

**GEOTECHNICAL INVESTIGATION
MORGAN HILL AFFORDABLE HOUSING
16170 & 16180 MONTEREY ROAD
MORGAN HILL, CALIFORNIA**

Project 2014.0078
Phase 100

For

EAH Housing Inc.
Attention: Felix AuYeung
2169 East San Francisco Boulevard
San Rafael, CA 94901

By

PACIFIC GEOTECHNICAL ENGINEERING
16055 Caputo Drive, Suite D
Morgan Hill, California 95037
(408) 778-2818

June 9, 2014

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FIGURE

Figure 1 – Site Plan

APPENDIX A

Key to Soil Classification - Fine Grained Soil

Key to Soil Classification - Coarse Grained Soil

Log of Exploratory Drill Holes (DH-1 through DH-5)

APPENDIX B

Atterberg Limits Summary Report

Particle Size Analysis Summary Report

R-Value Test Report

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1. INTRODUCTION

1.1 GENERAL

This report presents the results of our geotechnical investigation for the proposed residential development at 16170 and 16180 Monterey Road, Morgan Hill, California. The location of the project is shown on the Vicinity Map included with the Site Plan, Figure 1, of this report. The site plan shows the existing improvements on the site.

This report presents our conclusions and geotechnical recommendations for design and construction of the project. These conclusions and recommendations are based on subsurface information collected during this investigation. The conclusions and recommendations in this report should not be extrapolated to other areas or used for other projects without our review.

1.2 PROJECT DESCRIPTION

The proposed project consists of two adjoining parcels, each measuring approximately ½ acre, to be developed primarily for residential purpose. The current plan is to construct 19 or 20 attached residential units with surface parking. Commercial units will be constructed fronting Monterey Road. The proposed buildings will have 2 or 3 stories, wood frame construction and concrete slab-on-grade floors. Associated site improvements will include paved driveways, on-site parking, exterior flatwork, underground utilities and landscaping.

Details regarding the building loads and site grading had not been determined by the time when we prepared this report. For preparation of our recommendations, we have anticipated the building loads to be typical of light residential structures, and site grading will be limited to cuts and fills 1 to 3 feet in depth.

The above project descriptions are based on information provided to us. If the actual project differs from those described above, Pacific Geotechnical Engineering (PGE) should be contacted to review our conclusions and recommendations and present any necessary modifications to address the different project development schemes.

1.3 INFORMATION PROVIDED

For this investigation, we were provided with a report, titled "Phase 1 Environmental Assessment Report, 16170 & 16180 Monterey Road, Morgan Hill, California," dated April 23, 2014, prepared by PIERS Environmental Services, Inc. The report Figures 1 and 2 display location, property boundaries and current site conditions.

1.4 PURPOSE AND SCOPE OF INVESTIGATION

The purpose of this geotechnical investigation was to explore and evaluate subsurface conditions underlying the site and to develop geotechnical recommendations for design and construction of the proposed improvements. The following work was performed.

1. Performed a site reconnaissance to observe the existing site conditions and to mark the boring locations.
2. Notified Underground Service Alert for underground utilities clearance.
3. Reviewed available geologic and geotechnical information for the site.
4. Explored subsurface conditions of the site by means of five exploratory drill holes.
5. Tested selected soil samples obtained from the drill holes to obtain pertinent engineering properties.
6. Performed engineering analysis and evaluation of the field and laboratory testing data.
7. Prepared this report summarizing our findings and recommendations.

2. SITE INVESTIGATION

Our field investigation consisted of a site reconnaissance and a subsurface exploration program. The site reconnaissance was to observe existing site surface conditions. The subsurface exploration was to explore soil conditions at selected locations on the site. The surface and subsurface conditions of the site are discussed in Section 4 of this report.

2.1 SUBSURFACE EXPLORATION

Our subsurface exploration program included drilling of five exploratory holes (DH-1 through DH-5) on May 15, 2014, using a truck-mounted drill rig equipped with 8-inch-diameter hollow-stem augers. Depth of exploration was between 15 and 30 feet below ground surface (bgs). The holes were located in the field by referencing to existing site features and pacing; therefore, their locations are approximate. The approximate locations of the drill holes are shown on Figure 1.

Soil samples were obtained from the drill holes using a 2-inch outside diameter (1.4-inch inside diameter) split-barrel sampler (also called a Standard Penetration Test sampler) and a 3-inch outside diameter (2½-inch inside diameter) split barrel sampler with 6-inch-long liners. Soil samples were obtained by driving the sampler up to 18 inches into the earth material using a 140-pound hammer falling 30 inches. The hammer was operated using a wire winch and pulley system. The number of blows required to drive the sampler was recorded for each 6-inch penetration interval. The number of blows required to drive the sampler the last 12 inches, or the penetration interval indicated on the log when harder material was encountered, is shown as blows per foot (blow count) on the drill hole logs.

Visual classification of soils encountered in our drill holes was made in general accordance with the Unified Soil Classification System (ASTM D 2487 and D 2488). The laboratory test results were used to refine our field classifications. Two Keys to Soil Classification, one for fine grained soils and one for coarse grained soils, are included in Appendix A together with logs of the drill holes.

2.2 LABORATORY TESTING

Laboratory tests were performed on selected soil samples. These tests included water content, dry density, Atterberg Limits, percent passing a No. 200 sieve, grain size analysis, and R-Value. The laboratory test results are presented on the drill hole logs at the corresponding sample depths. Graphic presentations of the results of the Atterberg Limits, grain size analysis and R-value tests are included in Appendix B.

3. SEISMIC CONSIDERATIONS

3.1 EARTHQUAKE FAULTING

The Greater San Francisco Bay Area is seismically dominated by the active San Andreas Fault system, the general boundary between the northward moving Pacific Plate (west of the fault) and the southward moving North American Plate (east of the fault). This movement is distributed across a complex system of generally strike-slip, right lateral, parallel and subparallel faults.

The project site is not located within a State of California Earthquake Fault Zone and no mapped active faults are known to cross the site. Regional faults that have a potential to generate large magnitude earthquakes are listed below. Approximate distances and direction from the project site to these nearby faults are tabulated below.

Fault	Approximate Map Distance (km)	Direction from Site
Calaveras	7	Northeast
Sargent	11	Southwest
Hayward	15½	Northwest
San Andreas	14½	Southwest
Zayante-Vergeles	19	Southwest

3.2 GROUND ACCELERATION AND SEISMICITY

According to ASCE 7-10, the spectral response acceleration at any period can be taken as the lesser of the spectral response accelerations from the probabilistic and deterministic ground motion approaches. We used the US Seismic Design Maps Application at the USGS website for this purpose to retrieve seismic design parameter values for design of buildings at the subject site. Two levels of ground motions are considered in the Application: Risk-targeted Maximum Considered Earthquake (MCE_R) and Design Earthquake (DE), with both probabilistic and deterministic values defined in terms of maximum-direction rather than geometric-mean, horizontal spectral acceleration. The probabilistic MCE_R spectral response accelerations are represented by a 5 percent damped acceleration response spectrum having a 1 percent probability of collapse within a 50-year period and in the direction of the maximum horizontal response. The probabilistic Design Earthquake (DE) S_a value at any period can be taken as two-thirds of the MCE_R S_a value at the same period.

Using the latitude and longitude of the site (latitude 37.11541°N, longitude -121.64371°W) and a Site Class C, the calculated geometric mean peak ground acceleration adjusted for site class effects (PGA_M) is 0.57g for the MCE. A Site Class C was selected based on regional information from the USGS website and subsurface conditions encountered.

The Working Group of California Earthquake Probabilities (WGCEP) estimates of the probabilities of major earthquakes are now in their fourth iteration, with the greatest changes in approach being the treatment of major faults as segmented, unsegmented or capable of different rupture scenarios; in the progressive consideration of more potential seismic sources, and in use of time-independent versus time-dependent models. Current estimates (WGCEP, 2003, 2008) are most detailed for the greater San Francisco Bay Area; WGCEP (2008)

estimated a 63% probability of a large (magnitude 6.7 or greater) earthquake in the San Francisco Bay area as a whole over a 30-year period; this overall probability differed only slightly from the previous (WGCEP, 2003) probability of 62%. The estimate for the Calaveras fault alone is 7% (revised down from the 11% presented by WGCEP, 2003); for the (northern) San Andreas fault alone, 21%; and for the Hayward fault, 31% (revised upward from the WGCEP (2003) value of 27%).

3.3 LIQUEFACTION

Soil liquefaction is a phenomenon in which saturated granular soils, and certain fine-grained soils, lose their strength due to the build-up of excess pore water pressure during cyclic loading, such as that induced by earthquakes. Soils most susceptible to liquefaction are saturated, clean, loose, fine-grained sands and non-plastic silts. Certain gravels, plastic silts, and clays are also susceptible to liquefaction. The primary factors affecting soil liquefaction include: 1) intensity and duration of seismic shaking; 2) soil type; 3) relative density of granular soils; 4) moisture content and plasticity of fine-grained soils; 5) overburden pressure; and 6) depth to ground water.

The site is not located in a Santa Clara County Liquefaction Hazard Zone (County of Santa Clara, October 26, 2012).

3.4 SITE COEFFICIENTS AND SEISMIC GROUND MOTION VALUES

The following site coefficients and seismic ground motion values were developed using the US Seismic Design Maps Application with ASCE 7-10 as the reference document, the site latitude and longitude, and a Site Class C.

Parameter	Value ASCE 7-10
Site Class	C
Site Coefficient F_a	1.0
Site Coefficient F_v	1.3
S_s	1.515g
S_1	0.6g
S_{Ms}	1.515g
S_{M1}	0.78g
S_{Ds}	1.01g
S_{D1}	0.52g
T_L	12 seconds

4. SITE CONDITIONS

4.1 SURFACE CONDITIONS

The combined project site is bordered by Monterey Road to the west, Keith Way to the east, commercial and residential properties to the north, and a professional office and residential properties to the south. Ground surface across the property is flat and nearly level. The western roughly one-third of the site is covered with asphalt concrete and the eastern roughly two-thirds of the site is a plowed field. The site is occupied by an shuttered restaurant building in the northwestern portion. A few mature trees are scattered on the southern end of the property. Overhead power lines lie west of the property apparently in the City right-of-way.

4.2 SUBSURFACE CONDITIONS

Two of the five drill holes were located in the existing pavement areas on the west side of the property. The pavement section encountered is roughly 3 inches of asphalt concrete with no apparent baserock below.

Subsurface soils underlying the site are alluvial soils except in DH-1 where a layer of fill was encountered below the pavement section. This fill consists of loose clayey sand with gravel to a depth of about 1½ feet below ground surface (bgs). The upper alluvial soil layer is generally stiff lean clay with sand to sandy silt extending to depths of 2 to 4 feet bgs. The upper soil layer is underlain by stiff to hard lean clays to the maximum explored depth of 15 feet in DH-1, DH-2, DH-4 and DH-5, and to a depth of about 15 feet in DH-3. In DH-3, the clays are underlain by medium dense to dense clayey sand with gravel to a depth of about 27½ feet, and very stiff lean clay with sand to the maximum explored depth of 30 feet in DH-3.

4.3 GROUNDWATER

Groundwater was not encountered in any of the drill holes. It should be noted that groundwater depth is subject to seasonal fluctuations depending on water level in nearby water courses, rainfall, local irrigation, water recharging program, well pumping, or other factors that may not be evident at the time of our investigation.

4.4 VARIATIONS IN SUBSURFACE CONDITIONS

Our interpretations of soil and groundwater conditions, as described in this report, are based on data obtained from this investigation. Our conclusions and geotechnical recommendations are based on these interpretations. It is likely that undisclosed variations in subsurface conditions exist at the site, such as old foundations, abandoned utilities and localized areas of deep and loose fill.

Careful observations should be made during construction to verify our interpretations. Should variations from our interpretations be found, we should be notified to evaluate whether any revisions should be made to our recommendations.

5. CONCLUSIONS AND DISCUSSION

5.1 GENERAL

Based on the results of our investigation, it is our opinion that, from a geotechnical viewpoint, it is feasible to develop the site as proposed provided the recommendations presented in this report are incorporated in the project design and construction. A summary of the geotechnical considerations and conclusions are presented below. Detailed geotechnical recommendations are presented in the "Recommendations" section of this report.

5.2 SURFACE RUPTURE AND SEISMIC GROUND SHAKING

Because the site is not located within a State of California Earthquake Fault Zone and no mapped active faults are known to cross the site, the probability of ground surface rupture at the site due to displacement along a fault is remote.

The site is in an area of high seismicity. Based on general knowledge of the site seismicity, it should be anticipated that, during its useful life, the proposed development will be subject to at least one severe earthquake (magnitude 7 to 8+) that could cause strong ground shaking at the site. It is also anticipated that the subject site will periodically experience small to moderate magnitude earthquakes. Proposed improvements should be designed accordingly.

5.3 LIQUEFACTION

The project site is not located within a Santa Clara County Liquefaction Hazard Zone, or State of California (California Geological Survey) Seismic Hazard Zone (CGS, 2004).

5.4 SOIL EXPANSION POTENTIAL

The surficial layer of soil consists of lean clay with sand, and sandy lean clay of low plasticity. These soils are anticipated to have a low expansion potential.

5.5 EXISTING STRUCTURES

This site is occupied by an existing structure and improvements. Prior to the start of construction, the existing structure and improvements should be removed and the resulting excavations should be backfilled per the recommendations in this report.

6. RECOMMENDATIONS

6.1 EARTHWORK

6.1.1 Site Clearing and Stripping

Site clearing should include removal of designated improvements, deleterious materials, debris, obstructions including existing building, foundations, pavements, concrete slabs, and underground utilities. Stumps and primary roots of trees and brush should also be removed. Roots 1 inch or larger in diameter or about 3 feet or longer in length should be removed. Depressions, voids and holes that extend below proposed finish grade should be cleaned and backfilled with engineered fill compacted to the recommendations in this report.

Surface vegetation in construction areas should be stripped to sufficient depth to remove vegetation and organic-laden topsoil. Organic laden soils are defined as soils with more than 3 percent by weight of organic content. For planning, an average stripping depth of 3 inches may be assumed in unpaved areas. Actual stripping depth should be determined based on site conditions at the time of construction. Stripped material may be stockpiled for use in future landscape areas if approved by the project landscape architect; otherwise, it should be removed from the site.

6.1.2 Excavations

Excavations for this project will include cuts to achieve design grades, and foundation and utility trench excavations. The walls of excavations less than 5 feet in height in clayey soil should be able to stand near vertical with minimal bracing, provided proper moisture content in the soil is maintained. The project designers and contractors must consider the presence of sandy soils which have low or no cohesion and can “collapse” suddenly unless the soils are properly shored or laid back. Excavations should be constructed in accordance with the current CAL-OSHA safety standards and local jurisdiction. The stability and safety of excavations, braced or unbraced, is the responsibility of the contractor.

Trench excavations adjacent to existing or proposed foundations should be above an imaginary plane having an inclination of 1½:1 (horizontal to vertical) extending down from the bottom edge of all foundations.

6.1.3 Subgrade Preparation

Subgrade soil in areas to receive engineered fill, building foundations, concrete slabs-on-grade and pavements should be scarified to a minimum depth of 8 inches; moisture conditioned and compacted to the recommendations given under the “Engineered Fill Placement and Compaction” section of this report.

Subgrade preparation should extend a minimum of 5 feet beyond the limits of buildings and at least 3 feet beyond the outermost limits of slabs, pavements or engineered fills. Prepared soil subgrades should be non-yielding when proof-rolled by a fully loaded water truck or equipment of similar weight. Moisture conditioning of subgrade soils should consist of adding water if the soils are too dry and allowing the soils to dry if the soils are too wet. After the subgrades have been prepared, the areas may be raised to design grades by placement of engineered fill.

If unstable, wet or soft soil is encountered, the soil will require processing before compaction can be achieved. When construction schedule does not allow for air-drying, other means such

as lime treatment, over-excavation and replacement, geotextile fabrics, etc. may be considered to help stabilize the subgrade. The method to be used should be determined at the time of construction based on the actual site conditions. We recommend obtaining unit prices for subgrade stabilization during the construction bid process.

6.1.4 Material for Engineered Fill

In general, on-site soils with an organic content of less than 3 percent by weight, free of any hazardous or deleterious materials, and meeting the gradation requirements below may be used as engineered fill, except when special material (such as capillary break material) is required.

In general, engineered fill material should not contain rocks or lumps larger than 4 inches in greatest dimension, should not contain more than 20 percent of the material larger than 2 inches, and should contain at least 20 percent passing the No. 200 sieve. In addition to these requirements, import fill should have a low expansion potential as indicated by Plasticity Index of 15 or less, or Expansion Index of less than 20.

All import fills should be approved by the project geotechnical engineer prior to delivery to the site. At least five (5) working days prior to importing to the site, a representative sample of the proposed import fill should be delivered to our laboratory for evaluation.

6.1.5 Engineered Fill Placement and Compaction

Engineered fill should be placed in horizontal lifts each not exceeding 8 inches in thickness, moisture conditioned to the required moisture content, and mechanically compacted to the recommendations below. Relative compaction or compaction is defined as the in-place dry density of the compacted soil divided by the laboratory maximum dry density as determined by ASTM Test Method D1557, latest edition, expressed as a percentage. Moisture conditioning of soils should consist of adding water to the soils if they are too dry and allowing the soils to dry if they are too wet.

On-site and imported soils used as engineered fill should be compacted to a minimum of 90 percent relative compaction with moisture content between about 1 to 3 percent above the optimum value. In pavement areas, the upper 8 inches of subgrade soil should be compacted to a minimum of 95 percent relative compaction with moisture content between 1 and 3 percent above the optimum value. Aggregate base in vehicle pavement areas should be compacted at slightly above the optimum moisture content to a minimum of 95 percent relative compaction.

6.1.6 Utility Trench Backfill

Refer to the "Excavations" section of this report for trenching of underground utilities.

Pipe zone backfill, extending from the bottom of the trench to about 1 foot above the top of pipe, may consist of free-draining sand (less than 5% passing a No. 200 sieve), lean concrete or sand cement slurry. Sand if used as bedding should be compacted to a minimum of 90 percent relative compaction.

Above the pipe zone, utility trenches may be backfilled with on-site soil or imported soil. Trench backfill material should be compacted to the requirements given in the section of "Engineered Fill Placement and Compaction." Trench backfill should be capped with at least 12 inches of compacted, on-site soil similar to that of the adjoining subgrade. The upper 8 inches of trench

backfill in areas to be paved should be compacted as recommended for pavement areas. The backfill material should be placed in lifts not exceeding 6 inches in uncompacted thickness. Thinner lifts may be necessary to achieve the recommended level of compaction of the backfill due to equipment limitations. Compaction should be performed by mechanical means only. Water jetting or flooding to attain compaction of backfill should not be permitted.

Trench excavations adjacent to existing or proposed foundations should be above an imaginary plane having an inclination of 1½:1 (horizontal to vertical) extending down from the bottom edge of the foundations.

Trenches in City of Morgan Hill rights-of-way should comply with the City's requirements.

6.1.7 Considerations for Soil Moisture and Seepage Control

Subgrade soil and engineered fill should be compacted at a moisture content meeting our recommendations. Once compacted, soils should be protected from drying and wetting.

Consideration should be given to reducing the potential for water infiltration from the exterior to under the proposed building slabs through utility line trenches crossing the perimeter. For utility lines passing beneath perimeter foundations, permeable trench backfill should be terminated at least 1 foot outside of the perimeter foundation. Impermeable material, such as concrete or clay soil, should be used for the entire trench depth to act as a seepage cutoff.

Where concrete slabs or pavements abut against landscaped areas, the base rock layer and subgrade soil should be protected against saturation. Water if allowed to seep into the subgrade soil or pavement section could reduce the service life of the improvements. Methods that may be considered to reduce infiltration of water include: 1) subdrains installed behind curbs and slabs in landscape areas; 2) vertical cut-offs, such as a deepened curb section, or equivalent, extending at least 2 inches into the subgrade soil; and 3) use of drip irrigation system for landscape watering.

6.1.8 Wet Weather Construction

If site grading and construction is to be performed during the winter rainy months, the owner and contractors should be fully aware of the potential impact of wet weather. Rainstorms can cause delay to construction and damage to previously completed work by saturating compacted pads or subgrades, or flooding excavations.

Earthwork during rainy months will require extra effort and caution by the contractors. The grading contractor should be responsible to protect his work to avoid damage by rainwater. Standing pools of water should be pumped out immediately. Construction during wet weather conditions should be addressed in the project construction bid documents and/or specifications. We recommend the grading contractor submit a wet weather construction plan outlining procedures they will employ to protect their work and to minimize damage to their work by rainstorms.

6.2 BUILDING FOUNDATIONS

The proposed buildings may be supported on conventional shallow foundations bearing on properly compacted engineered fill and/or undisturbed native soil. Refer to the "Earthwork" section of this report for preparation of subgrade soil and compaction of engineered fill.

Footings foundations may be designed using a net allowable soil bearing pressure of 2,500 pounds per square foot when considering dead load plus normal live loading. This allowable bearing pressure may be increased by one-third when considering short term wind or seismic loading. Foundations should have a minimum width of 15 inches and a minimum embedment of 18 inches below rough pad grade or lowest adjacent finished grade, whichever provides a deeper embedment.

Resistance to lateral loads may be developed from a combination of friction between the bottom of foundations and the supporting subgrade, and by passive resistance acting against the vertical sides of the foundations. An ultimate friction coefficient of 0.3 may be used for friction between the foundations and supporting subgrade. Ultimate passive pressure may be calculated using an equivalent fluid weight of 300 pounds per cubic foot (pcf) acting against the embedded sides of the foundations. The passive pressure can be assumed to act starting at the top of the lowest adjacent grade in paved areas. In unpaved areas, the passive pressure may be assumed to act starting at a depth of 1 foot below grade. It should be noted that the passive resistance value discussed above is only applicable where the concrete is placed directly against undisturbed soil or engineered fills. Voids created by the use of forms should be backfilled with soil compacted to the requirements given in this report or with concrete.

Concrete should be placed only in foundation excavations that are clean and free of loose soils or debris. Foundation excavations should be maintained in a moist condition prior to placement of concrete. A member of our staff should inspect all foundation excavations to verify that adequate foundation bearing soils have been reached.

Total post-construction settlement of the new buildings is anticipated to be less than 1 inch, with up to ½ inch of differential settlement along a roughly 30-foot section of the foundations.

6.3 CONCRETE SLABS-ON-GRADE

Concrete slabs-on-grade will include both interior slabs and exterior flatwork. Concrete slabs-on-grade should be constructed on subgrade soil and/or engineered fill that has been prepared as outlined in the "Earthwork" section of this report. Slab subgrades should be maintained in a moist condition prior to placement of concrete for the slabs.

Concrete slabs-on-grade that will be covered with moisture sensitive floor coverings, or where vapor transmission through the slabs is undesirable, should be underlain by at least 4 inches of capillary break material such as free draining, clean drain rock or 3/8 inch pea gravel. A visqueen should be placed over the capillary break material. The visqueen should be a high quality polymer at least 10 mils thick that is resistant to puncture during slab construction. The visqueen is typically covered by 1 to 2 inches of sand.

A lower water-cement ratio (0.45 to 0.50) will also help reduce the permeability of the floor slab. It should be understood that the recommended plastic membrane is not intended to waterproof the concrete slab floor. If waterproofing is desired, the project designers and/or a flooring expert should be contacted.

For on-site exterior flatwork, where moisture transmission through the slabs is not an issue, concrete slabs may be constructed directly on soil subgrades that have been prepared and compacted as outlined in the "Earthwork" section of this report.

6.4 VEHICLE PAVEMENTS

Vehicle pavements for this project will consist of on-site driveways and parking areas. An R-value of 41 was measured at an exudation pressure of 300 psi on a bulk sample of soil collected from the site. The R-value was adjusted for measured expansion pressure in our design. Using procedures developed by Caltrans, recommended alternative minimum pavement sections were developed and are presented in the table below. These pavement sections assume a 20-year design life, with periodically maintenance and repair. The design traffic index for each area should be determined by the project civil engineer and owner.

TRAFFIC INDEX	ASPHALT CONCRETE (inches)	CLASS 2 AGGREGATE BASE (inches)	TOTAL (inches)
4.5	2.5	5.0	7.5
5.0	3.0	5.5	8.5
5.5	3.0	6.5	9.5
6.0	3.5	7.0	10.5

A traffic index of 4.5 should be limited to parking stalls only. A traffic index of 5.0 should be considered for traffic lanes. A traffic index of 5.5 should be considered for areas subject to heavy vehicles such as garbage trucks. Pavement section in the City of Morgan Hill right-of-way should comply with the City's minimum requirements.

Pavement sections should be constructed on soil subgrades that have been prepared as outlined in the "Earthwork" section of this report. The upper 8 inches of soil subgrade beneath pavements should be compacted to a minimum of 95 percent relative compaction (ASTM D1557, latest edition). The full section of aggregate base should be compacted to a minimum of 95 percent relative compaction (ASTM D1557, latest edition).

Asphalt Concrete should meet the requirements for 1/2- or 3/4-inch maximum, medium Type A asphalt concrete, Section 39, Caltrans Standard Specifications, latest edition. The Class 2 Aggregate Base material should conform to Section 26 of the Caltrans Standard Specifications.

6.5 SURFACE DRAINAGE

Engineering design of grading and drainage at the site is the responsibility of the project Civil Engineer. We recommend the following be considered and incorporated into the project plans where appropriate.

Sufficient surface drainage should be provided to direct runoff away from buildings, foundations, concrete slabs-on-grade and pavements, and towards suitable collection and discharge facilities. Ponding of surface water should be avoided by establishing positive drainage away from all improvements. Water collected from roof downspouts should be discharged into a closed pipe or towards drainage structures, and the water carried to a suitable discharge point.

Over-watering could result in soil saturation and subsequent distress to site improvements. Trees should be planted away from structures, concrete slabs, utilities, pavements, etc. because tree roots could cause distress to those improvements. A qualified engineer and/or landscape architect should be consulted regarding appropriate plantings and irrigation design.

7. POST-REPORT GEOTECHNICAL SERVICES

Post-report geotechnical services by Pacific Geotechnical Engineering (PGE), typically consisting of pre-construction design consultations and reviews, construction observation and testing services, are necessary for PGE to confirm the recommendations contained in this report. This report is based on limited sampling and investigation, and by those constraints may not have discovered local anomalies or other varying conditions that may exist on the project site. Therefore, this report is only preliminary until PGE can confirm that actual conditions in the ground conform to those anticipated in the report. Accordingly, as an integral part of this report, PGE recommends post-report geotechnical services to finalize the report and assist the project team during design and construction of the project. PGE requires that it perform these services if it is to remain as the project geotechnical engineer-of-record.

During design, PGE can provide consultation and supplemental recommendations to assist the project team in design and value engineering, especially if the project design has been modified after completion of our report. It is impossible for us to anticipate every design scenario and use of construction materials during preparation of our report. Therefore, retaining PGE to provide post-report consultation will help address design changes, answer questions and evaluate alternatives proposed by the project designers and contractors.

Prior to issuing project plans and specifications for construction bidding purposes, PGE should review the grading, drainage and foundation plans and the project specifications to determine if the intent of our recommendations has been incorporated in these documents. We have found that such a review process will help reduce the likelihood of misinterpretation of our recommendations which may cause construction delay and additional cost.

Construction phase services can include, among other things, the observation and testing during site clearing, stripping, excavation, mass grading, subgrade preparation, fill placement and compaction, backfill compaction, foundation construction and pavement construction activities.

Pacific Geotechnical Engineering would be pleased to provide cost proposals for follow-up geotechnical services. Post-report geotechnical services may include additional field and laboratory services.

8. LIMITATIONS

In preparing the findings and professional opinions presented in this report, we have endeavored to follow generally accepted principles and practices of the geotechnical engineering profession in the area and at the time our services were performed. No warranty, express or implied, is provided.

The conclusions and recommendations contained in this report are based, in part, on information that has been provided to us. In the event that the general development concept or general location and type of structures are modified, our conclusions and recommendations shall not be considered valid unless we are retained to review such changes and to make any necessary additions or changes to our recommendations. To remain as the project geotechnical engineer-of-record, PGE must be retained to provide geotechnical services as discussed under the Post-report Geotechnical Services section of this report.

Subsurface exploration is necessarily confined to selected locations and conditions may, and often do, vary between these locations. Should conditions different from those described in this report be encountered during project development, PGE should be consulted to review the conditions and determine whether our recommendations are still valid. Additional exploration, testing, and analysis may be required for such evaluation.

Should persons concerned with this project observe geotechnical features or conditions at the site or surrounding areas which are different from those described in this report, those observations should be reported immediately to Pacific Geotechnical Engineering for evaluation.

It is important that the information in this report be made known to the design professionals involved with the project, that our recommendations be incorporated into project drawings and documents, and that the recommendations be carried out during construction by the contractor and subcontractors. It is not the responsibility of Pacific Geotechnical Engineering to notify the design professionals and the project contractors and subcontractors.

The findings, conclusions and recommendations presented in this report are applicable only to the specific project development on this specific site. These data should not be used for other projects, sites or purposes unless they are reviewed by PGE or a qualified geotechnical professional.

Report prepared by,

Pacific Geotechnical Engineering

Grant R. Deem
Staff Geologist

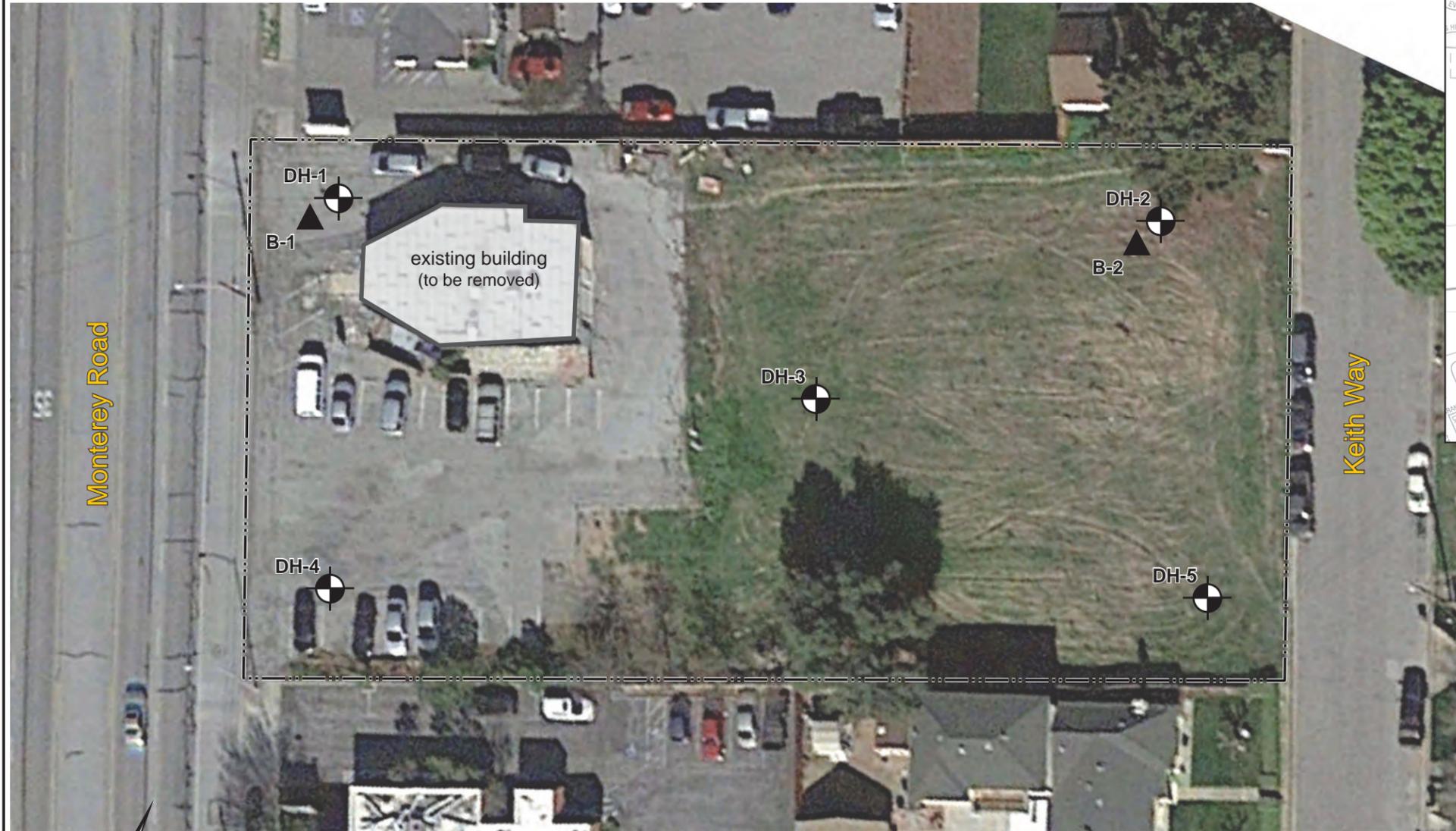
GD:BL\ GRF

Chalerm "Beeson" Liang
Principal Geotechnical Engineer

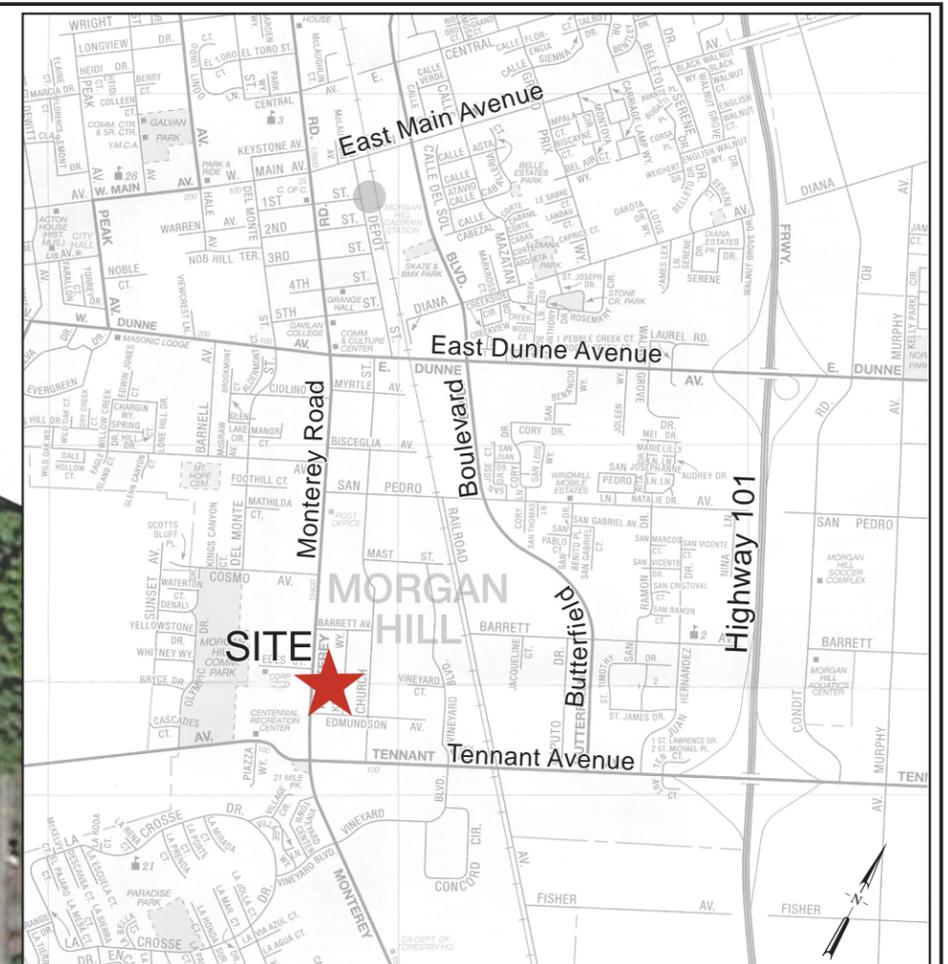


FIGURE

Figure 1 – Site Plan



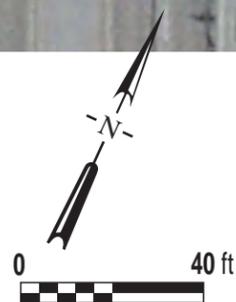
BASE: Google Earth Pro image.



VICINITY MAP - no scale

EXPLANATION

- DH-5 Exploratory drill hole
- B-2 Bulk sample



	DATE JUNE 2014	SITE PLAN	FIGURE 1
	PHASE 100	MORGAN HILL AFFORDABLE HOUSING 16170 and 16180 MONTEREY ROAD MORGAN HILL, CALIFORNIA	
			PROJECT 2014.0078

APPENDIX A
Keys to Soil Classification
And
Drill Hole Logs

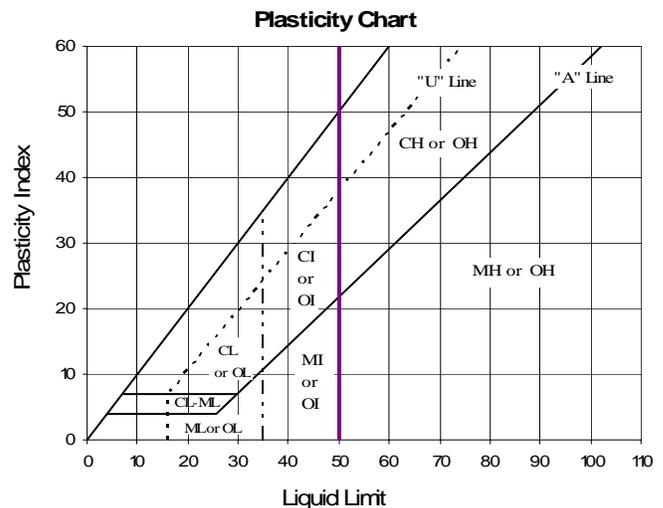
KEY TO SOIL CLASSIFICATION - FINE GRAINED SOILS
(50% OR MORE IS SMALLER THAN NO. 200 SIEVE SIZE)
(modified from ASTM D2487 to include fine grained soils with intermediate plasticity)

MAJOR DIVISIONS			GROUP SYMBOLS	GROUP NAMES
SILTS AND CLAYS (Liquid Limit less than 35) Low Plasticity	Inorganic	PI < 4 or plots below "A" line	ML	Silt, Silt with Sand or Gravel, Sandy or Gravelly Silt, Sandy or Gravelly Silt with Sand or Gravel
	Inorganic	PI > 7 or plots on or above "A" line	CL	Lean Clay, Lean Clay with Sand or Gravel, Sandy or Gravelly Lean Clay, Sandy or Gravelly Lean Clay with Sand or Gravel
	Inorganic	PI between 4 and 7	CL-ML	Silty Clay, Silty Clay with Sand or Gravel, Sandy or Gravelly Silty Clay, Sandy or Gravelly Silty Clay with Sand or Gravel
	Organic	See footnote 3	OL	Organic Silt (below "A" Line) or Organic Clay (on or above "A" Line) ^(1,2)
SILTS AND CLAYS (35 ≤ Liquid Limit < 50) Intermediate Plasticity	Inorganic	PI < 4 or plots below "A" line	MI	Silt, Silt with Sand or Gravel, Sandy or Gravelly Silt, Sandy or Gravelly Silt with Sand or Gravel
	Inorganic	PI > 7 or plots on or above "A" line	CI	Clay, Clay with Sand or Gravel, Sandy or Gravelly Clay, Sandy or Gravelly Clay with Sand or Gravel
	Organic	See footnote 3	OI	Organic Silt (below "A" Line) or Organic Clay (on or above "A" Line) ^(1,2)
SILTS AND CLAYS (Liquid Limit 50 or greater) High Plasticity	Inorganic	PI plots below "A" line	MH	Elastic Silt, Elastic Silt with Sand or Gravel, Sandy or Gravelly Elastic Silt, Sandy or Gravelly Elastic Silt with Sand or Gravel
	Inorganic	PI plots on or above "A" line	CH	Fat Clay, Fat Clay with Sand or Gravel, Sandy or Gravelly Fat Clay, Sandy or Gravelly Fat Clay with Sand or Gravel
	Organic	See note 3 below	OH	Organic Silt (below "A" Line) or Organic Clay (on or above "A" Line) ^(1,2)

1. If soil contains 15% to 29% plus No. 200 material, include "with sand" or "with gravel" to group name, whichever is predominant.
2. If soil contains ≥30% plus No. 200 material, include "sandy" or "gravelly" to group name, whichever is predominant. If soil contains ≥15% of sand or gravel sized material, add "with sand" or "with gravel" to group name.
3. Ratio of liquid limit of oven dried sample to liquid limit of not dried sample is less than 0.75.

CONSISTENCY	UNCONFINED SHEAR STRENGTH (KSF)	STANDARD PENETRATION (BLOWS/FOOT)
VERY SOFT	< 0.25	< 2
SOFT	0.25 – 0.5	2 – 4
FIRM	0.5 – 1.0	5 – 8
STIFF	1.0 – 2.0	9 – 15
VERY STIFF	2.0 – 4.0	16 – 30
HARD	> 4.0	> 30

MOISTURE	CRITERIA
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp, but no visible water
Wet	Visible free water, usually soil is below the water table



KEY TO SOIL CLASSIFICATION – COARSE GRAINED SOILS
(MORE THAN 50% IS LARGER THAN NO. 200 SIEVE SIZE)
(modified from ASTM D2487 to include fines with intermediate plasticity)

MAJOR DIVISIONS		GROUP SYMBOLS	GROUP NAMES ¹
GRAVELS (more than 50% of coarse fraction is larger than No. 4 sieve size)	Gravels with less than 5% fines	$Cu \geq 4$ and $1 \leq Cc \leq 3$	GW Well Graded Gravel, Well Graded Gravel with Sand
		$Cu < 4$ and/or $1 > Cc > 3$	GP Poorly Graded Gravel, Poorly Graded Gravel with Sand
	Gravels with 5% to 12% fines	ML, MI or MH fines	GW-GM Well Graded Gravel with Silt, Well Graded Gravel with Silt and Sand
			GP-GM Poorly Graded Gravel with Silt, Poorly Graded Gravel with Silt and Sand
		CL, CI or CH fines	GW-GC Well Graded Gravel with Clay, Well Graded Gravel with Clay and Sand
			GP-GC Poorly Graded Gravel with Clay, Poorly Graded Gravel with Clay and Sand
	Gravels with more than 12% fines	ML, MI or MH fines	GM Silty Gravel, Silty Gravel with Sand
		CL, CI or CH fines	GC Clayey Gravel, Clayey Gravel with Sand
		CL-ML fines	GC-GM Silty Clayey Gravel; Silty, Clayey Gravel with Sand
	SANDS (50% or more of coarse fraction is smaller than No. 4 sieve size)	Sands with less than 5% fines	$Cu \geq 6$ and $1 \leq Cc \leq 3$
$Cu < 6$ and/or $1 > Cc > 3$			SP Poorly Graded Sand, Poorly Graded Sand with Gravel
Sands with 5% to 12% fines		ML, MI or MH fines	SW-SM Well Graded Sand with Silt, Well Graded Sand with Silt and Gravel
			SP-SM Poorly Graded Sand with Silt, Poorly Graded Sand with Silt and Gravel
		CL, CI or CH fines	SW-SC Well Graded Sand with Clay, Well Graded Sand with Clay and Gravel
			SP-SC Poorly Graded Sand with Clay, Poorly Graded Sand with Clay and Gravel
Sands with more than 12% fines		ML, MI or MH fines	SM Silty Sand, Silty Sand with Gravel
		CL, CI or CH fines	SC Clayey Sand, Clayey Sand with Gravel
		CL-ML fines	SC-SM Silty, Clayey Sand; Silty, Clayey Sand with Gravel

US STANDARD SIEVES

3 Inch ¾ Inch No. 4 No. 10 No. 40 No. 200

	COARSE	FINE	COARSE	MEDIUM	FINE	
COBBLES & BOULDERS	GRAVELS		SANDS			SILTS AND CLAYS

RELATIVE DENSITY (SANDS AND GRAVELS)	STANDARD PENETRATION (BLOWS/FOOT)
Very Loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	50+

1. Add "with sand" to group name if material contains 15% or greater of sand-sized particle. Add "with gravel" to group name if material contains 15% or greater of gravel-sized particle.

MOISTURE	CRITERIA
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp, but no visible water
Wet	Visible free water, usually soil is below the water table

DATE: 5/15/2014		LOG OF EXPLORATORY DRILL HOLE							DH- 1				
PROJECT NAME: Morgan Hill Affordable Housing - 16170 & 16180 Monterey Road		PROJECT NUMBER: 2014.0078 Phase 100											
DRILL RIG: Mobile B56 140# down hole hammer & wire winch					LOGGED BY: GD								
HOLE DIAMETER: 8" hollow stem auger					HOLE ELEVATION: ----								
SAMPLER: D = 3" OD, 2½" ID Split-spoon X = 2½" OD, 2" ID Split-spoon I = Standard Penetrometer (2" OD SPT) S = Slough in sample					GROUND WATER DEPTH: Initial: --- Final: ---								
DESCRIPTION OF EARTH MATERIALS		SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
PAVEMENT: ±3 AC, no base													
FILL: CLAYEY SAND WITH GRAVEL: dark yellowish brown (10YR 3/4), moist, loose; angular fine gravel.		SC	1										
ALLUVIUM: LEAN CLAY WITH SAND: Dark yellowish brown (10YR 3/3), moist, stiff;		CL	2	S									
			3	D	10	2							
			3	D		2.5	84		19		107		
LEAN CLAY: Dark yellowish brown (10YR 3/3), moist, very stiff to hard		CL	4	S									
			5	D	34	2.25			22		106		
			5	D		3.5							
			6										
			7										
			8										
			9	S									
			10	D	37								
			11										
			12										
			13										
grades coarser			14	S									
			15	I	27								
BOTTOM OF HOLE = 15 Feet No groundwater encountered			16										
			17										
			18										
			19										
			20										
PACIFIC GEOTECHNICAL ENGINEERING										PAGE: 1 of 1			

DATE: 5/15/2014		LOG OF EXPLORATORY DRILL HOLE							DH- 2				
PROJECT NAME: Morgan Hill Affordable Housing - 16170 & 16180 Monterey Road		PROJECT NUMBER: 2014.0078 Phase 100											
DRILL RIG: Mobile B56 140# downhole hammer & wire winch					LOGGED BY: GD								
HOLE DIAMETER: 8" hollow stem auger					HOLE ELEVATION: ----								
SAMPLER: D = 3" OD, 2½" ID Split-spoon X = 2½" OD, 2" ID Split-spoon I = Standard Penetrometer (2" OD SPT) S = Slough in sample					GROUND WATER DEPTH: Initial: --- Final: ---								
DESCRIPTION OF EARTH MATERIALS		SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
ALLUVIUM: LEAN CLAY WITH SAND: Yellowish brown (10YR 5/6), moist, stiff		CL	1										
			2	S	15			24	10	8	102		
			3	D									
LEAN CLAY: Dark yellowish brown (10YR 3/6), moist, hard;		CL	4	S	43				16		116		
			5	D									
			6										
			7										
			8										
			9	S	40								
			10	D									
			11										
			12										
			13										
			14	S	31								
			15	I									
BOTTOM OF HOLE = 15 Feet No groundwater encountered			16										
			17										
			18										
			19										
			20										
PACIFIC GEOTECHNICAL ENGINEERING										PAGE: 1 of 1			

DATE: 5/15/2014		LOG OF EXPLORATORY DRILL HOLE						DH- 3						
PROJECT NAME: Morgan Hill Affordable Housing - 16170 & 16180 Monterey Road		PROJECT NUMBER: 2014.0078 Phase 100												
DRILL RIG: Mobile B56 140# downhole hammer & wire winch						LOGGED BY: GD								
HOLE DIAMETER: 8" hollow stem auger						HOLE ELEVATION: ----								
SAMPLER: D = 3" OD, 2½" ID Split-spoon X = 2½" OD, 2" ID Split-spoon I = Standard Penetrometer (2" OD SPT) S = Slough in sample						GROUND WATER DEPTH: Initial: --- Final: ---								
DESCRIPTION OF EARTH MATERIALS		SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)	
ALLUVIUM: SANDY SILT to LEAN CLAY WITH SAND: Dark yellowish brown (10YR 4/6), moist, very stiff		ML/CL	1	S										
			2	D	18				16		108			
LEAN CLAY: Dark yellowish brown (10YR 3/6), moist, very stiff;			3	S										
			4	D	54									
			5											
			6											
			7											
			8											
			9	S										
			10	D	31				19		111			
			11											
			12											
fine gravel at bottom of SPT			13											
			14	S	29									
CLAYEY SAND WITH GRAVEL: Dark yellowish brown (10YR 3/6), moist, medium dense to very dense; fine to coarse angular sand with fine gravel		SC	15	I										
			16											
			17											
			18											
hard drilling			19	S										
			20	I	50									
PACIFIC GEOTECHNICAL ENGINEERING										PAGE: 1 of 2				

DATE: 5/15/2014		LOG OF EXPLORATORY DRILL HOLE						DH- 3						
PROJECT NAME:		Morgan Hill Affordable Housing - 16170 & 16180 Monterey Road						PROJECT NUMBER:		2014.0078 Phase 100				
DRILL RIG: Mobile B56 140# downhole hammer & wire winch						LOGGED BY: GD								
HOLE DIAMETER: 8" hollow stem auger						HOLE ELEVATION: ----								
SAMPLER: D = 3" OD, 2½" ID Split-spoon X = 2½" OD, 2" ID Split-spoon I = Standard Penetrometer (2" OD SPT) S = Slough in sample						GROUND WATER DEPTH: Initial: --- Final: ---								
DESCRIPTION OF EARTH MATERIALS		SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)	
CLAYEY SAND WITH GRAVEL: contiued		SC	21											
			22											
			23											
			24	S I I										
			25		42	15								
			26											
			27											
LEAN CLAY WITH SAND: Dark yellowish brown (10YR 3/4), moist, very stiff;		CL	28											
			29	S I I	18									
BOTTOM OF HOLE = 30 Feet No groundwater encountered			30											
			31											
			32											
			33											
			34											
			35											
			36											
			37											
			38											
			39											
			40											

DATE: 5/15/2014		LOG OF EXPLORATORY DRILL HOLE							DH- 4					
PROJECT NAME: Morgan Hill Affordable Housing - 16170 & 16180 Monterey Road		PROJECT NUMBER: 2014.0078 Phase 100												
DRILL RIG: Mobile B56 140# downhole hammer & wire winch					LOGGED BY: GD									
HOLE DIAMETER: 8" hollow stem auger					HOLE ELEVATION: ----									
SAMPLER: D = 3" OD, 2½" ID Split-spoon X = 2½" OD, 2" ID Split-spoon I = Standard Penetrometer (2" OD SPT) S = Slough in sample					GROUND WATER DEPTH: Initial: --- Final: ---									
DESCRIPTION OF EARTH MATERIALS		SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)	
PAVEMENT: ±3 AC, no base														
LEAN CLAY WITH SAND: Dark yellowish brown (10YR 4/6), moist, very stiff;		CL	1											
grades finer to LEAN CLAY very stiff to hard			2	S	17	4.5								
			3	D		3.5								
			4	S	37	2.75				23		105		
			5	D		3.5								
			6											
			7											
			8											
			9	S	38	4.5+								
			10	D										
			11											
	12													
	13	S												
	14	I	41											
	15													
BOTTOM OF HOLE = 15 Feet No groundwater encountered			16											
	17													
	18													
	19													
	20													
PACIFIC GEOTECHNICAL ENGINEERING										PAGE: 1 of 1				

DATE: 5/15/2014		LOG OF EXPLORATORY DRILL HOLE							DH- 5					
PROJECT NAME:		Morgan Hill Affordable Housing - 16170 & 16180 Monterey Road					PROJECT NUMBER:		2014.0078 Phase 100					
DRILL RIG:		Mobile B56 140# downhole hammer & wire winch					LOGGED BY:		GD					
HOLE DIAMETER:		8" hollow stem auger					HOLE ELEVATION:		----					
SAMPLER:		D = 3" OD, 2½" ID Split-spoon X = 2½" OD, 2" ID Split-spoon I = Standard Penetrometer (2" OD SPT) S = Slough in sample					GROUND WATER DEPTH:		Initial: --- Final: ---					
DESCRIPTION OF EARTH MATERIALS		SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)	
ALLUVIUM: SANDY SILT to LEAN CLAY WITH SAND: Yellowish brown (10YR 5/6), moist, stiff		ML/CL	1											
LEAN CLAY: Dark yellowish brown (10YR 3/6), moist, hard;		CL	2	S										
			3	D	12	4.5+		11	105					
		CL	4	S										
			5	D	49	4.5+	4.5+							
			6											
			7											
			8											
		CL	9	S										
			10	D	42	4.5+	4.5+							
			11											
			12											
			13											
			14	S										
			15	I		36								
BOTTOM OF HOLE = 15 Feet No groundwater encountered			16											
	17													
	18													
	19													
	20													
PACIFIC GEOTECHNICAL ENGINEERING										PAGE: 1 of 1				

APPENDIX B

Laboratory Test Results

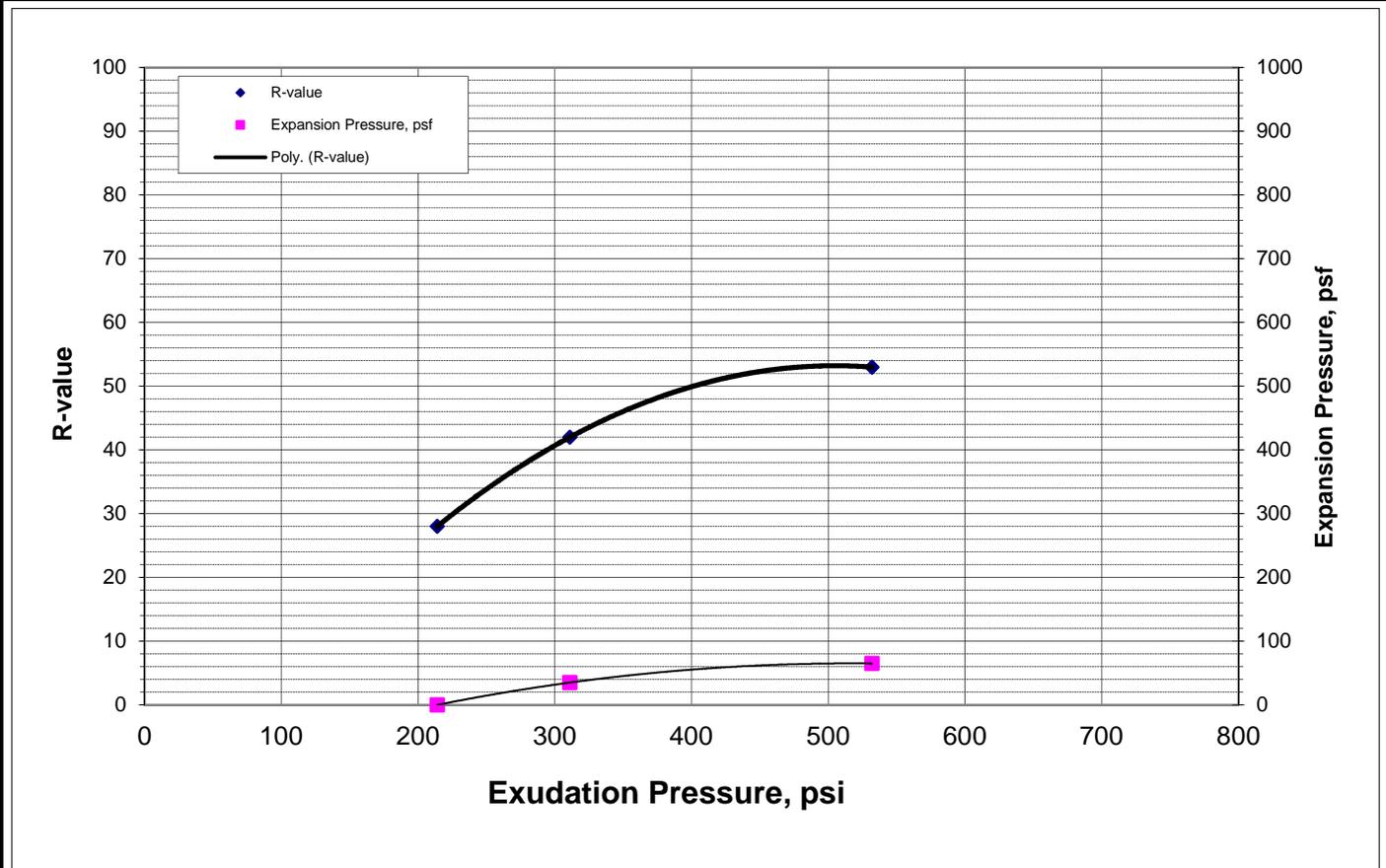
PROJECT NAME MH Affordable Housing - Monterey Road Sites PROJECT No. 2014.0078 Phase 100

DRILL HOLE NO. DH-1 DEPTH (ft) 0-3 SAMPLE DATE OF TEST 5/27/2014

SOURCE/QUARRY:

SOIL DESCRIPTION: Sandy Clay with Gravel, brown

Specimen Number	A	B	C	D	Remarks:
Exudation Pressure, psi	311	214	532		Initial Moisture= 3.7 %
Prepared Weight, grams					R-value by Stabilometer 41
Final Water Added, grams/cc					
Weight of Soil & Mold, grams					Expansion Pressure 32 psf
Weight of Mold, grams					
Height After Compaction, in.	2.535	2.51	2.488		
Moisture Content, %	12.6	13.4	11.7		
Dry Density, pcf	116.8	117.2	117.6		
Expansion Pressure, psf	35	0	65		
Stabilometer @ 1000	34	45	28		
Stabilometer @ 2000	73	96	59		
Turns Displacement	4.09	4.2	3.74		
R-value	42	28	53		



Figure

Client: PACIFIC GEOTECHNICAL ENGINEERING

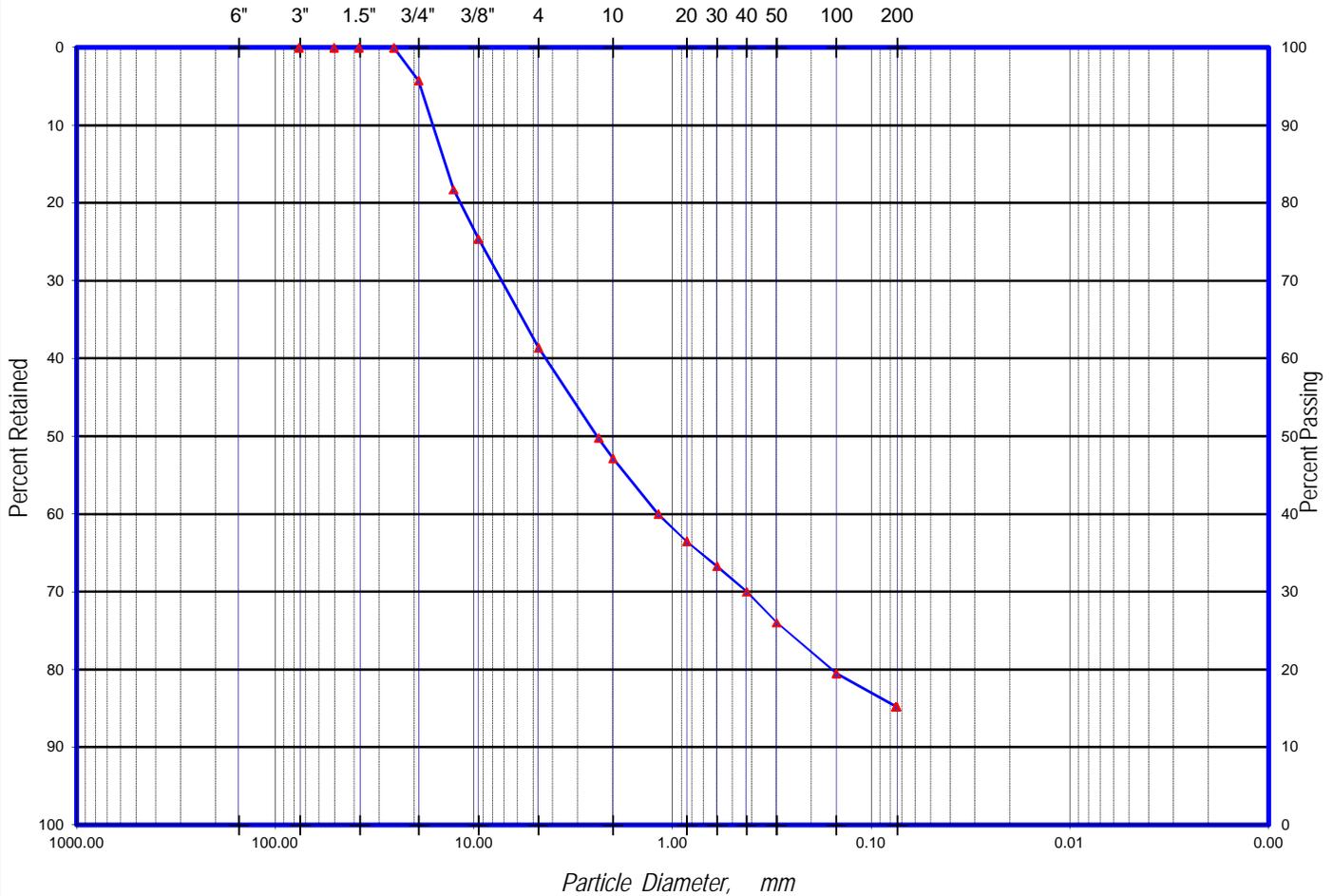
Project No: 2014.0078.100

Lab Sample No: **3715G**

Project Name: MORGAN HILL AFFORDABLE HOUSING

Report Date: May 30, 2014

BOULDERS	COBBLES	GRAVEL		SAND			SILT AND CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
US SIEVE SIZE, INCHES		US STANDARD SIEVE SIZE No.			HYDROMETER		



Symbol	Sample ID	* Description	% Gravel	% Sand	% Silt - Clay
▲	DH-3 @ 23.5-25.0	Brown Silty Clayey Sand with Gravel	38.6	46.2	15.2

Size Passing, mm $D_{60} = 4.46$ $D_{30} = 0.42$ $D_{10} = N/A$
 Coefficient of Curvature, C_c : N/A Coefficient of Uniformity, C_u : N/A Fineness Modulus = 3.99

* Visual Classification based on ASTM D-2488
 Note: * Percentages are +/- 0.1% based on computer rounding as allowed by ASTM D-6026-01 Section 5.2.3.

This testing is based upon accepted industry practice as well as the test method listed. These results apply only to the sample supplied and tested for the above referenced job

L: Labexcel \ Projects \ Client \ Client Name \ 3715 \ 3715G-ma Print Date: 05/30/14 Entered By: JL Reviewed By: KH LSN:

Client : Pacific Geotechnical Engineering

Project No: 2014.0078.100

Lab Log No.: 3715

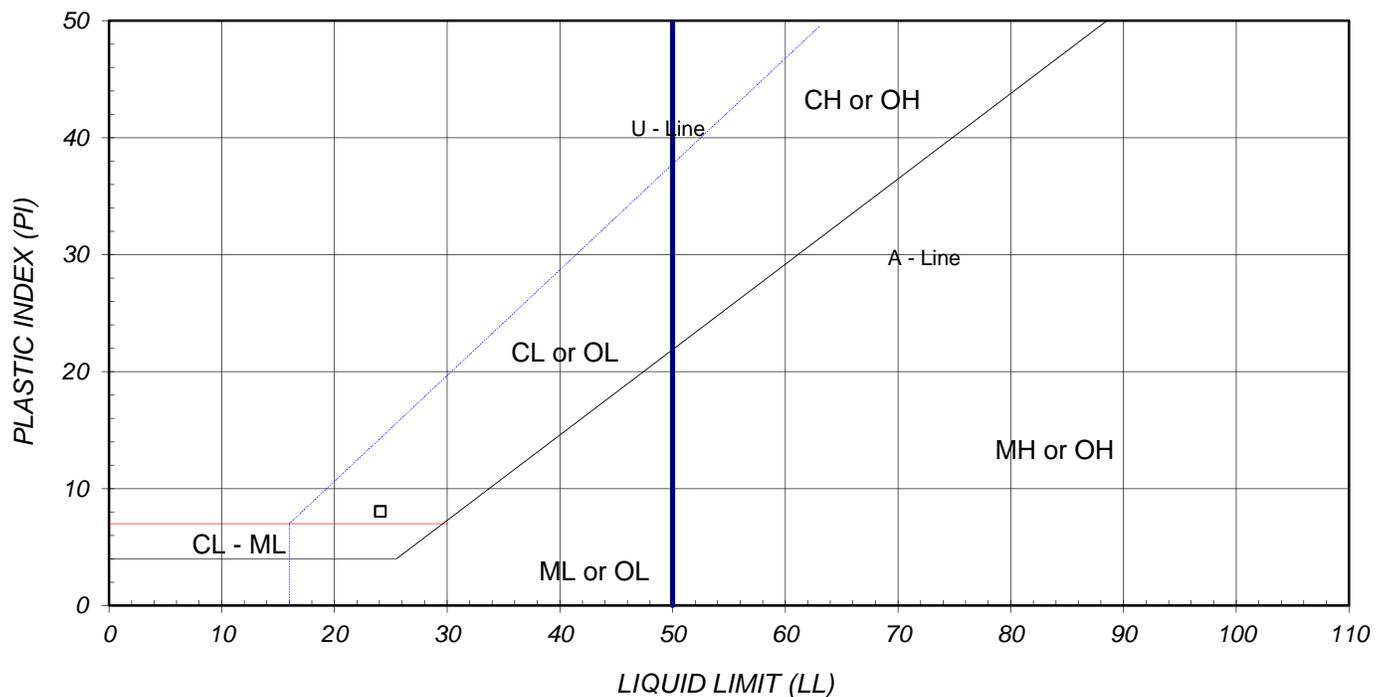
Project Name: Morgan Hill Affordable Housing

Report Date: May 30, 2014

LSN	SYMBOL	SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX
3715C	□	DH-2 @ 2.5	Brown Lean Clay	24	16	8

* Visual Classification based on ASTM D-2488

PLASTICITY CHART



This testing is based upon accepted industry practice as well as the test method listed. These results apply only to the samples supplied and tested for the above referenced job.