple-laminated unit (lower Pliocene)**—Consists of two distinctive interbedded lithologies: (1) ledge-forming ripple-laminated sandstone and (2) recessive greenish-gray mudstone

Tstlf — **Fine-grained unit (lower Pliocene)**—Mainly light-gray to grayish-brown mudstone and calcareous mudstone that are fissil- and chippy-weathering, and that form recessive slopes. Rock texturally massive to faintly laminated, locally has mudcracks and rain-drop impressions, and locally contains thin nodules, needles, and seams if gypsum. Early Pliocene age (Blancan) based on magnetostratigraphic correlation and stratigraphic relations with underlying and overlying units that contain vertebrate fossils (Albright, 1999)

Mt. Eden formation of Frick (1921), revised herein (upper Miocene)—Nonmarine sedimentary rock referred to by Frick (1921, p. 283, 317) as his "Eden formation" or "Lower San Timoteo Deposition". Upper part of formation is late Miocene in age (late Hemphillian) on the basis of vertebrate fossils collected from the Mt. Eden area (Frick, 1921; May and Repenning, 1982; Albright, 1999). Until a type section is designated, unit is classified informally. Subdivided into:

Tmeh — **Heterogeneous member (upper Miocene)**—In Mt. Eden area, forms upper part of "Eden formation" of Frick (1921). Includes several lithotypes, two of which Frick (1921) emphasized in his original characterization: (1) slope-forming, greenish-gray mudstone, and (2) white nodular and lenticular limestone. Also includes (3) lithic arkosic sandstone and conglomeratic sandstone, and (4) greenish-gray siltstone and fine biotitic sandstone. These lithotypes occur in variable proportions throughout the member, although the finer grained rocks occur mainly in its upper part. Sandy and conglomeratic rocks contain clasts derived exclusively from crystalline rocks of Peninsular Ranges-type. Most of the vertebrate fossils collected by Frick (1921) are from this member where it crops out on the north slope of Mt. Eden.

Tmea — **Arkosic and lithic member (upper Miocene)**—Forms most of Mt. Eden formation in both Mt. Eden area and Laborde Canyon. At any specified location unit is fairly homogeneous in lithology; however, the unit in Mt. Eden area tends to be more brownish than in Laborde Canyon area, where rock tends to be more grayish. In all instances, rock is well consolidated to lithified, is recessive and slope-forming rather than ledgeforming, is thin- to very thick bedded to crudely stratified, and contains angular to subrounded particles derived exclusively from crystalline rocks of Peninsular Ranges-type (aplite, gneiss, metaquartzite, marble, schist, and granitoids). Sandy rock predominates over conglomeratic rock. Depositional fabrics mainly texturally massive, less commonly crudely flat laminated; cross laminations (shallow trough laminations, small-scale tabular laminations) present but not common; sedimentary structures better developed in finer grained rock than coarser-grained rock

Tmeb — **Boulder conglomerate member (upper Miocene)**—Lenticular bodies of monolithologic conglomerate interstratified with unit Tmea. Particle size ranges from pebbles to boulders as much as 6 m in dimension, with larger particles surrounded by grusy sand- and granule-size matrix; particles consist of biotite-hornblende tonalite identical to tonalite of Lamb Canyon (unit Ktlc)

EXPLANATION OF MAP SYMBOLS

Contact—Separates geologic-map units. Solid where meets map-accuracy standard; dashed where may not meet map-accuracy standard; dotted where concealed

Contact—Separates terraced alluvial units where younger unit is incised into older unit; hachures at base of slope, point toward topographically lower surface. Solid where meets map-accuracy standard; dashed where may not meet map-accuracy standard

Landslide crown scarp—Demarcates pull-away zone at head of landslide mass; may not meet map-accuracy standard. May form geologic contact between landslide mass and bedrock, or may separate discrete landslide masses. Hachures point downslope. Solid where meets map-accuracy standard; dashed where may not meet map-accuracy standard

20

Fault—Solid where meets map-accuracy standard; dashed where may not meet map-accuracy standard. Dotted where concealed by mapped covering unit; queried where existence uncertain. Hachures indicate scarp, with hachures on down-dropped block. Paired arrows indicate relative movement; single arrow indicates direction and amount of fault-plane dip. Bar and ball on down-thrown block

34

Thrust fault—Solid where meets map-accuracy standard; dashed where may not meet map-accuracy standard. Dotted where concealed by mapped covering unit; queried where existence uncertain. Sawteeth on upper plate; hachures at base of slope on downthrown block of fault scarp

Fault—Interpreted from seismic imaging; no locational accuracy implied (from Park and others,1995)

Fold axial plane—Solid where meets map-accuracy standard; dashed where may not meet map-accuracy standard. Dotted where concealed by mapped covering unit

Anticline, showing plunge direction

Syncline, showing plunge direction

Ground fissure

Geomorphic surface (Mt. Eden surface)

Fault-name abbreviations

SJF — **San Jacinto Fault**

Strike and dip of sedimentary layering

50 — Inclined

Vertical

50 — Overturned

Strike and dip of foliation of mineral grains, inclusions, or schlieren in igneous rocks

20 — Inclined

Mineral foliation and (or) compositional layering in metamorphic rocks

20 — Inclined

Vertical

Foliation in cataclastic and (or) mylonitic rocks

20 — Inclined

Vertical

20 — **Azimuth and plunge of lineations**

lineation, unspecified

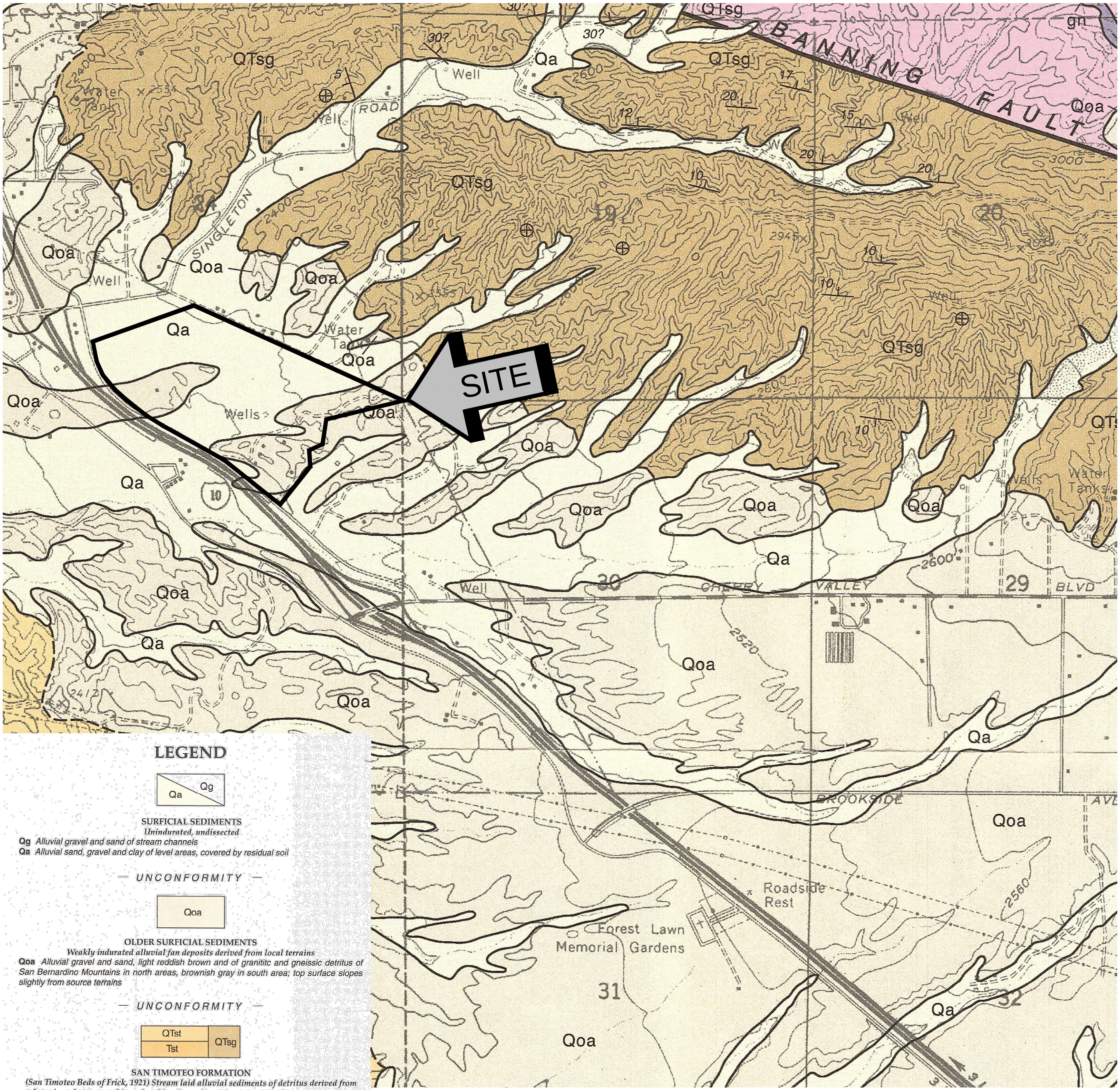
SOURCE: "GEOLOGIC AND GEOPHYSICAL MAPS OF THE EL CASCO 7.5' QUADRANGLE, RIVERSIDE COUNTY, CALIFORNIA, WITH ACCOMPANYING GEOLOGIC-MAP DATABASE" MATTI AND MORTON, 2015

GEOLOGIC MAP

PROPOSED COMMERCIAL/INDUSTRIAL DEVELOPMENT

CALIMESA, CALIFORNIA

SCALE: 1" =2000'	SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
DRAWN: OS CHKD: RGT	
SCG PROJECT 20G122-4	
PLATE 3a	



LEGEND

Qa | Qg

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*

— *UNCONFORMITY* —

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*

— *UNCONFORMITY* —

QTst | Tst | QTsg

SAN TIMOTEO FORMATION

(San Timoteo Beds of Frick, 1921) Stream laid alluvial sediments of detritus derived from plutonic and metamorphic rocks of San Bernadino Mountains NE of Banning Fault and deposited on plutonic and meta-sedimentary rocks of Peninsular Ranges NE of San Jacinto Fault zone; weakly indurated; upper part yielded verterbrate fauna diagnostic of Blancan Stage, Plio-Pleistocene (Frick, 1921, Savage et. al. 1954) or Irvingtonian Stage, earliest Pleistocene, (Repennimga 1987) lower or main part inferred to be of Pliocene age (Morton and Matti, 2001)

QTst *Upper part, sandstone, light gray to tan, fine to coarse grained arkosic and minor conglomerate of mostly granitic detritus, some gneissic and quartzitic detritus; includes thin layers of soft greenish to light reddish silty claystone, overlain by older alluvium*

QTsg *Conglomerate/fanglomerate, brownish gray, crudely bedded, of poorly sorted subrounded clasts of granitic and gneissic detritus in sandy matrix, base unexposed, overlain by older alluvium; probably proximal facies of upper part (**Qtst**); exposed adjacent to Banning fault*

Tst *Main part (middle part of Morton and Matti, 2001) sandstone, minor conglomerate and claystone, similar to those of upper part; comformably overlain by upper part (**QTst**), conformably underlain by Mount Eden Formation (Tme), but thins and buttresses eastward onto basement rocks as shown.*

GEOLOGIC SYMBOLS

not all symbols shown on each map

FORMATION CONTACT *dashed where inferred or indefinite dotted where concealed*

MEMBER CONTACT *between units of a formation* **Prominent bed**

CONTACT BETWEEN SURFICIAL SEDIMENTS *located only approximately in places*

FAULT: *Dashed where indefinite or inferred, dotted where concealed, queried where existence is doubtful. Parallel arrows indicate inferred relative lateral movement. Relative vertical movement is shown by U/D (U=upthrown side, D=downthrown side). Short arrow indicates dip of fault plane. Sawteeth are on upper plate of low angle thrust fault.*

U D 25 ?

FOLDS: *overturned* **ANTICLINE** **SYNCLINE**

arrow on axial trace of fold indicates direction of plunge; dotted where concealed by surficial sediments

Strike and dip of Sedimentary rocks — 18 *inclined*; 20, 3 *inclined (approximate)*; 80 *overturned*; *horizontal*; *vertical*

Strike and dip of metamorphic or igneous rock foliation or flow banding or compositional layers — 75 *inclined*; *inclined (approximate)*; *vertical*; 80 *overturned*

SOURCE: "GEOLOGIC MAP OF THE EL CASCO 7.5' QUADRANGLE, RIVERSIDE COUNTY, CALIFORNIA" DIBBLEE, 2003.

GEOLOGIC MAP

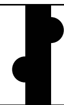
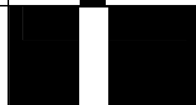
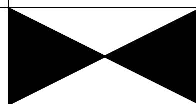
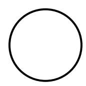
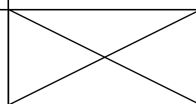
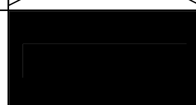
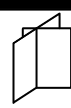
PROPOSED COMMERCIAL/INDUSTRIAL DEVELOPMENT

CALIMESA, CALIFORNIA

SCALE: 1" = 2000'	SOUTHERN CALIFORNIA GEOTECHNICAL
DRAWN: OS CHKD: RGT	
SCG PROJECT 20G122-4	
PLATE 3b	

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.

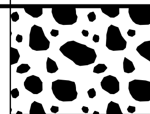
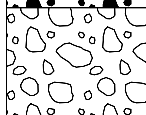
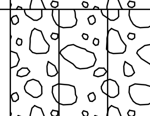
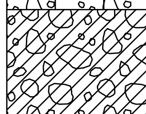
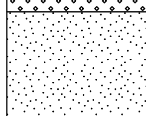
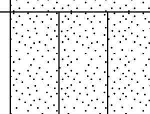
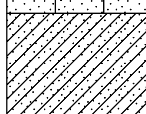
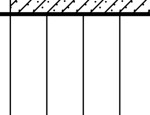
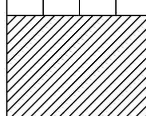
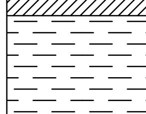
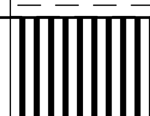
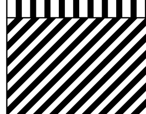
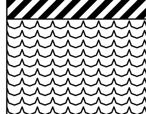
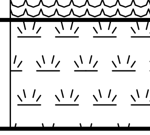
LIQUID LIMIT: The moisture content above which a soil behaves as a liquid.

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 GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
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-23

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/18/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 42 feet
READING TAKEN: At Completion

SURFACE ELEVATION: --- 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
					YOUNGER ALLUVIUM: Dark Brown Silty fine Sand, trace medium to coarse Sand, loose-damp to moist							
		5					6					
5												
		7					8					
10												
					Brown Silty fine to coarse Sand, trace fine to coarse Gravel, medium dense-damp							
		11					6					
15												
					OLDER ALLUVIUM: Light Brown Gravelly fine to coarse Sand, trace Silt, medium dense-dry to damp							
		27					3					@ 18 feet, Disturbed Sample
20		31			@ 20-22 feet, trace-little Silt	109	2					
		27				113	2					
		18			Brown Silty fine Sand, trace medium to coarse Sand, medium dense-damp	106	7					
25												
		27			Brown Silty fine Sand to fine Sandy Silt, trace medium to coarse Sand, trace fine Gravel, medium dense-damp	111	8					
					Light Brown fine to coarse Sand, trace to little Silt, little fine Gravel, dense-dry to damp							
		35					3					
30												
					Light Brown Gray fine to medium Sand, trace coarse Sand, trace fine Gravel, dense-dry							
		59				111	2					

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-23

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/18/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 42 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
					Light Brown fine to coarse Sand, trace to little Silt, little fine Gravel, dense-dry to damp							
					Light Brown Silty fine to medium Sand, little coarse Sand, little fine to coarse Gravel, dense-damp							
	X	37					5					
40												
					Light Gray Brown Gravelly fine to coarse Sand, trace Silt, dense-dry to damp							
	X	55				121	3					
45												
					Brown fine Sandy Silt, trace medium to coarse Sand, trace fine Gravel, medium dense-moist							
	X	22					13					
50												

Boring Terminated @ 50 feet

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

TEST BORING LOG

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-24

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/18/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 37 feet
READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
					<u>YOUNGER ALLUVIUM:</u> Dark Brown fine Sandy Silt, trace to little medium Sand, trace coarse Sand, trace fine Gravel, trace fine root fibers, loose-very moist							
	X	6				100	14					
	X	7				94	15					
					Brown to Dark Brown fine Sandy Silt, trace Clay, trace medium to coarse Sand, loose-moist to very moist							
5	X	8				106	13					
					Brown to Dark Brown Silty fine Sand, trace medium to coarse Sand, loose-moist							
	X	14				107	11					
					Brown Silty fine to medium Sand, trace coarse Sand, trace fine Gravel, medium dense-damp							
	X	15				109	7					
10												
					Brown fine Sandy Silt, trace medium to coarse Sand, trace fine Gravel, trace Clay, loose-moist							
	X	9					10					
15												
					<u>OLDER ALLUVIUM:</u> Brown to Light Brown Silty fine to medium Sand, trace coarse Sand, trace to little fine to coarse Gravel, medium dense to very dense-damp to very moist							
	X	22				121	8					
20												
	X	28					6					
25												
	X	95/9"				113	13					
30												
					Light Brown fine to coarse Sand, trace to little fine to coarse Gravel, very dense-damp							
	X	75					3					

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-24

JOB NO.: 20G122-4	DRILLING DATE: 5/18/23	WATER DEPTH: Dry
PROJECT: Proposed C/I Development	DRILLING METHOD: Hollow Stem Auger	CAVE DEPTH: 37 feet
LOCATION: Calimesa, California	LOGGED BY: Ryan Bremer	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
					Light Brown fine to coarse Sand, trace to little fine to coarse Gravel, very dense-damp							
					Brown Gravelly fine to coarse Sand, very dense-damp							
	X	50/5"					3					@ 38½ feet, poor sample recovery
40												
					Boring Terminated @ 40 feet							

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-25

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/18/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 44 feet
READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
	X	23			YOUNGER ALLUVIUM: Brown Silty fine Sand to fine Sandy Silt, little fine root fibers, trace fine to coarse Gravel, trace medium to coarse Sand, medium dense-damp	112	4					
	X	16			Dark Brown fine Sandy Silt, trace medium to coarse Sand, little fine root fibers, mottled, trace Iron Oxide staining, loose to medium dense-damp	92	9					
5	X	14			@ 5 feet, Brown, little porosity		7					
	X	16			Brown Silty fine Sand, trace medium to coarse Sand, medium dense-moist	111	9					
10	X	10			Brown fine Sandy Silt, trace medium to coarse Sand, trace fine Gravel, loose-very moist	100	17					
15	X	5			@ 13½ feet, trace Clay		15					
					OLDER ALLUVIUM: Brown fine Sandy Silt, trace Calcareous veining, trace medium to coarse Sand, medium dense-very moist							
20	X	24				116	17					
					Brown Silty fine to coarse Sand, trace fine to coarse Gravel, trace Clay, dense-damp to moist							
25	X	33					9					
					Brown fine to coarse Sand, trace fine to coarse Gravel, medium dense-damp							
30	X	41				116	3					
					Light Brown fine Sandy Silt, little Iron Oxide staining, trace Clay, trace medium Sand, medium dense-damp to very moist							
	X	16					15					

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-25

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/18/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 44 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
					Light Brown fine Sandy Silt, little Iron Oxide staining, trace Clay, trace medium Sand, medium dense-damp to very moist							
40		33				107	7					
					Brown fine to coarse Sand, trace Silt, trace fine Gravel, medium dense-damp							
					Light Brown Silty fine to medium Sand, trace coarse Sand, medium dense-moist to very moist							
45		22					12					
					Brown Gray Gravelly fine to coarse Sand, trace Silt, dense-damp							
50		46					3					

Boring Terminated @ 50 feet

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

TEST BORING LOG

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-26

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/17/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 45 feet
READING TAKEN: At Completion

FIELD RESULTS					DESCRIPTION	LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
	X	10			YOUNGER ALLUVIUM: Brown fine to coarse Sand, trace Silt, trace fine root fibers, trace fine to coarse Gravel, loose-dry	104	2					
	X	8			Dark Brown Silty fine Sand to fine Sandy Silt, trace to little medium to coarse Sand, trace fine to coarse Gravel, loose-damp to moist	105	9					
5	X	11			Brown Silty fine to coarse Sand, trace fine root fibers, trace Calcareous nodules, loose-moist	102	10					
	X	10			Brown Silty fine Sand, trace to little medium Sand, trace fine to coarse Gravel, occasional Cobbles, loose-moist	98	9					
10	X	10				109	10					
15	X	7			Brown to Light Brown Silty fine Sand to fine Sandy Silt, trace Clay nodules, trace medium to coarse Sand, loose-damp to moist		11					
20	X	70			@ 19 feet, trace fine Gravel, dense	117	9					
25	X	9					11					
30	X	26			OLDER ALLUVIUM: Red Brown fine to medium Sandy Silt, trace coarse Sand, trace Calcareous veining, medium dense-moist	119	11					
	X	55			Brown Silty fine to coarse Sand, little fine to coarse Gravel, very dense-damp to moist		8					

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

BORING NO. B-26

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/17/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 45 feet
READING TAKEN: At Completion

FIELD RESULTS: DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION (Continued)	LABORATORY RESULTS: DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
					Brown Silty fine to coarse Sand, little fine to coarse Gravel, very dense-damp to moist							
					Red Brown fine Sandy Silt, trace medium to coarse Sand, dense to very dense-damp to moist							
40	X	71				121	13					
45	X	56					9					
50	X	59					7					
					Boring Terminated @ 50 feet							

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-27

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/15/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 45 feet
READING TAKEN: At Completion

DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
					YOUNGER ALLUVIUM: Dark Brown Silty fine Sand to fine Sandy Silt, little medium to coarse Sand, trace fine Gravel, very loose-damp							
5		3					7					
					Brown Silty fine Sand, little medium to coarse Sand, trace fine to coarse Gravel, loose-damp							
10		7					6					
		14				107	5					
					Brown Silty fine Sand to fine Sandy Silt, trace medium to coarse Sand, loose-damp							
15		14				109	6					
		10				106	7					
		15			Light Brown Silty fine Sand, little medium to coarse Sand, trace fine Gravel, medium dense-damp	105	4					
20		22			OLDER ALLUVIUM: Brown fine Sandy Silt, trace medium to coarse Sand, trace fine Gravel, medium dense-damp to moist	114	9					
					Light Brown fine to coarse Sand, trace fine to coarse Gravel, medium dense-damp							
25		22					3					
					Brown fine Sandy Silt, medium dense-moist to very moist							
30		24				115	13					
					Brown Silty fine to coarse Sand, medium dense-very moist							
					Brown Silty fine to medium Sand, trace coarse Sand, medium dense-damp							
		21					6					

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-27

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/15/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 45 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 Silty fine to medium Sand, trace coarse Sand, medium dense-damp							
					Brown fine Sandy Silt, little medium to coarse Sand, medium dense-moist							
40		31				121	11					
					Light Brown fine to coarse Sand, trace to little Silt, trace fine to coarse Gravel, medium dense-damp							
45		26					4					
					Brown Silty fine Sand, dense-damp							
50		49				103	6					
					Light Brown Gravelly fine to coarse Sand, dense-moist							

Boring Terminated @ 50 feet

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-28

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/15/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 45 feet
READING TAKEN: At Completion

DEPTH (FEET)	BLOW COUNT	POCKET PEN. (TSF)	DESCRIPTION (SURFACE ELEVATION: --- MSL)	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
0			YOUNGER ALLUVIUM: Brown Silty fine to medium Sand, trace to little coarse Sand, loose to medium dense-damp							
5	8				6					
10	13				7					
12			Light Brown Silty fine Sand to fine Sandy Silt, trace to little medium Sand, trace coarse Sand, medium dense-damp							
	22			115	8					
15	20		Brown Silty fine Sand, trace to little medium to coarse Sand, medium dense-very moist	106	13					
	23		Brown Silty fine to medium Sand, trace coarse Sand, trace fine to coarse Gravel, medium dense-damp	108	5					
	25		Light Brown Silty fine to coarse Sand, trace fine to coarse Gravel, medium dense-damp	113	4					
20	18		Brown to Light Yellow Brown Silty fine Sand, trace medium to coarse Sand, medium dense-damp to moist	105	8					
25	15				11					
27			OLDER ALLUVIUM: Brown fine to coarse Sand, trace Silt, medium dense-moist							
30	30			115	6					
32			Brown Gravelly fine to coarse Sand, trace to little Silt, medium dense to dense-dry to damp							
35	44				3					

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-28

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/15/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 45 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
					Brown Gravelly fine to coarse Sand, trace to little Silt, medium dense to dense-dry to damp							
40		39				110	5					
					Light Gray Brown fine to coarse Sand, trace Silt, trace fine Gravel, medium dense-dry to damp							
45		28					3					
					Brown Silty fine Sand to fine Sandy Silt, trace medium Sand, medium dense-damp to moist							
50		19					9					
					Boring Terminated @ 50 feet							

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-29

JOB NO.: 20G122-4	DRILLING DATE: 5/17/23	WATER DEPTH: Dry
PROJECT: Proposed C/I Development	DRILLING METHOD: Hollow Stem Auger	CAVE DEPTH: 32 feet
LOCATION: Calimesa, California	LOGGED BY: Ryan Bremer	READING TAKEN: At Completion

SURFACE ELEVATION: --- 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
		5			YOUNGER ALLUVIUM: Dark Brown Silty fine Sand to fine Sandy Silt, trace medium Sand, trace fine root fibers, very loose-damp to moist	95	11					
		5			@ 3 feet, trace to little medium Sand, trace coarse Sand	101	9					
5		8			Brown Silty fine to medium Sand, trace coarse Sand, loose-damp to moist	103	8					
		9				103	9					
10		10			Brown fine Sandy Silt, trace medium Sand, loose-very moist	104	14					
15		9			Light Brown Silty fine Sand, loose-damp		7					
20		38			OLDER ALLUVIUM: Light Brown fine to coarse Sand, trace Silt, medium dense-dry to damp	112	3					
25		27					3					
30		28			Brown fine to medium Sandy Silt, trace coarse Sand, trace fine Gravel, medium dense-moist	117	10					
		27			Light Brown Silty fine to medium Sand, trace coarse Sand, trace fine to coarse Gravel, medium dense-damp		8					

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-29

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/17/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 32 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
					Light Brown Silty fine to medium Sand, trace coarse Sand, trace fine to coarse Gravel, medium dense-damp							
					Light Brown fine to medium Sandy Silt, trace coarse Sand, trace fine Gravel, very dense-moist							
	X	75					10					
40												
					Boring Terminated @ 40 feet							

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

BORING NO. B-30

JOB NO.: 20G122-4	DRILLING DATE: 5/17/23	WATER DEPTH: Dry
PROJECT: Proposed C/I Development	DRILLING METHOD: Hollow Stem Auger	CAVE DEPTH: 33 feet
LOCATION: Calimesa, California	LOGGED BY: Ryan Bremer	READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
0					YOUNGER ALLUVIUM: Brown Silty fine Sand, trace medium to coarse Sand, loose-damp							
	X	5					6					
5.5					Brown Silty fine Sand to fine Sandy Silt, trace to little medium to coarse Sand, trace fine Gravel, loose-damp							
	X	14				112	7					
7.5					Brown Silty fine to medium Sand, trace to little coarse Sand, trace fine to coarse Gravel, loose to medium dense-damp							
	X	9					8					
	X	8				109	8					
	X	15					5					
17					Light Brown fine to medium Sand, trace Silt, trace coarse Sand, medium dense-dry to damp							
	X	19				103	3					
22					Brown Silty fine Sand to fine Sandy Silt, trace medium Sand, medium dense-damp							
	X	10					8					
27					OLDER ALLUVIUM: Light Brown Gravelly fine to coarse Sand, trace Silt, medium dense-damp							
	X	36				110	4					
32					Gray Brown fine to medium Sand, trace coarse Sand, trace Silt, trace fine Gravel, dense-dry to damp							
	X	36					3					

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-30

JOB NO.: 20G122-4	DRILLING DATE: 5/17/23	WATER DEPTH: Dry
PROJECT: Proposed C/I Development	DRILLING METHOD: Hollow Stem Auger	CAVE DEPTH: 33 feet
LOCATION: Calimesa, California	LOGGED BY: Ryan Bremer	READING TAKEN: At Completion

FIELD RESULTS					DESCRIPTION	LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	(Continued)	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
					Gray Brown fine to medium Sand, trace coarse Sand, trace Silt, trace fine Gravel, dense-dry to damp							
					Brown Gravelly fine to coarse Sand, dense-damp							
40	X	47				113	3					
					Boring Terminated @ 40 feet							

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

BORING NO. B-31

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/15/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 35 feet
READING TAKEN: At Completion

SURFACE ELEVATION: --- MSL

DEPTH (FEET)	BLOW COUNT	POCKET PEN. (TSF)	DESCRIPTION	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
			YOUNGER ALLUVIUM: Light Brown Silty fine to coarse Sand, little fine root fibers, trace fine Gravel, medium dense-dry							
	22			109	2					
			Light Brown Gravelly fine to coarse Sand, trace Silt, medium dense-dry							
			Brown Silty fine Sand, trace medium Sand, loose-damp							
5	6			92	7					
			Brown Silty fine to medium Sand, trace coarse Sand, trace fine Gravel, occasional Cobbles, loose to medium dense-damp to moist							
	8			106	7					
10	12			107	9					
	29			118	4					
	17			106	6					
15										
			Light Brown fine to medium Sand, trace coarse Sand, trace Silt, trace fine Gravel, loose-damp							
	13			104	5					
			Brown Silty fine to medium Sand, trace to little coarse Sand, trace fine Gravel, medium dense-damp							
20	16			105	6					
	14				6					
25										
			Light Brown fine to coarse Sand, trace Silt, trace fine Gravel, medium dense-damp							
	20			107	4					
30										
			OLDER ALLUVIUM: Light Brown fine to coarse Sand, trace Silt, trace fine Gravel, dense-damp							
	30				3					

BORING NO. B-31

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/15/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 35 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
					Light Brown fine to coarse Sand, trace Silt, trace fine Gravel, dense-damp							
					Light Brown Silty fine Sand to fine Sandy Silt, trace medium Sand, medium dense-damp to moist							
40		22				94	9					
					Brown fine Sandy Silt, trace medium Sand, medium dense-moist							
45		11					13					
					Light Gray Brown fine to coarse Sand, trace Silt, medium dense-damp							
50		29				107	3					
					Brown fine Sandy Silt, medium dense-damp							

Boring Terminated @ 50 feet

BORING NO. B-32

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 20G122-4	DRILLING DATE: 5/16/23	WATER DEPTH: Dry
PROJECT: Proposed C/I Development	DRILLING METHOD: Hollow Stem Auger	CAVE DEPTH: 46 feet
LOCATION: Calimesa, California	LOGGED BY: Ryan Bremer	READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
					YOUNGER ALLUVIUM: Brown fine to coarse Sand, trace Silt, little fine to coarse Gravel, medium dense-dry to damp							
		13					3					
5												
					Brown fine Sandy Silt, trace medium to coarse Sand, very loose-very moist							
		4					13					
10												
					Brown Silty fine to medium Sand, trace coarse Sand, loose to medium dense-damp to moist							
		12					9					
15												
		14				109	12					
		34			Light Brown Gravelly fine to coarse Sand, trace Silt, medium dense-dry	111	2					
20		14			Brown fine to coarse Sand, trace fine Gravel, loose-damp	103	3					
		22			Light Brown Gravelly fine to coarse Sand, trace Silt, medium dense-dry	109	2					
		12			Brown Silty fine to medium Sand, trace coarse Sand, loose-damp	111	6					
25												
					Brown Silty fine Sand to fine Sandy Silt, trace medium to coarse Sand, medium dense-moist							
		11					11					
30												
					OLDER ALLUVIUM: Gray Brown Gravelly fine to coarse Sand, trace to some Silt, medium dense to dense-moist							
		49				117	4					

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

TEST BORING LOG

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-32

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/16/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 46 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
					Gray Brown Gravelly fine to coarse Sand, trace to some Silt, medium dense to dense-moist							
40	X	22					6					
					Brown Silty fine Sand to fine Sandy Silt, medium dense-moist							
45	X (filled)	25				97	10					
					Brown fine Sandy Silt, trace medium to coarse Sand, medium dense-very moist							
50	X	17					20					
					Brown Silty fine Sand, trace medium Sand, dense-moist							
55	X (filled)	60				119	10					

Boring Terminated @ 55 feet

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

BORING NO. B-33

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/16/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 39 feet
READING TAKEN: At Completion

FIELD RESULTS					DESCRIPTION	LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	SURFACE ELEVATION: --- MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
					YOUNGER ALLUVIUM: Dark Brown Silty fine Sand, little medium to coarse Sand, medium dense-damp							
		12					8					
5		8			Brown to Dark Brown fine Sandy Silt, trace to little medium to coarse Sand, trace fine root fibers, trace Clay, trace Calcareous nodules, loose-damp to moist	93	5					
		7				106	11					
10		14				117	6					
		20			Light Brown Silty fine Sand, trace medium to coarse Sand, trace fine root fibers, trace fine to coarse Gravel, occasional Cobbles medium dense-damp	97	7					
15		27			Brown fine to coarse Sand, trace Silt, trace fine to coarse Gravel, medium dense-dry	103	2					
					OLDER ALLUVIUM: Brown Gravelly fine to coarse Sand, trace to little Silt medium dense to very dense-damp to moist							
20		21				108	4					
25		97/9"					6					@ 25 feet, Disturbed Sample
					Gray Brown fine to coarse Sand, trace Silt, trace fine to coarse Gravel, medium dense to very dense-damp							
30		43				114	3					
		55					3					

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

BORING NO. B-33

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 20G122-4
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 5/16/23
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 39 feet
READING TAKEN: At Completion

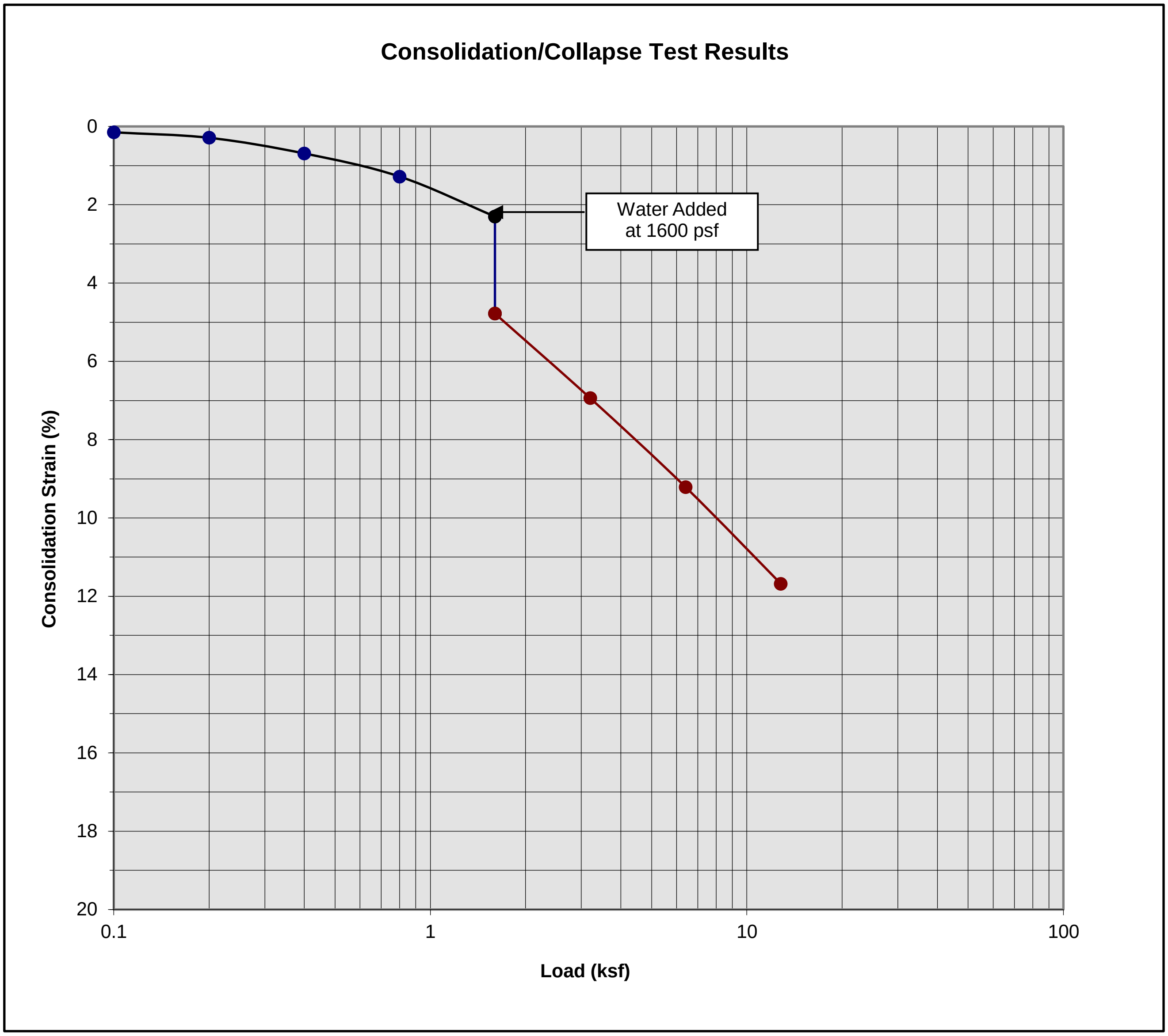
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION (Continued)	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
					Gray Brown fine to coarse Sand, trace Silt, trace fine to coarse Gravel, medium dense to very dense-damp							
					Brown Gravelly fine to coarse Sand, trace to little Silt, dense to very dense-damp							
40		45				119	5					
45		65					4					
50		50/5"					4					@ 50 feet, Disturbed Sample

Boring Terminated @ 51 feet

TBL 20G122-4.GPJ SOCALGEO.GDT 6/26/23

TEST BORING LOG

APPENDIX C

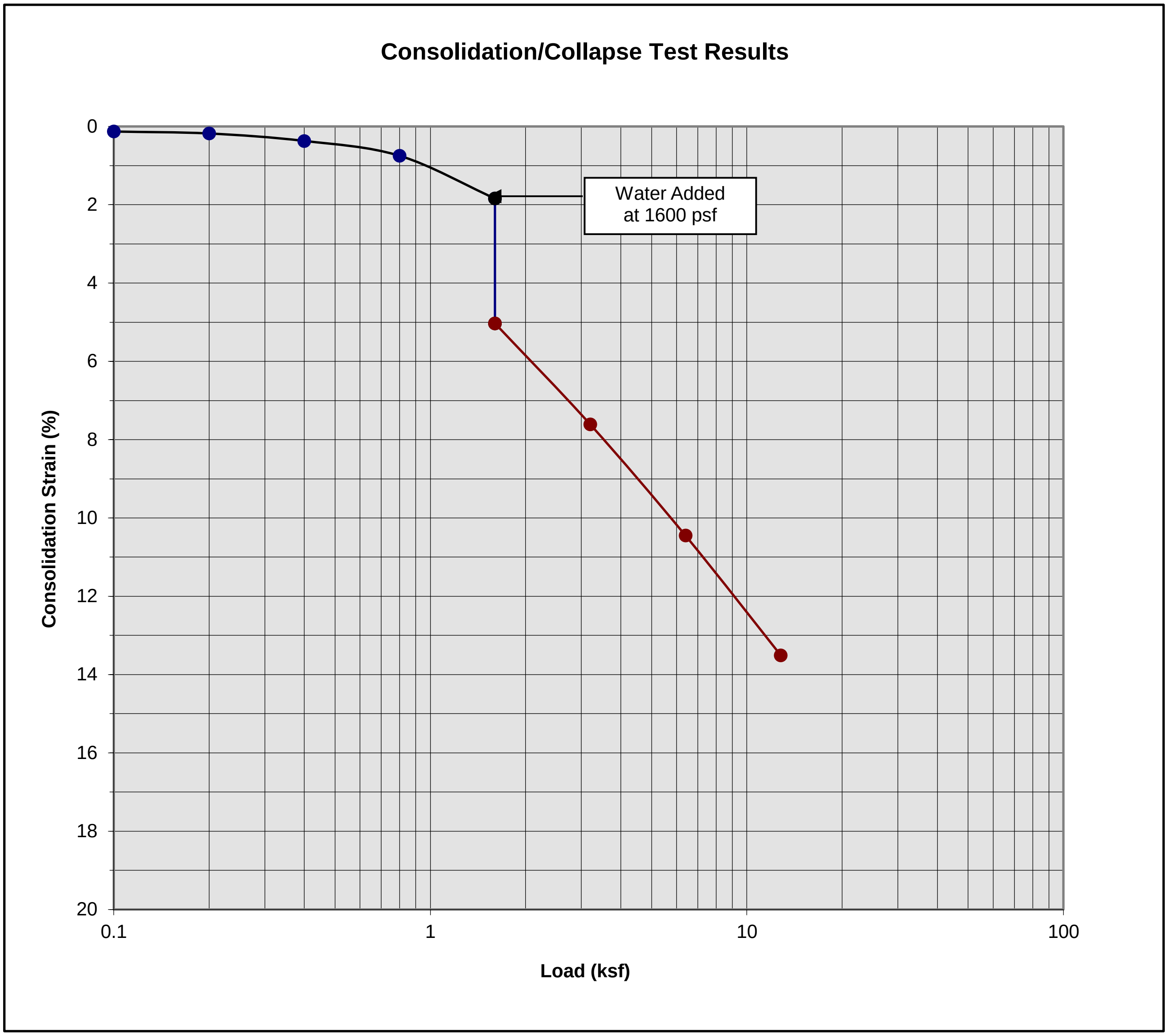


Classification: Brown Silty fine Sand, trace medium to coarse Sand

Boring Number:	B-25	Initial Moisture Content (%)	9
Sample Number:	---	Final Moisture Content (%)	13
Depth (ft)	7 to 8	Initial Dry Density (pcf)	110.6
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	125.2
Specimen Thickness (in)	1.0	Percent Collapse (%)	2.48

Proposed C/I Development
Calimesa, California
Project No. 20G122-4
PLATE C- 1

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation



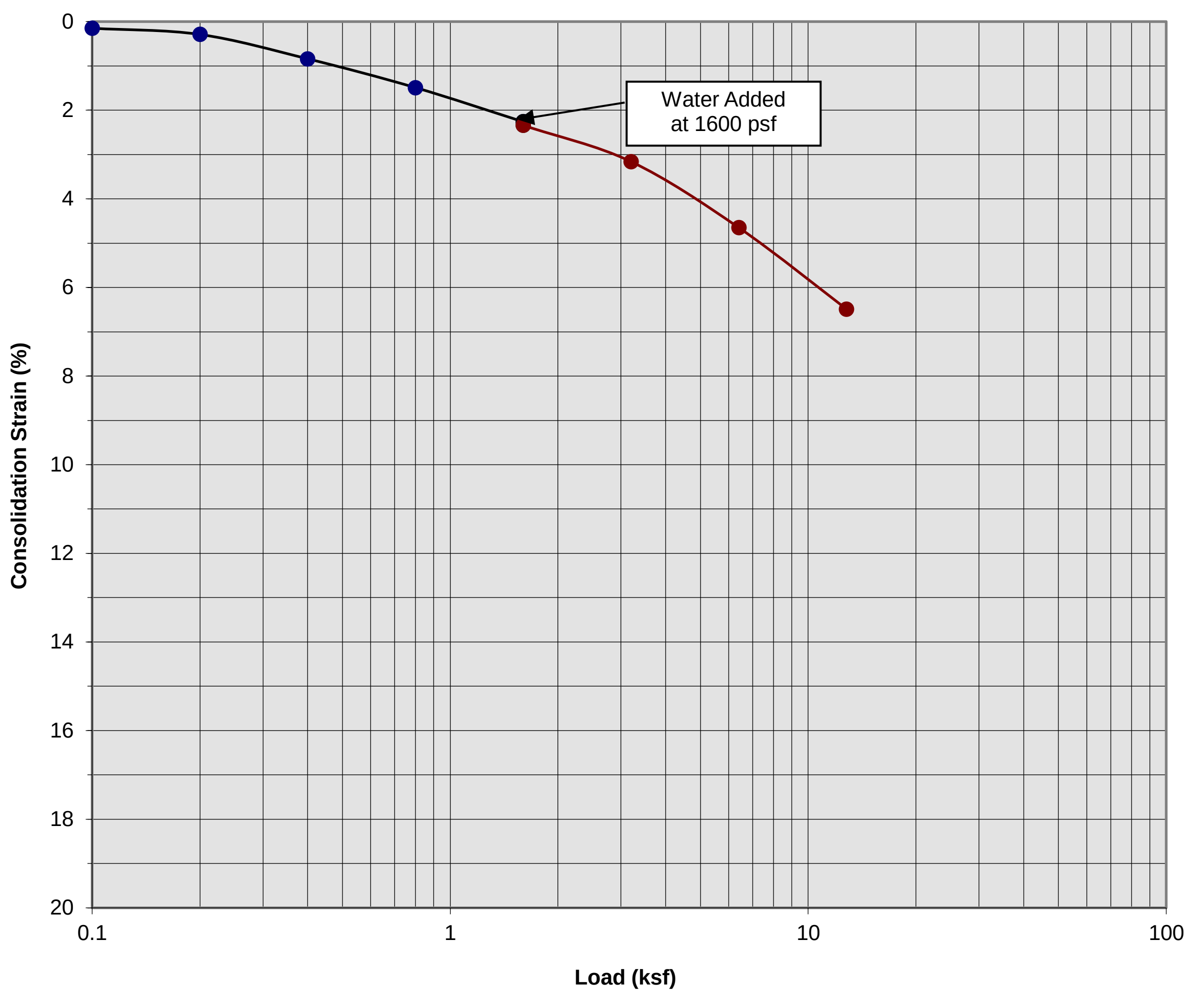
Classification: Brown fine Sandy Silt, trace medium to coarse Sand, trace fine Gravel

Boring Number:	B-25	Initial Moisture Content (%)	17
Sample Number:	---	Final Moisture Content (%)	19
Depth (ft)	9 to 10	Initial Dry Density (pcf)	99.1
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	113.9
Specimen Thickness (in)	1.0	Percent Collapse (%)	3.19

Proposed C/I Development
Calimesa, California
Project No. 20G122-4
PLATE C- 2

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Consolidation/Collapse Test Results

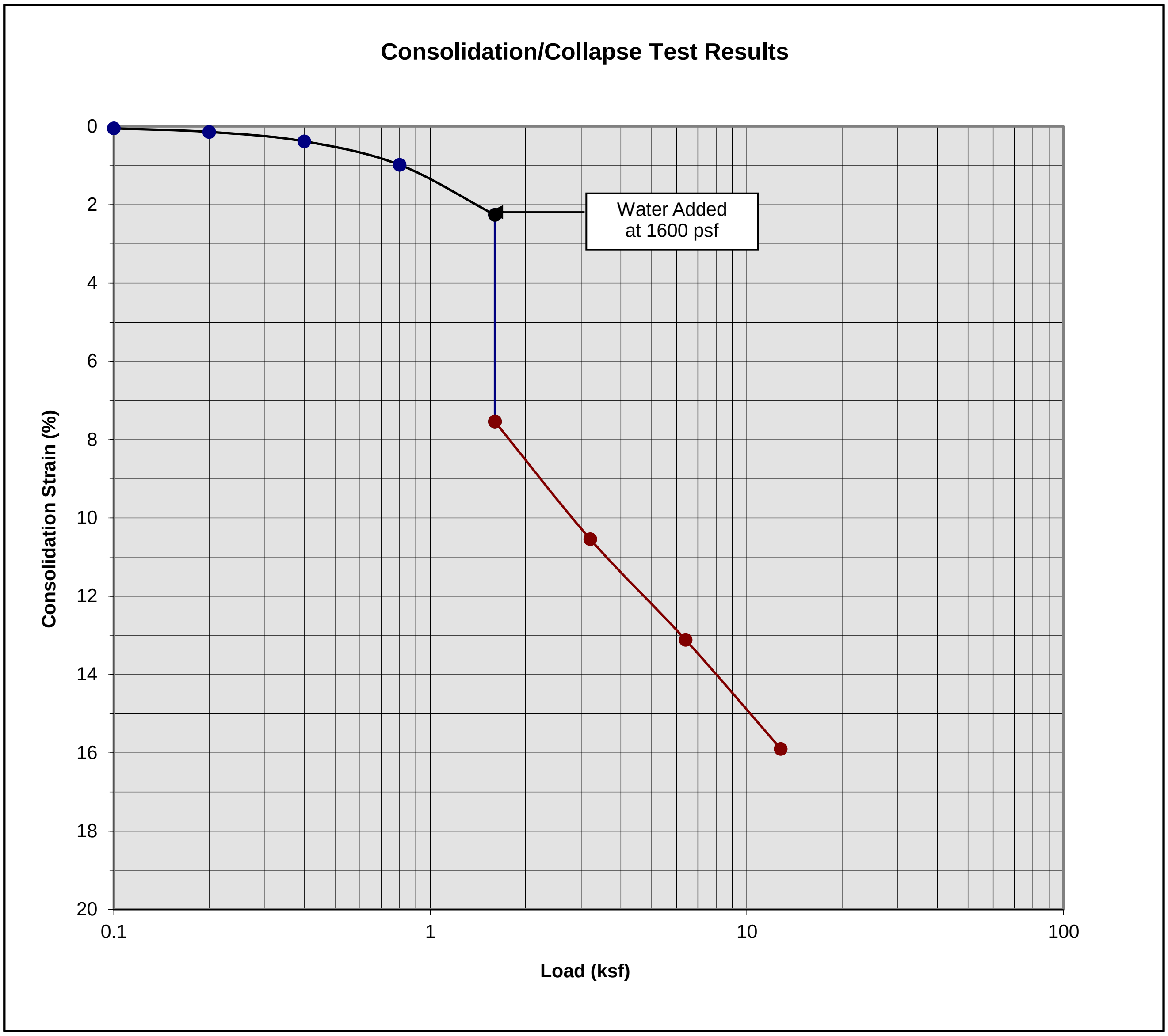


Classification: Brown fine Sandy Silt, trace medium to coarse Sand

Boring Number:	B-25	Initial Moisture Content (%)	17
Sample Number:	---	Final Moisture Content (%)	16
Depth (ft)	19 to 20	Initial Dry Density (pcf)	115.3
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	124.1
Specimen Thickness (in)	1.0	Percent Collapse (%)	0.08

Proposed C/I Development
Calimesa, California
Project No. 20G122-4
PLATE C- 3

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

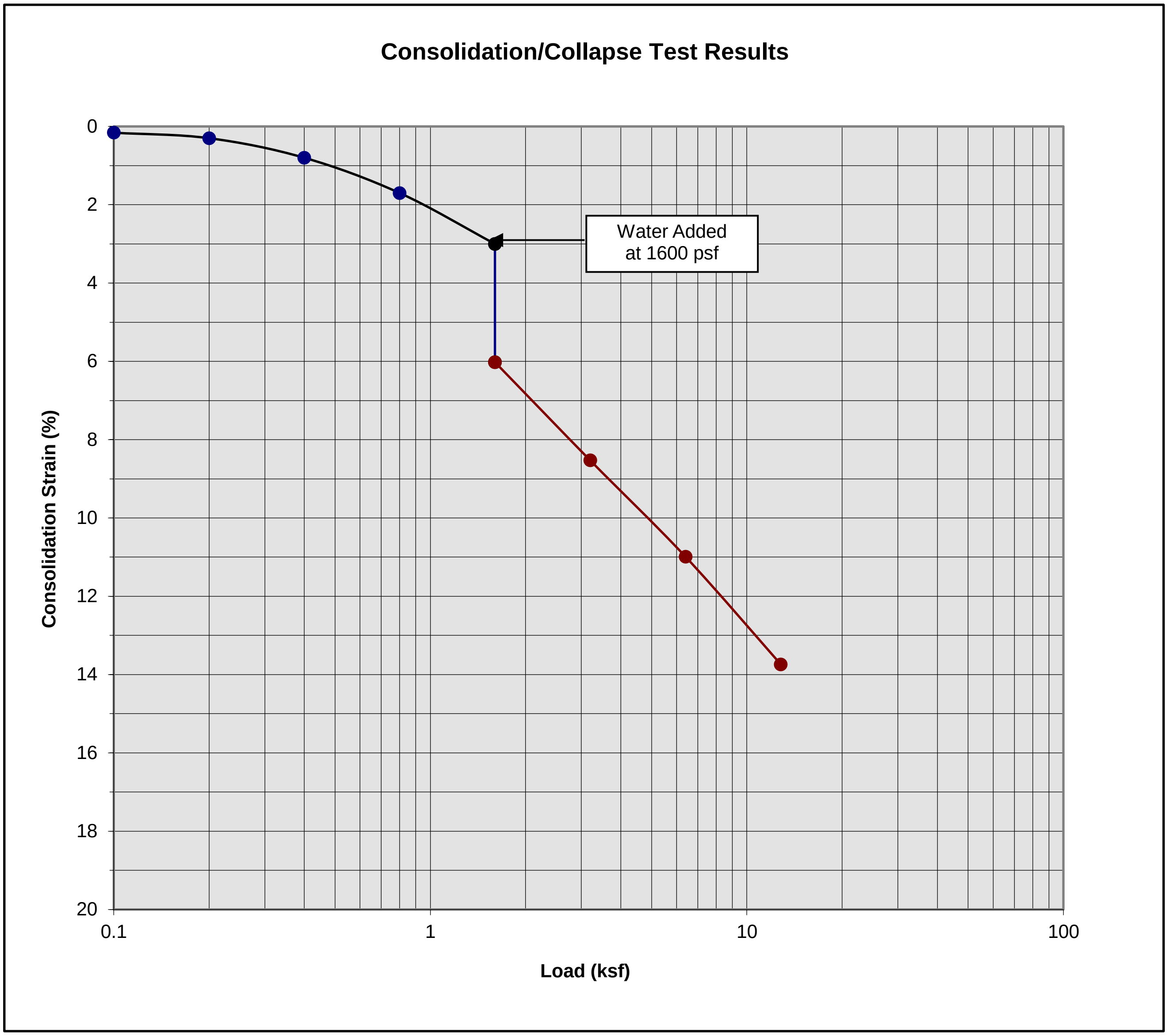


Classification: Brown Silty fine Sand, trace to little medium Sand

Boring Number:	B-26	Initial Moisture Content (%)	8
Sample Number:	---	Final Moisture Content (%)	15
Depth (ft)	7 to 8	Initial Dry Density (pcf)	98.7
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	117.1
Specimen Thickness (in)	1.0	Percent Collapse (%)	5.28

Proposed C/I Development
Calimesa, California
Project No. 20G122-4
PLATE C- 4

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

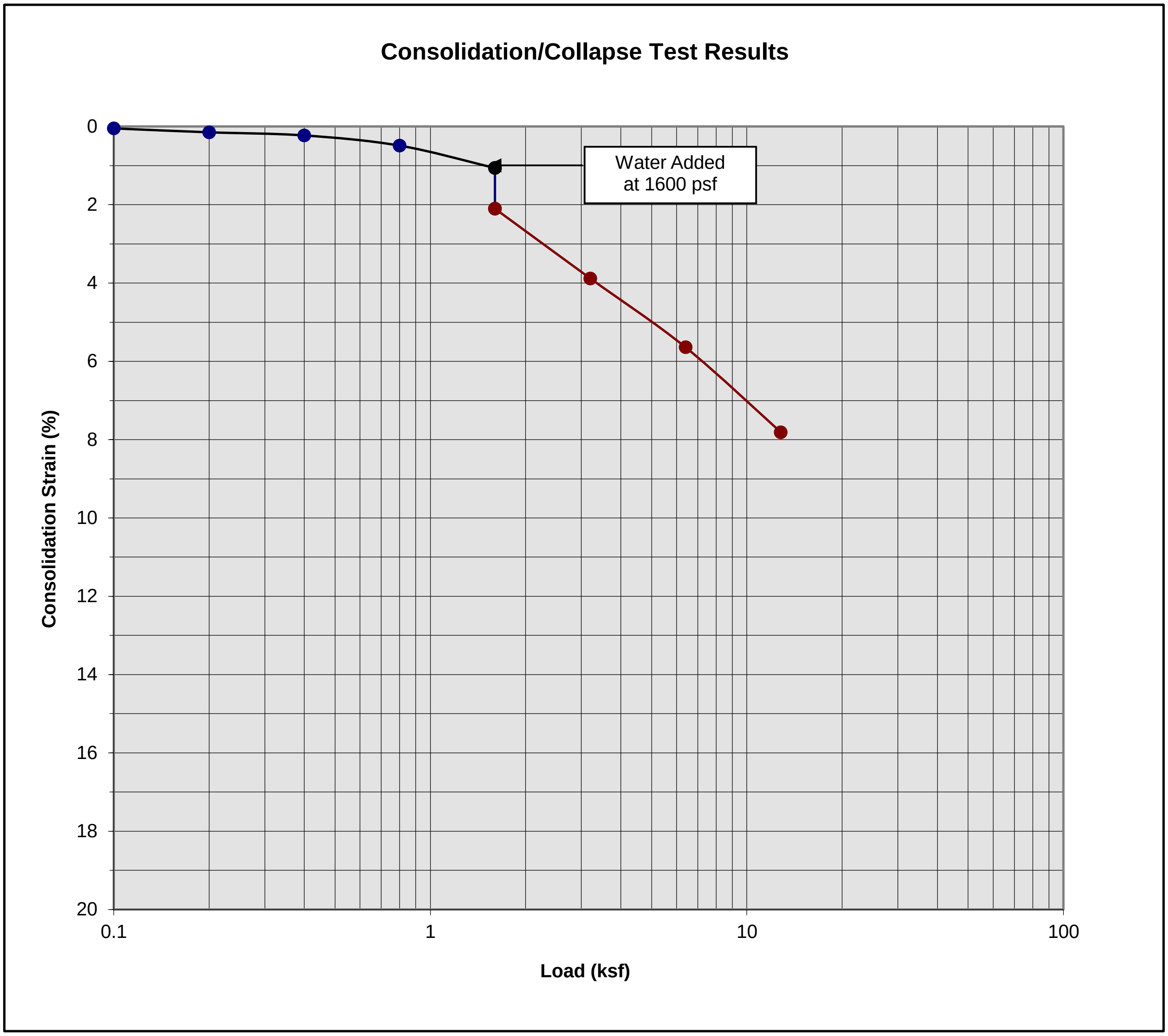


Classification: Brown Silty fine Sand, trace to little medium Sand

Boring Number:	B-26	Initial Moisture Content (%)	11
Sample Number:	---	Final Moisture Content (%)	15
Depth (ft)	9 to 10	Initial Dry Density (pcf)	109.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	126.3
Specimen Thickness (in)	1.0	Percent Collapse (%)	3.02

Proposed C/I Development
Calimesa, California
Project No. 20G122-4
PLATE C- 5

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation



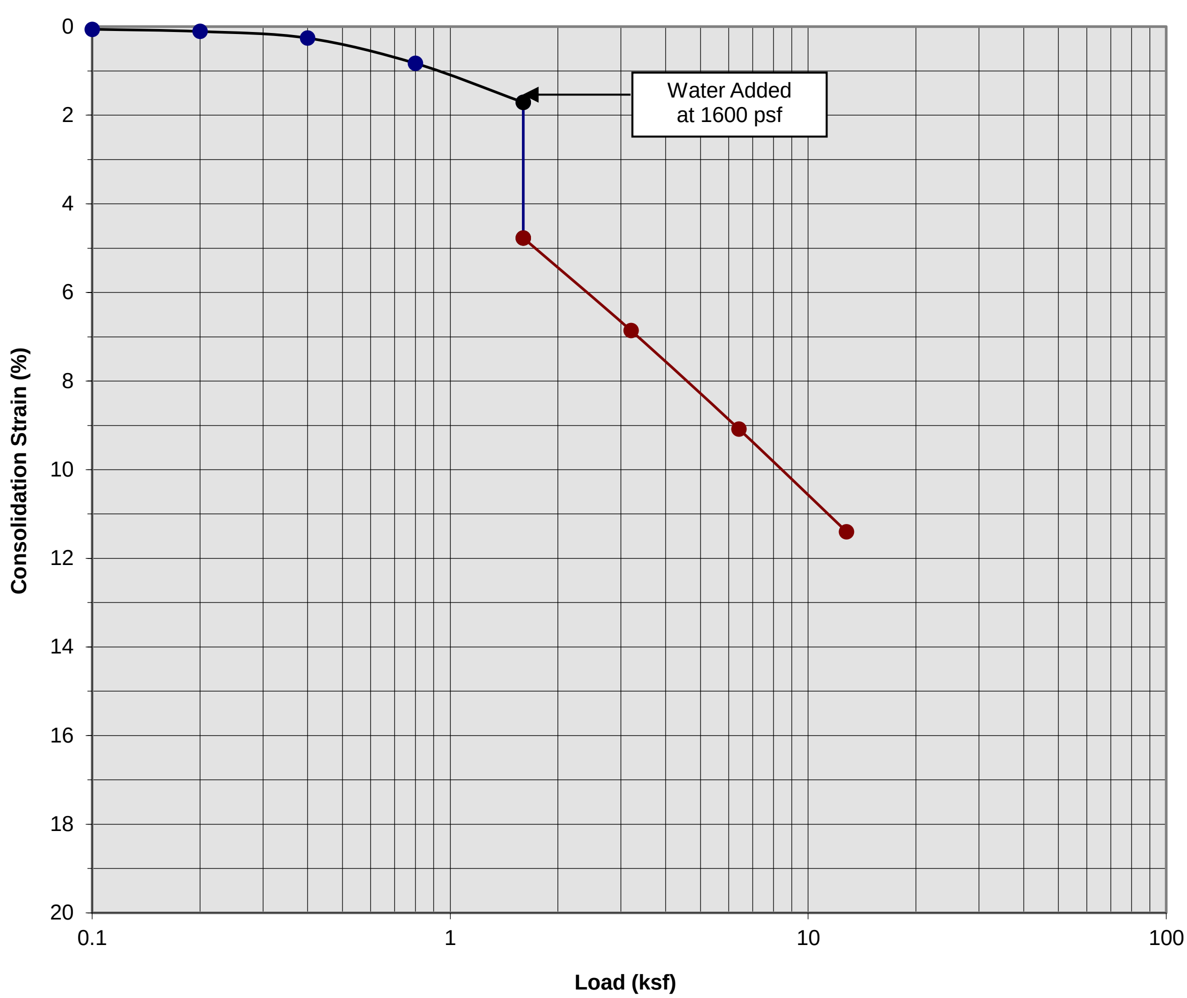
Classification: Brown to Light Brown Silty fine Sand to fine Sandy Silt, trace Clay nodules

Boring Number:	B-26	Initial Moisture Content (%)	8
Sample Number:	---	Final Moisture Content (%)	16
Depth (ft)	19 to 20	Initial Dry Density (pcf)	116.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	125.3
Specimen Thickness (in)	1.0	Percent Collapse (%)	1.04

Proposed C/I Development
Calimesa, California
Project No. 20G122-4
PLATE C- 6

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Consolidation/Collapse Test Results

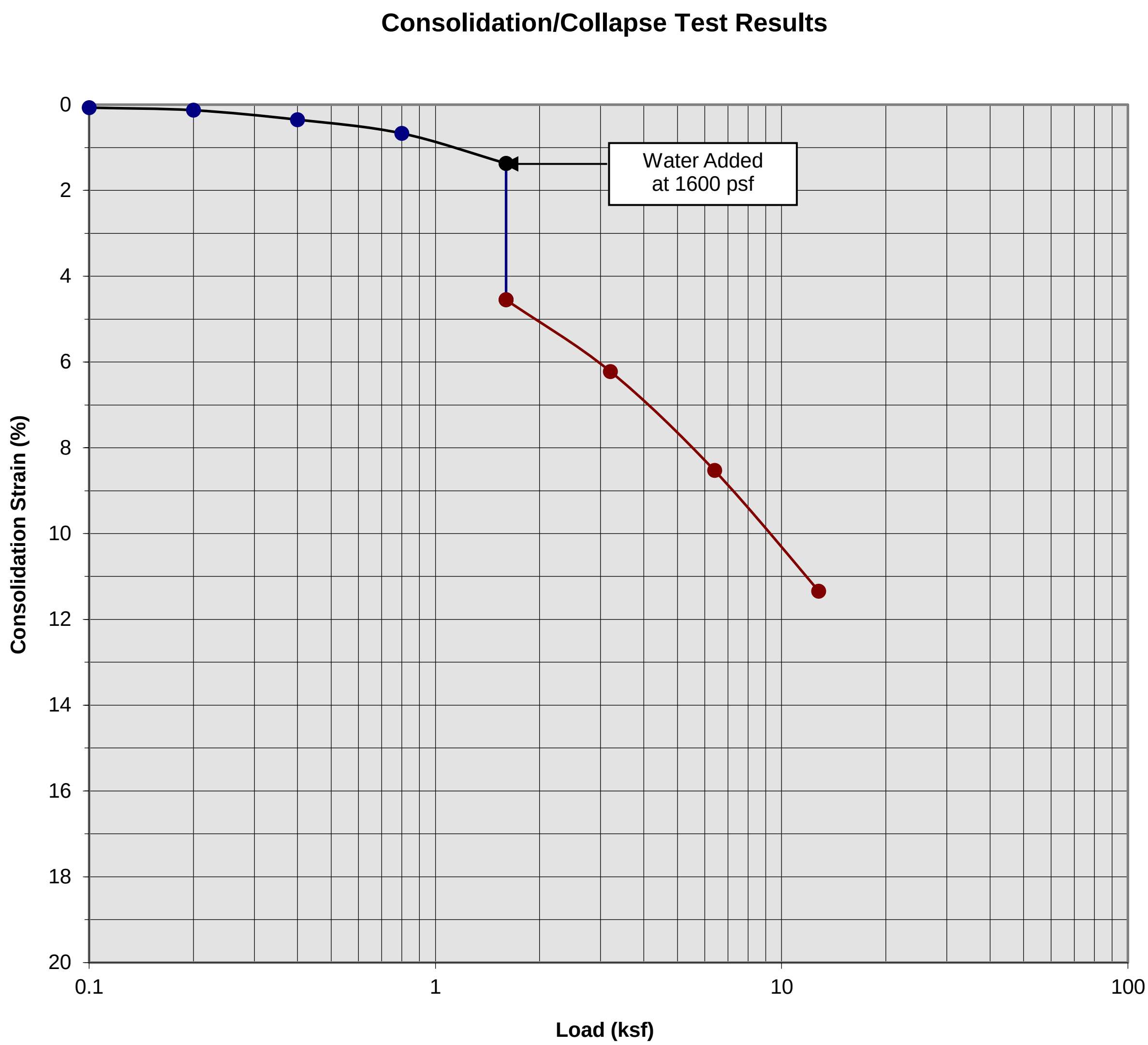


Classification: Brown Silty fine to medium Sand, trace coarse Sand

Boring Number:	B-29	Initial Moisture Content (%)	7
Sample Number:	---	Final Moisture Content (%)	15
Depth (ft)	5 to 6	Initial Dry Density (pcf)	103.8
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	117.3
Specimen Thickness (in)	1.0	Percent Collapse (%)	3.06

Proposed C/I Development
Calimesa, California
Project No. 20G122-4
PLATE C- 7

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation



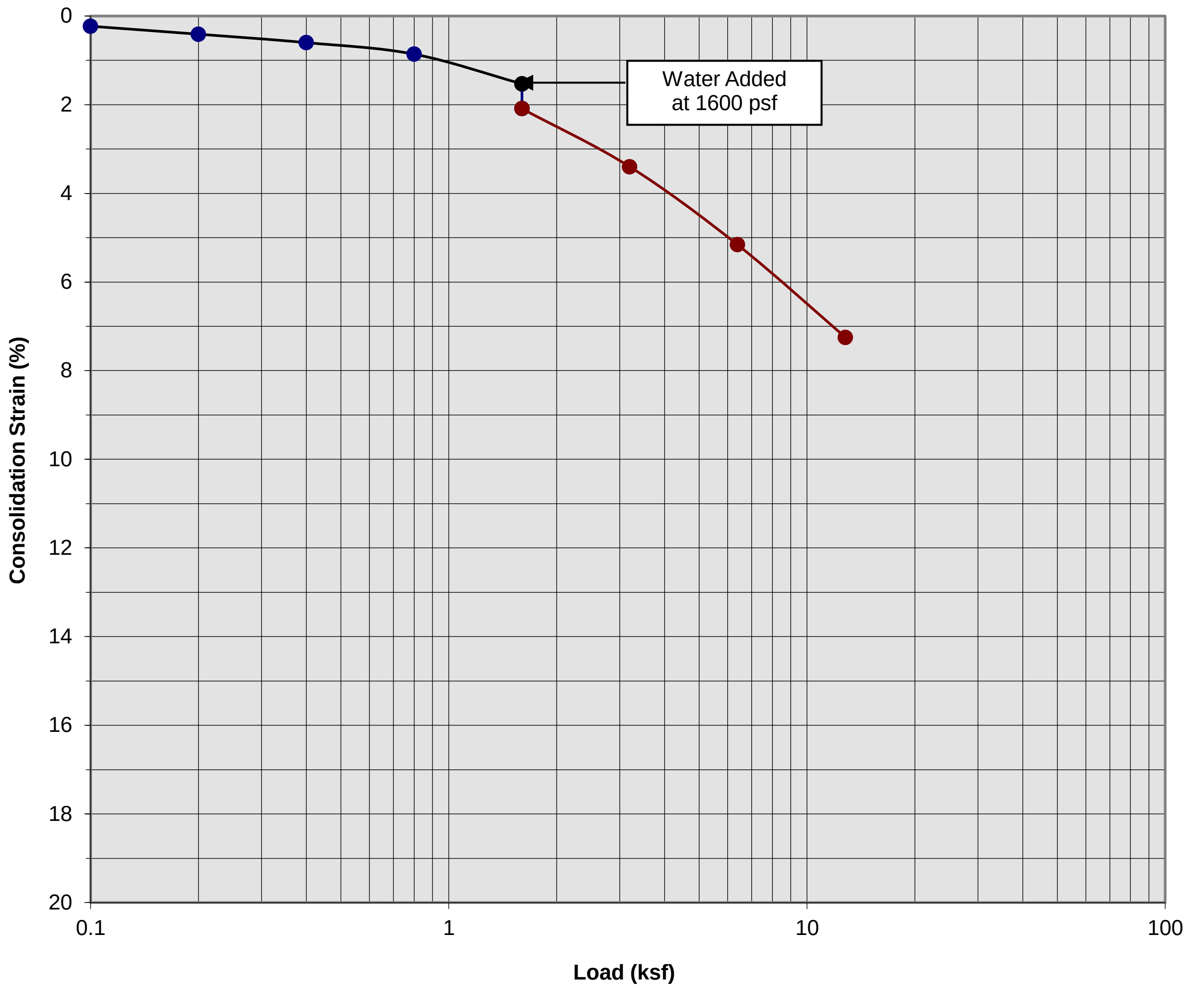
Classification: Brown fine Sandy Silt, trace medium Sand

Boring Number:	B-29	Initial Moisture Content (%)	14
Sample Number:	---	Final Moisture Content (%)	18
Depth (ft)	9 to 10	Initial Dry Density (pcf)	104.7
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	118.6
Specimen Thickness (in)	1.0	Percent Collapse (%)	3.18

Proposed C/I Development
Calimesa, California
Project No. 20G122-4
PLATE C- 8

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Consolidation/Collapse Test Results



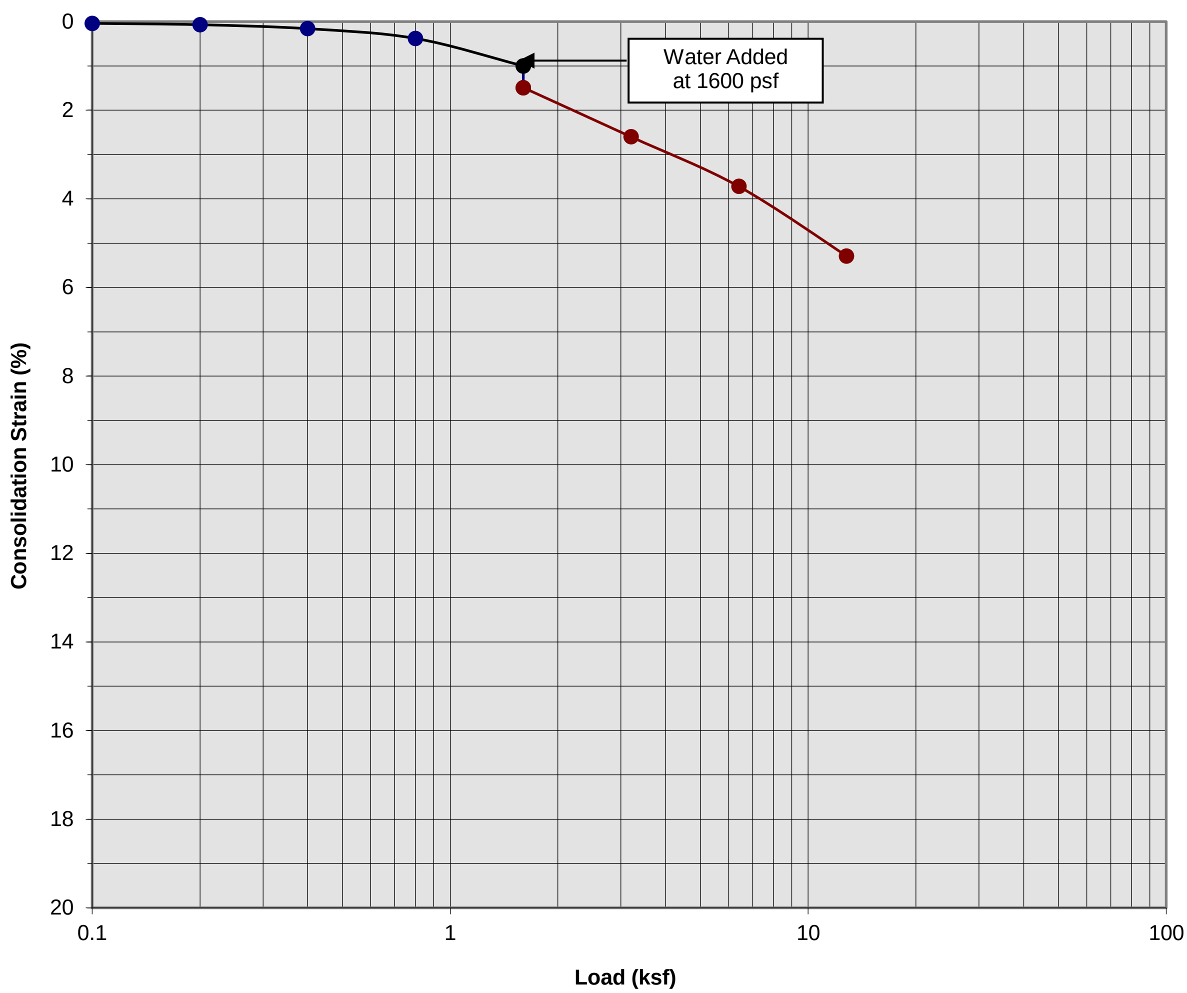
Classification: Light Brown fine to coarse Sand, trace Silt

Boring Number:	B-29	Initial Moisture Content (%)	3
Sample Number:	---	Final Moisture Content (%)	16
Depth (ft)	19 to 20	Initial Dry Density (pcf)	112.8
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	121.0
Specimen Thickness (in)	1.0	Percent Collapse (%)	0.56

Proposed C/I Development
Calimesa, California
Project No. 20G122-4
PLATE C- 9

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Consolidation/Collapse Test Results

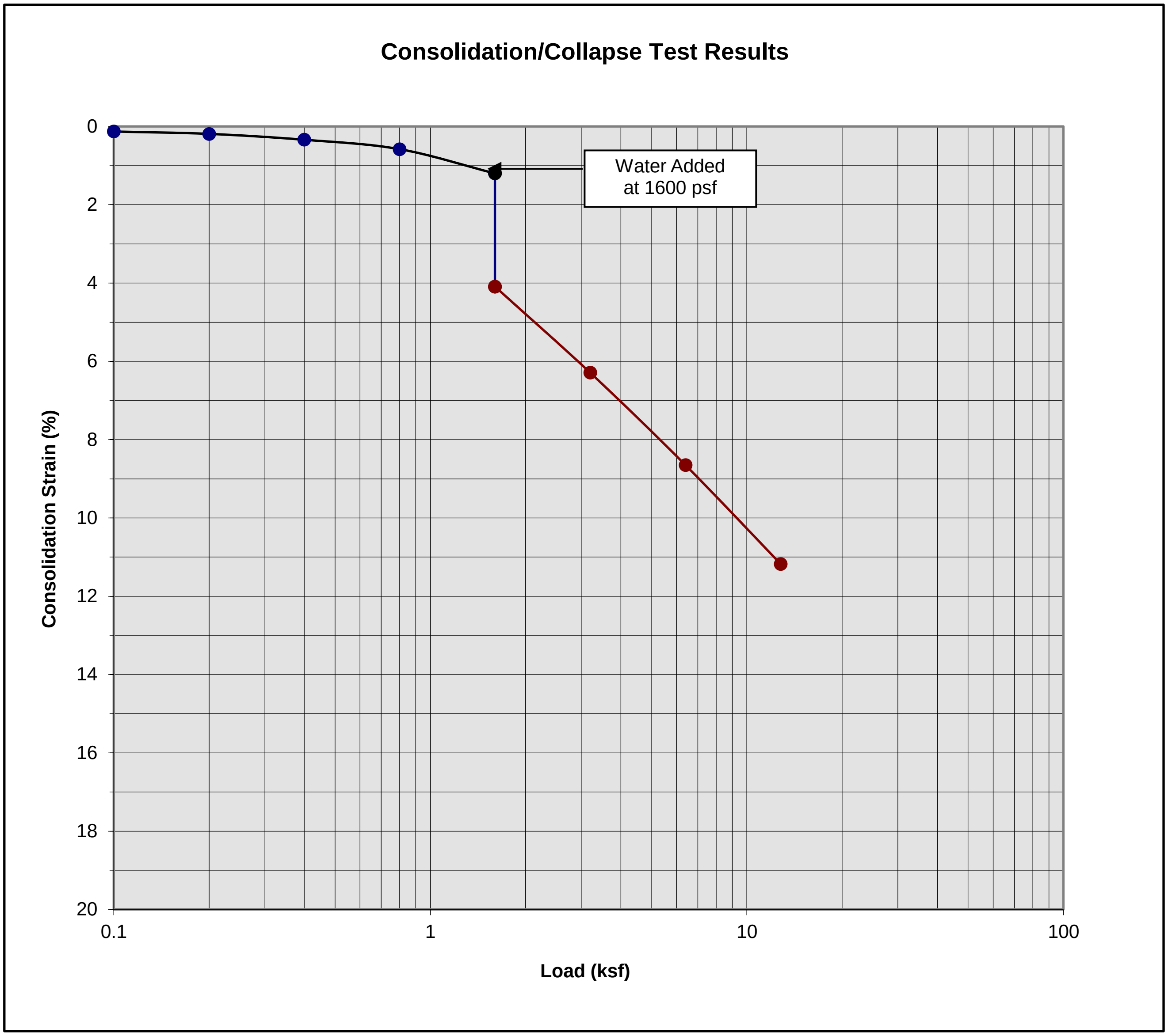


Classification: Light Brown Gravelly fine to coarse Sand, trace Silt

Boring Number:	B-32	Initial Moisture Content (%)	2
Sample Number:	---	Final Moisture Content (%)	14
Depth (ft)	22 to 23	Initial Dry Density (pcf)	109.8
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	116.0
Specimen Thickness (in)	1.0	Percent Collapse (%)	0.49

Proposed C/I Development
Calimesa, California
Project No. 20G122-4
PLATE C- 10

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

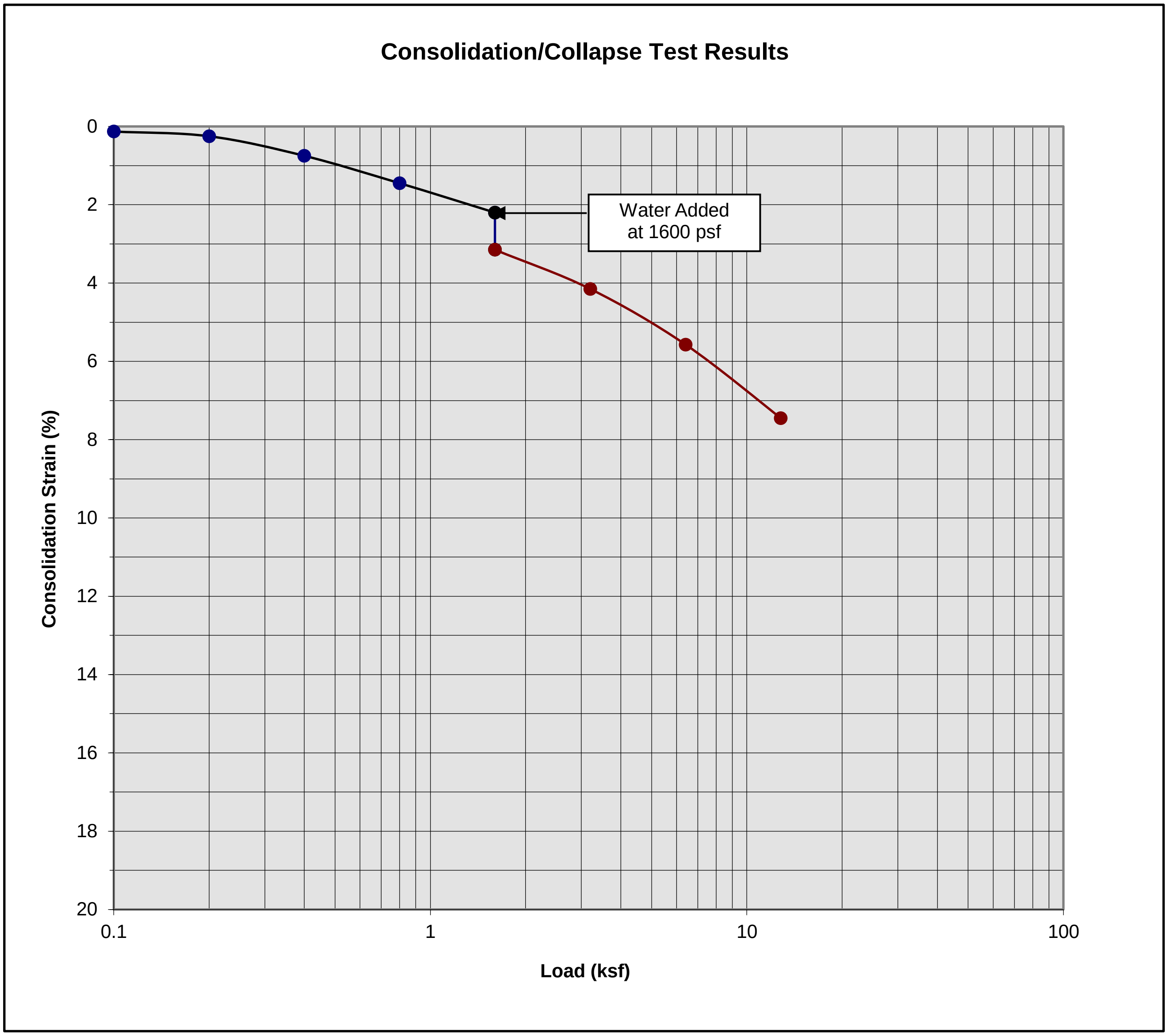


Classification: Brown Silty fine to medium Sand, trace coarse Sand

Boring Number:	B-32	Initial Moisture Content (%)	6
Sample Number:	---	Final Moisture Content (%)	21
Depth (ft)	24 to 25	Initial Dry Density (pcf)	110.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	120.5
Specimen Thickness (in)	1.0	Percent Collapse (%)	2.89

Proposed C/I Development
Calimesa, California
Project No. 20G122-4
PLATE C- 11

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation



Classification: Gray Brown Gravelly fine to coarse Sand, trace to some Silt

Boring Number:	B-32	Initial Moisture Content (%)	4
Sample Number:	---	Final Moisture Content (%)	15
Depth (ft)	34 to 35	Initial Dry Density (pcf)	117.9
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	128.1
Specimen Thickness (in)	1.0	Percent Collapse (%)	0.95

Proposed C/I Development
Calimesa, California
Project No. 20G122-4
PLATE C- 12

SOUTHERN CALIFORNIA GEOTECHNICAL
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.

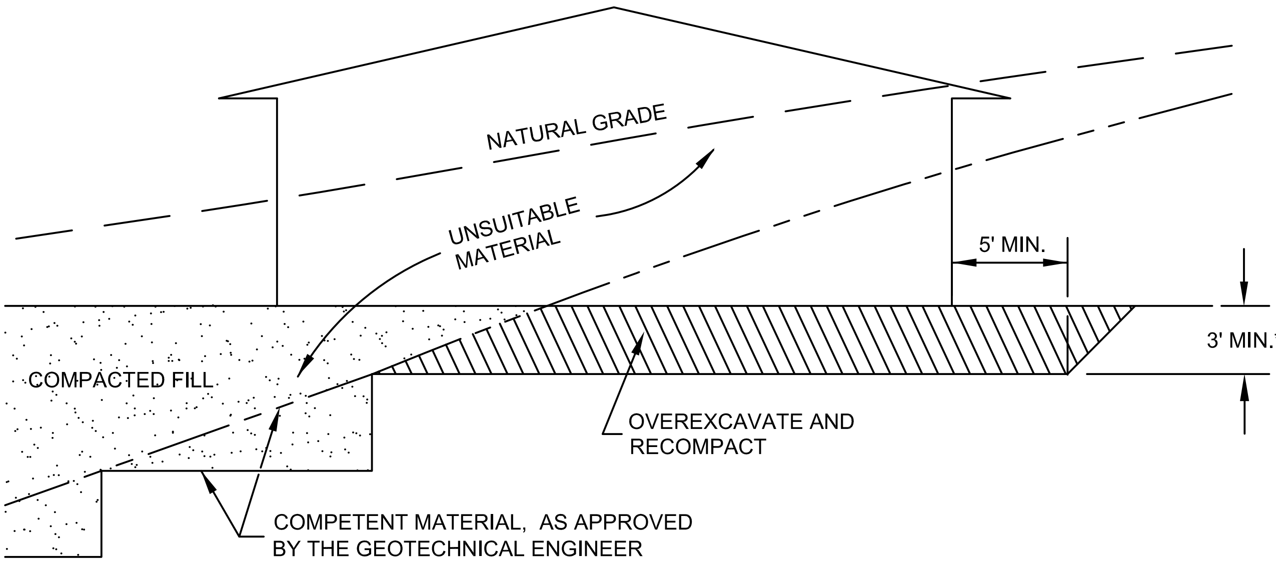
Subdrains

- 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.

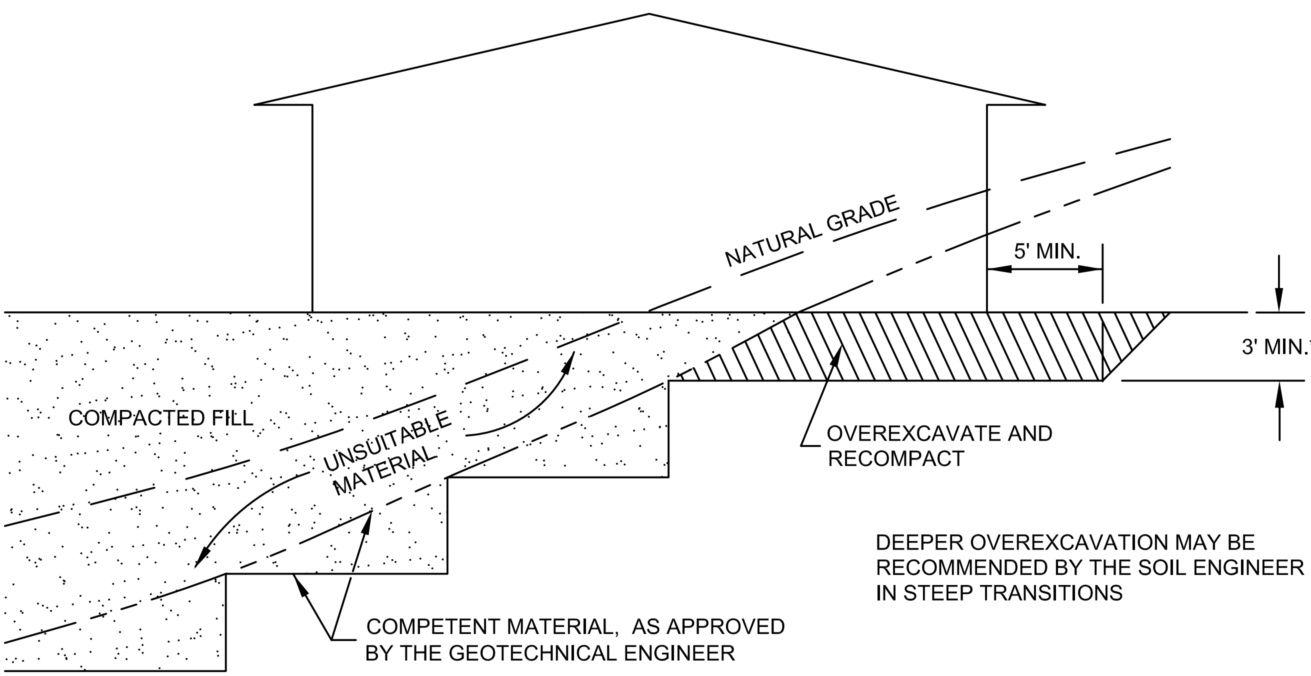
- Plastic pipe may be used for subdrains provided it is Schedule 40 or SDR 35 or equivalent. Pipe should be protected against breakage, typically by placement in a square-cut (backhoe) trench or as recommended by the manufacturer.

- 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

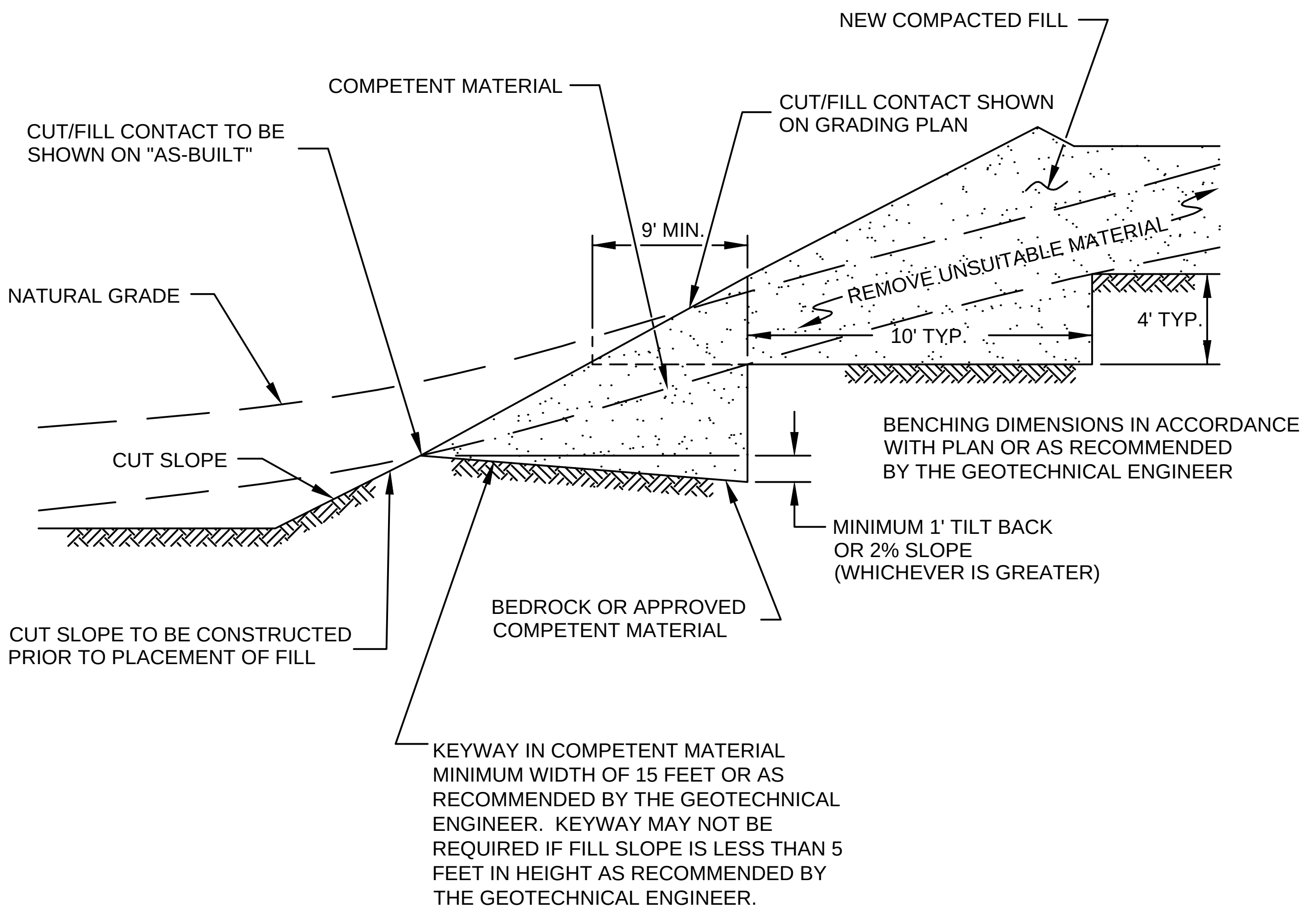
GRADING GUIDE SPECIFICATIONS

NOT TO SCALE

DRAWN: JAS
CHKD: GKM

PLATE D-1

SOUTHERN CALIFORNIA GEOTECHNICAL



FILL ABOVE CUT SLOPE DETAIL

GRADING GUIDE SPECIFICATIONS

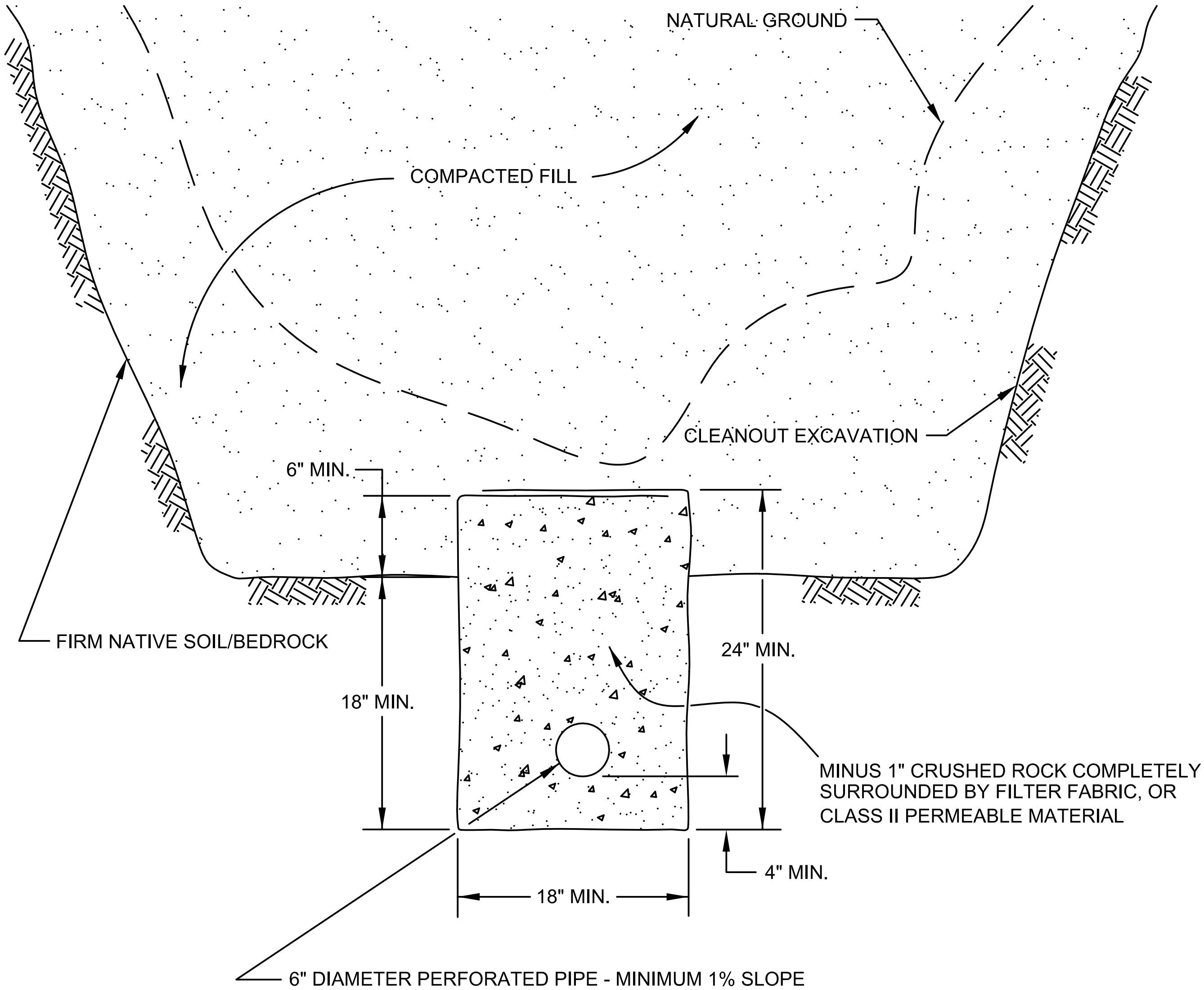
NOT TO SCALE

DRAWN: JAS
CHKD: GKM

PLATE D-2

SoCalGeo

SOUTHERN CALIFORNIA GEOTECHNICAL



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

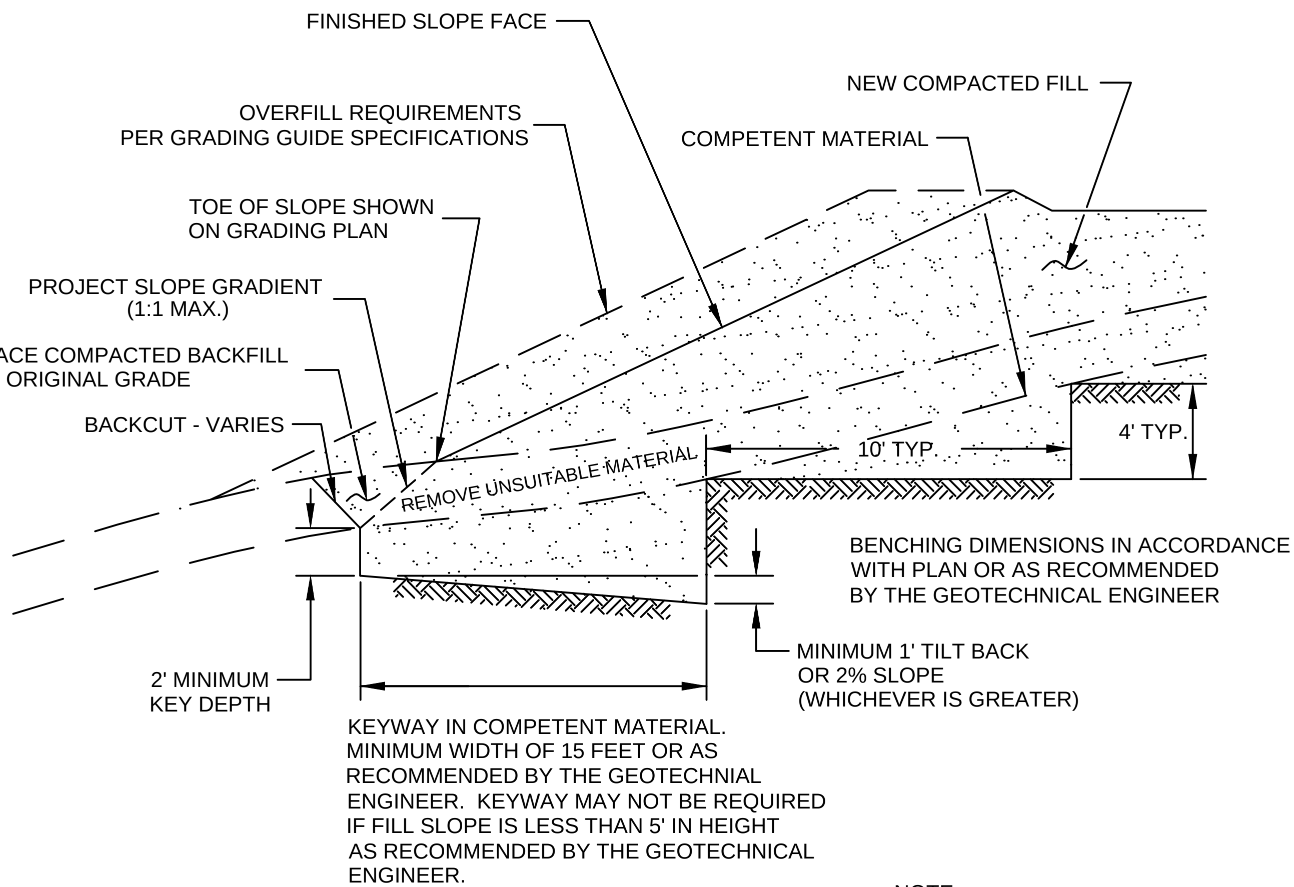
GRADING GUIDE SPECIFICATIONS

NOT TO SCALE

DRAWN: JAS
CHKD: GKM

PLATE D-3

SoCalGeo 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

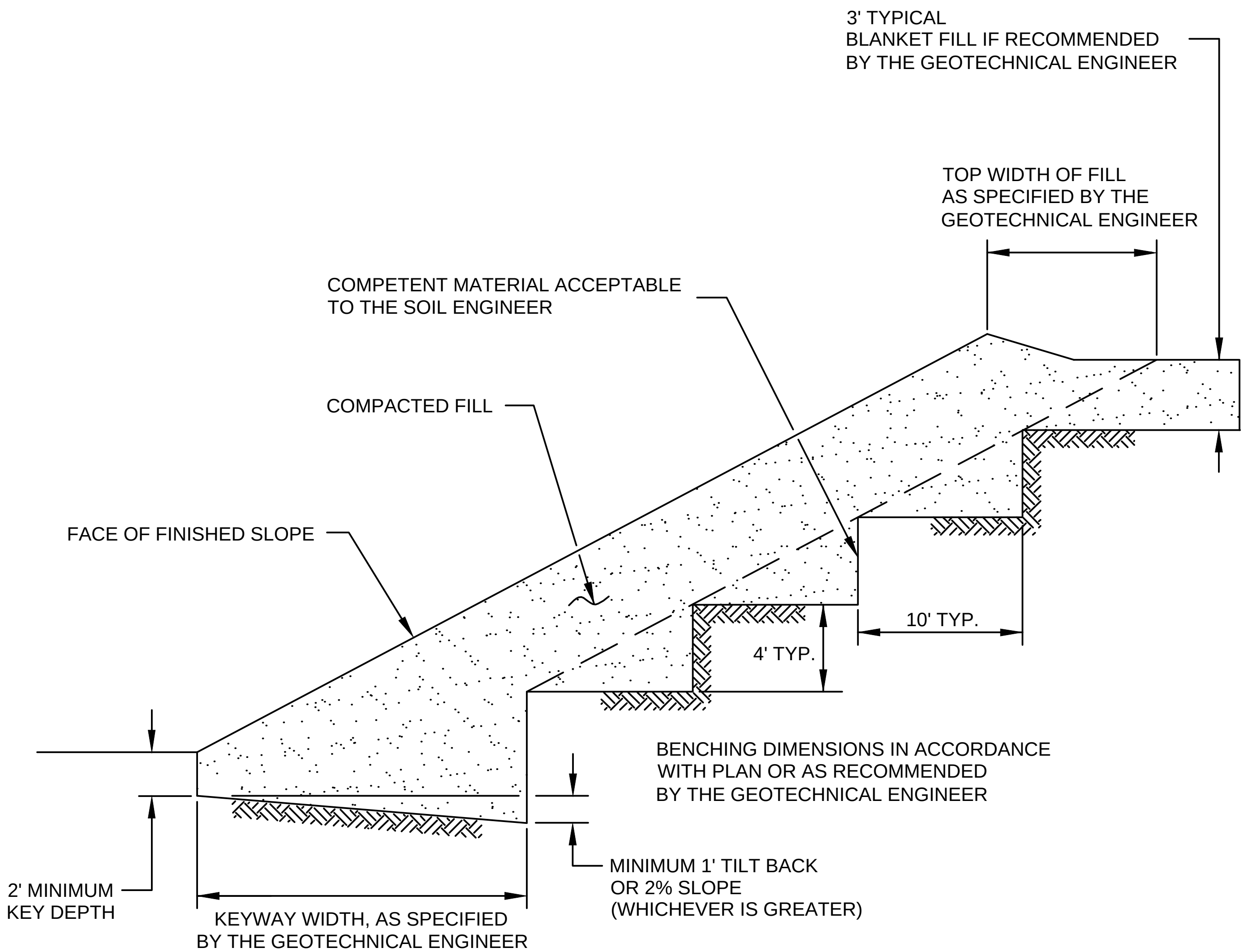
GRADING GUIDE SPECIFICATIONS

NOT TO SCALE

DRAWN: JAS
CHKD: GKM

PLATE D-4

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL



STABILIZATION FILL DETAIL

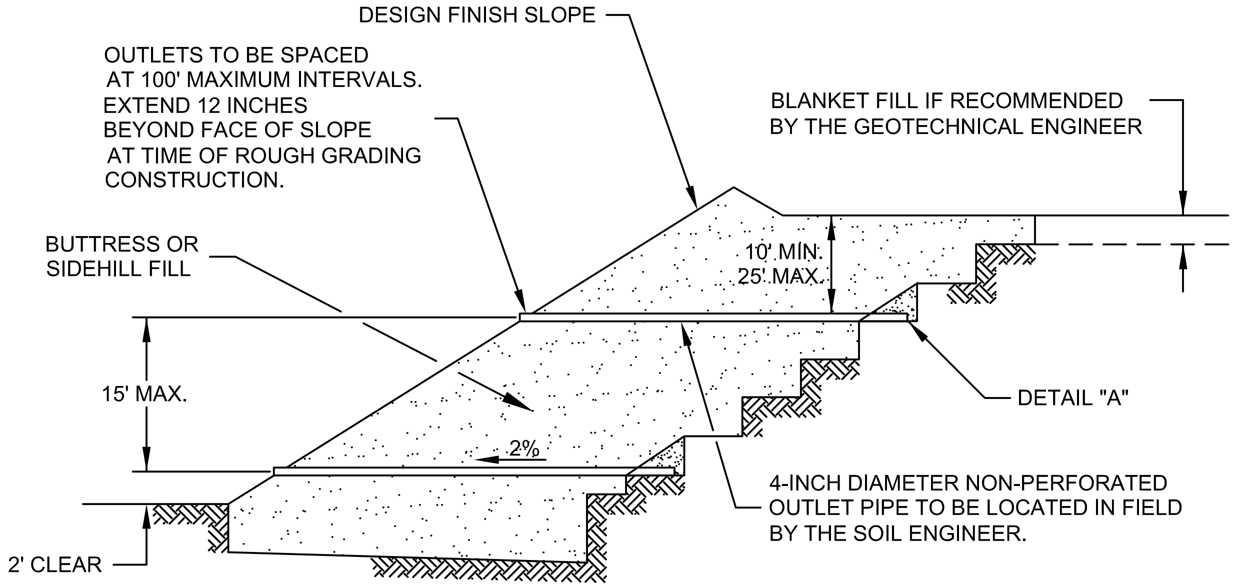
GRADING GUIDE SPECIFICATIONS

NOT TO SCALE

DRAWN: JAS
CHKD: GKM

PLATE D-5

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL



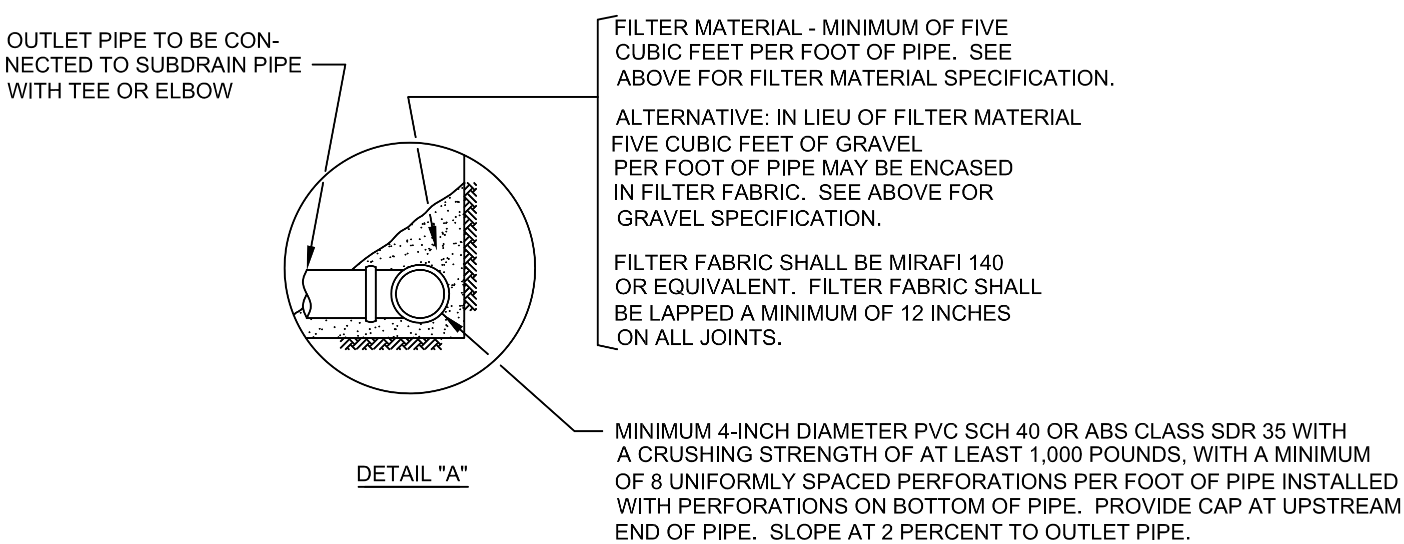
"FILTER MATERIAL" TO MEET FOLLOWING SPECIFICATION OR APPROVED EQUIVALENT: (CONFORMS TO EMA STD. PLAN 323)

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



DETAIL "A"

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

SLOPE FILL SUBDRAINS

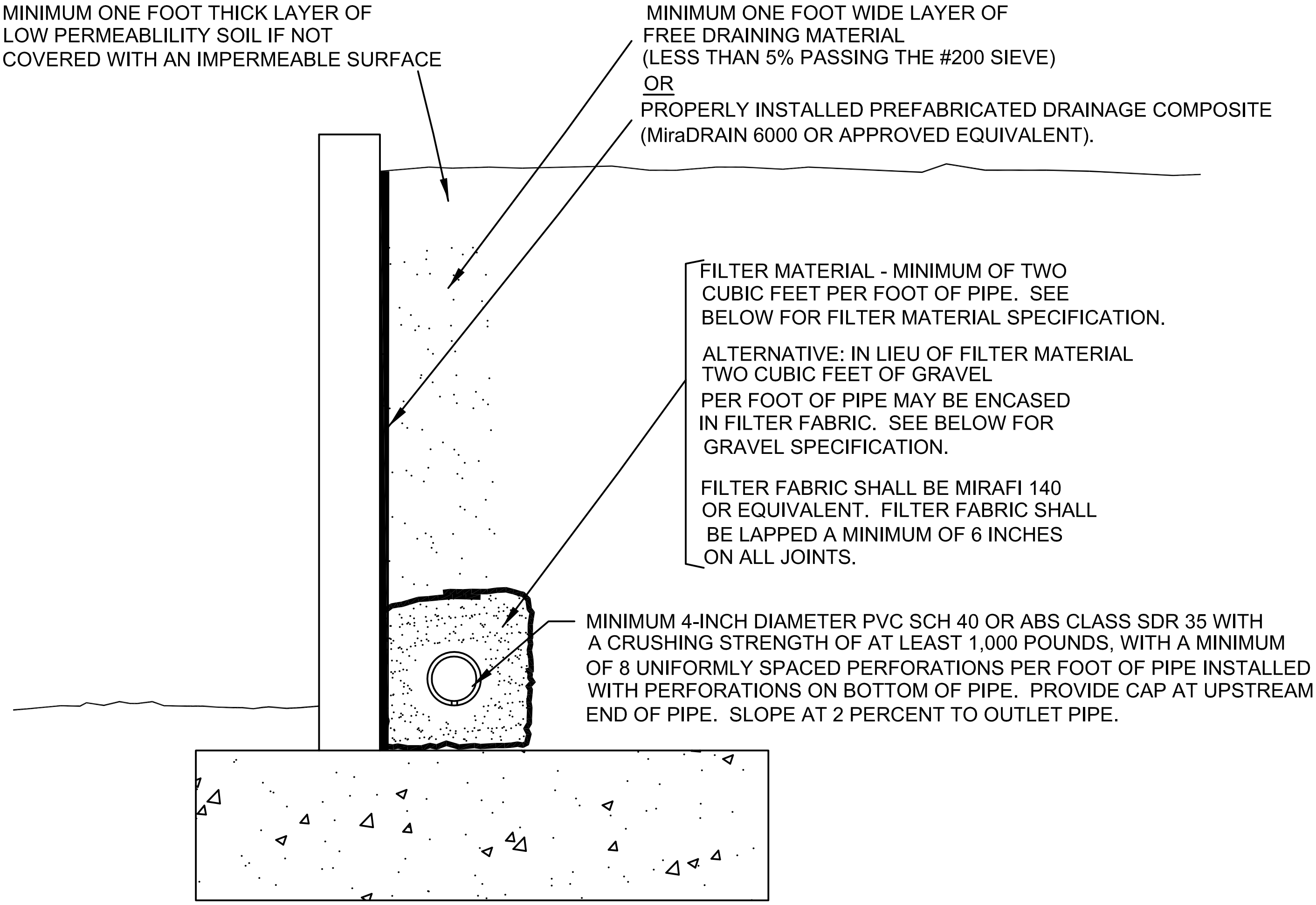
GRADING GUIDE SPECIFICATIONS

NOT TO SCALE

DRAWN: JAS
CHKD: GKM

PLATE D-6

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

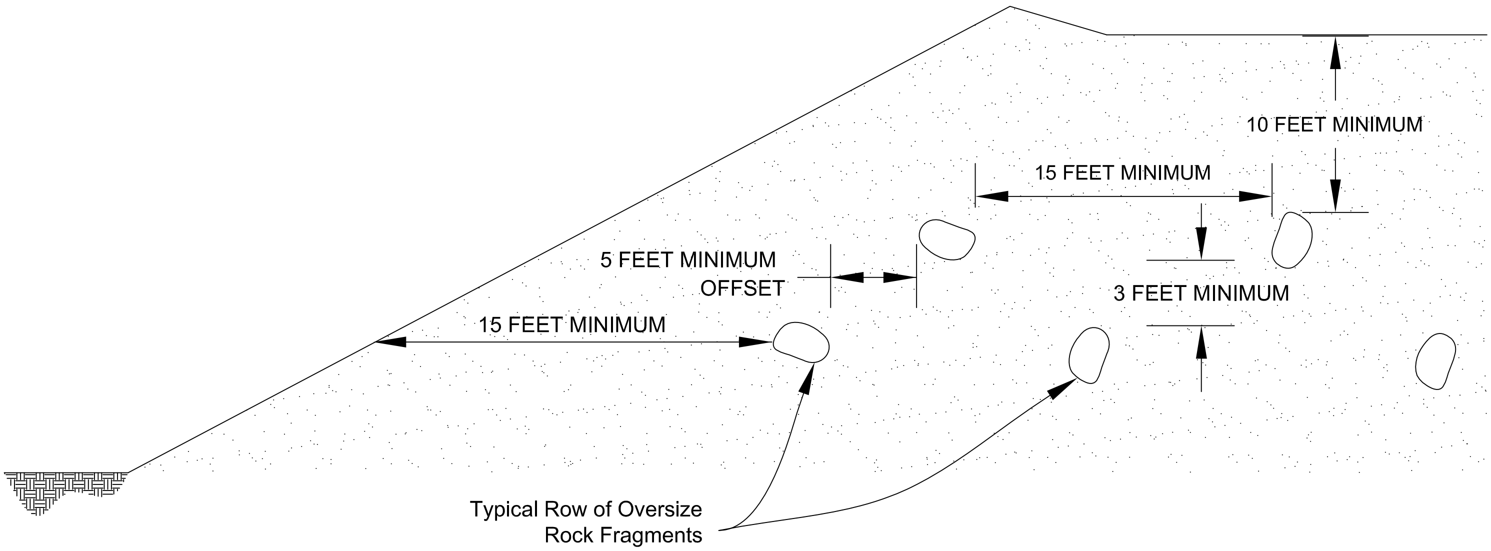
GRADING GUIDE SPECIFICATIONS

NOT TO SCALE

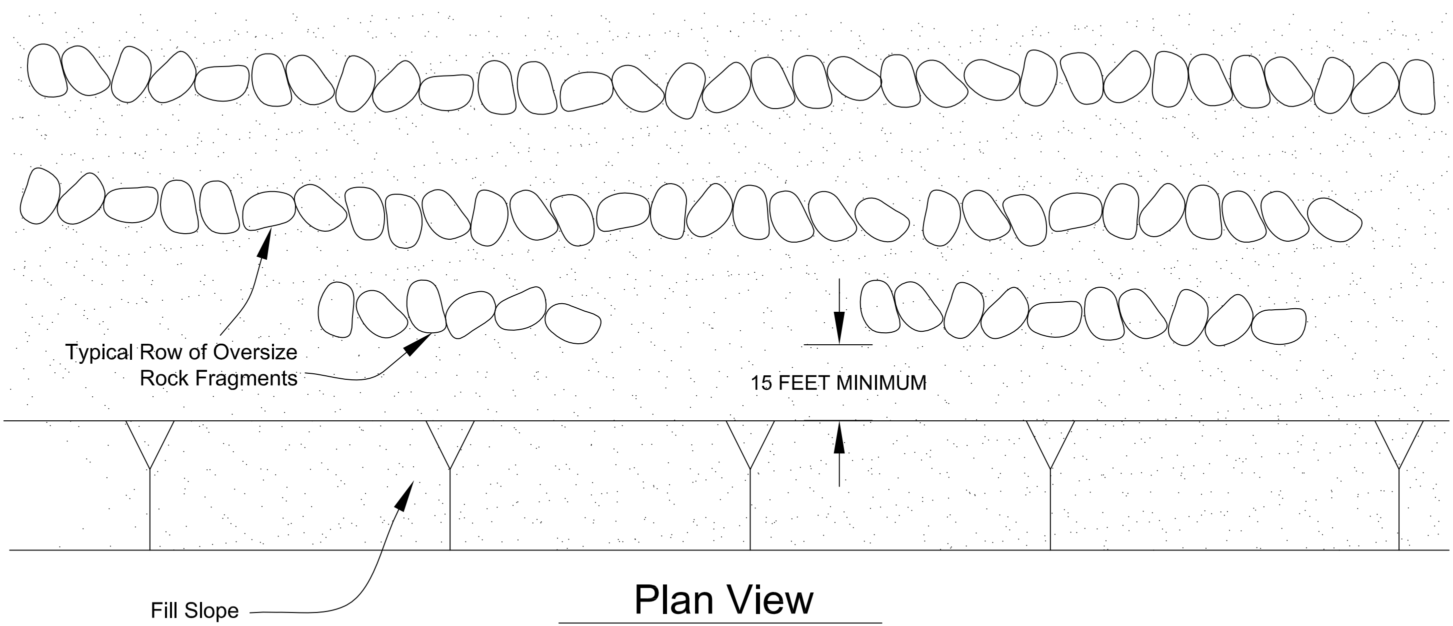
DRAWN: JAS
CHKD: GKM

PLATE D-7

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL



Section View



Plan View

PLACEMENT OF OVERSIZED MATERIAL

GRADING GUIDE SPECIFICATIONS

NOT TO SCALE

DRAWN: PM
CHKD: GKM

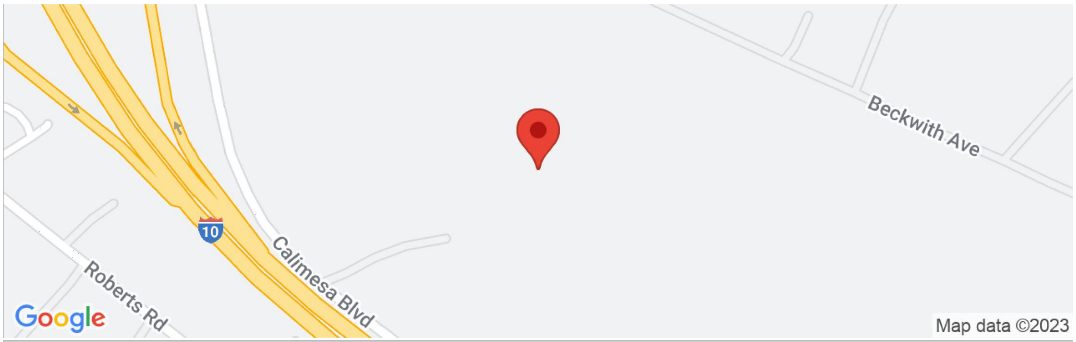
PLATE D-8

SoCalGeo

SOUTHERN CALIFORNIA GEOTECHNICAL

APPENDIX E

Latitude, Longitude: 33.97709117, -117.04391889



Date	6/16/2023, 8:41:18 AM
Design Code Reference Document	ASCE7-16
Risk Category	III
Site Class	D - Stiff Soil

Type	Value	Description
S_S	2.207	MCE_R ground motion. (for 0.2 second period)
S_1	0.76	MCE_R ground motion. (for 1.0s period)
S_{MS}	2.207	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	1.471	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	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.902	MCE_G peak ground acceleration
F_{PGA}	1.1	Site amplification factor at PGA
PGA_M	0.992	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	2.249	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	2.458	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	2.207	Factored deterministic acceleration value. (0.2 second)
S1RT	0.872	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.981	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.76	Factored deterministic acceleration value. (1.0 second)
PGAd	0.902	Factored deterministic acceleration value. (Peak Ground Acceleration)
PGA_{UH}	0.968	Uniform-hazard (2% probability of exceedance in 50 years) Peak Ground Acceleration
C_{RS}	0.915	Mapped value of the risk coefficient at short periods
C_{R1}	0.889	Mapped value of the risk coefficient at a period of 1 s
C_V	1.5	Vertical coefficient

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

SEISMIC DESIGN PARAMETERS - 2022 CBC

PROPOSED COMMERCIAL/INDUSTRIAL DEVELOPMENT

CALIMESA, CALIFORNIA

DRAWN: RB
CHKD: RGT

SCG PROJECT
20G122-4

PLATE E-1

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL

APPENDIX F

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-1

JOB NO.: 20G122-1
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 3/10/20
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 32 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2300 feet MSL

FIELD RESULTS					DESCRIPTION	LABORATORY RESULTS						COMMENTS
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
0					ALLUVIUM: Brown Silty fine Sand, trace medium to coarse Sand, trace fine root fibers, trace fine Gravel, loose-damp							
	X	5					6					
	X	9					5					
5.5					Light Brown fine to medium Sand, trace coarse Sand, trace fine Gravel, little Silt, medium dense-damp							
	X	11					2					
8					Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, medium dense-damp							
	X	13					5					
	X	15					5					
	X	17					5					
	X	22					5					
27					OLDER ALLUVIUM: Light Gray Brown fine to medium Sand, trace to little Silt, trace coarse Sand, trace to little fine to coarse Gravel, dense-damp							
	X	36					3					
	X	45					3					

JOB NO.: 20G122-1
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 3/10/20
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 32 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
					OLDER ALLUVIUM: Light Gray Brown fine to medium Sand, trace to little Silt, trace coarse Sand, trace to little fine to coarse Gravel, dense-damp							
					Red Brown Silty fine Sand, little medium to coarse Sand, trace fine to coarse Gravel, very dense-moist							
	X	50/6"					9					
40												
					Light Brown Silty fine to coarse Sand, trace fine Gravel, very dense-damp							
	X	71					6					
45												
					Light Red Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, very dense-damp							
	X	50/6"					7					
50												

Boring Terminated at 50'

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-2

JOB NO.: 20G122-1
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 3/9/20
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

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

SURFACE ELEVATION: 2321 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: Light Gray Brown Silty fine Sand, trace to little medium to coarse Sand, trace to little fine to coarse Gravel, trace fine root fibers, loose-damp							
	X	8				101	4					
	X	9				100	5					
5	X	12				102	4					
	X	6				101	4					
10	X	14				99	4					
					Light Brown Silty fine Sand, loose to medium dense-damp to moist							
15	X	16				97	7					
20	X	12				104	9					
					Light Brown fine Sand, little Silt, medium dense-damp							
25	X	14					6					

Boring Terminated at 25'

TBL 20G122-1.GPJ SOCALGEO.GDT 6/30/23

TEST BORING LOG

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-3

JOB NO.: 20G122-1
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 3/9/20
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 37 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2340 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 fine to coarse Gravel, trace medium to coarse Sand, loose-damp							
	X	4					7					
	X	9					5					
5												
	X	10					6					
					Light Gray Brown fine to coarse Sand, little fine to coarse Gravel, trace to little Silt, medium dense-damp							
	X	14					5					
10												
					Brown Silty fine to medium Sand, trace Clay, trace fine to coarse Gravel, trace coarse Sand, loose-moist							
	X	8					9					
15												
					Brown to Red Brown Silty fine Sand, trace to little Clay, trace medium to coarse Sand, trace fine Gravel, loose to medium dense-moist							
	X	10					10					
20												
	X	13					9					
25												
	X	8					11					
30												
	■	12				115	11					
					OLDER ALLUVIUM: Light Red Brown Clayey fine Sand, some Silt, trace fine to coarse Gravel, trace to little medium to coarse Sand, dense to very dense-very moist							
	X	35					15					

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-3

JOB NO.: 20G122-1
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 3/9/20
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 37 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
					OLDER ALLUVIUM: Light Red Brown Clayey fine Sand, some Silt, trace fine to coarse Gravel, trace to little medium to coarse Sand, dense-very moist							
	X	45					12					
40												
	X	65					10					
45					Boring Terminated at 45'							

TBL 20G122-1.GPJ SOCALGEO.GDT 6/30/23

TEST BORING LOG

BORING NO. B-4

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 20G122-1
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 3/9/20
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

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

SURFACE ELEVATION: 2289.5 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: Gray Brown Silty fine Sand, trace to little Clay, trace medium to coarse Sand, trace fine Gravel, medium dense-damp							
	X	17				100	5					EI = 2 @ 0 to 5 feet
					OLDER ALLUVIUM: Light Brown fine to coarse Sand, some Silt, some Clay, trace fine Gravel, medium dense-damp							
	X	43				117	4					
5					Light Brown Gravelly fine to coarse Sand, little Clay, dense-damp							
	X	71				117	4					
	X	60			@ 7 feet, trace to little Silt	118	5					
					Light Brown fine to coarse Sand, trace to little Silt, trace Clay, dense to very dense-damp							
	X	55				113	6					
10												
	X	81				110	5					
15												
					Red Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, dense-moist to very moist							
	X	58				121	12					
20												
					Light Brown Silty fine Sand, trace to little Clay, little medium to coarse Sand, trace fine Gravel, dense-damp							
	X	69				122	6					
25												

Boring Terminated at 25'

TBL 20G122-1.GPJ SOCALGEO.GDT 6/30/23

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-5

JOB NO.: 20G123-1
PROJECT: Diocese of San Bernardino
LOCATION: Calimesa, California

DRILLING DATE: 3/10/20
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

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

SURFACE ELEVATION: 2305 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: Dark Red Brown Silty fine Sand, trace to little medium to coarse Sand, trace fine to coarse Gravel, trace fine root fibers, loose-damp to moist							
	X	6					7					
	X	7					10					
5												
					OLDER ALLUVIUM: Red Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, medium dense to dense-moist							
	X	22					9					
	X	33					8					
10												
					Light Brown fine to coarse Sand, trace to little Silt, trace fine Gravel, very dense-damp							
	X	50/6"					4					
					Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, very dense-moist		9					
15												
	X	60					11					
20												
					SAN TIMOTEO FORMATION BEDROCK (Tstm): Light Brown Silty fine-grained Sandstone, little medium to coarse Sand, little fine to coarse Gravel, weathered, weakly cemented friable, very dense-damp							
	X	50/5"					6					
25												
	X	50/6"					5					
30												
	X	50/5"					5					

TBL 20G123-1.GPJ SOCALGEO.GDT 6/30/23

BORING NO. B-5

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 20G123-1
PROJECT: Diocese of San Bernardino
LOCATION: Calimesa, California

DRILLING DATE: 3/10/20
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 36 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
					SAN TIMOTEO FORMATION BEDROCK (Tstm): Light Brown Silty fine-grained Sandstone, little medium to coarse Sand, little fine to coarse Gravel, weathered, weakly cemented friable, very dense-damp							
	X	50/3"					4					
40												
	X	50/2"					4					
45												
	X	50/3"										No Sample Recovery
50												
					Boring Terminated at 50'							

TBL 20G123-1.GPJ SOCALGEO.GDT 6/30/23

TEST BORING LOG **PLATE B-1b**

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-6

JOB NO.: 20G123-1
PROJECT: Diocese of San Bernardino
LOCATION: Calimesa, California

DRILLING DATE: 3/9/20
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

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

FIELD RESULTS					DESCRIPTION	LABORATORY RESULTS						COMMENTS
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	SURFACE ELEVATION: 2304 feet MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	
	X	13			FILL: Dark Gray Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, trace fine root fibers, loose-damp	99	5					
	X	12				97	5					
5	X	22			POSSIBLE FILL: Gray Brown Silty fine Sand, trace medium to coarse Sand, little fine to coarse Gravel, medium dense-damp	102	3					
	X	28				96	5					
10	X	22				99	5					
					ALLUVIUM: Light Brown fine to medium Sand, little Silt, trace fine Gravel, medium dense-damp							
15	X	21				104	5					
20	X	21				106	5					
					Brown Silty fine Sand, trace to little Clay, trace medium Sand, trace fine Gravel, medium dense-moist							
25	X	20				115	11					

Boring Terminated at 25'

TBL 20G123-1.GPJ SOCALGEO.GDT 6/30/23

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-7

JOB NO.: 20G122-2	DRILLING DATE: 10/10/22	WATER DEPTH: Dry
PROJECT: Proposed C/I Development	DRILLING METHOD: Hollow Stem Auger	CAVE DEPTH: 11 feet
LOCATION: Calimesa, California	LOGGED BY: Ryan Bremer	READING TAKEN: At Completion

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: 2303.0 feet MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
	X	28			DISTURBED ALLUVIUM: Brown Silty fine Sand, little medium to coarse Sand, trace fine to coarse Gravel, occasional Cobbles, trace fine root fibers, medium dense-dry to damp	111	2					
	X	28				115	4					
5	X	17			ALLUVIUM: Brown Silty fine to coarse Sand, trace fine Gravel, medium dense-dry to damp	107	2					
	X	21			Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, medium dense-damp	105	4					
10	X	22			Brown Silty fine Sand to fine Sandy Silt, trace medium to coarse Sand, trace fine Gravel, trace fine root fibers, medium dense-dry to damp	100	2					
15	X	18			Light Brown Silty fine Sand, trace to little medium to coarse Sand, medium dense-damp		3					

Boring Terminated at 15'

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-8

JOB NO.: 20G122-2	DRILLING DATE: 10/10/22	WATER DEPTH: Dry
PROJECT: Proposed C/I Development	DRILLING METHOD: Hollow Stem Auger	CAVE DEPTH: 14 feet
LOCATION: Calimesa, California	LOGGED BY: Ryan Bremer	READING TAKEN: At Completion

SURFACE ELEVATION: 2314.0 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	6			DISTURBED ALLUVIUM: Brown Silty fine Sand, trace medium to coarse Sand, trace fine root fibers, loose-dry to damp		2					
5	X	17			DISTURBED ALLUVIUM: Brown Silty fine to coarse Sand, little fine to coarse Gravel, medium dense-dry to damp		2					
	X	9			ALLUVIUM: Gray Brown fine to coarse Sand, trace Silt, trace fine Gravel, loose-damp		2					
10	X	7			Brown Silty fine Sand to fine Sandy Silt, little medium to coarse Sand, trace fine to coarse Gravel, loose-damp to moist		7					
15	X	14			Brown Silty fine to coarse Sand to fine to coarse Sandy Silt, trace fine Gravel, medium dense-damp		4					
20	X	14			Brown fine Sandy Silt, trace medium to coarse Sand, trace fine to coarse Gravel, medium dense-damp to moist		7					

Boring Terminated at 20'

TBL 20G122-2.GPJ SOCALGEO.GDT 11/16/22

TEST BORING LOG

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-9

JOB NO.: 20G122-2
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 10/10/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

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

SURFACE ELEVATION: 2327.0 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
0					DISTURBED ALLUVIUM: Brown Silty fine to medium Sand, little coarse Sand, trace fine Gravel, medium dense-damp							
5	X	16				112	3					
7					ALLUVIUM: Brown Silty fine to coarse Sand, trace fine Gravel, medium dense-damp							
10	X	23				109	3					
12					Brown Silty fine to medium Sand, trace coarse Sand, trace fine Gravel, medium dense-damp to moist							
15	X	23				109	3					
	X	20				106	9					
	X	33			Light Gray Brown fine to coarse Sand, trace Silt, little fine to coarse Gravel, medium dense-damp	111	3					
20	X	19				95	3					
					Brown Silty fine Sand, trace medium to coarse Sand, medium dense-damp							
	X	32			Light Gray Brown fine to coarse Sand, little fine Gravel, medium dense-damp	111	3					
25	X	28				105	4					
					Brown Silty fine Sand, trace medium Sand, medium dense-damp to moist							
30	X	27				105	7					

Boring Terminated at 30'

TBL 20G122-2.GPJ SOCALGEO.GDT 11/16/22

TEST BORING LOG

PLATE B-3

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-10

JOB NO.: 20G122-2
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 10/10/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

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

SURFACE ELEVATION: 2330.0 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
					DISTURBED ALLUVIUM: Brown Silty fine Sand, trace medium to coarse Sand, loose-damp							
5	X	13				100	5					EI = 2 @ 0 to 5 feet
					ALLUVIUM: Light Gray Brown fine to coarse Sand, trace Silt, trace fine Gravel, medium dense-damp							
10	X	20				117	2					
					Brown Silty fine Sand, trace to little medium to coarse Sand, medium dense-damp to moist							
15	X	16				117	5					
20	X	28			@ 19 feet, little medium to coarse Sand, trace fine Gravel	118	8					
					Light Gray Brown fine to medium Sand, trace coarse Sand, trace Silt, medium dense-damp							
25	X	20				113	3					
					Brown Silty fine Sand, trace medium to coarse Sand, medium dense-damp							
					Brown Silty fine to medium Sand, trace coarse Sand, trace fine Gravel, medium dense-damp to moist							
30	X	29				110	7					
					Light Gray Brown fine to coarse Sand, trace Silt, trace fine Gravel, medium dense-damp							
	X	37			Boring Terminated at 35'	121	3					

TBL 20G122-2.GPJ SOCALGEO.GDT 11/16/22

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-11

JOB NO.: 20G122-2	DRILLING DATE: 10/10/22	WATER DEPTH: Dry
PROJECT: Proposed C/I Development	DRILLING METHOD: Hollow Stem Auger	CAVE DEPTH: 12 feet
LOCATION: Calimesa, California	LOGGED BY: Ryan Bremer	READING TAKEN: At Completion

SURFACE ELEVATION: 2302.0 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 to fine Sandy Silt, trace medium Sand, trace fine root fibers, loose-damp							
	X	11				100	4					
	X	10				82	5					
5	X	16	2.5		Brown Clayey Silt, trace fine root fibers, stiff-damp	86	7					
	X	11			Gray Brown fine to medium Sand, trace Silt, trace coarse Sand, loose-damp	99	3					
	X	13			Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel, loose-damp	106	6					
10												
					Brown fine Sandy Silt, trace medium Sand, loose-moist							
	X	8					9					
15												

Boring Terminated at 15'

TBL 20G122-2.GPJ SOCALGEO.GDT 11/16/22

BORING NO. B-12

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 20G122-2
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 10/12/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

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

SURFACE ELEVATION: 2291.0 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
	X	34			ALLUVIUM: Brown Silty fine Sand, trace medium to coarse Sand, trace to little fine Gravel, dense-damp		5					
5	X	68/11"			Brown Silty fine to medium Sand, trace coarse Sand, trace fine Gravel, very dense-damp		3					
	X	48			Light Gray Brown fine to coarse Sand, trace Silt, trace fine to coarse Gravel, dense-damp		2					
10	X	60			OLDER ALLUVIUM: Red Brown Silty fine Sand to fine Sandy Silt, trace medium Sand, very dense-moist		11					
15	X	52					9					
20	X	55	4.5		Red Brown Clayey Silt, little fine Sand, trace coarse Sand, slightly cemented, hard-damp to moist		10					

Boring Terminated at 20'

TBL 20G122-2.GPJ SOCALGEO.GDT 11/16/22

BORING NO. B-13

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 20G122-2
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 10/10/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 13 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2307.0 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
					OLDER ALLUVIUM: Brown Silty Clay, trace fine to coarse Sand, cemented, hard-damp							
	X	53	3.5				5					
					Brown Clayey Silt, trace medium Sand, very stiff-damp							
	X	40	4.0				8					
5					Brown Clayey Silt to Silty Clay, little fine Sand, trace medium Sand, very stiff to hard-moist							
	X	32	4.5				13					
	X	18	4.5				13					
10												
					Brown Clayey Silt, little fine Sand, little Iron oxide staining, very stiff-moist							
	X	25	4.5				12					
15					Boring Terminated at 15'							

TBL 20G122-2.GPJ SOCALGEO.GDT 11/16/22

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-14

JOB NO.: 20G122-2
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 10/12/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 12 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2313.0 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
					DISTURBED ALLUVIUM: Brown fine Sandy Silt, trace medium Sand, medium dense-damp							
		27				88	5					
					ALLUVIUM: Brown fine Sandy Silt, trace to little Clay, trace medium to coarse Sand, slightly cemented, loose to medium dense-damp							
		40				113	5					
5		14				94	6					
					OLDER ALLUVIUM: Brown fine Sandy Clay, some Silt, little medium Sand, slightly cemented, hard-damp							
		43	4.5			119	7					
					Brown fine to medium Sandy Clay, trace coarse Sand, trace fine Gravel, very stiff-damp							
		39	4.5			117	7					
10												
					Brown fine Sandy Silt, trace to little Clay, little medium Sand, dense-damp							
		31					8					
15												
					Brown fine Sandy Silt, trace medium to coarse Sand, very dense-damp to moist							
		84					9					
20												

Boring Terminated at 20'

TBL 20G122-2.GPJ SOCALGEO.GDT 11/16/22

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-15

JOB NO.: 20G122-2
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California
DRILLING DATE: 10/10/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer
WATER DEPTH: Dry
CAVE DEPTH: 19 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2319.0 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
0					ALLUVIUM: Brown fine Sandy Silt, trace to little Clay, cemented, medium dense-damp							
	X	18					6					
5												
	X	13			Brown Silty fine to medium Sand, trace coarse Sand, trace fine Gravel, medium dense-dry to damp		2					
	X	19			@ 8½ feet, little fine Gravel		2					
10												
	X	12			Brown fine to medium Sand, little Silt, trace coarse Sand, trace fine Gravel, medium dense-damp		3					
	X	8			Brown Silty fine Sand to fine Sandy Silt, trace medium to coarse Sand, loose-damp		5					
15												
					Brown fine Sandy Clay, some Silt, stiff-moist							
	X	13	4.5				12					
20												
					Brown fine Sandy Silt, trace to little medium to coarse Sand, trace Clay, medium dense-very moist							
	X	15					15					
25												

Boring Terminated at 25'

TBL 20G122-2.GPJ SOCALGEO.GDT 11/16/22

TEST BORING LOG

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-16

JOB NO.: 20G122-2
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 10/12/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

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

SURFACE ELEVATION: 2304.0 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: Gray Brown fine Sandy Silt, trace to little medium to coarse Sand, some Clay, trace fine root fibers, loose to medium dense-damp							
	X	9				83	5					EI = 27 @ 0 to 5 feet
	X	15			@ 3 feet, little Clay	105	5					
5	X	12				94	6					
	X	14			Brown Silty fine to medium Sand to fine to medium Sandy Silt, trace coarse Sand, trace fine Gravel, loose-damp	106	4					
	X	15			Brown fine to medium Sandy Silt, trace coarse Sand, trace fine Gravel, medium dense-damp to very moist	96	7					
10												
	X	10				105	14					
15												
					Brown Clayey Silt to Silty Clay, little fine Sand, little Calcareous veining, medium stiff-moist							
	X	11	3.5			106	13					
20												

Boring Terminated at 20'

TBL 20G122-2.GPJ SOCALGEO.GDT 11/16/22

TEST BORING LOG

BORING NO. B-17

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 20G122-2
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 10/11/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 18 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2319.0 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
0					ALLUVIUM: Brown fine to medium Sandy Silt, trace coarse Sand, little Clay, sightly porous, medium dense-damp							
5	X	25				110	5					
10	X	18			@ 9 feet, little coarse Sand, trace fine Gravel	107	5					
15	X	21				118	6					
20	X	18			@ 19 feet, trace fine to coarse Gravel, moist	103	9					
					Brown fine to coarse Sand, trace Silt, little fine to coarse Gravel, medium dense-dry to damp							
25	X	25				115	2					
					Brown fine to medium Sandy Silt, little coarse Sand, trace fine Gravel, medium dense-dry							

Boring Terminated at 25'

TBL 20G122-2.GPJ SOCALGEO.GDT 11/16/22

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-18

JOB NO.: 20G122-2
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 10/11/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

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

SURFACE ELEVATION: 2295.0 feet MSL

FIELD RESULTS					DESCRIPTION	LABORATORY RESULTS						COMMENTS
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG		DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	
					DISTURBED ALLUVIUM: Dark Brown fine Sandy Silt, trace medium to coarse Sand, trace fine root fibers, medium dense-damp							
		26				103	5					
					ALLUVIUM: Brown fine Sandy Silt, little medium to coarse Sand, trace fine Gravel, loose-damp to moist							
		10				109	7					
5		8				100	9					
		12			@ 7 to 10 feet, trace medium to coarse Sand	106	10					
		12				106	9					
10												
					OLDER ALLUVIUM: Light Gray Brown Silty fine to medium Sand, little coarse Sand, trace to little fine Gravel, very dense-moist							
		77/10"				123	9					
15												
					Light Gray Brown fine to coarse Sand, trace Silt, very dense-damp							
		50/5"					3					
20												

Boring Terminated at 20'

TBL 20G122-2.GPJ SOCALGEO.GDT 11/16/22

TEST BORING LOG

PLATE B-12

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-19

JOB NO.: 20G122-2
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 10/11/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

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

FIELD RESULTS					DESCRIPTION	LABORATORY RESULTS						COMMENTS
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	SURFACE ELEVATION: 2324.5 feet MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	
					ALLUVIUM: Gray fine SAndy Silt, little medium to coarse Sand, trace fine to coarse Gravel, loose to medium dense-damp							
5	X	6					4					
10	X	12			@ 8½ to 15 feet, trace fine Gravel		5					
15	X	10			@ 13½ feet, occasional Cobbles		3					
	■	16			@ 16 feet, fine to coarse Gravel, damp	107	8					
	■	15			Light Brown Silty fine to corse Sand, some fine to coarse Gravel, medium dense-damp	114	3					
20	■	18			Brown fine to medium Sandy Silt, medium dense-damp	103	7					
	■	26			Brown Silty fine to coarse, trace fine Gravel, medium dense-damp	110	5					
25	■	19			Brown Silty fine Sand, little medium to coarse Sand, trace fine to coarse Gravel, medium dense-damp to moist	102	7					
30	X	15			Gray Silty fine to medium Sand, trace coarse Sand, medium dense-moist to very moist		13					
					Boring Terminated at 30'							

TBL 20G122-2.GPJ SOCALGEO.GDT 11/16/22

TEST BORING LOG

SOUTHERN CALIFORNIA GEOTECHNICAL
SoCalGeo
A California Corporation

BORING NO. B-20

JOB NO.: 20G122-2
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 10/11/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 32 feet
READING TAKEN: At Completion

SURFACE ELEVATION: 2335.0 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
					<u>OLDER ALLUVIUM:</u>Light Brown to Brown fine Sandy Silt, trace medium to coarse Sand, trace Clay, slightly cemented, very dense-damp							
5	X	75					4					
10	X	87/11"					6					
					Brown Silty fine Sand, little medium Sand, trace coarse Sand, dense-damp							
15	X	41					5					
					Brown Silty fine to coarse Sand, little fine Gravel, very dense-damp							
20	X	76					3					
25	X	69					4					
					Brown fine to coarse Sand, trace Silt, trace fine Gravel, very dense-damp							
30	X	50/4"					3					
					Brown Silty fine to coarse Sand, little fine to coarse Gravel, very dense-moist							
	X	70/10"					8					
					Brown Silty fine to medium Sand, trace coarse Sand, very dense-damp							
	X	57					5					

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-20

JOB NO.: 20G122-2
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 10/11/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

WATER DEPTH: Dry
CAVE DEPTH: 32 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
					Brown fine to coarse Sand, little fine Gravel, trace Silt, very dense-damp							
	X	50/5"					3					
	X	52					4					
40												
					Boring Terminated at 40'							

TBL 20G122-2.GPJ SOCALGEO.GDT 11/16/22

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

BORING NO. B-21

JOB NO.: 20G122-2
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 10/11/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

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

FIELD RESULTS						LABORATORY RESULTS						
DEPTH (FEET)	SAMPLE	BLOW COUNT	POCKET PEN. (TSF)	GRAPHIC LOG	DESCRIPTION SURFACE ELEVATION: 2349.0 feet MSL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PASSING #200 SIEVE (%)	ORGANIC CONTENT (%)	COMMENTS
					OLDER ALLUVIUM: Brown fine Sandy Silt, trace medium to coarse Sand, slightly porous, medium dense-moist							
	X	44				111	12					
5	X	65/10"			Brown Silty fine to coarse Sand, little fine to coarse Gravel, very dense-damp to moist	107	7					
	X	71			Brown Silty fine to medium Sand, little coarse Sand, trace fine to coarse Gravel, very dense-damp	115	3					
					Brown Silty fine Sand, very dense-damp							
					@ 9 feet, trace medium to coarse Sand, trace fine Gravel							
10	X	83				127	3					
15	X	88/10"				127	3					
					Brown fine Sandy Silt, trace medium Sand, very dense-moist to very moist							
20	X	74/11"				120	10					
25	X	72			@ 24 feet, Red Brown, little coarse Sand	119	14					
					Red Brown Clayey Silt, little fine Sand, hard-moist							
	X	94/10"	4.5			125	12					
					Boring Terminated at 28'							

TBL 20G122-2.GPJ SOCALGEO.GDT 11/16/22

BORING NO. B-22

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

JOB NO.: 20G122-2
PROJECT: Proposed C/I Development
LOCATION: Calimesa, California

DRILLING DATE: 10/11/22
DRILLING METHOD: Hollow Stem Auger
LOGGED BY: Ryan Bremer

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

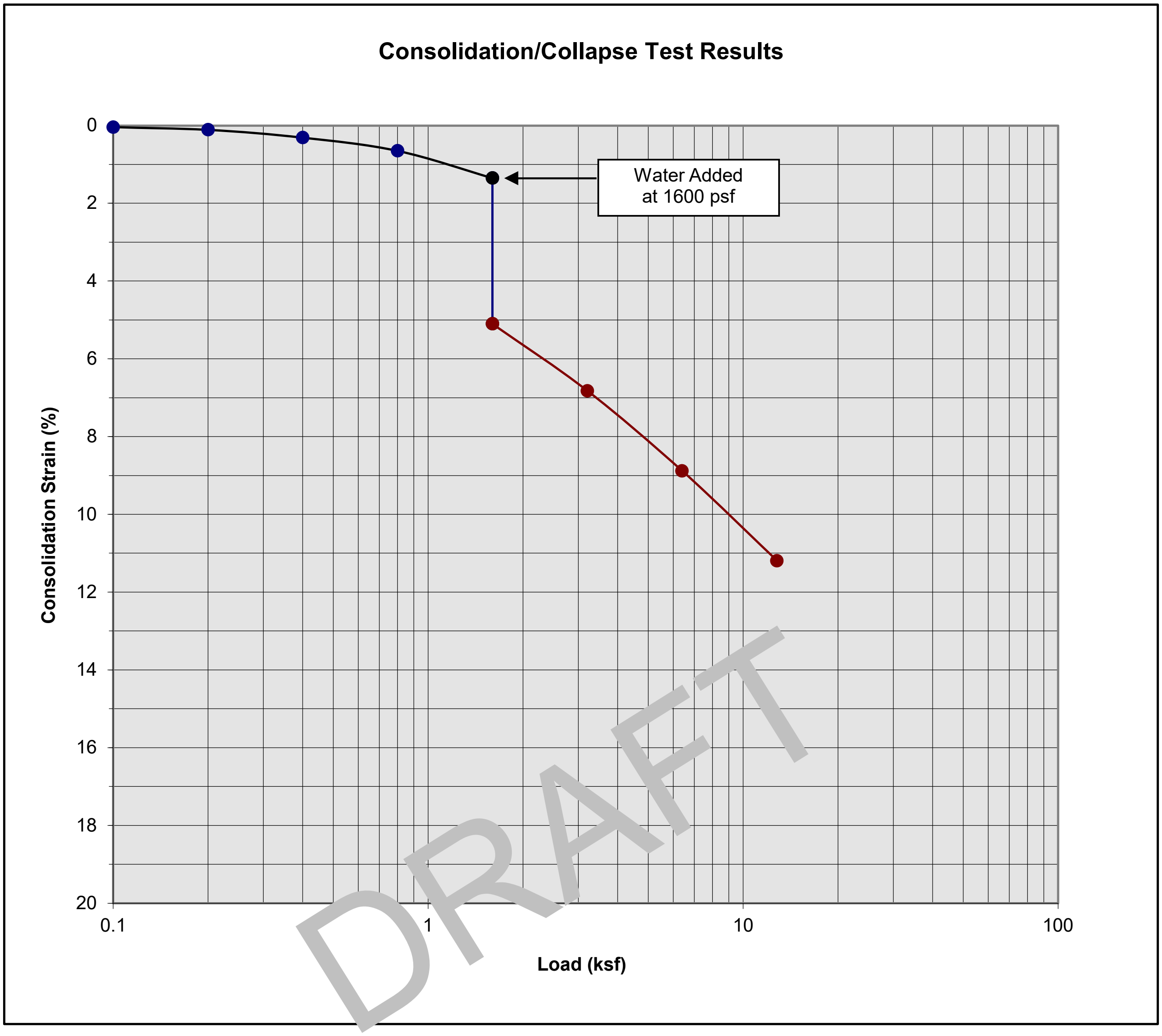
SURFACE ELEVATION: 2381.0 feet MSL

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	48			OLDER ALLUVIUM: Light Brown Silty fine Sand, trace medium to coarse Sand, slightly porous, cemented, dense-damp	117	6					
	X	36			Red Brown fine Sandy Silt, trace to little medium to coarse Sand, trace fine Gravel, cemented, medium dense-moist	109	9					
5	X	27	4.5		Red Brown fine Sandy Clay, little Silt, trace medium to coarse Sand, trace fine Gravel, cemented, very stiff-damp to moist	117	10					
	X	28			Brown fine Sandy Silt, trace medium Sand, medium dense-damp	121	6					
10	X	43			@ 9 feet, trace coarse Sand	118	7					
15	X	33			Light Brown Silty fine Sand, trace medium to coarse Sand, dense-moist to very moist		12					
20	X	42					7					
25	X	93/11"			Brown fine to coarse Sand, little fine Gravel, trace Silt, very dense-damp		3					

Boring Terminated at 25'

TBL 20G122-2.GPJ SOCALGEO.GDT 11/16/22

TEST BORING LOG



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

Boring Number:	B-2	Initial Moisture Content (%)	5
Sample Number:	---	Final Moisture Content (%)	17
Depth (ft)	3 to 4	Initial Dry Density (pcf)	100.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	112.4
Specimen Thickness (in)	1.0	Percent Collapse (%)	3.75

Proposed Commercial/Industrial Development
Calimesa, CA
Project No. 20G122-1
PLATE C- 1

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
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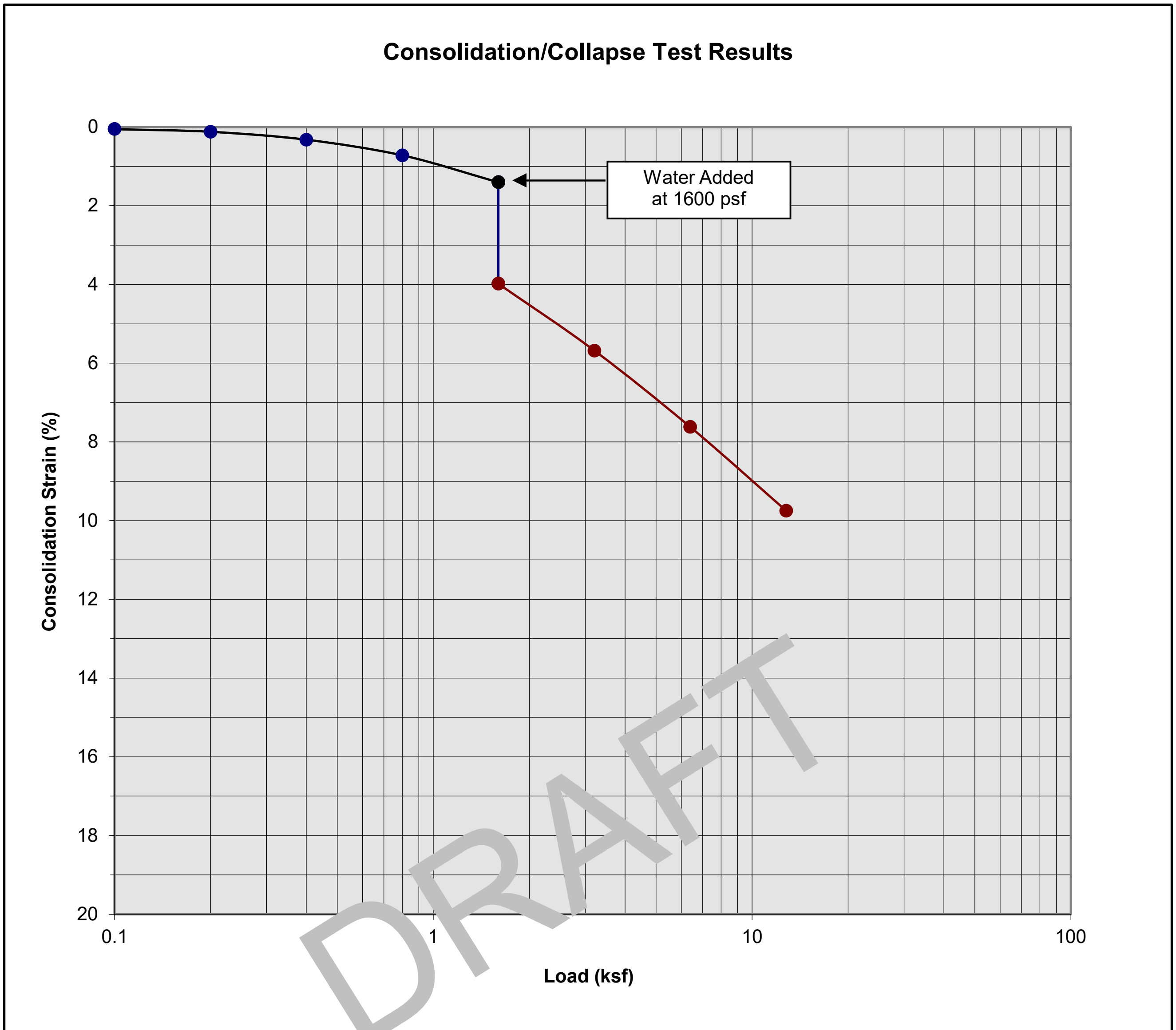
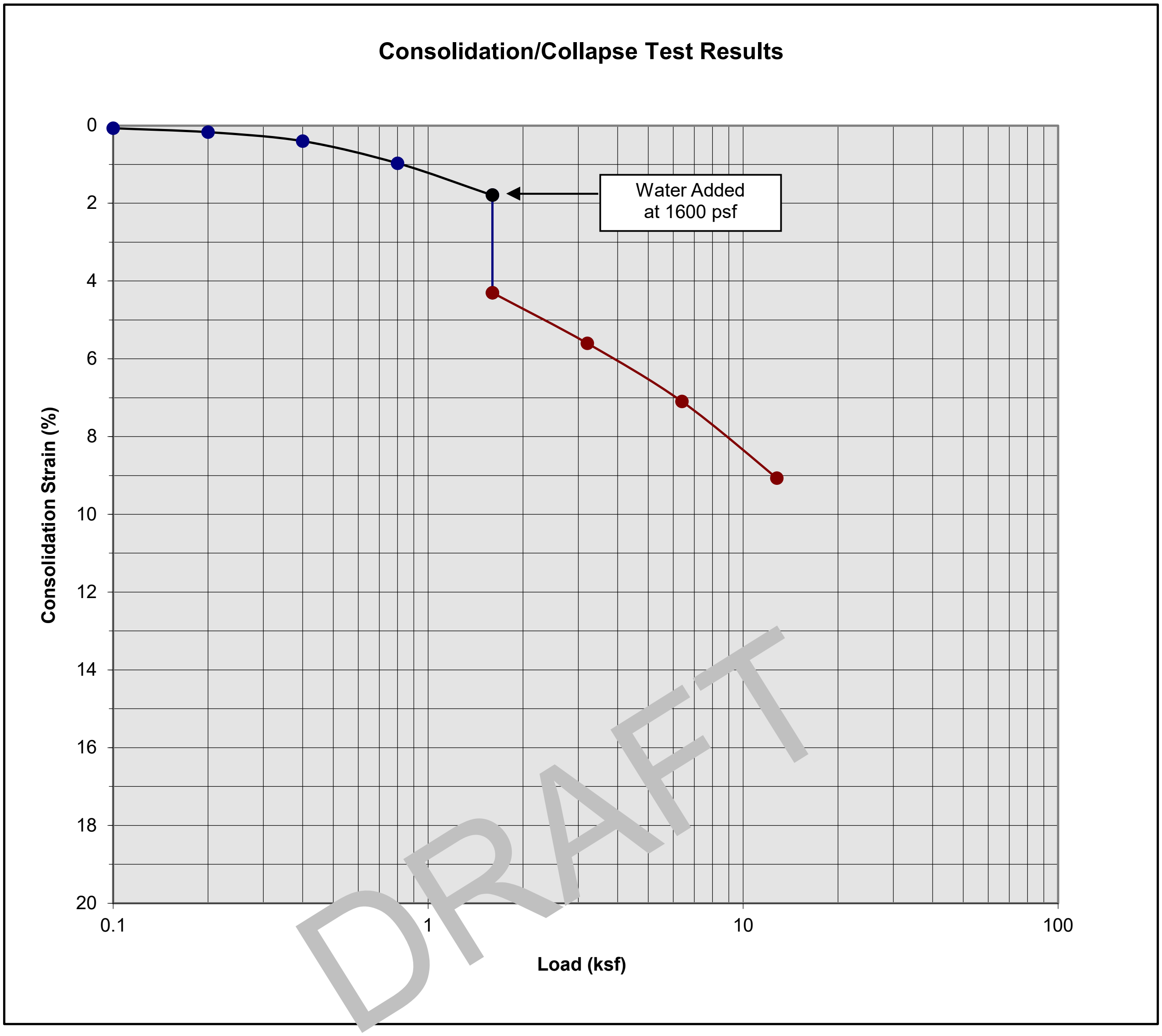


Classification: Light Gray Brown Silty fine Sand, trace to little medium to coarse Sand

Boring Number:	B-2	Initial Moisture Content (%)	4
Sample Number:	---	Final Moisture Content (%)	17
Depth (ft)	5 to 6	Initial Dry Density (pcf)	102.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	112.8
Specimen Thickness (in)	1.0	Percent Collapse (%)	2.58

Proposed Commercial/Industrial Development
Calimesa, CA
Project No. 20G122-1
PLATE C- 2

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation



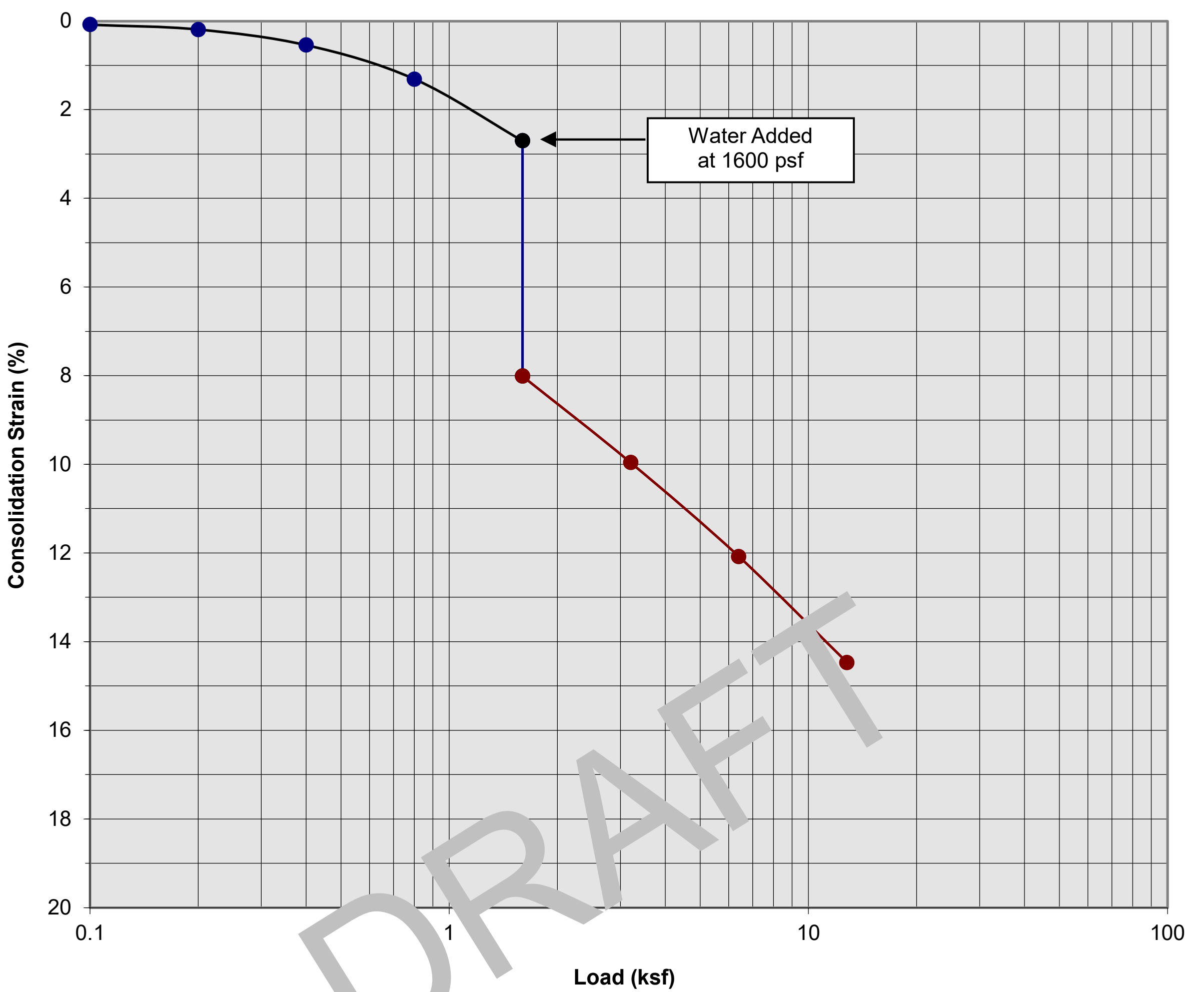
Classification: Light Gray Brown Silty fine Sand, trace to little medium to coarse Sand

Boring Number:	B-2	Initial Moisture Content (%)	4
Sample Number:	---	Final Moisture Content (%)	15
Depth (ft)	7 to 8	Initial Dry Density (pcf)	101.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	111.3
Specimen Thickness (in)	1.0	Percent Collapse (%)	2.51

Proposed Commercial/Industrial Development
Calimesa, CA
Project No. 20G122-1
PLATE C- 3

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Consolidation/Collapse Test Results



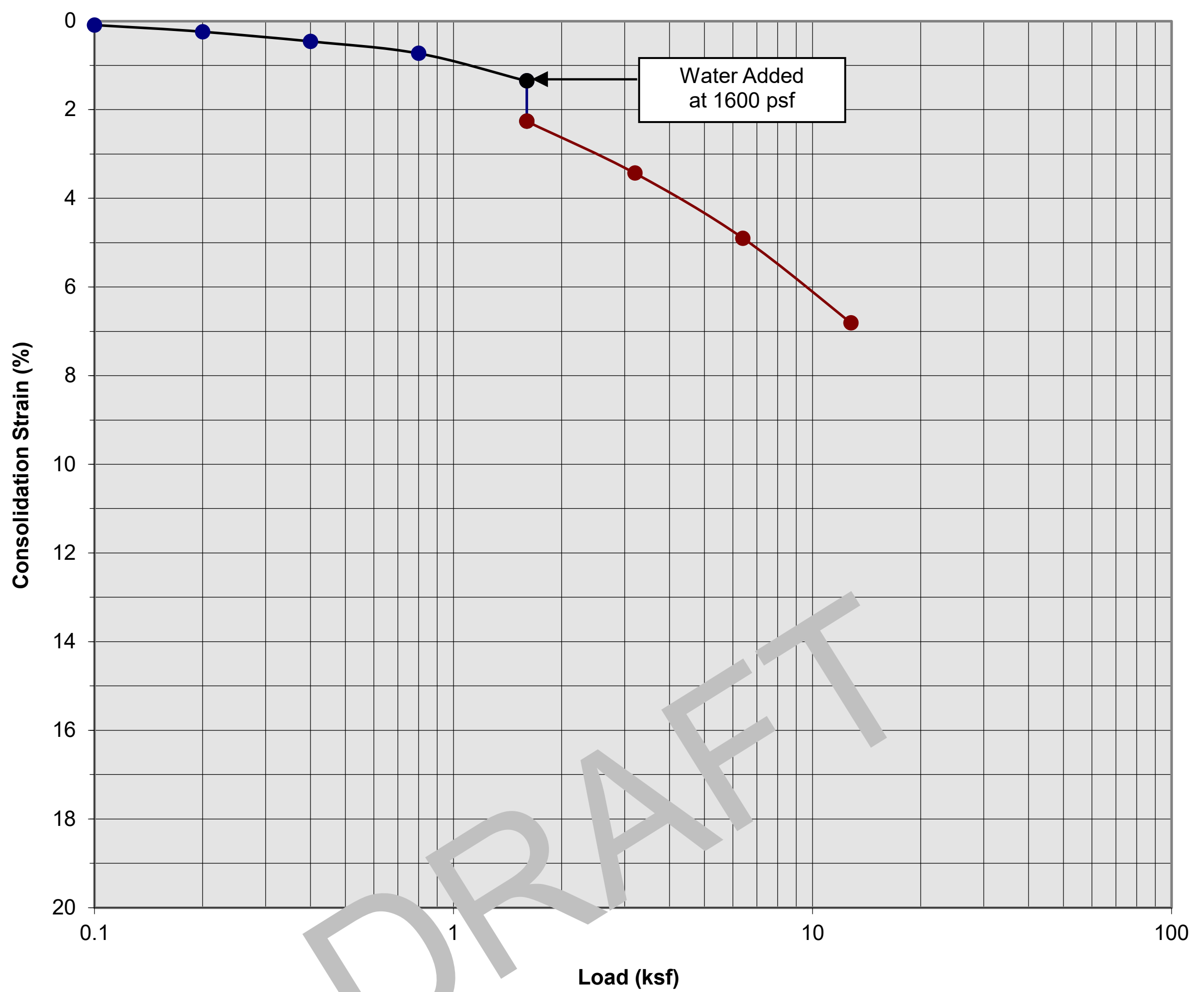
Classification: Light Gray Brown Silty fine Sand, trace to little medium to coarse Sand

Boring Number:	B-2	Initial Moisture Content (%)	4
Sample Number:	---	Final Moisture Content (%)	20
Depth (ft)	9 to 10	Initial Dry Density (pcf)	99.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	115.3
Specimen Thickness (in)	1.0	Percent Collapse (%)	5.31

Proposed Commercial/Industrial Development
Calimesa, CA
Project No. 20G122-1
PLATE C- 4

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Consolidation/Collapse Test Results

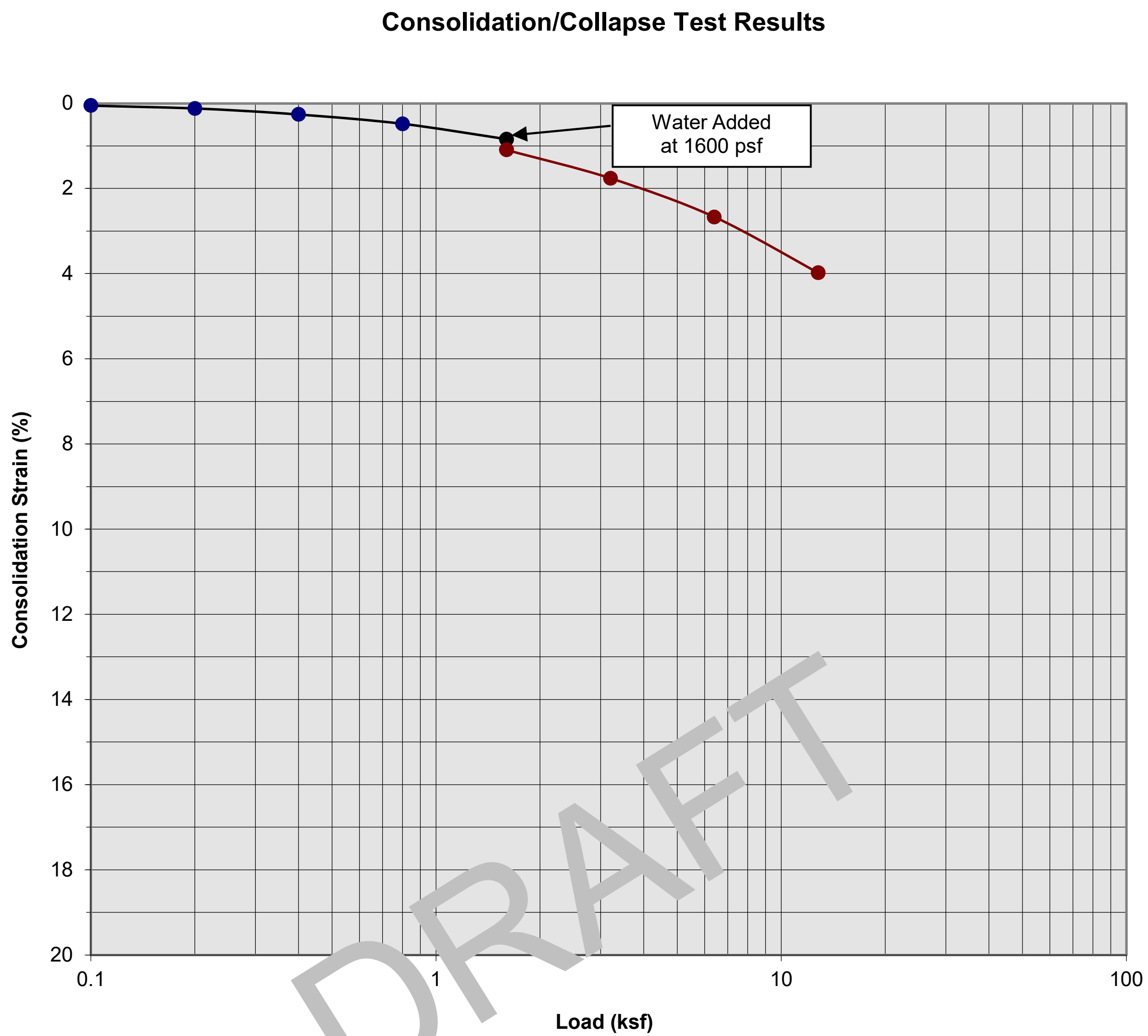


Classification: Light Brown Silty fine Sand

Boring Number:	B-2	Initial Moisture Content (%)	7
Sample Number:	---	Final Moisture Content (%)	21
Depth (ft)	14 to 15	Initial Dry Density (pcf)	97.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	104.0
Specimen Thickness (in)	1.0	Percent Collapse (%)	0.91

Proposed Commercial/Industrial Development
Calimesa, CA
Project No. 20G122-1
PLATE C- 5

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

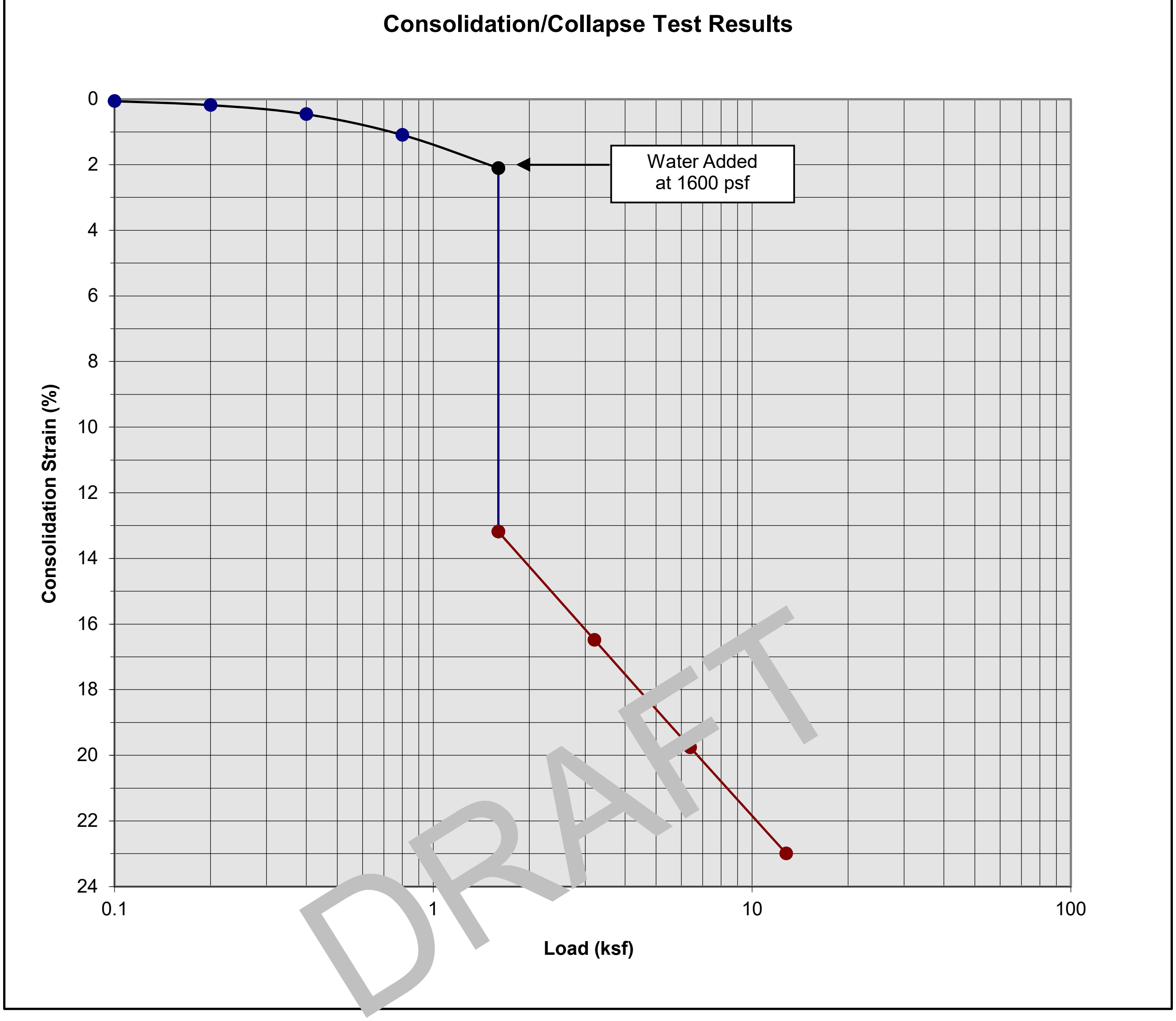


Classification: Light Brown Silty fine Sand

Boring Number:	B-2	Initial Moisture Content (%)	9
Sample Number:	---	Final Moisture Content (%)	19
Depth (ft)	19 to 20	Initial Dry Density (pcf)	104.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	108.2
Specimen Thickness (in)	1.0	Percent Collapse (%)	0.25

Proposed Commercial/Industrial Development
Calimesa, CA
Project No. 20G122-1
PLATE C- 6

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation



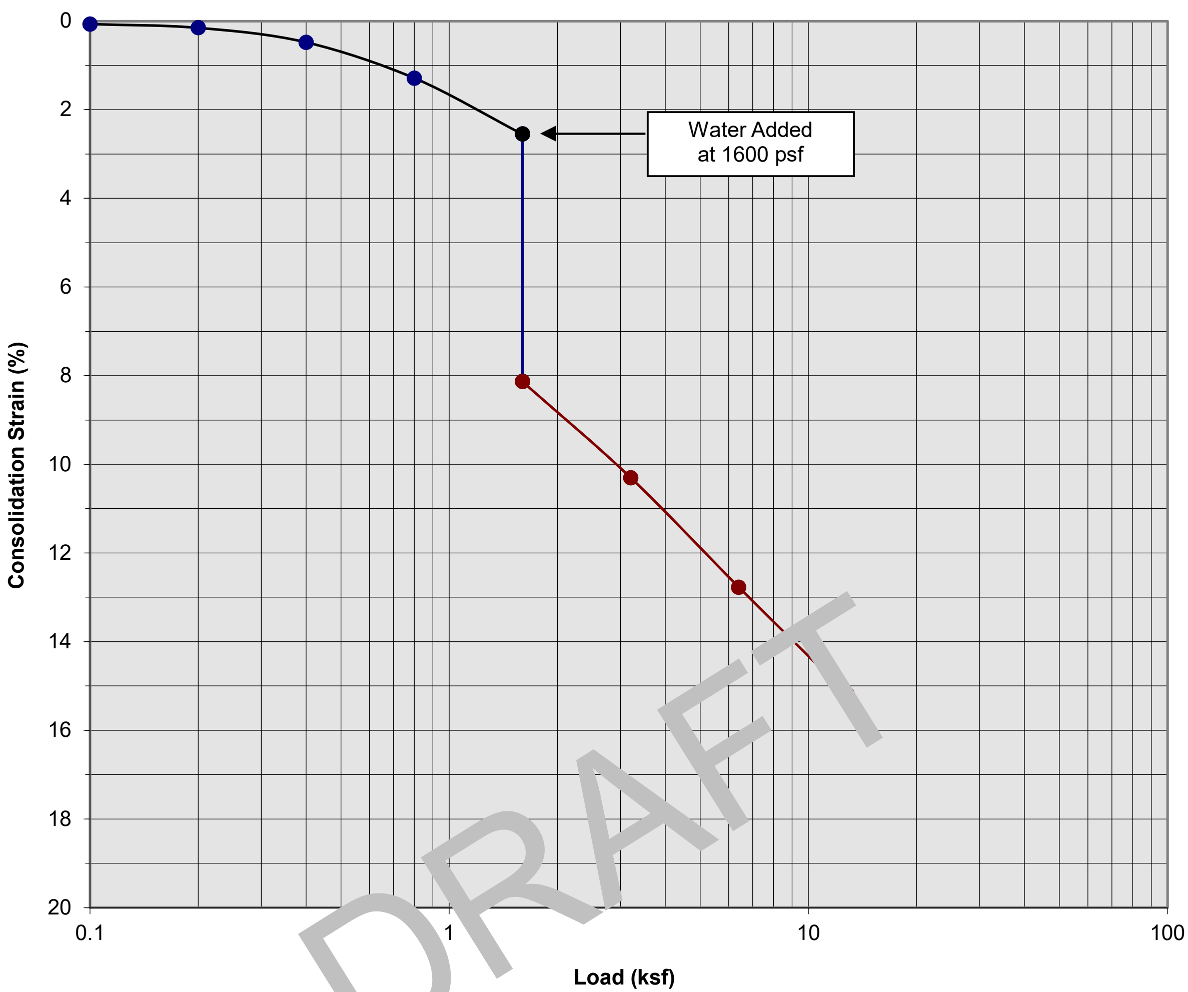
Classification: FILL: Dark Gray Brown Silty fine Sand, trace medium to coarse Sand

Boring Number:	B-6	Initial Moisture Content (%)	5
Sample Number:	---	Final Moisture Content (%)	15
Depth (ft)	3 to 4	Initial Dry Density (pcf)	97.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	126.0
Specimen Thickness (in)	1.0	Percent Collapse (%)	11.08

Proposed Commercial/Industrial Development
Calimesa, CA
Project No. 20G123-1
PLATE C- 7

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Consolidation/Collapse Test Results

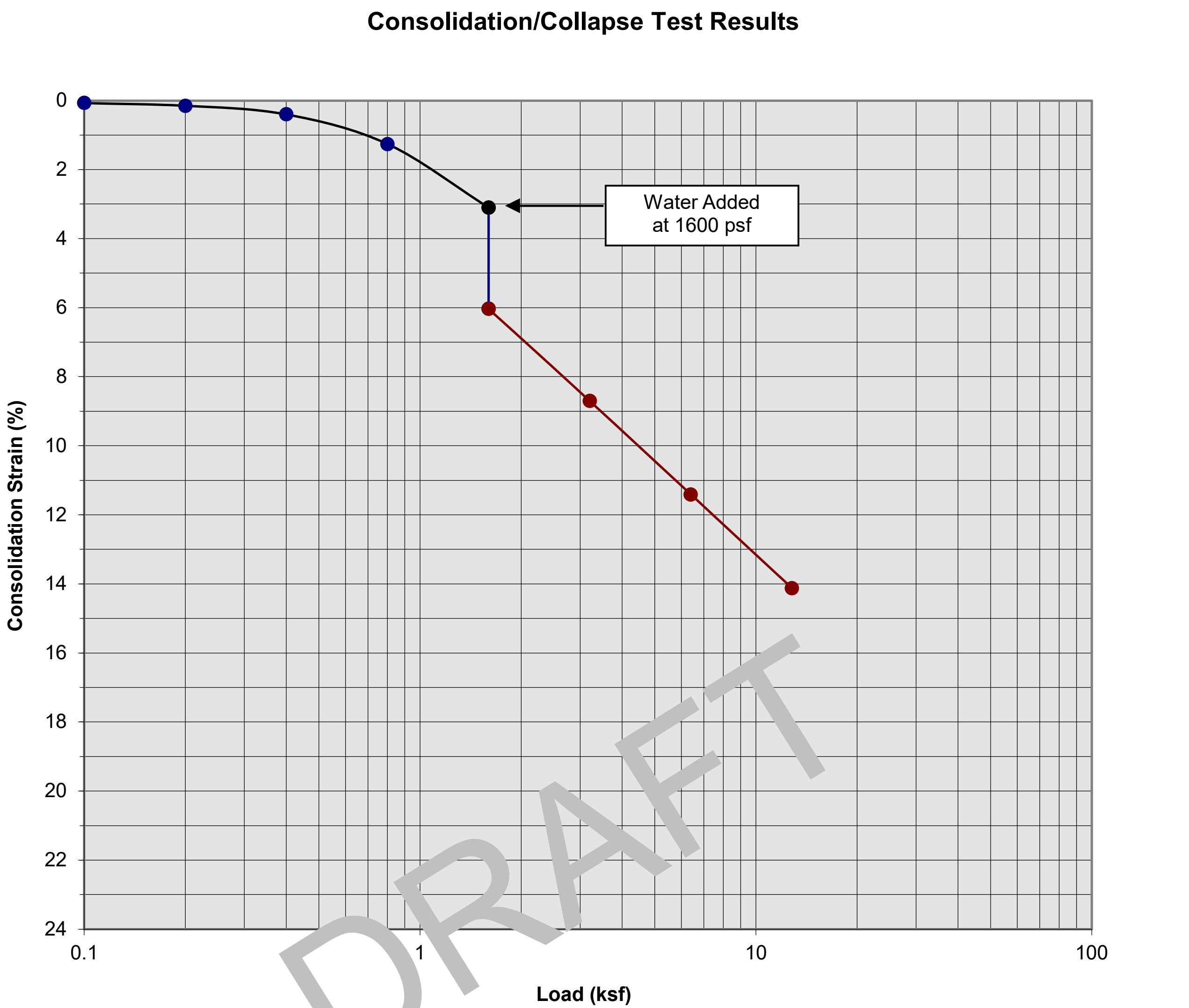


Classification: POSSIBLE FILL: Gray Brown Silty fine Sand, trace medium to coarse Sand

Boring Number:	B-6	Initial Moisture Content (%)	3
Sample Number:	---	Final Moisture Content (%)	12
Depth (ft)	5 to 6	Initial Dry Density (pcf)	102.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	120.0
Specimen Thickness (in)	1.0	Percent Collapse (%)	5.58

Proposed Commercial/Industrial Development
Calimesa, CA
Project No. 20G123-1
PLATE C- 8

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation



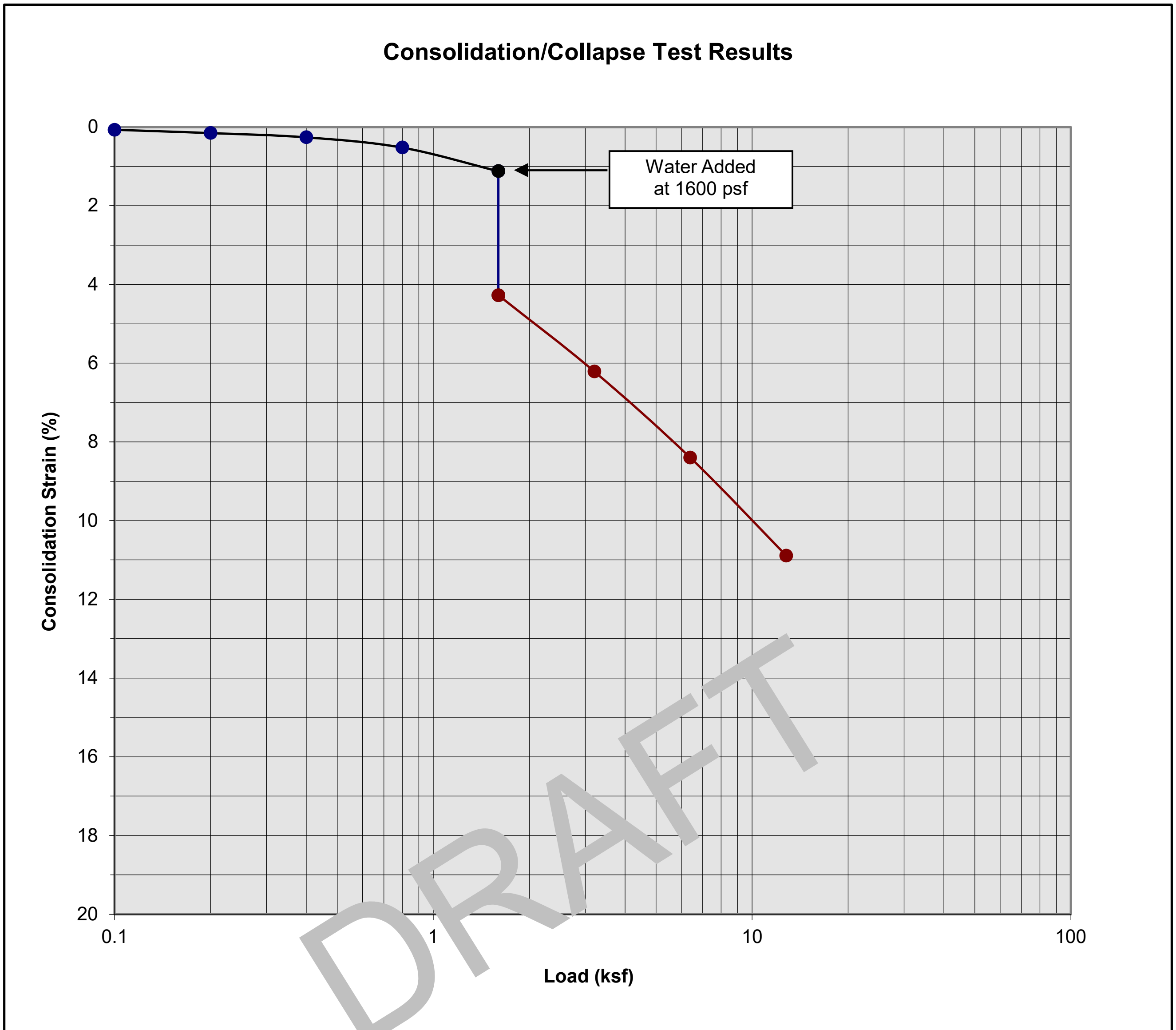
Classification: POSSIBLE FILL: Gray Brown Silty fine Sand, trace medium to coarse Sand

Boring Number:	B-6
Sample Number:	---
Depth (ft)	7 to 8
Specimen Diameter (in)	2.4
Specimen Thickness (in)	1.0

Initial Moisture Content (%)	5
Final Moisture Content (%)	15
Initial Dry Density (pcf)	96.0
Final Dry Density (pcf)	111.4
Percent Collapse (%)	2.93

Proposed Commercial/Industrial Development
Calimesa, CA
Project No. 20G123-1
PLATE C- 9

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

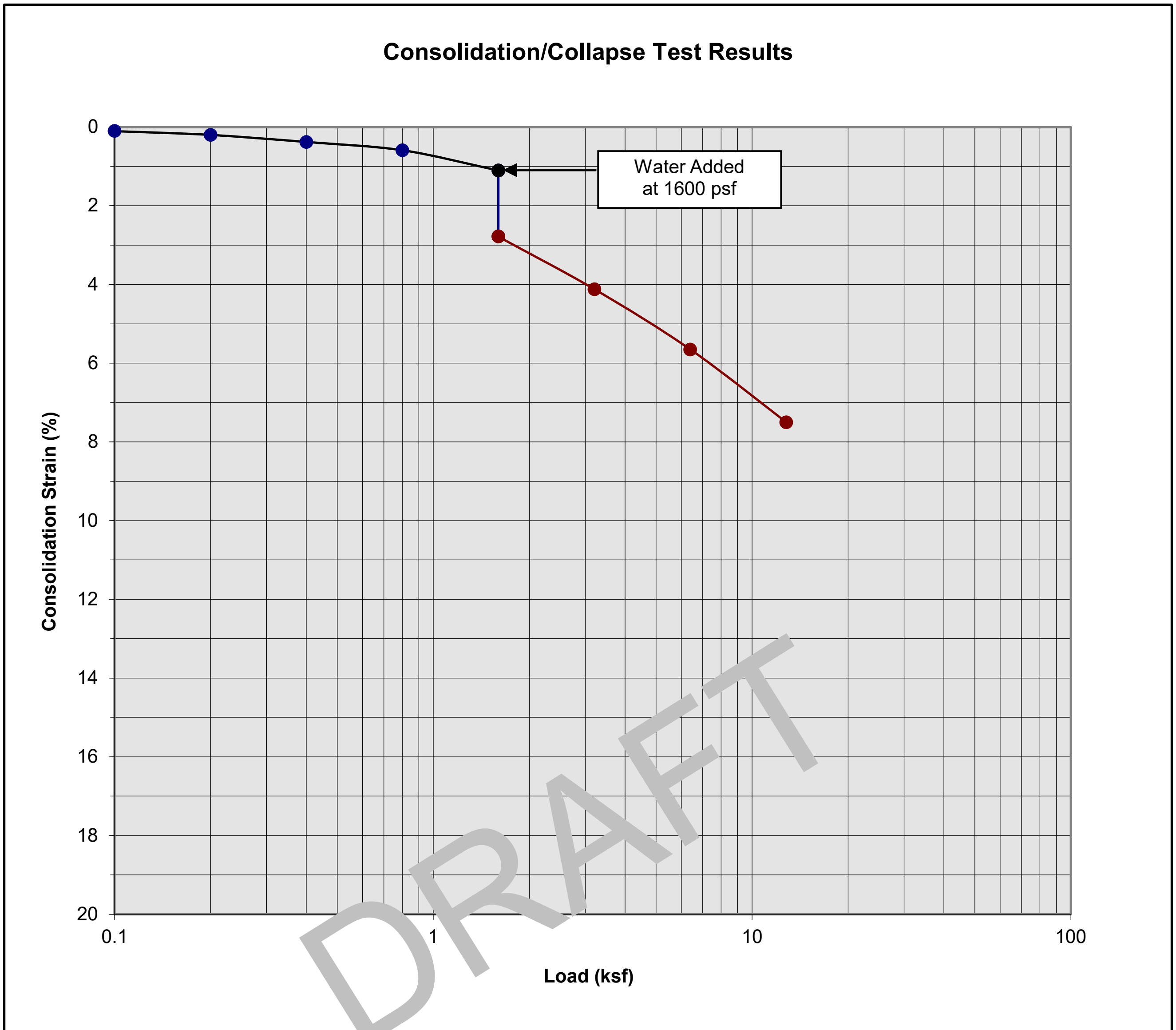


Classification: POSSIBLE FILL: Gray Brown Silty fine Sand, trace medium to coarse Sand

Boring Number:	B-6	Initial Moisture Content (%)	5
Sample Number:	---	Final Moisture Content (%)	16
Depth (ft)	9 to 10	Initial Dry Density (pcf)	99.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	111.0
Specimen Thickness (in)	1.0	Percent Collapse (%)	3.15

Proposed Commercial/Industrial Development
Calimesa, CA
Project No. 20G123-1
PLATE C- 10

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

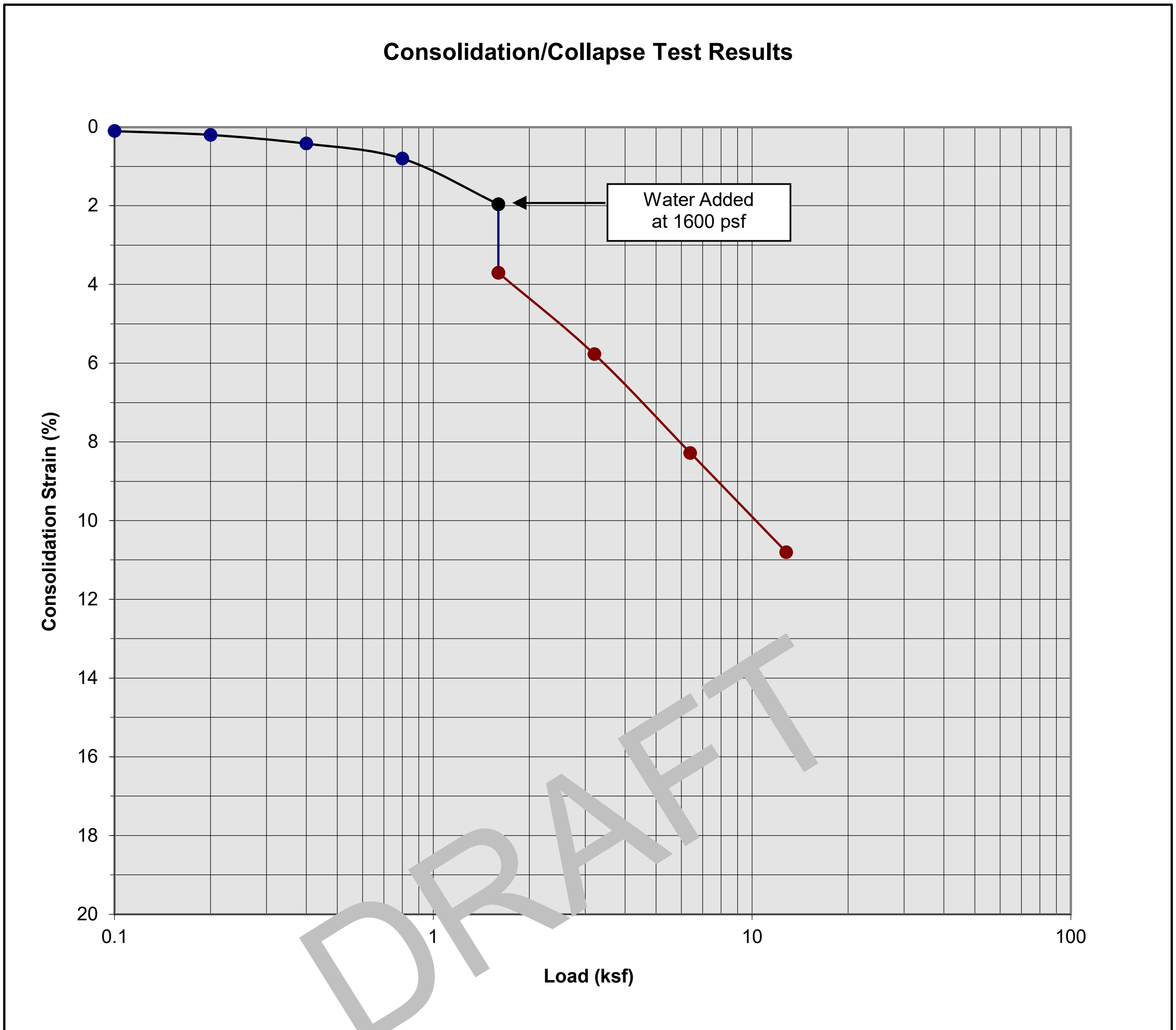


Classification: Light Brown fine to medium Sand, little Silt, trace fine Gravel

Boring Number:	B-6	Initial Moisture Content (%)	5
Sample Number:	---	Final Moisture Content (%)	18
Depth (ft)	14 to 15	Initial Dry Density (pcf)	104.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	112.2
Specimen Thickness (in)	1.0	Percent Collapse (%)	1.68

Proposed Commercial/Industrial Development
Calimesa, CA
Project No. 20G123-1
PLATE C- 11

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

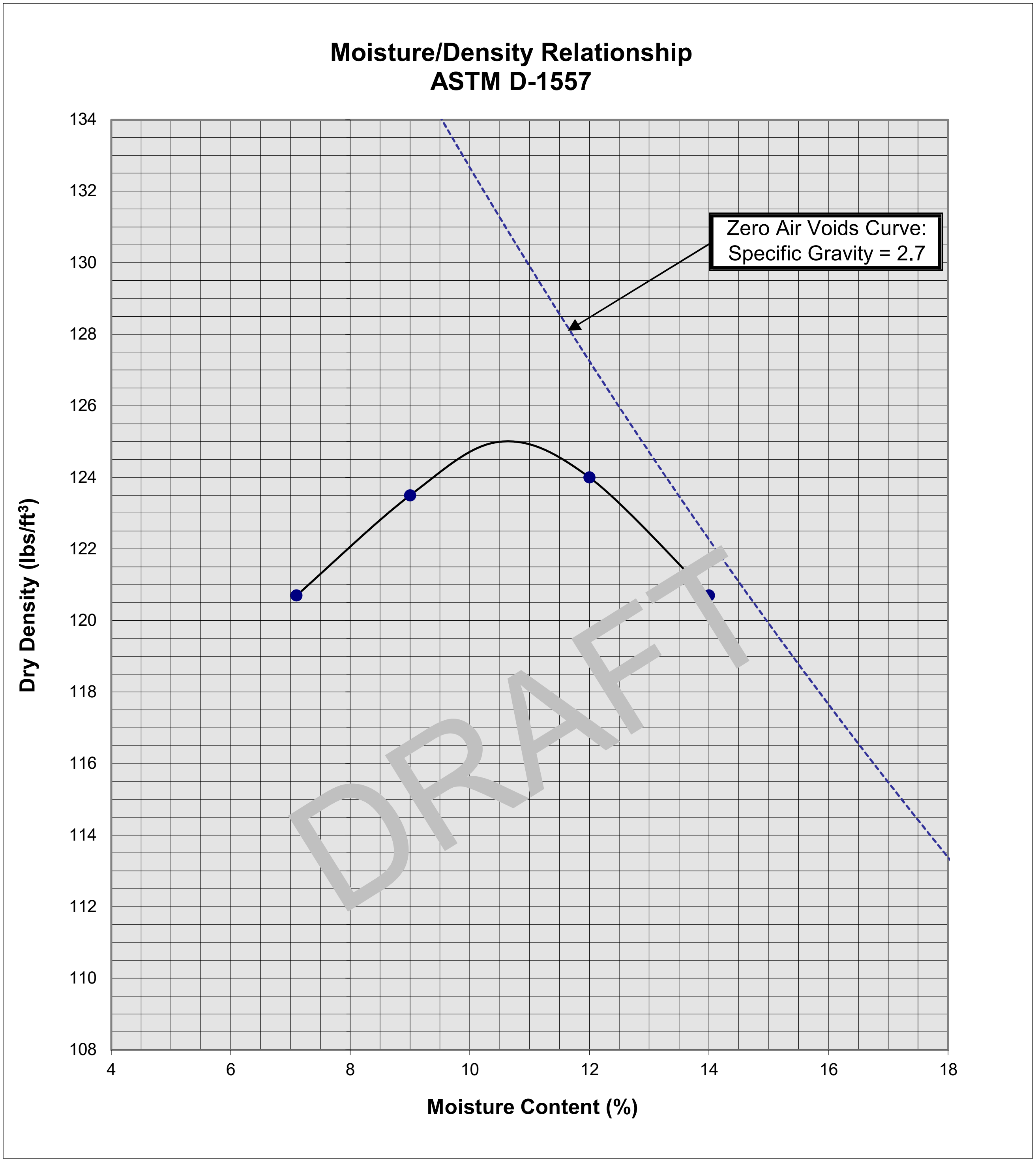


Classification: Light Brown fine to medium Sand, little Silt, trace fine Gravel

Boring Number:	B-6	Initial Moisture Content (%)	5
Sample Number:	---	Final Moisture Content (%)	18
Depth (ft)	19 to 20	Initial Dry Density (pcf)	106.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	118.3
Specimen Thickness (in)	1.0	Percent Collapse (%)	1.74

Proposed Commercial/Industrial Development
Calimesa, CA
Project No. 20G123-1
PLATE C- 12

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation



Soil ID Number		B-2 @ 0 to 5'
Optimum Moisture (%)		10.5
Maximum Dry Density (pcf)		125
Soil Classification	Light Gray Brown Silty fine Sand, trace to little medium to coarse Sand, trace to little fine Gravel	

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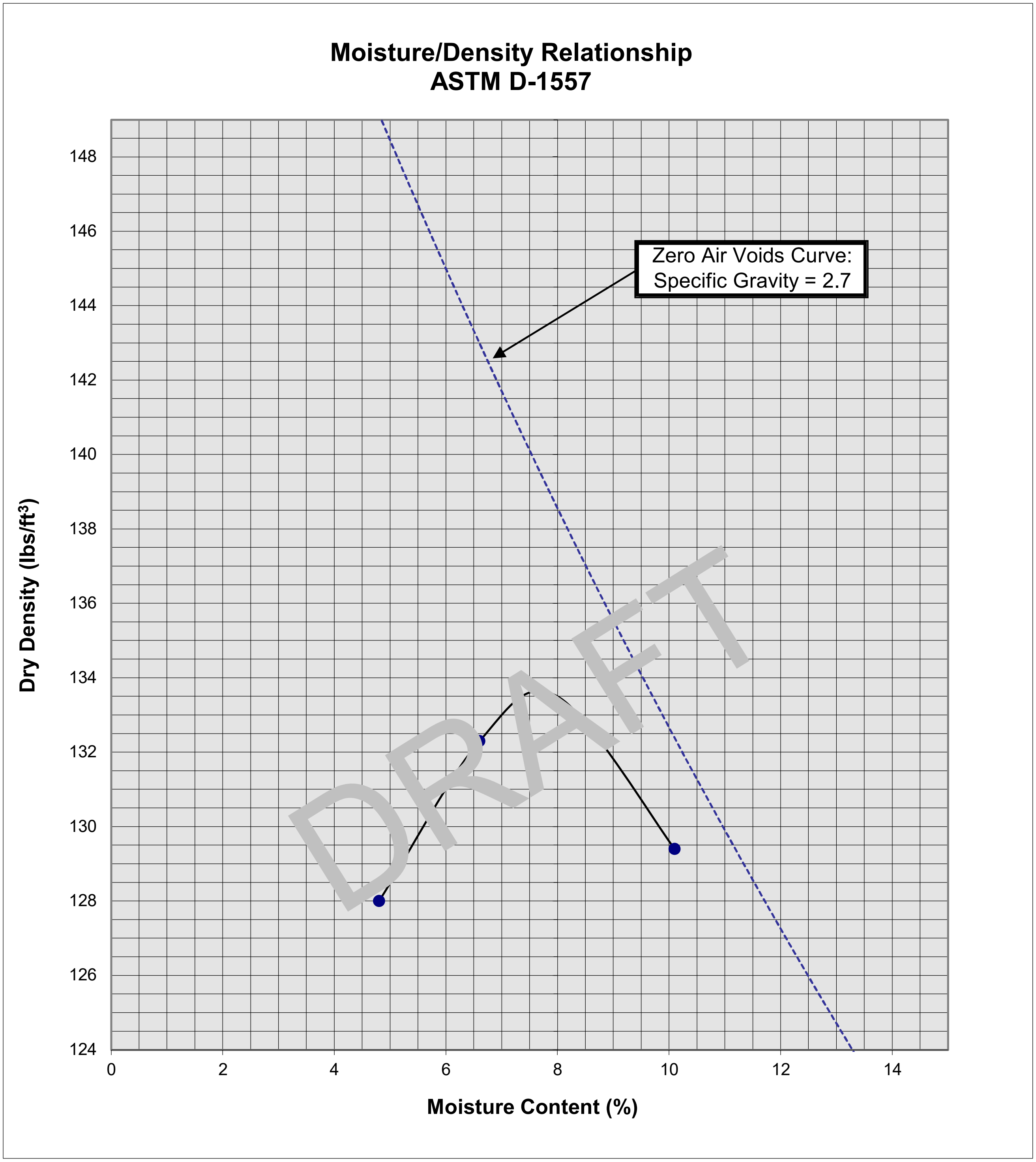
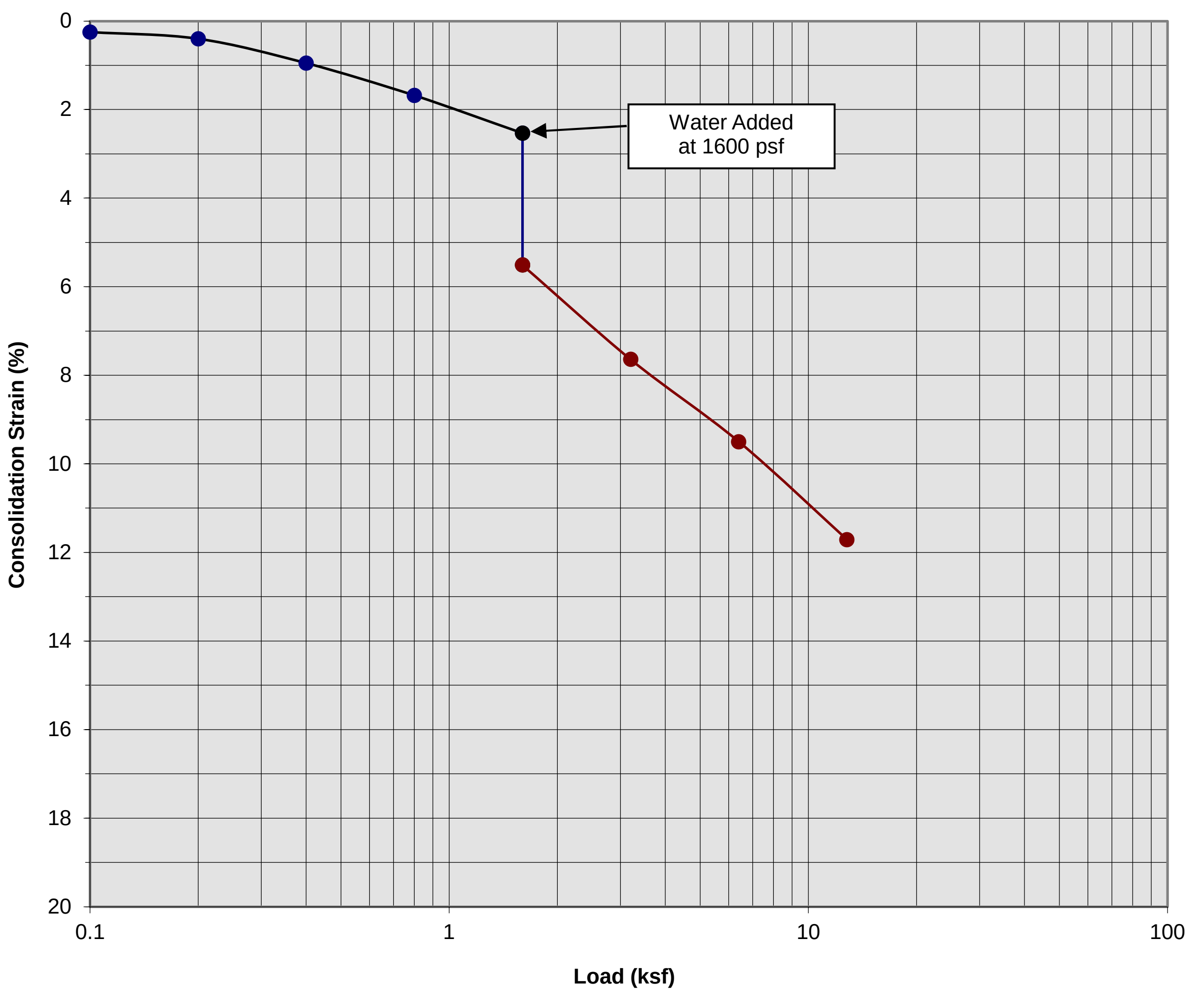


Soil ID Number	B-6 @ 0 to 5'
Optimum Moisture (%)	8
Maximum Dry Density (pcf)	133.5
Soil Classification	Gray Brown Silty fine Sand, trace medium to coarse Sand, trace fine Gravel

Proposed Commercial/Industrial Development
Calimesa, CA
Project No. 20G123-1
PLATE C-14

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Consolidation/Collapse Test Results



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

Boring Number:	B-9	Initial Moisture Content (%)	8
Sample Number:	---	Final Moisture Content (%)	14
Depth (ft)	16 to 17	Initial Dry Density (pcf)	108.5
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	122.6
Specimen Thickness (in)	1.0	Percent Collapse (%)	2.98

Proposed Commercial/Industrial Development
Calimesa, California
Project No. 20G122-2
PLATE C- 1

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
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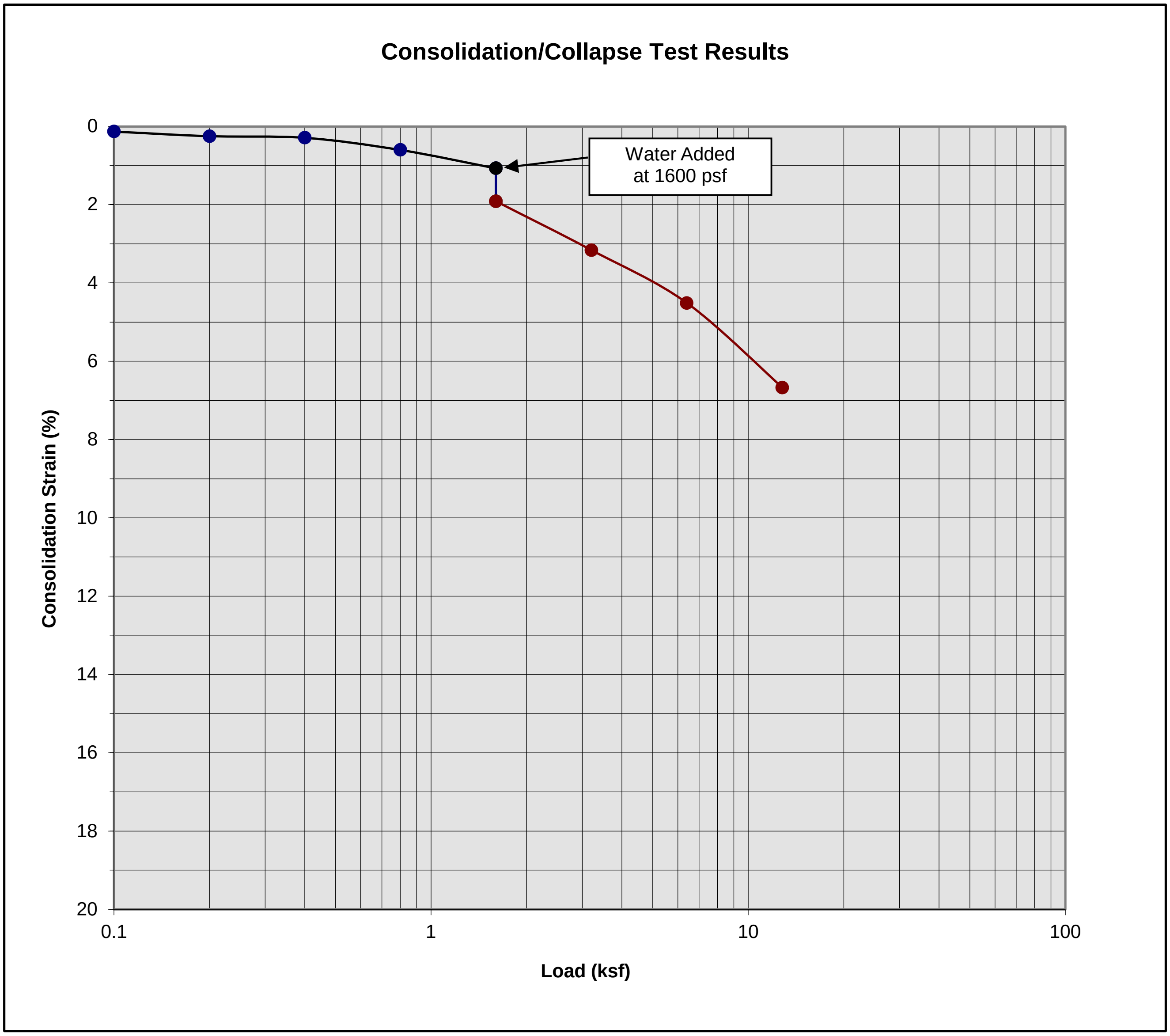
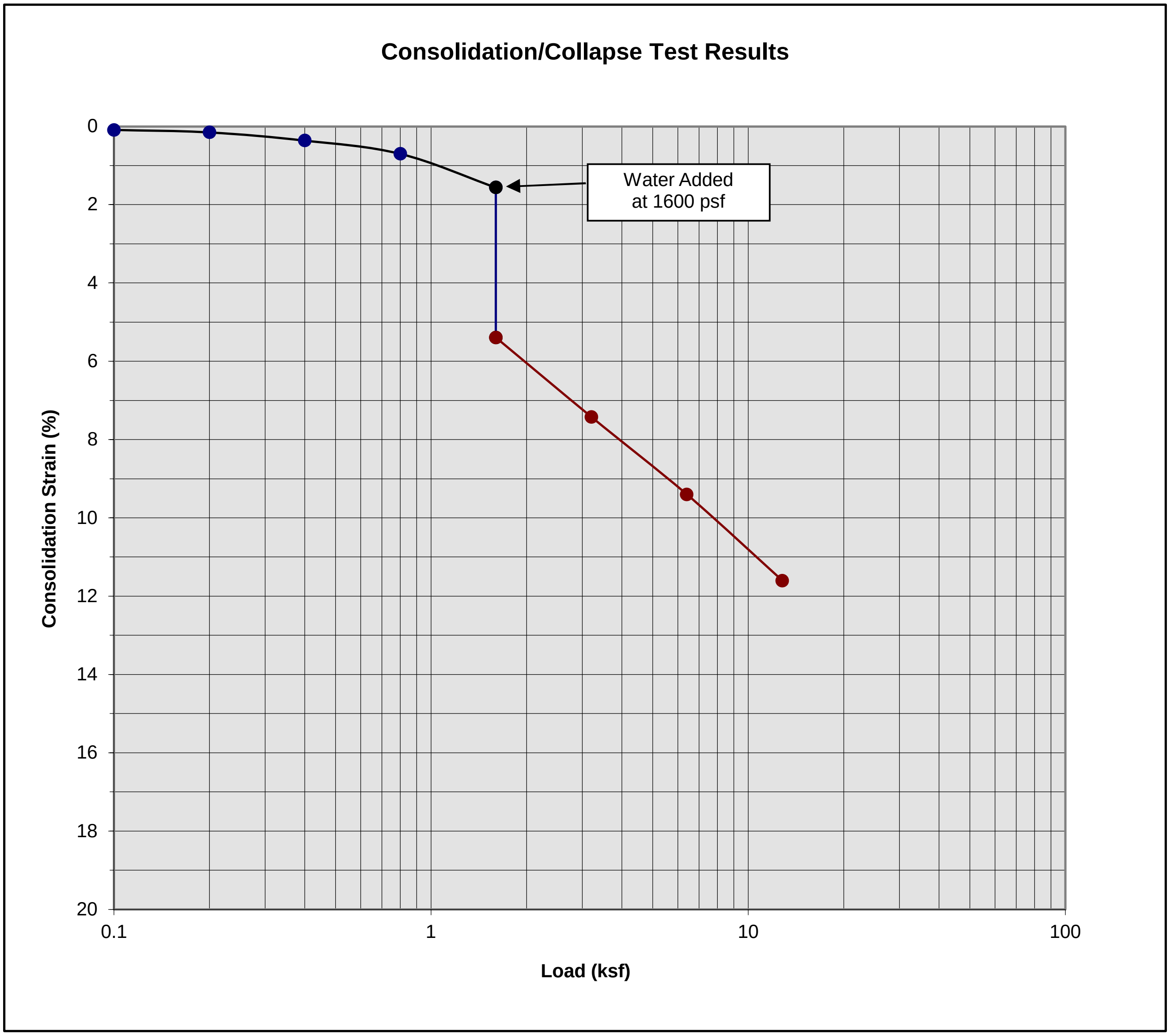


Classification: Light Gray Brown fine to coarse Sand, trace Silt, little fine to coarse Gravel

Boring Number:	B-9	Initial Moisture Content (%)	3
Sample Number:	---	Final Moisture Content (%)	14
Depth (ft)	18 to 19	Initial Dry Density (pcf)	112.9
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	118.6
Specimen Thickness (in)	1.0	Percent Collapse (%)	0.84

Proposed Commercial/Industrial Development
Calimesa, California
Project No. 20G122-2
PLATE C- 2

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

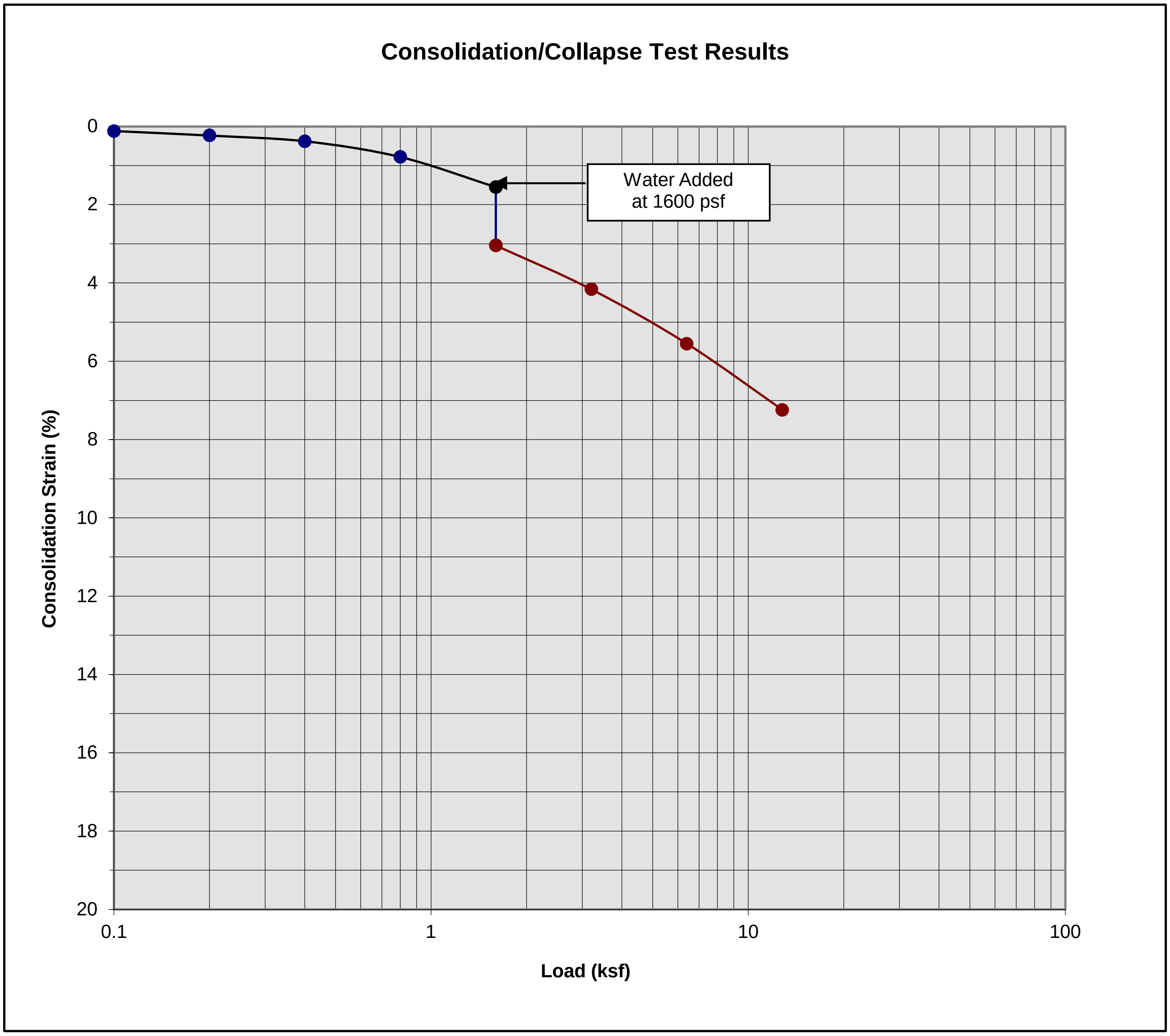


Classification: Brown Silty fine Sand, trace medium to coarse Sand

Boring Number:	B-9	Initial Moisture Content (%)	3
Sample Number:	---	Final Moisture Content (%)	18
Depth (ft)	20 to 21	Initial Dry Density (pcf)	96.1
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	108.9
Specimen Thickness (in)	1.0	Percent Collapse (%)	3.83

Proposed Commercial/Industrial Development
Calimesa, California
Project No. 20G122-2
PLATE C- 3

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

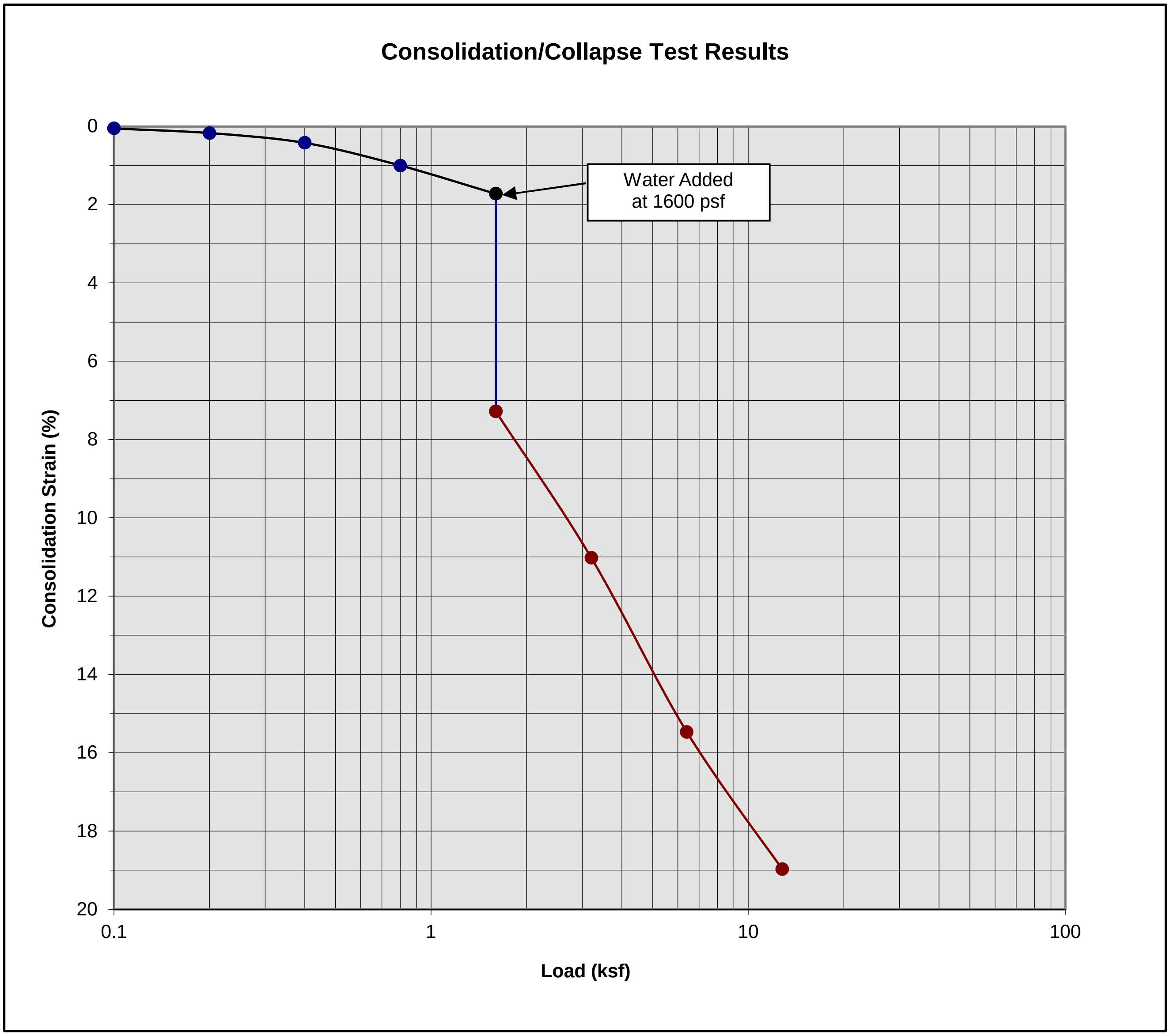


Classification: Light Gray Brown fine to coarse Sand, little fine Gravel

Boring Number:	B-9	Initial Moisture Content (%)	2
Sample Number:	---	Final Moisture Content (%)	15
Depth (ft)	22 to 23	Initial Dry Density (pcf)	106.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	113.5
Specimen Thickness (in)	1.0	Percent Collapse (%)	1.49

Proposed Commercial/Industrial Development
Calimesa, California
Project No. 20G122-2
PLATE C- 4

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation



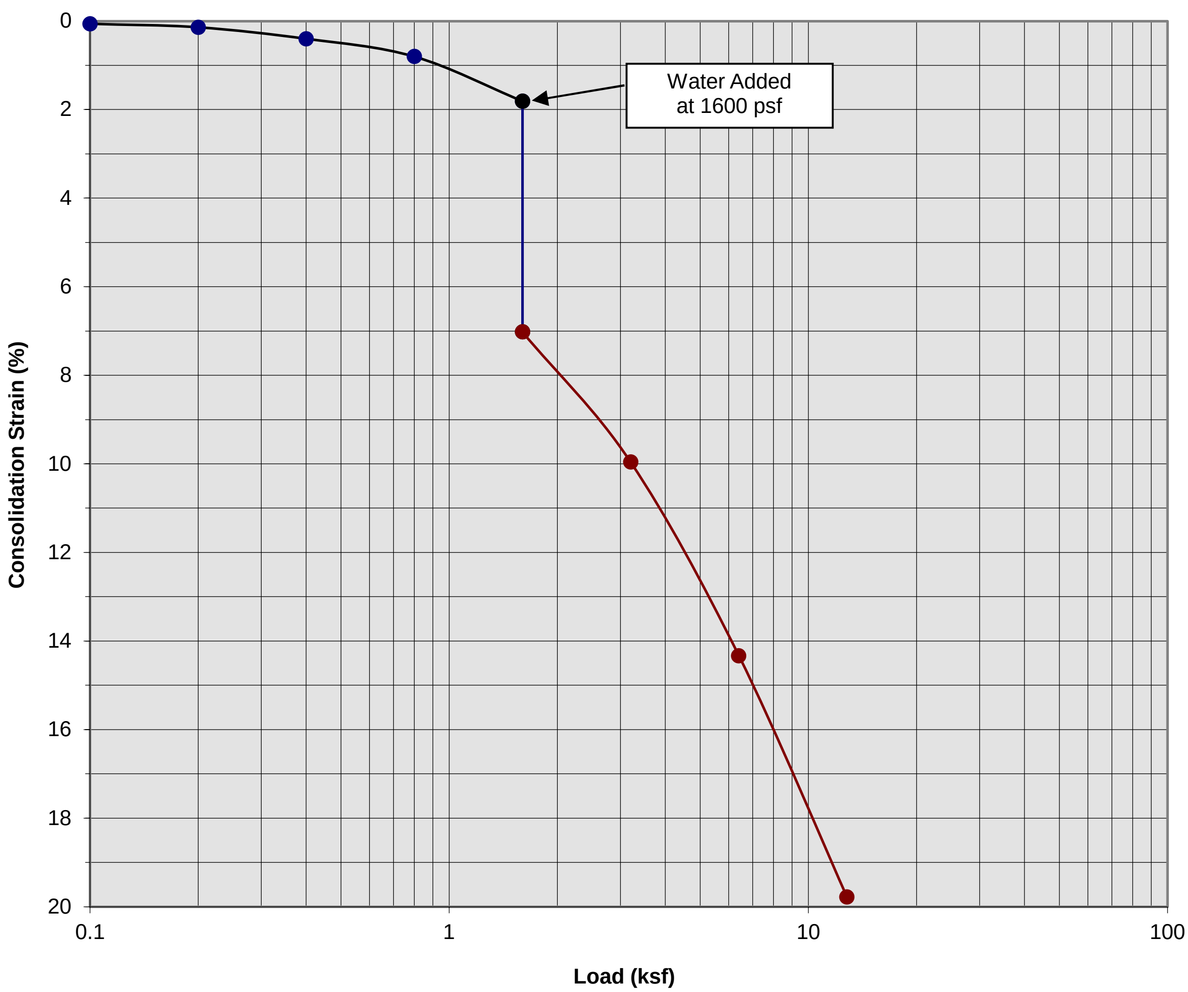
Classification: Brown Silty fine Sand to fine Sandy Silt, trace medium Sand

Boring Number:	B-11	Initial Moisture Content (%)	4
Sample Number:	---	Final Moisture Content (%)	25
Depth (ft)	3 to 4	Initial Dry Density (pcf)	85.6
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	103.1
Specimen Thickness (in)	1.0	Percent Collapse (%)	5.56

Proposed Commercial/Industrial Development
Calimesa, California
Project No. 20G122-2
PLATE C- 5

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Consolidation/Collapse Test Results

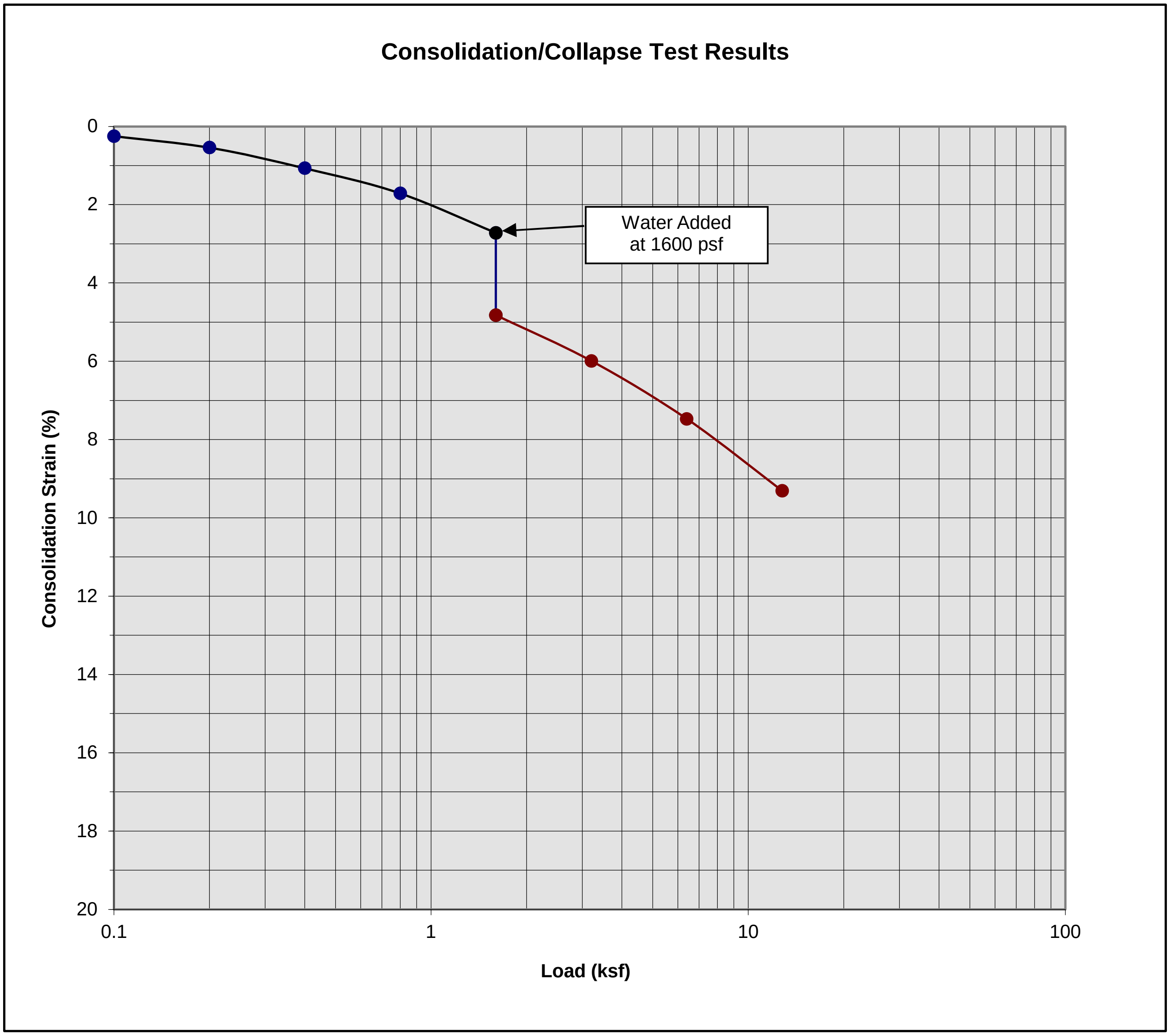


Classification: Brown Clayey Silt

Boring Number:	B-11	Initial Moisture Content (%)	6
Sample Number:	---	Final Moisture Content (%)	26
Depth (ft)	5 to 6	Initial Dry Density (pcf)	85.8
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	105.6
Specimen Thickness (in)	1.0	Percent Collapse (%)	5.21

Proposed Commercial/Industrial Development
Calimesa, California
Project No. 20G122-2
PLATE C- 6

SoCalGeo
SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

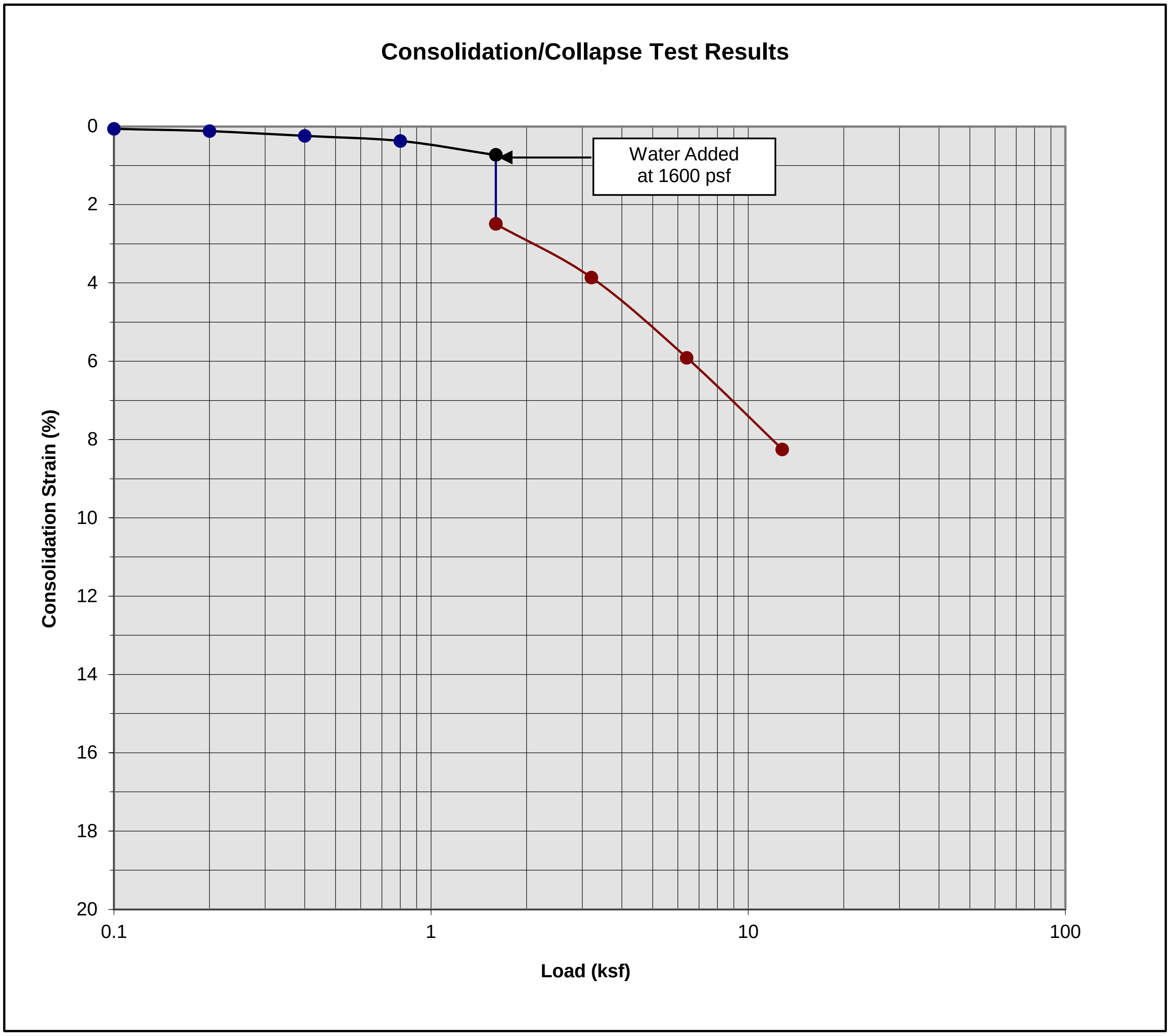


Classification: Gray Brown fine to medium Sand, trace Silt, trace coarse Sand

Boring Number:	B-11	Initial Moisture Content (%)	3
Sample Number:	---	Final Moisture Content (%)	10
Depth (ft)	7 to 8	Initial Dry Density (pcf)	94.2
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	111.8
Specimen Thickness (in)	1.0	Percent Collapse (%)	2.10

Proposed Commercial/Industrial Development
Calimesa, California
Project No. 20G122-2
PLATE C- 7

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation



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

Boring Number:	B-11	Initial Moisture Content (%)	5
Sample Number:	---	Final Moisture Content (%)	9
Depth (ft)	9 to 10	Initial Dry Density (pcf)	106.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	121.2
Specimen Thickness (in)	1.0	Percent Collapse (%)	1.76

Proposed Commercial/Industrial Development
Calimesa, California
Project No. 20G122-2
PLATE C- 8

SOUTHERN CALIFORNIA GEOTECHNICAL
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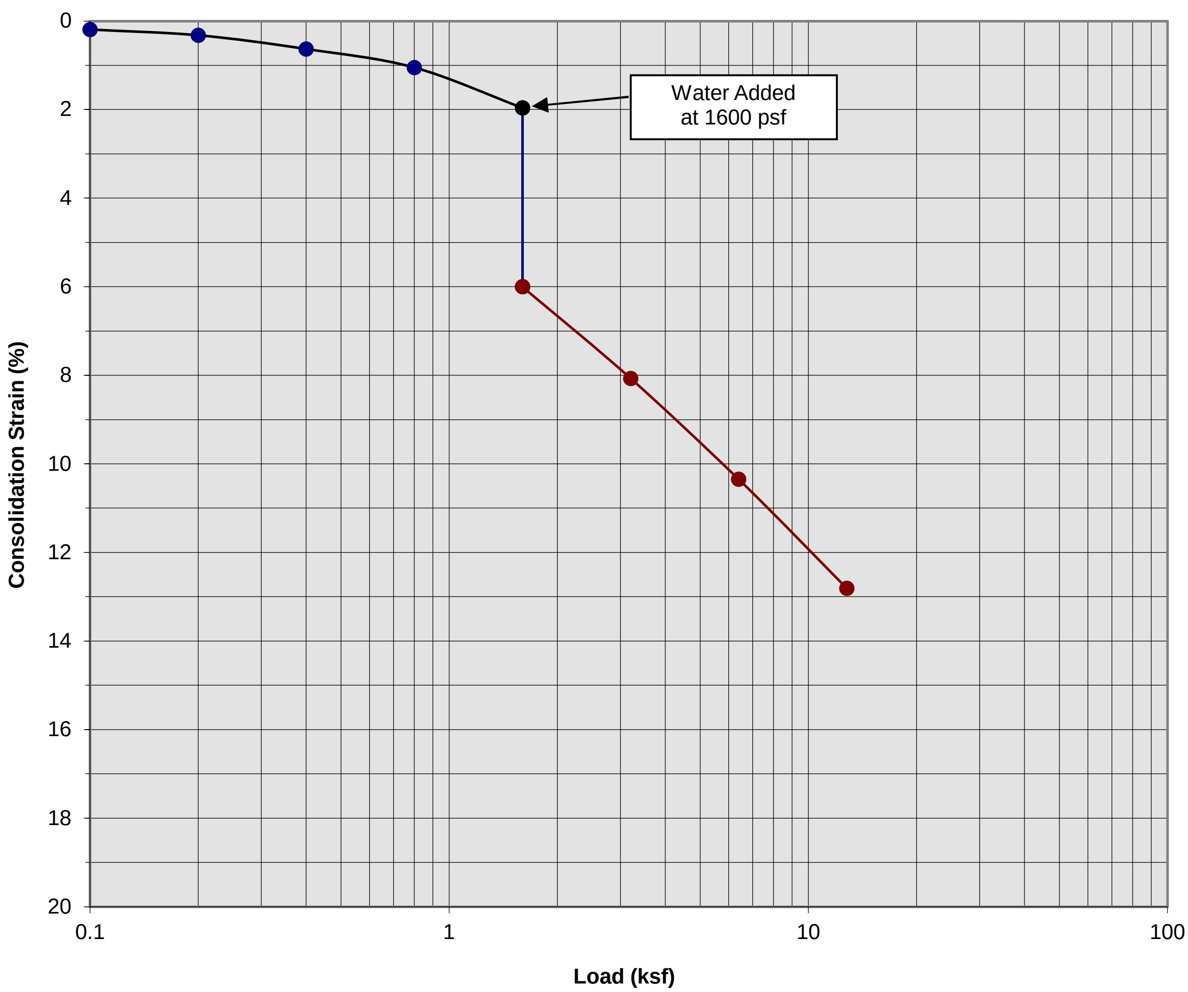
Consolidation/Collapse Test Results



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

Boring Number:	B-18	Initial Moisture Content (%)	7
Sample Number:	---	Final Moisture Content (%)	13
Depth (ft)	3 to 4	Initial Dry Density (pcf)	109.0
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	121.1
Specimen Thickness (in)	1.0	Percent Collapse (%)	4.04

Proposed Commercial/Industrial Development
Calimesa, California
Project No. 20G122-2
PLATE C- 9

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
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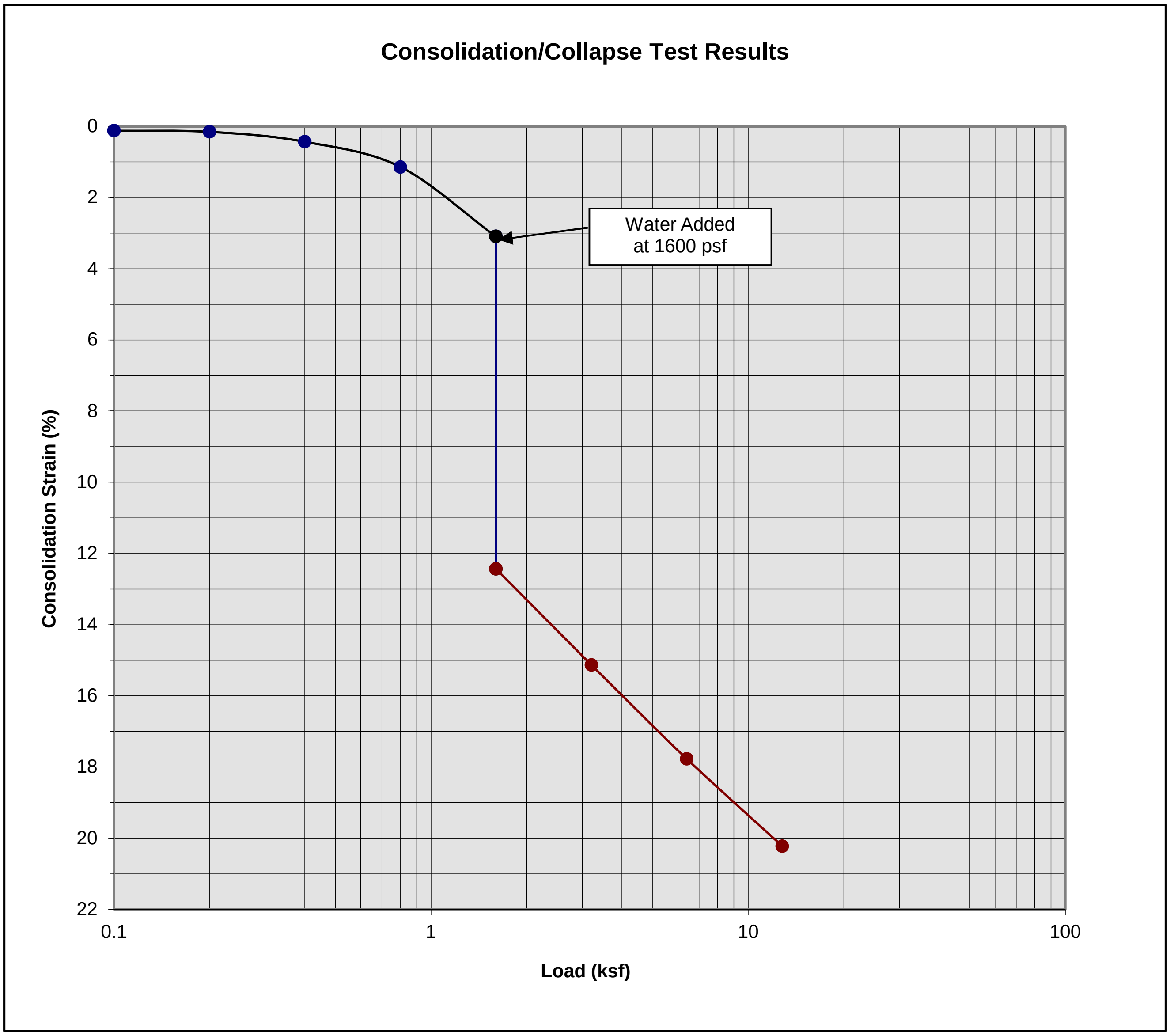


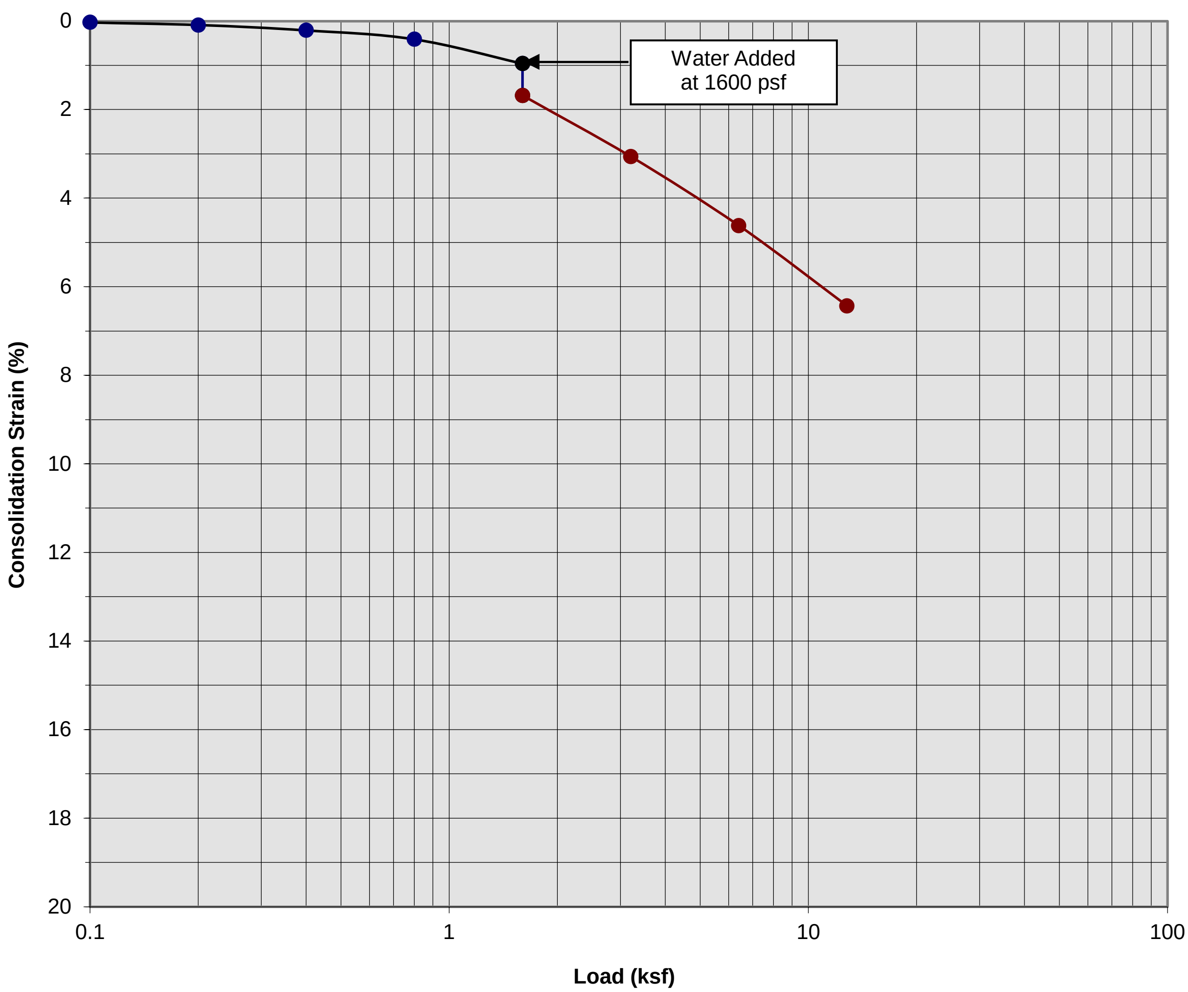
Classification: Brown fine Sandy Silt, little medium to coarse Sand, trace fine Gravel

Boring Number:	B-18	Initial Moisture Content (%)	8
Sample Number:	---	Final Moisture Content (%)	14
Depth (ft)	5 to 6	Initial Dry Density (pcf)	100.4
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	122.8
Specimen Thickness (in)	1.0	Percent Collapse (%)	9.34

Proposed Commercial/Industrial Development
Calimesa, California
Project No. 20G122-2
PLATE C- 10

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL A California Corporation

Consolidation/Collapse Test Results



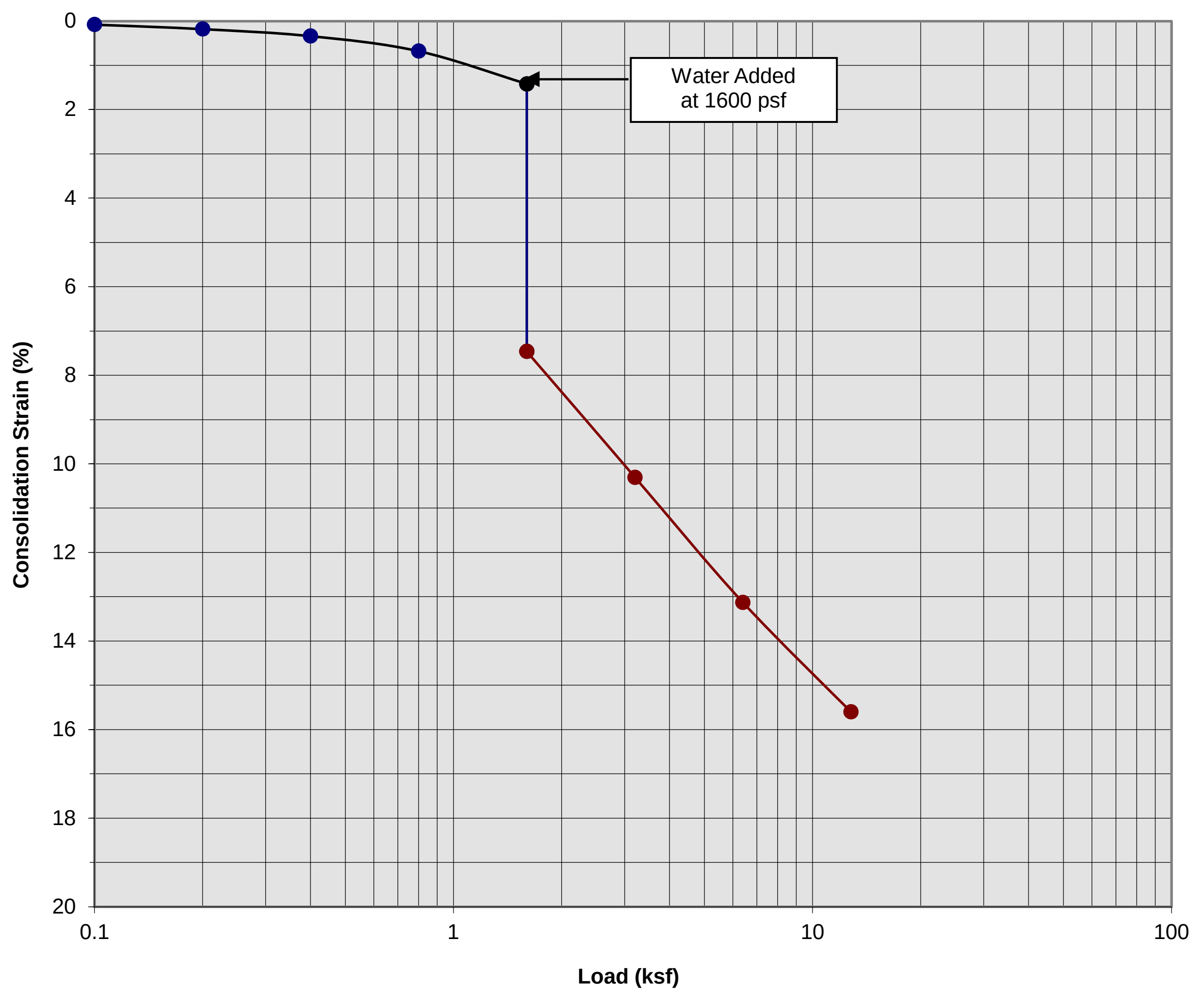
Classification: Brown fine Sandy Silt, trace medium to coarse Sand

Boring Number:	B-18	Initial Moisture Content (%)	9
Sample Number:	---	Final Moisture Content (%)	13
Depth (ft)	7 to 8	Initial Dry Density (pcf)	111.3
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	119.1
Specimen Thickness (in)	1.0	Percent Collapse (%)	0.72

Proposed Commercial/Industrial Development
Calimesa, California
Project No. 20G122-2
PLATE C- 11

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation

Consolidation/Collapse Test Results



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

Boring Number:	B-18	Initial Moisture Content (%)	8
Sample Number:	---	Final Moisture Content (%)	14
Depth (ft)	9 to 10	Initial Dry Density (pcf)	105.6
Specimen Diameter (in)	2.4	Final Dry Density (pcf)	123.1
Specimen Thickness (in)	1.0	Percent Collapse (%)	6.04

Proposed Commercial/Industrial Development
Calimesa, California
Project No. 20G122-2
PLATE C- 12

SOUTHERN CALIFORNIA GEOTECHNICAL
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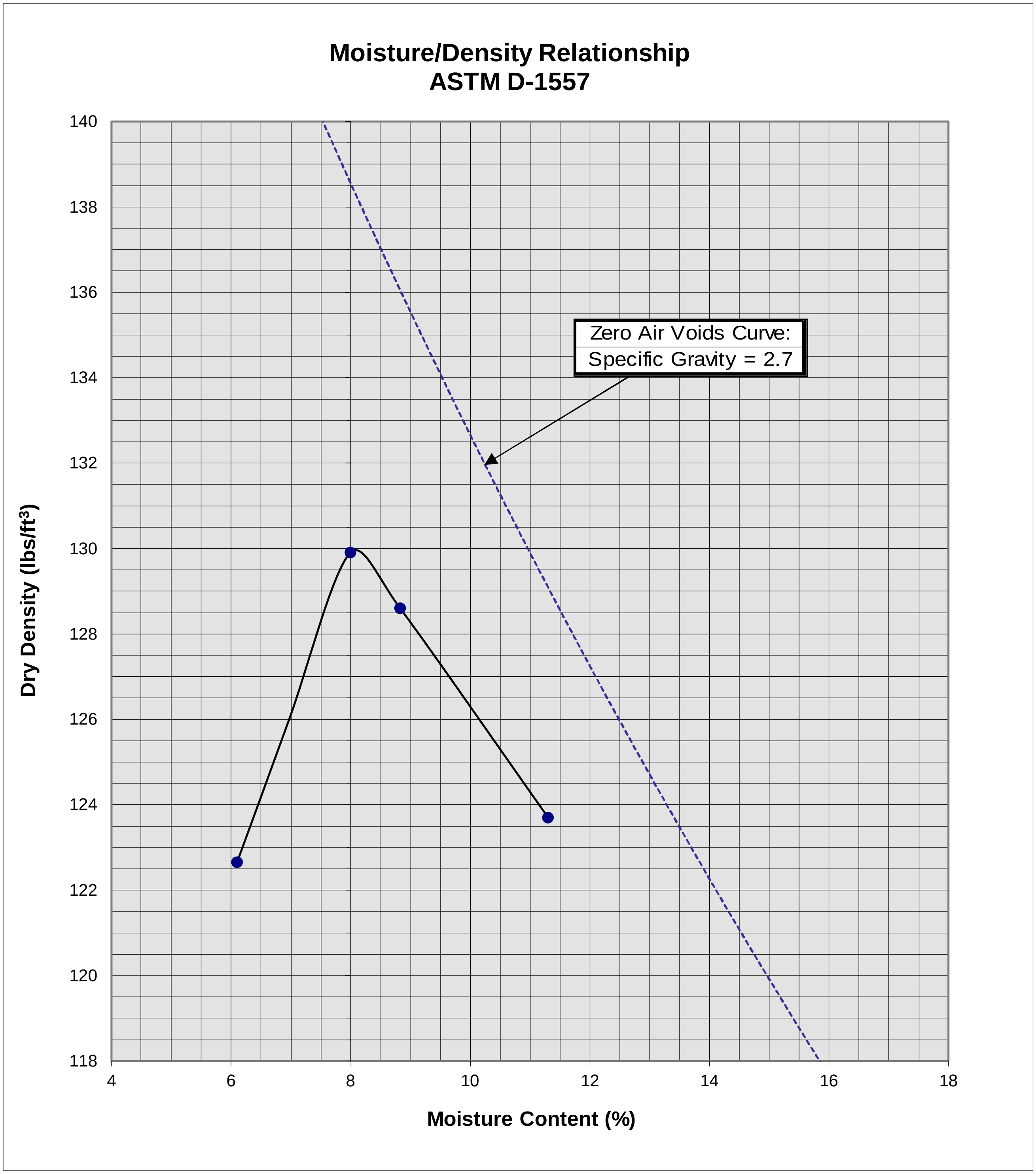
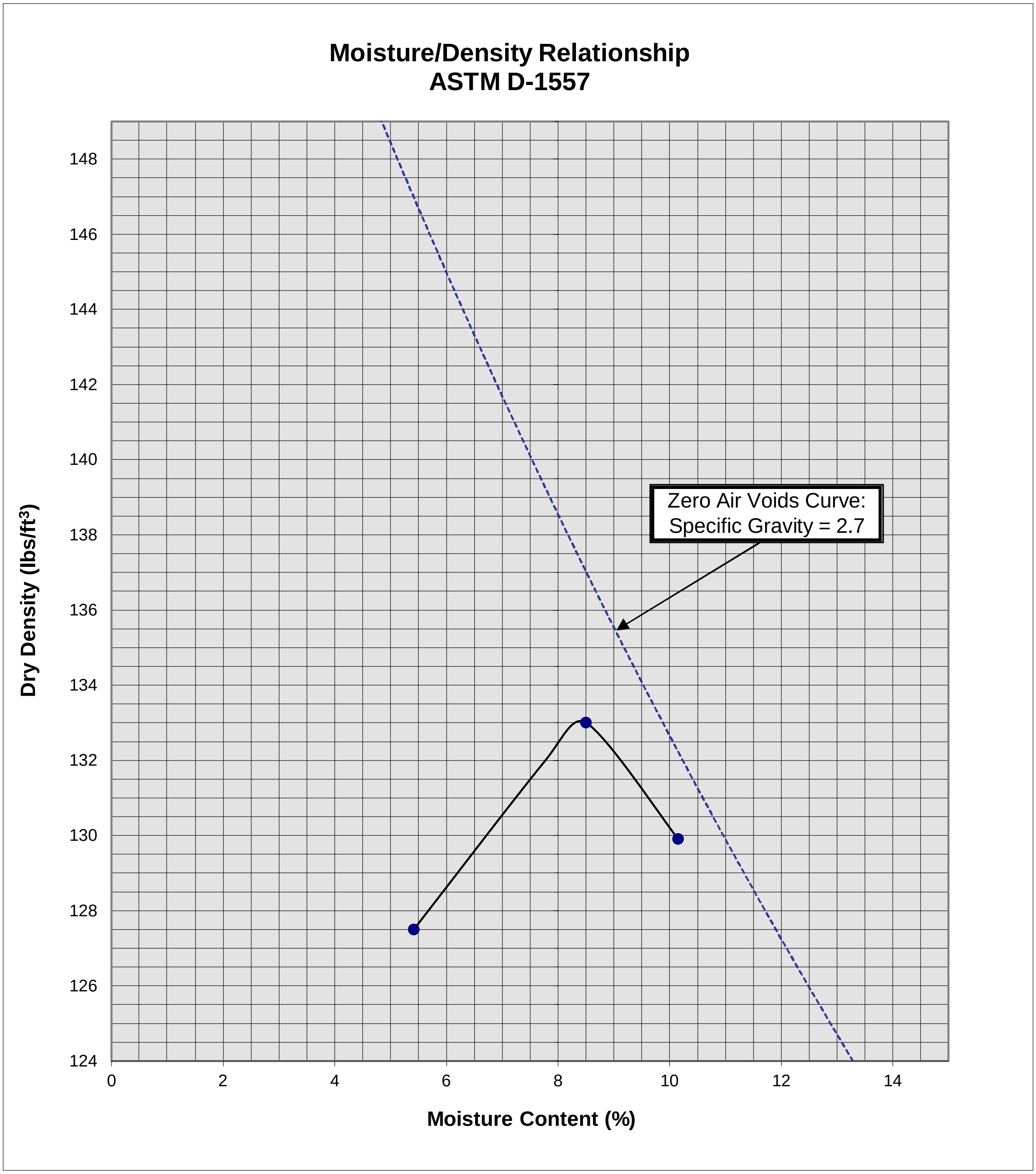


Soil ID Number	B-9 @ 0-5'
Optimum Moisture (%)	8
Maximum Dry Density (pcf)	130
Soil Classification	Brown Silty fine to medium Sand, little coarse Sand, trace fine Gravel

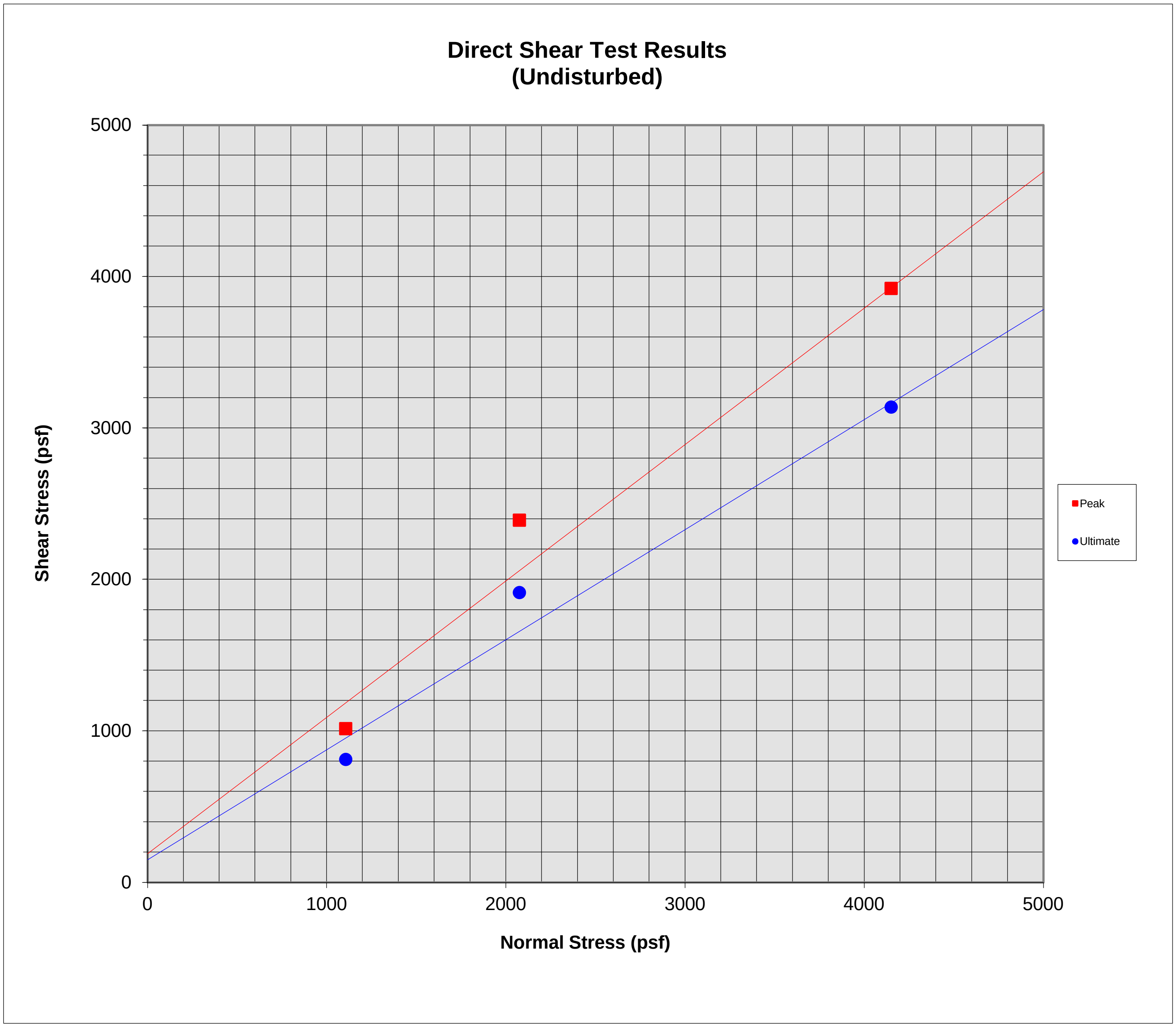
Proposed C/I Development
Calimesa, California
Project No. 20G122-2

PLATE C-13

SOUTHERN CALIFORNIA GEOTECHNICAL
A California Corporation



Soil ID Number		B-22 @ 0-5'
Optimum Moisture (%)		8.5
Maximum Dry Density (pcf)		133
Soil Classification	Light brown to Red Brown Silty fine Sand to fine Sandy Silt, trace to little med. to coarse Sand	



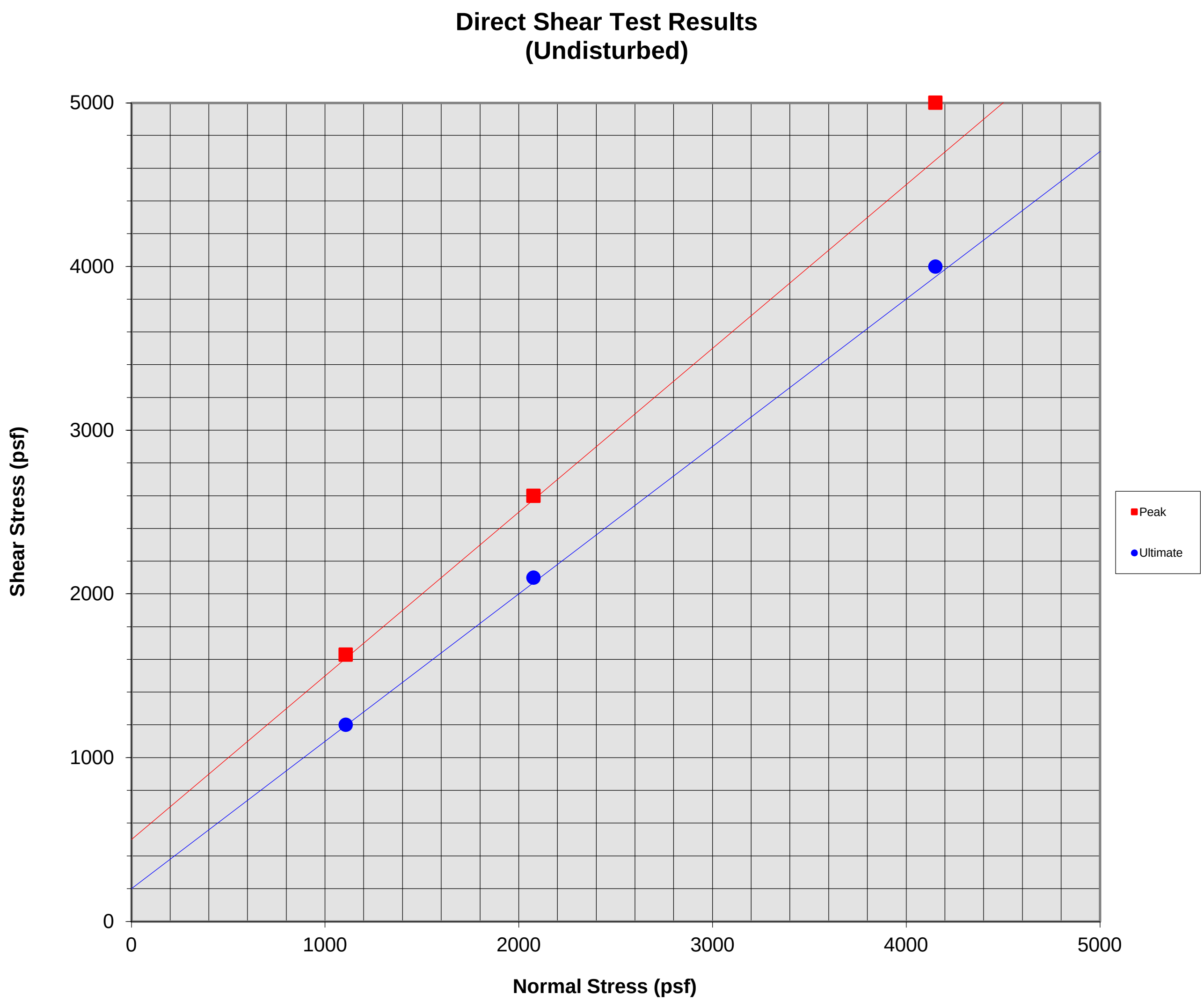
Sample Description: B-17 @ 19 to 20 feet

Classification: Brown fine to medium Sandy Silt, trace fine to coarse Gravel

Sample Data		Test Results	Peak	Ultimate
Initial Moisture Content	9.0			
Final Moisture Content	16.0		Peak	Ultimate
Initial Dry Density	103.0	ϕ (°)	42.0	36.0
Final Dry Density	---	C (psf)	190	150
Specimen Diameter (in)	2.4			
Specimen Thickness (in)	1.0			

Proposed Commercial/Industrial Development
Calimesa, CA
Project No. 20G122-2
PLATE C-15

SoCalGeo SOUTHERN CALIFORNIA GEOTECHNICAL A California Corporation



Sample Description: B-21 @ 24 to 25 feet

Classification: Red Brown fine Sandy Silt, little course Sand

Sample Data

Initial Moisture Content	14.0
Final Moisture Content	18.0
Initial Dry Density	119.0
Final Dry Density	---
Specimen Diameter (in)	2.4
Specimen Thickness (in)	1.0

Test Results

	Peak	Ultimate
ϕ (°)	45.0	42.0
C (psf)	500	200

Proposed Commercial/Industrial Development
Calimesa, CA
Project No. 20G122-2
PLATE C-16

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