GEOTECHNICAL REPORT
2740 RUBY AVENUE
SAN JOSE, CALIFORNIA 95148
APN: 652-29-014

Client:
A Khmer Buddhist Foundation
Lyna Lam, Executive Director
1210 Lombard Street
San Francisco, CA 94109
c/o Oarcon, Inc.

cc: Amelia Stacy (Andrew Mann Architecture)
amelia@andrewmannarchitecture.com
Bob Reed (GFDS Engineers)
rwr@gfdseng.com

11 November 2021
20-050301-02

divis
CONSULTING, INC.
GEOTECHNICAL ENGINEERING

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San Francisco, CA 94109
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cc: Amelia Stacy (Andrew Mann Architecture) - amelia@andrewmannarchitecture.com
Bob Reed (GFDS Engineers) - rwr@gfdseng.com

Subject: Geotechnical Report
Wat Khmer Kampuchea Krom Temple
2740 Ruby Avenue
San Jose, California 95148
APN: 652-29-014

Dear Ms. Lam:

This letter transmits our geotechnical report update for the proposed Buddhist Temple and associated site improvements to be constructed at 2740 Ruby Avenue in San Jose. The work described in this report was performed in accordance with our proposal dated 19 November 2020.

Our understanding of the proposed development is based on correspondences with the project team, a review of the current set of architectural drawings (revised on 26 March 2021), and a review of the previous geotechnical report for the property prepared by Murray Engineers, Inc. (dated 10 July 2019). We have reviewed and accepted the geotechnical aspects of the project to-date and we will take over as the Geotechnical Engineer of Record for this project.

Our report contains detailed recommendations that should be reviewed in their entirety. We should review the geotechnical aspects of the project plans and specifications prior to final design to check that they are in general conformance with the recommendations presented in this report.

We appreciate the opportunity to be involved with this project. If you have any questions, please call.

Yours Sincerely,
DIVIS CONSULTING, INC.

Christian J. Divis

Christian J. Divis, GE
Principal Engineer

ATTACHMENT

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Prepared by:

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GEOTECHNICAL ENGINEERING

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1.0 INTRODUCTION

This report presents the results of our geotechnical studies for the proposed Buddhist Temple and associated site improvements to be constructed at 2740 Ruby Avenue in San Jose. Our study included a review of the previous geotechnical report for the property prepared by Murray Engineers, Inc. (dated 10 July 2019). The site is located northeast of the intersection of Ruby Avenue and Norwood Street in the southeast portion of San Jose. The property is identified by Assessor's Parcel Number (APN): 652-29-014. The approximate site location is shown on Figure 1.

2.0 SITE DESCRIPTION

The site extends approximately 342 feet in the northwest-southeast direction and approximately 264.5 feet long in the northeast-southwest) direction as shown on the proposed site plan shown on Figure 2. A neighboring parcel (2720 Ruby Avenue) is located adjacent to the northwest portion of the subject site.

The site is bounded to the southwest by Ruby Avenue and to the southeast by Norwood Avenue. The site is bounded to the northeast by five single-family residences: 2865, 2873, 2881, 2889 and 2897 Sweatleaf Court. The site is bounded to the northwest by three residences: 3410, 3418, 3426 Pin Oak Court.

The site generally slopes down gently in the southwest direction. Based on our review of the topographic survey prepared by Giuliani & Kull, Inc. (dated 25 September 2015), the existing site grades appear to vary from about an elevation of 287 feet near the northeast (upslope) property line down to an elevation of 274 feet near Ruby Avenue along the southwest (downslope) property line.

The site is roughly 1.9 acres in size. The structures and associated site improvements (i.e. concrete flatwork) that previously occupied the property have been demolished, and a majority of the vegetation and landscaping have been stripped. Site access is currently located along Norwood Avenue.

3.0 PROPOSED DEVELOPMENT

Divis Consulting Inc.'s understanding of the proposed development is based on correspondences with the project team and a review of the following current architectural plans:

- Plans titled Wat Khmer Kampuchea Krom, 2740 Ruby Avenue, San Jose, California 95148, prepared by Andrew Mann Architecture dated 10/19/21.

We understand plans are to construct a new traditional Cambodian Buddhist Temple that includes the main Temple, a Community Hall with a living quarters wing and a service wing, entry gates, statues and water features, and associated site retaining walls and exterior flatwork. The single-story Buddhist Temple is expected to have a footprint of approximately 3975 square feet, will be partially situated over a crawlspace and partially situated over a mechanical basement, and will have an attached covered breezeway. The main wing of the Community Hall will consist of a single-story and will have an attached covered breezeway. The living quarters wing of the Community Hall will consist of two stories partially situated over a crawlspace and partially situated over a mechanical basement. The service wing of the Community Hall will consist of a single-story situated over a basement at the southwestern portion of the structure; the remainder of the community hall will be constructed at grade.. The overall footprint of the Community Hall is expected to be approximately 3,741 square feet. The mechanical basements below the northern portion of the Community Hall and the western portion of the Temple are expected to have footprints of about 861 and 896 square feet, respectively.

Based on our review of the preliminary cross sections presented on sheets A2.2 and A2.3 of the above referenced plans, we anticipate excavations between about 5.5 and 11 feet below the first (main) level finished floor of the proposed structures will be required for construction. The Buddha statues are expected to be up to about 10 to 11 feet tall, and the stone clad arched entry gates are expected to be up to about 21 to 22 feet tall; we anticipate a separate foundation system such as drilled piers for the statues and entry gates.

4.0 SCOPE OF WORK

Our services were performed in accordance with our proposal 19 November 2020. Our services included reviewing the previous geotechnical report for the property prepared by Murray Engineers, Inc. (dated 10 July 2019). In addition to our review, we performed compaction testing during demolition of existing improvements and rough grading at the site in May 2020. We provided recommendations for rough grading in a letter dated 11 March 2020.

Based on the results of our data review and our brief observations of the site conditions, we performed engineering analyses to develop geotechnical conclusions and recommendations regarding the following:

- earthwork, including criteria for site excavation, subgrade preparation, and engineered fill,
- new foundations for the proposed structures,
- estimated bearing capacity, allowable skin friction capacity, lateral capacity, and settlement of new foundations,
- estimated lateral earth pressures on new below grade elements,
- preliminary geologic hazards,
- slabs-on-grade and flatwork,
- seismicity and building code seismic design parameters, and
- construction considerations.

We note that a corrosion study was performed as part of previous the 2019 geotechnical investigation for the subject property. We have included the results of this study in Appendix B of this report. Waterproofing is beyond our scope of services. We can provide a scope and fee to evaluate additional geotechnical aspects for the proposed development upon request.

5.0 DATA REVIEW

We reviewed the geotechnical and geologic data indicated in this portion of the report and referenced in Section 12, and the results of the previous 2019 geotechnical report for the subject property, as discussed below.

5.1 Previous Geotechnical Report

Murray Engineers, Inc. (MEI) characterized subsurface conditions at the property in 2019 by performing a total of 14 exploratory borings located in the general area of the proposed development which extended to depths ranging from approximately 30 to 45 feet below site grades. The approximate locations of the previous MEI exploratory borings have been overlain onto the current architectural site plan (dated 26 March 2020) and shown on Figure 2. Logs of the geotechnical borings are presented in Appendix A.

MEI classified the subsurface soils encountered to generally consist of predominantly stiff to hard fine-grained (clayey and silty) soils interbedded with relatively thin lenses of dense to very dense granualar (sandy and gravelly) soils to the maximum depth explored of 45 feet. MEI performed Atterberg Limits laboratory testing on two clayey soil samples collected during the field investigation: a sample collected within about one foot of the ground surface yielded a plasticity index (PI) of 16, and a sample collected between depths of about 13.5 to 15 feet yielded a PI of 22. The PI results indicated the near-surface clayey soil to generally have a low plasticity and a low potential for expansion, and the clayey soil at depth to have a moderate plasticity and a moderate potential for expansion. Groundwater was encountered in several of the exploratory borings at depths ranging from about 32 to 42 feet below pre-existing grades.

5.2 State of California Special Studies Zones

The State of California has mapped seismically active fault zones, zones of potential liquefaction, and zones of potential earthquake-induced landslides. These are typically referred to as Special Studies Zones. Figure 3 presents a map of where these zones, if any, are present within the project vicinity.

5.2.1 State of California Seismic Hazard Zones

The site is not located within a liquefaction hazard zone nor an earthquake-induced landslide hazard zone as defined by the California Geological Survey (CGS, 2000a), and as shown on Figure 3.

The closest liquefaction zone is mapped approximately 4,600 feet northwest of the site. The closest landslide hazard zone is mapped approximately 750 feet southeast of the site along Ruby Avenue.

5.2.2 Alquist Priolo Earthquake Fault Zones

The site is not within a State of California Earthquake Fault Zone, as defined by the Alquist-Priolo Earthquake Fault Zoning Act of 1972, and no known active or potentially active faults have been mapped on the site according to published geologic maps (Blake and others, 2000; Schlocker, 1974; California Geological Survey, 2018; Hart and Bryant, 1997; and Jennings and Bryant, 2010). A map of active fault traces and Alquist-Priolo Earthquake Fault Zones is shown on Figure 3.

The nearest Alquist-Priolo Earthquake Fault Zone is associated with the Hayward Fault and is located about 4,600 feet northeast of the site.

5.3 Geologic Setting

The site is within the Coast Ranges geomorphic province of California that is characterized by rugged northwest-trending mountain chains, valleys, and ridges. The predominant geologic structure and topographic features are controlled by folds and faults that resulted from the collision of the Farallon tectonic plate and the North American tectonic plate and subsequent strike-slip faulting along the San Andreas Fault system (Wagner and others, 1990). The San Andreas Fault is more than 600 miles long as mapped from Point Arena in the north to the Gulf of California in the south. The Coast Ranges province is bounded on the east by the Great Valley and on the west by the Pacific Ocean.

The geologic map reviewed for the area indicates the property is underlain by Holocene-aged alluvium denoted as “Qa.” The alluvium is generally described as surficial sediments consisting of gravel, sand, and clay soil in valley areas.

We note that bedrock of the Panoche formation (denoted as “Kpc”) is mapped south and northeast of the site. Refer to the geologic map of the site vicinity shown on Figure 5 (Dibblee, 2005).

5.4 Regional Seismicity

The major active faults in the area are the San Andreas, San Gregorio, Hayward, Rodgers Creek, and Calaveras Faults. These and other faults in the region are shown on Figure 4. The closest major active fault is the Hayward Fault, located approximately 3,000 feet northeast of the site. The Calaveras fault is located approximately 3.5 miles northeast of the site. The San Andreas and San Gregorio faults are located approximately 16 and 32 miles southeast of the site, respectively.

The most recent major earthquake to affect the Bay Area was the Loma Prieta Earthquake of 17 October 1989, in the Santa Cruz Mountains with a Moment Magnitude (M_w) of 6.9. The epicenter for the Loma Prieta Earthquake was approximately 21 miles southwest of the site. The most recent earthquake with a significant impact to the Bay Area occurred on 24 August 2014 and was located on the West Napa fault with a M_w of 6.0. The West Napa fault earthquake epicenter was approximately 68 miles northeast of the site. The 2014 South Napa Earthquake was felt as far away as Reno, Nevada (Brocher et al, 2015; and Stover and Coffman, 1993).

Historically, two major earthquakes have occurred in the Bay Area within the last 150 years. The San Francisco Earthquake and Fire of 1906 caused the most significant damage in the history of the Bay Area in terms of loss of lives and property damage. This earthquake created a surface rupture along the San Andreas Fault from Shelter Cove to San Juan Bautista approximately 470 kilometers in length, had a M_w of about 7.9, and was felt 560 kilometers away in Oregon, Nevada, and Los Angeles. The Hayward Earthquake of 21 October 1968 was known as the Great Earthquake before the 1906 event. The Hayward Earthquake occurred approximately 30 kilometers to the north with a Mw of about 6.8 (Stover and Coffman, 1993).

The U.S. Geological Survey's Working Group on California Earthquake Probabilities (WGCEP, 2013) has determined that the overall probability of moment magnitude 6.7 or greater earthquake occurring before 2044 is 72 percent. The probability of a moment magnitude 6.0 or greater earthquake occurring during the same period is 98 percent.

6.0 SITE DEMOLITION & ROUGH GRADING

Our field staff observed the near-surface soils exposed on-site during demolition and rough grading, which took place in May 2020. Where exposed, we observed a relatively thin (roughly 1-foot thick) layer of granular surficial landscape fill across most of the working area. Below the landscape fill, we observed native fine-grained alluvium, which was similar to what was encountered during the MEI field investigation. The near-surface clayey soil generally appeared to be low-plastic. The demolition work required excavations to remove existing foundation elements and below-grade improvements. Our field staff intermittently observed backfill and compaction of soil in these areas up to the rough current site grades. Our geotechnical recommendations pertaining to demolition and rough grading at the site were presented in a letter dated 11 March 2020.

7.0 PRELIMINARY GEOLOGIC HAZARDS

A geologic hazard may be defined as an adverse geologic condition capable of causing damage or loss of property and life. In general, geologic hazards present in the San Francisco Bay Area include, but are not limited to: ground shaking, surface fault rupture, soil liquefaction and associated land movements and cyclic densification.

7.1 Ground Shaking

The seismicity of the site is governed by the activity of the Hayward Fault, although ground shaking from future earthquakes on other faults, would also be felt at the site. The intensity of earthquake ground motion at the site will depend upon the characteristics of the generating fault, distance to the earthquake epicenter, magnitude and duration of the earthquake, and subsurface conditions beneath the site (Site Class). We judge that strong to very strong ground shaking could occur at the site during a large earthquake on one of the nearby faults.

7.2 Fault Rupture

The site is not within an Alquist Priolo Fault Zone and no faults are known to exist at the project site. The nearest fault rupture hazard zone is approximately 4,600 feet northeast of the site and is associated with the Hayward Fault. Historically, ground surface displacements closely follow the trace of geologically young faults; therefore, we judge the potential for fault rupture to impact the site is low.

7.3 Liquefaction and Associated Hazards

When a saturated, cohesionless soil liquefies, it experiences a temporary loss of shear strength created by a transient rise in excess pore pressure generated by strong ground motion. Soil susceptible to liquefaction includes loose to medium dense sand and gravel, low-plasticity silt, and some low-plasticity clay deposits. Flow failure, lateral spreading, differential settlement, loss of bearing strength, ground fissures and sand boils are evidence of excess pore pressure generation and liquefaction.

The project site is not mapped within a liquefaction seismic hazard zone and there is no historical evidence of liquefaction occurring within the general site vicinity. We judge the subsurface soils encountered at the site are sufficiently clayey and stiff such that the potential for liquefaction to occur at the site is low.

7.4 Cyclic Densification

Cyclic densification is a phenomenon where, dry (non-saturated), grains of sand are reoriented due to shaking which results in densification of the sand layer; typically expressed as settlement at the ground surface. Cyclic densification can occur at any level of shaking from multiple sources; it is considered a geologic hazard when the source of the shaking is an earthquake. Soils most susceptible to cyclic densification are very loose to loose clean sands.

The subsurface soils above the groundwater table appeared to contain a significant amount of clayey and silty fines such that the potential for settlement from cyclic densification at the site is relatively low.

8.0 CONCLUSIONS

From a geotechnical standpoint, we conclude the site can be developed as planned, provided the recommendations presented in this report are incorporated into the project plans and specifications and implemented during construction. The primary geotechnical considerations are presented below:

- Presence of moderately expansive soil at depth
- Temporary excavations and/or shoring during construction
- Foundations support and differential settlement for the proposed improvements

8.1 Expansive Soil

Expansive surface soil is subject to high volume changes during seasonal fluctuations in moisture content. These volume changes can cause cracking of foundations, floor slabs, and retaining walls. High plasticity in soil is a good indication of high to very high expansive soil behavior.

To resist the effects of expansive soil, interior and exterior slabs can be constructed on a layer of select, non-expansive fill over moisture conditioned native soil; new foundations can also bear on select fill, or they can be deepened to gain support below the zone of seasonal moisture change.

As discussed in Section 5.1 above, MEI performed Atterberg Limits laboratory testing on two clayey soil samples collected during the field investigation: a sample collected within about one foot of the ground surface yielded a plasticity index (PI) of 16, and a sample collected between depths of about 13.5 to 15 feet yielded a PI of 22. The PI results indicated the near-surface clayey soil to generally have a low plasticity and a low potential for expansion, and the clayey soil at depth to have a moderate plasticity and a moderate potential for expansion.

We judge the potential for expansive soil to impact the at-grade improvements to be relatively low. However, the foundations at depth, near the finished floor elevation of the mechanical basement levels for the proposed Community Hall and Temple, may bear on moderately expansive soil. We judge the impact of expansive soils at depth can be mitigated provided the geotechnical recommendations presented in this report are implemented during construction.

Our field staff should observe the exposed foundation and slab-on-grade subgrade during construction to confirm if it has a low or moderate expansion potential.

8.2 Temporary Excavation Support and/or Shoring During Construction

We anticpaate the crawl space areas and mechanical basements are expected to extend about 5.5 and 11 feet below the first (main) level finished floors of the proposed structures, respectively. Based on the anticipated soil conditions and the size of the lot, we judge that temporary sloped cuts and benches could be used during construction of the below-grade portions of the proposed structures. Where limited site access prevents the construction of temporary sloped cuts and benches, we judge that the most economical temporary shoring system for vertical excavations greater than about five feet would consist of a cantilever soldier pile and timber lagging system.

If an alternative temporary shoring system is preferred by the design team or contractor, the shoring design should be submitted to Divis Consulting, Inc. for review and approval.

We should be retained during construction to observe excavation activities to determine if the actual soil conditions exposed are consistent with the anticipated soil conditions.

8.3 Foundation Support and Settlement

We anticipate that site improvements will be supported on either a mat foundation, shallow spread footings or drilled piers. In general, improvements should be supported on a single foundation type and improvements on different foundation types should be separated structurally to reduce the potential for differential movements.

Total settlements for foundation elements designed and constructed in general conformance with our recommendations are anticipated to be on the order of ¼ to ¾ inch. Actual settlements will vary depending on the loads applied and the bearing soils. For example, a mat foundation at depth may settle less than a spread footing foundation constructed at-grade. Settlements of isolated heavy structures (temple gates and statues) may be reduced by relying on drilled piers for foundation support. Furthermore, where overburden is removed to construct a basement, total settlements may be less than where foundations are installed at grade since the soil at depth would have experienced higher loads in the past due to the weight of the overburden soil.

We anticipate that differential settlements would be on the order of ¼ to ½ inch in 30 feet where improvements are supported on the same foundation type and up to ¾ inch in 30 feet between improvements supported on different foundation types. These estimates do not include long term settlements due to secondary compression or settlements of engineered fill placed for improvements. Settlements associated with secondary compression occur over a long time and should be relatively small when compared to the total settlements presented above. Settlements associates with engineered fill will depend on the materials used and thickness of the fill. A typical value for settlements associated with properly constructed engineered fill is ½ inch for every five feet of engineered fill placed.

Considering the anticipated settlements and the available subsurface data, a detailed settlement analysis was not performed. We can provide additional consultation and analysis regarding settlements upon request.

9.0 RECOMMENDATIONS

This section provides recommendations regarding site preparation and grading, temporary excavations and shoring, lateral earth pressures for below-grade walls, surface and subsurface drainage, and seismic design parameters.

9.1 Site Preparation and Grading

After clearing and grubbing the site, the majority of the grading will consist of excavating the crawl space and mechanical basement portions of the proposed structures, and foundation excavations for the proposed structures and associated site improvements.

9.1.1 Engineered Fill

Engineered fill consists of fill material which has been approved for use by, and placed in a manner as recommended by, the geotechnical engineer. Engineered fill may consist of either imported soil from a borrow source, imported manufactured soil or on-site soil. In some cases, lean concrete, foam, lightweight aggregate, open graded rock may be used in lieu of engineered fill. Any materials used as fill should be approved by the geotechnical engineer with the exception of some landscaping materials.

Engineered fill should be placed in horizontal layers not exceeding eight inches in loose thickness, moisture-conditioned to above the optimum moisture content, and compacted per the recommendations of the geotechnical engineer. Engineered fill should be placed on properly prepared level surfaces and where placed adjacent to a slope, should be benched into the slope. We do not anticipate fill slopes; however, where fill slopes are constructed, they can be overbuilt to make compaction and then cut back. If fill slopes greater than five feet are required, we should provide additional consultation. In general, engineered fill is moisture conditioned to near optimum compacted to at least 90 percent relative compaction[1]. The actual compaction requirements may require modification based on actual conditions. Fill deeper than five feet should be compacted to at least 95 percent relative compaction.

In general engineered fill for the project should consist of either on-site soil free of organic matter, smaller than three inches in greatest dimension; or imported soil approved by the geotechnical engineer which is is non-corrosive, has a liquid limit less than 40 and a plasticity index less than 12. If larger fragments are present in the engineered fill materials, it may still be accepted provided the fragments constitute less than 20 percent by compacted volume. No organic, hazardous, or any other deleterious material will be accepted. It is the contractor's responsibility to check that any fill meets the project requirements. Samples may be submitted to the geotechnical engineer for testing at least three business days prior to use at the site.

9.1.2 Slab-On-Grade Subgrade Preparation

The soil subgrade below concrete slabs-on-grade (and below any associated moisture proofing, utilities, etc.) should consist of a firm, non-yielding surface. In general, clayey soils should be scarified, moisture conditioned and recompacted. Where it is desirable to reduce movements of slabs, they should be underlain by at least six inches of Class II Aggregate Base (AB). This aggregate base layer should extend at least 6 inches beyond the plan area of the slab-on-grade. The soil subgrade should be relatively flat, free of any soft/weak (disturbed) material, and should be kept moist up until the time it is covered by proposed improvements constructed at-grade.

Compaction requirements for the anticipated soil conditions are as follows:

- Slab-on-grade subgrade (no Class II AB): moisture condition to near optimum and compact to 90 percent

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[1] Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material, as determined by the ASTM D1557-00 laboratory compaction procedure.

- Slab-on-grade subgrade underlain by AB: moisture condition to near optimum and compact to 90 percent
- Slab-on-grade subgrade underlain by AB and subject to traffic loads: moisture condition to near optimum and compact to 95 percent
- Class II Aggregate Base: moisture condition to near optimum and compact to 95 percent

Moderately expansive soils: moisture condition to 3 percent above optimum and compact to between and 92 percent.If expansive soils are encountered below concrete slabs-on-grade over excavation and replacement with non-expansive engineered fill to a maximum depth of 24 inches may be required. At a minimum any expansive soils encountered should be moisture conditioned to above optimum and the moisture should be locked in by placement of for example, non-expansive engineered fill, a moisture barrier or concrete.

9.1.3 Foundation Subgrade Preparation

We anticipate the subgrade for foundation elements at-grade will consist of relatively stiff and/or dense native alluvium.

We anticipate the subgrade for foundation elements at depth may consist of moderately expansive clays.

The subgrade for new foundations should level, free of standing water and deleterious material and should be checked by our field staff prior to the placement of rebar or any other materials. The moisture content of the soil subgrade should be maintained or modified as recommended in the field. Where any foundation subgrade is allowed to dry out, it should be removed and replaced with lean concrete.

Where soft, weak or disturbed soil is exposed at the foundation subgrade, it should be removed and replaced with lean concrete or if approved by both the structural engineer and geotechnical engineer; non-expansive engineered fill compacted to 95 percent relative compaction.

9.1.4 Temporary Slopes and Excavation

Based on the anticipated soil conditions and the size of the lot, we judge that temporary cut slopes are feasible at this site. Temporary cut slopes may require the placement of engineered fill to bring the site back to final grades. We recommend that temporary sloped cuts in stiff clays should be no steeper than about 1.5:1 (horizontal:vertical). Other materials may require shallower slopes. Temporary slopes may be benched according to OSHA guidelines. Steeper cuts may be used where hard clay is exposed and if approved by the geotechnical engineer. If undocumented artificial fill is encountered, vertical cuts in the fill will be unstable and should be avoided. Surface runoff should be directed away from all temporary sloped cuts and excavations during construction to reduce the potential for destabilization.

The contractor should be responsible for all temporary sloped cuts used at the site and should have a competent person on-site who can evaluate the proposed excavations and actual soil conditions exposed. Where temporary sloped cuts are not possible due to limited site access, a temporary shoring system may be required. Recommendations for temporary shoring are presented in Section 9.2 of this report.

We should be notified at least 48 hours prior to any excavation on-site so that we can observe the actual soil conditions and evaluate the stability of proposed cuts. If the contractor encounters any adjacent foundations, utilities or any other unexpected condition not shown on the project documents, excavation should be halted, and we should be contacted immediately to provide additional consultation on-site.

9.1.5 Permanent Finished Slopes

We recommend that finished slopes should be inclined no steeper than 2:1 (horizontal:vertical). Furthermore, we recommend finished slopes exposed to the elements be planted with erosion-resistant vegetation, or other erosion control mechanisms installed, as designed by others. Steeper permanent slopes may be feasible, and we can provide additional consultation upon request.

9.1.6 Utility Trench Backfill

Where new underground utilities are proposed, utility trenches should conform to the current CAL-OSHA requirements. To provide uniform support, pipes or conduits should be bedded on a minimum of four inches of sand or fine gravel or per the recommendations of the project civil engineer.

After the pipes and conduits are tested, inspected (if required) and approved, they should be covered to a depth of six inches with sand or fine gravel, which should be mechanically tamped.

Backfill for utility trenches should be compacted according to the recommendations presented for engineered fill. Jetting of trench backfill should not be permitted.

Special care should be taken when backfilling utility trenches within building footprints and beneath pavements. Poor compaction may result in excessive settlement and damage to the buildings and/or pavements.

9.2 Temporary Shoring

Excavations that will be deeper than about five feet and will be entered by workers should be shored or sloped in accordance with the Occupational Safety and Health Administration (OSHA) standards (29 CFR Part 1926). A licensed engineer familiar with shoring should be responsible for the design. The contractor should be responsible for the construction and safety of temporary slopes and shoring. We recommend shoring where sloped cuts are not feasible.

9.2.1 Cantilevered Soldier Pile and Lagging

We judge that a cantilever soldier pile and timber lagging system would be the most economical shoring system for vertical excavations greater than about 5 feet. On a preliminary basis, a soldier pile and lagging system could be designed using an active equivalent fluid weight of 30 pounds per cubic foot (pcf).

In locations where minimizing lateral deflections is critical, such as near adjacent existing improvements or near sensitive underground utilities, the shoring system should be designed to resist an at-rest equivalent fluid weight of 45 pcf, plus any surcharge loads within a horizontal distance of 1.5 times the shoring height. These lateral earth pressures are intended for the retention of level ground.

Where traffic loads are expected within 10 feet of the shoring walls, a vehicle surcharge pressure of 100 pounds per square foot (psf) should be applied to the wall. On a preliminary basis, where construction equipment will be working behind the walls within a horizontal distance equal to the wall height, the design should include a surcharge pressure of 350 psf. The above surcharge pressures should be assumed to act over the entire width of the lagging installed above the excavation.

On a preliminary basis, passive resistance at the toe of the soldier pile and lagging wall should be computed using an equivalent fluid weight of 350 pcf. Passive resistance in the upper foot should be ignored. Passive pressure can be assumed to act over an area of three soldier pile widths where the toe of the soldier pile is filled with structural concrete. Where lean concrete is used to backfill the toe, the passive pressure can be assumed to act over two pile diameters. These passive pressure values include a factor of safety of at least 1.5.

Soldier piles should preferably be placed in pre-drilled holes backfilled with concrete. Installing soldier piles by driving or using vibratory methods should be avoided if possible.

9.2.2 Construction Monitoring

The shoring designer should include a construction monitoring program on the shoring plans. A monitoring program would typically require the contractor to establish survey points on the shoring and on adjacent existing improvements and public streets within twice the height of proposed excavation, and prior to the start of excavation. These survey points should be used to monitor the vertical and horizontal movements of the shoring and surrounding existing improvements and public streets during construction. We recommend the contractor survey and take photographs of the adjacent existing improvements prior to the start of excavation, and immediately after its completion.

9.3 Foundation Support

We understand the proposed Temple and Community Hall will be supported on a structural mat slab foundation. We anticipate near surface improvements will be supported on shallow foundations. We recommend that at-grade heavier architectural elements (stone gates and statues) be supported on drilled piers. Where an improvement has both below and at-grade elements, i.e. roof support at community hall and residence, the at grade foundations can be deepened to reduce the potential for differential settlements and to provide a cushion for surrounding pavements.

All foundations should bear on native, undisturbed stiff to hard clays unless specifically allowed by both the structural and geotechnical engineer. Consequently, where foundations are placed within temporary sloped cuts, they may need to be deepened such that they extend through any engineered fill.

9.3.1 Mat Slab

Where a mat slab is constructed below-grade and bears on approved, undisturbed stiff to hard native clays, we recommend an allowable bearing pressure of 4,500 psf for dead plus live loads, with a one-third increase for total loads, including wind or seismic loads. These values include a factor of safety of 2.0 and 1.5, respectively.

For calculating the settlement across the mat foundation, we recommend using a modulus of subgrade reaction of 55 kips per cubic foot (kcf). The modulus value is representative of the anticipated static settlement of the native undisturbed soils under the allowable bearing pressure. After the mat analysis is completed, we should review the computed settlement and bearing pressure profiles to check that the recommended modulus value is appropriate.

Resistance to lateral loads for a mat slab embedded in native alluvium can be mobilized by a combination of passive pressure acting against the vertical faces of the foundation and friction along its base. Passive resistance may be calculated using an equivalent fluid weight of 350 pcf. Frictional resistance should be computed using a base friction coefficient of 0.30 for concrete on soil and 0.20 for concrete over waterproofing.

We recommend that the geotechnical engineer approve the mat subgrade prior to the placement of any materials. Where expansive soil is encountered, additional work may be required to prepare the mat subgrade.

9.3.2 Spread Footings

Where spread footings are used to support at-grade improvements, they should bear on competent/stiff native alluvium, below any undocumented or engineered fill.

Footings supporting the at-grade portions of the proposed structures should be at least 18 inches wide and should be embedded at least 24 inches below the lowest adjacent exterior finished grade.

We recommend that where differential settlements may adversely impact an improvement, spread footings be interconnected with grade beams to introduce more rigidity into the foundation system.

For the recommended minimum embedment, spread footings may be designed for an allowable bearing pressure of 2,500 psf, for dead plus live loads. A one-third increase could be considered for total loads, including wind and/or seismic loads.

Lateral loads on footings embedded in native alluvium can be resisted by a combination of passive resistance acting against the vertical faces of the footings and friction along the bases of the footings. Passive resistance may be calculated using a lateral earth pressure corresponding to an equivalent fluid weight of 300 pcf up to a maximum uniform pressure of 2,000 psf. Frictional resistance should be computed using a base friction coefficient of 0.30 for concrete poured directly on native alluvium. If the new footings are underlain by waterproofing, a frictional coefficient of 0.20 should be used.

When computing passive resistance, the upper one foot should be ignored, unless confined by a relatively flat concrete slab or pavement. The passive resistance and base friction values include a factor of safety of about 1.5 and may be used in combination without reduction.

Uplift loads may be resisted by the weight of the footing and any overlying soil.

9.3.3 Drilled Piers

Where drilled piers are constructed to support the at-grade improvements, we recommend the piers be spaced at least three diameters on center. Where piers are designed to resist lateral loads, we recommend they be spaced at least six diameters on center.

Drilled piers should rely on native stiff to hard clays for support. Where drilled piers are installed adjacent to below grade improvements, the portion adjacent to the improvement should not be relied upon for vertical or lateral support. We recommend that drilled piers be a minimum of 10 feet in length.

We recommend designing drilled piers using an allowable side friction value for dead plus live loads of 550 psf in stiff to hard native clays. For total loads, the allowable side friction value may be increased by one-third. These values include a factor of safety of 2.0 and 1.5, respectively.

Lateral resistance of piers will depend on the pier diameter, pier head condition (restrained or unrestrained), allowable deflection of the pier top, and the bending moment resistance of the piers. Preliminary resistance to lateral loads may be computed using a passive pressure of 350 pcf in native alluvium up to a maximum uniform pressure of 3,000 psf. The lateral capacities presented are for a pile head deflection of about 1 inch. Piers installed in groups with a spacing of less than 6 diameters may have a reduced lateral capacity. We can provide a detailed analysis of lateral capacities once actual pier locations and loading conditions are known and if required.

Drilled piers may be interconnected with grade beams or a mat foundation to introduce more rigidity into the foundation system and reduce the potential for differential movements between piers.

We recommend that drilled piers are installed by a contractor with relevant experience at sites with similar soil conditions.

9.4 Retaining Wall Design

Retaining walls constructed for the below-grade portions of the proposed structures, and site retaining walls, may be supported on the foundations systems described in the previous section. The design parameters presented in this section are for walls that primarily retain stiff and/or dense native alluvium. Our recommended lateral earth pressures are presented in Table 1 below.

TABLE 1
LATERAL EARTH PRESSURES FOR RETAINING WALLS

DESIGN PRESSURE	RELATIVELY LEVEL TO GENTLY SLOPING BACKFILL	SEISMIC INCREMENT FLEXIBLE WALLS	SEISMIC INCREMENT RESTRAINED WALLS
AT-REST	45 pcf	N/A	N/A
ACTIVE	30 pcf	15 pcf	27 pcf

The equivalent lateral earth pressures presented above are based on fully drained walls, such that water pressure will not build up behind the walls. Water can accumulate behind the walls from perched groundwater and other sources, such as rainfall, irrigation, and broken water lines. Where walls are not equipped with backdrains, we should be consulted to provide revised lateral earth pressures.

Where spread footings supporting the at-grade portions of the proposed structures are parallel to the retaining walls for the below-grade improvements, they should be deepened to bear on competent stiff and/or dense native alluvium below any retaining wall backfill material. Surcharge pressures from these spread footings should be applied to the retaining walls accordingly. On a preliminary basis, a uniform lateral pressure equal to one-half of the surcharge pressure could be applied. This could also apply to site retaining walls that will be subjected to surcharge loads, such as from any adjacent foundation elements, construction equipment, or material stockpiles.

Since the project site is located in a seismically active zone, the retaining walls may also need to be designed to resist an additional pressure associated with earthquake loading. We recommend that the proposed retaining walls be evaluated using the greater of the restrained pressure (at-rest), or the unrestrained (active) pressure plus the seismic increment. Studies have found that retaining walls which: are less than six feet in height, retain competent soils and that are designed for a factor of safety of at least 1.5 have historically performed well during seismic events. The seismic increment should be used as deemed appropriate by the structural engineer.

9.5 Capillary Break and Vapor Barrier

In general, water vapor transmission through the floor slab should be reduced where there is potential for finished floor coverings to be adversely affected by moisture. This may be accomplished by breaking the capillary action within the subsurface materials by installing an open graded crushed rock and reducing moisture vapor transmission by installing a properly installed vapor barrier.

We anticipate that waterproofing will be installed at the site; therefore, a capillary moisture break may be a redundant system. The determination of where it is appropriate to install either a capillary break and moisture barrier, waterproofing, or no system should be made by others.

If a capillary moisture break is used to reduce the potential for moisture migration through concrete floors, it should consist of at least four inches of clean, native, free-draining gravel or crushed rock. A vapor retarder should be installed over the capillary break and should meet the requirements for Class A vapor retarders stated in ASTM E1745-97. The vapor retarder should be placed in accordance with the requirements of ASTM E1643-98. These requirements include overlapping seams by six inches, taping seams, and sealing penetrations in the vapor retarder.

If required by the structural engineer, the vapor retarder should be covered with two inches of sand to aid in curing the concrete and to protect the vapor retarder during slab construction. The sand overlying the membrane should be moist, but not saturated, at the time concrete is placed. Excess water trapped in the sand could eventually be transmitted as vapor through the slab. If rain is forecast prior to pouring the slab, the sand should be covered with plastic sheeting to avoid wetting. If the sand becomes wet, concrete should not be placed until the sand has been dried or replaced.

TABLE 2
GRADATION REQUIREMENTS FOR CAPILLARY MOISTURE BREAK

Sieve Size	Percentage Passing Sieve
Gravel or Crushed Rock	
1 inch	90 – 100
3/4 inch	30 – 100
1/2 inch	5 – 25
3/8 inch	0 – 6
Sand	
No. 4	100
No. 200	0 – 5

We recommend that all materials used be virgin (not recycled). We recommend the particle size of the gravel/crushed rock and sand meets the gradation requirements presented in Table 2. We can provide quality assurance testing of the gravel/crushed rock upon request; however, this is typically beyond the scope of our services and either the responsibility of the contractor or checked by others.

Unless Divis Consulting is specifically requested to observe the installation and check the capillary break material on-site, the entire system should be considered outside of our scope. Observations of the capillary break system do not imply any acceptance of the materials used unless stated in writing by a licensed geotechnical engineer. Any observation of the vapor barrier and overlying materials is beyond our scope; this is typically under the scope of the contractor, or a project waterproofing consultant.

Concrete mixes with high water/cement (w/c) ratios may result in excess water in the concrete where the sand is not present, which would increase the cure time and the potential for excessive vapor transmission through the slab. Before the floor covering is placed, the contractor may be required by others to check that the concrete surface and that the moisture emission levels meet the flooring manufacturer's requirements.

9.6 Surface Drainage

Positive surface drainage should be provided around the proposed Temple and Community Hall, and around the associated site improvements, to direct surface water away from the foundations as well as the top of retaining walls and permanent finished slopes.

To reduce the potential for water ponding adjacent to the proposed improvements, we recommend the ground surface within a horizontal distance of five feet from the building slope down away from the building with a surface gradient of at least two percent in unpaved areas and one percent in paved areas. Any collected runoff, including water from downspouts, should be discharged into the sewer or storm drain system, or a containment system.

9.7 Groundwater and Subsurface Drainage

Groundwater was encountered in several of the exploratory borings at depths ranging from about 32 to 42 feet below pre-existing grades (i.e. prior to site demolition and rough grading activities). There is a remote possibility that excavations could encounter groundwater and/or seasonal springs, particularly at the interface between geologic layers, or in granular portions of the native alluvium. Furthermore, groundwater seepage may occur in the future, even if seepage is not observed during construction. Where groundwater is encountered during construction, we should be notified to evaluate if additional measures are required to control the flow of groundwater at the site.

The final design should include measures to intercept groundwater where it may impact the proposed improvements. This may include, but is not limited to: drainage behind retaining walls, under-slab-drainage, French drains, and area drains to intercept groundwater and surface run-off, and waterproofing.

The need for an under-slab-drainage system should be evaluated based on the waterproofing and foundation design. Where collected, groundwater should be discharged to a suitable collection point.

If moisture migration through the retaining walls is undesirable, we recommend waterproofing be installed and water stops be placed at all construction joints. Waterproofing for building retaining walls is generally required by the building code. The design and implementation of the waterproofing system is beyond the scope of our services. The waterproofing system should be designed and inspected by others.

9.8 Seismic Design

For design in accordance with the Building Code, we recommend Site Class D (stiff soil) and the following design parameters be used:

- S_S 2.04 MCE_R ground motion. (for 0.2 second period)
- S_1 0.784 MCE_R ground motion. (for 1.0s period)
- S_{MS} 2.04 Site-modified spectral acceleration value
- S_{M1} null – See Section 11.4.8

- S_{DS} 1.36 Numeric seismic design value at 0.2 second SA
- S_{D1} null – See Section 11.4.8

These parameters should be considered preliminary until checked by your structural engineer.

10.0 ADDITIONAL GEOTECHNICAL SERVICES

Our report is based on a review of limited subsurface data consisting of relatively widely spaced exploration points as part of a field investigation performed by others, and a review of preliminary (draft) development plans. Future geotechnical services should include consultation during final design, plan and calculation review and construction observation.

10.1 Consultation During Final Design

We should consult with the design team during the development of the structural plans, temporary shoring plans, civil plans, and selection of the contractor. We should review the structural plans and calculations, shoring plans (if any), and civil plans, as required by the City of San Jose Building Department; as well as and submittals by the foundation contractor.

10.2 Construction Observation and Special Inspection

During construction, our field engineer and/or geologist should provide on-site observation and testing during site preparation, excavation, temporary shoring installation, foundation installation, compaction of fill, and other geotechnical aspects of the project. Our observations will allow us to compare actual with anticipated subsurface conditions and to verify that the contractor's work conforms to the geotechnical aspects of the plans and specifications.

11.0 LIMITATIONS

This geotechnical study has been conducted in accordance with the standard of care commonly used as state-of-practice in the profession. No other warranties are either expressed or implied. The recommendations made in this report are intended to protect the life and safety of occupants within the structure during a major seismic event on a nearby fault; damage to the structure and other improvements may still occur due to seismic forces on the proposed improvements.

The recommendations made in this report are based on a limited subsurface investigation. If the subsurface conditions or the scope of the proposed improvements deviate from those described in this report, we should be notified immediately to provide supplemental recommendations as required as required by the actual conditions. The conclusions and recommendations presented herein are subject to change based on our observations during construction. It is the responsibility of the contractor to notify us at least 48 hours in advance to request construction observation and/or special inspection. The design and implementation of any waterproofing system is beyond the scope of our services. Corrosivity of the soil is beyond the scope of this report.

12.0 REFERENCES

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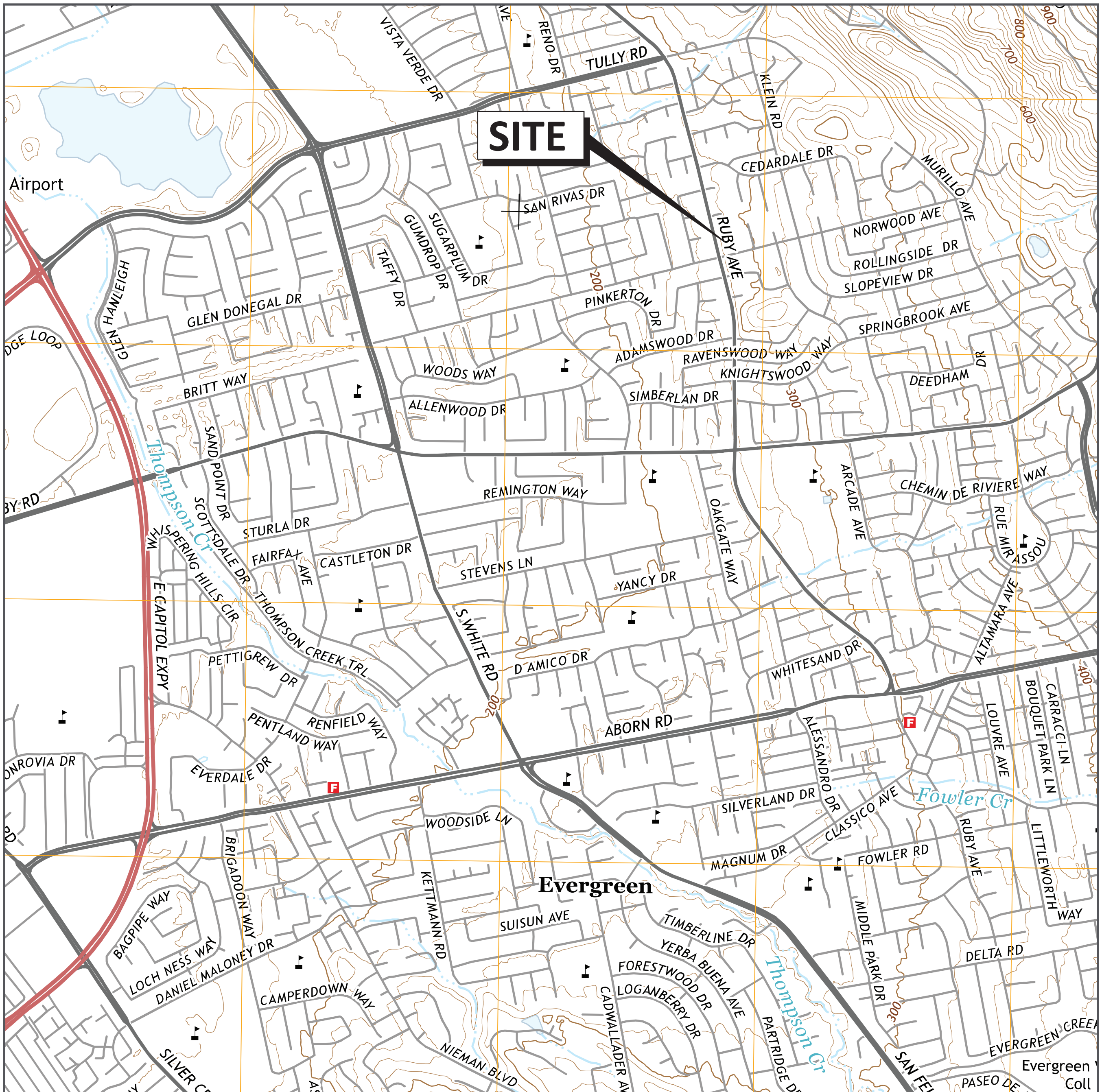
FIGURES

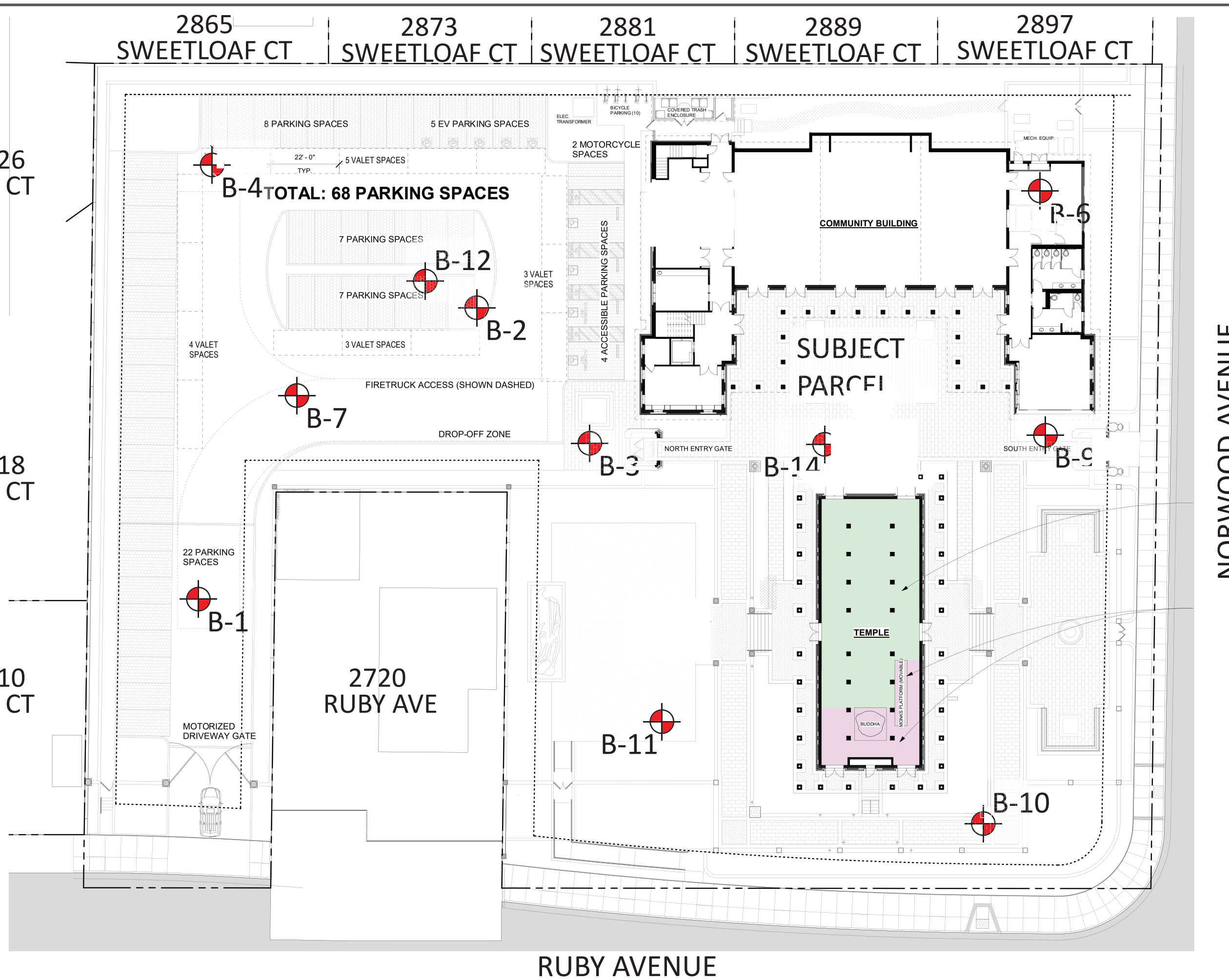


0 1000 2000 ft

Approximate scale

Base map: USGS US Topo 7.5-minute map for San Jose East, CA 2015

divis CONSULTING, INC. GEOTECHNICAL ENGINEERING	**2740 RUBY AVENUE** San Jose, California	**SITE LOCATION MAP**
		03/17/21 | 20-050301-02 | Figure 1



EXPLANATION:

B-14 Approximate location of previous Exploratory Borings performed by Murray Engineers, Inc., March - May 2019 refer to Appendix A for Boring Logs

Property Line

Reference: Sheet G3.0, Parking Count Diagram, 2740 Ruby Avenue, San Jose, CA. Prepared by Andrew Mann Architecture, 10/19/21

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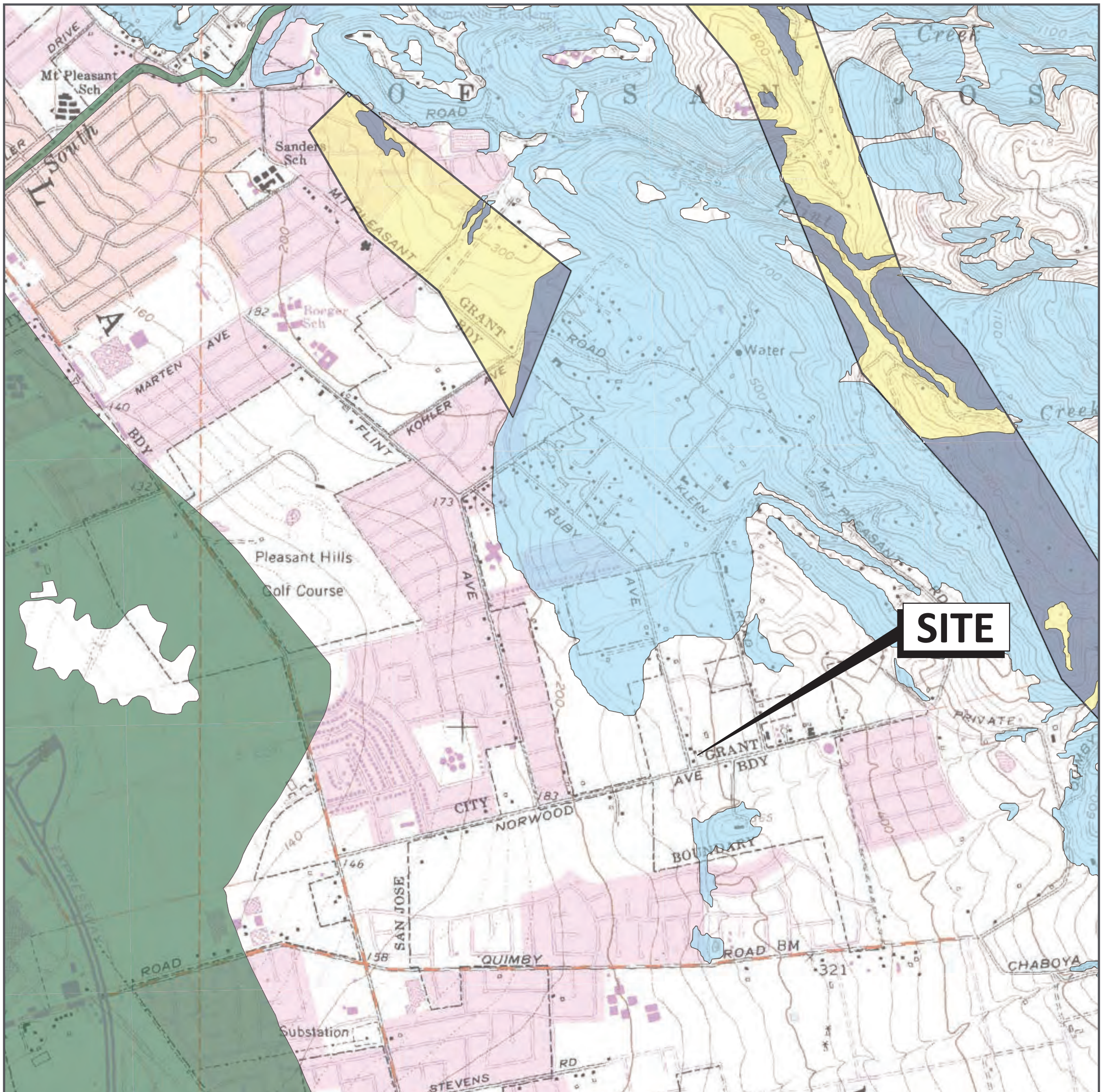
2740 RUBY AVENUE
San Jose, California

SITE PLAN

11/11/21	20-050301-01	Figure 2



EXPLANATION

Liquefaction: Areas where historic occurence of liquefaction, or local topographic, geological, geotechnical, and subsurface water conditions indicate a potential for permanent ground displacements.

Earthquake-Induced Landslides: Areas where previous occurence of landslide movement, or local topographic, geological, geotechnical, and subsurface water conditions indicate a potential for permanent ground displacements.

Earthquake Fault Zones: Zone boundaries are delineated by straight-line segments; the boundaries define the zone encompassing active faults that constitute a potential hazard to structures from surface faulting or fault creep such that avoidance as described in Public Resources Code Section 2621.5(a) would be required..

N

0 2000 Feet

Approximate scale

Base map: CGS, Earthquake Fault Zones and Seismic Hazard Zones, San Jose East 7.5 Minute Quadrangle, November 17, 2000

divis CONSULTING, INC. GEOTECHNICAL ENGINEERING

2740 RUBY AVENUE
San Jose, California

CGS EARTHQUAKE FAULT ZONE MAP

03/17/21	20-050301-02	Figure 3

EXPLANATION

Historic Earthquakes (1769-2015)

- 7+
- 6-7
- 5-6

UCERF3 Fault Model Slip Rates (mm/yr)

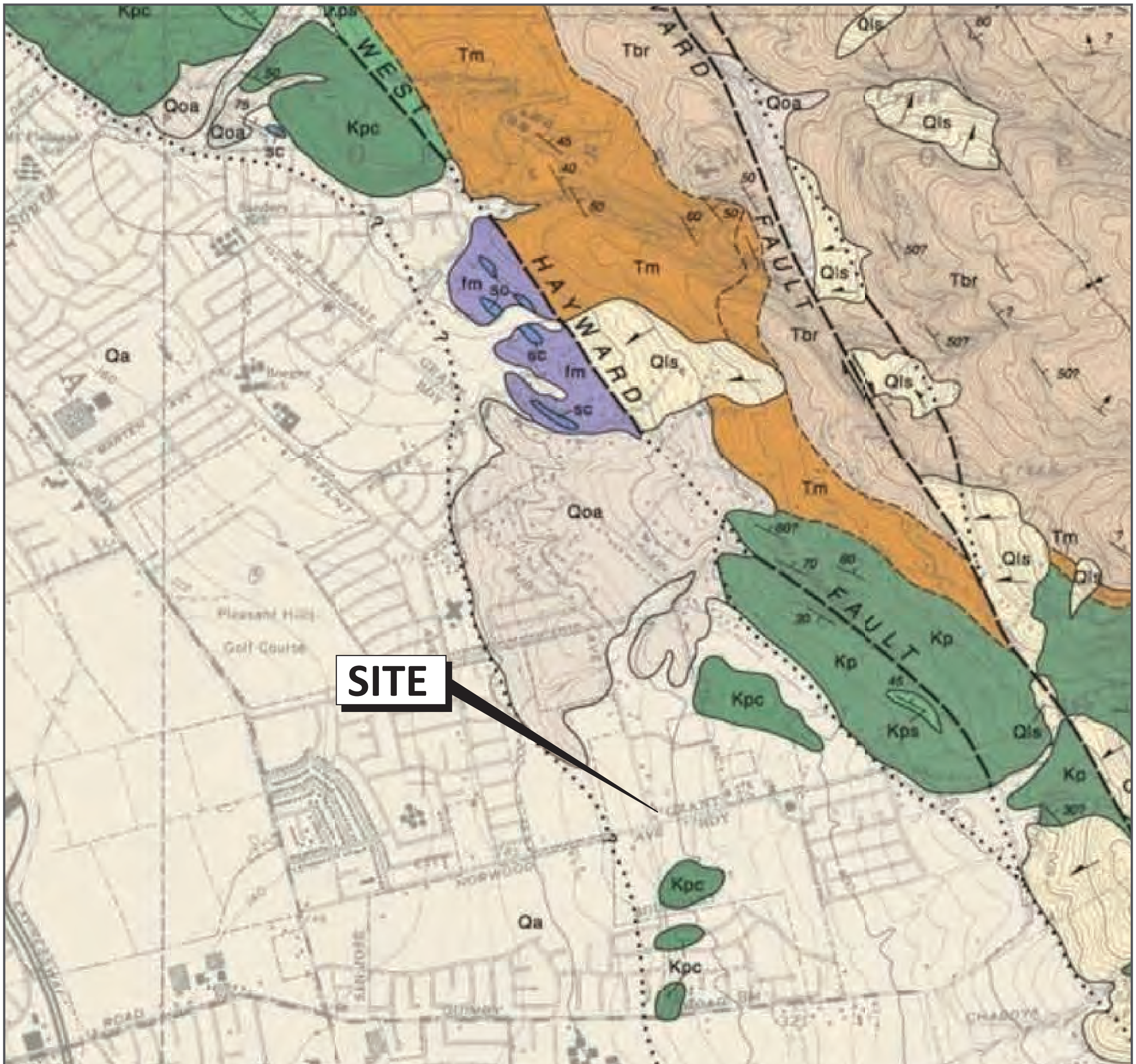
- 16-25
- 6-15
- 2-5
- 1-2

0 7 mile

Approximate scale

Base map: Earthquake Shaking Potential for California (2016), D. Branum, R. Chen, M. Petersen and C. Wills. California Geological Survey, United States Geological Survey, Map Sheet 48

divis CONSULTING, INC. GEOTECHNICAL ENGINEERING	2740 RUBY AVENUE San Jose, California	REGIONAL FAULT MAP		
		03/17/21	20-050301-02	Figure 4



Reference: Dibblee, T.W., Minch, J.A., & Dibblee Geology Center, 2005, Geologic Map of the San Jose East Quadrangle, Santa Clara County, California.

EXPLANATION

Qa	Alluvial Deposits
Qoa	Alluvial Gravel and Sand, Dissected
Qls	Landslide Rubble
fm	Franciscan Assemblage
Kpc	Panoche Formation
Tm	Monterey Formation

Geologic contact: dashed where approximate and dotted where concealed, queried where uncertain

0 2000 Feet

Approximate Scale

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2740 RUBY AVENUE
San Jose, California

REGIONAL GEOLOGIC MAP

03/17/21	20-050301-02	Figure 5

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APPENDIX A

Date(s) Drilled **March 27, 2019**	Logged By **MM**	Checked By **JK**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **8 inch diameter**	Total Depth of Borehole **40 feet bgs**
Drill Rig Type **Truck B61**	Drilling Contractor **Exploration Geoservices, Inc.**	Approximate Surface Elevation **278 feet**
Groundwater Level and Date Measured **None ATD**	Sampling Method(s) **3" OD, 2.5" OD & 2.0" OD SPT Split Spoon Samplers**	Hammer Data **140 lb, 30 in drop, automatic**
Borehole Backfill **Cuttings**	Location **West of monk's residences**	

Elevation, feet	Depth, feet	Sample Type	Sampling Resistance, blows/foot	Relative Consistency	USCS Symbol	MATERIAL DESCRIPTION	Water Content, %	Torvane Shear Strength (TSF)	Pocket Pen Comp. Strength, TSF
	0		15	Stiff to Hard	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravel, trace sand, caliche deposits, slightly moist to very moist (Alluvium)	16		2.3
276			33/6"				20		2.5
			12				15		
	5		20				13		4.3
271									
	10		33				9		
266									
	15		33/6"				7		
261									
	20		33/5"				9		
256									
	25		33/5"				16		
251									
	30		40				21		
246									
	35		23				19	0.3	2.0
241									
	40		50/12"				18		
						Bottom of Boring at 40 feet bgs			
236									
	45								
231									
	50								
226									

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MURRAY ENGINEERS INC
GEOTECHNICAL SERVICES

WATT KAMPUCHEA KROM
2740 RUBY AVENUE
SAN JOSE, CALIFORNIA

LOG OF BORING B-1

PROJECT NO. 3162-1R1 | JULY 2019 | FIGURE A-1

Date(s) Drilled **March 27, 2019**	Logged By **MM**	Checked By **JK**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **8 inch diameter**	Total Depth of Borehole **40 feet**
Drill Rig Type **Truck B61**	Drilling Contractor **Exploration Geoservices, Inc.**	Approximate Surface Elevation **283 feet**
Groundwater Level and Date Measured **None ATD**	Sampling Method(s) **3" OD, 2.5" OD & 2.0" OD SPT Split Spoon Samplers**	Hammer Data **140 lb, 30 in drop, automatic**
Borehole Backfill **Cuttings**	Location **West side of community hall**	

Elevation, feet	Depth, feet	Sample Type	Sampling Resistance, blows/foot	Relative Consistency	USCS Symbol	MATERIAL DESCRIPTION	Water Content, %	Torvane Shear Strength (TSF)	Pocket Pen Comp. Strength, TSF
	0		16	Stiff to Hard	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravel, trace sand, caliche deposits, moist to very moist (Alluvium)	16		2.3
281			12				15		2.3
			12				16		2.5
	5								
276									
			33/6"				14	2	>4.5
	10								
271									
			33/5"				14		
	15								
266									
			37				16		
	20								
261									
			32				17		
	25								
256									
			20				17		3.5
	30								
251				Very Dense to Dense	GW	SANDY GRAVEL, yellowish to reddish brown, heterogeneous, angular to subrounded fine- to coarse-grained gravel, medium-grained to coarse sand, very moist (Alluvium)			
			58/11"				18		
	35								
246									
			36				15		
	40					Bottom of Boring at 40 feet bgs			
241									
	45								
236									
	50								
231									

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MURRAY ENGINEERS INC
GEOTECHNICAL SERVICES

WATT KAMPUCHEA KROM
2740 RUBY AVENUE
SAN JOSE, CALIFORNIA

LOG OF BORING B-2

PROJECT NO. 3162-1R1 | JULY 2019 | FIGURE A-2

Date(s) Drilled **March 27, 2019**	Logged By **MM**	Checked By **JK**	
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **8 inch diameter**	Total Depth of Borehole **40 feet bgs**	
Drill Rig Type **Truck B61**	Drilling Contractor **Exploration Geoservices, Inc.**	Approximate Surface Elevation **282 feet**	
Groundwater Level and Date Measured **None ATD**	Sampling Method(s) **3" OD, 2.5" OD & 2.0" OD SPT Split Spoon Samplers**	Hammer Data **140 lb, 30 in drop, automatic**	
Borehole Backfill **Cuttings**	Location **South area of underground parking**		

Elevation, feet	Depth, feet	Sample Type	Sampling Resistance, blows/foot	Relative Consistency	USCS Symbol	MATERIAL DESCRIPTION	Water Content, %	Torvane Shear Strength (TSF)	Pocket Pen Comp. Strength, TSF
	0		11	Stiff to Very Stiff	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravel, trace sand, caliche deposits, slightly moist (Alluvium)	14		>4.5
280			17				11		3.3
			17				11	0.5	2.0
	5					PI=16%; LL=38% (sample from 0 to 1 feet)			
275									
	10		30				10		
270									
	15		14	Stiff	ML	SANDY SILT, yellowish brown, homogeneous, low plasticity, fine-grained sand, slightly moist (Alluvium)	9		
265									
	20		46	Very Stiff to Hard	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravel, trace sand, caliche deposits, moist to very moist (Alluvium)	17		
260									
	25		28				16		
255									
	30		40				20		>4.5
250									
	35		54/12"				16		
245									
	40		44				16		
						Bottom of Boring at 40 feet bgs			
240									
	45								
235									
	50								
230									

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MURRAY ENGINEERS INC
GEOTECHNICAL SERVICES

WATT KAMPUCHEA KROM
2740 RUBY AVENUE
SAN JOSE, CALIFORNIA

LOG OF BORING B-3

PROJECT NO. 3162-1R1 | JULY 2019 | FIGURE A-3

Date(s) Drilled **March 28, 2019**	Logged By **MM**	Checked By **JK**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **8 inch diameter**	Total Depth of Borehole **30 feet**
Drill Rig Type **Truck B61**	Drilling Contractor **Exploration Geoservices, Inc.**	Approximate Surface Elevation **285 feet**
Groundwater Level and Date Measured **None ATD**	Sampling Method(s) **3" OD, 2.5" OD & 2.0" OD SPT Split Spoon Samplers**	Hammer Data **140 lb, 30 in drop, automatic**
Borehole Backfill **Cuttings**	Location **Northeast corner of community hall**	

Elevation, feet	Depth, feet	Sampling Resistance, blows/foot	Relative Consistency	USCS Symbol	MATERIAL DESCRIPTION	Water Content, %	Torvane Shear Strength (TSF)	Pocket Pen Comp. Strength, TSF
	0	20	Very Stiff to Hard	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravel, trace sand, caliche deposits, moist to very moist (Alluvium)	14		2.0
283		16				16		4.8
		16				16 16	0.6	2.5
	5							
278								
		33/5"				14	1.5	>4.5
	10							
273								
		40				13		
	15							
268								
		33/5"	Very Dense	SM	SILTY SAND, grayish to yellowish brown, homogeneous, trace fine- to medium-grained subrounded to subangular gravel, fine-grained sand, dry (Alluvium)	14 7		
	20							
263			Hard	CL				
		51/12"			LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravel, trace sand, caliche deposits, moist to very moist (Alluvium)	17	1.5	>4.5
	25							
258								
		32				15		
	30				Bottom of Boring at 30 feet bgs			
253								
	35							
248								
	40							
243								
	45							
238								
	50							
233								

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MURRAY ENGINEERS INC
GEOTECHNICAL SERVICES

WATT KAMPUCHEA KROM 2740 RUBY AVENUE SAN JOSE, CALIFORNIA		LOG OF BORING B-4
PROJECT NO. 3162-1R1	JULY 2019	FIGURE A-4

Date(s) Drilled: **March 28, 2019**	Logged By: **MM**	Checked By: **JK**
Drilling Method: **Hollow Stem Auger**	Drill Bit Size/Type: **8 inch diameter**	Total Depth of Borehole: **40 feet**
Drill Rig Type: **Truck B61**	Drilling Contractor: **Exploration Geoservices, Inc.**	Approximate Surface Elevation: **286 feet**
Groundwater Level and Date Measured: **None ATD**	Sampling Method(s): **3" OD, 2.5" OD & 2.0" OD SPT Split Spoon Samplers**	Hammer Data: **140 lb, 30 in drop, automatic**
Borehole Backfill: **Cuttings**	Location: **South side of community hall**	

Elevation, feet	Depth, feet	Sample Type	Sampling Resistance, blows/foot	Relative Consistency	USCS Symbol	MATERIAL DESCRIPTION	Water Content, %	Torvane Shear Strength (TSF)	Pocket Pen Comp. Strength, TSF
	0		16	Very Stiff to Hard	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravel, trace sand, caliche deposits, slightly moist to moist (Alluvium)			3.3
284			17						>4.5
			23				12 8		
	5								
279									
			53				11		
274	10								
			33/6"				12		
269	15								
			47				12		
	20								
264				Very Dense	SP-SM	GRAVELLY to SILTY SAND, yellowish brown, heterogeneous, subrounded to angular fine- to medum-grained gravel, fine-grained sand, slightly moist (Alluvium)			
			33/6"				8		
259	25								
			33/6"				6		
	30								
254				Hard	CL	SANDY LEAN CLAY, yellowish brown, homogeneous, medium plasticity, fine-grained sand, trace subrounded to angular gravel, slightly moist (Alluvium)			
			49				13		
	35								
249				Hard	CH	FAT CLAY, yellowish brown, homogeneous, high plasticity, trace fine-grained sand, very moist (Alluvium)			
			33/6"				21		
				Hard	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravels, trace sands, caliche deposits, very moist (Alluvium)	22		
	40								
244						Bottom of Boring at 40 feet bgs			
	45								
239									
	50								
234									

Date(s) Drilled: March 28, 2019	Logged By: MM	Checked By: JK
Drilling Method: Hollow Stem Auger	Drill Bit Size/Type: 8 inch diameter	Total Depth of Borehole: 35 feet
Drill Rig Type: Truck B61	Drilling Contractor: Exploration Geoservices, Inc.	Approximate Surface Elevation: 287 feet
Groundwater Level and Date Measured: None ATD	Sampling Method(s): 3" OD, 2.5" OD & 2.0" OD SPT Split Spoon Samplers	Hammer Data: 140 lb, 30 in drop, automatic
Borehole Backfill: Cuttings	Location: East corner of library and admin office	

Elevation, feet	Depth, feet	Sampling Resistance, blows/foot	Relative Consistency	USCS Symbol	MATERIAL DESCRIPTION	Water Content, %	Torvane Shear Strength (TSF)	Pocket Pen Comp. Strength, TSF
	0	16 12 14	Stiff to Hard	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravels, trace sands, caliche deposits, moist to slightly moist (Alluvium)	16 14 13		0.5
		36				10		
275		49	Dense to Very Dense	SM	SILTY SAND, grayish to yellowish brown, homogeneous, trace fine- to medium-grained subrounded to subangular gravels, fine-grained sands, slightly moist to dry (Alluvium)	6		
		33/6"				6		
		33/1"	Hard	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravels, trace sands, caliche deposits, moist (Alluvium)	14		
		44				16		
		33/6"	Very Dense	GC	CLAYEY GRAVEL, gray and yellowish brown, heterogeneous, low plasticity fines, subrounded to subangular medium- to coarse-grained gravel, trace fine-grained sand, very moist to moist (Alluvium)	13 10		
	35				Bottom of Boring at 35 feet bgs			

Elevation scale: 285, 280, 275, 270, 265, 260, 255, 250, 245, 240, 235. Depth scale: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50.

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MURRAY ENGINEERS INC GEOTECHNICAL SERVICES

WATT KAMPUCHEA KROM
2740 RUBY AVENUE
SAN JOSE, CALIFORNIA

LOG OF BORING B-6

PROJECT NO. 3162-1R1 | JULY 2019 | FIGURE A-6

Date(s) Drilled **March 29, 2019**	Logged By **MM**	Checked By **JK**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **8 inch diameter**	Total Depth of Borehole **35 feet**
Drill Rig Type **Truck B61**	Drilling Contractor **Exploration Geoservices, Inc.**	Approximate Surface Elevation **282 feet**
Groundwater Level and Date Measured **None ATD**	Sampling Method(s) **3" OD, 2.5" OD & 2.0" OD SPT Split Spoon Samplers**	Hammer Data **140 lb, 30 in drop, automatic**
Borehole Backfill **Cuttings**	Location **North of Monk's residences**	

Elevation, feet	Depth, feet	Sample Type	Sampling Resistance, blows/foot	Relative Consistency	USCS Symbol	MATERIAL DESCRIPTION	Water Content, %	Torvane Shear Strength (TSF)	Pocket Pen Comp. Strength, TSF
	0		10	Medium Stiff to Hard	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravels, trace sands, caliche deposits, slightly moist to moist (Alluvium)	16		2.0
280			6				14		1.8
			10				16		2.0 2.8
	5								
275									
			38				16	1.5	>4.5
	10								
270									
			40				6	1.5	>4.5
	15								
265									
			37				12		4.0
	20								
260									
			45				14	1.8	>4.5
	25								
255									
			27				16		
	30								
250				Dense	SM	SILTY SAND, grayish to yellowish brown, homogeneous, trace fine- to medium-grained subrounded to subangular gravels, fine-grained sands, slightly moist to dry (Alluvium)			
			42						3.25
	35								
245						Bottom of Boring at 35 feet bgs			
	40								
240									
	45								
235									
	50								
230									

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MURRAY ENGINEERS INC
GEOTECHNICAL SERVICES

WATT KAMPUCHEA KROM
2740 RUBY AVENUE
SAN JOSE, CALIFORNIA

LOG OF BORING B-7

PROJECT NO. 3162-1R1 | JULY 2019 | FIGURE A-7

Date(s) Drilled: **March 29, 2019**	Logged By: **MM**	Checked By: **JK**
Drilling Method: **Hollow Stem Auger**	Drill Bit Size/Type: **8 inch diameter**	Total Depth of Borehole: **40 feet**
Drill Rig Type: **Truck B61**	Drilling Contractor: **Exploration Geoservices, Inc.**	Approximate Surface Elevation: **282 feet**
Groundwater Level and Date Measured: **34.6 feet ATD**	Sampling Method(s): **3" OD, 2.5" OD & 2.0" OD SPT Split Spoon Samplers**	Hammer Data: **140 lb, 30 in drop, automatic**
Borehole Backfill: **Cuttings**	Location: **East side of temple**	

Elevation, feet	Depth, feet	Sample Type	Sampling Resistance, blows/foot	Relative Consistency	USCS Symbol	MATERIAL DESCRIPTION	Water Content, %	Torvane Shear Strength (TSF)	Pocket Pen Comp. Strength, TSF
	0		16	Stiff to Hard	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravels, trace sands, caliche deposits, slightly moist to very moist (Alluvium)	9		3.5
280			11				10		2.0
			15				8		
	5								
275									
			16				7 25		
	10								
270									
			33/5"			PI=22%; LL=38% (sample from 13.5 to 15 feet)	16	1.0	2.8
	15								
265									
			38				13		
	20								
260									
			31				21	0.7	3.3
	25								
255									
			40	Dense	SM	SILTY SAND, grayish to yellowish brown, homogeneous, trace fine- to medium-grained subrounded to subangular gravels, fine-grained sands, slightly moist to dry (Alluvium)	7		
	30								
250				Hard	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravels, trace sands, caliche deposits, moist (Alluvium) (ATD) ▽			
			42				16	1.4	4.0
	35								
245				Very Stiff	ML	SANDY SILT, yellowish brown, homogeneous, low plasticity, fine-grained sands, very moist (Alluvium)			
			20				20		
	40					Bottom of Boring at 40 feet bgs			
240									
	45								
235									
	50								
230									

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MURRAY ENGINEERS INC
GEOTECHNICAL SERVICES

WATT KAMPUCHEA KROM 2740 RUBY AVENUE SAN JOSE, CALIFORNIA		LOG OF BORING B-8
PROJECT NO. 3162-1R1	JULY 2019	FIGURE A-8

Date(s) Drilled **March 29, 2019**	Logged By **MM**	Checked By **JK**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **8 inch diameter**	Total Depth of Borehole **40 feet**
Drill Rig Type **Truck B61**	Drilling Contractor **Exploration Geoservices, Inc.**	Approximate Surface Elevation **282 feet**
Groundwater Level and Date Measured **35 feet ADT, 33 feet on 4/1**	Sampling Method(s) **3" OD, 2.5" OD & 2.0" OD SPT Split Spoon Samplers**	Hammer Data **140 lb, 30 in drop, automatic**
Borehole Backfill **Cuttings**	Location **East corner of security building**	

Elevation, feet	Depth, feet	Sample Type	Sampling Resistance, blows/foot	Relative Consistency	USCS Symbol	MATERIAL DESCRIPTION	Water Content, %	Torvane Shear Strength (TSF)	Pocket Pen Comp. Strength, TSF
282	0		14 14 16	Stiff to Very Stiff	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravels, trace sands, caliche deposits, slightly moist (Alluvium)	11 10 8	0.8	4.3 2.0 4.0
			44	Dense	SM	SILTY SAND, grayish to yellowish brown, homogeneous, trace fine- to medium-grained subrounded to subangular gravels, fine-grained sands, slightly moist to dry (Alluvium)	5		
			60/12"	Hard to Very Stiff	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravels, trace sands, caliche deposits, moist to very moist (Alluvium)	15	1.0	>4.5
			46				12	1.0	>4.5
			61/11"				14	1.0	>4.5
			26				16	0.5	3.25
			33/5"	Very Dense	SW	SAND, yellowish brown, heterogeneous, trace rounded to subangular gravel, moist (Alluvium) (after 33 feet on 4/1)	10		
			33/6"				12		
242	40					Bottom of Boring at 40 feet bgs			

Elevation scale: 280, 275, 270, 265, 260, 255, 250, 245, 240, 235, 230. Depth scale: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50.

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MURRAY ENGINEERS INC GEOTECHNICAL SERVICES	WATT KAMPUCHEA KROM 2740 RUBY AVENUE SAN JOSE, CALIFORNIA	LOG OF BORING B-9
PROJECT NO. 3162-1R1	JULY 2019	FIGURE A-9

Date(s) Drilled **April 1, 2019**	Logged By **MM**	Checked By **JK**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **hollow stem auger**	Total Depth of Borehole **40 feet**
Drill Rig Type **Truck B61**	Drilling Contractor **Exploration Geoservices, Inc.**	Approximate Surface Elevation **276 feet**
Groundwater Level and Date Measured **None ATD**	Sampling Method(s) **3" OD, 2.5" OD & 2.0" OD SPT Split Spoon Samplers**	Hammer Data **140 lb, 30 in drop, automatic**
Borehole Backfill **Cuttings**	Location **West of pavillion, southwest of temple**	

Elevation, feet	Depth, feet	Sample Type	Sampling Resistance, blows/foot	Relative Consistency	USCS Symbol	MATERIAL DESCRIPTION	Water Content, %	Torvane Shear Strength (TSF)	Pocket Pen Comp. Strength, TSF
	0		19	Stiff to Hard	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravels, trace sands, caliche deposits, moist to slightly moist (Alluvium)	15		3.3
274			14				15		3.5
	5		31				7		>4.5
269	10		29				8		>4.5
264	15		33/5"	Very Dense	SM	SILTY SAND, grayish to yellowish brown, homogeneous, trace fine- to medium-grained subrounded to subangular gravels, fine-grained sands, slightly moist to dry (Alluvium)	9 8		>4.5
259	20		33/6"	Hard	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravels, trace sands, caliche deposits, very moist (Alluvium)	18		
254	25		45				20		4.3
249	30		47				18	1.3	>4.5
244	35		34	Hard	CL	SANDY LEAN CLAY, olive brown, heterogeneous, medium plasticity, very moist (Alluvium)	19		2.5
239	40		25	Very Stiff	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravels, trace sands, caliche deposits, very moist (Alluvium)	18		1.0
234	45					Bottom of Boring at 40 feet bgs			
229	50								
224									

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MURRAY ENGINEERS INC GEOTECHNICAL SERVICES	WATT KAMPUCHEA KROM 2740 RUBY AVENUE SAN JOSE, CALIFORNIA	LOG OF BORING B-10
PROJECT NO. 3162-1R1	JULY 2019	FIGURE A-10

Date(s) Drilled **April 1, 2019**	Logged By **MM**	Checked By **JK**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **8 inch diameter**	Total Depth of Borehole **40 feet**
Drill Rig Type **Truck B61**	Drilling Contractor **Exploration Geoservices, Inc.**	Approximate Surface Elevation **279 feet**
Groundwater Level and Date Measured **39 feet ATD**	Sampling Method(s) **3" OD, 2.5" OD & 2.0" OD SPT Split Spoon Samplers**	Hammer Data **140 lb, 30 in drop, automatic**
Borehole Backfill **Cuttings**	Location **Northwest of temple**	

Elevation, feet	Depth, feet	Sampling Resistance, blows/foot	Relative Consistency	USCS Symbol	MATERIAL DESCRIPTION	Water Content, %	Torvane Shear Strength (TSF)	Pocket Pen Comp. Strength, TSF
	0	10	Stiff to Hard	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravels, trace sands, caliche deposits, slightly moist to very moist (Alluvium)	14		3.8
277		17				15		
		18				9		
	5							
272								
		18				10		2.0
	10							
267								
		54/11"				13	1.3	>4.5
	15							
262								
		23				15		3.0
	20							
257								
		58/10"				17	1.5	>4.5
	25							
252								
		33/5"	Very Dense	SP-SM	GRAVELLY to SILTY SAND, yellowish brown, heterogeneous, subrounded to angular fine- to medum-grained gravel, fine-grained sand, slightly moist to moist (Alluvium)	12		2.5
	30							
247			Hard	CL	LEAN CLAY, dark brown to yellowish brown, homogeneous, medium plasticity, minor fine- to coarse-grained subangular gravels, trace sands, caliche deposits, very moist (Alluvium)			
		34				20		1.3
	35							
242								
		42			(ATD)	16		2.8
	40				Bottom of Boring at 40 feet bgs			
237								
	45							
232								
	50							
227								

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MURRAY ENGINEERS INC
GEOTECHNICAL SERVICES

WATT KAMPUCHEA KROM
2740 RUBY AVENUE
SAN JOSE, CALIFORNIA

LOG OF BORING B-11

PROJECT NO. 3162-1R1 | JULY 2019 | FIGURE A-11

Date(s) Drilled **April 1, 2019**	Logged By **MM**	Checked By **JK**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **8 inch diameter**	Total Depth of Borehole **40 feet**
Drill Rig Type **Truck B61**	Drilling Contractor **Exploration Geoservices, Inc.**	Approximate Surface Elevation **285 feet (relative)**
Groundwater Level and Date Measured **42 feet ATD**	Sampling Method(s) **3" OD, 2.5" OD & 2.0" OD SPT Split Spoon Samplers**	Hammer Data **140 lb, 30 in drop, automatic**
Borehole Backfill **Cuttings**	Location **Northwest side of community hall**	

Elevation, feet	Depth, feet	Sample Type	Sampling Resistance, blows/foot	Relative Consistency	USCS Symbol	MATERIAL DESCRIPTION	Water Content, %	Torvane Shear Strength (TSF)	Pocket Pen Comp. Strength, TSF
285	0			Very Stiff	CL	LEAN CLAY, dark brown to yellowish brown, medium plasticity, minor fine- to coarse-grained gravel, trace sand, moist to very moist (Alluvium)			
			27				17		
	10		79	Dense to Very Dense	SM	SILTY SAND, yellowish brown, heterogeneous, low plasticity fines, trace subrounded to angular fine- to medium-grained gravel, slightly moist (Alluvium)	9		
			39				9		
268				Very Stiff to Hard	CL	LEAN CLAY, yellowish brown, homogeneous, medium plasticity, trace sand, scarce subrounded to angular gravel, very moist (Alluvium)			
			51				17		
	20		29				19		
			20				16		
			18				12		
253				Very Stiff to Hard	CL	LEAN CLAY, yellowish brown, homogeneous, meidum plasticity, moist to very moist (Alluvium)			
			25				11		
			31				16		
243						(ATD) ▽			
			33				19		
	45					Bottom of Boring at 45 feet bgs			

Elevation scale: 283, 278, 273, 268, 263, 258, 253, 248, 243, 238, 233. Depth scale: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50.

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MURRAY ENGINEERS INC GEOTECHNICAL SERVICES	**WATT KAMPUCHEA KROM 2740 RUBY AVENUE SAN JOSE, CALIFORNIA**	**LOG OF BORING B-12**
PROJECT NO. 3162-1R1	**JULY 2019**	**FIGURE A-12**

Date(s) Drilled **April 1, 2019**	Logged By **MM**	Checked By **JK**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **8 inch diameter**	Total Depth of Borehole **40 feet**
Drill Rig Type **Truck B61**	Drilling Contractor **Exploration Geoservices, Inc.**	Approximate Surface Elevation **278 feet (relative)**
Groundwater Level and Date Measured **32 feet ATD**	Sampling Method(s) **3" OD, 2.5" OD & 2.0" OD SPT Split Spoon Samplers**	Hammer Data **140 lb, 30 in drop, automatic**
Borehole Backfill **Cuttings**	Location **Northwest vicinity of temple**	

Elevation, feet	Depth, feet	Sampling Resistance, blows/foot	Relative Consistency	USCS Symbol	MATERIAL DESCRIPTION	Water Content, %	Torvane Shear Strength (TSF)	Pocket Pen Comp. Strength, TSF
276	0		Medium Dense	SM	SILTY SAND, yellowish brown, homogeneous, low plasticity fines, trace subrounded to angular gravel, slightly moist (Alluvium)			
271	5	22	Dense	CL	LEAN CLAY, yellowish brown, homogeneous, medium plasticity, trace sand, moist (Alluvium)	9		
266	10	35	Dense	SM	SILTY SAND, yellowish brown, heterogeneous, low plasticity fines, trace subrounded to angular fine- to medium-grained gravel, slightly moist (Alluvium)	8		
261	15	33/5"	Hard	CL	SANDY LEAN CLAY with GRAVEL, yellowish brown, heterogeneous, low plasticity, subrounded to angular gravel, slightly moist (Alluvium)	11		
		16	Medium Dense	SM	SILTY SAND, yellowish brown, heterogeneous, low plasticity fines, trace subrounded to angular fine- to medium-grained gravel, slightly moist (Alluvium)	9		
256	20	26	Very Stiff to Hard	CL	SILTY SAND, yellowish brown, heterogeneous, low plasticity fines, trace subrounded to angular fine- to medium-grained gravel, moist to very moist (Alluvium)	23		
251	25	51				14		
246	30	60			(ATD)	18		
241	35	32				17		
236	40	52				23		
231	45	44			Bottom of Boring at 45 feet bgs	17		
226	50							

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MURRAY ENGINEERS INC
GEOTECHNICAL SERVICES

WATT KAMPUCHEA KROM
2740 RUBY AVENUE
SAN JOSE, CALIFORNIA

LOG OF BORING B-13

PROJECT NO. 3162-1R1 | JULY 2019 | FIGURE A-13

Date(s) Drilled **April 1, 2019**	Logged By **MM**	Checked By **JK**
Drilling Method **Hollow Stem Auger**	Drill Bit Size/Type **8 inch diameter**	Total Depth of Borehole **40 feet**
Drill Rig Type **Truck B61**	Drilling Contractor **Exploration Geoservices, Inc.**	Approximate Surface Elevation **282 feet (relative)**
Groundwater Level and Date Measured **34 feet ATD**	Sampling Method(s) **3" OD, 2.5" OD & 2.0" OD SPT Split Spoon Samplers**	Hammer Data **140 lb, 30 in drop, automatic**
Borehole Backfill **Cuttings**	Location **East side of temple**	

Elevation, feet	Depth, feet	Sample Type	Sampling Resistance, blows/foot	Relative Consistency	USCS Symbol	MATERIAL DESCRIPTION	Water Content, %	Torvane Shear Strength (TSF)	Pocket Pen Comp. Strength, TSF
282	0			Very Stiff to Hard	CL	LEAN CLAY, dark brown to yellowish brown, medium plasticity, minor fine- to coarse-grained gravel, trace sand, moist to very moist (Alluvium)			
	~9.5		31				11		
	~14.5		29				14		
	~19.5		34				17		
	~20.5		48				18		
	~24.5		24				19		
	~29.5		46	Dense	SM	SILTY SAND, yellowish brown, heterogeneous, low plasticity fines, trace subrounded to angular fine- to medium-grained gravel, slightly moist (Alluvium)	6		
				Very Stiff	CL	(ATD) ▽			
	~34.5		31				18		
				Dense	SM	SILTY SAND, yellowish brown, heterogeneous, low plasticity fines, trace subrounded to angular fine- to medium-grained gravel, very moist (Alluvium)	12		
	~39.5		19	Very Stiff	ML	SANDY SILT, yellowish brown, homogeneous, low to medium plasticity, very fine-grained sand, very moist (Alluvium)	18		
	~44.5		51	Hard	CL	LEAN CLAY, yellowish brown, homogeneous, medium plasticity, trace sand, scarce subrounded to angular gravel, very moist (Alluvium)	16		
	45					Bottom of Boring at 45 feet bgs			

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MURRAY ENGINEERS INC
GEOTECHNICAL SERVICES

WATT KAMPUCHEA KROM
2740 RUBY AVENUE
SAN JOSE, CALIFORNIA

LOG OF BORING B-14

PROJECT NO. 3162-1R1 | **JULY 2019** | **FIGURE A-14**

Elevation, feet	Depth, feet	Sample Type	Sampling Resistance, blows/foot	Relative Consistency	USCS Symbol	MATERIAL DESCRIPTION	Water Content, %	Torvane Shear Strength (TSF)	Pocket Pen Comp. Strength, TSF
1	2	3	4	5	6	7	8	9	10

COLUMN DESCRIPTIONS

1 **Elevation, feet:** Elevation (MSL, feet)

2 **Depth, feet:** Depth in feet below the ground surface.

3 **Sample Type:** Type of soil sample collected at the depth interval shown.

4 **Sampling Resistance, blows/foot:** Number of blows required to advance the sampler 12 inches or the distance shown. Blow counts for the 3.0-inch O.D. and 2.5-inch O.D. samplers have been corrected for sampler size to SPT values using conversion factors of 0.65 and 0.77, respectively.

5 **Relative Consistency:** Relative consistency of the subsurface material.

6 **USCS Symbol:** USCS symbol of the subsurface material.

7 **MATERIAL DESCRIPTION:** Description of material encountered. May include consistency, moisture, color, and other descriptive text.

8 **Water Content, %:** Water content of the soil sample, expressed as percentage of dry weight of sample.

9 **Torvane Shear Strength (TSF):** Approximate shear strength in tons per square foot.

10 **Pocket Pen Comp. Strength, TSF:** Approximate unconfined compressive strength in tons per square foot.

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

TYPICAL MATERIAL GRAPHIC SYMBOLS

Sandstone
Well graded GRAVEL (GW)
Poorly graded GRAVEL (GP)
Well graded GRAVEL with Silt (GW-GM)
Well graded GRAVEL with Clay (GW-GC)
Poorly graded GRAVEL with Silt (GP-GM)
Poorly graded GRAVEL with Clay (GP-GC)
Silty GRAVEL (GM)
Clayey GRAVEL (GC)
Well graded SAND (SW)
Poorly graded SAND (SP)
Well graded SAND with Silt (SW-SM)
Well graded SAND with Clay (SW-SC)
Poorly graded SAND with Silt (SP-SM)
Poorly graded SAND with Clay (SP-SC)
Silty SAND (SM)
Clayey SAND (SC)
SILT, SILT w/SAND, SANDY SILT (ML)
Lean CLAY, CLAY w/SAND, SANDY CLAY (CL)
SILT, SILT w/SAND, SANDY SILT (MH)
Fat CLAY, CLAY w/SAND, SANDY CLAY (CH)
SILT, SILT with SAND, SANDY SILT (ML-MH)
Lean-Fat CLAY, CLAY w/SAND, SANDY CLAY (CL/CH)
SILTY CLAY (CL-ML)
Lean CLAY/PEAT (CL-OL)
Fat CLAY/SILT (CH-MH)
Fat CLAY/PEAT (CH-OH)
Silty SAND to Sandy SILT (SM-ML)
Silty SAND to Sandy SILT (SM-MH)
Clayey SAND to Sandy CLAY (SC-CL)
Clayey SAND to Sandy CLAY (SC-CH)
SILT to CLAY (CL/ML)
Silty to Clayey SAND (SC/SM)

TYPICAL SAMPLER GRAPHIC SYMBOLS

2 inch-OD Unlined Split Spoon (SPT)
2.5 inch-OD Unlined Split Spoon
3 inch-OD Unlined Split Spoon
Shelby Tube (thin-walled, fixed head)
Grab Sample
Bulk Sample
Pitcher Sample
Other Sampler

OTHER GRAPHIC SYMBOLS

Water level (at time of drilling, ATD)
Water level (after waiting a given time)
Minor change in material properties within a stratum
Inferred or gradational contact between strata
? Queried contact between strata

GENERAL NOTES

1. Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2. Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

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PRIMARY DIVISIONS			SOIL TYPE	SECONDARY DIVISIONS
COARSE GRAINED SOILS (<50% Fines)	GRAVEL	CLEAN GRAVEL (<5% Fines)	**GW**	Well graded gravel, gravel-sand mixtures, little or no fines.
			GP	Poorly graded gravel or gravel-sand mixtures, little or no fines.
		GRAVEL *with* FINES	**GM**	Silty gravels, gravel-sand-silt mixtures, non-plastic fines.
			GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines.
	SAND	CLEAN SAND (<5% Fines)	**SW**	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		SAND *with* FINES	**SM**	Silty sands, sand-silt mixtures, non-plastic fines.
			SC	Clayey sands, sand-clay mixtures, plastic fines.
FINE GRAINED SOILS (>50% Fines)	SILT AND CLAY *Liquid limit <50%*		**ML**	Inorganic silts and very fine sands, with slight plasticity.
			CL	Inorganic clays of low to medium plasticity, lean clays.
			OL	Organic silts and organic clays of low plasticity.
	SILT AND CLAY *Liquid limit >50%*		**MH**	Inorganic silt, micaceous or diatomaceous fine sandy or silty soil.
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			**Pt**	Peat and other highly organic soils.

RELATIVE DENSITY

SAND & GRAVEL	BLOWS/FOOT*
VERY LOOSE	0 to 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	OVER 50

CONSISTENCY

SILT & CLAY	STRENGTH^	BLOWS/FOOT*
VERY SOFT	0 to 0.25	0 to 2
SOFT	0.25 to 0.5	2 to 4
MEDIUM STIFF	0.5 to 1	4 to 8
STIFF	1 to 2	8 to 16
VERY STIFF	2 to 4	16 to 32
HARD	OVER 4	OVER 32

GRAIN SIZES

BOULDERS	COBBLES	GRAVEL		SAND			SILT & CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

12" 3" 3/4" 4 10 40 200

SIEVE OPENINGS U.S. STANDARD SERIES SIEVE

Classification is based on the Unified Soil Classification System; fines refer to soil passing a No. 200 sieve.

*Standard penetration test (SPT) resistance using a 140-pound hammer falling 30 inches on a 2-inch outside diameter split spoon sampler; blow counts for the 3.0-inch O.D. and 2.5-inch O.D. samplers have been corrected for sampler size to SPT values using conversion factors of 0.65 and 0.77, respectively.

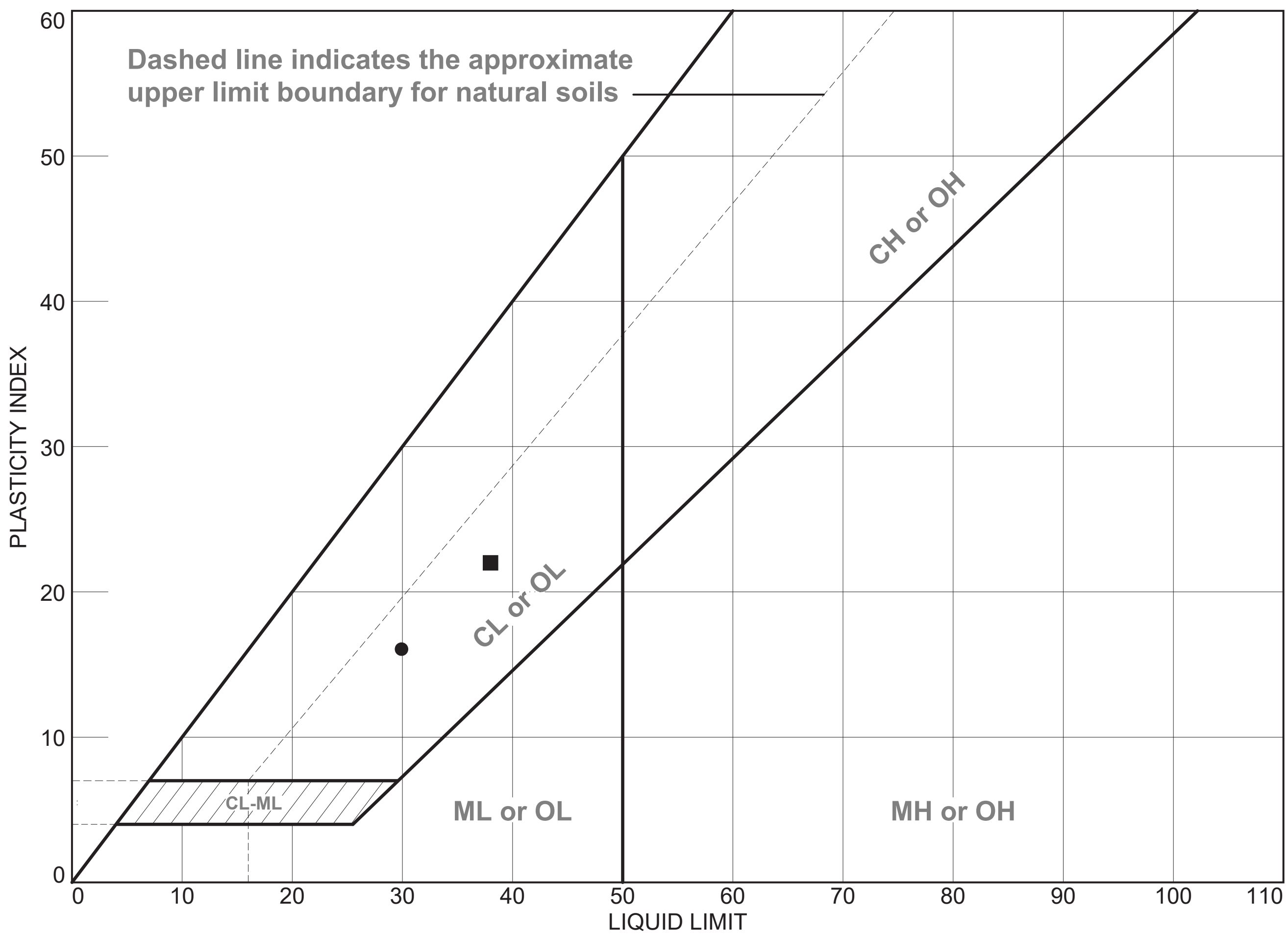
^ Shear strength in tons/sq. ft. as estimated by SPT resistance, field and laboratory tests, and/or visual observation.

MURRAY ENGINEERS INC GEOTECHNICAL SERVICES

WATT KAMPUCHEA KROM 2740 RUBY AVENUE SAN JOSE, CALIFORNIA		UNIFIED SOIL CLASSIFICATION SYSTEM
PROJECT NO. 3162-1R1	**JULY 2019**	**FIGURE A-16**

APPENDIX B

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Borings	B-3	0 - 1'	14.2	14	30	16	CL
■	Borings	B-8	13.5 - 15'	16.3	16	38	22	CL

MURRAY ENGINEERS INC GEOTECHNICAL SERVICES	WATT KAMPUCHEA KROM 2740 RUBY AVENUE SAN JOSE, CALIFORNIA		LIQUID & PLASTIC LIMITS TEST REPORT
	PROJECT NO. 3162-1R1	JUNE 2019	FIGURE B-1

Moisture-Density-Porosity Report

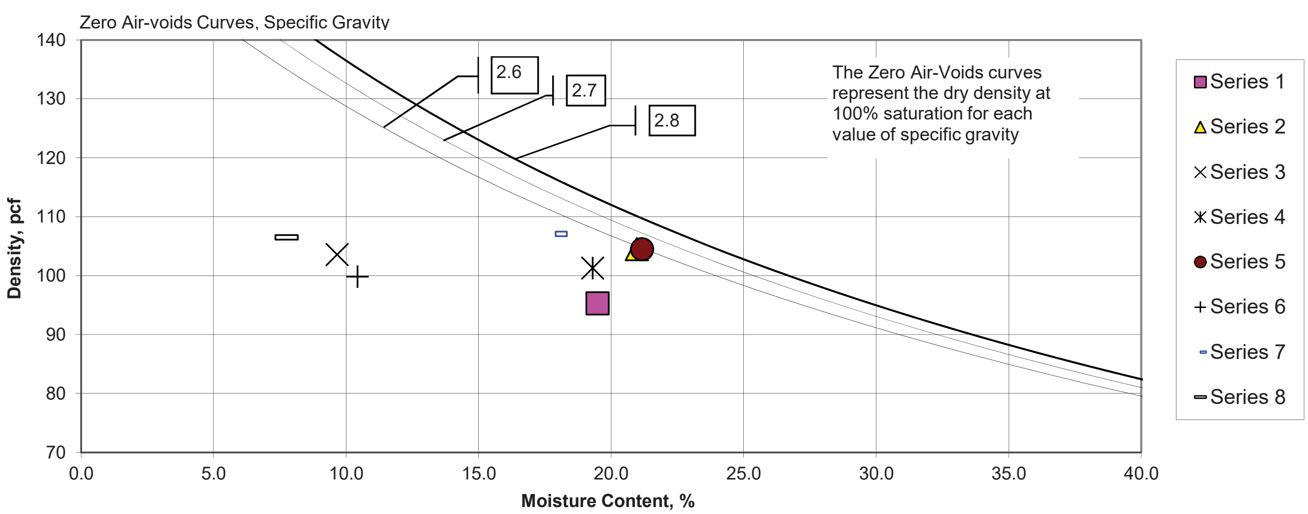
Cooper Testing Labs, Inc. (ASTM D7263b)

CTL Job No:	560-248	**Project No.**	3162-1	**By:**	RU
Client:	Murray Engineers	**Date:**	06/06/19		
Project Name:	Watt Kampnchea	**Remarks:**			

Boring:	B-12	B-12	B-13	B-13	B-13	B-14	B-14	B-14
Sample:	4	5	6	8	9	10	12	13
Depth, ft:	20-21.5	28.5-30	5.5-6.5	19.5-20	23.5-25	8.5-10	18.5-20	28.5-30
Visual Description:	Yellowish Brown Sandy CLAY	Yellowish Brown Sandy CLAY	Reddish Brown Sandy CLAY w/ Gravel	Reddish Brown Sandy CLAY w/ Gravel	Yellowish Brown Sandy CLAY	Yellowish Brown Sandy CLAY	Yellowish Brown Sandy CLAY	Yellowish Brown Clayey SAND w/ Gravel
Actual G_s								
Assumed G_s	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70
Moisture, %	19.5	21.0	9.7	19.3	21.2	10.4	17.9	7.8
Wet Unit wt, pcf	113.8	126.4	113.6	120.8	126.6	110.2	126.2	114.7
Dry Unit wt, pcf	95.2	104.5	103.5	101.2	104.5	99.8	107.0	106.5
Dry Bulk Dens.pb, (g/cc)	1.53	1.67	1.66	1.62	1.67	1.60	1.71	1.71
Saturation, %	68.2	92.1	41.5	78.2	93.0	40.8	83.9	35.9
Total Porosity, %	43.5	38.1	38.6	40.0	38.1	40.8	36.6	36.9
Volumetric Water Cont, Θw,%	29.7	35.1	16.0	31.3	35.4	16.7	30.7	13.2
Volumetric Air Cont., Θa,%	13.8	3.0	22.6	8.7	2.7	24.2	5.9	23.7
Void Ratio	0.77	0.61	0.63	0.67	0.61	0.69	0.58	0.58
Series	1	2	3	4	5	6	7	8

Note: All reported parameters are from the as-received sample condition unless otherwise noted. If an assumed specific gravity (Gs) was used then the saturation, porosities, and void ratio should be considered approximate.

Moisture-Density



MURRAY ENGINEERS INC GEOTECHNICAL SERVICES	WATT KAMPUCHEA KROM 2740 RUBY AVENUE SAN JOSE, CALIFORNIA	MOISTURE, DENSITY, POROSITY REPORT FOR B-12 - 18.5-20 FEET BGS
PROJECT NO. 3162-1R1	JULY 2019	FIGURE B-2