Appendix E-1

Preliminary Geotechnical Investigation

PRELIMINARY GEOLOGIC AND GEOTECHNICAL ENGINEERING INVESTIGATION, PROPOSED CABINS AND WELCOME CENTER, BRANDEIS-BARDIN CAMPUS,
Simi Valley, California

for

AMERICAN JEWISH UNIVERSITY

February 17, 2022 W.O. 7588

MDN 22717

GeoSoils Consultants Inc.

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GEOTECHNICAL GEOLOGIC ENVIRONMENTAL

February 17, 2022
W.O. 7588

AMERICAN JEWISH UNIVERSITY
c/o Jon Friedman
Jemstreet Properties
1016 Stuart Circle
Thousand Oaks, California 91362

Attention: Mr. Adrian Breitfeld

Subject: Preliminary Geologic and Geotechnical Engineering Investigation, Proposed Cabins and Welcome Center, Brandeis-Bardin Campus, Simi Valley, California

INTRODUCION

As requested, GeoSoils Consultants, Inc. (GSC) has performed a preliminary geologic and geotechnical engineering investigation for the subject site. The purpose of this investigation was to evaluate the geologic and geotechnical engineering conditions on the site and their impact on the proposed development. Proposed development will consist of grading to create building areas for proposed cabin structures and a welcome center. A site development plan is included as Plate 1, Geologic Map.

This report has been prepared in accordance with generally accepted geotechnical engineering practices in the County of Ventura at the time it was prepared. The report presents a brief description of the site, the geotechnical engineering characteristics of the area, the seismicity of the area, an engineering analysis of the site characteristics and preliminary recommendations to development the site.

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Opinions presented in this report are based on 1) an inspection of the site, 2) geologic mapping at the site, 3) logging of backhoe test pits at the site, 4) a review of the regional geologic maps, seismic hazard reports, and previous consultant reports, and 5) our general knowledge of the geologic and soils engineering conditions in the site area. The opinions presented have been arrived at through the exercise of the generally understood standard of care for our profession and standard of engineering practice, as we understand it.

SITE LOCATION AND DESCRIPTION

The subject site is located within the southeastern part of Simi Valley on the eastern flanks of Meier Canyon (Figure 1). Meier Canyon is a tributary to the Arroyo Simi drainage channel located north of the subject property. A topographic map of the site is included as Plate 1, Geologic Map. The area addressed in this report consists of the west sloping surface between Peppertree Lane and the main canyon bottom, as shown on Plate 1. This area consists of a broad surface elevated above the main canyon bottom to the west. Two tributary canyons pass through the site before entering Meier Canyon. One of the tributaries is located along the northern part of the subject site and one passes through the central part of the site. The two tributary canyons continue to ascend to the east and above the subject property. The slope gradients range from flatter than 10:1 on the elevated surfaces to 2:1 along the sides of the central tributary channel.

Previous grading was performed on the site and fill was placed on the elevated surfaces at the approximate locations shown on Plate 1. In addition, it appears that the steeper slopes along the western part of the site were cut to create a wider valley floor. The gradient of these slopes is locally steeper than 2:1. The area of the proposed welcome center appears to be located in an area cut out of the original hillside.

PROPOSED DEVELOPMENT

Proposed development will consist of grading to create level building areas for the proposed cabin structures at the upper part of the site and a welcome center in the canyon areas. A site plan is included as Plate 1. Cut/fill slopes at a 2:1 gradient are proposed to a maximum height of approximately 30 feet.



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SITE LOCATION MAP
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FIGURE 1

SCOPE OF SERVICES

The following scope of services has been performed on the subject site by GSC:

1. Site reconnaissance and field mapping.

2. Review of regional geologic maps, seismic hazard zone maps, and previous consultant reports.

3. Excavating, logging, and sampling of 18 backhoe test pits. The approximate locations of the test pits are shown on Plate 1, Geologic Map, and test pit logs are included in Appendix A. Exploration was not performed for the proposed welcome center at this time and will be performed in the future. Please note Test Pits 2, 5, 13, and 14 were located outside the area of planned development and are not shown on Plate 1.

4. Laboratory testing on samples retrieved from the test pits. The results of the testing are presented in Appendix B.

5. Preparation of a Geologic Map, Plate 1, and Cross-Sections, Plate 2.

6. Preparation of this report.

PREVIOUS STUDIES

Previous studies were performed on the site by GeoConcepts, Inc., for an existind dining hall to the north of the subject site. GeoConcepts excavated, sampled, and logged five borings and three backhoe test pits at the approximate locations shown on Plate 1. Copies of the boring logs and laboratory data are included in Appendix C. Based on review of the boring and test pit data, the area of the dining hall is underlain by alluvium; however, the material described in the test pit and boring logs is similar to the terrace deposits encountered in the test pits excavated as part of this study.

GEOLGIC CONDITIONS

Regional Geologic Setting

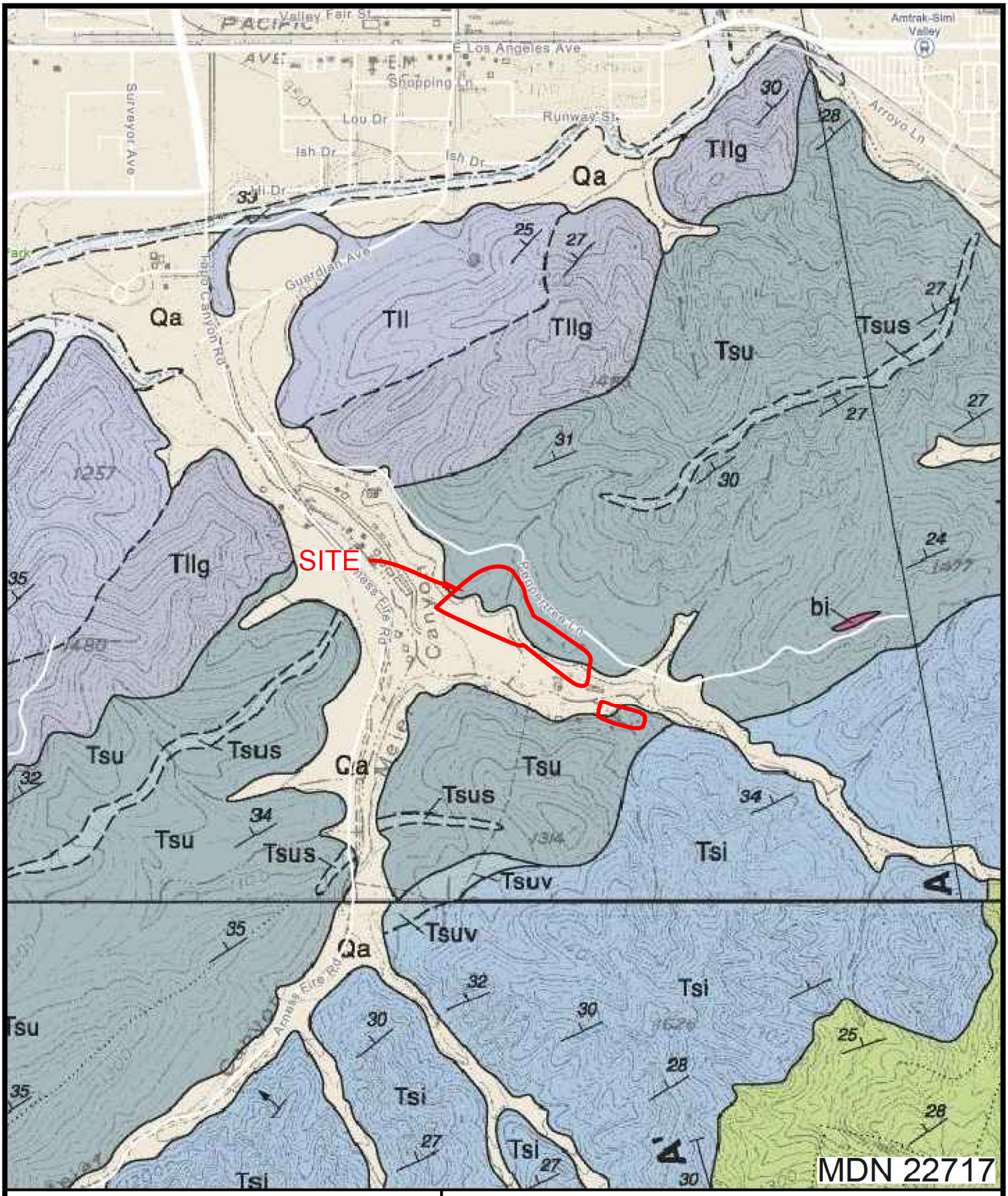
The subject property is located within the Transverse Ranges Geomorphic province of California. The Transverse Ranges consist of generally east-west trending mountains and valleys, which are in contrast to the north-northwest regional trend elsewhere in the state.

The structure of the Transverse Ranges is controlled by the effects of north-south compressive deformation (crustal shortening), which is attributed to convergence between the big bend of the San Andreas Fault north of the San Gabriel Mountains and the motion of the Pacific Plate. The valleys and mountains of the Transverse Ranges are typically bounded by a series of east west trending, generally north dipping reverse faults with left-lateral oblique movement.

The Transverse Ranges are characterized by a very thick, nearly continuous sequence of Upper Cretaceous through Quaternary sedimentary rocks that has been deformed into a series of east-west trending folds associated with thrust and reverse faults. This deformation has created intrabasin highlands and intervening lowlands. The closest active fault to the site is the Simi Fault, located approximately 2.9 miles north of the area of proposed development. A Regional Geologic Map is included as Figure 2.

Local Geologic Setting

Simi Valley has accumulated over 500 feet of alluvial sediments derived from erosion of the surrounding hills and mountains. Younger alluvium is present on the valley floor as well as in the canyons that drain into the valley. Older alluvium is exposed along the margins of the valley and in the hills near the Oak Park and Canada de la Brea oil fields. Higher elevations are underlain predominantly by bedrock of the Tertiary-Age Santa Susana, Llajas, and Sespe Formations. Conejo volcanics are exposed in portions of the western Simi Valley, whereas the eastern end of the valley is dominated by the Cretaceous-Age Chatsworth formation. The subject site is underlain by terrace deposits and previously placed fill.



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REGIONAL GEOLOGIC MAP
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FIGURE 2

Earth Units

Artificial fill and terrace deposits underlie the property. A brief description of the earth materials are as follows:

Artificial Fill (af): The artificial fill consisted of yellowish brown, silty, fine to coarse sand with gravel and some cobbles. The fill is loose to medium dense and dry to slightly moist. The fill is up to 11 feet thick is the central part of the site (Plate 1). The artificial fill is uncertified and unsuitable for structural support; therefore, it should be removed and recompacted in areas of proposed grading.

Terrace Deposits (Qt): The terrace deposits consisted of reddish brown, silty/clayey, fine to coarse sands with gravel and cobbles, and is dense to very dense and slightly moist to moist. These deposits were derived from runoff of the adjacent Simi Hills and were deposited on the valley floor. The test pits excavated at the southwestern part of the site encountered abundant cobbles and boulders and were difficult to excavate with a backhoe.

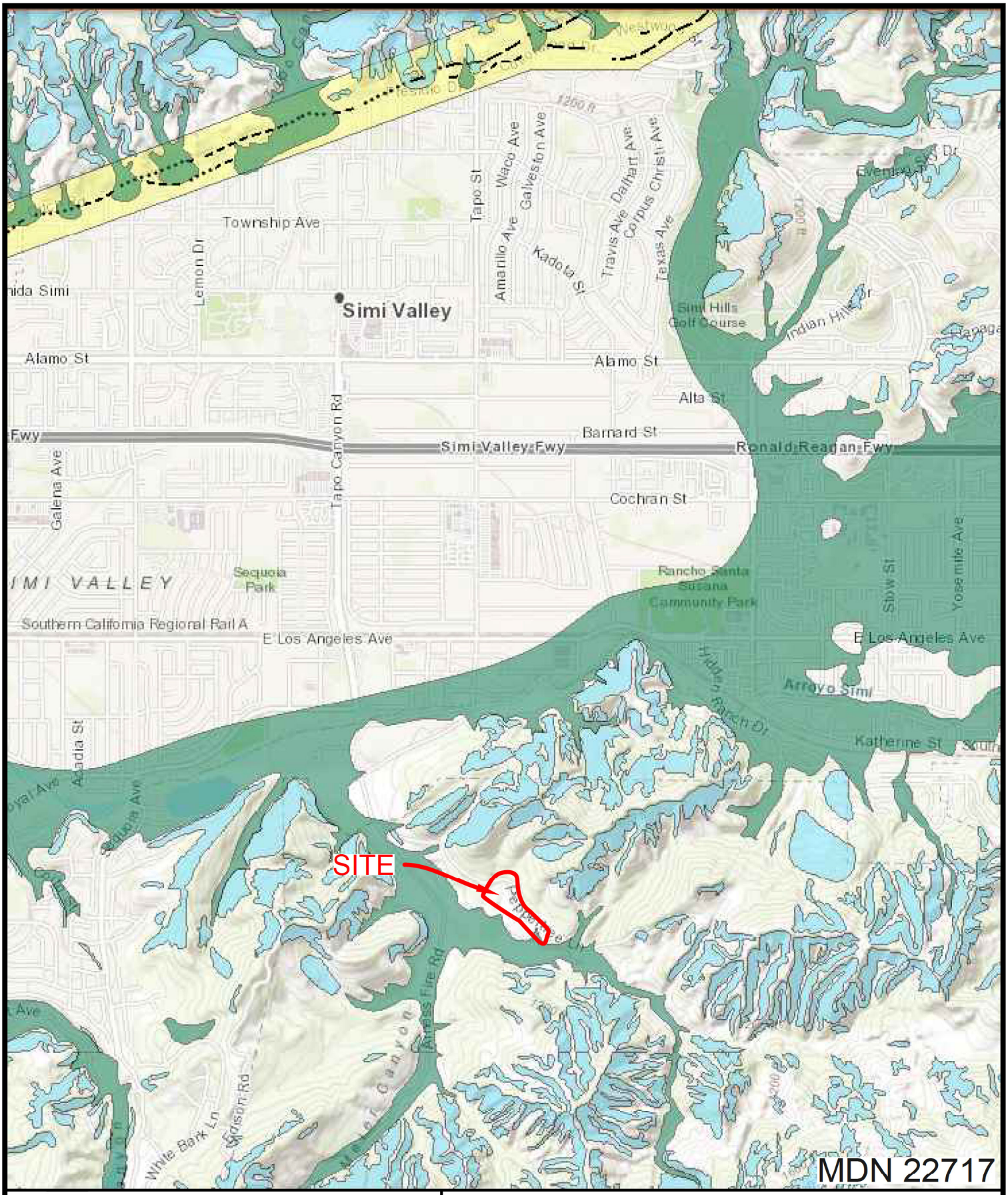
Surface and Subsurface Water Conditions

Surface water on the site is limited to precipitation falling directly on the site and from the two tributary canyons that extend offsite to the east. Springs or seeps were not observed on the site.

Groundwater was not encountered any of test pits excavated on the site by GSC. Groundwater was encountered in the borings excavated by GeoConcepts at depths of 12 to 14 feet.

FAULTING AND SEISMICITY

The proposed site is not within an Alquist-Priolo Earthquake Fault Zone and is not located within a Seismic Hazard Zone (Figure 3). There are faults in close enough proximity to the site to cause moderate to intense ground shaking during the lifetime of the proposed development.



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SEISMIC HAZARD ZONE MAP
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FIGURE 3

Ground Shaking and Seismic Design Criteria

This site has experienced earthquake-induced ground shaking in the past and can be expected to experience further shaking in the future. The 2019 CBC (California Building Code) seismic coefficient criteria are provided here for structural design consideration as a mitigation for ground shaking.

Under the Earthquake Design Regulations of Chapter 16, Section 1613 of the CBC 2019, and based on the mapped values, the following coefficients and factors apply to the lateral-force design for the proposed structures at the site. Terrace deposits are at depth and Class D is recommended.

2019 CBC Section 1613, Earthquake Loads	
Site Class Definition	D
Mapped Spectral Response Acceleration Parameter, S_s (Table 1613.3.1 for 0.2 second)	1.652
Mapped Spectral Response Acceleration Parameter, S_1 (Table 1613.3.1 for 1.0 second)	0.6
Site Coefficient, F_a (Table 1613.3.3(1) short period)	1.2
Site Coefficient, F_v (Table 1613.3.3(2) 1-second period)	1.7
Adjusted Maximum Considered Earthquake Spectral Response Acceleration Parameter	1.983
Adjusted Maximum Considered Earthquake Spectral Response Acceleration Parameter	1.020
Design Spectral Response Acceleration Parameter, S_{DS} (Eq. 16-39)	1.322
Design Spectral Response Acceleration Parameter, S_{D1} (Eq. 16-40)	0.68
Notes: Location: Longitude: 34.2581, Latitude: -118.7099 1. Site Class Designation: Class D is recommended based on subsurface condition. 2. Ss, SMs, and SDs are spectral response accelerations for the period of 0.2 second. 3. S1, SM1, and SD1 are spectral response accelerations for the period of 1.0 second. 4. These values may only be utilized where the value of the seismic response coefficient, Cs, satisfies equations 12.8.3 or 12.8.4 of the ASCE Standard 7-16.	

Conformance to the above criteria for seismic excitation does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a maximum level earthquake occurs. The primary goal of seismic design is to protect life and not to avoid all damage, since such design may be economically prohibitive. Following a major earthquake, a building may be damaged beyond repair, yet not collapse.

Ground Rupture

Ground rupture occurs when movement on a fault breaks through to the surface. Surface rupture usually occurs along pre-existing fault traces where zones of weakness already exist. The State has established Earthquake Fault Zones for the purpose of mitigating the hazard of fault rupture by prohibiting the location of most human occupancy structures

across the traces of active faults. Earthquake fault zones are regulatory zones that encompass surface traces of active faults with a potential for future surface fault rupture.

The California Geologic Survey (CGS) establishes criteria for faults as active, potentially active or inactive. Active faults are those that show evidence of surface displacement within the last 11,000 years (Holocene age). Potentially active faults are those that demonstrate displacement within the past 1.6 million years (Quaternary Age). Faults showing no evidence of displacement within the last 1.6 million years may be considered inactive for most structures, except for critical or certain life structures.

In 1972, the Alquist-Priolo Special Studies Zone Act (now known as the Alquist-Priolo Earthquake Fault Zone Act, 1994, or APEHA) was passed into law, requiring studies within 500 feet of mapped faults within a mapped Alquist-Priolo fault zone. Surface rupture caused by movement along a fault could likely result in catastrophic structural damage to buildings constructed along the fault trace.

Consequently, the State of California via the APEHA prohibits the construction of occupied "habitable" structures within the designated fault zone and it must be demonstrated that the structure does not encroach on a 50-foot setback from the fault trace. Per the Alquist-Priolo legislation, no structure for human occupancy is permitted on the trace of an active fault.

The term "structure for human occupancy" is defined as any structure used or intended for supporting or sheltering any use or occupancy, which is expected to have a human occupancy rate of more than 2,000 person-hours per year. Unless proven otherwise, an area within 50 feet of an active fault is presumed to be underlain by active branches of the fault. Local government agencies may identify additional faults, in addition to those faults mandated by the State, for which minimum construction setback requirements must be maintained.

The site is not located within an established Earthquake Fault Zone (Figure 3). The Simi Fault is mapped approximately 2.9 miles to the north of the site. The Simi Fault is a left-oblique reverse fault within the Simi-Santa Rosa fault zone, a series of north-dipping faults

that trend southwest from the northeastern end of Simi Valley to the Oxnard plain. The available stratigraphic and age data at the site provide a broadly constrained estimate of Holocene slip rate of about 1 mm/yr. The fault is considered active and is located within an Alquist-Priolo Earthquake Fault Zone.

The site is not located within a Fault Hazard Zone and there are no known active faults on the site; therefore, the potential for ground rupture on the site is considered low.

Landsliding

Earthquake-induced landsliding often occurs in areas where previous landslides have moved and in areas where the topographic, geologic, geotechnical, and subsurface groundwater conditions are conducive to permanent ground displacements.

The site does not contain slopes susceptible to landsliding and is not located within a seismic hazard zone; therefore, the potential for earthquake-induced landsliding is considered low. However, the slope areas to the east of the site are located within landslide hazard zones. These slopes are not considered to represent a landslide hazard to the site. Drainage from the slope areas should be evaluated by the Project Civil Engineer and appropriate drainage devices should be used to prevent runoff from impacting the proposed development.

Seiches and Tsunamis

A seiche is the resonant oscillation of a body of water, typically a lake or swimming pool caused by earthquake shaking (waves). The hazard exists where water can be splashed out of the body of water and impact nearby structures. No bodies of constant water are near the site, therefore, the hazards associated with seiches are considered low.

Tsunamis are seismic sea waves generated by undersea earthquakes or landslides. When the ocean floor is offset or tilted during an earthquake, a set of waves are generated similar to the concentric waves caused by an object dropped in water. Tsunamis can have wavelengths of up to 120 miles and travel as fast as 500 miles per hour across hundreds of miles of deep ocean. Upon reaching shallow coastal waters, the once two-foot high wave

can become up to 50 feet in height causing great devastation to structures within reach. Tsunamis can generate seiches as well. The site is not near the ocean; therefore, the tsunami hazard is considered very low.

Liquefaction

Liquefaction describes a phenomenon where cyclic stresses, which are produced by earthquake-induced ground motion creates excess pore pressures in cohesionless soils. These soils may thereby acquire a high degree of mobility, which can lead to lateral sliding, consolidation and settlement of loose sediments, sand boils, and other damaging deformation. This phenomenon occurs only below the water table, but after liquefaction has developed, it can propagate upward into overlying, non-saturated soils as excess pore water escapes.

Liquefaction susceptibility is related to numerous factors and the following conditions must exist for liquefaction to occur: 1) sediments must be relatively young in age and must not have developed large amounts of cementation, 2) sediments must consist mainly of cohesionless sands and silts, 3) the sediments must not have a high relative density, 4) free groundwater must exist in the sediment, and 5) the site must be exposed to seismic events of a magnitude large enough to induce straining of soil particles.

The proposed cabins are located outside the limits of the designated area of liquefaction potential presented on the State of California Seismic Hazard Zone map (Figure 3) and are underlain by terrace deposits. Therefore, liquefaction is not considered a potential hazard for the cabins. The proposed welcome center is located within a zone of potential liquefaction. Previous studies to the north of the proposed welcome center encountered dense older alluvium that was not subject to liquefaction. Similar conditions are anticipated around the welcome center and additional exploration will be performed when access becomes available.

Seismic Settlement

The site is underlain by dense terrace deposits that are not subject to seismically induced settlement provided that the grading recommendations presented below are followed.

CONCLUSIONS AND RECOMMENDATIONS

The proposed development is feasible from a geologic and geotechnical engineering perspective, provided the recommendations contained herein are incorporated into the final design and construction phase of the proposed site improvements. The recommendations provided in this report are applicable for improvements on the site provided positive drainage is maintained away from the structures. As in most of Southern California, the site lies within a seismically-active area, therefore earthquake resistant structural design is recommended.

Removals

The existing fill on the site is not suitable for support of structures or structural fill. To reduce the impacts from settlement on the proposed structures, the existing fill should be removed and replaced as compacted fill below proposed structures in areas of proposed additional fill. The limits of removals shall extend laterally beyond the footprint of proposed structures to a distance of at least five feet or equal to the depth of fill placement, whichever is greater. The upper two to three feet of terrace deposits should be removed and recompacted in areas of proposed fill and new structures. The upper five feet of alluvium/terrace deposits should be removed and recompacted below the proposed Welcome Center. Revisions to these recommendations may be necessary following additional subsurface exploration.

Slopes

Cut and fill slopes should be constructed at slope ratios of 2:1 (horizontal: vertical) or flatter between benches. To maintain safety factors for surficial stability, intermediate drainage terraces are recommended for all fill slopes steeper than 5:1 with slope height greater than 30 feet. Fill slopes should be built in accordance with recommendations included herein.

Fill over cut slopes should be constructed in accordance with the *Typical Fill Over Cut Slope Design* detail (Figure 4) and fill over natural slopes should be in accordance with the *Typical Fill Over Natural Slope Design* detail (Figure 5). Subdrains may be required at fill over cut or fill over natural conditions and will be evaluated during grading.

The proposed slope below the cabins consists of a combination cut and fill slope, as well as fill or cut slope. To avoid sliver fills on the slope, the eastern part of the slope shall be graded as a stabilization fill slope with a key at the toe as shown on the Geologic Map and Cross-Sections (Plates 1 and 2). The key should be founded in firm terrace deposits. To avoid a fill over cut situation, the entire slope may be replaced as a fill slope.

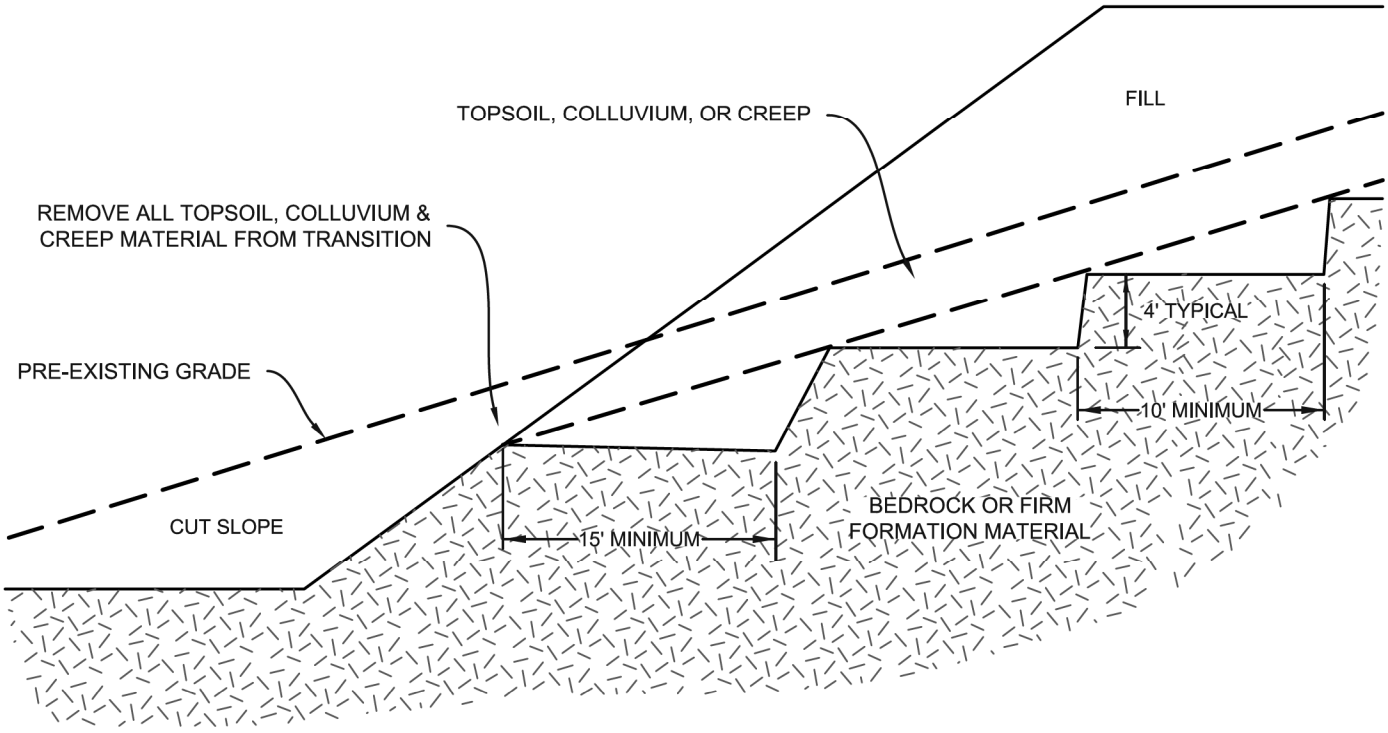
Existing over-steepened cut slope are located north of the proposed Welcome Center. The slope exposes dense terrace deposits with abundant cobbles and boulders. The over-steepened slope areas should be laid back to a 2:1 gradient improve surficial stability.

Subdrains

Subdrain systems should be provided in all canyon bottoms, where fill is proposed, keyways, and stabilization fills prior to fill placement (Figure 6, *Typical Design for Treatment of Natural Ground* and Figure 7*, Canyon Subdrain Design & Construction Methods*). Additional subdrains may be added as deemed necessary during grading.

Filter material should be Class 2 permeable filter, or No. 2 and No. 3 concrete aggregate gradations per standard specifications for Public Works Construction, or approved equivalent, inspected and tested to verify its suitability. The filter should be clean with a wide range of sizes. An alternate filter may be one 50/50 mix of pea gravel and clean concrete sand or clean gravel wrapped in a suitable filter fabric, such as Mirafi 140N, or an approved equivalent.

Subdrain pipe should consist of Schedule 40 or equivalent and should be a minimum of 6 inches in diameter for lengths up to 500 feet. For lengths over 500, 8-inch diameter pipe should be used, and for lengths over 1,000 feet, two, 8-inch pipes should be used.



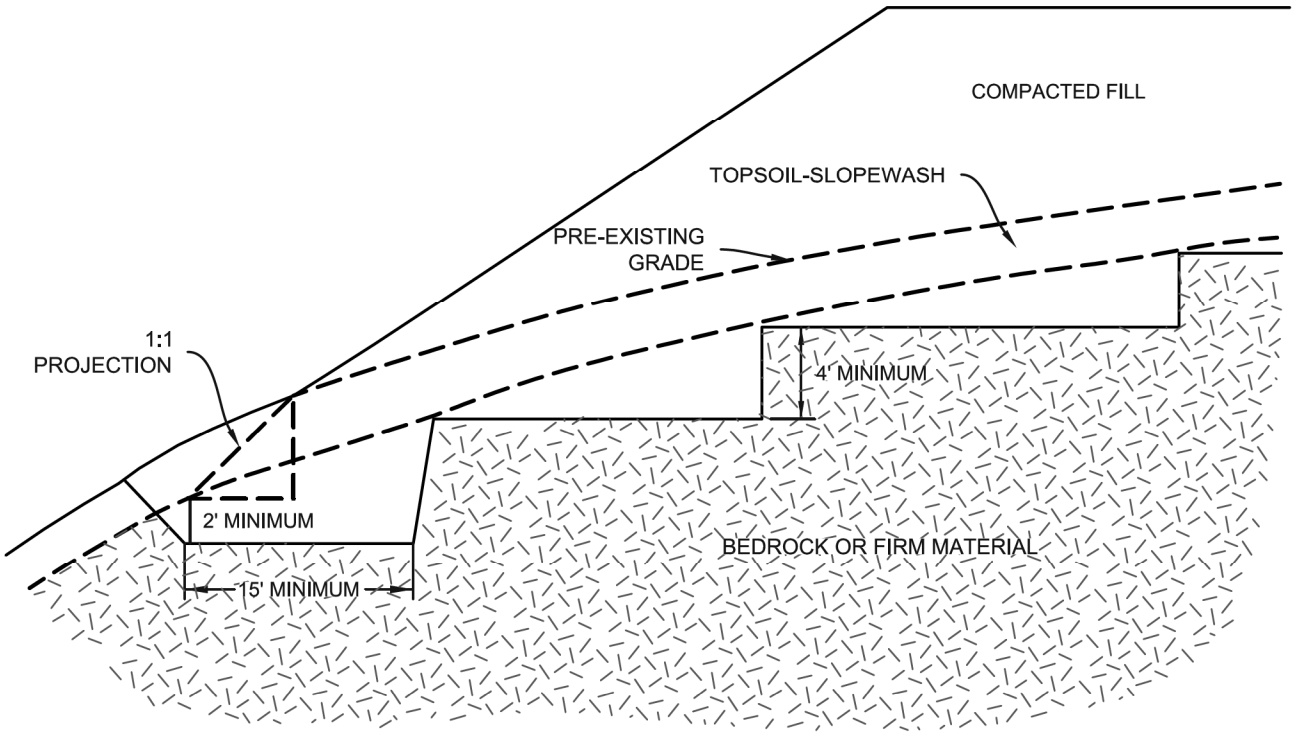
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TYPICAL FILL OVER CUT SLOPE DESIGN

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Figure 4



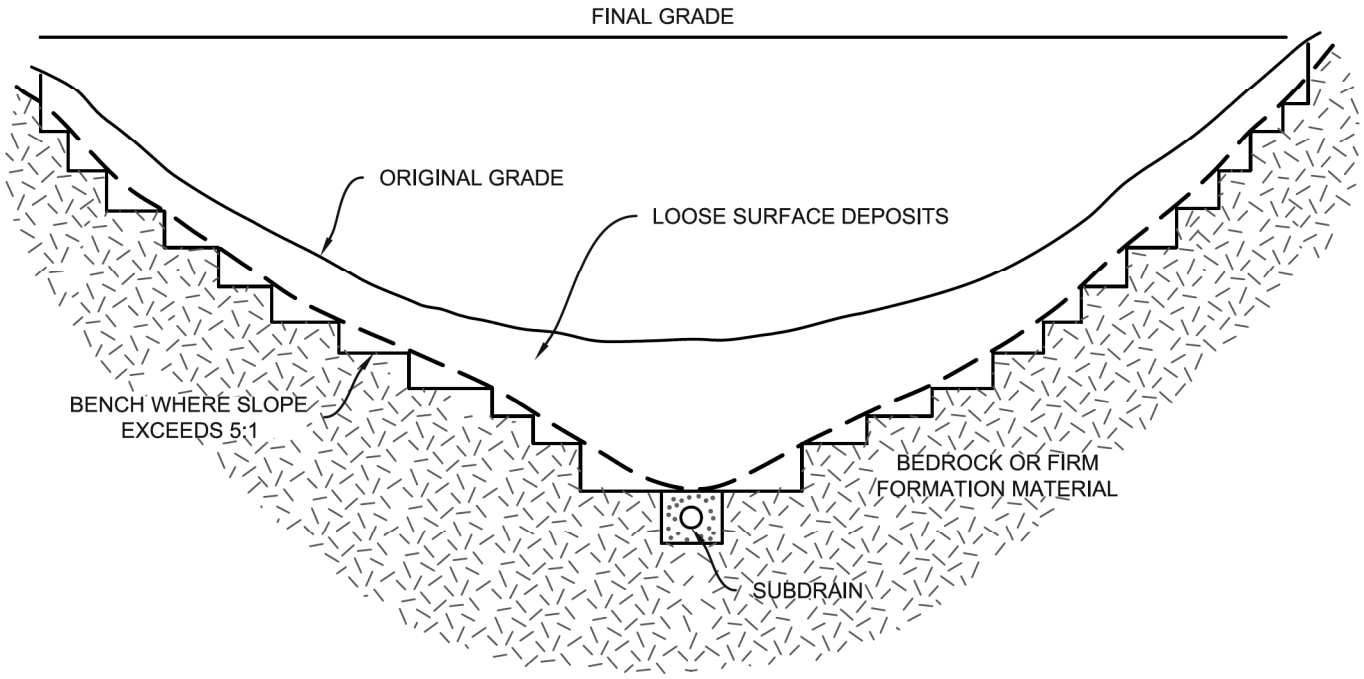
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TYPICAL FILL OVER NATURAL SLOPE DESIGN

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Figure 5



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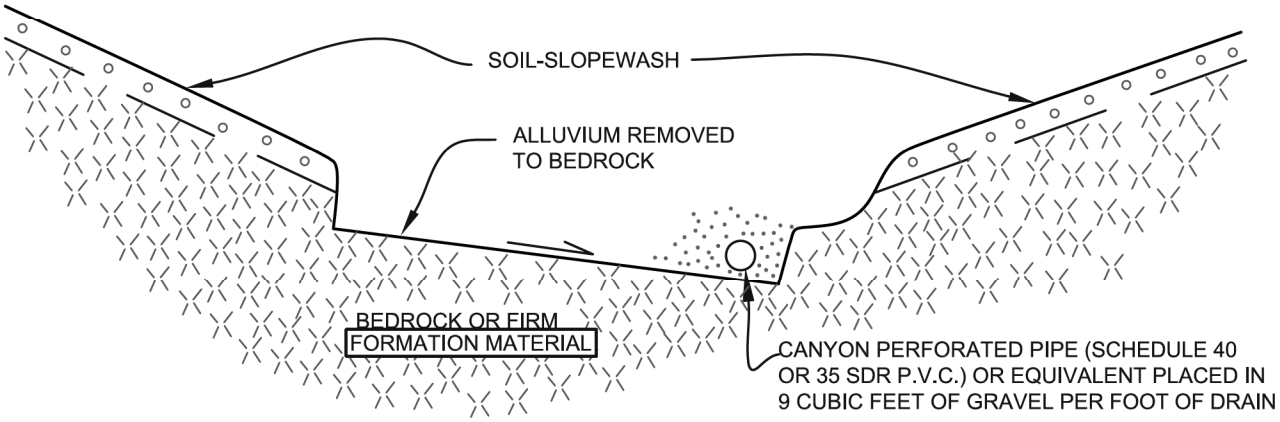
TYPICAL DESIGN FOR TREATMENT OF NATURAL GROUND

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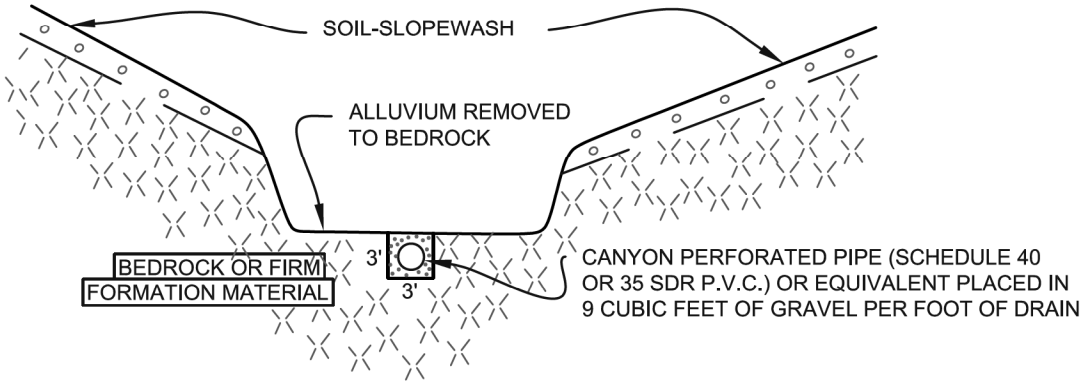
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Figure 6

METHOD 1

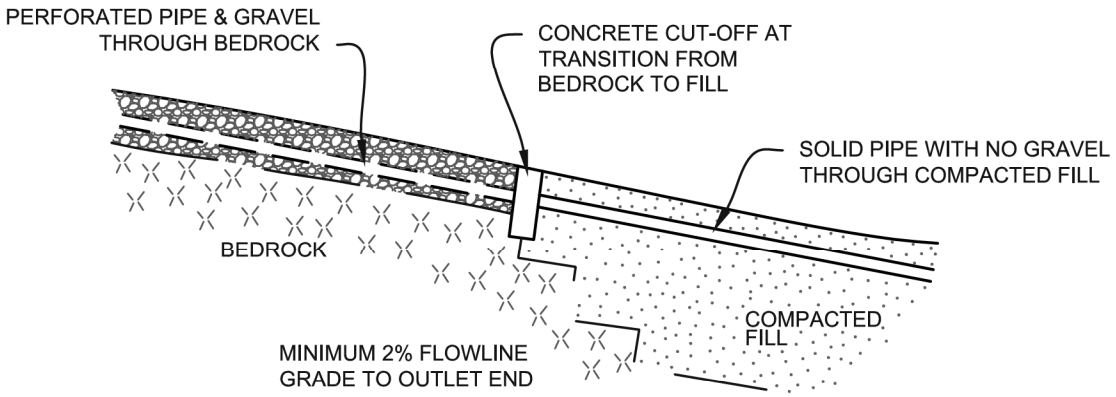


METHOD 2



GRAVEL TO CONFORM TO CALTRANS CLASS 2 PERMEABLE MATERIAL AS ALTERNATE 3/4" GRAVEL MAY BE USED SURROUNDED WITH GEOTEXTILE FILTER FABRIC APPROVED BY THE GEOTECHNICAL ENGINEER.

LONGITUDINAL SECTION



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CANYON SUBDRAIN DESIGN & CONSTRUCTION METHODS

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Figure 7

During grading, the Engineering Geologist should evaluate the necessity of placing additional subdrains. Additional drains will be required in fill-over cut keyways. The Engineering Geologist and Geotechnical Engineer should inspect all subdrainage systems prior to cover with compacted fill.

Grading

Grading of the site will consist of a cut/fill operation to create building pads, slopes, and associated access. The grading will involve the removing and recompacting artificial fill and loose terrace deposits, in addition to the mass-excavation. The following preliminary recommendations and construction considerations are provided for earthwork grading at the site.

General

Monitoring: All earthwork (i.e., clearing, site preparation, fill placement, etc.) should be conducted with engineering control under observation and testing by the Geotechnical Engineer and in accordance with the requirements within a site specific Geologic and Geotechnical Engineering Report.

Site Preparation

Existing Structure Location: The General Contractor should locate all surface and subsurface structures on the site or on the approved grading plan prior to preparing the ground.

Existing Structure Removal: Any underground structures (e.g., septic tanks, wells, pipelines, foundations, utilities, etc.) that have not been located prior to grading should be removed or treated in a manner recommended by the Geotechnical Engineer.

Clearing and Stripping: The construction areas should be cleared and stripped of all vegetation, trees, bushes, sod, topsoil, artificial fill, debris, asphalt, concrete and other deleterious material prior to fill placement.

Subgrade Preparation: Subgrade for foundations, pavement areas, overexcavations, and for those areas receiving any additional fill be prepared by scarifying the upper 12 inches and moisture conditioning, as required to obtain at least optimum moisture, but not greater than 120 percent of optimum. The scarified areas shall be compacted to at least 90 percent of the maximum laboratory density, as determined by ASTM D-1557-12 compaction method. All areas to receive fill should be observed by the Geotechnical Engineer prior to fill placement.

Subgrade Inspection: Prior to placing fill, the ground surface to receive fill should be observed, tested, and approved by the Geotechnical Engineer.

Fill Placement

Laboratory Testing: Representative samples of materials to be utilized as compacted fill should be analyzed in a laboratory to determine their physical properties. If any material other than that previously tested is encountered during grading, the appropriate analysis of this material should be conducted.

On-Site Fill Material: The on-site soils are adequate for re-use in controlled fills provided the soils do not contain any organic matter, debris, or any individual particles greater than 12 inches in diameter.

Rock Fragments: Rock fragments less than 12 inches in diameter may be utilized in the fill, provided they are not placed in concentrated pockets, surrounded with fine grained material, and the distribution of the rocks is supervised by the Geotechnical Engineer. Any rock fragments over 6 inches should be kept below a depth of 5 feet. Rocks greater than 12 inches in diameter should be taken off-site, placed in fill areas designated as suitable for rock disposal, or placed in accordance with the recommendations of the Geotechnical Engineer.

Subgrade Verification and Compaction Testing: Regardless of material or location, all fill material should be placed over properly compacted subgrades in accordance

with the *Site Preparation* section of this report. The condition of all subgrades shall be verified by the Geotechnical Engineer before fill placement or earthwork grading begins. Earthwork monitoring and field density testing shall be performed during grading to provide a basis for opinions concerning the degree of soil compaction attained.

Fill Placement: Approved on-site material shall be evenly placed, watered, processed, and compacted in controlled horizontal layers not exceeding eight inches in loose thickness, and each layer should be thoroughly compacted with approved equipment. All fill material should be moisture conditioned, as required to obtain at least optimum moisture, but not greater than 120 percent of optimum moisture content. The fill should be placed and compacted in horizontal layers, unless otherwise recommended by the Geotechnical Engineer.

Compaction Criteria - Shallow Fills: For fills less than 40 feet in vertical thickness, each layer shall be compacted to at least 90 percent of the maximum laboratory density for material used as determined by ASTM D-1557-12. The field density shall be determined by the ASTM D-1556-07 method or equivalent. Where moisture content of the fill or density testing yields compaction results less than 90 percent, additional compaction effort and/or moisture conditioning, as necessary, shall be performed, until the fill material is in accordance with the requirements of the Geotechnical Engineer.

Fill Material - Moisture Content: All fill material placed must be moisture conditioned, as required to obtain at least optimum moisture, but not greater than 120 percent. If excessive moisture in the fill results in failing results or an unacceptable “pumping” condition, then the fill should be allowed to dry until the moisture content is within the necessary range to meet the required compaction requirements or reworked until acceptable conditions are obtained.

Keying and Benching: All fills should be keyed and benched through all topsoil, slopewash, alluvium or colluvium or creep material, into sound terrace deposits

where the slope receiving fill is steeper than 5:1 (Horizontal: Vertical) or as determined by Geotechnical Engineer. The standard acceptable bench height is four feet into suitable material. The key for side hill fills should be a minimum of 15 feet within firm materials, with a minimum toe embankment of 2 feet into firm material, unless otherwise specified by the Geotechnical Engineer.

Drainage Devices: Drainage terraces and subdrainage devices should be constructed in compliance with the ordinances of the controlling governmental agency, or with the recommendations of the Geotechnical Engineer and Engineering Geologist.

Cut-Fill Transition: Where a cut-fill transition is present beneath planned structures, the cut area should be overexcavated three feet below the bottom of proposed footings and the excavated material should be replaced as compacted fill to reduce the transition condition. These guidelines should also be followed in areas where lots are underlain by soils or rock with differential expansion potential and also for lots located above descending buttress and stabilization fills.

Grading Control

Grading Inspection: Earthwork monitoring and field density testing shall be performed by the Geotechnical Engineer during grading to provide a basis for opinions concerning the degree of soil compaction attained. The Contractor should receive a copy of the Geotechnical Engineer's *Daily Field Engineering Report* which will indicate the results of field density tests for that day. Where failing tests occur or other field problems arise, the Contractor shall be notified of such conditions by written communication from the Geotechnical Engineer in the form of a conference memorandum, to avoid any misunderstanding arising from oral communication.

Subgrade Inspection: All processed ground to receive fill and overexcavations should be inspected and approved by the Geotechnical Engineer prior to placing any fill. The Contractor should be responsible for notifying the Geotechnical Engineer

when such areas are ready for inspection. Inspection of the subgrade may also be required by the controlling governmental agency within the respective jurisdictions.

Subgrade Testing: Density tests should also be made on the prepared subgrade to receive fill, as required by the Geotechnical Engineer.

Density Testing Intervals: In general, density tests should be conducted at minimum intervals of 2 feet of fill height or every 500 cubic yards. Due to the variability that can occur in fill placement and different fill material characteristics, a higher number of density tests may be warranted to verify that the required compaction is being achieved.

Drainage/Landscape Maintenance

In areas of residential development, water should not be allowed to pond or seep into the ground, or flow over slopes in a concentrated manner. Pad drainage should be directed toward the street or any approved watercourse area swale via non-erosive channel, pipe and/or dispersion devices.

Drainage from the natural slopes to the east of the site shall be directed away from the proposed structures. The Project Civil Engineer shall design appropriate drainage structure for the offsite slope areas.

Utility Trenching and Backfill

Utility Trenching: Open excavations and excavations that are shored shall conform to all applicable Federal, State and local regulations.

Backfill Placement: Approved on-site or imported fill material shall be evenly placed, watered, processed, and compacted in controlled horizontal layers not exceeding eight inches in loose thickness, and each layer should be thoroughly compacted with approved equipment. All fill material should be moisture conditioned, as required to obtain at least optimum moisture, but not greater than 120 percent of optimum moisture content. The fill

should be placed and compacted on a horizontal plane, unless otherwise recommended by the Geotechnical Engineer.

Backfill Compaction Criteria: Each layer of utility trench backfill shall be compacted to at least 90 percent of the maximum laboratory density determined by ASTM D-1557-12. The field density shall be determined by the ASTM D-1556-07 method or equivalent. Where moisture content of the fill or density testing yields compaction results less than 90 percent, additional compaction effort and/or moisture conditioning, as necessary, shall be performed, until the compaction criteria is reached.

Exterior Trenches Adjacent to Footings: Exterior trenches, paralleling a footing and extending below a 1H:1V plane projected from the outside bottom edge of the footing, should be compacted to 90 percent of the laboratory standard. Sand backfill, unless it is similar to the in-place fill, should not be allowed in these trench backfill areas. Density testing, along with probing, should be accomplished to verify the desired results.

Pipe Bedding: We recommend that a minimum of 6 inches of bedding material should be placed in the bottom of the utility trench. All bedding materials shall extend at least 4 inches above the top of utilities which require protection during subsequent trench backfilling. All trenches shall be wide enough to allow for compaction around the haunches of the pipe.

Groundwater Migration: Backfilled utility trenches may act as French drains to some extent, and considerable groundwater flow along utility bedding and backfill should be expected. Wherever buried utilities, or structures which they may intersect, could be adversely affected by such drainage, provisions shall be made to collect groundwater migrating along the trench lines. These situations include where buried utilities enter buildings, particularly where they enter below grade mechanical rooms, and where buried utilities enter junction boxes or switching stations that are intended to remain dry. Mitigation measures include, but are not limited to, placement of perforated drain pipes below and continuous with bedding materials, and placement of seepage barriers such as lean mix concrete or controlled density fill (CDF).

Construction Considerations

Erosion Control: Erosion control measures, when necessary, should be provided by the Contractor during grading and prior to the completion and construction of permanent drainage controls.

Compaction Equipment: It is also the Contractor's responsibility to have suitable and sufficient compaction equipment on the project site to handle the amount of fill being placed and the type of fill material to be compacted. If necessary, excavation equipment should be shut down to permit completion of compaction in accordance with the recommendations contained herein. Sufficient watering devices/equipment should also be provided by the Contractor to achieve optimum moisture content in the fill material.

Final Grading Considerations: Care should be taken by the Contractor during final grading to preserve any berms, drainage terraces, interceptor swales, or other devices of a permanent nature on or adjacent to the property.

Temporary Excavations

Where the necessary space is available, temporary unsurcharged embankments may be slope back without shoring. The slope should not be cut steeper than the following gradient:

Height	Temporary Gradient (Horizontal:Vertical)
0-5'	Near Vertical
above 5'	1:1

In areas where soils with little or no binder are encountered, shoring or flatter excavation slopes shall be made. The recommended temporary excavation slopes do not preclude local ravelling or sloughing. All applicable requirements of the California Construction and General Industry Safety Orders, the Occupational Safety and Health Act, and the Construction Safety Act should be met.

Where sloped embankments are used, the top of the slope should be barricaded to prevent equipment and heavy storage loads within five feet of the top of the slope. If the temporary construction embankments are to be maintained for long periods, berms should be constructed along the top of the slope to prevent runoff water from eroding the slope faces.

The soils exposed in the temporary backcut slopes during excavation should be observed by our personnel so that modifications of the slopes can be made if variations in the soil conditions occur.

PRELIMINARY FOUNDATION RECOMMENDATIONS

Conventional Foundation Recommendations

The following recommendations are provided for preliminary design purposes and the final expansion index should be determined following grading. In our opinion, conventional foundations should be used to support the proposed structures. We offer the following site-specific recommendations and comments for purposes of footing design and construction. All footings should meet current slope setback requirements. Foundations should be designed for low expansive soil conditions.

Bearing Subgrades: The proposed improvements should be founded into competent terrace deposits or compacted fill.

Subgrade Verification: All footing subgrades should consist of compacted fill or terrace material. Under no circumstances should footings be cast atop loose, soft, or slough, debris, existing artificial fill, topsoil, or surfaces covered by standing water. We recommend that a representative of GSC verify the condition of all subgrades before any concrete is placed.

Footing Depth and Width: Footings should be continuous and be founded at a minimum depth of 18 inches into compacted fill or terrace material and have a minimum width of 12 inches. Footings should be reinforced according to structural design.

Bearing Pressures: The allowable bearing capacity values shown in the following table include dead and live loads and may be used for design of footings and foundations. All foundations should be founded in compacted fill/terrace material and should be reinforced according to structural design. The allowable bearing capacity values may be increased by one-third when considering short duration loading conditions such as seismic or wind loads.

Bearing Subgrade	Embedment Depth (inches)	Allowable Bearing Capacity (psf)	Bearing Capacity Increase per Foot Deeper	Bearing Capacity Increase per Foot Wider (%)	Maximum Allowable Bearing Capacity (psf)
Compacted Fill/Terrace Material	18	2,000	20	10	4,000

Lateral Capacity: To resist lateral loads, the allowable passive earth pressures shown in the following table, expressed as an equivalent fluid pressure, may be used on that portion of shallow foundations which have a minimum embedment depth as previously recommended. When combining passive pressure and frictional resistance, the passive pressure component should be reduced by one-third.

Soil Type	Allowable Lateral Bearing Pressure (pcf)	Maximum Allowable Lateral Bearing Pressure (pcf)	Coefficient of Friction
Compacted Fill/Terrace Material	300	3,000	0.4

General Recommendations

1. The above parameters are applicable provided structures have gutters and downspouts and positive drainage is maintained away from structures. Therefore, it is important that information regarding drainage and site maintenance be followed. All slab foundation areas should be moisture conditioned to at least optimum moisture, but no more than 5 percent above optimum moisture for a depth of at least 12 inches below subgrade for low EI soil. The subgrade soil moisture should be observed by a Soil Engineer or his/her representative prior to pouring concrete. It is suggested the above stated moisture be obtained and maintained at least a suggested 2 days prior to pouring concrete.

2. A minimum 4-inch thick slab reinforced with No. 4 rebar spaced 16 inches on center is recommended. A 10-mil Visqueen vapor barrier should be placed underneath habitable area slabs and/or slabs with floor coverings. This barrier can be placed directly on the subgrade soils, but should be overlain by a two-inch layer of imported sand. This vapor barrier shall be lapped and sealed (especially around the utility perforations) adequately to provide a continuous waterproof barrier under the entire slab.

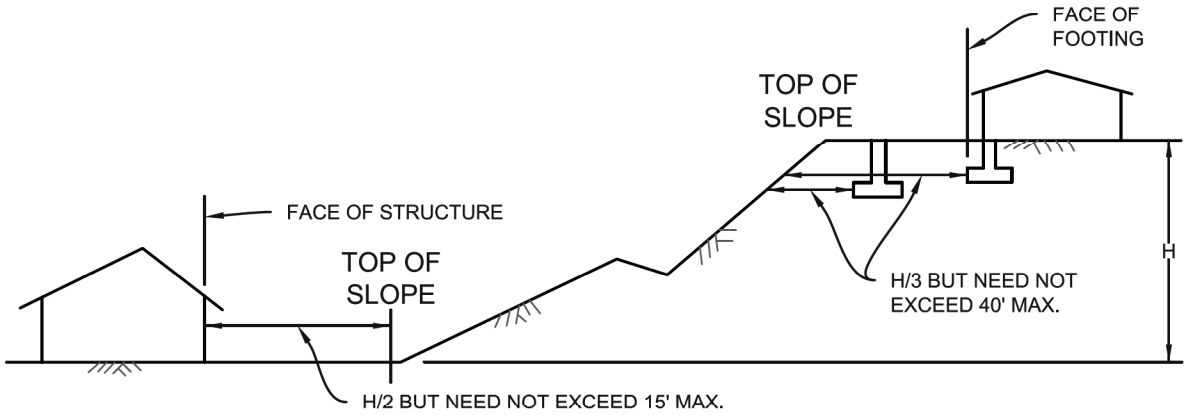
3. The above recommendations assume, and GeoSoils Consultants, Inc. strongly recommends, that surface water will be kept from infiltrating into the subgrade adjacent to the house foundation system. This may include, but not be limited to rainwater, roof water, landscape water and/or leaky plumbing. The lots are to be fine graded at the completion of construction to include positive drainage away from the structure and roof water will be collected via gutters, downspouts, and transported to the street in buried drainpipes. Homebuyers should be cautioned against constructing open draining planters adjacent to the houses or obstructing the yard drainage in any way.

4. Utility trenches beneath the slabs should be backfilled with compacted native soil materials, free of rocks.

5. Subgrade soil beneath footings and slabs should be premoistened prior to placement of concrete.

6. Standard County of Ventura structural setback guidelines are applicable, except where superseded by specific recommendations by the Project Geologist and Geotechnical Engineer.

7. Building or structure footings shall be set back a horizontal distance, x, from the face of adjacent descending slope. The horizontal distance is calculated as $x=H/3$, where H is the height of slope. The distance x should not be less than 5 feet nor more than 40 feet. The distance x may be provided by deepening the footings (Figure 8).



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GEOTECHNICAL•GEOLOGIC•ENVIRONMENTAL

REQUIRED SLOPE SETBACK DESIGN

DATE 2/2022 | W.O. NO. 7588

Geotechnical• Geologic• Environmental

Figure 8

8. Prior to placing concrete in the footing excavations, an inspection should be made by our representative to ensure that the footings are free of loose and disturbed soils and are embedded in the recommended material.

LIMITATIONS

The findings and recommendations of this report were prepared in accordance with generally accepted professional geotechnical engineering principles and practice for the County of Ventura at this time. We make no other warranty, either express or implied. The conclusions and recommendations contained in this report are based on site conditions disclosed in our subsurface investigation. However, soil conditions can vary significantly between test pits; therefore, further refinements of our recommendations contained herein may be necessary due to changes in the building plans or what is encountered during site grading.

The recommendations provided in this report are applicable for preliminary development planning for the referenced lot provided that surface water will be kept from infiltrating into the subgrade adjacent to the house foundation system. This may include, but not be limited to rainwater, roof water, landscape water and/or leaky plumbing. We caution against constructing open draining planters adjacent to the houses or obstructing the yard drainage in any way.

Since our investigation was based on the site conditions observed, selective laboratory testing, and engineering analysis, the conclusions and recommendations contained herein are professional opinions. Further, these opinions have been derived in accordance with standard engineering practices, and no warranty is expressed or implied.

If the conditions encountered during grading are not consistent with the findings presented in this report, or if proposed construction is moved from the location investigated, this office shall be notified immediately so that the condition or change can be evaluated and appropriate action taken.

CLOSURE

We appreciate this opportunity to be of service to you. If you have any questions regarding the content of this report or any other aspects of the project, please do not hesitate to contact us.

Very truly yours,

GEOSOILS CONSULTANTS, INC.

RUDY F. RUBERTI
CEG 1708

KAREN L. MILLER
GE 2257

Encl: References
Plate 1, Geologic Map
Plate 2, Geologic Cross-Sections
Appendix A, Field Exploration Procedures
Plates TP-1 through TP-18, Test Pit Logs
Appendix B, Laboratory Test Results
Plate SH-1, Shear Test Diagram
Plate C-1, Consolidation Diagram
Appendix C, Data by GeoConcepts

cc: (1) Addressee

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2. Department of Conservation, Division of Mines and Geology, 1997, "Seismic Hazard Zone Report for the Simi Valley East and West 7.5 Minute Quadrangles, Ventura and Los Angeles Counties, California"

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5. Hanson, D.W., 1981, Surface and subsurface geology of the Simi Valley area, Ventura County, California: Oregon State University, unpublished M.S. thesis, 112 p., scale 1:24,000.

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8. Treiman, J.A., 1998, Simi-Santa Rosa fault zone in the Moorpark, Newbury Park, Simi Valley East, Simi Valley West, and Thousand Oaks quadrangles, Ventura County, California: California Division of Mines and Geology Fault Evaluation Report FER-244.

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A100 SITE PLAN SURVEY (SHEET)
SCALE: 1" = 60'-0"

GSC GeoSoils Consultants Inc.
6634 Valjean Avenue
Van Nuys, CA 91406

GEOLOGIC MAP
BRANDEIS-BARDIN CAMPUS
SIMI VALLEY, CALIFORNIA
AMERICAN JEWISH UNIVERSITY

WORK ORDER	DATE	SCALE
7588	2/2022	1" = 60'

REVISED

PLATE 1

MDN 22717

ABRAMSON ARCHITECTS
5171 WEST JEFFERSON BLVD., LOS ANGELES, CA 90016
TEL. 310.838.8866 WWW.ABRAMSONARCHITECTS.COM

NOT FOR CONSTRUCTION

CAMP ALONIM
1101 PEPPER TREE LN, BRANDEIS, CA 93064

ALL IDEAS, DESIGNS, ARRANGEMENTS AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE OWNED BY AND PROPERTY OF ABRAMSON ARCHITECTS AND WERE CREATED, EVOLVED AND DEVELOPED FOR USE ON AND IN CONNECTION WITH THE SPECIFIED PROJECT. NONE OF SUCH IDEAS, DESIGNS, ARRANGEMENTS, OR PLANS SHALL BE USED BY OR DISCLOSED TO ANY PERSON, FIRM OR CORPORATION FOR ANY PURPOSE WHATSOEVER WITHOUT THE WRITTEN PERMISSION OF ABRAMSON ARCHITECTS. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB, AND THIS OFFICE MUST BE NOTIFIED OF ANY VARIATIONS FROM DIMENSIONS AND CONDITIONS SHOWN BY THESE DRAWINGS.

PROJECT NO: CAM/21-P1

REVISIONS

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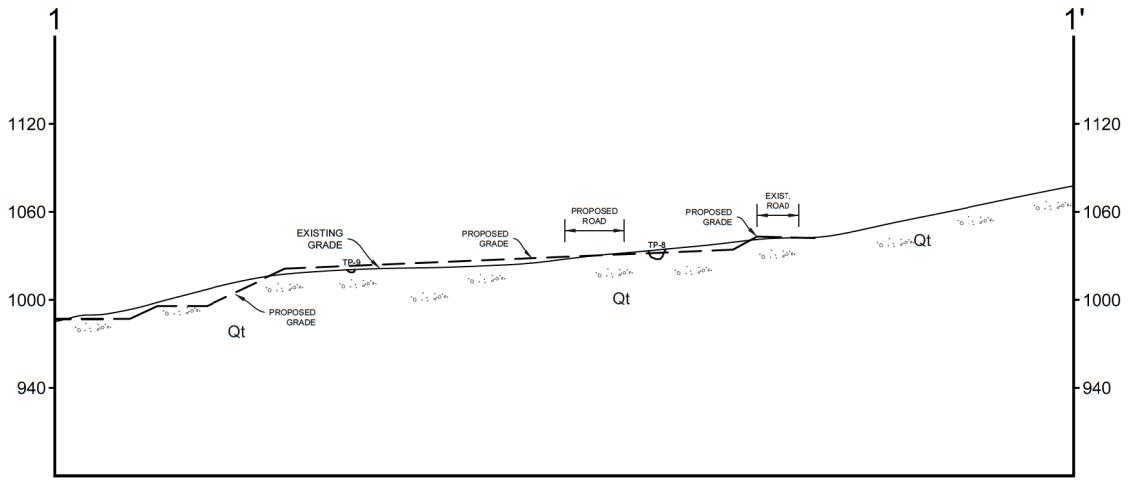
SITE PLAN

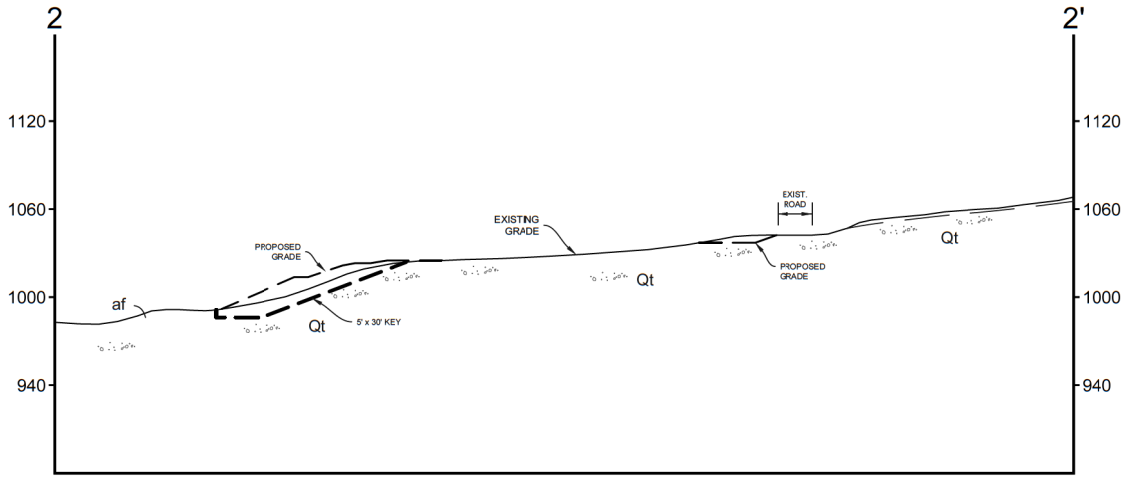
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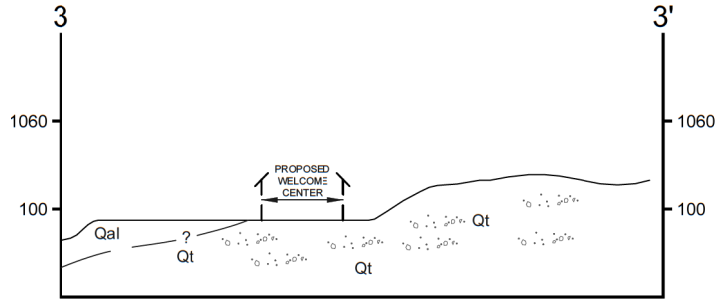
COPYRIGHT @ABRAMSON ARCHITECTS

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MDN 22717

GSC GeoSoils Consultants Inc.
GEOTECHNICAL•GEOLOGIC•ENVIRONMENTAL
6634 Valjean Avenue
Van Nuys, CA 91406

GEOLOGIC CROSS-SECTIONS
BRANDEIS-BARDIN CAMPUS
SIMI VALLEY, CALIFORNIA
AMERICAN JEWISH UNIVERSITY

WORK ORDER	DATE	SCALE
7588	2/2022	1" = 60'

REVISED

PLATE 2

X:\2001 w o\gsc-cad\7588\1-28-22\current\PLATES 1-28-22.dwg, 2/18/2022 10:52:37 AM, AutoCAD PDF (High Quality Print).pc3

February 17, 2022
W.O. 7588

APPENDIX A

FIELD EXPLORATION PROCEDURES

MDN 22717

APPENDIX A

FIELD EXPLORATION PROCEDURES

Field exploration consisted of excavating 18 exploratory test pits with a rubber tire backhoe. operated by an independent company working under subcontract to GSC. Samples were obtained via the California ring sampler.

A representative from our firm continuously observed the test pits, logged the subsurface conditions, and collected representative soil samples. All samples were stored in watertight containers and later transported to our laboratory for further visual examination and testing, as deemed necessary. After the test pits were completed, the excavations was backfilled with soil cuttings.

The enclosed test pit logs, Plates TP-1 through TP-18, describe the vertical sequence of soils and materials encountered in each test pit, based primarily on our field classifications and supported by our subsequent laboratory examination and testing. Where a soil contact was observed to be gradational, our log indicates the average contact depth. Where a soil type changed between sample intervals, we inferred the contact depth.

TEST PIT LOG 1

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

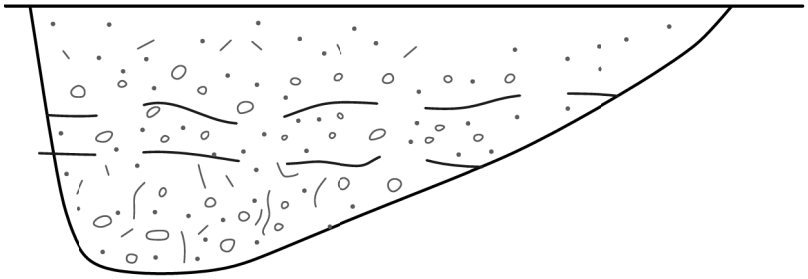
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-3'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
3-4'	Residual Soil (Rs)	Brown, gravelly, silty sand, slightly porous, slightly moist, moderately dense	
4-7'	Older Alluvium (Qf)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 7.0'



TP-1

TEST PIT LOG 2

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

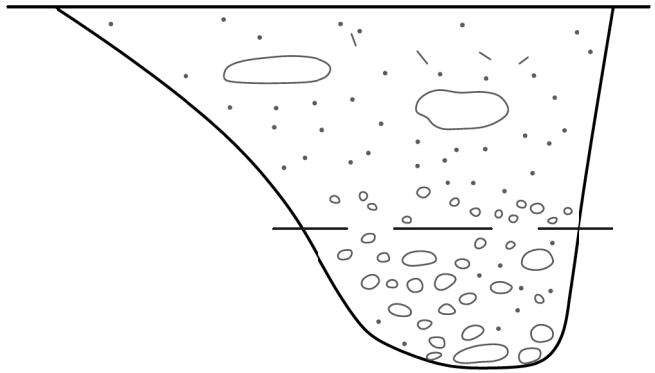
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-6'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt to gravelly, silty sand, loose, slightly moist, abundant cobble and trash consisting of debris and large concrete and metal	Logged from the surface due to caving hazard
6-9.5'	Older Alluvium (Qf)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 9.5'



TP-2

TEST PIT LOG 3

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

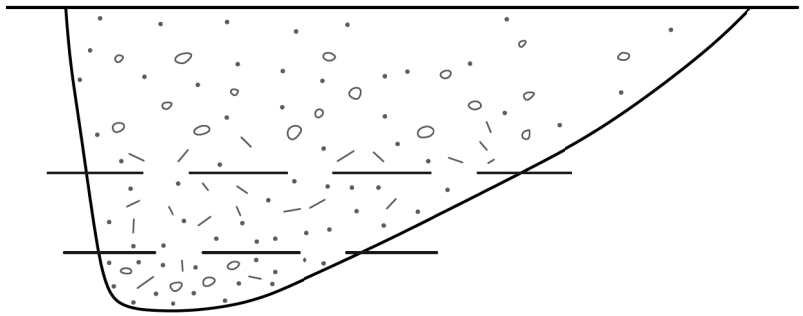
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-4.5'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
4.5-6.5'	Residual Soils (Rs)	Reddish brown, sandy clay, slightly moist, very stiff, dense	
6.5-8.0'	Older Alluvium (Qf)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 8'



TEST PIT LOG 4

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

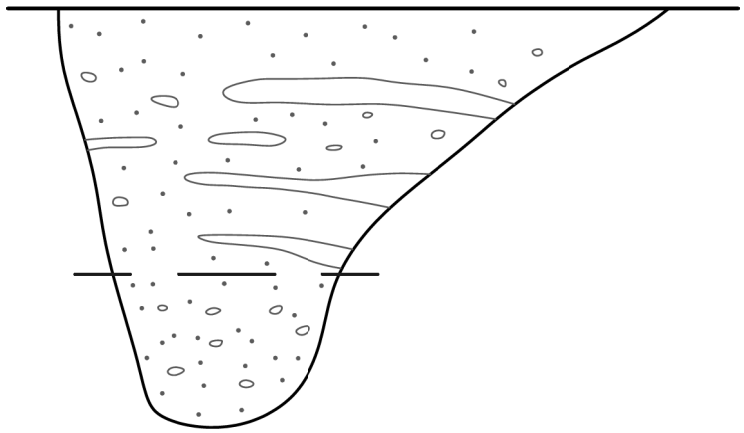
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-7'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
7-11'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 11'



TP-4

TEST PIT LOG 5

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

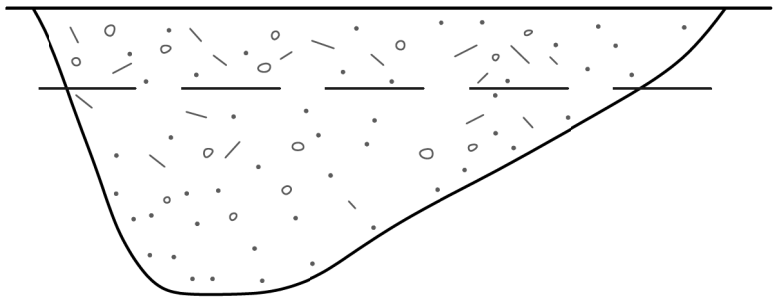
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-2'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
2-7.5'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 7.5'



TP-5

TEST PIT LOG 6

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

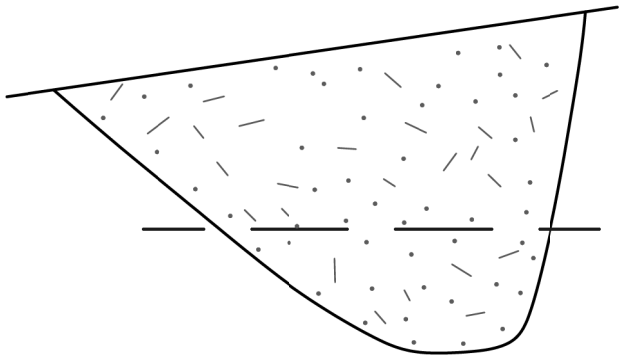
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-6'	Residual Soil (Rs)	Brown, sandy clay, dense, very stiff, slightly moist, some caliche present	
6-9'	Older Alluvium (Qt)	Yellowish dark brown, sandy clay, dense, very stiff, slightly moist, caliche stringers present	Color changes in soil from borwn to greenish brown at 6'

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 9'



TEST PIT LOG 7

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

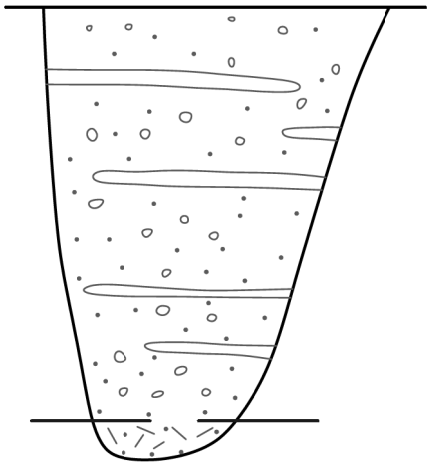
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-11'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
11-12'	Residual Soil (Rs)	Brown, sandy clay, dense, very stiff, slightly moist, some caliche present	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 12'



TEST PIT LOG 8

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

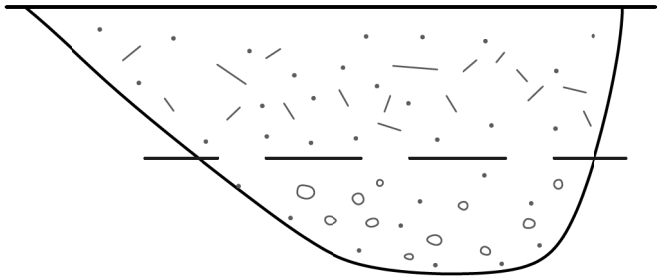
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W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-4'	Residual Soil (Rs)	Brown, sandy clay, dense, very stiff, slightly moist, some caliche present	
4-7'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 7'



TP-8

TEST PIT LOG 9

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

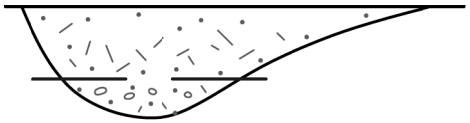
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-2'	Residual Soil (Rs)	Brown, sandy clay, dense, very stiff, slightly moist, some caliche present	
2-3'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 3'



TP-9

TEST PIT LOG 10

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

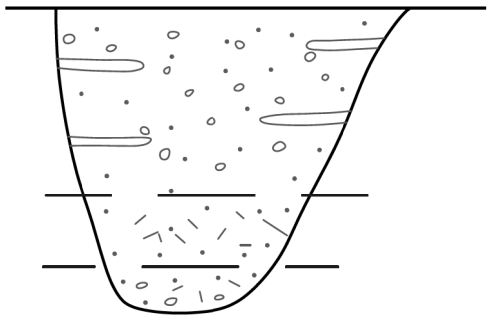
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-5'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
5-7'	Residual Soils (Rs)	Brown, sandy clay, dense, very stiff, slightly moist, some caliche present	
7-8'	Older Alluvium (Qf)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 8'



TEST PIT LOG 11

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

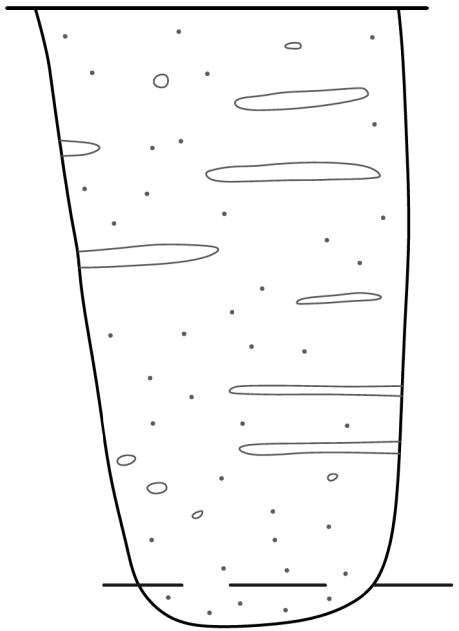
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-15'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
15-16'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 16'



TP-11

TEST PIT LOG 1

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

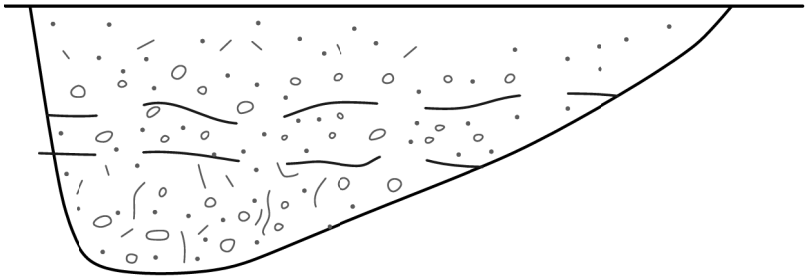
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-3'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
3-4'	Residual Soil (Rs)	Brown, gravelly, silty sand, slightly porous, slightly moist, moderately dense	
4-7'	Older Alluvium (Qf)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 7.0'



TP-1

TEST PIT LOG 2

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

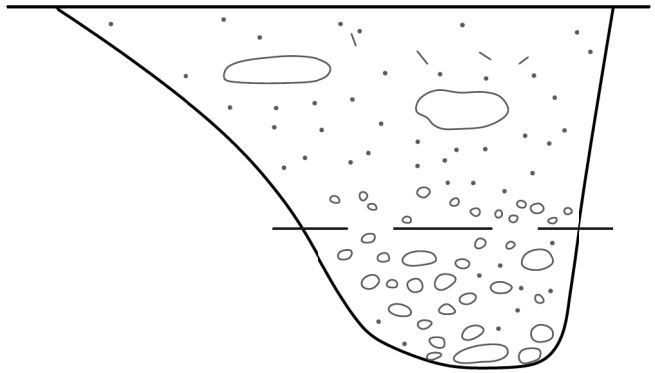
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-6'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt to gravelly, silty sand, loose, slightly moist, abundant cobble and trash consisting of debris and large concrete and metal	Logged from the surface due to caving hazard
6-9.5'	Older Alluvium (Qf)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 9.5'



TP-2

TEST PIT LOG 3

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

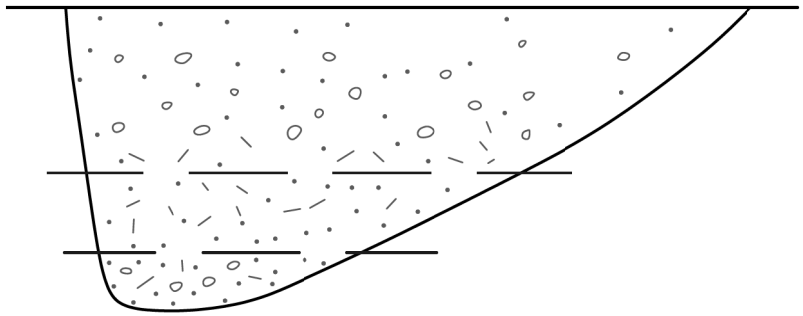
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-4.5'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
4.5-6.5'	Residual Soils (Rs)	Reddish brown, sandy clay, slightly moist, very stiff, dense	
6.5-8.0'	Older Alluvium (Qf)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 8'



TEST PIT LOG 4

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

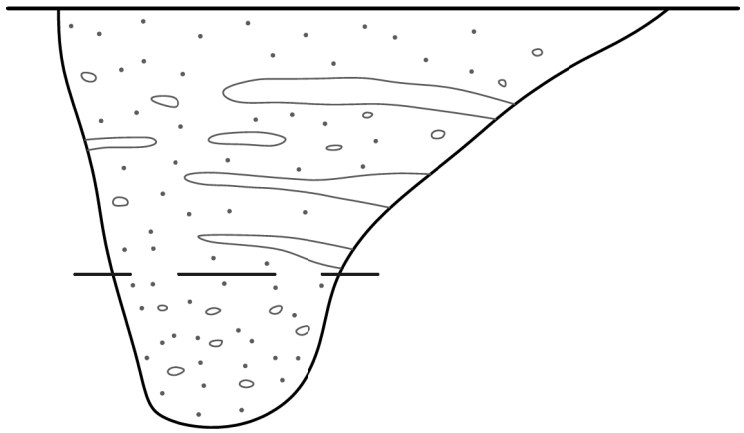
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-7'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
7-11'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 11'



TP-4

TEST PIT LOG 5

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

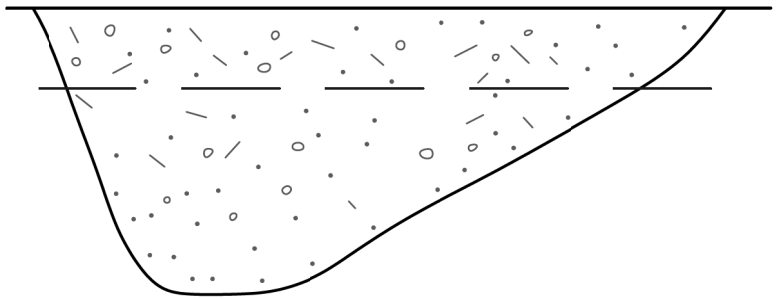
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-2'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
2-7.5'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 7.5'



TP-5

TEST PIT LOG 6

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

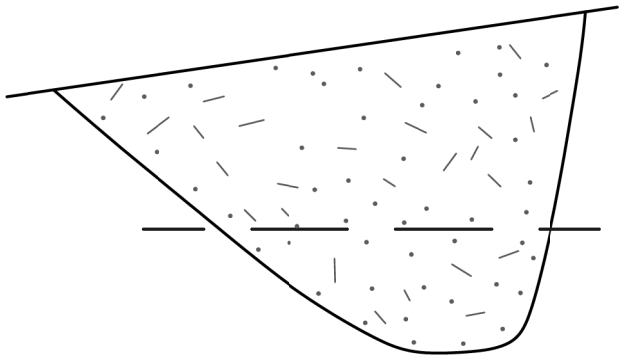
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-6'	Residual Soil (Rs)	Brown, sandy clay, dense, very stiff, slightly moist, some caliche present	
6-9'	Older Alluvium (Qt)	Yellowish dark brown, sandy clay, dense, very stiff, slightly moist, caliche stringers present	Color changes in soil from borwn to greenish brown at 6'

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 9'



TEST PIT LOG 7

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

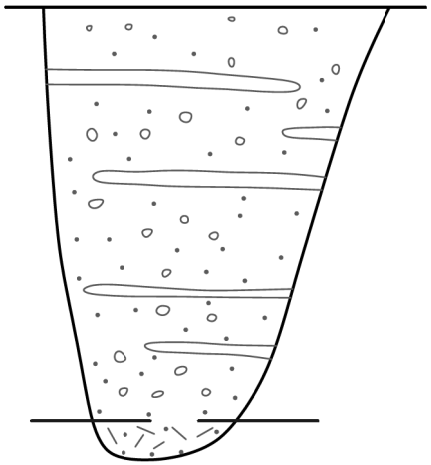
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-11'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
11-12'	Residual Soil (Rs)	Brown, sandy clay, dense, very stiff, slightly moist, some caliche present	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 12'



TEST PIT LOG 8

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

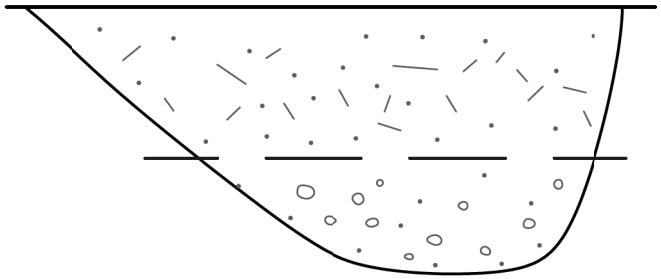
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-4'	Residual Soil (Rs)	Brown, sandy clay, dense, very stiff, slightly moist, some caliche present	
4-7'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 7'



TP-8

TEST PIT LOG 9

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

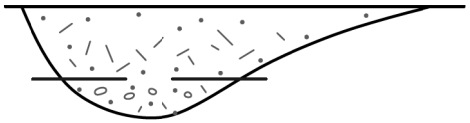
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-2'	Residual Soil (Rs)	Brown, sandy clay, dense, very stiff, slightly moist, some caliche present	
2-3'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 3'



TP-9

TEST PIT LOG 10

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

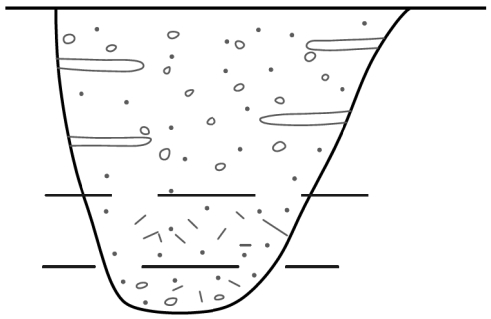
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-5'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
5-7'	Residual Soils (Rs)	Brown, sandy clay, dense, very stiff, slightly moist, some caliche present	
7-8'	Older Alluvium (Qf)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 8'



TEST PIT LOG 11

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

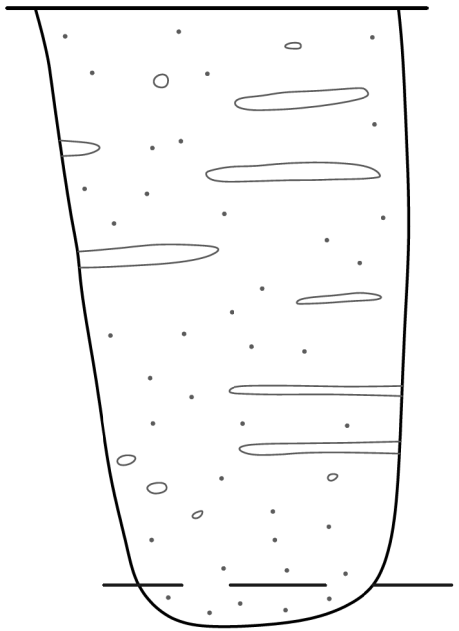
LOGGED BY: JM

W.O. 7588

DATE: 4/14/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-15'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
15-16'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 16'



TP-11

TEST PIT LOG 12

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

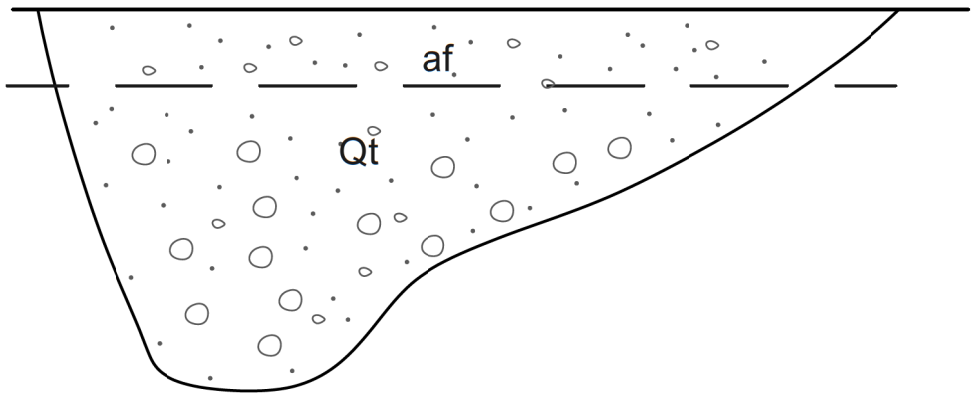
LOGGED BY: JM

W.O. 7588

DATE: 8/18/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-2'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
2-10'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 10'



TP-12

TEST PIT LOG 13

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

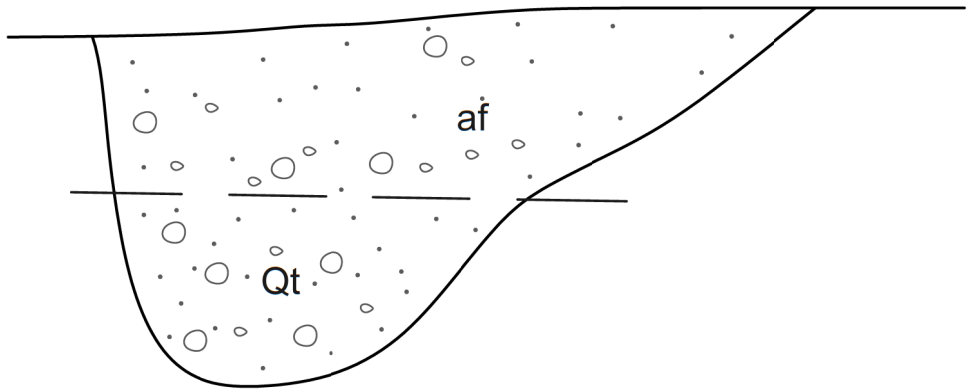
LOGGED BY: JM

W.O. 7588

DATE: 8/18/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-4'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
4-9'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 9'



TP-13

TEST PIT LOG 14

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

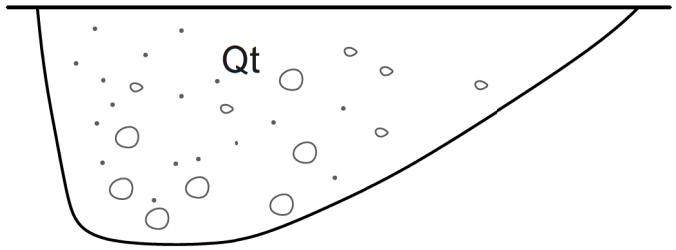
LOGGED BY: JM

W.O. 7588

DATE: 8/18/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-6'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 6'



TP-14

TEST PIT LOG 15

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

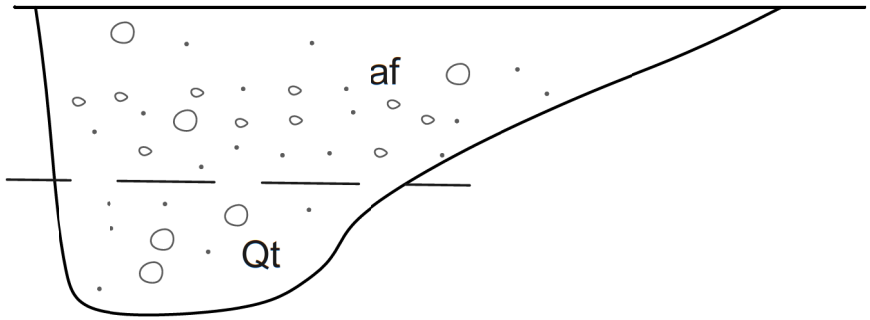
LOGGED BY: JM

W.O. 7588

DATE: 8/18/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-4.5'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
4.5-8'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 8'



TEST PIT LOG 16

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

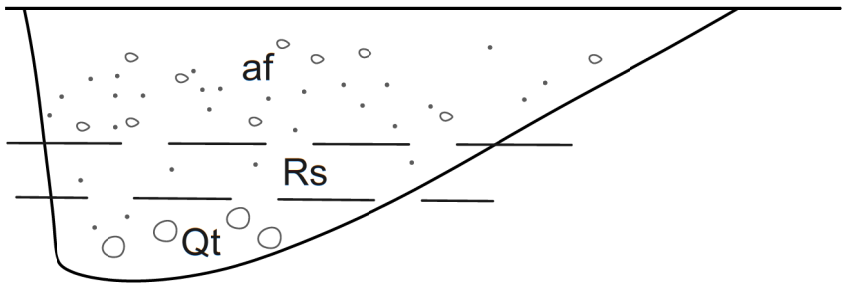
LOGGED BY: JM

W.O. 7588

DATE: 8/18/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-3.5'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
3.5-5'	Residual Soil (Rs)	Brown, sandy clay, dense, very stiff, slightly moist, some caliche present	
5-7'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 7'



TEST PIT LOG 17

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

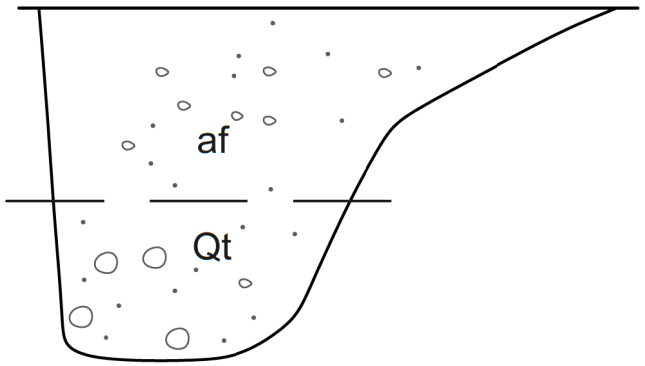
LOGGED BY: JM

W.O. 7588

DATE: 8/18/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-5'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
5-9'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 9'



TEST PIT LOG 18

GeoSoils Consultants, Inc.

CLIENT: American Jewish University

ELEVATION:

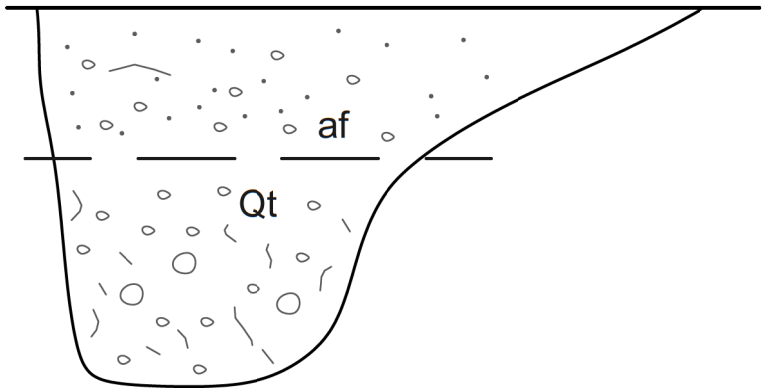
LOGGED BY: JM

W.O. 7588

DATE: 8/18/2021

DEPTH	MATERIAL	DESCRIPTION	COMMENTS
0-4'	Artificial Fill (af)	Yellow brown, gravelly, sandy silt, moderately dense to dense, slightly moist, abundant cobble	
4-10'	Older Alluvium (Qt)	Yellow brown, gravelly, sandy clay, dense, dry to slightly moist, well indurated, abundant caliche, abundant rounded cobble, slightly porous	

SCALE **H:** **V:** **PIT ORIENT:** **NATURAL SLOPE ANGLE** **TD** 10'



February 17, 2022
W.O. 7588

APPENDIX B

LABORATORY TESTING PROCEDURES AND RESULTS

MDN 22717

APPENDIX B

LABORATORY TESTING PROCEDURES AND RESULTS

Moisture-Density

The field moisture content and dry unit weights were determined for each undisturbed ring sample obtained from our subsurface exploration. Once the dry unit weights had been determined, in-place densities of underlying soil profile were estimated. In those cases where ring samples were obtained, the moisture content and dry unit weights are presented on Test Pit Logs.

Shear Tests

One shear test was performed in a strain-control type Direct Shear Machine. The samples were sheared under varying continued loads in order to determine the Coulomb shear strength parameters: Cohesion and angle of internal friction. All samples were tested in an artificially-saturated condition. The results are plotted on the shear test diagrams included with this report as Plate SH-1.

Consolidation Test

One (1) consolidation test was performed on selected ring sample. The sample was inundated at an approximate load of one ton per square foot to monitor the hydro-consolidation.

Loads were applied to the sample in several increments in geometric progression and the resulting deformations were recorded at selected time intervals. Results of the consolidation are presented on Plate C-1.

Appendix B

Compaction Tests

One compaction test was performed to determine to moisture density relationships of the typical surficial soils encountered on the site. The laboratory standard used was in accordance with ASTM Test Designation D-1557-12. A summary of the compaction test results are shown in Table B-1.

TABLE B-1
COMPACTION TEST RESULTS

Excavation No.	Sample Depth (ft)	Maximum Dry Density (pcf)	Optimum Moisture (%)
TP-3	0-4’	126.0	10.5

Expansion Index Test

To determine the expansion potential of the on-site native soils, an expansion index test was conducted in accordance with the ASTD D-4829-07. The test results indicate an expansion index of 29 (low range).

American Jewish University
W.O.: 7588

Date of Test: 5/21

Sample: **TP-3 @ 0-4.0'**

PLATE SH-1

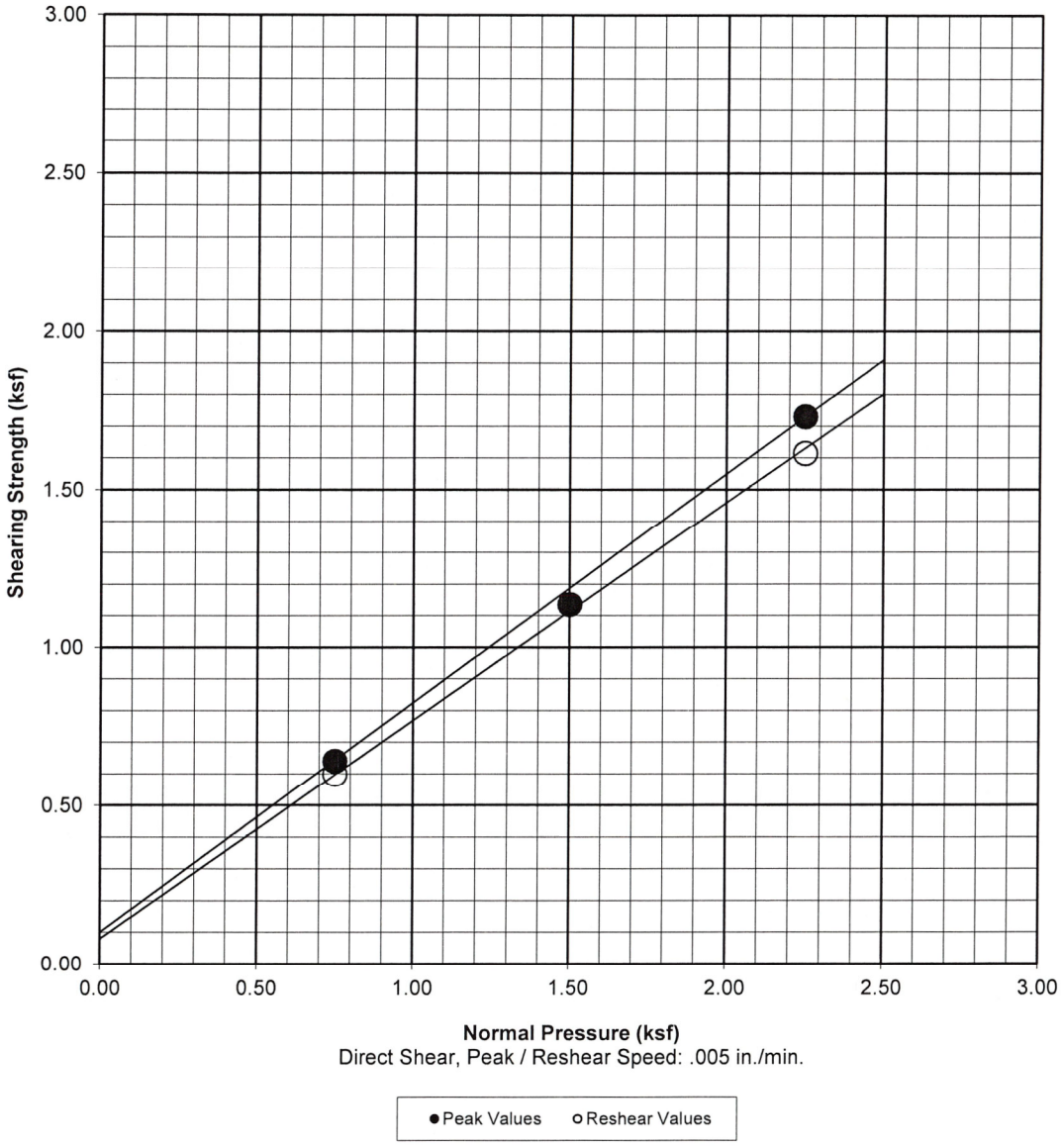
GeoSoils Consultants, Inc.

Geotechnical Engineering * Engineering Geology

Shear Test Diagram

Peak
C(psf): **100** Phi (degrees): **36.0**

Reshear
C(psf): **80** Phi (degrees): **34.5**



Sample **Remolded** to 90% Relative Density, saturated.
Remolded Dry Density = 113.4 PCF

Brown slightly clayey silty vf-c SAND.

MAX: 126.0 PCF: 10.5%

17.8% Saturated Moisture Content

7588.1

American Jewish University
W.O.: 7588

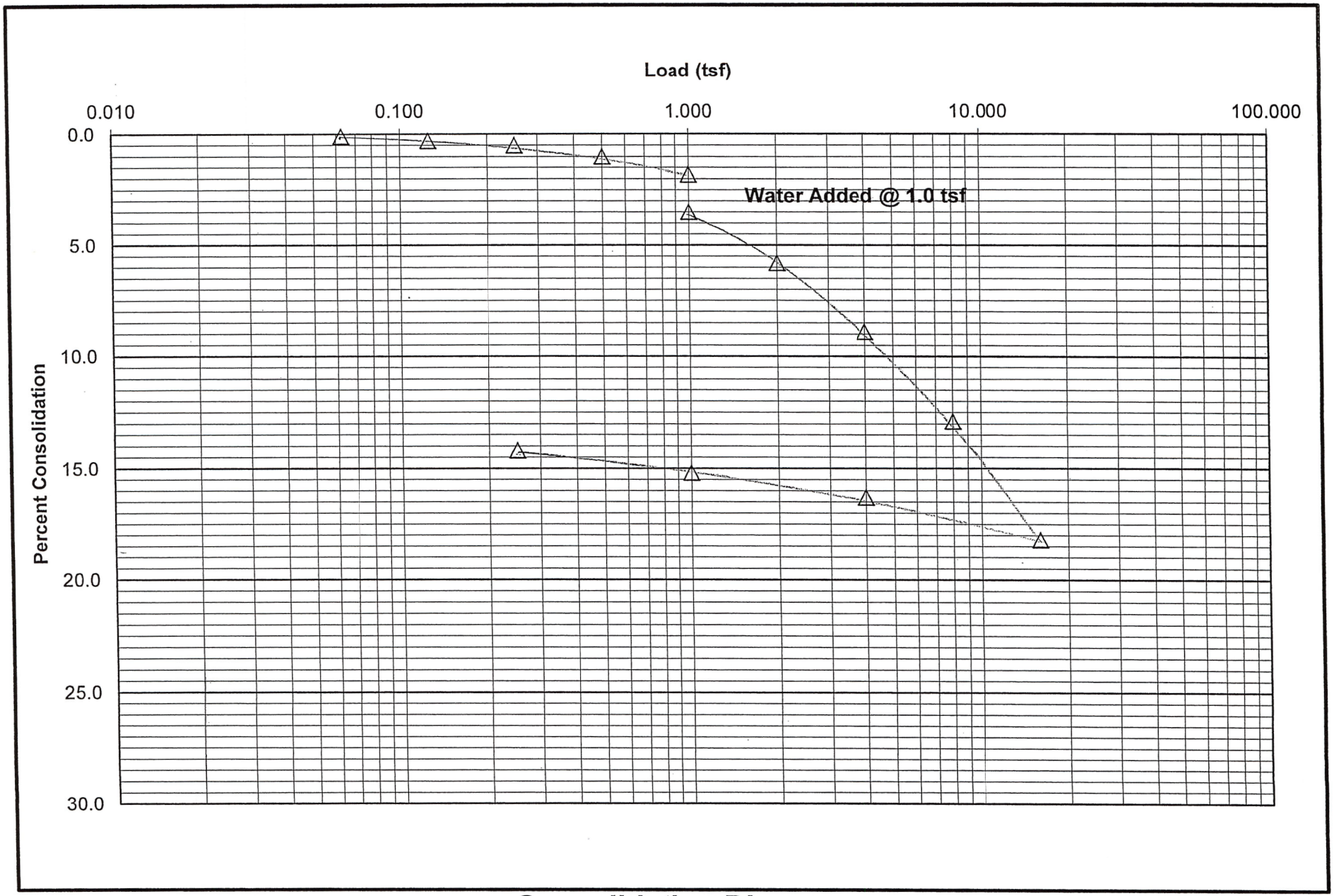
Date of Test: 5/21

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Geotechnical Engineering * Engineering Geology

Moisture(%)
Before: 13.9 After: 23.0

Sample(in.)
Height: 1.00 Diameter: 2.36



TP-5 @ 5.0'
Light brown silty CLAY.

Consolidation Diagram

C7588.1

Plate C-1

February 17, 2022
W.O. 7588

APPENDIX C

DATA BY GEOCONCEPTS

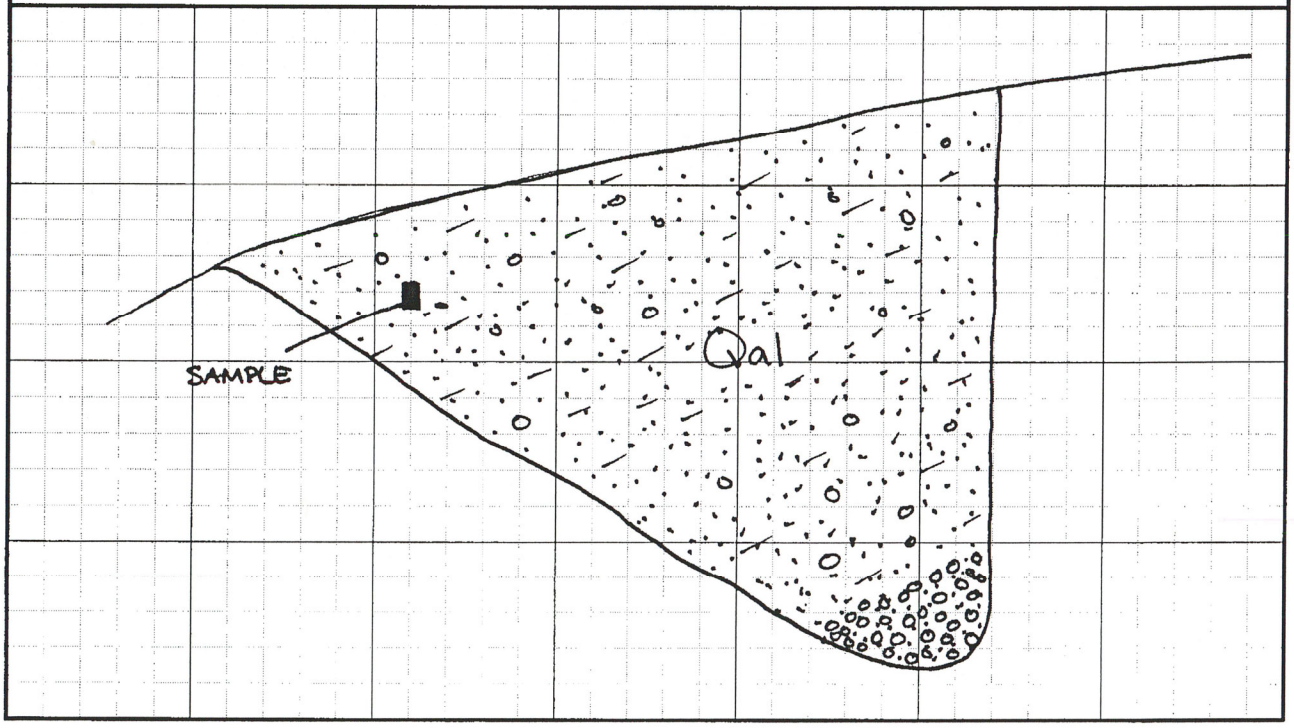
EXPLORATION: TP 1

PROJECT: 1101 Peppertree Lane | PROJECT NO.: 2514

DATE: March 20, 2003 | LOGGED BY: JSM

ATTITUDE	DESCRIPTION
	0.0 - 16.0' **QUATERNARY ALLUVIUM; Qal**, silty sand, reddish brown, slightly moist, firm, subrounded clasts up to 5" in diameter, few larger up to 1' in diameter, upper 2.0' contains roots and rootlets. @12.0' boulder clasts in sandy matrix, yellowish brown, slightly moist, very firm. **TOO HARD TO SAMPLE.**
f - fault s - shear j - joint b - bedding	Total Depth 16.0 Feet, Bearing 190 Degrees, No Groundwater, No Caving.

SCALE 1" = 5' **GENERALIZED PROFILE**



EXPLORATION: TP 2

PROJECT: 1101 Peppertree Lane

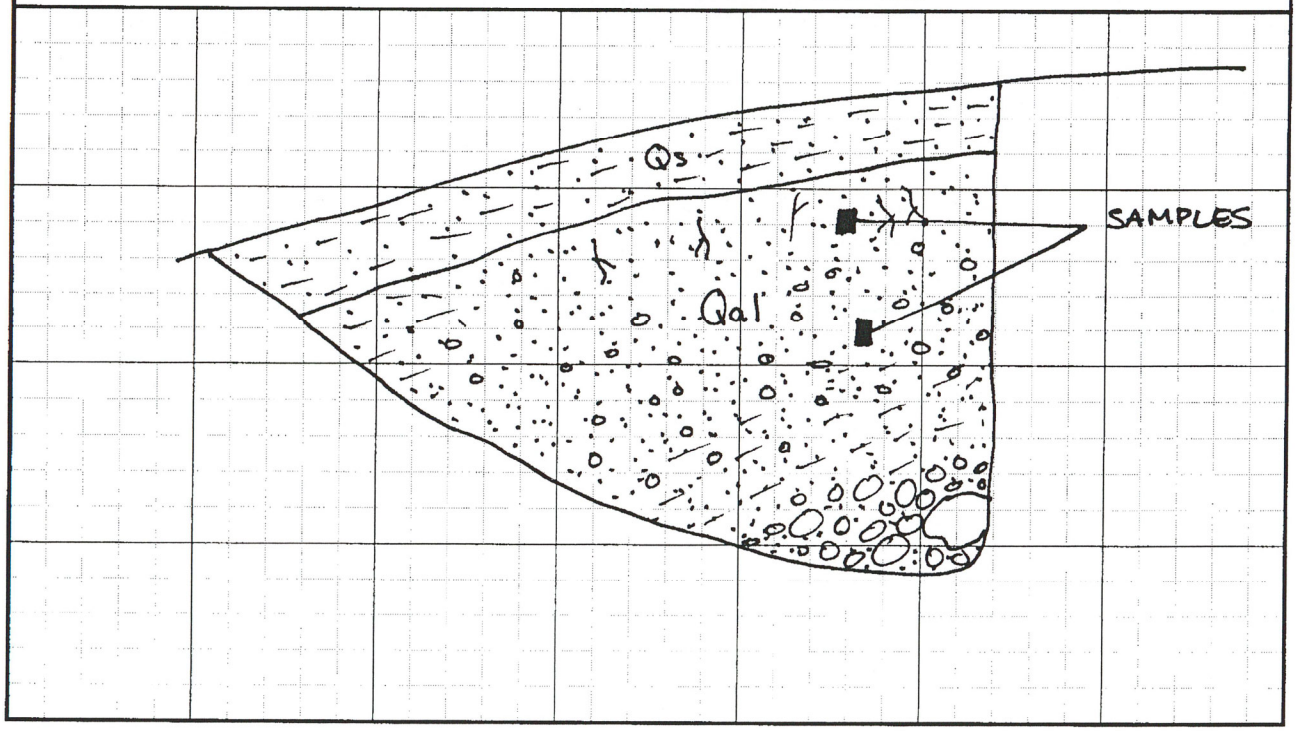
PROJECT NO.: 2514

DATE: March 20, 2003

LOGGED BY: JSM

ATTITUDE	DESCRIPTION
	0.0 - 2.0' **SOIL; Qs**, sandy silt, dark brown, moist, moderately firm, roots.
	2.0 - 14.0' **QUATERNARY ALLUVIUM; Qal**, clayey silt and sandy silt, reddish brown, moist, firm, abundant subrounded clasts up to 6" in length, a few large up to 1.0', roots in upper 2.0', a few rootlets throughout, increasing in density and decreasing in moisture.
	@10.5' abundant pebbles to boulder size clasts up to 2' in diameter in a sandy matrix, minor ravelling, rounded clasts.
	UNABLE TO DEEPEN DUE TO ABUNDANT CLASTS.
f - fault s - shear j - joint b - bedding	Total Depth 14.0 Feet, Bearing 195 Degrees, No Groundwater, No Caving.

SCALE 1" = 5' **GENERALIZED PROFILE**



EXPLORATION: TP 3

PROJECT: 1101 Peppertree Lane

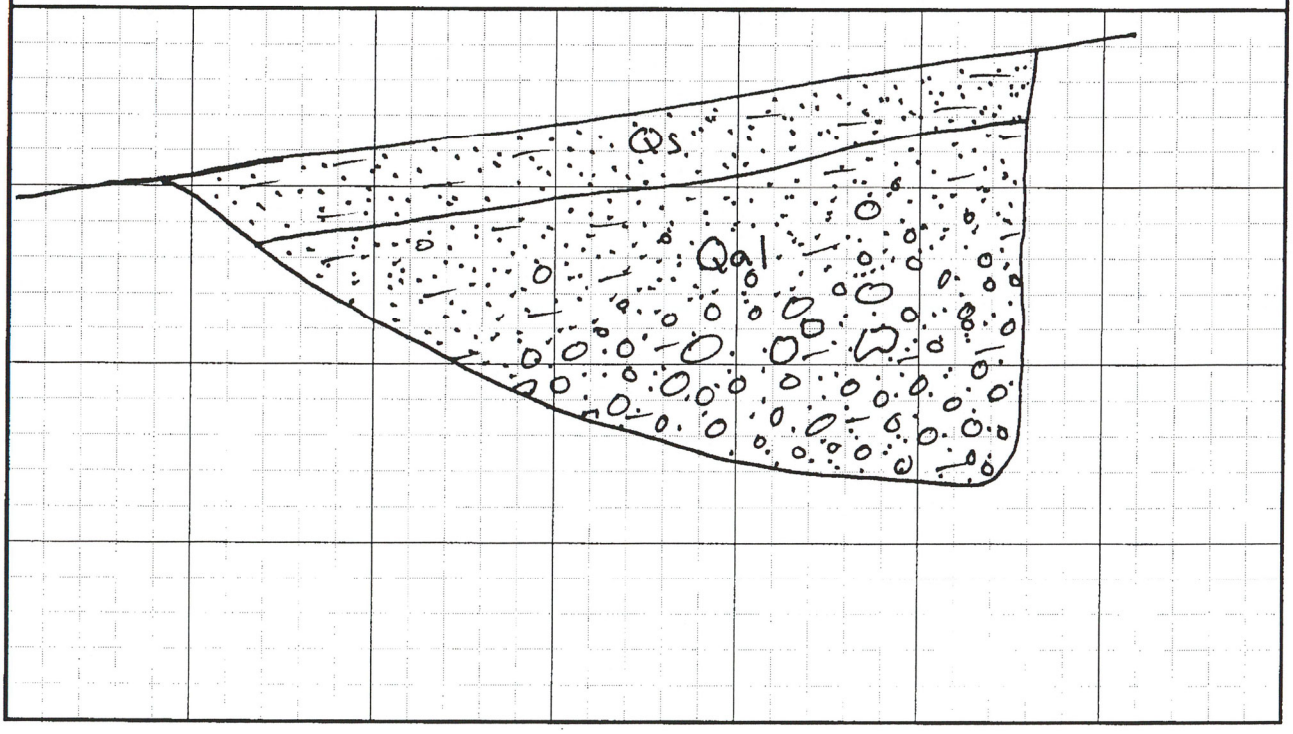
PROJECT NO.: 2514

DATE: March 20, 2003

LOGGED BY: JSM

ATTITUDE	DESCRIPTION
	0.0 - 2.0' **SOIL; Qs**, clayey sand, dark brown, moist, moderately firm, roots. 2.0 - 12.0' **QUATERNARY ALLUVIUM; Qal**, silty sand to sandy silt, reddish brown, slightly moist, firm, abundant pebble to cobble size clasts. @6.0' abundant clasts, very dense. @9.0' pebble to boulder clasts in a coarse grained sandy matrix, reddish brown, slightly moist, very dense.
f - fault s - shear j - joint b - bedding	Total Depth 12.0 Feet, Bearing 190 Degrees, No Groundwater, No Caving.

SCALE 1" = 5' **GENERALIZED PROFILE**



BORING: B 3

ADDRESS: 1101 Peppertree Lane

PROJECT NO.: 2514

DATE LOGGED: March 25, 2003

LOGGED BY: RMH

ATTITUDES (b - bedding, j - joint, s - shear, f - fault)	WATER CONTENT, %	UNIT DRY WEIGHT, PCF	BLOWS/FOOT	SAMPLES	DEPTH, FT	GRAPHIC LOG	DESCRIPTION
							0.0 - 2.0' **SOIL; Qs**, sandy silt, brown, moist, firm, some roots, abundant gravels 1/8" to 3.0" in length.
	10	117	82				2.0 - 19.0' **ALLUVIUM; Qal**, sandy clay to clayey sand, reddish brown, moist, dense.
	6	125	90		5		@2.5' sandy clay to clayey sand, reddish brown, moist, very dense.
	6	108	50				@5.0' clayey sand, reddish brown, slightly moist, very dense.
			50		10		@7.5' silty sand, reddish brown, slightly moist, dense.
							@10.0' silty sand, medium brown, dry, moist, abundant gravels 1/8" to 1.5" in length.
	6	100	50				@12.5' silty sand, light reddish brown, slightly moist, dense.
			50		15		@15.0' **NO RECOVERY**
			50				@17.5' **NO RECOVERY**
					20		@19.0' **REFUSAL**
							Total Depth 19.0 Feet. No Groundwater. 6.0" Hollow Stem.
					25		
					30		

GeoConcepts, Inc.

BORING: B 4

ADDRESS: 1101 Peppertree Lane

PROJECT NO.: 2514

DATE LOGGED: March 25, 2003

LOGGED BY: RMH

ATTITUDES
b - bedding j - joint
s - shear f - fault

WATER CONTENT, %

UNIT DRY WEIGHT, PCF

BLOWS/FOOT

SAMPLES

DEPTH, FT

GRAPHIC LOG

DESCRIPTION

0.0 - 2.0' **SOIL; QS**, sandy silt, brown, slightly moist, firm, roots.

2.0 - 10.0' **ALLUVIUM; Qal**

55

@5.0' clayey sand to sandy clay, reddish brown, slightly moist, very dense.

@10.0' **REFUSAL**

Total Depth 10.0 Feet.
No Groundwater.
6.0" Hollow Stem.

BORING: B 5

ADDRESS: 1101 Peppertree Lane

PROJECT NO.: 2514

DATE LOGGED: March 25, 2003

LOGGED BY: RMH

ATTITUDES b - bedding j - joint s - shear f - fault	WATER CONTENT, %	UNIT DRY WEIGHT, PCF	BLOWS/FOOT	SAMPLES	DEPTH, FT	GRAPHIC LOG	DESCRIPTION
							0.0 - 3.0' **ALLUVIUM; Qal**, sandy silt, medium brown, slightly moist, medium dense, slightly porous, abundant gravels and boulders up to 1' in length.
							@3.0' **REFUSAL**
					5		Total Depth 3.0 Feet. No Groundwater. 6.0" Hollow Stem.
					10		
					15		
					20		
					25		
					30		

BORING: B 6

ADDRESS: 1101 Peppertree Lane

PROJECT NO.: 2514

DATE LOGGED: March 25, 2003

LOGGED BY: RMH

ATTITUDES
b - bedding j - joint
s - shear f - fault

WATER CONTENT, %

UNIT DRY WEIGHT, PCF

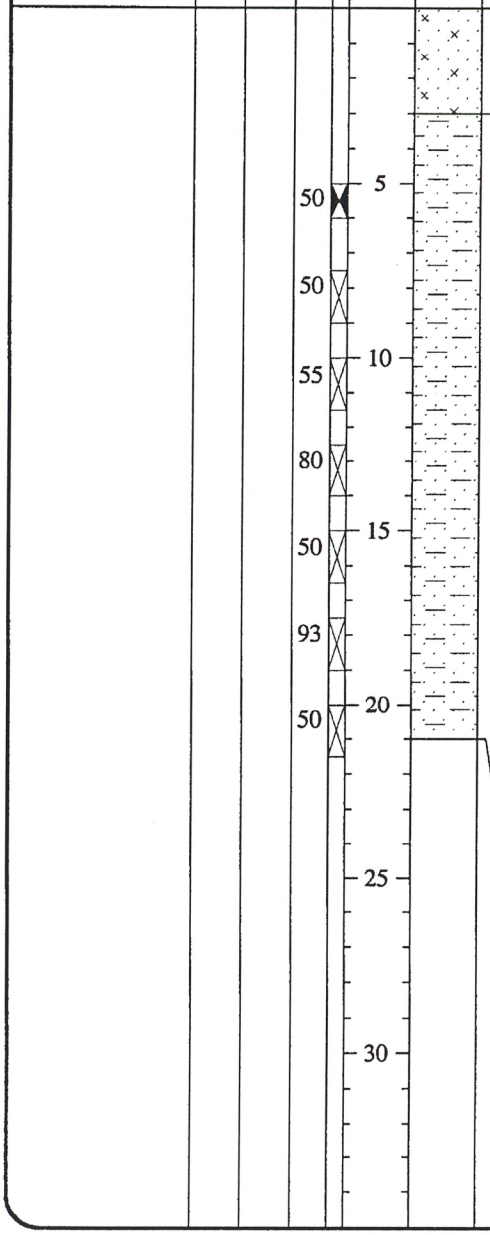
BLOWS/FOOT

SAMPLES

DEPTH, FT

GRAPHIC LOG

DESCRIPTION



0.0 - 3.0' **SOIL; Qs**, silty sand, brown to dark brown, slightly moist, firm.

3.0 - 21.0' **ALLUVIUM; Qal**

@5.0' **NO RECOVERY**

@7.5' clayey sand, reddish brown, slightly moist, dense, abundant gravel, 1/8" to 1.5" in length.

@10.0' clayey sand, reddish brown, moist, very dense, gravel 1/8" to 1.5" in length.

@12.0 groundwater.
@12.5' silty sand, reddish brown, wet, very dense, abundant gravels 1/8" to 1.5" in length.

@15.0' silty sand, brown, wet, dense, gravel 1" to 1.5" in length.

@17.5' clayey sand, reddish brown and gray, wet, very dense, abundant gravels 1/8" to 1.5" in length.

@20.0' silty sand, medium brown, wet, dense, abundant gravels 1/8" to 1.5" in length.

@21.0' **REFUSAL**

Total Depth 21.0 Feet.
Groundwater at 12.0 Feet.
6.0" Hollow Stem.

BORING: B 7

ADDRESS: 1101 Peppertree Lane

PROJECT NO.: 2514

DATE LOGGED: March 25, 2003

LOGGED BY: RMH

ATTITUDES (b - bedding, j - joint, s - shear, f - fault)	WATER CONTENT, %	UNIT DRY WEIGHT, PCF	BLOWS/FOOT	SAMPLES	DEPTH, FT	GRAPHIC LOG	DESCRIPTION
							0.0 - 3.0' **SOIL; Qs**, silty sand, brown to dark brown, slightly moists, firm.
							3.0 - 24.0' **QUATERNARY ALLUVIUM; Qal**
					5		
					10		
							@14.0' **GROUNDWATER**
					15		
					20		
			50				@22.5' silty sand, medium brown, wet, dense, abundant gravels 1/8" to 3/4" in length.
					25		@24.0' **REFUSAL**
							Total Depth 24.0 Feet. Groundwater at 14.0 Feet. 6.0" Hollow Stem.
					30		