

Geotechnical Investigation



GEOTECHNICAL INVESTIGATION
HECKER PASS RESIDENTIAL DEVELOPMENT
HECKER PASS ROAD AT PLUM STREET
GILROY, CALIFORNIA

for
Mana Handlei, LLC
October 13, 2023

BGG Project No. G369.01

Via E-Mail

October 13, 2023
BGG Project No. G368.01

Scott Murray
Mana Hanalei, LLC
5927 Balfour Court, Suite 208
Carlsbad, California 92008

Subject: **Geotechnical Investigation**
Hecker Pass Residential Development
Hecker Pass Road at Plum Street
Gilroy, California

Dear Mr. Murray:

Baez Geotechnical Group (BGG) has completed a geotechnical investigation for the design and construction of the subject project in Gilroy, California. The site is located on the south side of Hecker Pass Road, southeast of Burchell Road and Gilroy Golf Course. It is our understanding that the approximately 25-acre site will be developed with 113 single-family detached residences. Other improvements will include paved streets, sidewalks, bioretention areas, subsurface stormwater retention chambers, and possible site walls that may be partially retaining. The site is relatively flat, hence minor grading is anticipated.

PURPOSE AND SCOPE OF SERVICES

The purpose of our investigation was to evaluate the subject site with respect to soil, bedrock, and groundwater conditions, and to provide geotechnical recommendations for the design and construction of the proposed improvements. The scope of our services included a review of available geologic literature covering the site, field exploration, field percolation testing, laboratory testing, engineering analyses, and preparation of this report.

FIELD EXPLORATION, PERCOLATION TESTING, AND LABORATORY TESTING

FIELD EXPLORATION

Our field exploration was conducted on August 30, 2023, which consisted of drilling six borings and excavating six test pits in the locations shown on Plate 2, Site Plan. The borings were drilled to depths between 9 to 26 feet below the ground surface (bgs) using a truck-mounted drill rig equipped with hollow stem augers. Materials encountered in the borings were visually classified in the field and logs were recorded. Driven Standard Penetration Test (SPT) and Modified California split spoon tube soil samples were obtained for laboratory testing. Upon completion of drilling, the borings were backfilled with grout in accordance with local agency requirements. The boring logs, showing soil classifications and blow counts, are contained in Appendix A.

The test pits were excavated to depths between 5 to 7-feet bgs using a subcompact excavator equipped with a 2-feet-wide bucket. Materials encountered in the test pits were visually classified in the field and logs were recorded. Bulk soil samples were obtained for laboratory testing, and the test pits were backfilled loosely and track-walked upon completion. The test pit logs showing detailed descriptions of the materials encountered are contained in Appendix B.

FIELD PERCOLATION TESTING

Field percolation testing was performed during our field exploration on August 30, 2023 in the bottom of four borings (P1 to P4). Supplemental percolation testing was performed on October 3, 2023 in the bottom of seven additional borings (P5 to P11). Tests P1, P2, P5, P6, and P7 were performed in the western portion of the site and tests P3, P4, P8, P9, P10, and P11 were performed in the eastern portion of the site. The locations of the field percolation tests are shown on Plate 2, Site Plan. After drilling to the test depth at east location, an open-ended PVC pipe was placed in the borehole and approximately 2-inches of clean pea gravel was placed in the bottom of the hole. Water was poured into the bottom of the borehole to saturate the soil at depth. Subsequently, an approximately two-foot-tall column of water was poured into the test pipe and the testing began. The time elapsed for the water level to drop in the pipes was monitored until stabilized rates were observed and recorded. The following is a summary of the stabilized percolation rates recorded for the soils encountered at the specified depths in our percolation test locations.

SUMMARY OF FIELD PERCOLATION RATES – WEST

Test Location and Depth (below ground surface)		Soil Type at Test Depth	Infiltration Rate (inches/hour)
P1	12 feet	SM – Silty Sand with Gravel	5.8
P2	11 feet	SM – Silty Sand with Gravel	5.1
P5	12 feet	SM – Silty Sand with Gravel	7.9
P6	11.5 feet	SM – Silty Sand with Gravel	6.9
P7	9 feet	SM – Silty Sand with Gravel	6.4

SUMMARY OF FIELD PERCOLATION RATES – EAST

Test Location and Depth (below ground surface)		Soil Type at Test Depth	Infiltration Rate (inches/hour)
P3	10 feet	CL – Silty Clay with Sand	1.2
P4	9 feet	CL – Silty Clay with Sand	1.5
P8	12 feet	CL – Silty Clay with Sand	3.3
P9	11 feet	CL – Silty Clay with Sand	1.8
P10	11 feet	CL – Silty Clay with Sand	4.5
P11	10.5 feet	CL – Silty Clay with Sand	3.5

The project civil engineer or stormwater management system designer should determine the appropriate infiltration rate to be used for design purposes, based upon these test results. An appropriate safety factor should be applied to the field percolation rates.

LABORATORY TESTING

Laboratory testing was performed on selected samples obtained from our borings and test pits, including tests for sieve analysis, hydrometer, Atterberg Limits, consolidation/swell, direct shear, and R-Value. Some of the laboratory test results are summarized below and within the boring and test pit logs, and the complete test results are contained in Appendix C. The following is a summary of the R-Value test results.

LABORATORY TEST RESULTS – R-VALUE

Location and Depth	Soil Type	R-Value
TP3: 1-5 feet	SM – Silty Sand	23
TP5: 1-5 feet	CL – Silty Clay with Sand	<5

The following is a summary of the sieve, hydrometer, and Atterberg limits test results:

LABORATORY TESTS – SIEVE, HYDROMETER, ATTERBERG LIMITS

Location & Depth	% Gravel/Cobbles	% Sand	% Fines ⁽¹⁾	PI ⁽²⁾	LL ⁽³⁾
TP3: 1-5 feet	1	68	31	NV ⁽⁴⁾	NP ⁽⁵⁾
TP5: 1-5 feet	2	34	64	14	30

⁽¹⁾ % Fines = % Passing No. 200 sieve, percentage of silt and clay sized particles

⁽²⁾ PI – Plasticity Index, ⁽³⁾ LL – Liquid Limit, ⁽⁴⁾ NV – No Value, ⁽⁵⁾ NP – Not Plastic

The single-point consolidation/swell tests consisted of loading relatively undisturbed soil samples with an initial seating load approximately equivalent to the in-situ overburden pressure, then recording the amount of long-term consolidation/swell after adding a surcharge load of 1,500 psf or 2,500 psf and again after saturation.

LABORATORY TEST RESULTS – CONSOLIDATION/SWELL – 2,500 PSF

Location and Depth	Soil Type	Percent Moisture In-situ / Saturation	Consolidation or Swell ⁽⁶⁾	Consolidation or Swell ⁽⁷⁾
B1: 2.5-3.5 ft	SM/ML – Silty Sand to Sandy Silt	9.5% / 30%	-0.6%	-3.6%
B2: 3.5-4 ft	SM/SC – Silty Sand to Clayey Sand with Gravel	3.4% / 18%	-1.0%	-0.8%

LABORATORY TEST RESULTS – CONSOLIDATION/SWELL – 1,500 PSF

Location and Depth	Soil Type	Percent Moisture In-situ / Saturation	Consolidation or Swell ⁽⁶⁾	Consolidation or Swell ⁽⁷⁾
B4: 2.5-3 ft	CL – Sandy Clay with Silt	5.9% / 19%	-0.4%	-6.9% ⁽⁸⁾
B3: 3.5-4 ft	CL/ML – Sandy Clay to Sandy Silt	10.5% / 26%	-0.4%	-8.2% ⁽⁸⁾
B5: 3-3.5 ft	CL/ML – Sandy Clay to Sandy Silt	20.5% / 72%	-0.6%	-0.2%
B6: 4-4.5 ft	CL/ML – Sandy Clay to Sandy Silt	12.1% / 42%	-0.4%	-3.6%

⁽⁶⁾ Consolidation or swell percent after adding surcharge load

⁽⁷⁾ Additional consolidation or swell after saturation

⁽⁸⁾ Sample likely disturbed

The following are the results of the two-point Direct Shear test results:

LABORATORY TEST RESULTS – DIRECT SHEAR

Location	Soil Type	Friction Angle	Cohesion
B1: 3-3.5 feet	SM/ML – Silty Sand to Sandy Silt	27 degrees Peak and Residual	88 psf Peak 77 psf Residual
B4: 3-3.5 feet	CL/ML – Sandy Clay to Sandy Silt	27 degrees Peak and Residual	25 psf Peak 5 psf Residual

SOIL CORROSIVITY TESTING

Two soil samples obtained from the site, from depths of 1 to 5-feet bgs in test pits TP3 (West) and TP6 (East), were submitted to CERCO Analytical, a state-certified analytical laboratory, for corrosion testing. A full suite of soil corrosivity tests were performed, including tests for Redox, pH, Resistivity, Sulfide, Chloride and Sulfate. The corrosion test results and a brief evaluation are contained in Appendix D. The soil was found to be mildly to moderately corrosive to buried metals and not corrosive to concrete in contact with the ground. The corrosion test results should be forwarded to the civil and structural design engineers.

GEOTECHNICAL FINDINGS

SITE DESCRIPTION

The site is located along the margins of an alluvial valley within the Uvas Creek drainage. The nearly rectangular-shaped, elongated site fronts approximately 2,200-feet on the south side of Hecker Pass Road and is approximately bisected by Plum Street. The portion of the site east of Plum Street is about 300-feet-wide near Plum Street and widens to about 600-feet-wide on the eastern end. An existing ranch residence with several surrounding barns and outbuildings is located southeast of the intersection of Hecker Pass Road and Plum Street. The existing structures will be demolished for the proposed site development. The site is covered in weeds and grasses with a few medium to tall trees. The site is relatively flat with surface elevations varying between about 245-feet above mean sea level (MSL) at the northwest corner to about 237-feet MSL in the southeast corner.

Undeveloped land borders the site to the west and a commercial seed and flower cultivation facility borders the site to the east. An existing residential subdivision is located south of the site and Eagle Ridge Golf Club is located to the southeast.

SUBSURFACE CONDITIONS

According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey, the site is mantled by predominantly three different soil series: Garretson loam gravel substratum, Yolo Loam, and Zamora loam. These soils are classified in Hydrologic Group B and C with infiltration rates varying between 0.2 to 20 inches per hour (depending on the soil and depth). The following are the reported characteristics of these soils.

Soil Series	Soil Type	Percent Gravel	Percent Fines	Liquid Limit	Plasticity Index
Garretson loam	0-3 ft - CL/ML	5 to 20	50 to 65	25 to 35	5 to 15
	3-5 ft - GP	45 to 70	Zero to 5	Zero	Zero
Yolo loam	0-6 ft - CL	Zero	73 to 100	26 to 40	6 to 21
Zamora loam	0-5-ft – CL	0 to 5	61 to 87	27 to 45	9 to 25
	5-6 ft - SC	17 to 24	36 to 57	29 to 36	13 to 17

Note: Percent fines = amount of silt and clay sized particles.

The soil covering the site is colluvium and alluvium derived from bedrock uphill from the site and alluvium from bedrock sources upstream from the site that was transported during flooding of Uvas Creek. Hence, the soil and bedrock conditions vary across the site with flood deposits consisting of predominantly clay, silt, and fine-grained sand and riverine channel deposits of predominantly sand and gravel.

The following is a general summary of the subsurface soil and bedrock conditions encountered in our borings and test pits. More detailed descriptions of the subsurface conditions encountered at the site are contained in the boring and test pit logs in Appendix A and B, respectively.

Western Portion of the Site

In the upper 5 to 10 feet, generally consists of medium stiff, sandy silt with clay and gravel up to 2-inches in diameter. Dense sandy gravel to clayey gravel was encountered below the surficial soil. Approximately 1-foot of fill containing 1-foot-diameter cobbles was encountered in isolated locations.

Eastern Portion of the Site

In the upper 10 feet, generally consists of medium stiff to stiff, silty sandy clay and sandy clay with some 2-inch gravel. Hard clayey gravel was encountered below the surficial soil.

Bedrock

Temblor Sandstone was encountered at a depth of 36-feet bgs in the southwest corner of the site in boring B2. Temblor Sandstone was found in boring B6 in the northeast corner of the site at a depth of 14-feet bgs.

GROUNDWATER

According to the California Department of Water Resources (DWR) Water Data Library website, three groundwater monitoring wells are located within four to five miles from the site. Nearby monitoring wells were not reported in the DWR database.

Groundwater was encountered in our deepest boring B2 at a depth of 22-feet bgs. Numerous factors contribute to groundwater level fluctuations including precipitation, irrigation, and well pumping. A detailed evaluation of these and other factors, which may be responsible for groundwater fluctuations, was beyond the scope of this investigation.

RELEVANT GEOLOGIC HAZARDS

The site is located within a seismically active region and will experience seismic shaking from large, distant earthquakes. According to the ASCE 7 Hazard Tool website (utilizing ASCE7-16), the site modified peak ground acceleration is 0.73g. Alternately, the site modified peak ground acceleration utilizing ASCE7-22 is 0.70g. The site is not located within a seismic hazard zone mapped for earthquake faults by the California Geological Survey. Hence, the likelihood for surface fault rupture to occur at the site is nil.

Liquefaction is the temporary transformation of saturated, loose to medium dense, sandy and silty soils from a solid state to a liquid state due to strong ground shaking during a major earthquake. Groundwater was encountered at a depth of 22-feet bgs. It is our opinion that the potential for liquefaction induced differential ground settlement and/or lateral spreading to impact the proposed project is very low since the site is underlain by dense to very dense gravelly soil underlain by shallow bedrock that was encountered between 14-feet to 36-feet-deep. The potential for seismically induced dry ground settlement caused by the consolidation of sandy soils above the water table is also low due to the predominantly gravelly and clayey soils.

CONCLUSIONS AND RECOMMENDATIONS

GENERAL

We conclude, from a geotechnical engineering standpoint, that the proposed residential development can generally be constructed as planned, provided that the conclusions and recommendations contained in this report are incorporated into the project design and during construction. The predominant geotechnical considerations for this project, summarized below, are the varied subsurface soil conditions, the demolition of existing structures, and the presence of expansive clays. We recommend that the existing soil in the upper 1-foot be reworked as engineered fill in building and fill areas.

- The near surface soils vary from silty and sandy soil with gravel to expansive clay.
- Isolated pockets of fill, with cobbles in some areas, were encountered in the upper foot.
- Excavations from the demolition of the existing structures, septic systems, and underground utilities will need to be backfilled with engineered fill.
- The proposed single-family residences should be supported on Post-Tensioned slab foundations.

SITE PREPARATION AND GRADING

Our general site preparation and grading recommendations are as follows:

1. Existing grass, weeds, crops, trees, underground utilities, and structures should be removed. Excavations from the removal of tree roots, foundations, septic systems, and underground utility lines will need to be backfilled with properly compacted engineered fill.

2. The upper foot of the existing ground in building pad and fill areas should be reworked as engineered fill. This can be accomplished by scarifying the existing ground to a depth of 1-foot and compacting as prescribed below.
3. If zones of soft or loose soil are encountered during grading or soil processing operations, additional overexcavation of the loose soils may be required to expose deeper, firm soils. This should be determined in the field by the soils engineer.
4. Engineered fill soils should be compacted to 90 percent relative compaction at moisture contents not less than 3 percent over the optimum moisture.
5. Relative compaction refers to the in-place dry density of soil expressed as a percentage of its maximum dry density as determined by ASTM D1557 maximum density test procedure. Optimum moisture is the water content (percentage by dry weight) corresponding to the maximum dry density.
6. Fill should be properly moisture conditioned and placed in thin lifts (normally 6 to 8 inches, depending on the compaction equipment used) and compacted as prescribed above.
7. The onsite soils are generally suitable for engineered fill, provided they are free of debris, significant vegetation, rocks greater than 4 inches in largest dimension, and other deleterious matter. Debris, if encountered during grading, will need to be removed from the site.
8. Import fill, if required, should be subject to the evaluation of the soil engineer prior to its use. Import fill should have a Plasticity Index less than 12, contain no deleterious matter, and contain no rocks greater than 6 inches in largest dimension. Imported soil should be evaluated for potential environmental contamination prior to importing to the site.
9. Observation and soil density tests should be performed during site preparation and grading to assist the contractor in obtaining the required degree of compaction and proper moisture content. Where the compaction and moisture content are outside the range required, additional effort and adjustments to the moisture content should be made until the specified compaction and moisture conditioning is achieved.
10. The soil engineer should be notified at least 48 hours prior to the start of any grading operations. The procedure and methods of grading may then be discussed between the contractor and the soils engineer.

UTILITY TRENCH EXCAVATION AND BACKFILL

Excavations should conform to applicable State and Federal industrial safety requirements. Temporary trench sidewalls more than 4-feet deep may have to be laid back to 1H:1V or flatter to have stable sidewalls.

Materials quality, placement procedures, and compaction operations for utility line bedding and shading materials should meet local agency and/or other applicable agency requirements. Utility trench backfill above the shading materials may be comprised of the onsite soils, provided they are processed to remove gravel larger than 4-inches in largest dimension, rubbish, vegetation, and other undesirable substances. Backfill materials should be placed in level lifts about 8 to 10 inches in loose thickness, moisture conditioned, and mechanically compacted according to the requirements contained in the "Site Preparation and Grading" section.

CALIFORNIA BUILDING CODE (CBC) SEISMIC DESIGN PARAMETERS

The subject site is located at approximately 37.0111 degrees north latitude and -121.6178 degrees west longitude. The site is located in an alluvial valley; hence the structural engineer should utilize Site Class D – Stiff Soil for determining seismic response spectra parameters. According to the ASCE 7 Hazard Tool website (utilizing ASCE7-16), the site modified peak ground acceleration is 0.73g. Alternately, the site modified peak ground acceleration utilizing ASCE7-22 is 0.70g.

FOUNDATIONS

We recommend that the proposed residences be supported on Post-Tensioned (PT) Slab foundations designed with the following parameters. The design criteria contained in the third edition of the PTI design manual was utilized to develop the following PT slab design parameters.

PT SLAB DESIGN PARAMETERS

Allowable Bearing Capacity (may be increased by 1/3 for temporary seismic and wind loads, at the discretion of the structural engineer)	2,000 psf overall 2,500 psf isolated
Passive Equivalent Fluid Pressure (neglect the upper foot if the ground surface is not confined by slabs or pavement)	300 pcf
Base Friction Coefficient	0.30
<u>Edge Moisture Variation Distance</u> Center Lift Edge Lift	9.0 feet 4.9 feet
<u>Differential Swell</u> Center Lift Edge Lift	0.90 inches 1.40 inches

PT slab foundations can be constructed directly on properly prepared subgrade soils. The upper foot of the building pad subgrades should be presoaked to at least 4% over the optimum moisture content and the subgrade soils should not be permitted to dry out before placement of the vapor retarder. Where moisture vapor through the slabs would be objectionable, the use of a vapor retarder should be considered. From a geotechnical standpoint, we do not require a sand layer above the vapor retarder. Compacted subgrade soils may become disturbed during utility trench excavation and backfilling. Disturbed soils should be uniformly moisture conditioned and recompacted prior to concrete placement.

DRILLED REINFORCED CONCRETE PIERS

Allowable Skin Friction Vertically Down, Ignore the upper foot	400 psf
Allowable Skin Friction Vertically Up, Ignore the upper foot	250 psf
Allowable Lateral Passive Resistance, equivalent fluid pressure Acting on 1.5 pier diameters, Ignore the upper 2-feet	300 pcf
Minimum Pier/Pile Diameter	12 inches

After drilling, the drilled pier holes should be cleaned to remove loose soil, gravel, cobbles, and slough prior to the placement of reinforcing steel and concrete.

EXTERIOR FLATWORK SUGGESTIONS

We suggest that exterior concrete flatwork, such as sidewalks, walkways, and patios, be at least 5-inches-thick and reinforced with reinforcing bars. Driveways should be at least 6-inches-thick and reinforced. Where possible, flatwork should be doweled to adjacent flatwork and driveways to reduce the potential for differential vertical movement caused by the shrinking and swelling of expansive soils. Flatwork can be constructed directly on properly prepared subgrade soil that has been presoaked to at least 3% over the optimum moisture content, compacted, and rolled smooth. The subgrade soils should be maintained in a saturated condition and should not be permitted to dry out prior to concrete placement.

RETAINING WALLS

The following lateral pressures should be utilized in the design for retaining walls. The recommended lateral pressures assume drained conditions and that retaining walls will have drainage. Exterior retaining walls less than 2-feet-tall do not require drainage.

Active Equivalent Fluid Pressure (Level backfill and drained conditions)	40 pcf
At-Rest Equivalent Fluid Pressure (Level backfill and drained conditions)	60 pcf
Surcharge Load, where applicable	Designated by structural engineer

PAVEMENT RECOMMENDATIONS

We are providing recommendations for structural pavements that will be supported by the onsite soils. Our pavement analyses are based upon an R-Value of 5 using the Caltrans Design Method for Flexible Pavement for a 20-year design life. The following are our recommendations for Asphalt Concrete (AC) pavement sections along with their corresponding traffic indices (TI), which are indications of load frequency and intensity.

AC PAVEMENT SECTIONS

Traffic Index	AC (in)	Class 2 AB (in)	Total (in)
TI=4.5	3	8	11
TI=5	3	10	13
TI=6	3	14	17
TI=7	4	15	18

The upper foot of the subgrade soils in pavement areas should be compacted and rolled to provide a smooth and unyielding surface. Class 2 aggregate base (AB) should be compacted to at least 95 percent relative compaction in pavement areas.

ADDITIONAL SOIL ENGINEERING SERVICES

To a degree, the performance of the proposed project is dependent on the procedures and quality of the construction. Therefore, we should provide observation of the contractor's procedures and the exposed soil conditions, and field and laboratory testing during site clearing, mass grading, building pad preparation, placement and compaction of fill, underground utility and retaining wall backfilling, and foundation and pavement construction. These observations will allow us to check the contractor's work for conformance with the intent of our recommendations and to observe any unanticipated soil conditions that could require modification of our recommendations. In addition, we would welcome the opportunity to meet with the contractor prior to the start of earthwork operations to discuss the procedures and methods of construction. This can facilitate the performance of the construction operations and minimize possible misunderstandings and construction delays.

LIMITATIONS

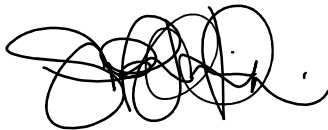
The conclusions and recommendations contained in this report are based upon the information provided to us regarding the proposed site improvements, subsurface conditions encountered in our field explorations, laboratory testing, and professional judgment. This study has been conducted in accordance with current professional geotechnical engineering standards; no other warranty is expressed or implied.

If changes are planned or implemented regarding the nature, design, and/or location of the proposed improvements, or if it is found during construction that subsurface conditions differ from those described in this report, then the conclusions and recommendations in this report shall be considered invalid, unless the changes are reviewed, and the conclusions and recommendations are modified or approved in writing.

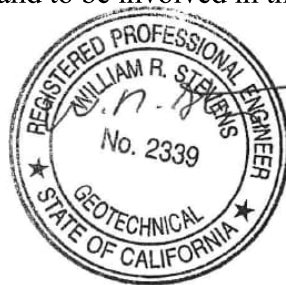
Should you have questions or need additional information, please contact us. We appreciate the opportunity to provide professional services to you and to be involved in the design of this project.

Respectfully Submitted,

BAEZ GEOTECHNICAL GROUP



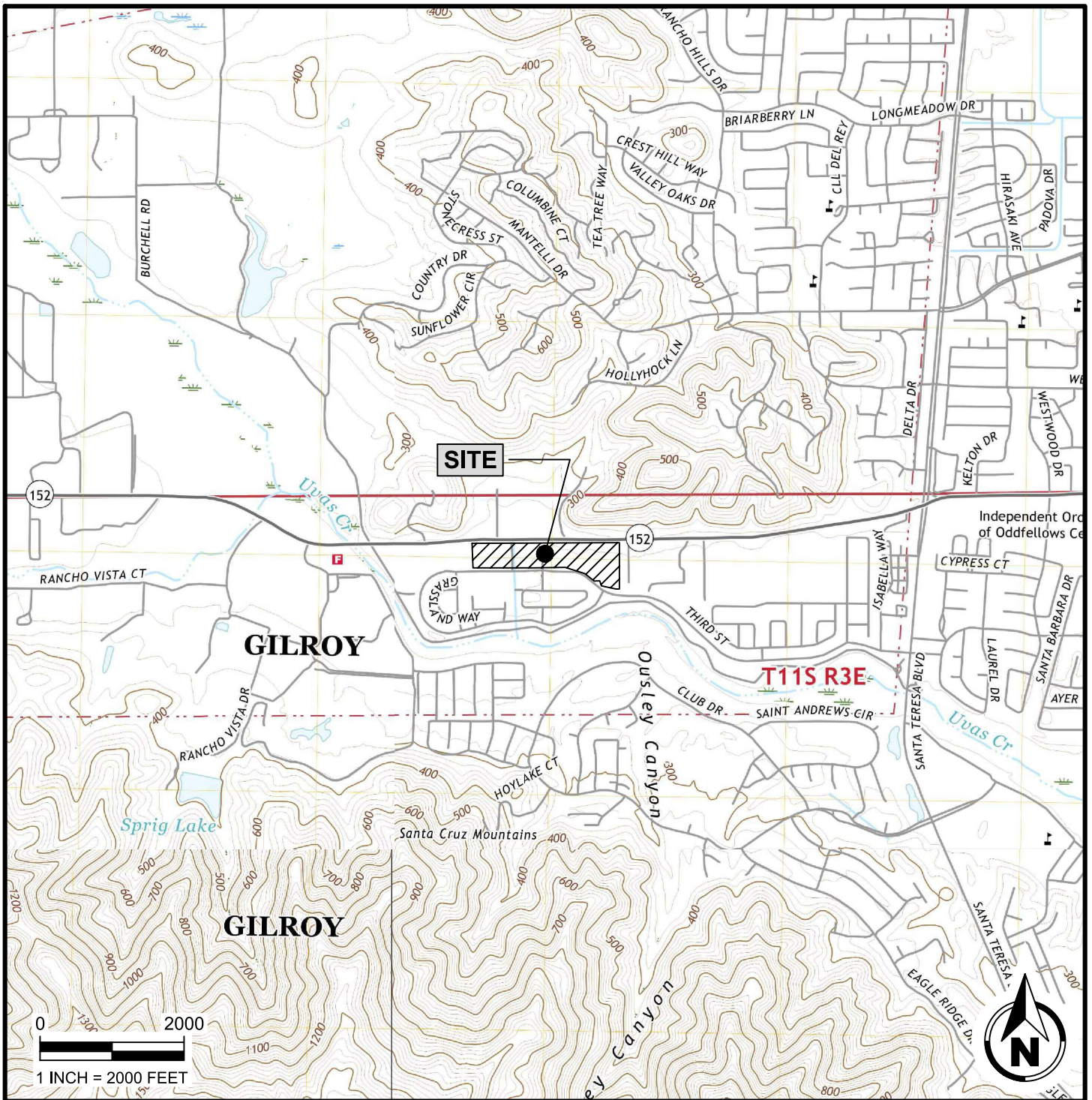
Stefanie Parman-Ribeiro
Project Engineer



William R. Stevens
Principal Engineer
GE 2339

Attachments:

- Plate 1 – Vicinity Map
- Plate 2 – Site Plan
- Appendix A – Boring Logs
- Appendix B – Test Pit Logs
- Appendix C – Laboratory Test Results, Geotechnical
- Appendix D – Corrosion Test Results



BASE: PORTIONS OF U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLES, GILROY, WATSONVILLE, MOUNT MADONNA, AND CHITTENDEN, CALIFORNIA, PHOTOREVISED 2021, AT A SCALE OF 1:24,000.

VICINITY MAP

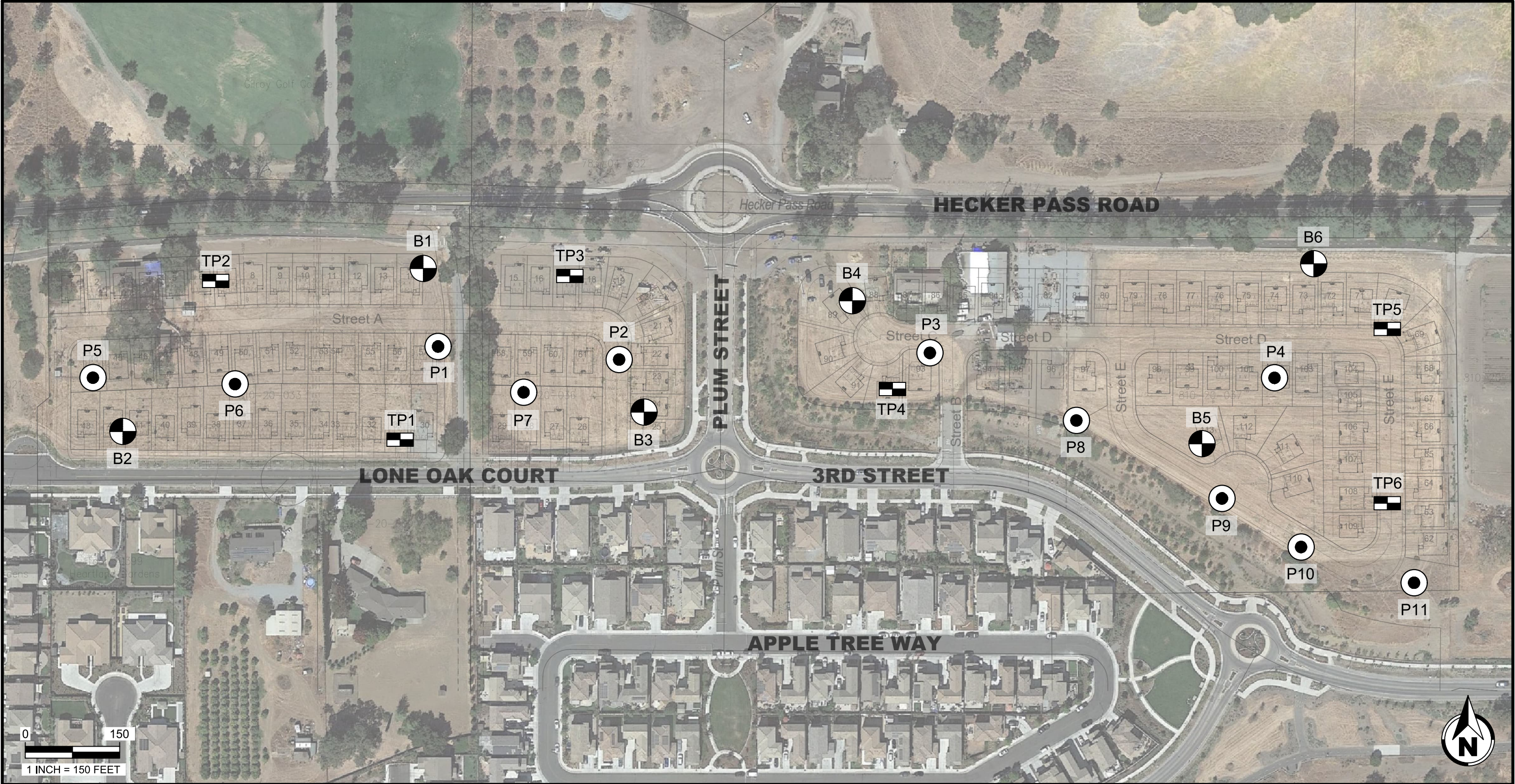
HECKER PASS RESIDENTIAL DEVELOPMENT

HECKER PASS ROAD AND PLUM STREET
GILROY, CALIFORNIA
FOR
MANA HANAIEI, INC

DRAWN BY: SPR

DATE: 10/6/2023

BGG NUMBER: G369.01



BASE: GOOGLE EARTH IMAGE 9/27/2021 & DRAWINGS FROM MH ENGINEERING CO. DETAILS.



- | EXPLANATION | |
|-------------|---|
| B6 |  APPROXIMATE BORING LOCATION |
| P11 |  APPROXIMATE PERCOLATION TEST LOCATION |
| TP6 |  APPROXIMATE TEST PIT LOCATION |

SITE PLAN

HECKER PASS RESIDENTIAL DEVELOPMENT

HECKER PASS ROAD AND PLUM STREET
GILROY, CALIFORNIA
FOR
MANA HANALEI, INC

APPENDIX A

Boring Logs

BORING NUMBER: B1

PAGE 1 OF 1

PROJECT NAME: Hecker Pass Residential Development
PROJECT NUMBER: G369.01
DATE DRILLED: 08/30/2023
DRILLING CONTRACTOR: Exploration Geoservices
DRILLING METHOD: Mobile Drill B61 with Hollow Stem Auger
LOGGED BY: KR
NOTES: Elevation from MH Engineering Topo Exhibit 7/27/23

PROJECT LOCATION: Hecker Pass Road at Plum Street, Gilroy
CLIENT: Mana Hanalei, LLC
GROUND ELEVATION: 243 feet above mean sea level (MSL)
GROUNDWATER ELEVATION: Not Encountered

SAMPLER TYPE:



Modified California
Sampler



Standard
Penetration Test

USCS	MATERIAL DESCRIPTION	ELEVATION (feet)	DEPTH (feet)	SAMPLER	BLOW COUNT (blows/foot)	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	PLASTICITY INDEX	FINES CONTENT % PASSING #200
SM/ ML	SILTY SAND to SANDY SILT, tan to medium brown with light brown mottling, dry to moist, medium dense to stiff, fine- to coarse-grained sand in upper foot, rootlets present (Sample consolidated 0.6% with a 2,500 psf load and an additional 3.6% upon saturation)	243	0						
					9	92	9.5		
		238	5						
	(ϕ = 27 degrees and c = 88 psf peak, 77 psf residual)				13	78	11.1		
SM	SILTY SAND with GRAVEL, tan to medium brown, moist, medium dense, fine- to coarse-grained sand, subrounded gravel up to 2-inch size				17				
		233	10						
	Bottom of Boring at 10 feet below the ground surface (bgs). Groundwater was not encountered.								
		228	15						
		223	20						

BORING NUMBER: B2

PAGE 1 OF 3

PROJECT NAME: Hecker Pass Residential Development
PROJECT NUMBER: G369.01
DATE DRILLED: 08/30/2023
DRILLING CONTRACTOR: Exploration Geoservices
DRILLING METHOD: Mobile Drill B61 with Hollow Stem Auger
LOGGED BY: KR
NOTES: Elevation from MH Engineering Topo Exhibit 7/27/23

PROJECT LOCATION: Hecker Pass Road at Plum Street, Gilroy
CLIENT: Mana Hanalei, LLC
GROUND ELEVATION: 244 feet MSL
GROUNDWATER ELEVATION: 222 feet MSL

SAMPLER TYPE:



Modified California
Sampler



Standard
Penetration Test

USCS	MATERIAL DESCRIPTION	ELEVATION (feet)	DEPTH (feet)	SAMPLER	BLOW COUNT (blows/foot)	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	PLASTICITY INDEX	FINES CONTENT % PASSING #200
SC/ CL	CLAYEY SAND with GRAVEL to SANDY CLAY with GRAVEL, tan to medium brown with light brown mottling, dry to slightly moist, medium dense to stiff, fine- to coarse-grained sand, subrounded gravel up to 2-inch size	244	0						
SM/ SC	SILTY SAND with GRAVEL to CLAYEY SAND with GRAVEL, tan to medium brown, moist, medium dense, fine- to coarse grained sand, subrounded gravel up to 2-inch size (Sample consolidated 1.0% with a 2,500 psf load and an additional 0.8% upon saturation)				17	115	3.4		
SM/ GP	SILTY SAND with GRAVEL to SANDY GRAVEL, tan to light brown, moist, dense to very dense, fine- to coarse-grained sand, subrounded gravel up to 2-inch size	239	5		40				
GP/ GC	SANDY GRAVEL with CLAY to CLAYEY GRAVEL with SAND, tan to light brown with medium brown mottling, moist, very dense, fine- to coarse-grained sand, subrounded gravel up to 2-inch size	234	10		52				
	at 15 feet, moist to very moist, medium dense to dense	229	15		28				
		224	20						

PAGE 2 OF 3

PROJECT NAME: Hecker Pass Residential Development

PROJECT NUMBER: G369.01

DATE DRILLED: 08/30/2023

DRILLING CONTRACTOR: Exploration Geoservices

DRILLING METHOD: Mobile Drill B61 with Hollow Stem Auger

LOGGED BY: KR

NOTES: Elevation from MH Engineering Topo Exhibit 7/27/23

PROJECT LOCATION: Hecker Pass Road at Plum Street, Gilroy

CLIENT: Mana Hanalei, LLC

GROUND ELEVATION: 244 feet MSL

GROUNDWATER ELEVATION: 222 feet MSL

SAMPLER TYPE:

 Standard Penetration Test

USCS	MATERIAL DESCRIPTION	ELEVATION (feet)	DEPTH (feet)	SAMPLER	BLOW COUNT (blows/foot)	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	PLASTICITY INDEX	FINES CONTENT % PASSING #200
GP/GC	SANDY GRAVEL with CLAY to CLAYEY GRAVEL with SAND, tan to light brown with medium brown mottling, moist, medium dense to dense, fine- to coarse-grained sand, subrounded gravel up to 2-inch size	224	20						
GP	SANDY GRAVEL, tan to medium brown, very moist to wet, very dense, fine- to coarse-grained sand, subrounded gravel up to 2-inch size	219	25						
		214	30						
		209	35						
SS	SANDSTONE, highly weathered, tan and orange-brown with gray and white mottling, slightly moist, very dense, fine- to medium-grained sand [Temblor Sandstone]								
		204	40						

BORING NUMBER: B2

PAGE 3 OF 3

PROJECT NAME: Hecker Pass Residential Development
PROJECT NUMBER: G369.01
DATE DRILLED: 08/30/2023
DRILLING CONTRACTOR: Exploration Geoservices
DRILLING METHOD: Mobile Drill B61 with Hollow Stem Auger
LOGGED BY: KR
NOTES: Elevation from MH Engineering Topo Exhibit 7/27/23

PROJECT LOCATION: Hecker Pass Road at Plum Street, Gilroy
CLIENT: Mana Hanalei, LLC
GROUND ELEVATION: 244 feet MSL
GROUNDWATER ELEVATION: 222 feet MSL

SAMPLER TYPE:

 Standard Penetration Test

USCS	MATERIAL DESCRIPTION	ELEVATION (feet)	DEPTH (feet)	SAMPLER	BLOW COUNT (blows/foot)	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	PLASTICITY INDEX	FINES CONTENT % PASSING #200
SS	SANDSTONE, highly weathered, tan and orange-brown with gray and white mottling, slightly moist, very dense, fine- to medium-grained sand	202	40						
SS	SANDSTONE, highly weathered, light tan with white mottling, slightly moist, very dense, fine- to coarse-grained sand				50/5"				
	Bottom of Boring at 43½ feet bgs. Groundwater encountered at 22 feet bgs.	197	45						
		192	50						
		187	55						
		182	60						

PAGE 1 OF 1

PROJECT NAME: <u>Hecker Pass Residential Development</u>	PROJECT LOCATION: <u>Hecker Pass Road at Plum Street, Gilroy</u>
PROJECT NUMBER: <u>G369.01</u>	CLIENT: <u>Mana Hanalei, LLC</u>
DATE DRILLED: <u>08/30/2023</u>	GROUND ELEVATION: <u>239 feet MSL</u>
DRILLING CONTRACTOR: <u>Exploration Geoservices</u>	GROUNDWATER ELEVATION: <u>Not Encountered</u>
DRILLING METHOD: <u>Mobile Drill B61 with Hollow Stem Auger</u>	SAMPLER TYPE:
LOGGED BY: <u>KR</u>	 Modified California Sampler
NOTES: <u>Elevation from MH Engineering Topo Exhibit 7/27/23</u>	 Standard Penetration Test

USCS	MATERIAL DESCRIPTION	ELEVATION (feet)	DEPTH (feet)	SAMPLER	BLOW COUNT (blows/foot)	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	PLASTICITY INDEX	FINES CONTENT % PASSING #200
CL/ ML	SANDY CLAY with SILT to SANDY SILT with CLAY, tan to medium brown with mottled dark brown, slightly moist to moist, stiff, fine- to coarse-grained sand rootlets present (Sample consolidated 0.4% with a 1,500 psf load and an additional 8.2% upon saturation, sample likely disturbed)	239	0						
					12	80	10.5		
SM	SILTY SAND, tan to medium brown with orange mottling, moist, medium dense, fine- to coarse-grained sand	234	5						
					15				
SM/ GP	SILTY SAND with GRAVEL to SANDY GRAVEL, tan with gray mottling, moist, medium dense, fine- to coarse grained sand, subrounded gravel up to 2-inch size				18				
		229	10						
	Bottom of Boring at 10 feet bgs. Groundwater was not encountered.								
		224	15						
		219	20						

BORING NUMBER: B4

PAGE 1 OF 1

PROJECT NAME: Hecker Pass Residential Development
PROJECT NUMBER: G369.01
DATE DRILLED: 08/30/2023
DRILLING CONTRACTOR: Exploration Geoservices
DRILLING METHOD: Mobile Drill B61 with Hollow Stem Auger
LOGGED BY: KR
NOTES: Elevation from MH Engineering Topo Exhibit 7/27/23

PROJECT LOCATION: Hecker Pass Road at Plum Street, Gilroy
CLIENT: Mana Hanalei, LLC
GROUND ELEVATION: 239 feet MSL
GROUNDWATER ELEVATION: Not Encountered

SAMPLER TYPE:



Modified California
Sampler



Standard
Penetration Test

USCS	MATERIAL DESCRIPTION	ELEVATION (feet)	DEPTH (feet)	SAMPLER	BLOW COUNT (blows/foot)	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	PLASTICITY INDEX	FINES CONTENT % PASSING #200
CL	SANDY CLAY with SILT, medium to dark brown, slightly moist to moist, stiff, fine- to coarse-grained sand below 2-feet moist (Sample consolidated 0.4% with a 1,500 psf load and an additional 6.9% upon saturation, sample likely disturbed) (ϕ = 27 degrees and c = 25 psf peak, 5 psf residual)	239	0						
					10	92	5.9		
					98	98	11.9		
		234	5		9				
CL	SILTY CLAY with SAND, medium to dark brown with gray and orange mottling, very moist, medium stiff				7				
	Bottom of Boring at 9 feet bgs. Groundwater was not encountered.	229	10						
		224	15						
		219	20						

BORING NUMBER: B5

PAGE 1 OF 1

PROJECT NAME: Hecker Pass Residential Development
PROJECT NUMBER: G369.01
DATE DRILLED: 08/30/2023
DRILLING CONTRACTOR: Exploration Geoservices
DRILLING METHOD: Mobile Drill B61 with Hollow Stem Auger
LOGGED BY: KR
NOTES: Elevation from MH Engineering Topo Exhibit 7/27/23

PROJECT LOCATION: Hecker Pass Road at Plum Street, Gilroy
CLIENT: Mana Hanalei, LLC
GROUND ELEVATION: 239 feet MSL
GROUNDWATER ELEVATION: Not Encountered

SAMPLER TYPE:



Modified California
Sampler



Standard
Penetration Test

USCS	MATERIAL DESCRIPTION	ELEVATION (feet)	DEPTH (feet)	SAMPLER	BLOW COUNT (blows/foot)	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	PLASTICITY INDEX	FINES CONTENT % PASSING #200
CL	SANDY CLAY with SILT, medium to dark brown, slightly moist to moist, stiff, fine- to coarse-grained sand below 2-feet moist (Sample consolidated 0.6% with a 1,500 psf load and an additional 0.2% upon saturation)	239	0						
					10	95	20.5		
CL	SILTY CLAY with SAND, medium to dark brown with gray and orange mottling, stiff, very moist	234	5		14				
					11				
		229	10						
	Bottom of Boring at 10 feet bgs. Groundwater was not encountered.								
		224	15						
		219	20						

BORING NUMBER: B6

PAGE 1 OF 2

PROJECT NAME: Hecker Pass Residential Development
PROJECT NUMBER: G369.01
DATE DRILLED: 08/30/2023
DRILLING CONTRACTOR: Exploration Geoservices
DRILLING METHOD: Mobile Drill B61 with Hollow Stem Auger
LOGGED BY: KR
NOTES: Elevation from MH Engineering Topo Exhibit 7/27/23

PROJECT LOCATION: Hecker Pass Road at Plum Street, Gilroy
CLIENT: Mana Hanalei, LLC
GROUND ELEVATION: 245 feet MSL
GROUNDWATER ELEVATION: Not encountered

SAMPLER TYPE:



Modified California
Sampler



Standard
Penetration Test

USCS	MATERIAL DESCRIPTION	ELEVATION (feet)	DEPTH (feet)	SAMPLER	BLOW COUNT (blows/foot)	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	PLASTICITY INDEX	FINES CONTENT % PASSING #200
CL	SILTY SANDY CLAY with GRAVEL, dark brown with white mottling, slightly moist to moist, stiff to hard, fine- to coarse-grained sand, subrounded gravel 2-inch size (Sample consolidated 0.4% with a 1,500 psf load and an additional 3.6% upon saturation)	245	0						
					17				
		240	5		40	95	12.1		
GC	CLAYEY GRAVEL, medium to dark brown, slightly moist, hard, subrounded gravel up to 2-inch size	235	10		50/2"				
SS	SANDSTONE, highly weathered, mottled tan and gray, slightly moist, very dense, fine- to medium-grained sand [Temblor Sandstone]	230	15		50/3"				
		225	20						

BORING NUMBER: B6

PAGE 2 OF 2

PROJECT NAME: Hecker Pass Residential Development
PROJECT NUMBER: G369.01
DATE DRILLED: 08/30/2023
DRILLING CONTRACTOR: Exploration Geoservices
DRILLING METHOD: Mobile Drill B61 with Hollow Stem Auger
LOGGED BY: KR
NOTES: Elevation from MH Engineering Topo Exhibit 7/27/23

PROJECT LOCATION: Hecker Pass Road at Plum Street, Gilroy
CLIENT: Mana Hanalei, LLC
GROUND ELEVATION: 245 feet MSL
GROUNDWATER ELEVATION: Not encountered

SAMPLER TYPE:

 Standard
Penetration Test

USCS	MATERIAL DESCRIPTION	ELEVATION (feet)	DEPTH (feet)	SAMPLER	BLOW COUNT (blows/foot)	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	PLASTICITY INDEX	FINES CONTENT % PASSING #200
SS	SANDSTONE, highly weathered, mottled tan and gray, slightly moist, very dense, fine- to medium-grained sand	225	20						
	below 20 feet, odor present								
SS	SANDSTONE, highly weathered, gray and silver, slightly moist, very dense, fine- to medium-grained sand	220	25		50/6"				
	Bottom of Boring at 25½ feet bgs. Groundwater was not encountered.								
		215	30						
		210	35						
		205	40						

APPENDIX B

Test Pit Logs

PAGE 1 OF 1

PROJECT NAME: Hecker Pass Residential Development

PROJECT NUMBER: G369.01

DATE EXCAVATED: 08/30/2023

EXCAVATION CONTRACTOR: Lion River Construction

EXCAVATION METHOD: CAT 303.5E2

LOGGED BY: KR

NOTES: Elevation from MH Engineering Topo Exhibit 7/27/23

PROJECT LOCATION: Hecker Pass Road at Plum Street, Gilroy

CLIENT: Mana Hanalei, LLC

GROUND ELEVATION: 242 feet above mean sea level (MSL)

GROUNDWATER: Groundwater not encountered

SAMPLER TYPE:

	Bulk Sample		Modified California Sampler
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USCS	MATERIAL DESCRIPTION	ELEVATION (feet)	DEPTH (feet)	SAMPLER	BLOW COUNT (blows/foot)	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	PLASTICITY INDEX	FINES CONTENT % PASSING #200
SC/ CL	CLAYEY SAND with GRAVEL to SANDY CLAY with GRAVEL, medium brown with mottled light brown, medium dense to stiff, slightly moist, with cobbles up to 12-inch size [FILL]	242	0						
SC/ CL	CLAYEY SAND with GRAVEL to SANDY CLAY with GRAVEL, tan to medium brown, medium dense to stiff, slightly moist, rounded gravel up to 1 to 2-inch size								
SM	SILTY SAND with GRAVEL, tan to medium brown, moist, medium dense, fine- to coarse grained sand, rounded gravel and cobbles up to 4-inch size	237	5						
	Bottom of Test Pit at 5 feet below the ground surface (bgs). Groundwater was not encountered.								
		232	10						
		227	15						

TEST PIT NUMBER: TP2

PAGE 1 OF 1

PROJECT NAME: Hecker Pass Residential

PROJECT LOCATION: Hecker Pass Road at Plum Street, Gilroy

PROJECT NUMBER: G369.01

CLIENT: Mana Hanalei, LLC

DATE EXCAVATED: 08/30/2023

GROUND ELEVATION: 244 feet MSL

EXCAVATION CONTRACTOR: Lion River Construction

GROUNDWATER: Groundwater not encountered

EXCAVATION METHOD: CAT 303.5E2

SAMPLER TYPE:

LOGGED BY: KR



Bulk Sample



Modified California Sampler

NOTES: Elevation from MH Engineering Topo Exhibit 7/27/23

USCS	MATERIAL DESCRIPTION	ELEVATION (feet)	DEPTH (feet)	SAMPLER	BLOW COUNT (blows/foot)	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	PLASTICITY INDEX	FINES CONTENT % PASSING #200
SC/ GC	CLAYEY SAND with GRAVEL to CLAYEY GRAVEL with SAND, tan to medium brown with light brown mottling, medium dense to stiff, slightly moist, rounded gravel up to 2-inch size [FILL?]	244	0						
SC/ CL	CLAYEY SAND with GRAVEL to SANDY CLAY with GRAVEL, tan to medium brown, medium dense to stiff, moist, rounded gravel up to 2-inch size								
SM/ GP	SILTY SAND with GRAVEL to SANDY GRAVEL, tan to medium brown, moist, medium dense, fine- to coarse-grained sand, rounded gravel and cobbles up to 4-inch size	239	5						
	Bottom of Test Pit at 7 feet bgs. Groundwater was not encountered.	234	10						
		229	15						

TEST PIT NUMBER: TP3

PAGE 1 OF 1

PROJECT NAME: Hecker Pass Residential
PROJECT NUMBER: G369.01
DATE EXCAVATED: 08/30/2023
EXCAVATION CONTRACTOR: Lion River Construction
EXCAVATION METHOD: CAT 303.5E2
LOGGED BY: KR
NOTES: Elevation from MH Engineering Topo Exhibit 7/27/23

PROJECT LOCATION: Hecker Pass Road at Plum Street, Gilroy
CLIENT: Mana Hanalei, LLC
GROUND ELEVATION: 242 feet MSL
GROUNDWATER: Groundwater not encountered

SAMPLER TYPE:



Bulk Sample



Modified California Sampler

USCS	MATERIAL DESCRIPTION	ELEVATION (feet)	DEPTH (feet)	SAMPLER	BLOW COUNT (blows/foot)	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	PLASTICITY INDEX	FINES CONTENT % PASSING #200
SM	SILTY SAND, tan to medium brown with mottled light brown, dry to moist, medium dense, fine- to medium-grained sand, with minor gravel, with rootlets below 1-foot, moist (1% gravel, 68% sand, 31% silt and clay fines) (LL = 0, PI = NP) (R-Value = 23)	242	0						
		237	5					NP	31
	Bottom of Test Pit at 5 feet bgs. Groundwater was not encountered.	232	10						
		227	15						

TEST PIT NUMBER: TP4

PAGE 1 OF 1

PROJECT NAME: Hecker Pass Residential

PROJECT LOCATION: Hecker Pass Road at Plum Street, Gilroy

PROJECT NUMBER: G369.01

CLIENT: Mana Hanalei, LLC

DATE EXCAVATED: 08/30/2023

GROUND ELEVATION: 238 feet MSL

EXCAVATION CONTRACTOR: Lion River Construction

GROUNDWATER: Groundwater not encountered

EXCAVATION METHOD: CAT 303.5E2

SAMPLER TYPE:

LOGGED BY: KR



Bulk Sample



Modified California Sampler

NOTES: Elevation from MH Engineering Topo Exhibit 7/27/23

USCS	MATERIAL DESCRIPTION	ELEVATION (feet)	DEPTH (feet)	SAMPLER	BLOW COUNT (blows/foot)	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	PLASTICITY INDEX	FINES CONTENT % PASSING #200
SC/ CL	CLAYEY SAND to SANDY CLAY , tan to medium brown, medium dense to stiff, slightly moist to moist, fine- to medium-grained sand below 1-foot, moist	238	0						
SM/ GP	SILTY SAND with GRAVEL to SANDY GRAVEL, tan to medium brown, moist, medium dense, fine- to coarse grained sand, rounded gravel and cobbles to 4-inch size	233	5						
	Bottom of Test Pit at 6 feet bgs. Groundwater was not encountered.	228	10						
		223	15						

PAGE 1 OF 1

PROJECT NAME: <u>Hecker Pass Residential</u>	PROJECT LOCATION: <u>Hecker Pass Road at Plum Street, Gilroy</u>
PROJECT NUMBER: <u>G369.01</u>	CLIENT: <u>Mana Hanalei, LLC</u>
DATE EXCAVATED: <u>08/30/2023</u>	GROUND ELEVATION: <u>241 feet MSL</u>
EXCAVATION CONTRACTOR: <u>Lion River Construction</u>	GROUNDWATER: <u>Groundwater not encountered</u>
EXCAVATION METHOD: <u>CAT 303.5E2</u>	SAMPLER TYPE:
LOGGED BY: <u>KR</u>	 Bulk Sample
NOTES: <u>Elevation from MH Engineering Topo Exhibit 7/27/23</u>	 Modified California Sampler

USCS	MATERIAL DESCRIPTION	ELEVATION (feet)	DEPTH (feet)	SAMPLER	BLOW COUNT (blows/foot)	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	PLASTICITY INDEX	FINES CONTENT % PASSING #200
CL	SILTY SANDY CLAY with GRAVEL, dark brown with white mottling, slightly moist to moist, stiff to hard, fine- to coarse-grained sand, subrounded gravel to 2-inch size	241	0						
CL	SILTY CLAY, medium brown, moist, medium stiff (2% gravel, 35% sand, 63% silt and clay fines) (LL = 30, PI = 14) (R-Value < 5)	236	5					14	63
	Bottom of Test Pit at 7 feet bgs. Groundwater was not encountered.	231	10						
		226	15						

TEST PIT NUMBER: TP6

PAGE 1 OF 1

PROJECT NAME: Hecker Pass Residential
PROJECT NUMBER: G369.01
DATE EXCAVATED: 08/30/2023
EXCAVATION CONTRACTOR: Lion River Construction
EXCAVATION METHOD: CAT 303.5E2
LOGGED BY: KR
NOTES: Elevation from MH Engineering Topo Exhibit 7/27/23

PROJECT LOCATION: Hecker Pass Road at Plum Street, Gilroy
CLIENT: Mana Hanalei, LLC
GROUND ELEVATION: 238 feet MSL
GROUNDWATER: Groundwater not encountered

SAMPLER TYPE:



Bulk Sample



Modified California Sampler

USCS	MATERIAL DESCRIPTION	ELEVATION (feet)	DEPTH (feet)	SAMPLER	BLOW COUNT (blows/foot)	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	PLASTICITY INDEX	FINES CONTENT % PASSING #200
CL	SILTY CLAY, medium brown, slightly moist to moist, medium stiff below 1 foot, moist	238	0						
		233	5						
	Bottom of Test Pit at 5 feet bgs. Groundwater was not encountered.	228	10						
		223	15						

APPENDIX C

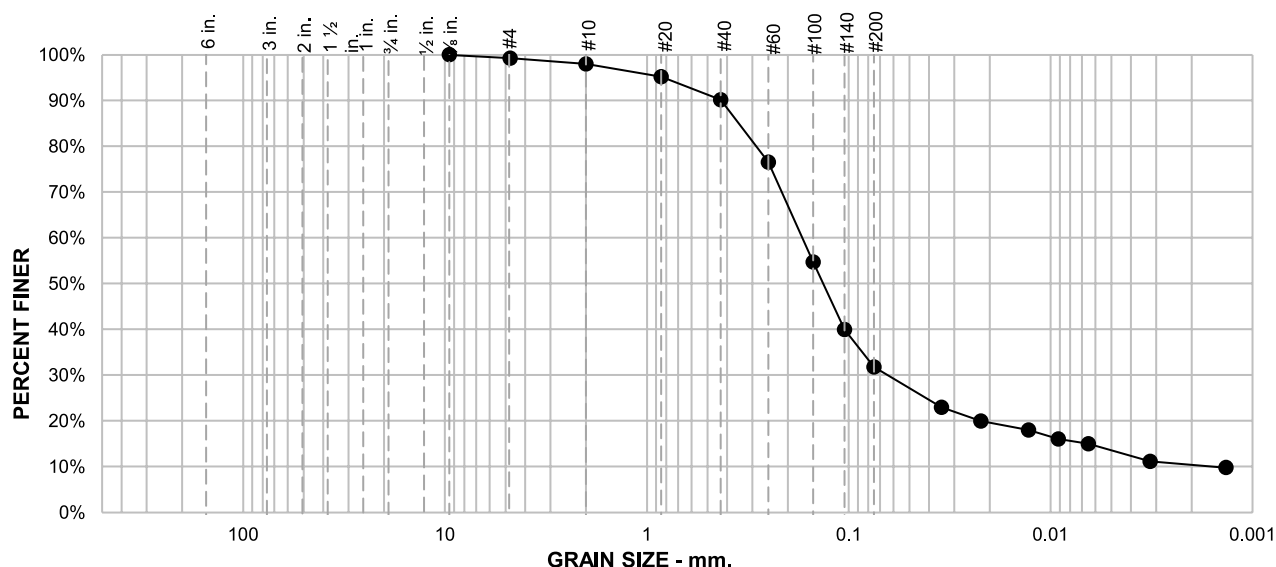
Laboratory Test Results - Geotechnical



BAEZ GEOTECHNICAL GROUP

PARTICLE SIZE DISTRIBUTION REPORT

ASTM D422



SAMPLE ID: TP3@1-5'

DEPTH (ft): 1-5'

LOCATION: N/A

% +75mm	% GRAVEL		% SAND			% FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
		0.7	1.3	7.9	58.3	21.4	10.4
SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)	SOIL DESCRIPTION See exploration logs			
3/4 in.	100.0			ATTERBERG LIMITS PL = NP LL = NV PI = NP			
#4	99.3						
#10	98.0			COEFFICIENTS D ₉₀ = 0.4283 mm D ₈₅ = 0.3509 mm D ₆₀ = 0.1698 mm D ₅₀ = 0.1338 mm D ₃₀ = 0.0642 mm D ₁₅ = 0.0065 mm D ₁₀ = 0.0015 mm C _u = 110.72 C _c = 15.82			
#20	95.2						
#40	90.1			CLASSIFICATION USCS = SM			
#60	76.5						
#100	54.7			REMARKS Silt/clay division of 0.002mm used PI: ASTM D4318, Wet Method USCS: ASTM D2487			
#140	40.0						
#200	31.8						
0.0347 mm.	22.9						
0.0222 mm.	20.0						
0.0129 mm.	18.0						
0.0092 mm.	16.0						
0.0065 mm.	15.0						
0.0032 mm.	11.2						
0.0014 mm.	9.8						

* (no specification provided)

CLIENT: Baez Geotechnical Group., Inc.



PROJECT NAME: G369.01 Hecker Pass Homes

PROJECT NO: 14368.000.220 PHLAB

PROJECT LOCATION: Gilroy, CA

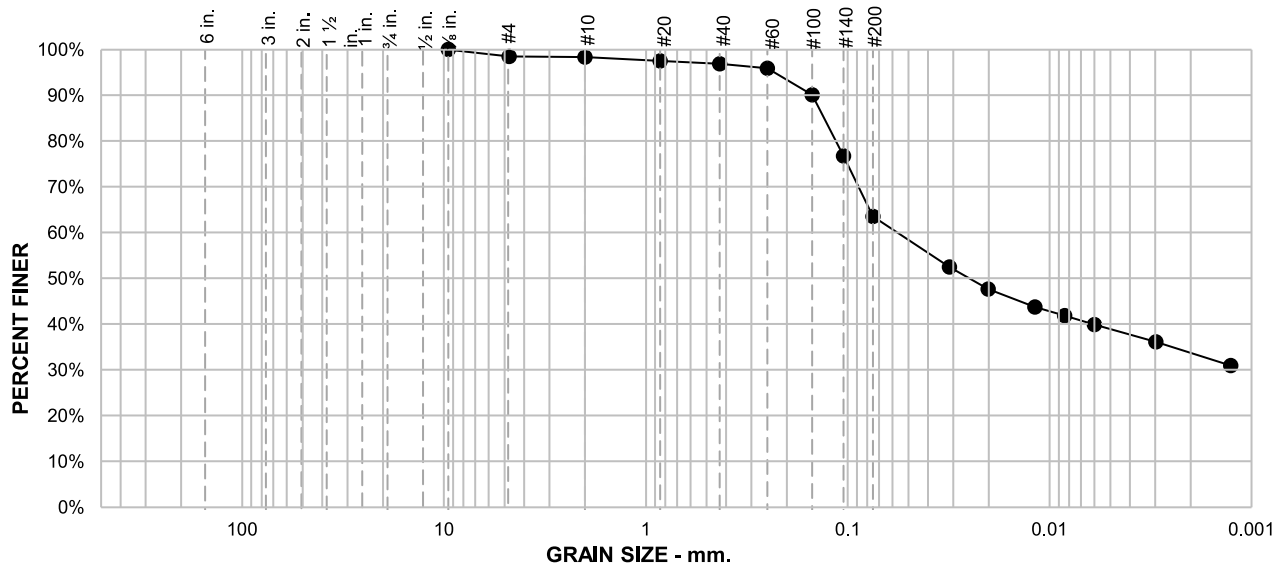
REPORT DATE: 9/14/2023

TESTED BY: K. Nguyen

REVIEWED BY: J. Moriarty

PARTICLE SIZE DISTRIBUTION REPORT

ASTM D422



SAMPLE ID: TP5@1-5'

DEPTH (ft): 1-5'

LOCATION: N/A

% +75mm	% GRAVEL		% SAND			% FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
		1.5	0.2	1.4	33.4	29.8	33.7
SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)	SOIL DESCRIPTION See exploration logs			
3/4 in.	100.0			ATTERBERG LIMITS PL = 16 LL = 30 PI = 14			
#4	98.5						
#10	98.3			COEFFICIENTS D ₉₀ = 0.1496 mm D ₈₅ = 0.1310 mm D ₆₀ = 0.0568 mm D ₅₀ = 0.0249 mm D ₃₀ = D ₁₅ = D ₁₀ = C _u = C _c =			
#20	97.5						
#40	96.9			CLASSIFICATION USCS = CL			
#60	95.9						
#100	90.1			REMARKS Silt/clay division of 0.002mm used PI: ASTM D4318, Wet Method USCS: ASTM D2487			
#140	76.7						
#200	63.5						
0.0314 mm.	52.5						
0.0202 mm.	47.7						
0.0118 mm.	43.8						
0.0084 mm.	41.8						
0.0060 mm.	39.9						
0.0030 mm.	36.1						
0.0013 mm.	30.9						

* (no specification provided)

CLIENT: Baez Geotechnical Group., Inc.



PROJECT NAME: G369.01 Hecker Pass Homes

PROJECT NO: 14368.000.220 PHLAB

PROJECT LOCATION: Gilroy, CA

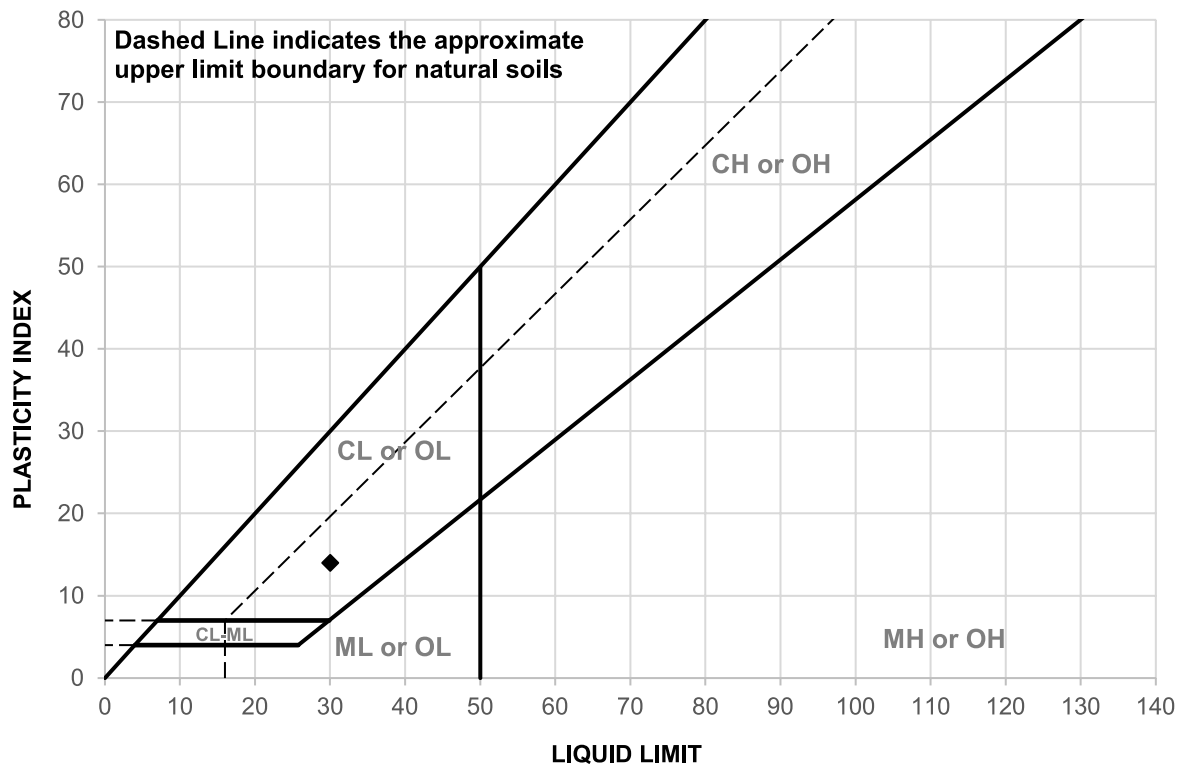
REPORT DATE: 9/14/2023

TESTED BY: K. Nguyen

REVIEWED BY: J. Moriarty

LIQUID AND PLASTIC LIMITS TEST REPORT

ASTM D4318



	SAMPLE ID	DEPTH (ft)	MATERIAL DESCRIPTION	LL	PL	PI
▲	TP3	1-5'	See exploration logs	NV	NP	NP
◆	TP5	1-5'	See exploration logs	30	16	14

*NV = No Value, NP = Non-Plastic

	SAMPLE ID	TEST METHOD	REMARKS
▲	TP3	PI: ASTM D4318, Wet Method	
◆	TP5	PI: ASTM D4318, Wet Method	



CLIENT: Baez Geotechnical Group., Inc.

PROJECT NAME: G369.01 Hecker Pass Homes

PROJECT NO: 14368.000.220 PHLAB

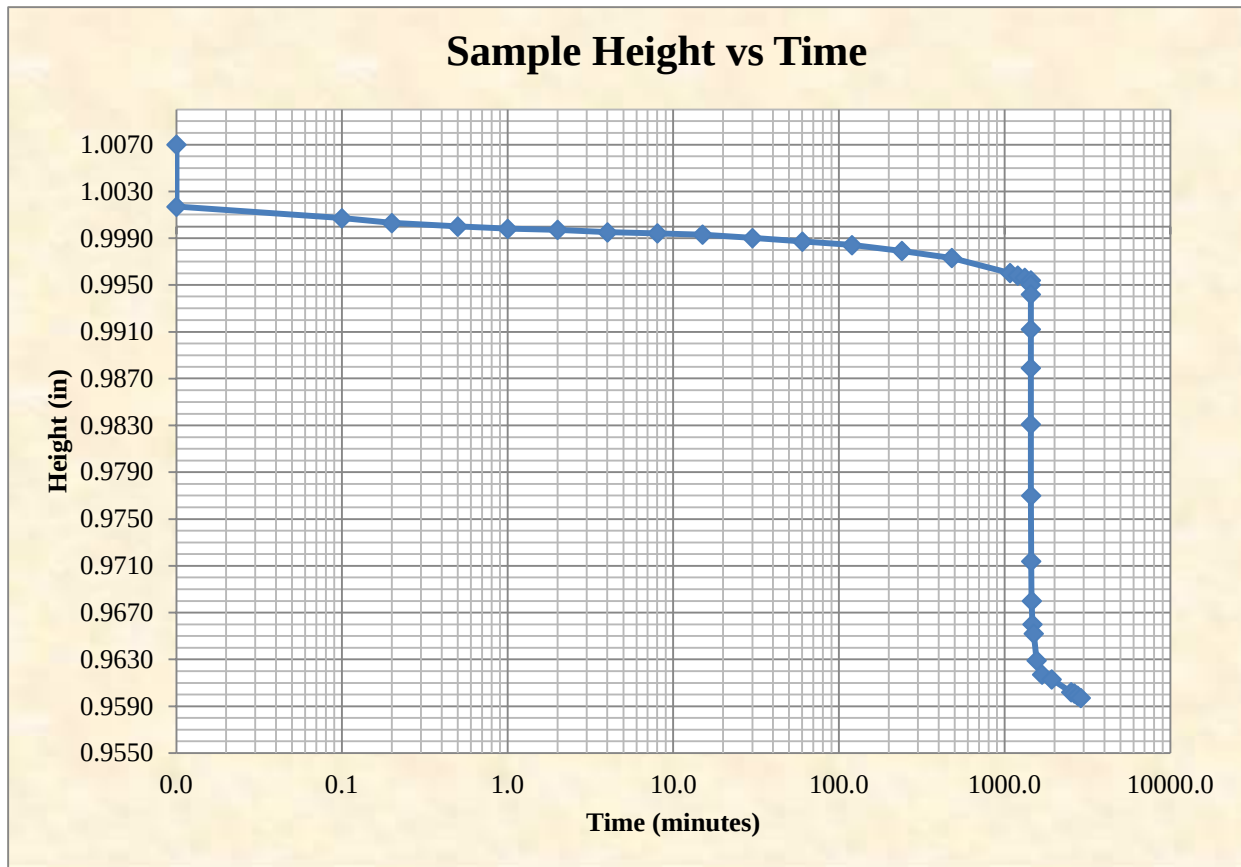
PROJECT LOCATION: Gilroy, CA

REPORT DATE: 9/14/2023

TESTED BY: K. Nguyen

REVIEWED BY: J. Moriarty

ONE DIMENSIONAL SWELL/COLLAPSE POTENTIAL - METHOD 'C' Modified
ASTM D4546



SAMPLE ID: B1@2.5-3
SAMPLE DESCRIPTION: See exploration logs
TYPE OF WATER USED: Distilled
TRANSPORTATION METHOD: Insulated bucket
STORAGE ENVIRONMENT: Controlled

USCS: n/a

IN-SITU LOAD (psf): 400
DESIGN LOAD (psf): 2500
SOURCE OF WATER: Distilled
SAMPLING DATE: n/a
TEST START DATE: 09/06/23

Remolded? (Y/N): N
Number of lifts, if remolded: n/a
Specific Gravity, <#4 (Measured): 2.782
Initial sample height (in): 1.0070
Dry in-situ load height (in): 1.0017
Dry design load height (in): 0.9954
Wet design load height (in): 0.9597
Initial sample mass (g): 117.18
Final saturated sample mass (g): 137.66
Initial-test dry density (pcf): 91.97

Initial % Saturation: 29.89
Final % Saturation: 99.98
Initial water content: 9.54
Final water content: 28.69
Post-test dry density (pcf): 96.50

Dry In-situ load % SWELL/COLLAPSE: -0.53
Dry design load % SWELL/COLLAPSE: -0.63
Wet design load % SWELL/COLLAPSE: -3.55
Overall % SWELL/COLLAPSE: -4.70

Testing remarks: As requested by client, an in-situ load was added and then a design load was added prior to saturation. Note, gravels larger #4 were removed and replaced with trimmings.

PROJECT NAME: G369.01 - Hecker Pass Homes, Gilroy, CA
PROJECT NUMBER: 14368.000.220 PHLAB
CLIENT: Baez Geotechnical Group, Inc.
PHASE NUMBER: LAB

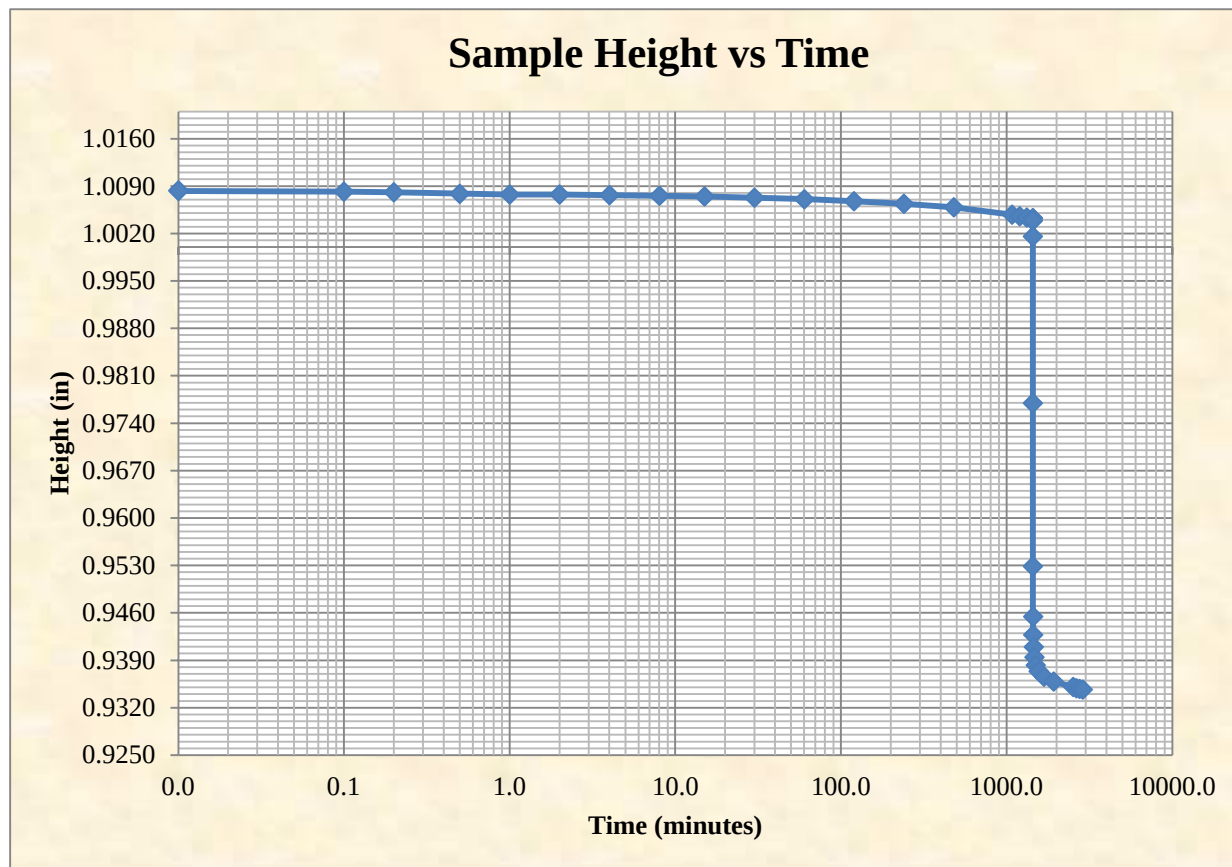
REPORT DATE: 09/11/23

ENGEO
— Expect Excellence —

Tested by: K. Lecce

Reviewed by: J. Moriarty

ONE DIMENSIONAL SWELL/COLLAPSE POTENTIAL - METHOD 'C' Modified
ASTM D4546



SAMPLE ID: B4@2.5-3
SAMPLE DESCRIPTION: See exploration logs
TYPE OF WATER USED: Distilled
TRANSPORTATION METHOD: Insulated bucket
STORAGE ENVIRONMENT: Controlled

USCS: n/a

IN-SITU LOAD (psf): 300
DESIGN LOAD (psf): 1500
SOURCE OF WATER: Distilled
SAMPLING DATE: n/a
TEST START DATE: 09/06/23

Remolded? (Y/N): N
Number of lifts, if remolded: n/a
Specific Gravity, <#4 (Measured): 2.677
Initial sample height (in): 1.0084
Dry in-situ load height (in): 1.0083
Dry design load height (in): 1.0043
Wet design load height (in): 0.9347
Initial sample mass (g): 113.02
Final saturated sample mass (g): 134.15
Initial-test dry density (pcf): 91.78

Initial % Saturation: 19.09
Final % Saturation: 99.98
Initial water content: 5.85
Final water content: 25.64
Post-test dry density (pcf): 99.01
Dry In-situ load % SWELL/COLLAPSE: -0.01
Dry design load % SWELL/COLLAPSE: -0.40
Wet design load % SWELL/COLLAPSE: -6.90
Overall % SWELL/COLLAPSE: -7.31

Testing remarks: As requested by client, an in-situ load was added and then a design load was added prior to saturation. Note, gravels larger #4 were removed and replaced with trimmings.

PROJECT NAME: G369.01 - Hecker Pass Homes, Gilroy, CA
PROJECT NUMBER: 14368.000.220 PHLAB
CLIENT: Baez Geotechnical Group, Inc.
PHASE NUMBER: LAB

REPORT DATE: 09/11/23

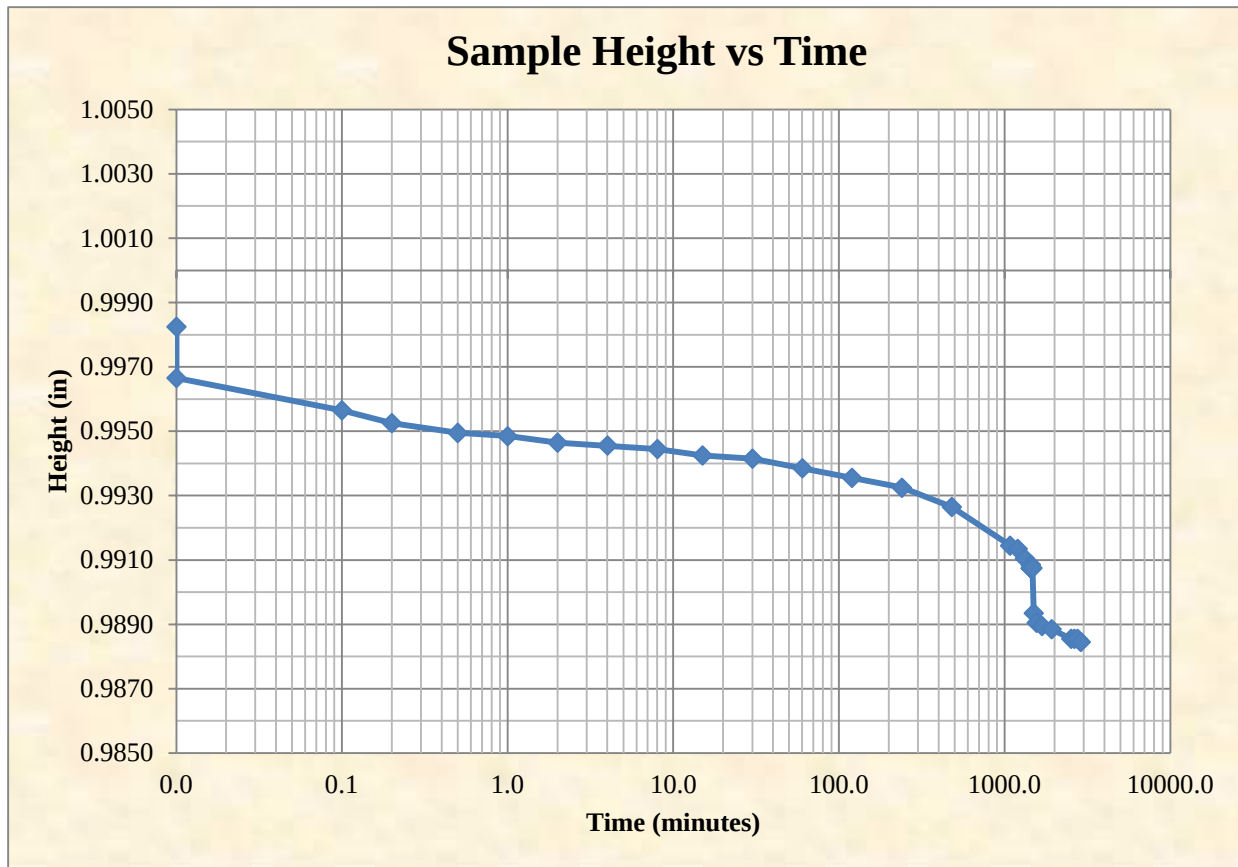
ENGEO
— Expect Excellence —

Tested by: K. Lecce

Reviewed by: J. Moriarty

Lab Address: 17278 Golden Valley Parkway, Lathrop, CA 95330. Phone No. (209) 835-0610.

ONE DIMENSIONAL SWELL/COLLAPSE POTENTIAL - METHOD 'C' Modified
ASTM D4546



SAMPLE ID: B5@3-3.5
SAMPLE DESCRIPTION: See exploration logs
TYPE OF WATER USED: Distilled
TRANSPORTATION METHOD: Insulated bucket
STORAGE ENVIRONMENT: Controlled

USCS: n/a

IN-SITU LOAD (psf): 400
DESIGN LOAD (psf): 1500
SOURCE OF WATER: Distilled
SAMPLING DATE: n/a
TEST START DATE: 09/11/23

Remolded? (Y/N): N
Number of lifts, if remolded: n/a
Specific Gravity, <#4 (Measured): 2.671
Initial sample height (in): 0.9983
Dry in-situ load height (in): 0.9967
Dry design load height (in): 0.9909
Wet design load height (in): 0.9885
Initial sample mass (g): 131.40
Final saturated sample mass (g): 139.44
Initial-test dry density (pcf): 94.59

Initial % Saturation: 71.74
Final % Saturation: 99.99
Initial water content: 20.49
Final water content: 27.86
Post-test dry density (pcf): 95.52

Dry In-situ load % SWELL/COLLAPSE: -0.16
Dry design load % SWELL/COLLAPSE: -0.58
Wet design load % SWELL/COLLAPSE: -0.24
Overall % SWELL/COLLAPSE: -0.98

Testing remarks: As requested by client, an in-situ load was added and then a design load was added prior to saturation. Note, gravels larger #4 were removed and replaced with trimmings.

PROJECT NAME: G369.01 - Hecker Pass Homes, Gilroy, CA
PROJECT NUMBER: 14368.000.220 PHLAB
CLIENT: Baez Geotechnical Group, Inc.
PHASE NUMBER: LAB

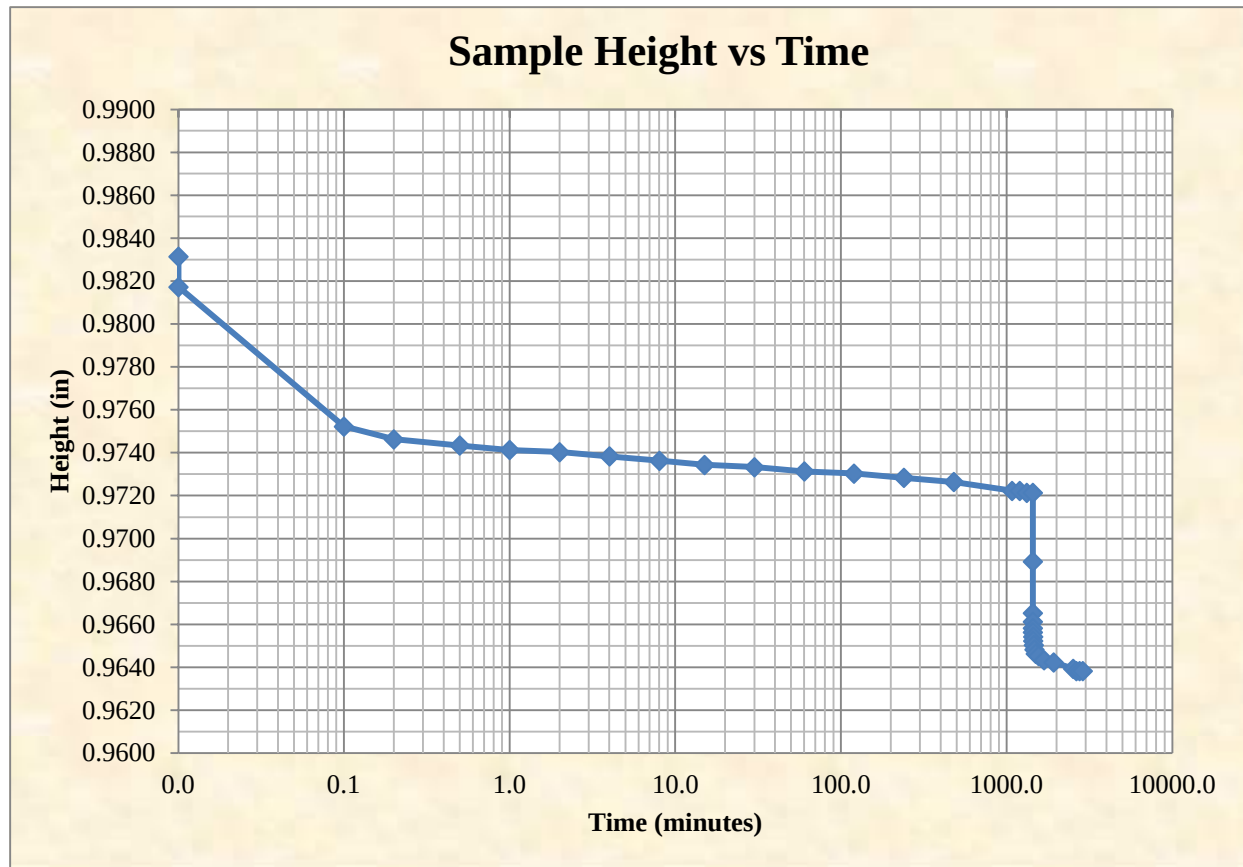
REPORT DATE: 09/18/23

ENGEO
— Expect Excellence —

Tested by: K. Lecce

Reviewed by: J. Moriarty

ONE DIMENSIONAL SWELL/COLLAPSE POTENTIAL - METHOD 'C' Modified
ASTM D4546



SAMPLE ID: B2@3.5-4
SAMPLE DESCRIPTION: See exploration logs
TYPE OF WATER USED: Distilled
TRANSPORTATION METHOD: Insulated bucket
STORAGE ENVIRONMENT: Controlled

USCS: n/a

IN-SITU LOAD (psf): 400
DESIGN LOAD (psf): 2500
SOURCE OF WATER: Distilled
SAMPLING DATE: n/a
TEST START DATE: 09/06/23

Remolded? (Y/N): N
Number of lifts, if remolded: n/a
Specific Gravity, <#4 (Measured): 2.819
Initial sample height (in): 0.9831
Dry in-situ load height (in): 0.9817
Dry design load height (in): 0.9721
Wet design load height (in): 0.9638
Initial sample mass (g): 135.76
Final saturated sample mass (g): 154.42
Initial-test dry density (pcf): 115.31

Initial % Saturation: 17.99
Final % Saturation: 99.99
Initial water content: 3.36
Final water content: 17.56
Post-test dry density (pcf): 117.61

Dry In-situ load % SWELL/COLLAPSE: -0.14
Dry design load % SWELL/COLLAPSE: -0.98
Wet design load % SWELL/COLLAPSE: -0.84
Overall % SWELL/COLLAPSE: -1.96

Testing remarks: As requested by client, an in-situ load was added and then a design load was added prior to saturation. Note, gravels larger #4 were removed and replaced with trimmings.

PROJECT NAME: G369.01 - Hecker Pass Homes, Gilroy, CA
PROJECT NUMBER: 14368.000.220 PHLAB
CLIENT: Baez Geotechnical Group, Inc.
PHASE NUMBER: LAB

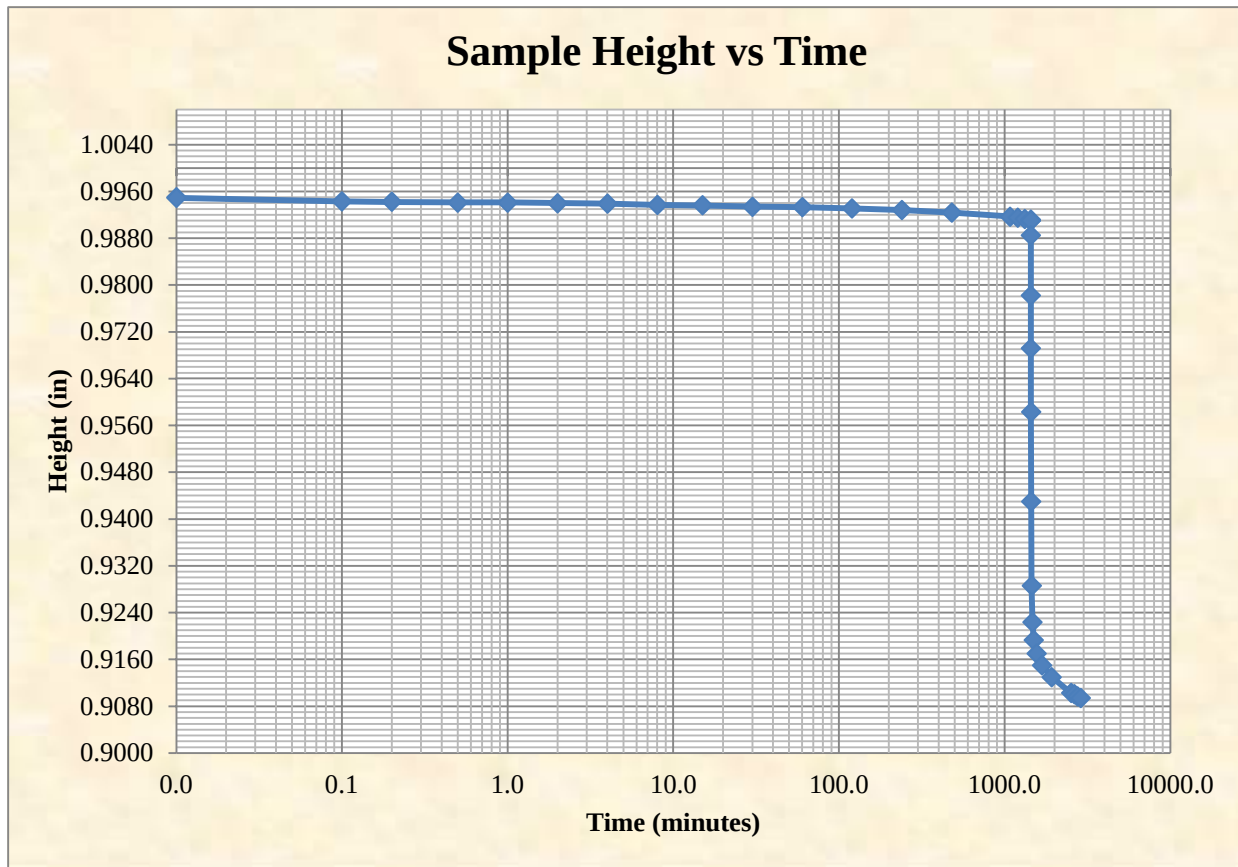
REPORT DATE: 09/11/23

ENGEO
— Expect Excellence —

Tested by: K. Lecce

Reviewed by: J. Moriarty

ONE DIMENSIONAL SWELL/COLLAPSE POTENTIAL - METHOD 'C' Modified
ASTM D4546



SAMPLE ID: B3@3.5-4
SAMPLE DESCRIPTION: See exploration logs
TYPE OF WATER USED: Distilled
TRANSPORTATION METHOD: Insulated bucket
STORAGE ENVIRONMENT: Controlled

USCS: n/a

IN-SITU LOAD (psf): 400
DESIGN LOAD (psf): 1500
SOURCE OF WATER: Distilled
SAMPLING DATE: n/a
TEST START DATE: 09/06/23

Remolded? (Y/N): N
Number of lifts, if remolded: n/a
Specific Gravity, <#4 (Measured): 2.704
Initial sample height (in): 0.9950
Dry in-situ load height (in): 0.9949
Dry design load height (in): 0.9912
Wet design load height (in): 0.9094
Initial sample mass (g): 102.33
Final saturated sample mass (g): 124.36
Initial-test dry density (pcf): 80.05

Initial % Saturation: 25.51
Final % Saturation: 99.99
Initial water content: 10.46
Final water content: 34.24
Post-test dry density (pcf): 87.58

Dry In-situ load % SWELL/COLLAPSE: -0.01
Dry design load % SWELL/COLLAPSE: -0.37
Wet design load % SWELL/COLLAPSE: -8.22
Overall % SWELL/COLLAPSE: -8.60

Testing remarks: As requested by client, an in-situ load was added and then a design load was added prior to saturation. Note, gravels larger #4 were removed and replaced with trimmings.

PROJECT NAME: G369.01 - Hecker Pass Homes, Gilroy, CA
PROJECT NUMBER: 14368.000.220 PHLAB
CLIENT: Baez Geotechnical Group, Inc.
PHASE NUMBER: LAB

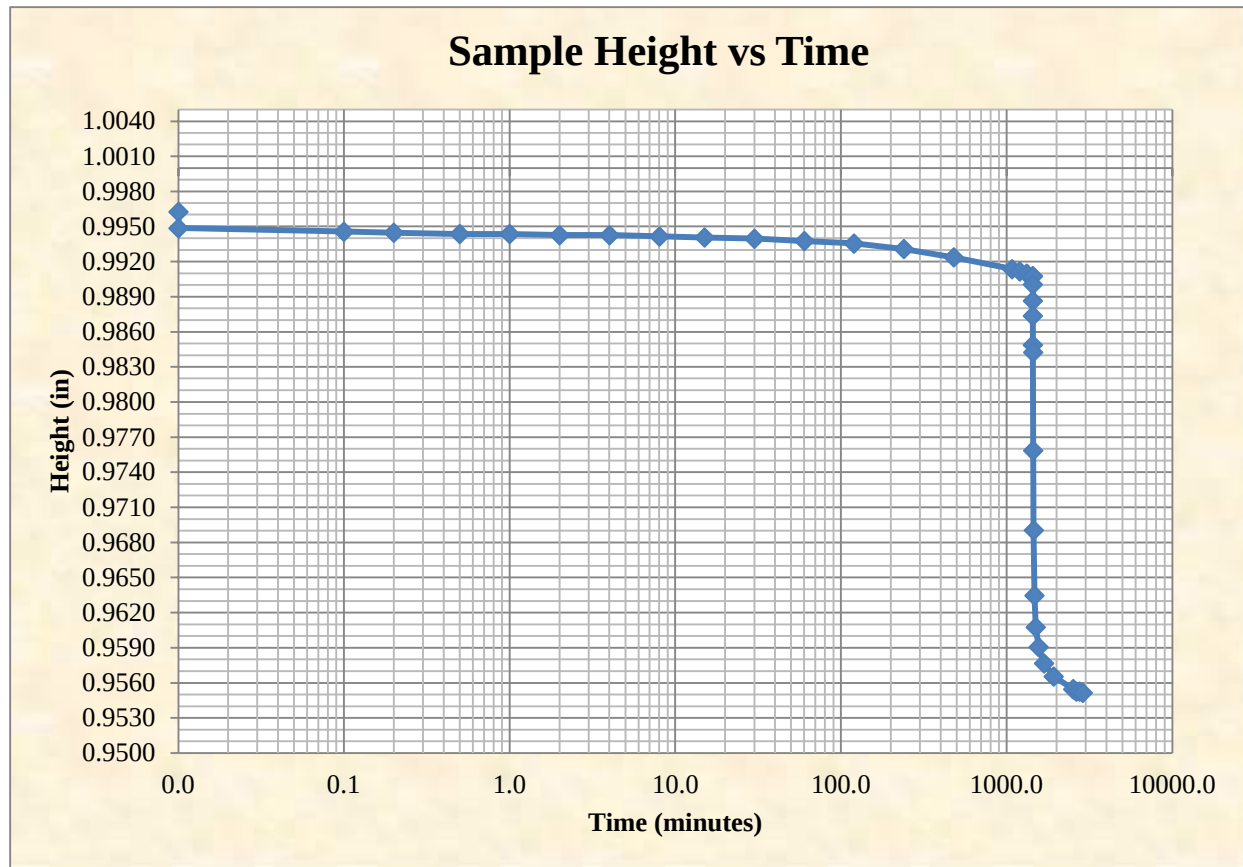
REPORT DATE: 09/11/23

ENGEO
— Expect Excellence —

Tested by: K. Lecce

Reviewed by: J. Moriarty

ONE DIMENSIONAL SWELL/COLLAPSE POTENTIAL - METHOD 'C' Modified
ASTM D4546



SAMPLE ID: B6@4-4.5
SAMPLE DESCRIPTION: See exploration logs
TYPE OF WATER USED: Distilled
TRANSPORTATION METHOD: Insulated bucket
STORAGE ENVIRONMENT: Controlled

USCS: n/a

IN-SITU LOAD (psf): 500
DESIGN LOAD (psf): 1500
SOURCE OF WATER: Distilled
SAMPLING DATE: n/a
TEST START DATE: 09/11/23

Remolded? (Y/N): N
Number of lifts, if remolded: n/a
Specific Gravity, <#4 (Measured): 2.703
Initial sample height (in): 0.9963
Dry in-situ load height (in): 0.9949
Dry design load height (in): 0.9908
Wet design load height (in): 0.9552
Initial sample mass (g): 122.66
Final saturated sample mass (g): 137.96
Initial-test dry density (pcf): 94.77

Initial % Saturation: 41.98
Final % Saturation: 99.98
Initial water content: 12.12
Final water content: 26.11
Post-test dry density (pcf): 98.85

Dry In-situ load % SWELL/COLLAPSE: -0.14
Dry design load % SWELL/COLLAPSE: -0.41
Wet design load % SWELL/COLLAPSE: -3.57
Overall % SWELL/COLLAPSE: -4.13

Testing remarks: As requested by client, an in-situ load was added and then a design load was added prior to saturation. Note, gravels larger #4 were removed and replaced with trimmings.

PROJECT NAME: G369.01 - Hecker Pass Homes, Gilroy, CA
PROJECT NUMBER: 14368.000.220 PHLAB
CLIENT: Baez Geotechnical Group, Inc.
PHASE NUMBER: LAB

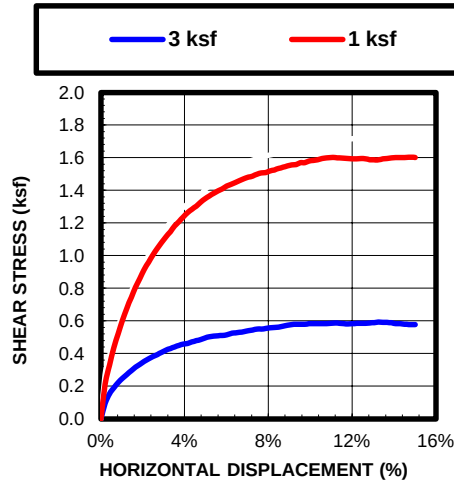
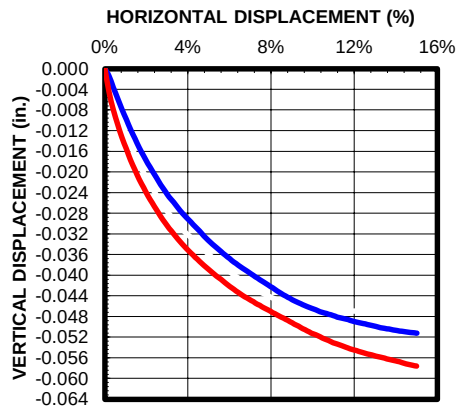
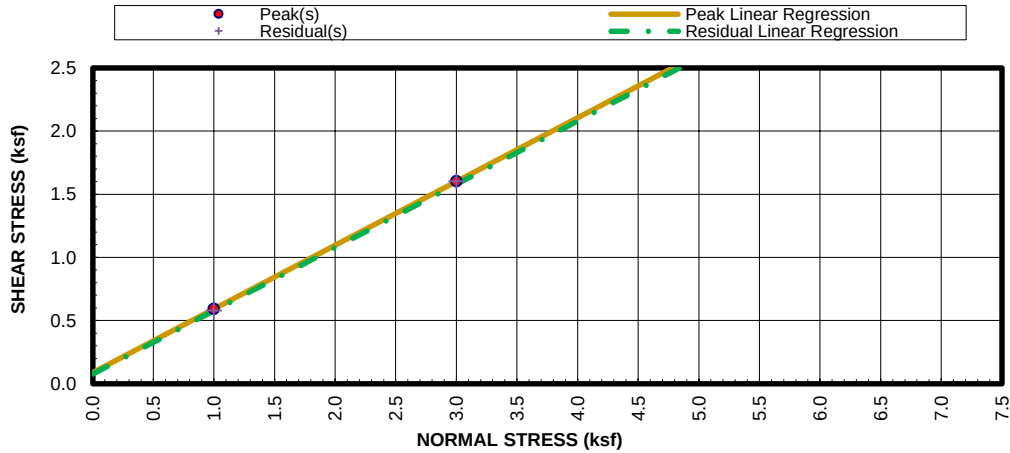
REPORT DATE: 09/18/23

ENGEO
— Expect Excellence —

Tested by: K. Lecce

Reviewed by: J. Moriarty

CONSOLIDATED DRAINED DIRECT SHEAR ASTM D3080

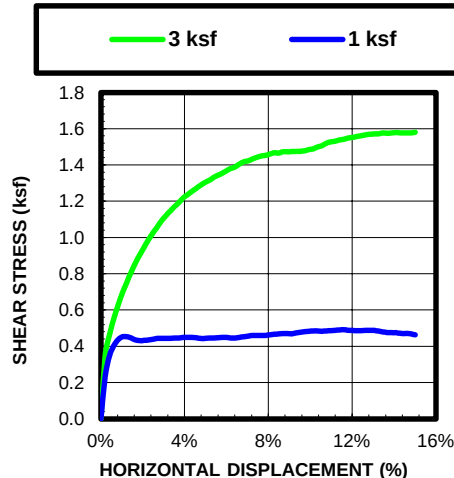
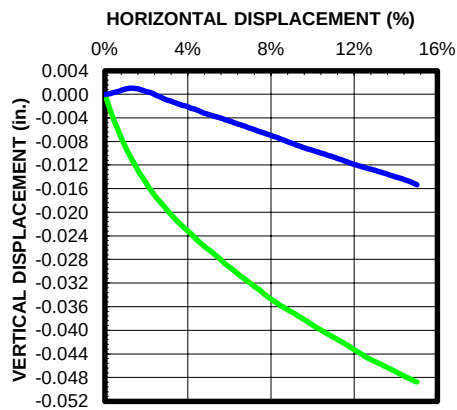
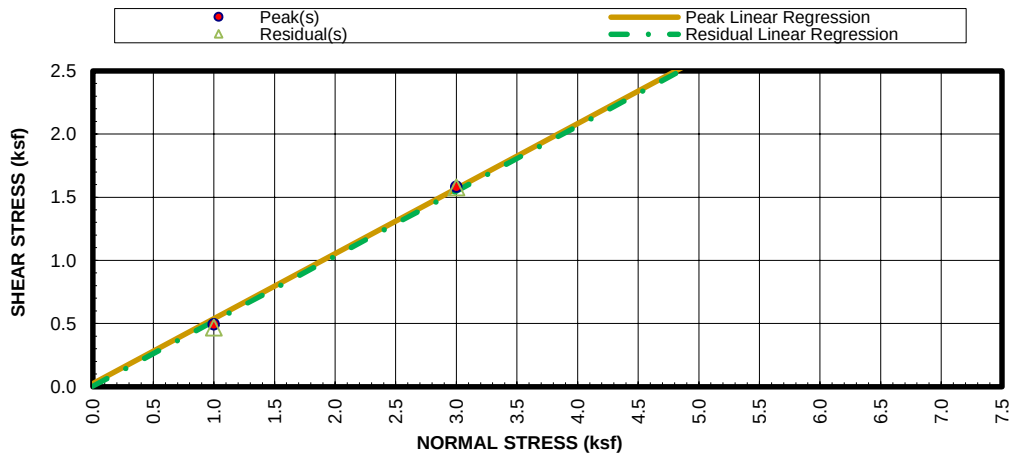


SPECIMEN					
INITIAL PARAMETERS		3 ksf	1 ksf		
MOISTURE (%)		10.66	11.41		
DRY DENSITY (PCF)		76.78	78.78		
VOID RATIO		1.212	1.156		
SATURATION (%)		23.94	26.87		
DIAMETER (IN.)		2.415	2.415		
HEIGHT (IN.)		0.987	0.993		
DIAMETER-TO-HEIGHT RATIO		2.446	2.433		
SPECIFIC GRAVITY (ASTM D854)		2.720	2.720		
FINAL PARAMETERS		3 ksf	1 ksf		
MOISTURE (%)		37.39	31.56		
DRY DENSITY (PCF)		84.19	91.36		
VOID RATIO		1.017	0.859		
SATURATION (%)		100.00	100.00		
DIAMETER (IN.)		2.415	2.415		
HEIGHT (IN.)		0.907	0.862		
NORMAL STRESS (ksf)		1.00	3.00		
PEAK STRESS (ksf)		0.59	1.60		
PEAK STRAIN (%)		13.25	14.70		
RESIDUAL STRESS (ksf)		0.58	1.60		
RESIDUAL STRAIN (%)		15.00	15.00		
RATE (IN/MIN)		0.00181	0.00181		
DIAMETER-TO-HEIGHT RATIO		2.664	2.801		
SPECIMEN INFORMATION		STRENGTH PARAMETERS		φ°	C(psf)
SAMPLE ID:	B1@3-3.5				
DEPTH (ft):	3-3.5 ft	PEAK:		26.8	88.2
SAMPLE TYPE:	In-situ	RESIDUAL:		26.6	77.4
DESCRIPTION:	See exploration logs	ASTM D4318			
		LIQUID LIMIT		n/a	
		PLASTIC LIMIT:		n/a	
REMARKS:	Consolidation data inconclusive. Default minimum shear rates used per ASTM D3080				



CLIENT: Baez Geotechnical Group, Inc.
PROJECT NAME: G369.01 - Hecker Pass Homes
PROJECT NO: 14368.000.220 PHLAB
PROJECT LOCATION: Gilroy, CA
REPORT DATE: 9/18/2023
TESTED BY: K. Lecce
REVIEWED BY: J. Moriarty

CONSOLIDATED DRAINED DIRECT SHEAR ASTM D3080



SPECIMEN				
INITIAL PARAMETERS	3 ksf	1 ksf		
MOISTURE (%)	12.25	11.62		
DRY DENSITY (PCF)	95.78	100.34		
VOID RATIO	0.788	0.707		
SATURATION (%)	42.66	45.13		
DIAMETER (IN.)	2.415	2.415		
HEIGHT (IN.)	0.989	0.985		
DIAMETER-TO-HEIGHT RATIO	2.442	2.452		
SPECIFIC GRAVITY (ASTM D854)	2.743	2.743		
FINAL PARAMETERS	3 ksf	1 ksf		
MOISTURE (%)	25.37	27.09		
DRY DENSITY (PCF)	100.97	98.25		
VOID RATIO	0.696	0.743		
SATURATION (%)	100.00	100.00		
DIAMETER (IN.)	2.415	2.415		
HEIGHT (IN.)	0.937	0.977		
NORMAL STRESS (ksf)	3.00	1.00		
PEAK STRESS (ksf)	1.58	0.49		
PEAK STRAIN (%)	15.00	11.59		
RESIDUAL STRESS (ksf)	1.58	0.47		
RESIDUAL STRAIN (%)	15.00	15.00		
RATE (IN/MIN)	0.00181	0.00181		
DIAMETER-TO-HEIGHT RATIO	2.577	2.473		
SPECIMEN INFORMATION		STRENGTH PARAMETERS	ϕ°	C(psf)
SAMPLE ID:	B4@3-3.5			
DEPTH (ft):	3-3.5 ft	PEAK:	27.2	25.0
SAMPLE TYPE:	In-situ	RESIDUAL:	27.2	5.0
DESCRIPTION:	See exploration logs	ASTM D4318		
		LIQUID LIMIT	n/a	
		PLASTIC LIMIT:	n/a	
REMARKS:	Consolidation data inconclusive. Default minimum shear rates used per ASTM D3080			



CLIENT: Baez Geotechnical Group, Inc.

PROJECT NAME: G369.01 - Hecker Pass Homes

PROJECT NO: 14368.000.220 PHLAB

PROJECT LOCATION: Gilroy, CA

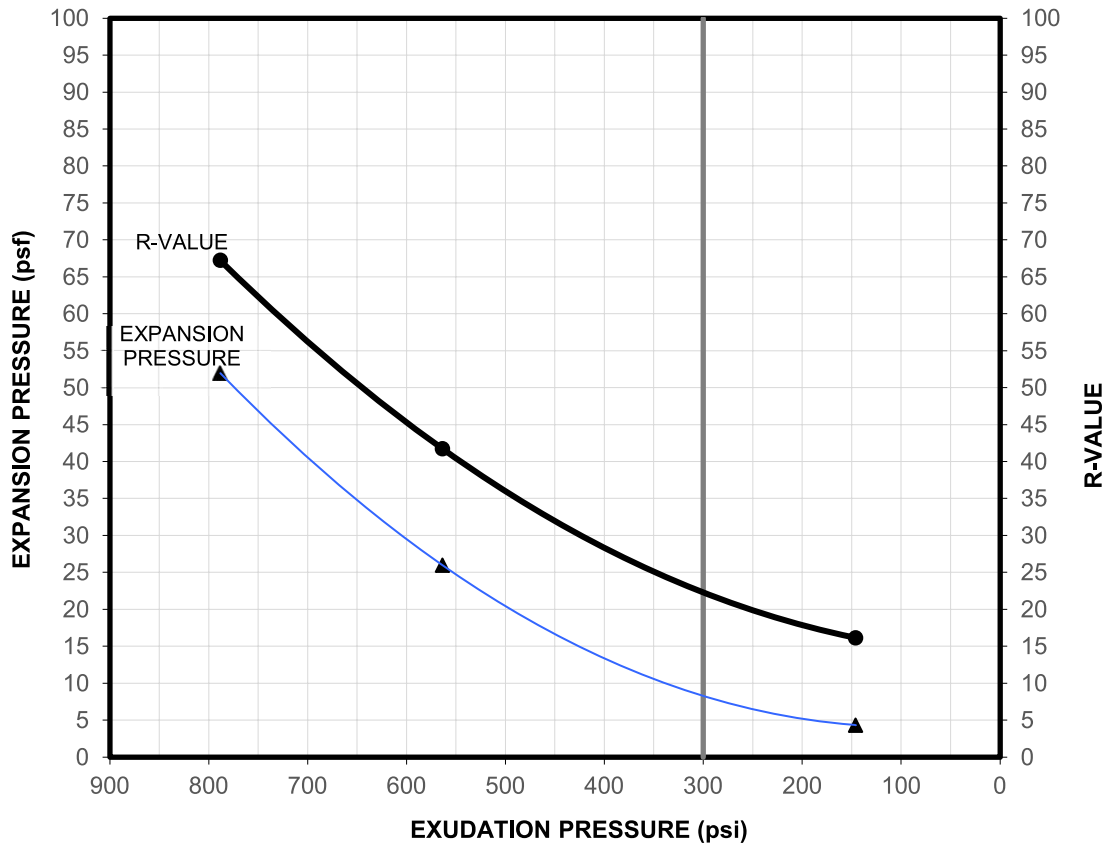
REPORT DATE: 9/18/2023

TESTED BY: K. Lecce

REVIEWED BY: J. Moriarty

R-VALUE TEST REPORT

CTM 301



SAMPLE ID	MATERIAL DESCRIPTION	SAMPLE LOCATION		
TP-3 @ 1-5'	See exploration logs	TP-3@1-5'		
SPECIMENS		1	2	3
EXUDATION PRESSURE (psi)		788	564	146
EXPANSION PRESSURE (psf)		52	26	4
R-VALUE		67	42	16
MOISTURE CONTENT (%)		15.2	16.1	17.0
DRY DENSITY (pcf)		107.4	106.3	105.9
EXPANSION PRESSURE (psf) AT EXUDATION PRESSURE OF 300 psi		8		
R-VALUE AT EXUDATION PRESSURE OF 300 psi		TEST RESULT		
		23		



CLIENT: Baez Geotechnical Group., Inc.

PROJECT NAME: G369.01 Hecker Pass Homes

PROJECT NO: 14368.000.220 PHLAB

PROJECT LOCATION: Gilroy, CA

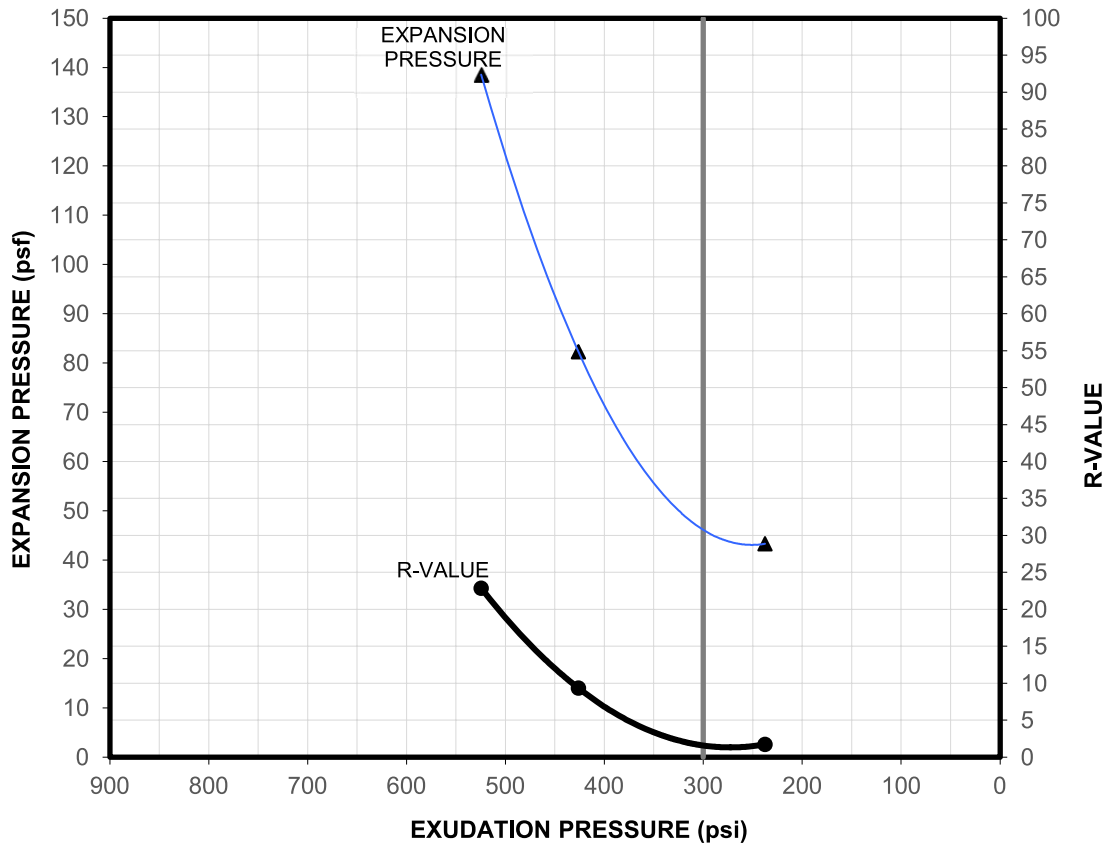
REPORT DATE: 9/14/2023

TESTED BY: O. Espinoza

REVIEWED BY: J. Moriarty

R-VALUE TEST REPORT

CTM 301



SAMPLE ID	MATERIAL DESCRIPTION	SAMPLE LOCATION		
TP-5 @ 1-5'	See exploration logs	TP-5 @ 1-5'		
SPECIMENS		1	2	3
EXUDATION PRESSURE (psi)		525	426	238
EXPANSION PRESSURE (psf)		139	82	43
R-VALUE		23	9	2
MOISTURE CONTENT (%)		16.3	18.6	24.2
DRY DENSITY (pcf)		116.5	110.4	96.7
EXPANSION PRESSURE (psf) AT EXUDATION PRESSURE OF 300 psi		46		
R-VALUE AT EXUDATION PRESSURE OF 300 psi		TEST RESULT		
		Less than 5		



CLIENT: Baez Geotechnical Group., Inc.

PROJECT NAME: G369.01 Hecker Pass Homes

PROJECT NO: 14368.000.220 PHLAB

PROJECT LOCATION: Gilroy, CA

REPORT DATE: 9/14/2023

TESTED BY: O. Espinoza

REVIEWED BY: J. Moriarty

APPENDIX D

Laboratory Test Results – CERCO Analytical



BAEZ GEOTECHNICAL GROUP

11 September, 2023

Job No. 2309012

Cust. No. 13042

Ms. Stefanie Parman
Baez Geotechnical Group, Inc.
P.O. Box 296
Oakdale, CA 95361

Subject: Project No.: G369.01
Project Name: Hecker Pass Residential - Gilroy, CA
Corrosivity Analysis – ASTM Methods

Dear Ms. Parman:

Pursuant to your request, CERCO Analytical has analyzed the soil samples submitted on September 07, 2023. Based on the analytical results, this brief corrosivity evaluation is enclosed for your consideration.

Based upon the resistivity measurements, Sample No.002 is classified as “moderately corrosive” and Sample No.001 is classified as “mildly corrosive”. All buried iron, steel, cast iron, ductile iron, galvanized steel and dielectric coated steel or iron should be properly protected against corrosion depending upon the critical nature of the structure. All buried metallic pressure piping such as ductile iron firewater pipelines should be protected against corrosion.

The chloride ion concentrations reflect none detected with a reporting limit of 15 mg/kg.

The sulfate ion concentrations reflect none detected with a reporting limit of 15 mg/kg.

The sulfide ion concentrations reflect none detected with a reporting limit of 50 mg/kg.

The pH of the soils are 7.38 and 7.44, which does not present corrosion problems for buried iron, steel, mortar-coated steel and reinforced concrete structures.

The redox potential for both samples is 110-mV. Both samples are indicative of potentially “moderately corrosive” soils resulting from anaerobic soil conditions.

This corrosivity evaluation is based on general corrosion engineering standards and is non-specific in nature. For specific long-term corrosion control design recommendations or consultation, please call *JDH Corrosion Consultants, Inc.* at (925) 927-6630.

We appreciate the opportunity of working with you on this project. If you have any questions, or if you require further information, please do not hesitate to contact us.

Very truly yours,
CERCO ANALYTICAL, INC.


J. Darby Howard, Jr., P.E.
President

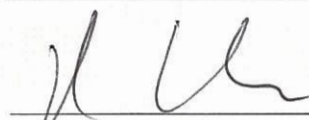
JDH/jdl
Enclosure

Client: Baez Geotechnical Group
Client's Project No.: G369.01
Client's Project Name: Hecker Pass Residential - Gilroy, CA
Date Sampled: 30-Aug-23
Date Received: 7-Sep-23
Matrix: Soil
Authorization: Signed Chain of Custody

Date of Report: 11-Sep-2023

Job/Sample No.	Sample I.D.	Redox (mV)	pH	Conductivity (umhos/cm)*	Resistivity (100% Saturation) (ohms-cm)	Sulfide (mg/kg)*	Chloride (mg/kg)*	Sulfate (mg/kg)*
2309012-001	TP3 @ 1-5'	110	7.44	-	13,000	N.D.	N.D.	N.D.
2309012-002	TP6 @ 1-5'	110	7.38	-	3,900	N.D.	N.D.	N.D.

Method:	ASTM D1498	ASTM D4972	ASTM D1125M	ASTM G57	ASTM D4658M	ASTM D4327	ASTM D4327
Reporting Limit:	-	-	10	-	50	15	15
Date Analyzed:	7-Sep-2023	8-Sep-2023	-	7-Sep-2023	7-Sep-2023	8-Sep-2023	8-Sep-2023

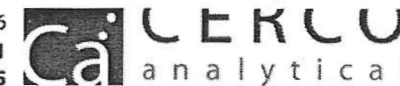

Julia Clauson
Chemist

* Results Reported on "As Received" Basis
N.D. - None Detected

Chain of Custody

2309012 2309012

Concord, CA 94520-1006
925 462 2771
Fax: 925 462 2775



Page 1 of 1

Job No. G369.01	CU# 130412	Client Project I.D. Hecker Pass Residential	Schedule Analyte	Date Sampled 8/30/2023	Date Due Standard
--------------------	---------------	--	---------------------	---------------------------	----------------------

Full Name Stefanie Parman, **Phone** Office (209) 602-6569
smp@baezgeotechnicalgroup.com

Company and/or Mailing Address Cell (209) 602-6569
Baez Geotechnical Group, PO Box 296, Oakdale, CA 95361

Sample Source
G369.01 - Hecker Pass Residential- Gilroy, CA

Lab No.	Sample I.D.	Date	Time	Matrix	Contain.	Size	Preserv.	Qty.
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	TP3 @ 1-5'	8/30/23		S	Baggy			1
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	TP6 @ 1-5'	8/30/23		S	Baggy			1
--	------------	---------	--	---	-------	--	--	---

ANALYSIS										ASTM									
Redox Potential	pH	Sulfate	Chloride	Resistivity-100% Saturated	Sulfides				Brief Evaluation										
X	X	X	X	X	X				X										
X	X	X	X	X	X				X										

MATRIX	DW - Drinking Water	ABBREVIATIONS	HB - Hosebib	SAMPLE RECEIPT	Total No. of Containers	☐
	GW - Ground Water		PV - Petcock Valve		Rec'd Good Cond/Cold	☐
	SW - Surface Water		PT - Pressure Tank		Conforms to Record	☐
	WW - Waste Water		PH - Pump House		Temp. at Lab -°C	☐
	Water		RR - Restroom		Sampler	
	SL - Sludge		GL - Glass			
	S - Soil		PL - Plastic			
	Product		ST - Sterile			

Comments:

THERE IS AN ADDITIONAL CHARGE FOR EXTRUDING SOIL FROM METAL TUBES

Email Address smp@baezgeotechnicalgroup.com

Relinquished By: [Signature]	Date 9/7/23	Time 8:05 AM
Received By: [Signature]	Date 9/7/23	Time 9:26 AM
Relinquished By:	Date	Time
Received By:	Date	Time
Relinquished By:	Date	Time
Received By:	Date	Time