ENGINEERING DESIGN GROUP
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PRELIMINARY GEOTECHNICAL INVESTIGATION AND FOUNDATION RECOMMENDATIONS
PROPOSED ADDITIONS AND REMODEL TO THE EXISTING RESIDENCE AND PROPOSED NEW RESIDENCE
LOCATED AT 7687 HILLSIDE DRIVE
SAN DIEGO, CALIFORNIA 92106

EDG Project No. 175728-1

October 31, 2017

PREPARED FOR:

Hillside View LLC
c/o Alejandro Doring
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To: Hillside View LLC
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E: alejandrodoring@hotmail.com

Re: Proposed new additions and remodel to existing residence and new residence located at 7687 Hillside Drive, La Jolla, California

Subject: Preliminary Geotechnical Investigation and Foundation Recommendations Report

In accordance with your request and our signed proposal we have provided this preliminary geotechnical investigation and foundation recommendations report of the subject site for the proposed new additions and remodel to existing residence as well as the proposed new residence to be constructed on the adjacent site.

The findings of the preliminary investigation, earthwork and foundation recommendations are presented in this report. In general, it is our opinion that the proposed construction, as described herein, is feasible from a geotechnical standpoint, provided the recommendations of this report and generally accepted construction practices are followed.

If you have any questions regarding the following report please do not hesitate to contact our office.

Sincerely,
ENGINEERING DESIGN GROUP

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1.0 SCOPE

This report was prepared as part of the discretionary review of the for the proposed new additions and remodel to the existing residence and the construction of a new residence to be constructed on the properties located at 7687 Hillside Drive, La Jolla Community of City of San Diego, California. (See Figure No. 1, "Site Vicinity Map", and Figure No. 2, "Site Location Map"). The scope of our work conducted onsite to date has included a visual reconnaissance of the property and surrounding areas, review of geologic maps and research at City of San Diego, a limited subsurface investigation of the subject property, laboratory tests and preparation of this report presenting our findings, conclusions and recommendations.

2.0 SITE AND PROJECT DESCRIPTION

The site consists of two separate parcels located at 7687 Hillside Drive, La Jolla Community of the City of San Diego, California. For the purposes of this report the sites are assumed to face south. The properties are bordered to the east, west and north by single family custom estate homes and to the south by Hillside Drive.

The general topography of the site area consists of coastal foothill terrain. At the time of this report the rear lot is developed with an existing single-story residence. The front, south, property is developed detached structure, driveway, hardscape and landscape improvements. The properties consist of sloped terrain, generally descending east to west and south to north. The total elevation difference across both the parcels is approximately 40 feet. Based upon our review of the proposed preliminary site plan, we understand the proposed development will consist of the construction of one new residence (south property) and additions and remodel to the existing residence on the property to the rear (north). Each residence will be constructed with lower level subterranean elements, crawl space and slab on grade.

3.0 FIELD INVESTIGATION

Our field investigation of the property consisted of a site reconnaissance, site field measurements, observation of existing conditions on-site and on adjacent sites and a limited subsurface investigation of soil conditions. Our subsurface investigation consisted of the visual observation of three small diameter borings in the general areas of proposed construction and one test pit in the area of the existing foundation, logging of soil types encountered, and sampling of soils for laboratory testing. The approximate locations of borings are given in Figure No. 3, "Approximate Test Pit Locations". Subsurface investigation along the western portion of the residence, in the area of the proposed new retaining walls, was limited in consideration of existing utilities. Based upon the finding of our subsurface investigation, we anticipate additional investigation will need to be conducted onsite to confirm depth of competent formational material, not encountered in all borings.

4.0 __GEOLOGIC HAZARDS__

As part of the preparation of this report we have reviewed the City of San Diego Seismic Safety Study. The City Seismic Safety Study identifies the site as Geologic Hazard Category 27, described as "slide-prone formations". Additionally, we have reviewed geologic maps of the subject area. Based upon our review of the Geologic Map of the San Diego 30'x60' Quadrangle Map (Kennedy, Siang, 2008) the area in and around the subject site is mapped as landslide/landslide deposits.

5.0 __FAULTS__

Our review of geologic literature pertaining to the general site area indicated that there are no known major or "active" faults across the site. The site is located in an area of "active faulting". The nearest known active faults are the Rose Canyon fault located less than 1500 feet to the northwest of the site. The Coronado Banks fault, located offshore approximately 15 miles west, the Elsinore fault, located approximately 42 miles northeast of the site and the San Andres fault located approximately 70 miles northeast of the site.

6.0 __SUBSURFACE CONDITIONS__

Undocumented fill, colluvium and weathered profiles were encountered to approximate depths between 10-20+ feet below adjacent grade in our exploratory borings. Soil types encountered within our borings are described as follows:

6.1 Topsoil / Undocumented Fill / Colluvium / Weathered /

Topsoil, fill and weathered unsuitable materials were encountered to a depth of 11-20+ feet below adjacent grade in our borings. These materials consist of light brownish gray to brown, dry to slightly moist, loose to medium dense, silty sands and sandy silts with roots in the upper 8 to 24 inches. Cobbles of various size were also encountered. **In general, these materials are <u>not</u> considered suitable for the support of structures and structural improvements in their present state, but may be utilized as re-compacted fill if necessary, provided the recommendations of this report are followed.** Unsuitable soil materials classify as SW-SM per the Unified Soil Classification System, and based on visual observation, are considered to possess low to medium potential for expansion.

6.2 Weathered Sandstone

Weathered sandstone material was found to underlie the unsuitable profiles material within the borings excavations. The encountered sandstone consists of brown to light brown with traces of reddish brown to yellowish brown, medium dense to dense, slightly silty sandstone. **These materials shall be confirmed based upon additional investigation recommended onsite in the area of proposed developments.**

For detailed logs of our exploratory borings, as well as a depiction of the borings locations, please see Figure No. 3, "Site Plan/Location of Borings ", and Boring Logs Nos. 1 - 3.

7.0 GROUND WATER

Static ground water was not encountered during our limited subsurface investigation. Groundwater is not anticipated to pose a significant constraint to construction, however based upon our experience, perched groundwater conditions can develop where no such condition previously existed. Perched groundwater conditions can develop over time and can have a significant impact. Waterproofing membrane shall be specifically detailed by waterproofing consultant. If groundwater conditions are encountered during site excavations, a slab underdrain system may be required. Trenches below slab should be detailed with perimeter and trench cut-off walls keyed into competent material.

8.0 LIQUEFACTION, LATERAL SETTLEMENT, SUBSIDENCE

It is our opinion that the site could be subjected to moderate to severe ground shaking in the event of a major earthquake along any of the faults in the Southern California region. However, the seismic risk at this site is not significantly greater than that of the surrounding developed area.

Liquefaction of cohesionless soils can be caused by strong vibratory motion due to earthquakes. Research and historical data indicate that loose, granular soils underlain by a near-surface ground water table are most susceptible to liquefaction, while the stability of most silty sands and clays is not adversely affected by vibratory motion. Because of the dense nature of the soil materials underlying the site and the lack of near surface water, the potential for lateral spreading, liquefaction, subsidence or seismically-induced dynamic settlement at the site is considered low. The effects of seismic shaking can be reduced by adhering to the most recent edition of the California Building Code and current design parameters of the Structural Engineers Association of California.

9.0 <u>CONCLUSIONS AND RECOMMENDATIONS</u>

6.3 GENERAL

In general, it is our opinion that the proposed new structures and improvements, as discussed and described herein, are feasible from a geotechnical standpoint, provided the recommendations of this report and all applicable codes are followed. Based upon the conditions encountered in our initial subsurface investigation we recommend additional investigation be conducted onsite to confirm depth of competent formational material in areas of proposed new development, prior to structural design.

In areas of our investigation unsuitable soil was encountered to depths of 11-20+ feet. These profiles are considered, in their present condition, to support settlement sensitive structures and improvements. We anticipate new building and site retaining wall foundations will be deepened through unsuitable profiles. In areas of slab on grade floors, new slab on grade floors shall be designed as structural slabs to span deep fills. Alternative design recommendations can be provided as necessary.

6.4 EARTHWORK

We anticipate in area of new buildings, additions and site retaining walls, new foundations will be deepened through unsuitable soil profiles and grading will be limited to backfill of retaining walls and grading for drainage purposes. In areas of new driveway retaining walls fills on the order of up to 10 feet are anticipated. All grading shall be done in accordance with the recommendations below as well as Appendix B of this report and the standards of city, county and state agencies, as applicable.

6.4.a. Site Preparation

Prior to any grading, the areas of proposed improvements should be cleared of surface and subsurface debris (including organic topsoil, vegetative and construction debris). Removed debris should be properly disposed of off-site prior to the commencement of any fill operations. Holes resulting from the removal of debris, existing structures, or other improvements, should be filled and compacted.

6.4.b. Removals

In areas of new backfill, topsoil, undocumented fill profiles found to mantle the site, in the area of the proposed improvements, are not suitable for the structural support of buildings or structural improvements in their present state. Onsite excavated fill materials are suitable for re-use as fill material during grading, provided they are cleaned of debris and oversize material in excess of 6 inches in diameter (oversize material is not anticipated) and free of contamination (including organics). Although not anticipated, prior to importing soils, they should be visually observed, sampled and tested at the borrow pit area to evaluate soils suitability as fill, they should have a low potential for expansion (EI<50).

6.4.c. Transitions

All settlement sensitive improvements, should be constructed on a uniform building pad. All foundations are anticipated to extend through loose profiles to competent sandstone.

6.4.d. Fills/Backfill

All fill/backfill material should be brought to approximately +2% of optimum moisture content and re-compacted to at least 90 percent relative compaction (based on ASTM D1557). Compacted fills should be cleaned of loose debris and oversize material more than 6 inches in diameter (oversize material is not anticipated), brought to near optimum moisture content, and re-compacted as described above.

Fills should generally be placed in lifts not exceeding 6-8 inches in thickness. Although not anticipated, imported soils should have a low potential for expansion (EI<50), free of debris and organic matter. Prior to importing soils, they should be visually observed, sampled and tested at the borrow pit area to evaluate soil suitability as fill.

6.4.e. Slopes

Where new slopes are constructed permanent slopes may be cut to a face ratio of 2:1 (horizontal to vertical). Permanent fill slopes shall be placed at a maximum 2:1 slope face ratio. All temporary cut slopes shall be excavated in accordance with OSHA requirements and shall not undermine adjacent property or structures without proper shoring of excavation and/or structures. Subsequent to grading, planting or other acceptable cover should be provided to increase the stability of slopes, especially during the rainy season (October thru April).

6.5 DEEP FOUNDATIONS

We anticipate deep caisson foundations will be necessary for new additions and new residence. The following design parameters may be utilized for new deep foundations founded on competent formational material. We anticipate any existing shallow foundations in the area of new remodel will be underpinned through unsuitable profiles, where new loads will be applied.

6.5.a. Proposed new foundations are to be founded directly in competent sandstone material.

6.5.b. Caissons should extend a minimum of 6 feet into competent sandstone materials beyond the point of fixity. Skin friction values provided herein are to be used only for that portion of the caisson which lies below the point of fixity. Depth of fixity is anticipated to be greater than 11-20 feet below adjacent grade and should be confirmed based upon additional investigation in the area of proposed development.

6.5.c. Lateral Surcharge: Caissons supporting a non-retaining wall building structure, located on sloping ground, should include a lateral load per foot of embedment. Total depth and size of applied lateral load to be confirmed based upon additional investigation in the area of proposed development.

6.5.d. Caisson embedment into sandstone should be verified by a representative of this office prior to removal of excavation equipment, placing reinforcement or concrete.

6.5.e. Caissons should be designed based on an allowable skin friction- adhesion (neglecting caisson weight) for that portion of caisson lying below the point of fixity, to a maximum bearing capacity of 65 kip per caisson. Skin friction value to be confirmed based upon additional investigation in the area of proposed development. Designs with proposed vertical bearing greater than 65 kip (omitting caisson wt.). With skin friction design (only), the bottom of caisson excavation shall be cleaned utilizing driller cleaning bucket. Hand cleaning of excavation is not required. Cleanliness of caisson excavations are to be inspected prior to placement of steel.

6.5.f. Caissons may be designed using a passive earth pressure below point of fixity, final design value based upon additional investigation.

6.5.g. Caissons should be designed with a minimum diameter of 24 inches and be reinforced in accordance with the recommendations of the structural engineer.

6.5.h. For footings adjacent to slopes a minimum of 10 feet (competent sandstone material) horizontal setback in competent material or properly compacted fill should be maintained. A setback measurement should be taken at the horizontal distance from the bottom of the footing to slope daylight. Where this condition cannot be met, it should be brought to the attention of the Engineering Design Group for review.

6.5.i. Caissons shall not be out of plumb by more than 2% of their total length.

6.5.j. Caissons excavations should be cleaned of all loose soil debris subsequent to excavation and prior to the placement of reinforcing steel. The contractor should utilize a clean out bucket to remove loose debris in the bottom of the excavations.

6.5.k. All excavations should be performed in general accordance with the contents of this report, applicable codes, OSHA requirements and applicable city and/or county standards.

6.5.l. Caissons excavations should be continuously observed by representative of Engineering Design Group in order to verify depth of embedment and cleanliness of the excavation bottom.

6.5.m. The proper installation of caissons will be of great importance. Care in drilling, placement of steel, and the pouring of concrete will be essential to avoid excessive erosion of caissons boring walls within the upper fills.

6.5.n. Concrete placement by pumping or tremie tube may be considered. Both clean out and concrete placement should be addressed in the specifications. Caissons excavations should be observed by our office prior to the installation of reinforcement. Caissons excavations should be properly shored prior to allowing any personnel into the excavation.

6.6 SEISMIC DESIGN PARAMETERS

6.6.a. Seismic design factors in accordance with the 2016 California Building Code are presented in the following table.

Site Class	D
Spectral Response Coefficients	
S_{MS} (g)	1.293

S_{M1} (g)	0.751
S_{DS} (g)	0.862
S_{D1} (g)	0.501

6.6.b. Bearing values may be increased by 33% when considering wind, seismic, or other short duration loadings.

6.7 CORROSION AND VAPOR EMISSIONS

6.7.a. Moisture Sensitive Areas – Foundations and Slabs: (i.e. floors, below grade walls) Maximum water to cement ratio of 0.45 maximum. Compressive strength of 4,500 psi minimum (no special inspection required for water to cement ratio purposes, unless otherwise specified by the structural engineer). This recommendation is intended to achieve low permeability concrete.

6.7.b. Non-Moisture Sensitive Areas – Foundations and Slabs: Compressive Strength of 2,500 psi per ACI requirements. In moisture sensitive areas, the slab concrete should have a compressive strength of approximately 2,500 psi.

6.7.c. Corrosion Potential – Foundations and Slabs: Based upon laboratory testing conducted as part of the field investigation onsite soils indicate exposure categories S0 and C1, according to ACI 318 standards. The project structural engineer to note increased concrete protection requirements for corrosive environments, as applicable.

6.7.d. Corrosion Potential – Buried Metals: Where onsite improvements propose the use of reclaimed water, onsite soils are to be considered highly corrosive to buried metals. Precautions should be taken to protect all buried metals. As EDG is not an expert in corrosion protection, all corrosion recommendations shall be provided by the corrosion consultant.

6.7.e. Slab Underlayment: We recommend the following beneath proposed slab-on-grade floors.

6.7.e.i We recommend a vapor barrier layer (15 mil) placed below the upper one-inch of sand. The vapor barrier shall meet the following minimum requirements: Permeance of less than 0.01 perm [grains/(ft^{2}hr in/Hg)] as tested in accordance with ASTM E 1745 Section 7.1 and strength per ASTM 1745 Class A.

6.7.e.ii In areas of level slab on grade floors, we recommend a one-inch layer of coarse sand material, Sand Equivalent (S.E.) greater than 50 and washed clean of fine materials, should be placed beneath the slab in moisture sensitive areas, above the **vapor barrier**. There shall be not greater than a 2-inch difference across the sand layer.

6.7.e.iii The vapor barrier should extend down the interior edge of the footing excavations a minimum of 6 inches. The vapor barrier should lap a minimum of 8 inches, sealed along all laps with the manufacturer's recommended adhesive. Beneath the vapor barrier a uniform layer of 3 inches of pea gravel is recommended under the slab in order to more uniformly support the slab, help distribute loads to the soils beneath the slab, and act as a capillary break.

6.7.f. In consideration of the subterranean elements, it should be understood that a vapor barrier is not a waterproof barrier. The project developer shall understand the benefits and limitations of vapor barrier v. waterproof systems and select the system best suited in consideration of proposed finishes and uses.

6.7.g. The project waterproofing consultant should provide all slab underdrain, slab sealers and various other details, specifications and recommendations (i.e. Moiststop and Linkseal) at areas of potential moisture intrusion. (i.e. slab penetrations) Engineering Design Group accepts no responsibility for design or quality control of waterproofing elements of the building.

6.8 CONCRETE SLABS ON GRADE

Where new slabs are proposed, we recommend the following as the minimum design parameters.

6.8.a. Slab on grade floors are anticipated at the lower subterranean elements. We anticipate new concrete slab on grade floors will be designed as structural slabs to span between caisson and grade beam foundations.

6.8.b. Exterior concrete slab on grade of the proposed new additions and driveways should have a minimum thickness of 5 inches and should be reinforced with #4 bars at 24 inches o.c. placed at the midpoint of the slab.

6.8.b.i **Slump:** Between 3 and 4 inches maximum

6.8.b.ii **Aggregate Size**: 3/4 - 1 inch

6.8.c. Adequate control joints should be installed to control the unavoidable cracking of concrete that takes place when undergoing its natural shrinkage during curing. The control joints should be well located to direct unavoidable slab cracking to areas that are desirable by the designer.

6.8.d. All required fills used to support slabs, should be placed in accordance with the grading section of this report and the attached Appendix B, and compacted to minimum 90 percent Modified Proctor Density, ASTM D-1557, and as described in the Earthwork section of this report.

6.8.e. All subgrade soils to receive concrete slabs and flatwork are to be pre-soaked to 2 percent over optimum moisture content to a depth of 18 inches.

6.8.f. Exterior concrete flatwork, due to the nature of concrete hydration and minor subgrade soil movement, are subject to normal minor concrete cracking. To minimize expected concrete cracking, the following may be implemented:

6.8.f.i New flatwork in areas of encountered expansive (not anticipated) soil should be detailed with 6 inches of base material.

6.8.f.ii Concrete may be poured with a 10-inch-deep thickened edge. Flatwork adjacent to top of a slope should be constructed with an outside footing to attain a minimum of 7 feet distance to daylight.

6.8.f.iii Concrete slump should not exceed 4 inches.

6.8.f.iv Concrete should be poured during cool (40 - 65 degrees) weather if possible. If concrete is poured in hotter weather, a set retarding additive should be included in the mix, and the slump kept to a minimum.

6.8.f.v Concrete subgrade should be pre-soaked prior to the pouring of concrete. The level of pre-soaking should be a minimum of 2% over optimum moisture to a depth of 18 inches.

6.8.f.vi Concrete should be constructed with tooled joints creating concrete sections no larger than 225 square feet. For sidewalks, the maximum run between joints should not exceed 5 feet. For rectangular shapes of concrete, the ratio of length to width should generally not exceed 0.6 (i.e., 5 ft. long by 3 ft. wide). Joints should be cut at expected points of concrete shrinkage (such as male corners), with diagonal reinforcement placed in accordance with industry standards.

6.8.f.vii Isolation joints should be installed at exterior concrete where exterior concrete is poured adjacent to existing foundations.

6.8.f.viii Drainage adjacent to concrete flatwork should direct water away from the improvement. Concrete subgrade should be sloped and directed to the collective drainage system, such that water is not trapped below the flatwork.

6.8.f.ix The recommendations set forth herein are intended to reduce cosmetic nuisance cracking. The project concrete contractor is ultimately responsible for concrete quality and performance, and should pursue a cost-benefit analysis of these recommendations, and other options available in the industry, prior to the pouring of concrete.

6.9 RETAINING WALLS

Retaining walls up to 12 feet may be designed and constructed in accordance with the following recommendations and minimum design parameters.

6.9.a. Retaining wall footings should be designed in accordance with the allowable bearing criteria given in the *Foundations* section of this report, and should maintain minimum footing depths outlined in the *Foundations* section of this report. Retaining wall foundations are anticipated to be founded on deep caisson foundations.

6.9.b. All retaining wall footings shall be placed on competent sandstone material. Where cut-fill transitions may occur, alternative detailing may be provided by the Engineering Design Group on a case by case basis.

6.9.c. In moisture sensitive areas (i.e. interior living space where vapor emission is a concern, such as the proposed basement area), in our experience poured-in-place concrete provides a surface with higher performance-repair-ability of below grade waterproofing systems. The owner should consider the cost-benefit of utilizing cast in place building retaining walls in lieu of masonry as part of the overall construction of the residence. Waterproofing at any basement floors is recommended in areas of moisture sensitive floor finishes.

6.9.d. Unrestrained cantilever retaining walls should be designed using an active equivalent fluid pressure. This assumes that granular, free draining material with low potential for expansion (E.I. <50) will be used for backfill, and that the backfill surface will be level. Where soil with potential for expansion is not low (E.I. >50) a new active fluid pressure will be provided by the project soils engineer. Backfill materials should be considered prior to the design of the retaining walls to ensure accurate detailing. We anticipate onsite material ***may*** be utilized as retaining wall backfill. Final design value based upon additional investigation.

6.9.e. Retaining walls shall be designed for additional lateral forces due to earthquake, where required by code, utilizing the following design parameters.

6.9.e.i Yielding Walls = $P_E = (3/8)\, k_{AE}\, (\gamma)\, H^2$ - applied at a distance of 0.6 times the height (H) of the wall above the base

6.9.e.ii Horizontal ground acceleration value $k_H = 0.20g$.

6.9.e.iii Where non-yielding retaining walls are proposed, the specific conditions should be brought to the attention of Engineering Design Group for alternative design values.

6.9.e.iv The unit weight of 120 pcf for the onsite soils may be utilized.

6.9.e.v The above design parameters assume unsaturated conditions. Retaining wall designs for sites with a hydrostatic pressure influence (i.e groundwater within depth of retaining wall or waterfront conditions) will require special design considerations and should be brought to the attention of Engineering Design Group.

6.9.f. Passive soil resistance may be calculated using an equivalent fluid pressure, final design value based upon additional investigation.. This value assumes that the soil being utilized to resist passive pressures extends horizontally 2.5 times the height of the passive pressure wedge of the soil. Where the horizontal distance of the available passive pressure wedge is less than 2.5 times the height of the soil, the passive pressure value must be reduced by the percent reduction in available horizontal length.

6.9.g. All walls shall be provided with adequate back drainage to relieve hydrostatic pressure, and be designed in accordance with the minimum standards contained in the "Retaining Wall Drainage Detail", Appendix D. The waterproofing elements shown on our details are minimums, and are intended to be supplemented by the waterproofing consultant and/or architect. The recommendations should be reviewed in consideration of proposed finishes and usage, especially at basement levels, performance expectations and budget.

6.9.h. If deemed necessary by the project owner, based on the above analysis, and waterproofing systems can be upgraded to include slab under drains and enhanced waterproofing elements.

6.9.i. Retaining wall backfill should be placed and compacted in accordance with the "Earthwork" section of this report. Backfill shall consist of soil with a very low expansion potential, granular, free draining material. Onsite soil may be used as retaining wall backfill. We anticipate the upper four feet of retaining wall backfill will be compacted to 95 percent minimum relative compaction.

6.9.j. Retaining walls should be braced and monitored during compaction. If this cannot be accomplished, the compactive effort should be included as a surcharge load when designing the wall.

6.10 SHORING

Based upon the preliminary site plan we anticipate shoring may be necessary along portions of the south property line. Shoring design shall be based upon final building, grading and geotechnical recommendations.

10.0 ***INFILTRATION***

Bioretention/infiltration facilities shall maintain sufficient horizontal and vertical offset to the future residence to not create a groundwater condition. Infiltration facilities proposed within a 10-foot horizontal distance to a moisture sensitive structure should be lined with an impervious barrier, within the 10-foot zone. Additionally, infiltration facilities should be offset from the top and toes of any slopes steeper than a 3:1 or lined with an impervious barrier. At tops of slopes minimum horizontal distance of 10 feet or a horizontal distance equal to the height of the slope, measured from the edge of infiltration basin to slope, up to a maximum of 40 horizontal feet. At the toe of new fill slopes infiltration facilities shall maintain a minimum 10 feet horizontal offset. Proper surface drainage and irrigation practices will play a significant role in the future performance of the project. Please note in the *Concrete Slab-on-Grade* section (section 8.3) of this report for specific recommendations regarding water to cement ratio for moisture sensitive areas should be adhered. The project architect and/or waterproofing consultant shall specifically address waterproofing details.

If permeable pavers are proposed in driveway and/or rear patios. Specific paver detailing should be detailed and constructed per the minimum recommendations of the Interlocking Concrete Paver Institute and the specific concrete paver manufacturer, including edge restraints, minimum bedding specifications, base and subgrade requirements, installation tolerances, and drainage, etc. Where runoff and storm water is directed over permeable pavements and water is anticipated to flow through pavers into an aggregate base near and adjacent to foundations, detailing shall include systems to control and to prevent subsurface flow beneath the building. Generally, these systems, detailed as part of the specific building construction plans, may include the cut-off walls and underdrains.

11.0 SURFACE DRAINAGE

Adequate drainage precautions at this site are imperative and will play a critical role on the future performance of the proposed residence. Under no circumstances should water be allowed to pond against or adjacent to tops of slopes and/or foundation walls.

The ground surface surrounding proposed improvements should be relatively impervious in nature, and slope to drain away from the structure in all directions, with a minimum slope of 2% for a horizontal distance of 7 feet (where possible). Area drains or surface swales should then be provided in low spots to accommodate runoff and avoid any ponding of water. Any french drains, backdrains and/or slab underdrains shall **not** be tied to surface area drain systems. Roof gutters and downspouts shall be installed on the new and existing structures and tightlined to the area drain system. All drains should be kept clean and unclogged, including gutters and downspouts. Area drains should be kept free of debris to allow for proper drainage.

Over watering can adversely affect site improvements and cause perched groundwater conditions. Irrigation should be limited to only the amount necessary to sustain plant life. Low flow irrigation devices as well as automatic rain shut-off devices should be installed to reduce over watering. Irrigation practices and maintenance of irrigation and drainage systems are an important component to the performance of onsite improvements.

During periods of heavy rain, the performance of all drainage systems should be inspected. Problems such as gullying or ponding should be corrected as soon as possible. Any leakage from sources such as water lines should also be repaired as soon as possible. In addition, irrigation of planter areas, lawns, or other vegetation, located adjacent to the foundation or exterior flat work improvements should be strictly controlled or avoided.

12.0 LABORATORY TESTING

Laboratory tests were performed on samples of onsite material collected during our subsurface investigation. Test results are attached as Appendix C.

13.0 CONSTRUCTION OBSERVATION AND TESTING

The recommendations provided in this report are based on subsurface conditions disclosed by the investigation and our general experience in the project area. Interpolated subsurface conditions should be verified in the field during construction. The following items shall be conducted prior/during construction by a representative of Engineering Design Group in order to verify compliance with the geotechnical and civil engineering recommendations provided herein, as applicable. The project structural and geotechnical engineers may upgrade any condition as deemed necessary during the development of the proposed improvement(s).

6.1 Review of final approved grading and structural plans prior to the start of work for compliance with geotechnical recommendations.
6.2 Attendance of a pre-grade/construction meeting prior to the start of work.
6.3 Observation of caisson excavations, subgrade and excavation bottoms.
6.4 Testing of any fill placed, including retaining wall backfill and utility trenches.
6.5 Observation of footing excavations prior to steel placement and removal of excavation equipment.
6.6 Field observation of any "field change" condition involving soils.
6.7 Walk through of final drainage detailing prior to final approval.

The project soils engineer may at their discretion deepen footings or locally recommend additional steel reinforcement to upgrade any condition as deemed necessary during site observations. Engineering Design Group shall, prior to the issuance of the certificate of occupancy, issue in writing that the above inspections have been conducted by a representative of their firm, and the design considerations of the project soils report have been met. The field inspection protocol specified herein is considered the minimum necessary for Engineering Design Group to have exercised due diligence in the soils engineering design aspect of this building. Engineering Design Group assumes no liability for structures constructed utilizing this report not meeting this protocol.

Before commencement of grading the Engineering Design Group will require a separate contract for quality control observation and testing. Engineering Design Group requires a minimum of 48 hours' notice to mobilize onsite for field observation and testing.

14.0 MISCELLANEOUS

It must be noted that no structure or slab should be expected to remain totally free of cracks and minor signs of cosmetic distress. The flexible nature of wood and steel structures allows them to respond to movements resulting from minor unavoidable settlement of fill or natural soils, the swelling of clay soils, or the motions induced from seismic activity. All of the above can induce movement that frequently results in cosmetic cracking of brittle wall surfaces, such as stucco or interior plaster or interior brittle slab finishes.

Data for this report was derived from surface and subsurface observations at the site, knowledge of local conditions. The recommendations in this report are based on our experience in conjunction with the limited soils exposed at this site. We believe that this information gives an acceptable degree of reliability for anticipating the behavior of the proposed improvement; however, our recommendations are professional opinions and cannot control nature, nor can they assure the soils profiles beneath or adjacent to those observed. Therefore, no warranties of the accuracy of these recommendations, beyond the limits of the obtained data, is herein expressed or implied. This report is based on the investigation at the described site and on the specific anticipated construction as stated herein. If either of these conditions is changed, the results would also most likely change. Man-made or natural changes in the conditions of a property can occur over a period of time. In addition, changes in requirements due to state of the art knowledge and/or legislation are rapidly occurring. As a result, the findings of this report may become invalid due to these changes. Therefore, this report for the specific site, is subject to review and not considered valid after a period of one year, or if conditions as stated above are altered.

It is the responsibility of the owner or his/her representative to ensure that the information in this report be incorporated into the plans and/or specifications and construction of the project. It is advisable that a contractor familiar with construction details typically used to deal with the local subsoil and seismic conditions be retained to build the structure.

If you have any questions regarding this report, or if we can be of further service, please do not hesitate to contact us. We hope the report provides you with necessary information to continue with the development of the project.

FIGURES

PROJECT NAME	HILLSIDE VIEW LLC	LOG OF BORING No.	B-1
PROJECT NUMBER	175728-1		
LOCATION	SEE BORING LOCATIONS MAP		SHEET 1 OF 1

DATE DRILLED: 10-5-2017	DRILLING METHOD AND TYPE OF RIG: TRIPOD RIG		TOTAL DEPTH DRILLED (feet): 14.0
LOGGED BY: ER	BACKFILLED/CONVERTED TO WELL ON(date): SAME DAY		APPROX SURFACE ELEVATION (feet): FS
DIAMETER OF BORING: 6"	GROUNDWATER LEVEL (feet BGS): N/A	FIRST: NONE	COMPLETION: NONE
TYPE OF SAMPLER(S): SPT, CALIFORNIA	TYPE OF HAMMER: SAFETY	WEIGHT (lbs): 140	DROP (in.): 30

DEPTH (feet)	SAMPLE	SAMPLE NUMBER	BLOW * COUNTS	SPT N **	GRAPHIC LOG	MATERIAL DESCRIPTION AND NOTES	WATER CONTENT
						TOPSOIL / UNDOCUMENTED FILL / COLLUVIUM / WEATHERED	
2		B1-1	BULK			HAND AUGER TO 4 FT. – LIGHT BROWN TO LIGHT BROWNISH GRAY, DRY TO MOIST, LOOSE TO MEDIUM DENSE, SILTY SANDS AND SANDY SILTS. ROOTS IN THE UPPER 12-18 INCHES.	
5		B1-2	6,6,6	12		LIGHT BROWN TO DARK BROWN W/TRACES OF WHITE, MOIST, MEDIUM DENSE, SILTY SANDS TO SANDY SILTS. ROOTS.	
		B1-3	5,4,4	8		BROWN TO LIGHT BROWNISH GRAY W/TRACES OF REDDISH BROWN, MOIST, LOOSE TO MEDIUM DENSE, SILTY SANDS TO SANDY SILTS.	
		B1-4	4,4,7	11		BROWN TO BROWNISH GRAY, MOIST, MEDIUM DENSE, SILTY SANDS TO SANDY SILTS.	
10						**WEATHERED SANDSTONE**	
		B1-5	9, 18,41	59		LIGHT BROWN TO YELLOWISH BROWN W/TRACES OF REDDISH BROWN, MOIST, DENSE TO VERY DENSE, SLIGHTLY SILTY TO FINE SANDSTONE.	
		B1-6	11, 11,10	21		LIGHT BROWN TO YELLOWISH BROWN W/TRACES OF REDDISH BROWN, MOIST, MEDIUM DENSE, SLIGHTLY SILTY TO FINE SANDSTONE.	
15		n/a	–	–		REFUSAL FOR DRILLING, BOUNCED AT SAMPLING. NO SAMPLE. BORING ABANDONED AT 14 FEET.	
20							
25							

ADDITIONAL NOTES / COMMENTS:

ENGINEERING DESIGN GROUP
2121 Montiel Road, San Marcos, CA 92069
760 839 7302
www.designgroupca.com

PROJECT NAME	HILLSIDE VIEW LLC	**LOG OF BORING No. B-2**
PROJECT NUMBER	175728-1	
LOCATION	SEE BORING LOCATIONS MAP	SHEET 1 OF 1

DATE DRILLED: 10-5-2017	DRILLING METHOD AND TYPE OF RIG: TRIPOD RIG	TOTAL DEPTH DRILLED (feet): 18.0
LOGGED BY: ER	BACKFILLED/CONVERTED TO WELL ON(date): SAME DAY	APPROX SURFACE ELEVATION (feet): FS
DIAMETER OF BORING: 6"	GROUNDWATER LEVEL (feet BGS): N/A — FIRST: NONE	COMPLETION: NONE
TYPE OF SAMPLER(S): SPT, CALIFORNIA	TYPE OF HAMMER: SAFETY — WEIGHT (lbs): 140	DROP (in.): 30

DEPTH (feet)	SAMPLE	SAMPLE NUMBER	BLOW * COUNTS	SPT N **	GRAPHIC LOG	MATERIAL DESCRIPTION AND NOTES	WATER CONTENT
0–6.5						**TOPSOIL / UNDOCUMENTED FILL / COLLUVIUM / WEATHERED**	
		B2-1	BULK			HAND AUGER / DRILL TO 6.5 FT. – LIGHT BROWN TO LIGHT BROWNISH GRAY TO LIGHT GRAY, DRY TO MOIST, LOOSE TO MEDIUM DENSE, SILTY SANDS TO SANDY SILTS. ORGANICS IN THE UPPER 12 INCHES.	
	SPT	B2-2	4, 4,3	7		BROWN TO LIGHT BROWN, MOIST, MEDIUM DENSE, SILTY SANDS AND SANDY SILTS.	
						WEATHERED SANDSTONE	
10	SPT	B2-3	12, 7,10	17		BROWN TO LIGHT BROWN W/TRACES OF DARK GRAY, MOIST, MEDIUM DENSE, SILTY TO FINE SANDSTONE.	
	SPT	B2-4	8, 11,15	26		BROWN TO LIGHT BROWN W/TRACES OF DARK GRAY, MOIST, MEDIUM DENSE, SILTY TO FINE SANDSTONE.	
	SPT	B2-5	–	–		REFUSAL AT DRILLING, BOUNCED AT SAMPLING.	

Depth scale: 2, 5, 10, 15, 20, 25

ADDITIONAL NOTES / COMMENTS:

ENGINEERING DESIGN GROUP
www.designgroupca.com
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760.839.7302

PROJECT NAME	HILLSIDE VIEW LLC	LOG OF BORING No.	B-3
PROJECT NUMBER	175728-1		
LOCATION	SEE BORING LOCATIONS MAP		SHEET 1 OF 1

DATE DRILLED: 10-5-2017	DRILLING METHOD AND TYPE OF RIG: TRIPOD RIG		TOTAL DEPTH DRILLED (feet): 17.0
LOGGED BY: ER	BACKFILLED/CONVERTED TO WELL ON(date): SAME DAY		APPROX SURFACE ELEVATION (feet): FS
DIAMETER OF BORING: 6"	GROUNDWATER LEVEL (feet BGS): N/A	FIRST: NONE	COMPLETION: NONE
TYPE OF SAMPLER(S): SPT / CALIFORNIA	TYPE OF HAMMER: SAFETY	WEIGHT (lbs): 140	DROP (in.): 30

DEPTH (feet)	SAMPLE	SAMPLE NUMBER	BLOW * COUNTS	SPT N **	GRAPHIC LOG	MATERIAL DESCRIPTION AND NOTES	WATER CONTENT
						TOPSOIL / UNDOCUMENTED FILL / COLLUVIUM / WEATHERED	
2		B3-1	BULK			HAND AUGER / DRILL TO 4.0 FT. – DARK BROWN TO BROWN TO LIGHT BROWNISH GRAY, DRY TO MOIST, LOOSE TO MEDIUM DENSE, SILTY SANDS TO SANDY SILTS. ORGANICS IN THE UPPER 24 INCHES.	
5	SPT	B3-2	4,4,6	10		DARK BROWN TO BROWN TO LIGHT BROWNISH GRAY W/TRACED OF DARK GRAY, MOIST, LOOSE TO MEDIUM DENSE, SILTY SANDS AND SANDY SILTS.	
	SPT	B3-3	8,7,9	16		BROWN TO LIGHT BROWN, MOIST, MEDIUM DENSE, SILTY SANDS AND SANDY SILTS.	
10							
	SPT	B3-4	5, 5,4	9		BROWN W/TRACES OF DARK GRAY AND REDDISH BROWN, MOIST, LOOSE TO MEDIUM DENSE, SILTY SANDS AND SANDY SILTS.	
15							
	SPT	B3-5	4,4,5	9		BROWN W/TRACES OF LIGHT BROWN, MOIST, LOOSE TO MEDIUM DENSE, SILTY SANDS AND SANDY SILTS.	
20							
25							

ADDITIONAL NOTES / COMMENTS:

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760.839.7302

Project: Hillside View, LLC
Address: 7687 Hillside Drive, La Jolla, California
EDG Project No: 175728-1

FIGURE 1
Vicinity Map

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Project: Hillside View, LLC
Address: 7687 Hillside Drive, La Jolla, California
EDG Project No: 175728-1

FIGURE 2
Site Map

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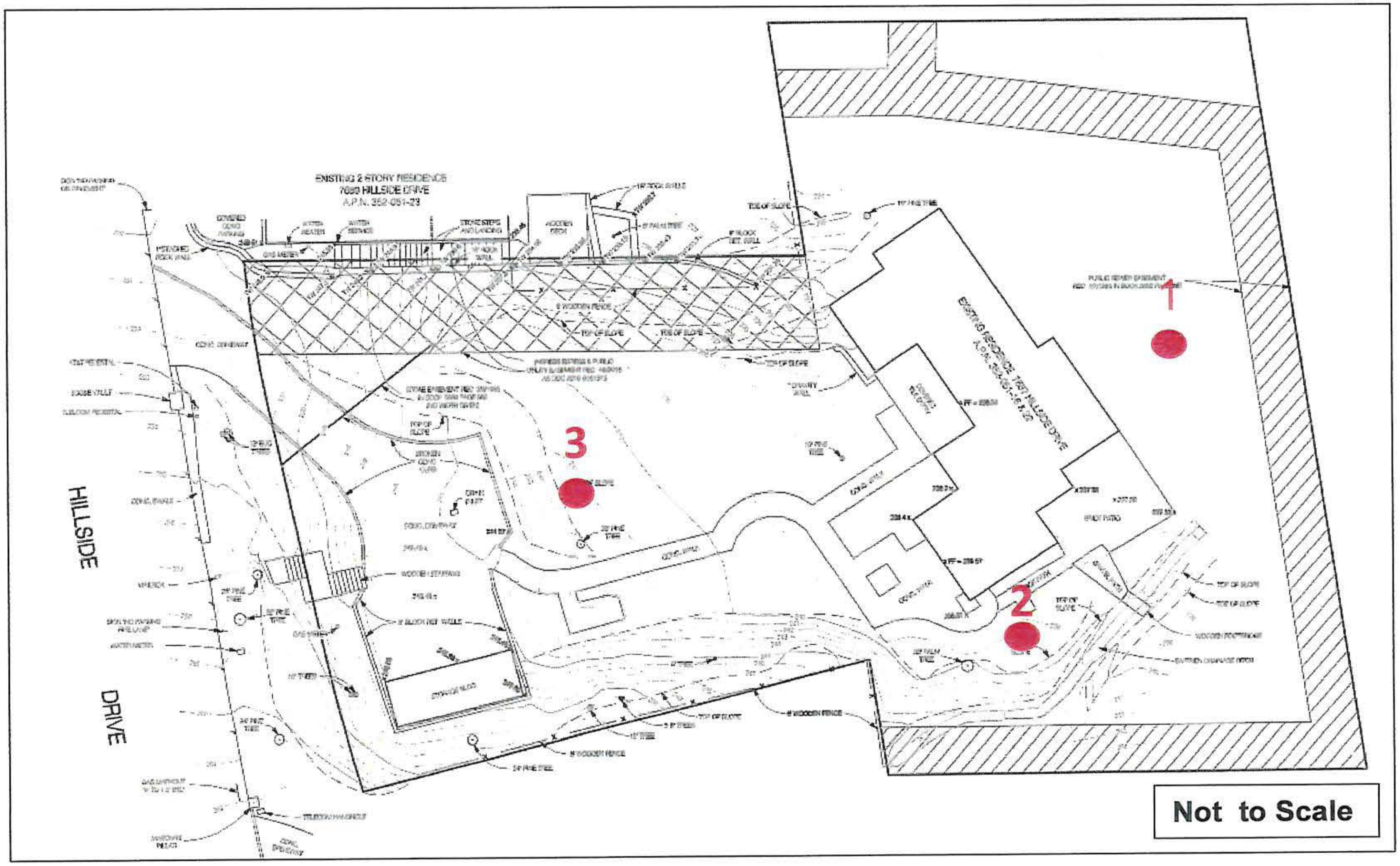

Project: Hillside View, LLC
Address: 7687 Hillside Drive, La Jolla, California
EDG Project No: 175728-1

FIGURE 3
Site Plan

APPENDIX A

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21. Van Dorn, W.G., 1979 Theoretical aspects of tsunamis along the San Diego coastline, in Abbott, P.L. and Elliott, W.J., Earthquakes and Other Perils: Geological Society of America field trip guidebook.
22. Various Aerial Photographs.

APPENDIX B

General Earthwork and Grading Specifications

1.0 General Intent

These specifications are presented as general procedures and recommendations for grading and earthwork to be utilized in conjunction with the approved grading plans. These general earthwork and grading specifications are a part of the recommendations contained in the geotechnical report and shall be superseded by the recommendations in the geotechnical report in the case of conflict. Evaluations performed by the consultant during the course of grading may result in new recommendations which could supersede these specifications or the recommendations of the geotechnical report. It shall be the responsibility of the contractor to read and understand these specifications, as well as the geotechnical report and approved grading plans.

2.0 Earthwork Observation and Testing

Prior to commencement of grading, a qualified geotechnical consultant should be employed for the purpose of observing earthwork procedures and testing the fills for conformance with the recommendations of the geotechnical report and these specifications. It shall be the responsibility of the contractor to assist the consultant and keep him apprised of work schedules and changes, at least 24 hours in advance, so that he may schedule his personnel accordingly. No grading operations should be performed without the knowledge of the geotechnical consultant. The contractor shall not assume that the geotechnical consultant is aware of all grading operations.

It shall be the sole responsibility of the contractor to provide adequate equipment and methods to accomplish the work in accordance with the applicable grading codes and agency ordinances, recommendations in the geotechnical report and the approved grading plans not withstanding the testing and observation of the geotechnical consultant If, in the opinion of the consultant, unsatisfactory conditions, such as unsuitable soil, poor moisture condition, inadequate compaction, adverse weather, etc., are resulting in a quality of work less than recommended in the geotechnical report and the specifications, the consultant will be empowered to reject the work and recommend that construction be stopped until the conditions are rectified.

Maximum dry density tests used to evaluate the degree of compaction shouls be performed in general accordance with the latest version of the American Society for Testing and Materials test method ASTM D1557.

3.0 Preparations of Areas to be Filled

3.1 Clearing and Grubbing: Sufficient brush, vegetation, roots and all other deleterious material should be removed or properly disposed of in a method acceptable to the owner, design engineer, governing agencies and the geotechnical consultant.

The geotechnical consultant should evaluate the extent of these removals depending on specific site conditions. In general, no more than 1 percent (by volume) of the fill material should consist of these materials and nesting of these materials should not be allowed.

3.2 Processing: The existing ground which has been evaluated by the geotechnical consultant to be satisfactory for support of fill, should be scarified to a minimum depth of 6 inches. Existing ground which is not satisfactory should be overexcavated as specified in the following section. Scarification should continue until the soils are broken down and free of large clay lumps or clods and until the working surface is reasonably uniform, flat, and free of uneven features which would inhibit uniform compaction.

3.3 Overexcavation: Soft, dry, organic-rich, spongy, highly fractured, or otherwise unsuitable ground, extending to such a depth that surface processing cannot adequately improve the condition, should be overexcavated down to competent ground, as evaluated by the geotechnical consultant. For purposes of determining quantities of materials overexcavated, a licensed land surveyor / civil engineer should be utilized.

3.4 Moisture Conditioning: Overexcavated and processed soils should be watered, dried back, blended and / or mixed, as necessary to attain a uniform moisture content near optimum.

3.5 Recompaction: Overexcavated and processed soils which have been properly mixed, screened of deleterious material and moisture-conditioned should be recompacted to a minimum relative compaction of 90 percent or as otherwise recommended by the geotechnical consultant.

3.6 Benching: Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical), the ground should be stepped or benched. The lowest bench should be a minimum of 15 feet wide, at least 2 feet into competent material as evaluated by the geotechnical consultant. Other benches should be excavated into competent material as evaluated by the geotechnical consultant. Ground sloping flatter than 5:1 should be benched or otherwise overexcavated when recommended by the geotechnical consultant.

3.7 Evaluation of Fill Areas: All areas to receive fill, including processed areas, removal areas and toe-of-fill benches, should be evaluated by the geotechnical consultant prior to fill placement.

4.0 Fill Material

4.1 General: Material to be placed as fill should be sufficiently free of organic matter and other deleterious substances, and should be evaluated by the geotechnical consultant prior to placement. Soils of poor gradation, expansion, or strength characteristics should be placed as recommended by the geotechnical consultant or mixed with other soils to achieve satisfactory fill material.

4.2 Oversize: Oversize material, defined as rock or other irreducible material with a maximum dimension of greater than 6 inches, should not be buried or placed in fills, unless the location, materials and disposal methods are specifically recommended by the geotechnical consultant. Oversize disposal operations should be such that nesting of oversize material does not occur, and such that the oversize material is completely surrounded by compacted or densified fill. Oversize material should not be placed within 10 feet vertically of finish grade, within 2 feet of future utilities or underground construction, or within 15 feet horizontally of slope faces, in accordance with the attached detail.

4.3 Import: If importing of fill material is required for grading, the import material should meet the requirements of Section 4.1. Sufficient time should be given to allow the geotechnical consultant to observe (and test, if necessary) the proposed import materials.

5.0 Fill Placement and Compaction

5.1 Fill Lifts: Fill material should be placed in areas prepared and previously evaluated to receive fill, in near-horizontal layers approximately 6 inches in compacted thickness. Each layer should be spread evenly and thoroughly mixed to attain uniformity of material and moisture throughout.

5.2 Moisture Conditioning: Fill soils should be watered, dried-back, blended and/or mixed, as necessary to attain a uniform moisture content near optimum.

5.3 Compaction of Fill: After each layer has been evenly spread, moisture-conditioned and mixed, it should be uniformly compacted to no less than 90 percent of maximum dry density (unless otherwise specified). Compaction equipment should be adequately sized and be either specifically designed for soil compaction or of proven reliability, to efficiently achieve the specified degree and uniformity of compaction.

5.4 Fill Slopes: Compacting of slopes should be accomplished in addition to normal compacting procedures, by backrolling of slopes with sheepsfoot rollers at increments of 3 to 4 feet in fill elevation gain, or by other methods producing satisfactory results. At the completion of grading, the relative compaction of fill out to the slope face would be at least 90 percent.

5.5 Compaction Testing: Field tests of the moisture content and degree of compaction of the fill soils should be performed at the consultant's discretion based on file dconditions encountered. In general, the tests should be taken at approximate intervals of 2 feet in vertical rise and/or 1,000 cubic yards of compacted fill soils. In addition to, on slope faces, as a guideline approximately one test should be taken for every 5,000 square feet of slope face and /or each 10 feet of vertical height of slope.

6.0 Subdrain Installation

Subdrain systems, if recommended, should be installed in areas previously evaluated for suitability by the geotechnical consultant, to conform to the approximate alignment and details shown on the plans or herein. The subdrain location or materials should not be changed or modified unless recommended by the geotechnical consultant. The consultant however, may recommend changes in subdrain line or grade depending on conditions encountered. All subdrains should be surveyed by a licensed land surveyor / civil engineer for line and grade after installation. Sufficient time shall be allowed for the survey, prior to commencement of filling over the subdrains.

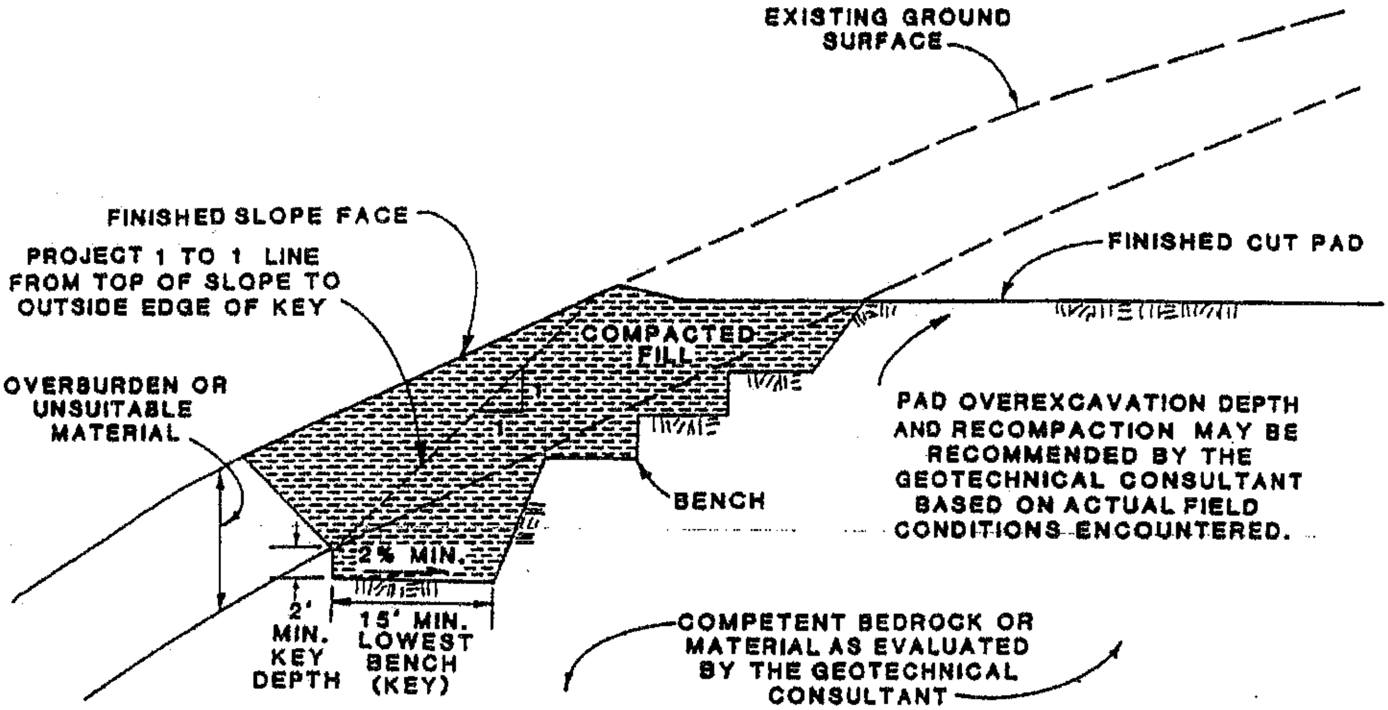
7.0 Excavation

Excavations and cut slopes should be evaluated by a representative of the geotechnical consultant (as necessary) during grading. If directed by the geotechnical consultant, further excavation, overexcavation and refilling of cut areas and/or remedial grading of cut slopes (i.e. stability fills or slope buttresses) may be recommended.

8.0 Quantity Determination

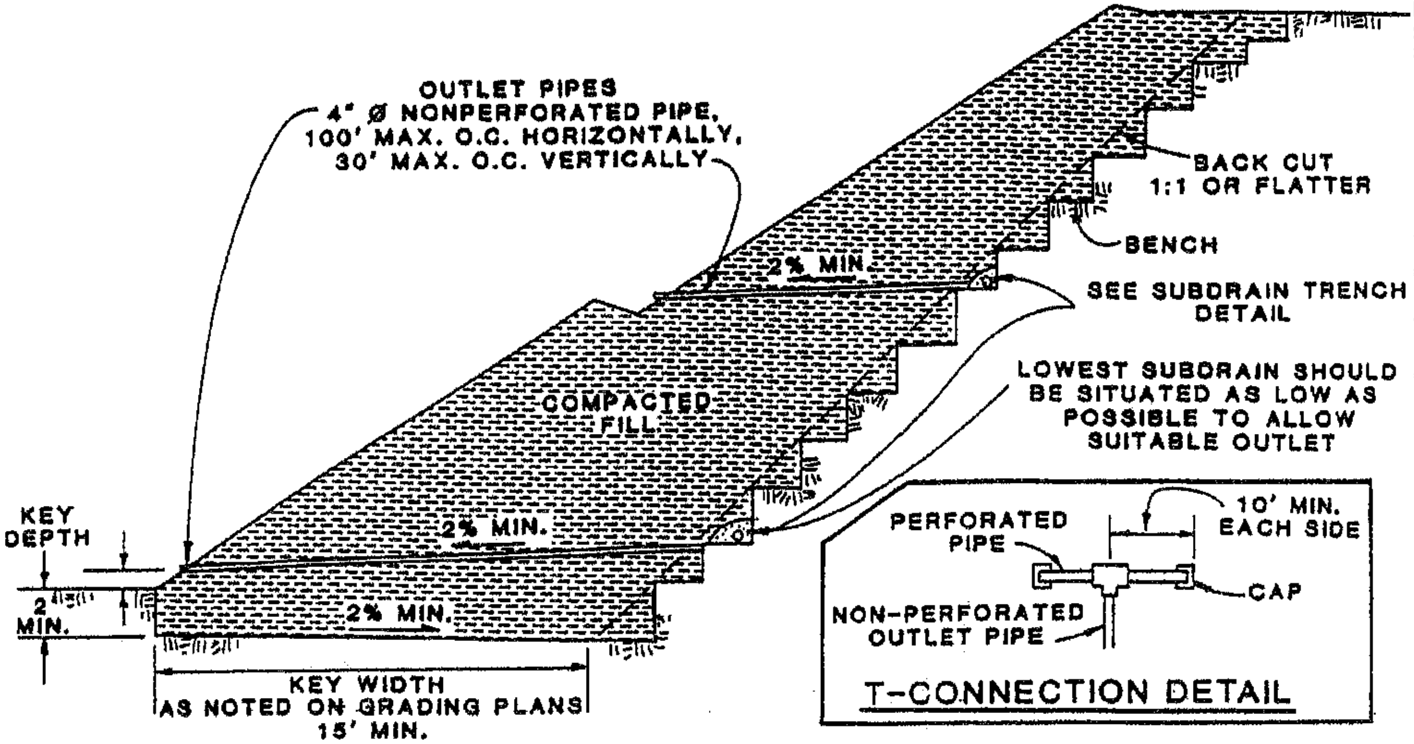
For purposes of determining quantities of materials excavated during grading and/or determining the limits of overexcavation, a licensed land surveyor / civil engineer should be utilized.

SIDE HILL STABILITY FILL DETAIL



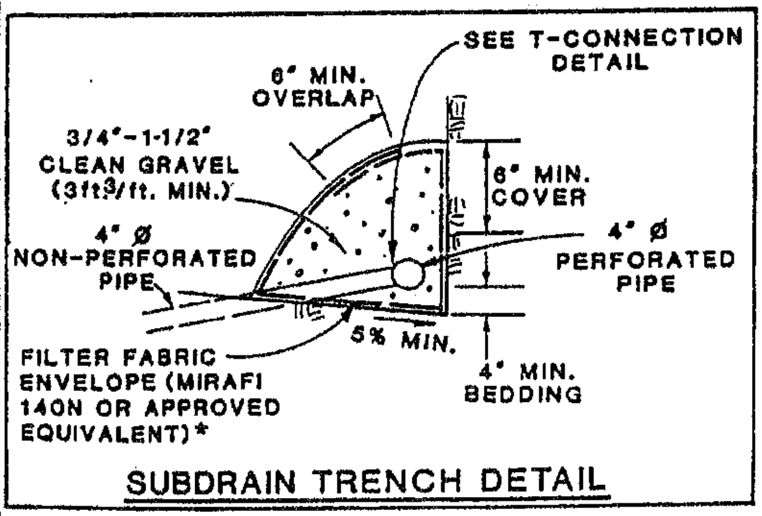
NOTE: Subdrain details and key width recommendations to be provided based on exposed subsurface conditions

STABILITY FILL / BUTTRESS DETAIL



T-CONNECTION DETAIL

* IF CALTRANS CLASS 2 PERMEABLE MATERIAL IS USED IN PLACE OF 3/4"-1-1/2" GRAVEL, FILTER FABRIC MAY BE DELETED



SUBDRAIN TRENCH DETAIL

SPECIFICATIONS FOR CALTRANS CLASS 2 PERMEABLE MATERIAL

U.S. Standard Sieve Size	% Passing
1"	100
3/4"	90-100
3/8"	40-100
No. 4	25-40
No. 8	18-33
No. 30	5-15
No. 50	0-7
No. 200	0-3

Sand Equivalent>75

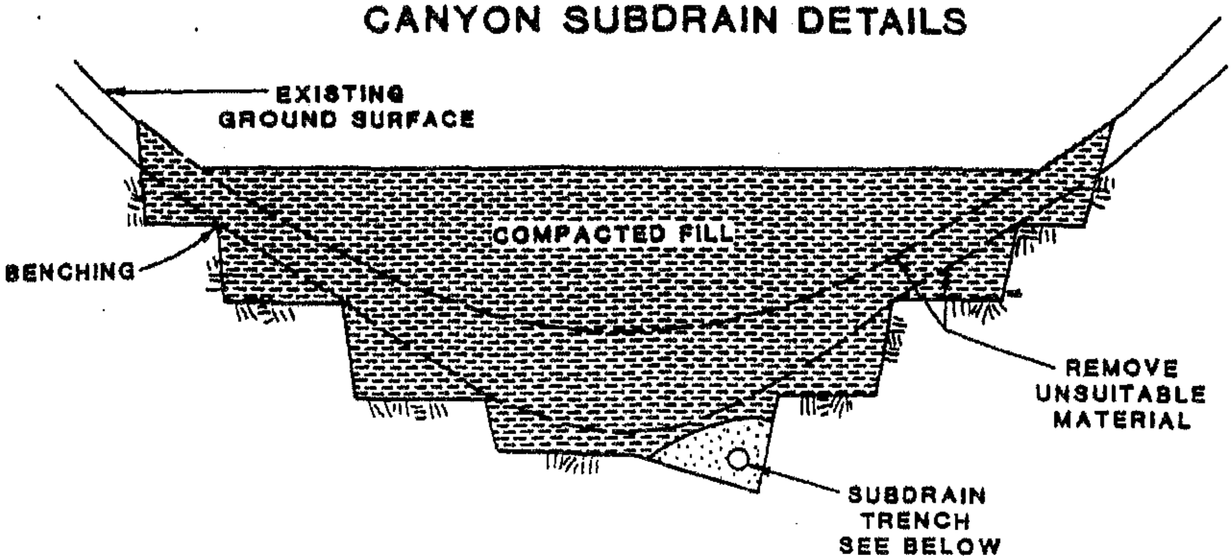
NOTES:

For buttress dimensions, see geotechnical report/plans. Actual dimensions of buttress and subdrain may be changed by the geotechnical consultant based on field conditions.

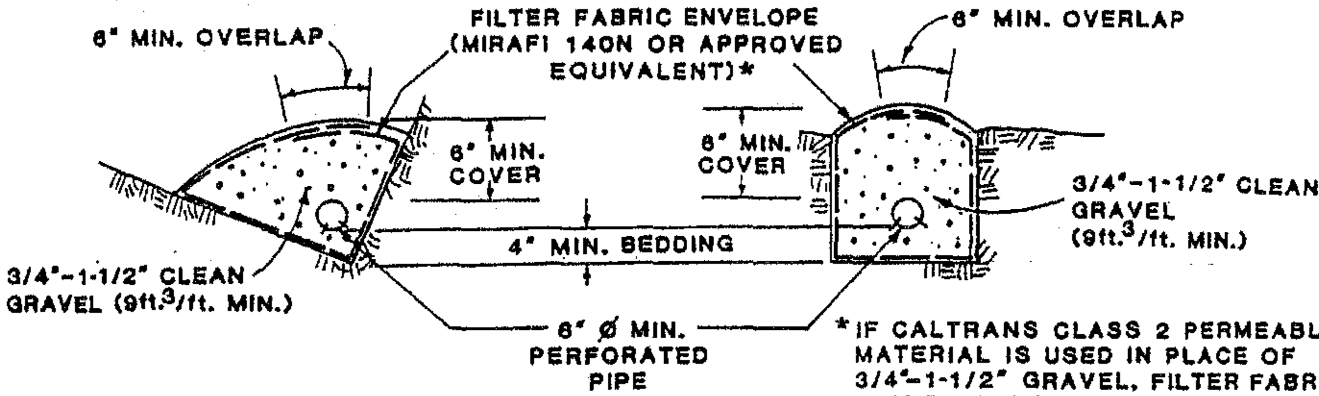
SUBDRAIN INSTALLATION-Subdrain pipe should be installed with perforations down as depicted. At locations recommended by the geotechnical consultant, nonperforated pipe should be installed

SUBDRAIN TYPE-Subdrain type should be Acrylon trile Butadiene Styrene (A.B.S.), Polyvinyl Chloride (PVC) or approved equivalent. Class 125, SDR 32.5 should be used for maximum fill depths of 35 feet. Class 200, SDR 21 should be used for maximum fill depths of 100 feet.

CANYON SUBDRAIN DETAILS

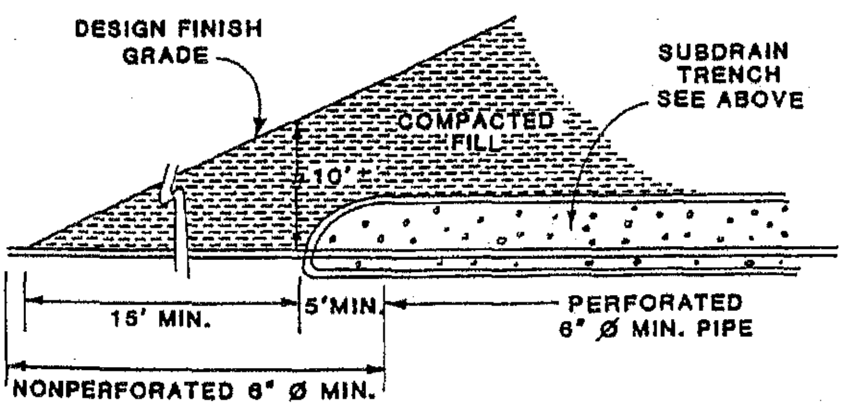


SUBDRAIN TRENCH DETAILS



*IF CALTRANS CLASS 2 PERMEABLE MATERIAL IS USED IN PLACE OF 3/4"-1-1/2" GRAVEL, FILTER FABRIC MAY BE DELETED

DETAIL OF CANYON SUBDRAIN TERMINAL



SPECIFICATIONS FOR CALTRANS CLASS 2 PERMEABLE MATERIAL

U.S. Standard Sieve Size	% Passing
1"	100
3/4"	90-100
3/8"	40-100
No. 4	25-40
No. 8	18-33
No. 30	5-15
No. 50	0-7
No. 200	0-3

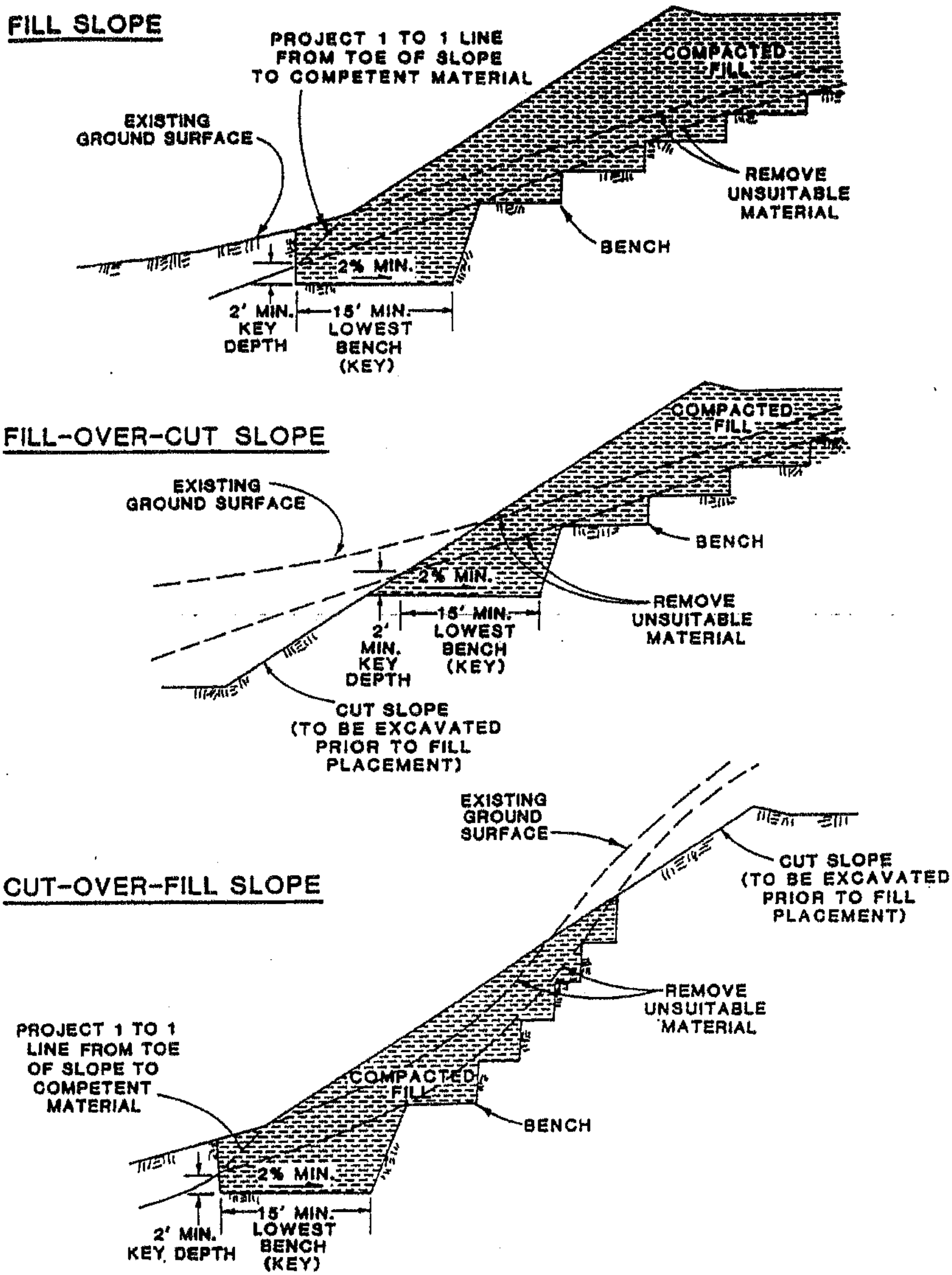
Sand Equivalent >75

Subdrain should be constructed only on competent material as evaluated by the geotechnical consultant.

SUBDRAIN INSTALLATION Subdrain pipe should be installed with perforations down as depicted. At locations recommended by the geotechnical consultant, nonperforated pipe should be installed.

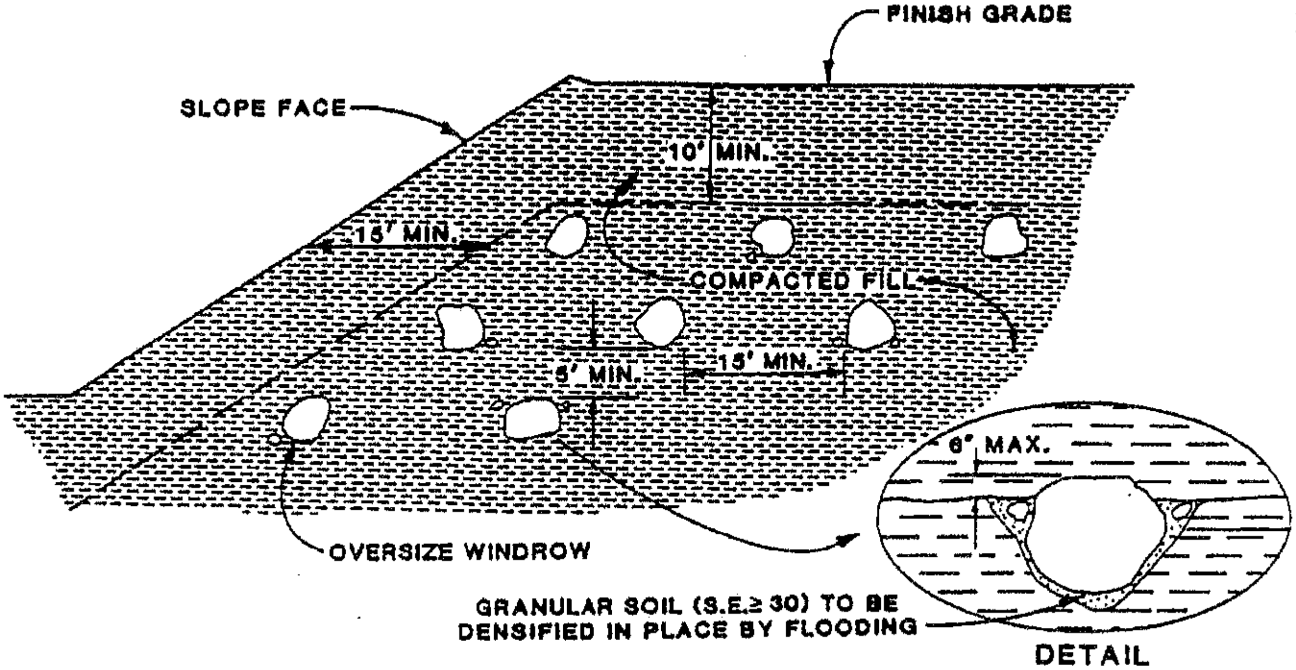
SUBDRAIN TYPE–Subdrain type should be Acrylonitrile Butadiene Styrene (A.B.S.), Polyvinyl Chloride (PVC) or approved equivalent. Class 125, SDR 32.5 should be used for maximum fill depths of 35 feet. Class 200, SDR 21 should be used for maximum fill depths of 100 feet.

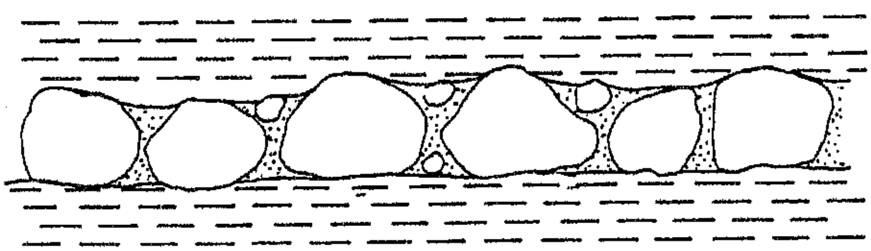
KEY AND BENCHING DETAILS



NOTE: Back drain may be recommended by the geotechnical consultant based on actual field conditions encountered. Bench dimension recommendations may also be altered based on field conditions encountered.

ROCK DISPOSAL DETAIL





TYPICAL PROFILE ALONG WINDROW

1) Rock with maximum dimensions greater than 6 inches should not be used within 10 feet vertically of finish grade (or 2 feet below depth of lowest utility whichever is greater), and 15 feet horizontally of slope faces.

2) Rocks with maximum dimensions greater than 4 feet should not be utilized in fills.

3) Rock placement, flooding of granular soil, and fill placement should be observed by the geotechnical consultant.

4) Maximum size and spacing of windrows should be in accordance with the above details Width of windrow should not exceed 4 feet. Windrows should be staggered vertically (as depicted).

5) Rock should be placed in excavated trenches. Granular soil (S.E. greater than or equal to 30) should be flooded in the windrow to completely fill voids around and beneath rocks.

APPENDIX C

LABORATORY RESULTS

Method Cal-Trans

Analyte	Result	Reporting Limit	Units	Dilution	Method
SULFATE	60.1	n/a	ppm	1	CT 417
CHLORIDE	36.6	n/a	ppm	1	CT 422
p.H.	6.98	n/a	pH units	1	CT 643
RESISTIVITY	6860	n/a	ohms.com	1	CT 643

ND=None detected – us/cm = micro Siemens per centimeter - ppm-parts per million

(10,000ppm=1% by weight)

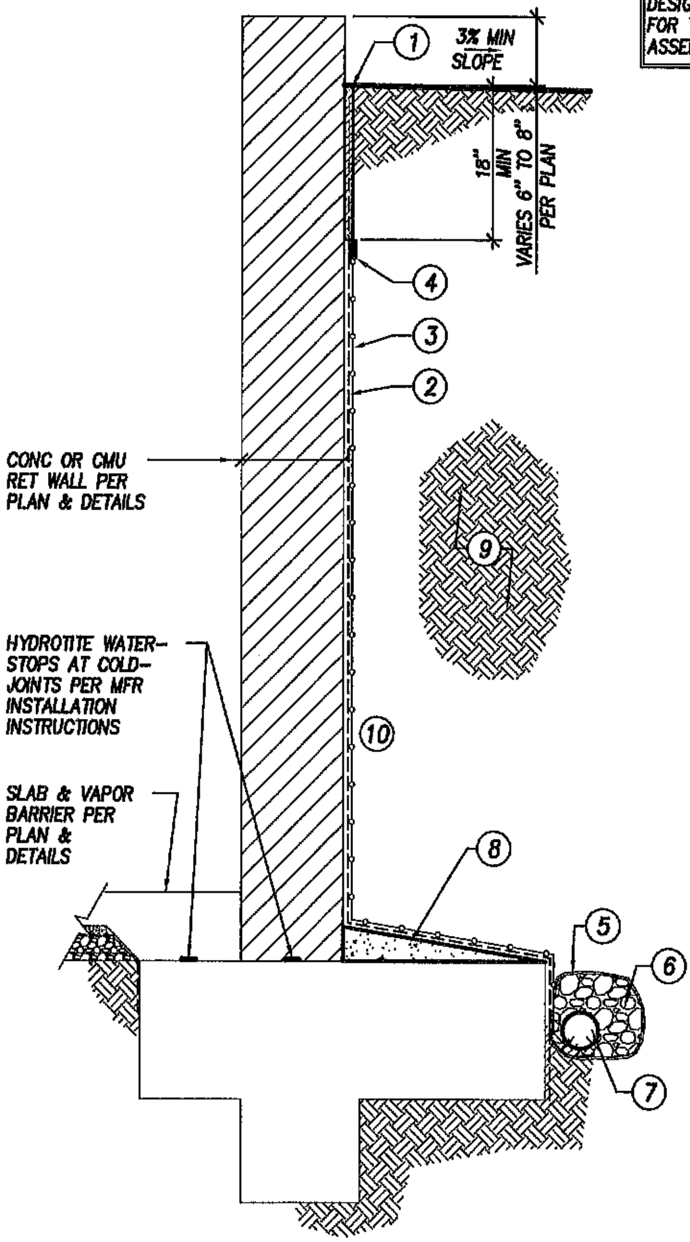
APPENDIX D

ENGINEERING DESIGN GROUP
2121 MONTIEL ROAD
SAN MARCOS, CALIFORNIA 92069
PHONE: (760) 839-7302
FAX: (760) 480-7477

MINIMUM RETAINING WALL WATERPROOFING & DRAINAGE DETAIL

(NOT TO SCALE)

NOTE: THIS DETAIL REPRESENTS THE MINIMUM WALL DRAINAGE AND WATERPROOFING APPLICATION TO SATISFY THE STRUCTURAL DESIGN INTENT OF THE RETAINING WALL. THE ARCHITECT OR DESIGNER OF RECORD FOR THE PROJECT SHALL BE RESPONSIBLE FOR THE DESIGN AND SPECIFICATION OF THE WATERPROOFING ASSEMBLY.



1. FOAM UV PROTECTION BOARD PER MANUFACTURER'S SPECIFICATION
2. WATERPROOFING INSTALLED PER MANUFACTURER'S SPECIFICATIONS & EXTEND BEHIND BACKER BOARD.
3. BACKDRAIN, INSTALLED PER MANUFACTURER'S SPECIFICATIONS OVER WATERPROOFING.

   ANY PENETRATIONS OF WATERPROOFING SHALL BE BROUGHT TO THE ATTENTION OF THE WATERPROOFING CONSULTANT/MANUFACTURER IN ADVANCE AND SEALED PER MANUFACTURERS SPECIFICATIONS.

   WATERPROOFING INSTALLED PER MANUFACTURER'S SPECIFICATIONS

4. TERMINATION BAR PER MANUFACTURER'S SPECIFICATIONS
5. FILTER FABRIC W/ 6" MIN LAP
6. 3/4" GRAVEL (1 SF / FT)
7. 4" DIA PERFORATED DRAIN LINE (SCH 40 OR EQUIV.) PERFORATIONS ORIENTED DOWN 1% MINIMUM GRADIENT TO SUITABLE OUTLET - EXACT PIPE LOCATION TO BE DETERMINED BY SITE CONSTRAINTS
8. 4" TALL CONCRETE CANT @ FTG / WALL CONNECTION (UNDER WATERPROOFING). SLOPE TO BACK EDGE OF FOOTING.
9. COMPACTED BACKFILL 90% MIN RELATIVE COMPACTION IN ALL OTHER AREAS U.O.N. 6" MAX LIFTS. ONLY LIGHTWEIGHT HAND-OPERATED EQUIPMENT SHALL BE USED WITHIN 3 FEET OF THE BACK FACE OF WALL.
10. CSP ROUGHNESS OF WALL SHALL COMPLY WITH WATERPROOFING MANUFACTURER'S SPECIFICATIONS.

ENGINEERING DESIGN GROUP
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2121 Montiel Road, San Marcos, CA 92069
760.839.7302

Date: March 13, 2018.

To: Hillside View LLC
c/o Alejandro Doring
2750 Costebelle Drive
La Jolla, CA 92037
P: 858.349.3355
E: alejandrodoring@hotmail.com

Re: Proposed new residential development to be located to 7687 Hillside Drive, La Jolla, California.

Subject: Addendum No. 1

1.0 PURPOSE

We have prepared the following addendum to our original report (Appendix A, Reference No. 1), to address City comments as outlined in the City Geology comments letter (Appendix A, Reference No. 2). Additional subsurface investigation of the site was performed as part of the preparation of this addendum. We have included herein additional conclusions and recommendations pertaining to the development of the site; as well as the results of our additional subsurface investigation.

2.0 SITE AND PROJECT DESCRIPTION

At the time of this addendum the project scope has generally not changed from our original report (Appendix A, Reference No. 1). The site consists of two separate parcels located at 7687 Hillside Drive, in La Jolla Community of the City of San Diego, California. For the purposes of this report the sites are assumed to face south. The properties are bordered to the east, west and north by single-family custom estate homes and to the south by Hillside Drive. The properties consist of sloped terrain, generally descending east to west and south to north. The total elevation difference across both parcels is approximately 40 feet.

Based upon our review of the proposed preliminary site plan, we understand the proposed development will consist of the construction of one new residence (south property) and additions and remodel to the existing residence on the property to the rear (north). Each residence will be constructed with lower subterranean elements, crawl space and slab-on-grade floors.

3.0 *FIELD INVESTIGATION*

Our additional subsurface investigation consisted of the drilling of one large-diameter boring at the site. The boring extended to a maximum depth of 35 feet below adjacent grade and was logged by a geologist from our firm. Samples of soils were obtained for further analysis/laboratory testing. Soil types encountered within our large diameter boring are described as follows.

4.0 *SUBSURFACE CONDITIONS*

Fill soil and weathered profiles were encountered to an approximate depth of 3 to 18.5 feet below adjacent grade in our exploratory boring. Soil types encountered within our boring are described as follows:

4.1 Artificial Fill – Qal (per Kennedy and Tan, 2008)

Topsoil and fill were encountered at the upper approximately 5 feet in our exploratory boring. These materials consist of dark brown to brown to dark brownish gray, dry to moist, loose to medium dense silty sands and sandy silts. Additionally, roots, debris and cobbles were encountered. Fill soil materials described above classify as SW-SM per the Unified Soil Classification System, and based on visual observation, are considered to possess low to medium potential for expansion.

4.2 Alluvium/Colluvium - Qal (per Kennedy and Tan, 2008)

Alluvial and colluvial deposits were observed at depths approximately between 5 and 25 feet below adjacent grade in the boring. These materials consist of brown to light brown to reddish brown, moist, medium dense to dense silty sands/sandy silts to silty/clayey sands and sandy clays/silts with rounded cobbles in the lower approximately 23-25 feet. In general, these materials are not considered suitable for the support of building structures. Unsuitable soils materials described above classify as SW-SM per the Unified Soil Classification System, and based on visual observation, are considered to possess low to medium potential for expansion.

4.3 Point Loma Formation – Kp (per Kennedy and Tan, 2008)

Fine sandstone was found to underlie the alluvial and colluvial deposits. These materials consist of light greenish gray to dark greenish gray with traces of light brown and reddish brown, moist, very dense, silty sandstone to siltstone. In general, these materials are considered suitable for the support of structures and structural improvements in their present state, provided the recommendations of this addendum and our original report (Reference No. 1) are followed.

Detailed logs of our exploratory boring, as well as a depiction of its location, please see Attachment No. 1 - Geologic Map and Boring-Log-No. 1 (Sheets 1 and 2).

5.0 <u>GEOLOGIC HAZARDS</u>

5.1 LANDSLIDES

As stated in our original report (Appendix A, Reference No.1 of addendum), we have reviewed the City of San Diego Seismic Safety Study, which identifies the site as Geologic Hazard Category 27, a category described as having "Slide-Prone Formations". Our review of the Geologic Map of the San Diego 30'x60' Quadrangle Map (Kennedy, Siang, 2008 - Reference No. 10 of our original report) indicates the area in and around the subject site is mapped as landslide/landslide deposits. Additionally, DMG Open-file Report 95-04, Landslide Hazards in the Southern Part of the San Diego County Metropolitan Area (Appendix A, Reference No. 3 of addendum), indicates the area in and around the subject site as having questionable landslide deposits.

In addition to published geologic maps, we have reviewed geotechnical/geologic reports on file with the City of San Diego associated with adjacent developments. Of the reports available for review, none reported indications of landslide.

5.2 FAULTS

As indicated in our original report, our review of geologic literature pertaining to the general site area indicated that the subject site is not within a mapped Alquist-Priolo Fault-Rupture Hazard Zone. As stated in our original report (Appendix A, Reference No. 1) there are no known major or "active" faults across the site. The site is located in an area of "active faulting". The nearest known active faults are the Rose Canyon fault located less than 1500 feet to the northwest of the site. The Coronado Banks fault, located offshore approximately 15 miles west, the Elsinore fault, located approximately 42 miles northeast of the site and the San Andres fault located approximately 70 miles northeast of the site.

5.3 GROUNDWATER

Static ground water was not encountered during our additional limited subsurface investigation.

Groundwater is not anticipated to pose a significant constraint to construction, however based upon our experience, perched groundwater conditions can develop where no such condition previously existed. Perched groundwater conditions can develop over time and can have a significant impact. Waterproofing membrane shall be specifically detailed by waterproofing consultant. If groundwater conditions are encountered during site excavations, a slab underdrain system may be required. Trenches below slab should be detailed with perimeter and trench cut-off walls keyed into competent material

5.4 LIQUEFACTION, LATERAL SETTLEMENT, SUBSIDENCE

Liquefaction of cohesionless soils can be caused by strong vibratory motion due to earthquakes. Research and historical data indicate that loose, granular soils underlain by a near-surface ground water table are most susceptible to liquefaction, while the stability of most silty sands and clays is not adversely affected by vibratory motion. Because of the dense nature of the soil materials underlying the site and the lack of near surface water, the potential for lateral spreading, liquefaction, subsidence or seismically-induced dynamic settlement at the site is considered low. The effects of seismic shaking can be reduced by adhering to the most recent edition of the California Building Code and current design parameters of the Structural Engineers Association of California.

5.5 TSUNAMI

Tsunami are sea waves generated by submarine earthquakes, landslides or volcanic activity. Submarine earthquakes are common along the edge of the Pacific Ocean and coastal areas are subject to potential inundation by tsunami. Most of the tsunamis recorded on the San Diego Bay tidal gauge have only been a few tenths of a meter in height. The possibility of a destructive tsunami along the San Diego coastline is considered low. Tsunami or storm waves (associated with winter storms), even in conjunction with high tides, do not have the potential for inundations of the site.

6.0 SLOPE STABILITY

To address city comments regarding overall gross stability of the site, a computer-generated slope stability analysis of the site was performed. The slope stability was analyzed using Bishop and Jambu Simplified Methods with the Rocscience Slide computer program. The soil strength parameters used in our analysis are presented below. These conservative values are based on laboratory test results, our experience and our professional judgement.

Soil Type	Unit Weight (lbs/ft^3)	Friction Angle (Φ) (deg)	Cohesion (psf)
Artificial Fill	105	30	100
Alluvium/Colluvium	105	30	100
Point Loma Formation	115	33	400

7.0 CONCLUSIONS

We make the following preliminary conclusions with respect to the site development, as discussed and described herein, provided the recommendations of our original report (Appendix A, Reference No.1) and this addendum and all applicable codes are followed.

7.1 Based upon our slope stability analysis, it is our opinion that the existing site has a factor of safety 1.5 or greater against deep seated gross instability for the site development.

7.2 The site is safe from geologic hazards.

7.3 The proposed site improvements will not measurably destabilize adjacent properties if all recommendations and applicable codes are followed.

8.0 RECOMMENDATIONS

Based upon the conditions encountered in our additional subsurface investigation, we have provided the following additional recommendations.

8.1 EARTHWORK

We anticipate in the area of new buildings new foundations will be deepened through unsuitable soil profiles into competent sandstone/siltstone material, anticipated at 25+ feet. In the area of proposed new retaining walls, we recommend walls be constructed of MSE (mechanically stabilized earth) type retaining walls. We recommend a limited removal and recompaction in the area of new site retaining walls, as more specifically described below.

8.1.a. Site Preparation

Prior to any grading, the areas of proposed improvements should be cleared of surface and subsurface debris (including organic topsoil, vegetative and construction debris). Removed debris should be properly disposed of off-site prior to the commencement of any fill operations. Holes resulting from the removal of debris, existing structures, or other improvements, should be filled and compacted

8.1.b. Removals

In areas of new site retaining walls, all existing fill and undercut of approximately the upper 3 feet of colluvium/alluvium material beneath bottom of wall, shall be removed and recompacted. Onsite excavated fill materials are suitable for re-use as fill material during grading, provided they are cleaned of debris and oversize material in excess of 6 inches in diameter (oversize material is not anticipated) and free of contamination (including organics). Although not anticipated, prior to importing soils, they should be visually observed, sampled and tested at the borrow pit area to evaluate soils suitability as fill, they should have a low potential for expansion (EI<50).

8.1.c. Transitions

All settlement sensitive improvements should be constructed on uniform materials. We anticipate building foundations will be deepened through unsuitable profiles (approximately 25 feet) and founded on deepened foundation systems. In areas of site retaining walls we anticipate limited removal and recompaction beneath bottom of walls. In areas of removal and re-compaction, removal depths should be visually verified by a representative of our firm prior to placement of fill.

In areas of wall undercuts, undercuts should extend a minimum of 5 feet beyond the bottom of walls. Undercuts shall be made a minimum of 3 feet and a layer of geogrid may be necessary along the undercut bottom, as determined in the field during grading by geotechnical consultant.

8.1.d. Fills/Backfill

All fill/backfill material should be brought to approximately +2% of optimum moisture content and re-compacted to at least 90 percent relative compaction (based on ASTM D1557). Compacted fills should be cleaned of loose debris and oversize material more than 6 inches in diameter (oversize material is not anticipated), brought to near optimum moisture content, and re-compacted as described above.

Fills should generally be placed in lifts not exceeding 6-8 inches in thickness. Although not anticipated, imported soils should have a low potential for expansion (EI<50), free of debris and organic matter. Prior to importing soils, they should be visually observed, sampled and tested at the borrow pit area to evaluate soil suitability as fill

8.1.e. Slopes

Where new slopes are constructed permanent slopes may be cut to a face ratio of 2:1 (horizontal to vertical). Permanent fill slopes shall be placed at a maximum 2:1 slope face ratio. All temporary cut slopes shall be excavated in accordance with OSHA requirements and shall not undermine adjacent property or structures without proper shoring of excavation and/or structures. Subsequent to grading, planting or other acceptable cover should be provided to increase the stability of slopes, especially during the rainy season (October thru April).

8.1.f. Flatwork, Driveways and Parking Areas

In the area of exterior flatwork and driveways the upper 12 inches of concrete subgrade shall be ripped a minimum of 12 inches, moisture conditioned to near optimum moisture content and compacted to 90% minimum relative compaction (ASTM D1557 – latest edition).

8.2 DEEP FOUNDATIONS

As stated in our original report (Reference No. 1), we anticipate deep caisson foundations will be necessary at new building foundations. Any existing shallow foundations in the area of the additions/remodel, where new loads will be applied, shall be underpinned by deepened foundations through unsuitable profiles, into competent material. The following additional design parameters and recommendations may be utilized for new deep foundations founded on competent formational material.

8.2.a. Proposed new foundations are to be founded directly in competent sandstone/siltstone material, anticipated depth of 25 feet below adjacent grade.

8.2.b. Caissons should extend a minimum of 10 feet into competent sandstone/siltstone materials beyond the point of fixity. Skin friction values provided herein are to be used only for that portion of the caisson which lies below the point of fixity. Depth of fixity is anticipated to be at approximately 25 feet below adjacent grade and should be verified during field operations.

8.2.c. Caissons shall be designed with a lateral surcharge load of 500 pounds per linear foot applied to the grade beam.

8.2.d. Caissons should be designed based on an allowable skin friction - adhesion (neglecting caisson weight) for that portion of caisson lying below the point of fixity, to a maximum bearing capacity of 65 kip per caisson. Skin friction value to be confirmed based upon additional investigation in the area of proposed development. Designs with proposed vertical bearing greater than 65 kip (omitting caisson wt.). With skin friction design (only), the bottom of caisson excavation shall be cleaned utilizing driller cleaning bucket. Hand cleaning of excavation is not required. Cleanliness of caisson excavations are to be inspected prior to placement of steel.

8.2.e. Caissons may be designed using a passive earth pressure of 250 pcf below point of fixity only.

8.2.f. Caissons should be designed with a minimum diameter of 24 inches and be reinforced in accordance with the recommendations of the structural engineer.

8.2.g. For footings adjacent to slopes a minimum of 10 feet (competent sandstone/siltstone material) horizontal setback in competent material or properly compacted fill should be maintained. A setback measurement should be taken at the horizontal distance from the bottom of the footing to slope daylight. Where this condition cannot be met, it should be brought to the attention of the Engineering Design Group for review.

8.2.h. Caisson embedment into sandstone/siltstone and should be verified by a representative of this office prior to removal of excavation equipment, placing reinforcement or concrete.

8.2.i. Caissons shall not be out of plumb by more than 2% of their total length.

8.2.j. Caissons excavations should be cleaned of all loose soil debris subsequent to excavation and prior to the placement of reinforcing steel. The contractor should utilize a clean out bucket to remove loose debris in the bottom of the excavations.

8.2.k. All excavations should be performed in general accordance with the contents of this report, applicable codes, OSHA requirements and applicable city and/or county standards.

8.2.l. Caissons excavations should be continuously observed by representative of Engineering Design Group to verify depth of embedment and cleanliness of the excavation bottom.

8.2.m. The proper installation of caissons will be of great importance. Care in drilling, placement of steel, and the pouring of concrete will be essential to avoid excessive erosion of caissons boring walls within the upper fills.

8.2.n. Concrete placement by pumping or tremie tube may be considered. Both clean out and concrete placement should be addressed in the specifications. Caissons excavations should be observed by our office prior to the installation of reinforcement. Caissons excavations should be properly shored prior to allowing any personnel into the excavation

8.3 CORROSION AND VAPOR EMISSION

Refer to original report for specific recommendations.

8.4 CONCRETE SLAB-ON-GRADE

As noted in our original soils report, (Appendix A, Reference No. 1) building slab-on-grade floors are anticipated to be limited at lower subterranean elements. We anticipate new building slab-on-grade floors will be designed as structural slabs to span between caisson and grade-beam foundations. Where new concrete slabs on grade are anticipated in areas of concrete flatwork and driveway areas refer to the concrete slab-on-grade recommendations in our original geotechnical report.

8.5 RETAINING WALLS

Site and building retaining walls are anticipated as part of the development of each property. Removal, re-compaction and undercuts are anticipated at site retaining walls. Retaining walls shall be designed for additional lateral forces due to earthquake, where required by code, utilizing the following design parameters.

8.5.a. Retaining wall footings should be designed for a bearing capacity of 1,500 psf. All retaining wall footings are anticipated to be placed on recompacted fill material.

8.5.b. Unrestrained cantilever retaining walls should be designed using an active equivalent fluid pressure of 40 pcf. This assumes that granular, free draining material with low potential for expansion (E.I. <50) will be used for backfill, and that the backfill surface will be level. Where soil with potential for expansion is not low (E.I. >50) a new active fluid pressure will be provided by the project soils engineer. Backfill materials should be considered prior to the design of the retaining walls to ensure accurate detailing. We anticipate onsite material ***may*** be utilized as retaining wall backfill.

8.5.c. Where the backfill behind the wall is sloped at a maximum slope of 2:1 (H:V) an active equivalent fluid pressure of 50 pcf, shall be utilized.

8.5.d. Any other surcharge loadings shall be analyzed in addition to the above values. These surcharge loads shall include foundations, construction equipment, vehicular traffic, etc.

8.5.e. If the tops of retaining walls are restrained from movement, they should be designed for a uniform at-rest soil pressure of 65 psf.

8.5.f. Retaining walls shall be designed for additional lateral forces due to earthquake, where required by code, utilizing the following design parameters.

8.5.f.i Yielding Walls = $P_E = (3/8)\, k_{AE} (\pi)\, H^2$ - applied at a distance of 0.6 times the height (H) of the wall above the base.

8.5.f.ii Horizontal ground acceleration value $k_H = 0.32g$.

8.5.f.iii Where non-yielding retaining walls are proposed, the specific conditions should be brought to the attention of Engineering Design Group for alternative design values.

8.5.f.iv The unit weight of 120 pcf for the onsite soils may be utilized.

8.5.f.v The above design parameters assume unsaturated conditions. Retaining wall designs for sites with a hydrostatic pressure influence (i.e groundwater within depth of retaining wall or waterfront conditions) will require special design considerations and should be brought to the attention of Engineering Design Group.

8.5.g. A coefficient of friction of 0.30 between the soil and concrete footings may be utilized to resist lateral loads in addition to the passive earth pressures above.

8.5.h. Mechanically stabilized retaining walls may be designed with an angle of internal friction of 30 degrees.

8.5.i. All walls shall be provided with adequate back drainage to relieve hydrostatic pressure, and be designed in accordance with the minimum standards contained in the "Retaining Wall Drainage Detail", Appendix D. The waterproofing elements shown on our details are minimums, and are intended to be supplemented by the waterproofing consultant and/or architect. The recommendations should be reviewed in consideration of proposed finishes and usage, especially at basement levels, performance expectations and budget.

8.5.j. If deemed necessary by the project owner, based on the above analysis, and waterproofing systems can be upgraded to include slab under drains and enhanced waterproofing elements.

8.5.k. In moisture sensitive areas (i.e. interior living space where vapor emission is a concern), in our experience poured-in-place concrete provides a surface with higher performance-repairability of below grade waterproofing systems. The developer should consider the cost-benefit of utilizing cast in place building retaining walls in lieu of masonry as part of the overall construction of the commercial structure. Waterproofing at any basement floors is recommended in areas of moisture sensitive floor finishes.

9.0 SHORING

Based upon the preliminary site plan we anticipate shoring may be necessary along portions of the south and/or east property lines. Shoring design shall be based upon final building, grading and geotechnical recommendations. We make the following general recommendations with respect to shoring detailing.

9.1 All shoring lagging shall extend to the bottom of the excavation.
9.2 All voids behind the shoring shall be filled with slurry or per shoring engineer recommendations.
9.3 Seams in the lagging shall be sealed so as not to allow the piping of granular material.

10.0 INFILTRATION

Bioretention/infiltration facilities shall maintain sufficient horizontal and vertical offset to the future structures to not create a groundwater condition. Infiltration facilities proposed within a 10-foot horizontal distance to a moisture sensitive structure should be lined with an impervious barrier, within the 10-foot zone.

Infiltration facilities should be offset from the top and toes of any slopes steeper than a 3:1 or lined with an impervious barrier. At tops of slopes minimum horizontal distance of 10 feet or a horizontal distance equal to the height of the slope, measured from the edge of infiltration basin to slope, up to a maximum of 40 horizontal feet. At the toe of new fill slopes infiltration facilities shall maintain a minimum 10 feet horizontal offset.

Where permeable pavers are proposed driveway areas. Specific paver detailing should be detailed and constructed per the minimum recommendations of the Interlocking Concrete Paver Institute and the specific concrete paver manufacturer, including edge restraints, minimum bedding specifications, base and subgrade requirements, installation tolerances, and drainage, etc. Where runoff and storm water is directed over permeable pavements and water is anticipated to flow through pavers into an aggregate base near and adjacent to foundations, detailing shall include systems to control and to prevent subsurface flow beneath the building. Generally, these systems, detailed as part of the specific building construction plans, may include the cut-off walls and underdrains.

Proper surface drainage and irrigation practices will play a significant role in the future performance of the project. Please note in the *Corrosion and Vapor Emission* section of this report for specific recommendations regarding water to cement ratio for moisture sensitive areas should be adhered. The project architect and/or waterproofing consultant shall specifically address waterproofing details.

11.0 SURFACE DRAINAGE

Refer to original report for specific recommendations.

12.0 LABORATORY TESTING

No additional laboratory testing was conducted as part of this addendum. Please refer to our original geotechnical report.

13.0 CONSTRUCTION OBSERVATION AND TESTING

The recommendations provided in this report are based on subsurface conditions disclosed by the investigation and our general experience in the project area. Interpolated subsurface conditions should be verified in the field during construction. The following items shall be conducted prior/during construction by a representative of Engineering Design Group in order to verify compliance with the geotechnical and civil engineering recommendations provided herein, as applicable. The project structural and geotechnical engineers may upgrade any condition as deemed necessary during the development of the proposed improvement(s).

13.1 Review of final approved grading and structural plans prior to the start of work for compliance with geotechnical recommendations.
13.2 Attendance of a pre-grade/construction meeting prior to the start of work.
13.3 Observation of keyways, subgrade and excavation bottoms.
13.4 Testing of any fill placed, including retaining wall backfill and utility trenches.
13.5 Observation of footing excavations prior to steel placement and removal of excavation equipment.
13.6 Field observation of any "field change" condition involving soils.
13.7 Walk through of final drainage detailing prior to final approval.

The project soils engineer may at their discretion deepen footings or locally recommend additional steel reinforcement to upgrade any condition as deemed necessary during site observations. Engineering Design Group shall, prior to the issuance of the certificate of occupancy, issue in writing that the above inspections have been conducted by a representative of their firm, and the design considerations of the project soils report have been met. The field inspection protocol specified herein is considered the minimum necessary for Engineering Design Group to have exercised due diligence in the soils engineering design aspect of this building. Engineering Design Group assumes no liability for structures constructed utilizing this report not meeting this protocol.

Before commencement of grading the Engineering Design Group will require a separate contract for quality control observation and testing. Engineering Design Group requires a minimum of 48 hours' notice to mobilize onsite for field observation and testing.

14.0 MISCELLANEOUS

It must be noted that no structure or slab should be expected to remain totally free of cracks and minor signs of cosmetic distress. The flexible nature of wood and steel structures allows them to respond to movements resulting from minor unavoidable settlement of fill or natural soils, the swelling of clay soils, or the motions induced from seismic activity. All of the above can induce movement that frequently results in cosmetic cracking of brittle wall surfaces, such as stucco or interior plaster or interior brittle slab finishes.

Data for this report was derived from surface and subsurface observations at the site and knowledge of local conditions. The recommendations in this report are based on our experience in conjunction with the limited soils exposed at this site. We believe that this information gives an acceptable degree of reliability for anticipating the behavior of the proposed improvement; however, our recommendations are professional opinions and cannot control nature, nor can they assure the soils profiles beneath or adjacent to those observed. Therefore, no warranties of the accuracy of these recommendations, beyond the limits of the obtained data, is herein expressed or implied. This report is based on the investigation at the described site and on the specific anticipated construction as stated herein. If either of these conditions is changed, the results would also most likely change. Man-made or natural changes in the conditions of a property can occur over a period. In addition, changes in requirements due to state of the art knowledge and/or legislation are rapidly occurring. As a result, the findings of this report may become invalid due to these changes. Therefore, this report for the specific site, is subject to review and not considered valid after a period of one year, or if conditions as stated above are altered.

It is the responsibility of the owner or his/her representative to ensure that the information in this report be incorporated into the plans and/or specifications and construction of the project. It is advisable that a contractor familiar with construction details typically used to deal with the local subsoil and seismic conditions be retained to build the structure.

If you have any questions regarding this report, or if we can be of further service, please do not hesitate to contact us. We hope the report provides you with necessary information to continue with the development of the project.

If you have any questions regarding this addendum, please feel free to contact our office.

Sincerely,
ENGINEERING DESIGN GROUP

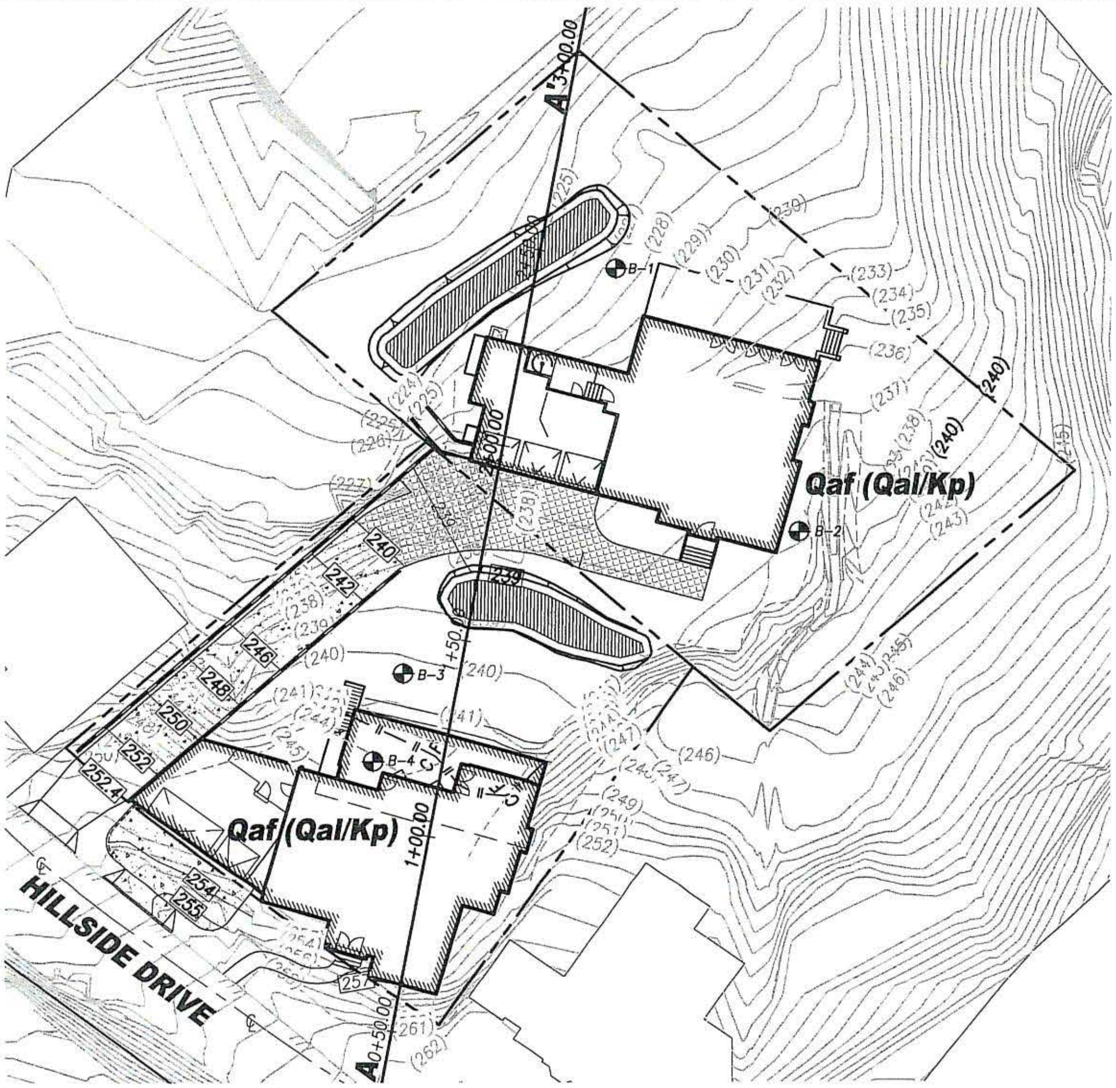
Steven Norris
California ***GE 2590, CEG 2263***

Erin E. Rist
California ***RCE 65122***

Attachments:

1.- Figures:
- Figure No.1; Geologic/Geotechnical Map
- Figure No.2; Geologic/Geotechnical Cross Section
- Boring Log No. 4

2.- Appendix A – References.



LEGEND

Qaf	Undocumented Artificial Fill – Qaf (buried units shown in parentheses)
Qal	Alluvium/Colluvium (Quaternary Age)
Kp	Point Loma Formation (Upper Cretaceous Age)
B–2	Exploratory Boring
A A'	Geologic Cross–Section

GEOLOGIC/ GEOTECHNICAL PLAN

30 0 30 60 90

SCALE 1" = 30 FT

N

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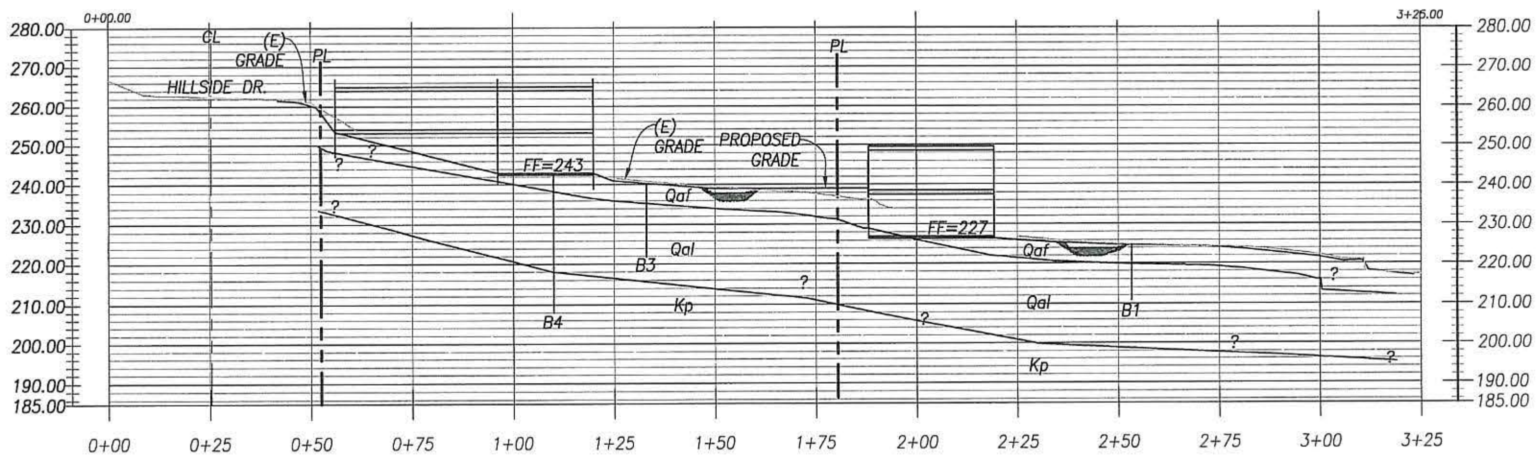
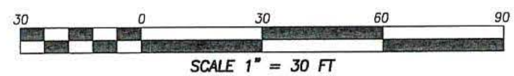
JOB NAME:	HILLSIDE VIEW LLC DEVELOPMENT
JOB ADDRESS:	7687 HILLSIDE DRIVE LA JOLLA, CA 92037
JOB NO.:	175728-1
DATE:	3-14-18 FIGURE NO.: 1



GEOLOGIC/GEOTECHNICAL SECTION A–A



JOB NAME:	HILLSIDE VIEW LLC DEVELOPMENT
JOB ADDRESS:	7687 HILLSIDE DRIVE LA JOLLA, CA 92037
JOB NO.:	175728-1
DATE:	3-14-18 FIGURE NO.: 2

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PROJECT NAME	HILLSIDE VIEW LLC – 7687 HILLSIDE DRIVE	LOG OF BORING No. B–4
PROJECT NUMBER	175728–1	
LOCATION	SEE BORING LOCATIONS MAP	SHEET 1 OF 2

DATE DRILLED	2–26–18	DRILLING METHOD AND TYPE OF RIG	BUCKET RIG	TOTAL DEPTH DRILLED (feet)	35.0
LOGGED BY	SN	BACKFILLED/CONVERTED TO WELL ON(date)	SAME DAY	APPROX SURFACE ELEVATION (feet)	FG
DIAMETER OF BORING	24"	GROUNDWATER LEVEL (feet BGS)	N/A	FIRST NONE	COMPLETION NONE
TYPE OF SAMPLER(S)	SPT / CALIFORNIA	TYPE OF HAMMER	12" DROP W/3500 LBS	WEIGHT (lbs) 140	DROP (in.) 30

DEPTH (feet)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	BLOWS FOR 12"	GRAPHIC LOG	MATERIAL DESCRIPTION AND NOTES	WATER CONTENT
0–5						**TOPSOIL/FILL/WEATHERED (af)** DARK BROWNISH GRAY TO DARK BROWN TO BROWN, DRY TO SLIGHTLY MOIST, LOOSE TO MEDIUM DENSE, SILTY SANDS AND SANDY SILTS. ORGANICS, DEBRIS AND COBBLES ENCOUNTERED.	
5						**ALLUVIUM/COLLUVIUM DEPOSITS (Qal)** BROWN TO LIGHT BROWN TO YELLOWISH BROWN, MOIST, MEDIUM DENSE, SILTY SANDS AND SANDY SILTS. ORGANICS.	
10	CALIFORNIA	B1–1	1,1	2		BROWN TO LIGHT BROWN, MOIST, MEDIUM DENSE, SILTY/CLAYEY SANDS TO SANDY CLAYS/SILTS.	
15						LIGHT BROWN TO BROWN TO REDDISH BROWN, MOIST, MEDIUM DENSE, SILTY/CLAYEY SANDS TO SANDY CLAYS/SILTS.	
20	CALIFORNIA	B1–2	1,1	2		BROWN TO YELLOWISH BROWN, MOIST, DENSE, SILTY/CLAYEY SANDS TO SANDY CLAYS/SILTS.	
22–25						TRANSITIONS FROM MOIST, MEDIUM DENSE, CLAYEY SANDS TO DARK GREENISH GRAY, MOIST, MEDIUM DENSE SANDY SILTS WITH COBBLES.	

ADDITIONAL NOTES / COMMENTS:

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760.839.7302
www.designgroupca.com

PROJECT NAME	HILLSIDE VIEW LLC – 7687 HILLSIDE DRIVE	LOG OF BORING No.	B–4
PROJECT NUMBER	175728–1		
LOCATION	SEE BORING LOCATIONS MAP		SHEET 2 OF 2

DATE DRILLED	**2–26–18**	DRILLING METHOD AND TYPE OF RIG	**BUCKET RIG**	TOTAL DEPTH DRILLED (feet)	**35.0**
LOGGED BY	**SN**	BACKFILLED/CONVERTED TO WELL ON(date) **SAME DAY**		APPROX SURFACE ELEVATION (feet)	**FG**
DIAMETER OF BORING	**24"**	GROUNDWATER LEVEL (feet BGS) **N/A**	FIRST **NONE**		COMPLETION **NONE**
TYPE OF SAMPLER(S)	**SPT** / **CALIFORNIA**	TYPE OF HAMMER **12" DROP W/3500 LBS**	WEIGHT (lbs) **140**		DROP (in.) **30**

DEPTH (feet)	SAMPLE	SAMPLE NUMBER	BLOW * COUNTS	BLOWS FOR 12"	GRAPHIC LOG	MATERIAL DESCRIPTION AND NOTES	WATER CONTENT
						LIGHT BROWNISH GRAY WITH TRACES OR BROWN, MOIST, SILTY SANDS AND SANDY SILTS WITH COBBLES.	
						BROWN TO LIGHT BROWN & YELLOWISH BROWN TRANSITIONS TO LIGHT GREENISH GRAY, MOIST, DENSE, SILTY SANDS AND SANDY SILTS.	
25	CALIFORNIA	B1–3	2,4	6		**POINT LOMA FORMATION (Kp)**	
						LIGHT GREENISH GRAY WITH TRACES OF LIGHT BROWN, MOIST, VERY DENSE, SLIGHTLY SANDY SILTSTONE.	
30	CALIFORNIA	B1–4	10,10	20		LIGHT GREENISH GRAY TO DARK GREENISH GRAY WITH TRACES OF LIGHT BROWN AND REDDISH BROWN, MOIST, VERY DENSE, SLIGHTLY SANDY SILTSTONE.	
						DARK GREENISH GRAY WITH TRACES OF REDDISH BROWN, MOIST, VERY DENSE, SLIGHTLY SANDY SILTSTONE.	
35						END OF EXCAVATION.	
40							
45							

ADDITIONAL NOTES / COMMENTS:

ENGINEERING DESIGN GROUP
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760 839.7302
www.designgroupca.com

APPENDIX A - REFERENCES

Addendum

1. "Preliminary Geotechnical Investigation and Foundation Recommendations proposed additions and remodel to existing residence and proposed new residence located at 7687 Hillside Drive, San Diego, California 92106", prepared by Engineering Design Group, dated October 31,2017.

2. City of San Diego Geology Comments by Patrick Thomas, Dated 12.01.2017.

3. California Department of Conservation, Division of Mines and Geology, DMG Open-File Report 95-04, Landslide Hazards in the Southern Part of the San Diego County Metropolitan Area, San Diego County, California – Landslide Hazard Identification Map No. 33 – La Jolla Quadrangle (Plate A), dated 1995.

Original Report

1. A. Doring Design, Preliminary Concept for Hillside 7687-A & B, Dated October 19, 2017.
2. Buchanan-Rahilly, Inc., Limited Soils Investigation, Proposed Flood Residence, Southeast Corner of Intersection of Soledad Ave. and Hillside Dr. Dated July 25, 1994.
3. California Geological Survey, Probabilistic Seismic Hazards Mapping Ground Motion Page.
4. California Department of Conservation, Division of Mines and Geology, Fault Rupture Zones in California, Special Publication 42, Revised 1990.
5. City of San Diego, Seismic Safety Study Geologic Hazards and Faults, Grid Tile Map 29, dated 4/3/2008.
6. Day, Robert W. 1999. Geotechnical and Foundation Engineering Design and Construction. McGraw Hill.
7. Geotechnics Incorporated, Addendum 2 to Geotechnical Update and Plan Review Proposed Single Family Residence, Hillside Drive. Dated January 30, 1995.
8. Greensfelder, R.W., 1974 Maximum Credible Rock Acceleration from Earthquakes in California Division of Mines and Geology, Map Sheet 23.
9. Kennedy, Michael P., Geologic Map of the La Jolla Quadrangle, San Diego County, California. Dated 1975. Plate 2A.
10. Kennedy Michael P., and Siang S. Tan, Geologic Map of the San Diego 30'x60x Quadrangle, California. Dated 2008.
11. Lee, L.J., 1977, Potential foundation problems associated with earthquakes in San Diego, in Abbott, P.L. and Victoria, J.K., eds. Geologic Hazards in San Diego, Earthquakes, Landslides, and Floods: San Diego Society of Natural History John Porter Dexter Memorial Publication.
12. Leighton and Associates, Preliminary Geotechnical Investigation for Proposed Residence on Hillside Drive, La Jolla Ca., Dated July 2, 1984.
13. Leighton and Associates, Geotechnical Investigation for Proposed Residence, 7666 Hillside Drive, P.M. 7723, Parcel 4, Lot 63, La Jolla Area, San Diego, CA. Dated November 9, 1984.
14. Pallamary & Associates, Topographic Survey for Job No. 16-1003, Dated 10-24-16.
15. Ploessel, M.R. and Slossan, J.E., 1974 Repeatable High Ground Acceleration from Earthquakes: California Geology, Vol. 27, No. 9, P. 195-199.
16. State of California, Fault Map of California, Map No. 1, Dated 1975.
17. State of California, Geologic Map of California, Map No. 1, Dated 1977.

18. Structural Engineers Association of Southern California (SEAOSC) Seismology Committee, Macroseminar Presentation on Seismically Induced Earth Pressure, June 8, 2006.

19. U.S. Army Corps of Engineers, 1985, Coast of California Storm and Tidal Waves Study, Shoreline Movement Data Report, Portuguese Point to Mexican Border, dated December

20. U.S. Army Corps of Engineers, 1985, Coast of California Storm and Tidal Waves Study, Coastal Cliff Sediments, San Diego Region (CCSTWS 87-2), dated June.

21. Van Dorn, W.G., 1979 Theoretical aspects of tsunamis along the San Diego coastline, in Abbott, P.L. and Elliott, W.J., Earthquakes and Other Perils: Geological Society of America field trip guidebook.

22. Various Aerial Photographs.

Date: July 16th, 2018

To: Hillside View LLC
c/o Alejandro Doring
2750 Costebelle Drive
La Jolla, CA 92037
P: 858.349.3355
E: alejandrodoring@hotmail.com

Re: Proposed new residential development to be located at 7687 Hillside Drive, La Jolla, California.

Subject: Addendum No. 2

Reference:

1. Engineering Design Group, Geotechnical Report, dated 10-31-2017
2. City of San Diego Review Comments, LDR-Geology, by Patrick Thomas, L64A-003B-2, dated 4-16-18

1.0 GEOLOGIC HAZARDS

Potential geotechnical hazards impacting the subject site are earthquakes/seismicity/faulting; liquefaction/seismically induced settlement; landsliding and tsunami. Our specific analysis of these hazards relative to the site and proposed improvements are as follows:

1.1 EARTHQUAKES/SEISMICITY/FAULTS

1.1.a. **GROUND SHAKING:** The subject property may be impacted by ground shaking due to seismic activity on any of the active faults in Southern California. The potential adverse impacts of ground shaking include ground rupture, soil liquefaction, earthquake induced land sliding, lateral spreading, and earthquake induced differential settlement. A detailed report of seismic hazards potentially impacting the site area are mapped by the State of California Department of Conservation. The impacts of seismicity and ground shaking can be addressed incorporating relevant industry and city grading standards into the site development, incorporating the specific recommendations of this report and utilization of applicable Seismic Ground Motion Values/Coefficients into the structural design of the on-site residences and improvements.

1.1.b. **FAULTING:** As indicated in our original report, our review of geologic literature pertaining to the general site area indicated that the subject site is not within a mapped Alquist-Priolo Fault-Rupture Hazard Zone or Tsunami Inundation Zone. As stated in our original report (Appendix A, Reference No. 1) there are no known major or "active" faults across the site. The site is located in an area of "active faulting". The nearest known active faults are the Rose Canyon fault located less than 1500 feet to the northwest of the site. The Coronado Banks fault located offshore approximately 15 miles west, the Elsinore fault located approximately 42 miles northeast of the site, and the San Andres fault located approximately 70 miles northeast of the site. Based upon our research and available historical information, it is our opinion the threat of faulting/ground rupture on the subject property is low/moderate, and no site-specific setback considerations are warranted.

1.2 LIQUEFACTION, LATERAL SETTLEMENT, SUBSIDENCE

Liquefaction of cohesionless soils can be caused by strong vibratory motion due to earthquakes. Research and historical data indicate that loose, granular soils underlain by a near-surface ground water table are most susceptible to liquefaction, while the stability of most silty sands and clays is not adversely affected by vibratory motion. Because of the dense nature of the soil materials underlying the site and the lack of near surface water, the potential for lateral spreading, liquefaction, subsidence or seismically-induced dynamic settlement at the site is considered low. The effects of seismic shaking can be reduced/managed by adhering to the most recent edition of the California Building Code, incorporating relevant industry and city grading standards into the site development, incorporating the specific recommendations of this report and utilization of applicable Seismic Ground Motion Values/Coefficients into the structural design of the on-site residents and improvements.

1.3 LANDSLIDES

As stated in our original report (Appendix A, Reference No.1 of addendum) and in addendum no.1 (Appendix A, Reference No.4 of addendum), we have reviewed the City of San Diego Seismic Safety Study, which identifies the site as Geologic Hazard Category 27, a category described as having "Slide-Prone Formations". Our review of the Geologic Map of the San Diego 30'x60' Quadrangle Map (Kennedy, Siang, 2008 - Reference No. 10 of our original report) indicates the area in and around the subject site is mapped as landslide/landslide deposits. Additionally, DMG Open-file Report 95-04, Landslide Hazards in the Southern Part of the San Diego County Metropolitan Area (Appendix A, Reference No. 3 of addendum), indicates the area in and around the subject site as having questionable landslide deposits.

In addition to published geologic maps, we have reviewed geotechnical/geologic reports on file with the City of San Diego associated with adjacent developments. Of the reports available for review, none reported indications of landslide for those properties located near the site. No indications of landsliding were identified during our geologic/geotechnical investigation of the property. Bedding orientations recorded during our investigation range lie in the range of N30E; 30SE and N38E; 25SE. **The geologic structure as mapped on the subject property was found to be favorably oriented relative to landslides and slope stability.** Based upon our slope stability analysis of the subject property (see section 4.0 – slope stability), which analyzed the proposed configuration of the project upon completion, the subject site will possess a slope stability factor of safety of greater than 1.5 for static (gross stability and shallow stability), and greater than 1.1 for pseudo-static (gross stability) conditions.

1.4 TSUNAMI

Tsunami are sea waves generated by submarine earthquakes, landslides or volcanic activity. Submarine earthquakes are common along the edge of the Pacific Ocean and coastal areas are subject to potential inundation by tsunami. Most of the tsunamis recorded on the San Diego Bay tidal gauge have only been a few tenths of a meter in height. The possibility of a destructive tsunami along the San Diego coastline is considered low. Tsunami or storm waves (associated with winter storms), even in conjunction with high tides, do not have the potential for inundations of the site.

Based upon the dense nature of on-site conditions and absence of shallow groundwater it is our opinion the potential for seismically induced ground settlement at the subject property is low.

2.0 ***SLOPE STABILITY***

2.1 SURFICIAL SLOPE STABILITY

Engineering Design Group has performed a Surficial Slope Stability analysis of natural and proposed graded slopes contemplated as part of propose site development. Our shallow slope stability analysis was conducted consistent with the "Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Landslide Hazards in California, ASCE Los Angeles Section, dated June 2002 – Surficial Slope Stability section".

Our visual reconnaissance of the subject slope did not reveal any past indications of surficial instability on the existing slopes on-site. Further, based upon discussions with the property owner, there has been no documented history of past surficial slope stability issues.

As part of this discretionary review, surficial slope stability was conducted utilizing laboratory testing performed on samples of nearby properties (available from City records and referenced in our original report), back calculation, as well as iterative calculations were performed. Based upon these methods, calculations utilizing minimum values of internal friction of 27 and 30 degrees and a cohesion of 150psf and 100psf, respectively indicate slopes, up to an inclination of 2:1, will possess a factor of safety of greater than 1.5, provided the recommendations of this report are implemented, on-site drainage conditions maintained, the slopes are not over irrigated, and rodent activity is adequately addressed. From a qualitative standpoint, this conclusion is consistent with historical slope performance.

Future slope performance will be greatly influenced by onsite drainage. As described in our original soils report (Reference 1) adequate drainage precautions at this site are imperative and will play a critical role on the future performance of the dwelling and improvements. Under no circumstances should water be allowed to pond against or adjacent to foundation walls, or tops of slopes.

2.2 GROSS SLOPE STABILITY

To address City comments regarding overall gross stability of the site, a computer-generated slope stability analysis of the site was performed. The slope stability was analyzed using Bishop and Jambu Simplified Methods with the Rocscience Slide computer program. The soil strength parameters used in our analysis are presented below. These conservative values are based on laboratory test results, our experience and our professional judgement. Slope analysis results are attached as Appendix B.

Soil Type	Unit Weight (lbs/ft^3)	Friction Angle (Φ) (deg)	Cohesion (psf)
Artificial Fill	115	27	100
Alluvium/Colluvium	115	27	100
Point Loma Formation	115	28	240

3.0 ***<u>CONCLUSIONS</u>***

We make the following preliminary conclusions with respect to the site development, as discussed and described herein, provided the recommendations of our original report (Appendix A, Reference No.1) and this addendum and all applicable codes are followed.

3.1 Based upon our slope stability analysis, it is our opinion that the existing site has a factor of safety 1.5 or greater against deep seated gross instability for the site development.

3.2 The site is safe from geologic hazards.

3.3 The proposed site improvements will not measurably destabilize adjacent properties if all recommendations and applicable codes are followed.

3.4 The observed and mapped geologic structure is favorable with respect to slope stability.

If you have any questions regarding this addendum, please feel free to contact our office.

Sincerely,
ENGINEERING DESIGN GROUP

Steven Norris
California ***GE 2590, CEG 2263***

Erin E. Rist
California ***RCE 65122***

Attachments:

1.- Figures:
    Figure No.1; Geologic/Geotechnical Map
    Figure No.2; Geologic/Geotechnical Cross Section
    Boring 4 - Revised
2.- Appendix A – References
3.- Appendix B – Slope Stability Analysis
4.- Appendix C – Laboratory Results

FIGURES

APPENDIX A - REFERENCES

Addendum

1. "Preliminary Geotechnical Investigation and Foundation Recommendations proposed additions and remodel to existing residence and proposed new residence located at 7687 Hillside Drive, San Diego, California 92106", prepared by Engineering Design Group, dated October 31,2017.

2. City of San Diego Geology Comments by Patrick Thomas, Dated 03/15/2018.

3. California Department of Conservation, Division of Mines and Geology, DMG Open-File Report 95-04, Landslide Hazards in the Southern Part of the San Diego County Metropolitan Area, San Diego County, California – Landslide Hazard Identification Map No. 33 – La Jolla Quadrangle (Plate A), dated 1995.

4. Engineering Design Group, Addendum No. 1, Proposed new residential development to be located at 7687 Hillside Drive, La Jolla, California. Dated March 13, 2018.

Original Report

1. A. Doring Design, Preliminary Concept for Hillside 7687-A & B, Dated October 19, 2017.

2. Buchanan-Rahilly, Inc., Limited Soils Investigation, Proposed Flood Residence, Southeast Corner of Intersection of Soledad Ave. and Hillside Dr. Dated July 25, 1994.

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6. Day, Robert W. 1999. Geotechnical and Foundation Engineering Design and Construction. McGraw Hill.

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8. Greensfelder, R.W., 1974 Maximum Credible Rock Acceleration from Earthquakes in California Division of Mines and Geology, Map Sheet 23.

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10. Kennedy Michael P., and Siang S. Tan, Geologic Map of the San Diego 30'x60x Quadrangle, California. Dated 2008.

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14. Pallamary & Associates, Topographic Survey for Job No. 16-1003, Dated 10-24-16.

15. Ploessel, M.R. and Slossan, J.E., 1974 Repeatable High Ground Acceleration from Earthquakes: California

Geology, Vol. 27, No. 9, P. 195-199.

16. State of California, Fault Map of California, Map No. 1, Dated 1975.

17. State of California, Geologic Map of California, Map No. 1, Dated 1977.

18. Structural Engineers Association of Southern California (SEAOSC) Seismology Committee, Macroseminar Presentation on Seismically Induced Earth Pressure, June 8, 2006.

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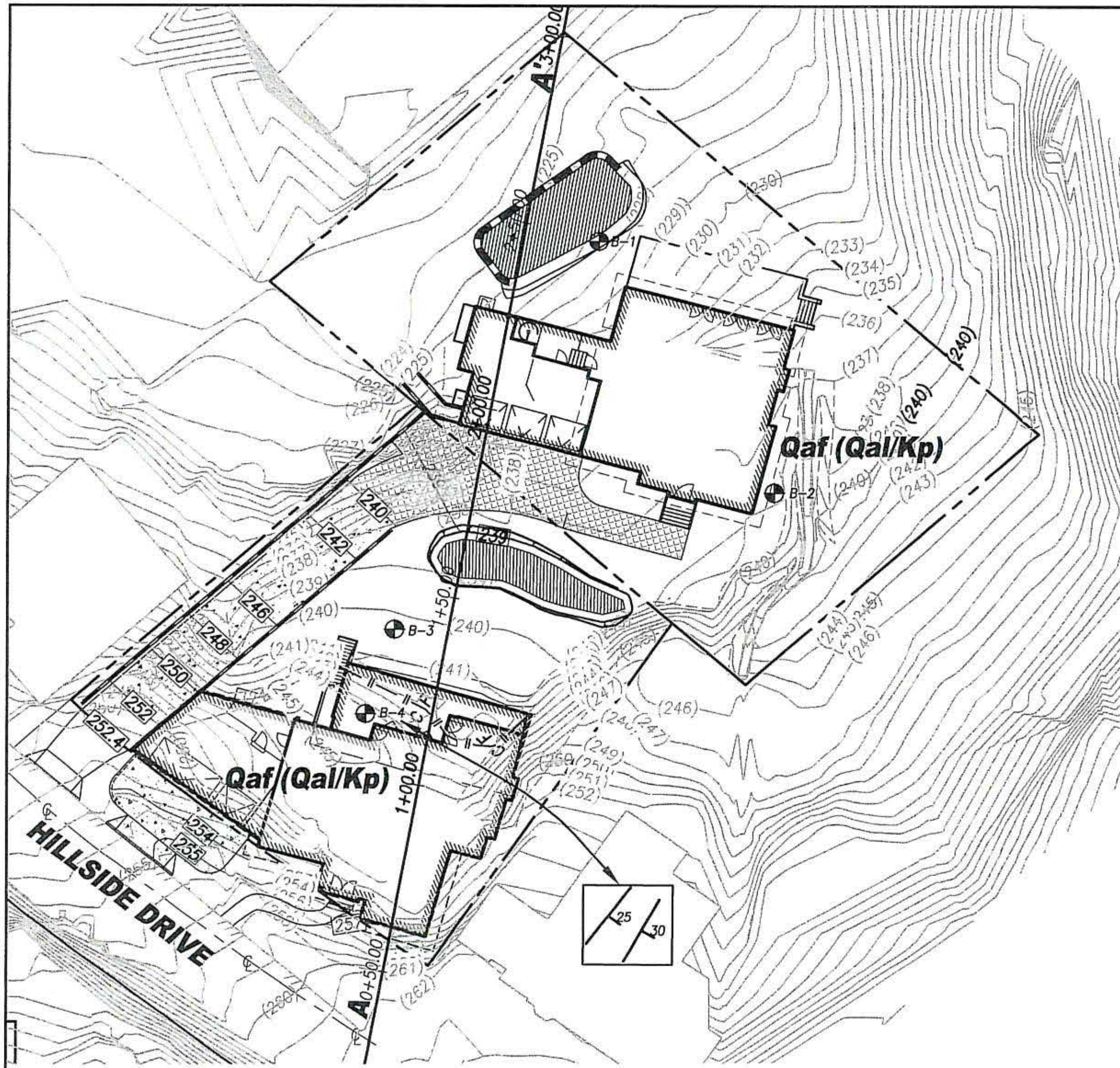
20. U.S. Army Corps of Engineers, 1985, Coast of California Storm and Tidal Waves Study, Coastal Cliff Sediments, San Diego Region (CCSTWS 87-2), dated June.

21. Van Dorn, W.G., 1979 Theoretical aspects of tsunamis along the San Diego coastline, in Abbott, P.L. and Elliott, W.J., Earthquakes and Other Perils: Geological Society of America field trip guidebook.

22. Various Aerial Photographs.



LEGEND

Qaf	Undocumented Artificial Fill – Qaf (buried units shown in parentheses)
Qal	Alluvium/Colluvium (Quaternary Age)
Kp	Point Loma Formation (Upper Cretaceous Age)
B-2	Exploratory Boring
A A'	Geologic Cross–Section
25	Strike and Dip of Bedding

GEOLOGIC/ GEOTECHNICAL PLAN

30 0 30 60 90

SCALE 1" = 30 FT

N

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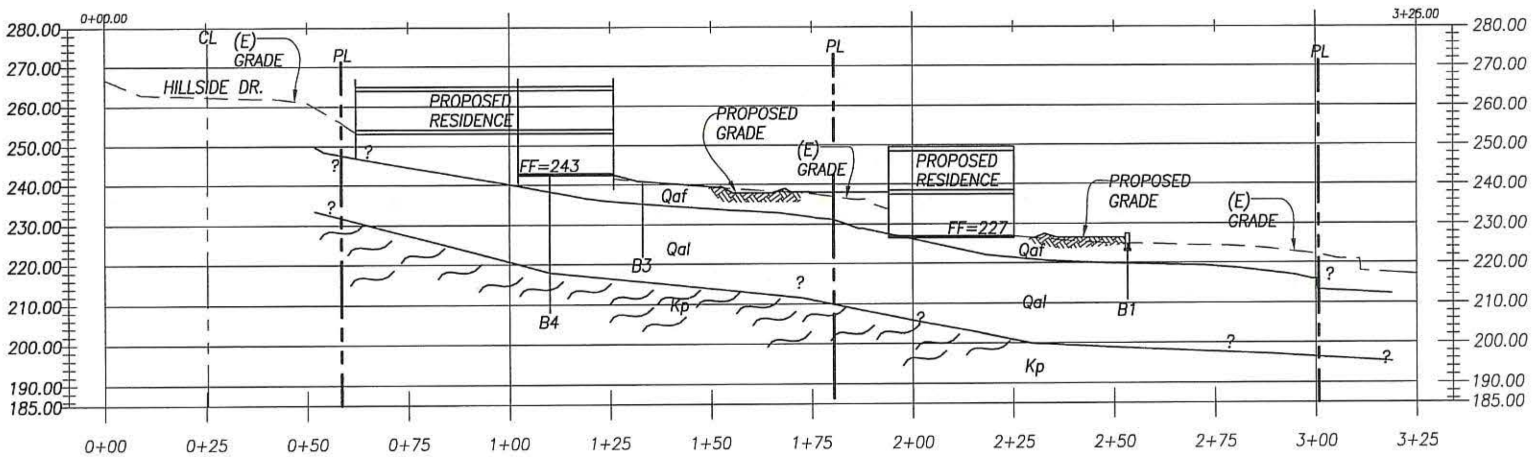
JOB NAME:	HILLSIDE VIEW LLC DEVELOPMENT
JOB ADDRESS:	7687 HILLSIDE DRIVE LA JOLLA, CA 92037
JOB NO.:	175728-1
DATE:	7-16-18 FIGURE NO.: 1



TREND/ ORIENTATION SECTION LINE N 10.5° E
(SEE PLAN VIEW FIGURE 1)

GEOLOGIC/GEOTECHNICAL SECTION A–A'

30 0 30 60 90

SCALE 1" = 30 FT

JOB NAME:	HILLSIDE VIEW LLC DEVELOPMENT
JOB ADDRESS:	7687 HILLSIDE DRIVE LA JOLLA, CA 92037
JOB NO.:	175728-1
DATE:	7-16-18 FIGURE NO.: 2

ENGINEERING DESIGN GROUP
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760.839.7302

PROJECT NAME	HILLSIDE VIEW LLC – 7687 HILLSIDE DRIVE	LOG OF BORING No.	B–4
PROJECT NUMBER	175728–1		
LOCATION	SEE BORING LOCATIONS MAP		SHEET 1 OF 2

DATE DRILLED: 2–26–18	DRILLING METHOD AND TYPE OF RIG: BUCKET RIG		TOTAL DEPTH DRILLED (feet): 35.0
LOGGED BY: SN	BACKFILLED/CONVERTED TO WELL ON(date): SAME DAY		APPROX SURFACE ELEVATION (feet): FG
DIAMETER OF BORING: 24"	GROUNDWATER LEVEL (feet BGS): N/A	FIRST: NONE	COMPLETION: NONE
TYPE OF SAMPLER(S): SPT, CALIFORNIA	TYPE OF HAMMER: 12" DROP W/3500 LBS	WEIGHT (lbs): 140	DROP (in.): 30

DEPTH (feet)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS	BLOWS FOR 12"	GRAPHIC LOG	MATERIAL DESCRIPTION AND NOTES	ATTI–TUDES
0–5						**TOPSOIL/FILL/WEATHERED (af)** DARK BROWNISH GRAY TO DARK BROWN TO BROWN, DRY TO SLIGHTLY MOIST, LOOSE TO MEDIUM DENSE, SILTY SANDS AND SANDY SILTS. ORGANICS, DEBRIS AND COBBLES ENCOUNTERED.	
5						**ALLUVIUM/COLLUVIUM DEPOSITS (Qal)** BROWN TO LIGHT BROWN TO YELLOWISH BROWN, MOIST, MEDIUM DENSE, SILTY SANDS AND SANDY SILTS. ORGANICS.	
10	CALIFORNIA	B1–1	1,1	2		BROWN TO LIGHT BROWN, MOIST, MEDIUM DENSE, SILTY/CLAYEY SANDS TO SANDY CLAYS/SILTS.	
15						LIGHT BROWN TO BROWN TO REDDISH BROWN, MOIST, MEDIUM DENSE, SILTY/CLAYEY SANDS TO SANDY CLAYS/SILTS.	
20	CALIFORNIA	B1–2	1,1	2		BROWN TO YELLOWISH BROWN, MOIST, DENSE, SILTY/CLAYEY SANDS TO SANDY CLAYS/SILTS.	
22–25						TRANSITIONS FROM MOIST, MEDIUM DENSE, CLAYEY SANDS TO DARK GREENISH GRAY, MOIST, MEDIUM DENSE SANDY SILTS WITH COBBLES.	N30°E/30SE

ADDITIONAL NOTES / COMMENTS:

ENGINEERING DESIGN GROUP

PROJECT NAME	HILLSIDE VIEW LLC – 7687 HILLSIDE DRIVE	LOG OF BORING No.	B–4
PROJECT NUMBER	175728–1		
LOCATION	SEE BORING LOCATIONS MAP		SHEET 2 OF 2

DATE DRILLED 2–26–18	DRILLING METHOD AND TYPE OF RIG BUCKET RIG	TOTAL DEPTH DRILLED (feet) 35.0
LOGGED BY SN	BACKFILLED/CONVERTED TO WELL ON(date) SAME DAY	APPROX SURFACE ELEVATION (feet) FG

DIAMETER OF BORING 24"	GROUNDWATER LEVEL (feet BGS) N/A	FIRST NONE	COMPLETION NONE
TYPE OF SAMPLER(S) SPT / CALIFORNIA	TYPE OF HAMMER 12" DROP W/3500 LBS	WEIGHT (lbs) 140	DROP (in.) 30

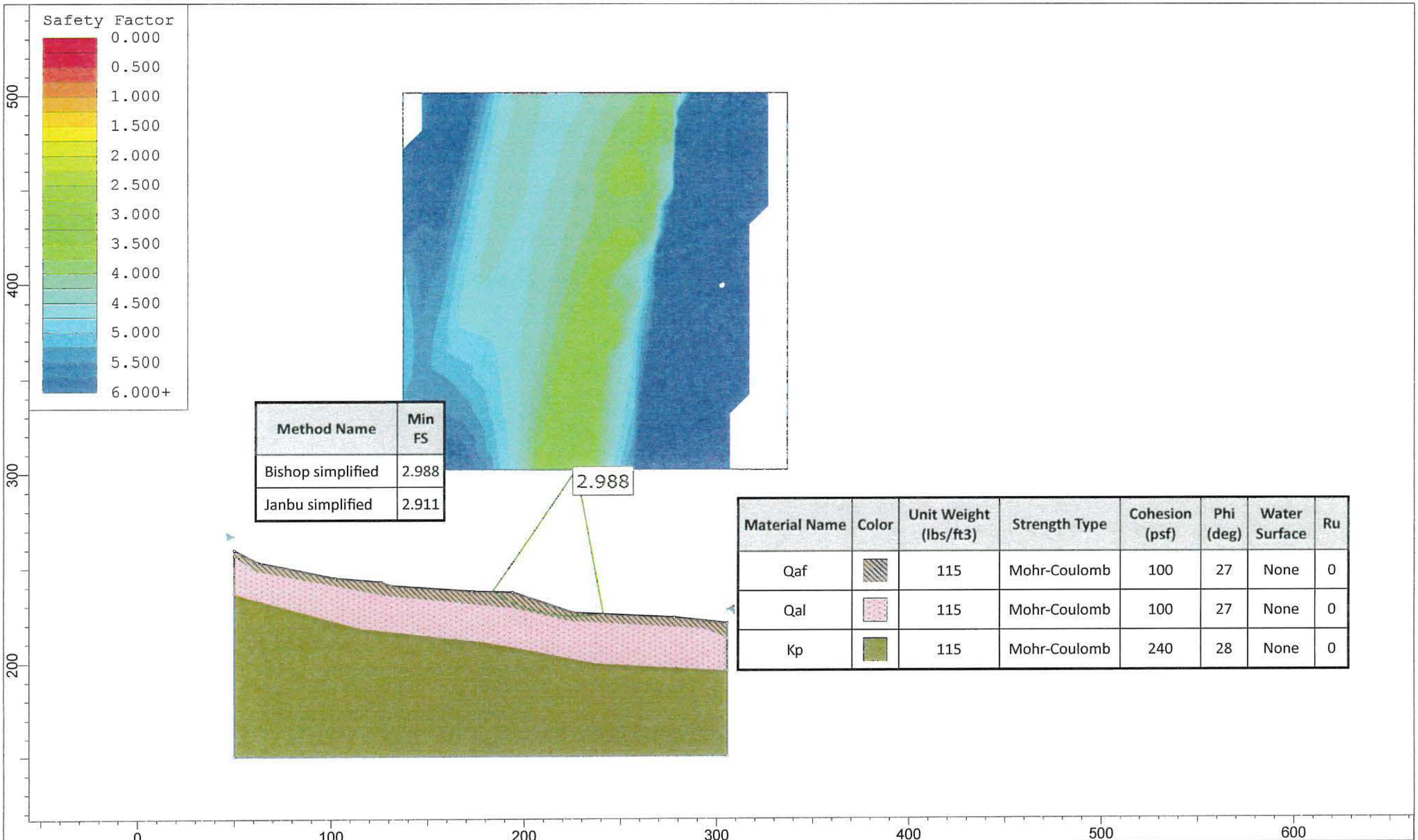
DEPTH (feet)	SAMPLE	SAMPLE NUMBER	BLOW * COUNTS	BLOWS FOR 12"	GRAPHIC LOG	MATERIAL DESCRIPTION AND NOTES	ATTI-TUDES
						LIGHT BROWNISH GRAY WITH TRACES OR BROWN, MOIST, SILTY SANDS AND SANDY SILTS WITH COBBLES.	
						BROWN TO LIGHT BROWN & YELLOWISH BROWN TRANSITIONS TO LIGHT GREENISH GRAY, MOIST, DENSE, SILTY SANDS AND SANDY SILTS.	
25		B1–3	2,4	6		**POINT LOMA FORMATION (Kp)**	
						LIGHT GREENISH GRAY WITH TRACES OF LIGHT BROWN, MOIST, VERY DENSE, SLIGHTLY SANDY SILTSTONE.	N38°E/25SE
30		B1–4	10,10	20		LIGHT GREENISH GRAY TO DARK GREENISH GRAY WITH TRACES OF LIGHT BROWN AND REDDISH BROWN, MOIST, VERY DENSE, SLIGHTLY SANDY SILTSTONE.	
						DARK GREENISH GRAY WITH TRACES OF REDDISH BROWN, MOIST, VERY DENSE, SLIGHTLY SANDY SILTSTONE.	
35						END OF EXCAVATION.	
40							
45							

ENGINEERING DESIGN GROUP

ADDITIONAL NOTES / COMMENTS:

APPENDIX A

APPENDIX B



Method Name	Min FS
Bishop simplified	2.988
Janbu simplified	2.911

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
Qaf		115	Mohr-Coulomb	100	27	None	0
Qal		115	Mohr-Coulomb	100	27	None	0
Kp		115	Mohr-Coulomb	240	28	None	0

rocscience

SLIDEINTERPRET 7.026

Project	SLIDE - An Interactive Slope Stability Program
Analysis Description	
Drawn By	
Scale	1:836
Company	
Date	3/13/2018, 11:20:40 AM
File Name	A-A - STATIC - KP28.slim

Slide Analysis Information
SLIDE - An Interactive Slope Stability Program

Project Summary

File Name:	A-A - STATIC - KP28
Last saved with Slide version:	7.026
Project Title:	SLIDE - An Interactive Slope Stability Program
Date Created:	3/13/2018, 11:20:40 AM

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Failure Direction:	Left to Right
Data Output:	Standard
Maximum Material Properties:	20
Maximum Support Properties:	20

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Bishop simplified
	Janbu simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Circular
Search Method:	Grid Search
Radius Increment:	10
Composite Surfaces:	Disabled
Reverse Curvature:	Invalid Surfaces
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Material Properties

Property	Qaf	Qal	Kp
Color			
Strength Type	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [lbs/ft3]	115	115	115
Cohesion [psf]	100	100	240
Friction Angle [deg]	27	27	28
Water Surface	None	None	None
Ru Value	0	0	0

List Of Coordinates

External Boundary

X	Y
50	259.9
50	257
50	237
50	150
305.5	150
305.5	196
305.5	213
305.5	221
278	224
225.5	226.5
194	237.5
173	238
130.7	241
125.8	243
102.2	245
62	253.5

Material Boundary

X	Y
50	257
60	249
102	241
127	236
194	229
225	222
293	218
305.5	213

Material Boundary

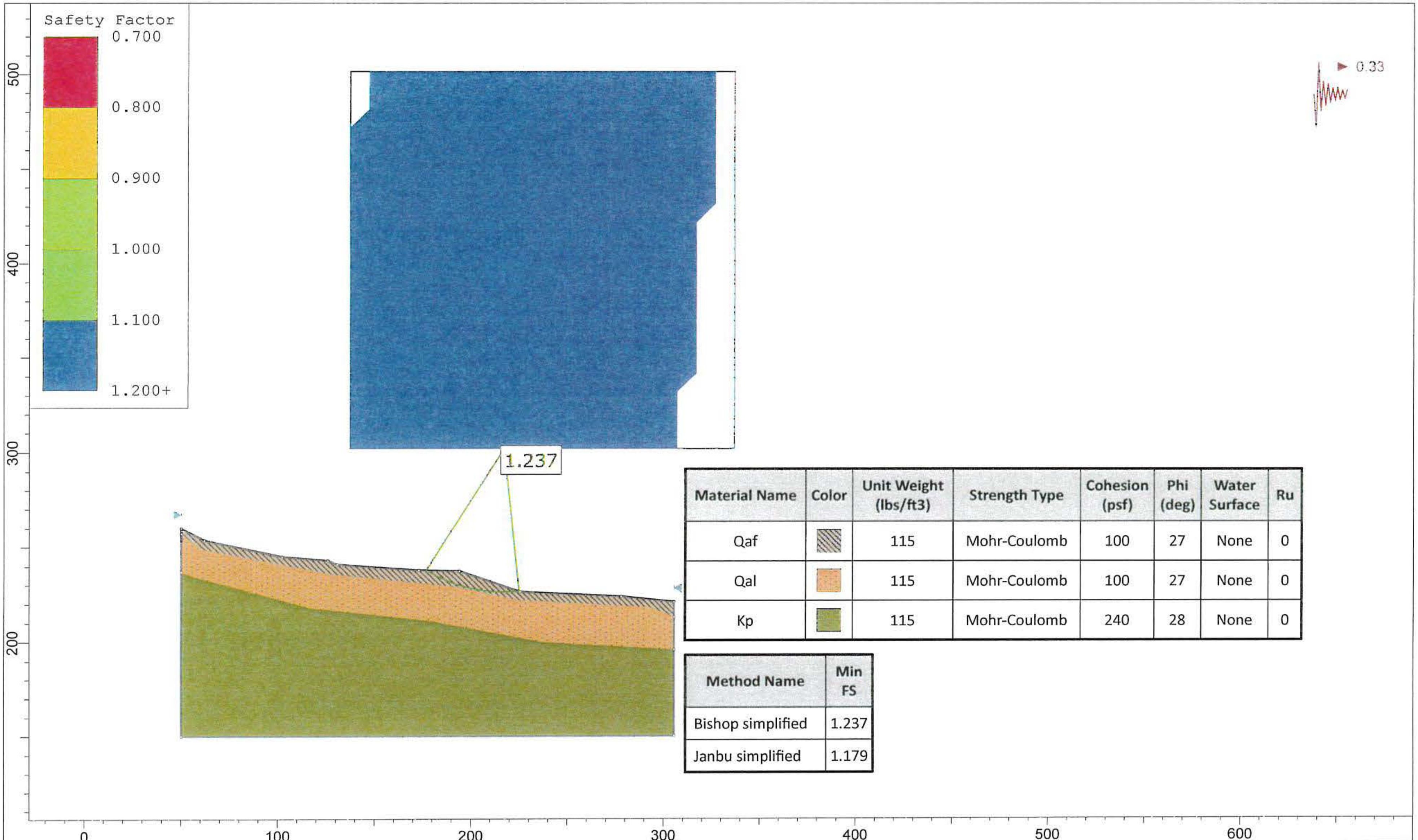
X	Y
50	237
58	234
116	218

Material Boundary

X	Y
236	200
305.5	196

Material Boundary

X	Y
116	218
179	211
236	200



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
Qaf		115	Mohr-Coulomb	100	27	None	0
Qal		115	Mohr-Coulomb	100	27	None	0
Kp		115	Mohr-Coulomb	240	28	None	0

Method Name	Min FS
Bishop simplified	1.237
Janbu simplified	1.179

rocscience

SLIDEINTERPRET 7.026

Project	SLIDE - An Interactive Slope Stability Program
Analysis Description	
Drawn By	
Scale	1:836
Company	
Date	3/13/2018, 11:20:40 AM
File Name	A-A - PSUEDO STATIC.slim

Slide Analysis Information

SLIDE - An Interactive Slope Stability Program

Project Summary

File Name:	A-A - PSUEDO STATIC
Slide Modeler Version:	7.026
Project Title:	SLIDE - An Interactive Slope Stability Program
Date Created:	3/13/2018, 11:20:40 AM

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Failure Direction:	Left to Right
Data Output:	Standard
Maximum Material Properties:	20
Maximum Support Properties:	20

Analysis Options

Slices Type:	Vertical

Analysis Methods Used

Bishop simplified
Janbu simplified

Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Circular
Search Method:	Grid Search
Radius Increment:	10
Composite Surfaces:	Disabled
Reverse Curvature:	Invalid Surfaces
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

Seismic Load Coefficient (Horizontal): 0.33

Material Properties

Property	Qaf	Qal	Kp
Color			
Strength Type	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb
Unit Weight [lbs/ft3]	115	115	115
Cohesion [psf]	100	100	240
Friction Angle [deg]	27	27	28
Water Surface	None	None	None
Ru Value	0	0	0

Global Minimums

Method: bishop simplified

FS	1.237460
Center:	217.111, 302.024
Radius:	75.728
Left Slip Surface Endpoint:	176.812, 237.909
Right Slip Surface Endpoint:	224.926, 226.701
Resisting Moment:	1.28778e+006 lb-ft
Driving Moment:	1.04066e+006 lb-ft
Total Slice Area:	223.593 ft2
Surface Horizontal Width:	48.1133 ft
Surface Average Height:	4.64721 ft

Method: janbu simplified

FS	1.179420
Center:	217.111, 302.024
Radius:	80.351
Left Slip Surface Endpoint:	168.106, 238.347
Right Slip Surface Endpoint:	242.239, 225.703
Resisting Horizontal Force:	35369 lb
Driving Horizontal Force:	29988.6 lb
Total Slice Area:	524.236 ft2
Surface Horizontal Width:	74.133 ft
Surface Average Height:	7.07156 ft

Valid / Invalid Surfaces

Method: bishop simplified

Number of Valid Surfaces: 4380
Number of Invalid Surfaces: 471

Error Codes:

Error Code -106 reported for 30 surfaces
Error Code -108 reported for 12 surfaces
Error Code -1000 reported for 429 surfaces

Method: janbu simplified

Number of Valid Surfaces: 4371
Number of Invalid Surfaces: 480

Error Codes:

Error Code -106 reported for 30 surfaces
Error Code -108 reported for 21 surfaces
Error Code -1000 reported for 429 surfaces

Error Codes

The following errors were encountered during the computation:

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-1000 = No valid slip surfaces are generated at a grid center. Unable to draw a surface.

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.23746

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [degrees]	Base Material	Base Cohesion [psf]	Base Friction Angle [degrees]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.962266	31.6451	-31.723	Qaf	100	27	75.214	93.0743	-13.5925	0	-13.5925	32.9023	32.9023
2	0.962266	93.8508	-30.8709	Qaf	100	27	97.0815	120.135	39.5161	0	39.5161	97.5513	97.5513
3	0.962266	153.916	-30.0263	Qaf	100	27	118.484	146.62	91.4961	0	91.4961	159.976	159.976
4	0.962266	211.895	-29.1889	Qaf	100	27	139.422	172.529	142.347	0	142.347	220.232	220.232
5	0.962266	267.841	-28.3583	Qaf	100	27	159.895	197.864	192.069	0	192.069	278.374	278.374
6	0.962266	321.8	-27.5341	Qaf	100	27	179.904	222.624	240.664	0	240.664	334.452	334.452
7	0.962266	373.818	-26.716	Qaf	100	27	199.448	246.809	288.129	0	288.129	388.511	388.511
8	0.962266	423.937	-25.9038	Qaf	100	27	218.528	270.42	334.469	0	334.469	440.598	440.598
9	0.962266	472.196	-25.0971	Qaf	100	27	237.144	293.456	379.68	0	379.68	490.752	490.752
10	0.962266	518.633	-24.2957	Qaf	100	27	255.296	315.918	423.764	0	423.764	539.011	539.011
11	0.962266	563.283	-23.4994	Qaf	100	27	272.983	337.806	466.719	0	466.719	585.412	585.412
12	0.962266	606.178	-22.7078	Qaf	100	27	290.206	359.118	508.549	0	508.549	629.991	629.991
13	0.962266	647.349	-21.9208	Qaf	100	27	306.964	379.856	549.248	0	549.248	672.777	672.777
14	0.962266	686.824	-21.1381	Qaf	100	27	323.257	400.018	588.819	0	588.819	713.8	713.8
15	0.962266	724.632	-20.3595	Qaf	100	27	339.086	419.605	627.26	0	627.26	753.092	753.092
16	0.962266	760.798	-19.5849	Qaf	100	27	354.447	438.614	664.568	0	664.568	790.675	790.675
17	0.962266	795.345	-18.8139	Qaf	100	27	369.342	457.046	700.743	0	700.743	826.577	826.577
18	0.962266	827.965	-18.0465	Qaf	100	27	383.645	474.745	735.478	0	735.478	860.476	860.476
19	0.962266	837.553	-17.2824	Qaf	100	27	389.338	481.79	749.305	0	749.305	870.439	870.439
20	0.962266	832.726	-16.5214	Qaf	100	27	389.569	482.076	749.866	0	749.866	865.42	865.42
21	0.962266	826.363	-15.7635	Qaf	100	27	389.189	481.606	748.944	0	748.944	858.806	858.806
22	0.962266	818.482	-15.0083	Qaf	100	27	388.198	480.379	746.535	0	746.535	850.613	850.613
23	0.962266	809.099	-14.2558	Qaf	100	27	386.592	478.392	742.636	0	742.636	840.86	840.86
24	0.962266	798.229	-13.5059	Qaf	100	27	384.37	475.643	737.241	0	737.241	829.562	829.562
25	0.962266	785.888	-12.7582	Qaf	100	27	381.532	472.13	730.346	0	730.346	816.735	816.735
26	0.962266	772.088	-12.0128	Qaf	100	27	378.071	467.848	721.942	0	721.942	802.392	802.392
27	0.962266	756.841	-11.2695	Qaf	100	27	373.987	462.794	712.023	0	712.023	786.546	786.546
28	0.962266	740.16	-10.528	Qaf	100	27	369.276	456.964	700.58	0	700.58	769.208	769.208
29	0.962266	722.055	-9.78835	Qaf	100	27	363.933	450.352	687.605	0	687.605	750.391	750.391
30	0.962266	702.536	-9.05033	Qaf	100	27	357.955	442.955	673.088	0	673.088	730.105	730.105
31	0.962266	681.612	-8.31382	Qaf	100	27	351.338	434.767	657.017	0	657.017	708.358	708.358
32	0.962266	659.291	-7.57869	Qaf	100	27	344.077	425.781	639.38	0	639.38	685.16	685.16
33	0.962266	635.581	-6.84481	Qaf	100	27	336.164	415.99	620.166	0	620.166	660.518	660.518
34	0.962266	610.488	-6.11206	Qaf	100	27	327.598	405.389	599.36	0	599.36	634.44	634.44
35	0.962266	584.018	-5.38031	Qaf	100	27	318.369	393.969	576.945	0	576.945	606.93	606.93
36	0.962266	556.178	-4.64945	Qaf	100	27	308.471	381.721	552.909	0	552.909	577.996	577.996
37	0.962266	526.97	-3.91934	Qaf	100	27	297.899	368.638	527.232	0	527.232	547.642	547.642
38	0.962266	496.4	-3.18986	Qaf	100	27	286.644	354.71	499.896	0	499.896	515.871	515.871
39	0.962266	464.47	-2.4609	Qaf	100	27	274.697	339.926	470.882	0	470.882	482.688	482.688
40	0.962266	431.184	-1.73235	Qaf	100	27	262.05	324.277	440.168	0	440.168	448.094	448.094
41	0.962266	396.542	-1.00407	Qaf	100	27	248.696	307.751	407.734	0	407.734	412.093	412.093
42	0.962266	360.546	-0.275953	Qaf	100	27	234.623	290.336	373.554	0	373.554	374.684	374.684
43	0.962266	323.197	0.452118	Qaf	100	27	219.82	272.018	337.605	0	337.605	335.87	335.87
44	0.962266	284.495	1.18026	Qaf	100	27	204.277	252.785	299.857	0	299.857	295.649	295.649
45	0.962266	244.438	1.9086	Qaf	100	27	187.983	232.622	260.285	0	260.285	254.021	254.021
46	0.962266	203.027	2.63724	Qaf	100	27	170.926	211.514	218.858	0	218.858	210.985	210.985
47	0.962266	160.257	3.36631	Qaf	100	27	153.091	189.444	175.543	0	175.543	166.538	166.538
48	0.962266	116.127	4.09593	Qaf	100	27	134.465	166.395	130.307	0	130.307	120.678	120.678
49	0.962266	70.6341	4.82621	Qaf	100	27	115.033	142.348	83.113	0	83.113	73.4004	73.4004
50	0.962266	23.773	5.55728	Qaf	100	27	94.7788	117.285	33.9238	0	33.9238	24.702	24.702

Global Minimum Query (janbu simplified) - Safety Factor: 1.17942

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [degrees]	Base Material	Base Cohesion [psf]	Base Friction Angle [degrees]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	1.40126	76.9365	-36.9565	Qaf	100	27	81.9339	96.6345	-6.60519	0	-6.60519	55.039	55.039
2	1.40126	227.042	-35.716	Qaf	100	27	118.162	139.363	77.254	0	77.254	162.212	162.212
3	1.40126	369.783	-34.4945	Qaf	100	27	153.365	180.882	158.74	0	158.74	264.123	264.123
4	1.40126	506.852	-33.2906	Qaf	100	27	187.873	221.581	238.616	0	238.616	361.981	361.981
5	1.40126	645.152	-32.1031	Qaf	100	27	223.3	263.364	320.621	0	320.621	460.713	460.713
6	1.40126	778.261	-30.9309	Qaf	100	27	258.068	304.37	401.099	0	401.099	555.738	555.738
7	1.40126	905.127	-29.7729	Qaf	100	27	291.865	344.232	479.332	0	479.332	646.302	646.302
8	1.40126	1025.97	-28.6281	Qaf	100	27	324.695	382.952	555.325	0	555.325	732.561	732.561
9	1.40126	1140.98	-27.4957	Qaf	100	27	356.559	420.533	629.081	0	629.081	814.66	814.66
10	1.52048	1361.52	-26.3276	Qal	100	27	388.718	458.462	703.521	0	703.521	895.871	895.871
11	1.52048	1483.31	-25.124	Qal	100	27	421.111	496.667	778.502	0	778.502	975.98	975.98
12	1.52048	1598.32	-23.9322	Qal	100	27	452.37	533.534	850.857	0	850.857	1051.62	1051.62
13	1.52048	1706.73	-22.7512	Qal	100	27	482.495	569.064	920.59	0	920.59	1122.93	1122.93
14	1.52048	1808.72	-21.5804	Qal	100	27	511.488	603.259	987.701	0	987.701	1190.01	1190.01
15	1.52048	1904.46	-20.419	Qal	100	27	539.346	636.116	1052.19	0	1052.19	1252.97	1252.97
16	1.52048	1994.08	-19.2662	Qal	100	27	566.071	667.636	1114.05	0	1114.05	1311.91	1311.91
17	1.52048	2077.72	-18.1215	Qal	100	27	591.659	697.814	1173.28	0	1173.28	1366.91	1366.91
18	1.52048	2152.49	-16.9843	Qal	100	27	615.352	725.758	1228.12	0	1228.12	1416.07	1416.07
19	1.52048	2161.44	-15.8539	Qal	100	27	622.686	734.408	1245.1	0	1245.1	1421.93	1421.93
20	1.52048	2141.3	-14.7298	Qal	100	27	622.629	734.341	1244.96	0	1244.96	1408.65	1408.65
21	1.52048	2115.59	-13.6115	Qal	100	27	621.062	732.493	1241.33	0	1241.33	1391.72	1391.72
22	1.52048	2084.4	-12.4985	Qal	100	27	617.977	728.854	1234.19	0	1234.19	1371.18	1371.18
23	1.52048	2047.81	-11.3902	Qal	100	27	613.363	723.412	1223.52	0	1223.52	1347.08	1347.08
24	1.52048	2005.87	-10.2862	Qal	100	27	607.21	716.156	1209.28	0	1209.28	1319.48	1319.48
25	1.52048	1958.65	-9.18612	Qal	100	27	599.505	707.068	1191.44	0	1191.44	1288.39	1288.39
26	1.52048	1906.2	-8.08941	Qal	100	27	590.232	696.131	1169.97	0	1169.97	1253.86	1253.86
27	1.52048	1848.57	-6.99568	Qal	100	27	579.372	683.323	1144.84	0	1144.84	1215.93	1215.93
28	1.52048	1785.78	-5.9045	Qal	100	27	566.907	668.622	1115.98	0	1115.98	1174.61	1174.61
29	1.52048	1717.89	-4.81546	Qal	100	27	552.814	652	1083.36	0	1083.36	1129.93	1129.93
30	1.52048	1644.91	-3.72817	Qal	100	27	537.068	633.429	1046.91	0	1046.91	1081.91	1081.91
31	1.52048	1566.86	-2.64222	Qal	100	27	519.642	612.876	1006.58	0	1006.58	1030.56	1030.56
32	1.52048	1483.77	-1.55723	Qal	100	27	500.504	590.305	962.279	0	962.279	975.886	975.886
33	1.52048	1395.64	-0.472786	Qal	100	27	479.623	565.677	913.942	0	913.942	917.899	917.899
34	1.52048	1302.48	0.611484	Qal	100	27	456.961	538.949	861.486	0	861.486	856.609	856.609
35	1.52048	1204.28	1.69597	Qal	100	27	432.479	510.074	804.812	0	804.812	792.007	792.007
36	1.52048	1101.04	2.78107	Qal	100	27	406.131	478.999	743.827	0	743.827	724.098	724.098
37	1.52048	992.759	3.86717	Qal	100	27	377.87	445.668	678.413	0	678.413	652.87	652.87
38	1.52048	879.407	4.95466	Qal	100	27	347.645	410.019	608.446	0	608.446	578.308	578.308
39	1.45231	739.59	6.01948	Qaf	100	27	319.305	376.595	542.847	0	542.847	509.177	509.177
40	1.45231	691.99	7.06192	Qaf	100	27	307.027	362.114	514.428	0	514.428	476.393	476.393
41	1.45231	648.14	8.10671	Qaf	100	27	295.747	348.81	488.317	0	488.317	446.191	446.191
42	1.45231	599.771	9.15422	Qaf	100	27	282.848	333.596	458.458	0	458.458	412.879	412.879
43	1.45231	546.845	10.2048	Qaf	100	27	268.273	316.407	424.723	0	424.723	376.43	376.43
44	1.45231	489.319	11.2589	Qaf	100	27	251.966	297.174	386.976	0	386.976	336.816	336.816
45	1.45231	427.144	12.3169	Qaf	100	27	233.86	275.819	345.065	0	345.065	294.003	294.003
46	1.45231	360.267	13.3791	Qaf	100	27	213.885	252.26	298.827	0	298.827	247.954	247.954
47	1.45231	288.627	14.4461	Qaf	100	27	191.962	226.404	248.082	0	248.082	198.629	198.629
48	1.45231	212.158	15.5182	Qaf	100	27	168.007	198.151	192.632	0	192.632	145.982	145.982
49	1.45231	130.787	16.5959	Qaf	100	27	141.926	167.391	132.262	0	132.262	89.9629	89.9629
50	1.45231	44.4331	17.6797	Qaf	100	27	113.616	134.001	66.7314	0	66.7314	30.5161	30.5161

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.23746

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [degrees]
1	176.812	237.909	0	0	0
2	177.775	237.314	-69.9931	0	0
3	178.737	236.739	-109.677	0	0
4	179.699	236.183	-121.972	0	0
5	180.661	235.645	-109.642	0	0
6	181.624	235.126	-75.3044	0	0
7	182.586	234.624	-21.4363	0	0
8	183.548	234.14	49.6113	0	0
9	184.511	233.673	135.609	0	0
10	185.473	233.222	234.439	0	0
11	186.435	232.788	344.091	0	0
12	187.397	232.369	462.656	0	0
13	188.36	231.967	588.319	0	0
14	189.322	231.579	719.354	0	0
15	190.284	231.207	854.121	0	0
16	191.246	230.85	991.062	0	0
17	192.209	230.508	1128.69	0	0
18	193.171	230.18	1265.61	0	0
19	194.133	229.867	1400.39	0	0
20	195.095	229.567	1526.6	0	0
21	196.058	229.282	1640.69	0	0
22	197.02	229.01	1742.46	0	0
23	197.982	228.752	1831.73	0	0
24	198.945	228.508	1908.43	0	0
25	199.907	228.276	1972.5	0	0
26	200.869	228.059	2023.97	0	0
27	201.831	227.854	2062.9	0	0
28	202.794	227.662	2089.44	0	0
29	203.756	227.483	2103.76	0	0
30	204.718	227.317	2106.11	0	0
31	205.68	227.164	2096.79	0	0
32	206.643	227.023	2076.15	0	0
33	207.605	226.895	2044.6	0	0
34	208.567	226.78	2002.6	0	0
35	209.529	226.677	1950.7	0	0
36	210.492	226.586	1889.46	0	0
37	211.454	226.508	1819.54	0	0
38	212.416	226.442	1741.64	0	0
39	213.379	226.388	1656.53	0	0
40	214.341	226.347	1565.04	0	0
41	215.303	226.318	1468.07	0	0
42	216.265	226.301	1366.58	0	0
43	217.228	226.296	1261.6	0	0
44	218.19	226.304	1154.24	0	0
45	219.152	226.324	1045.68	0	0
46	220.114	226.356	937.169	0	0
47	221.077	226.4	830.048	0	0
48	222.039	226.457	725.735	0	0
49	223.001	226.526	625.732	0	0
50	223.963	226.607	531.635	0	0
51	224.926	226.701	0	0	0

Global Minimum Query (janbu simplified) - Safety Factor: 1.17942

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [degrees]
1	168.106	238.347	0	0	0
2	169.507	237.293	-96.1359	0	0
3	170.908	236.285	-108.595	0	0
4	172.309	235.323	-48.1612	0	0
5	173.711	234.402	75.9691	0	0
6	175.112	233.523	258.509	0	0
7	176.513	232.684	491.288	0	0
8	177.914	231.882	766.134	0	0
9	179.316	231.117	1075.47	0	0
10	180.717	230.388	1412.24	0	0
11	182.237	229.635	1801.1	0	0
12	183.758	228.922	2206.78	0	0
13	185.278	228.248	2622.06	0	0
14	186.799	227.61	3040.24	0	0
15	188.319	227.009	3455.11	0	0
16	189.84	226.443	3860.86	0	0
17	191.36	225.911	4252.15	0	0
18	192.881	225.413	4623.96	0	0
19	194.401	224.949	4971.02	0	0
20	195.922	224.517	5277.2	0	0
21	197.442	224.118	5536.84	0	0
22	198.963	223.749	5749.74	0	0
23	200.483	223.412	5915.98	0	0
24	202.004	223.106	6035.95	0	0
25	203.524	222.83	6110.33	0	0
26	205.045	222.584	6140.08	0	0
27	206.565	222.368	6126.48	0	0
28	208.086	222.181	6071.09	0	0
29	209.606	222.024	5975.78	0	0
30	211.126	221.896	5842.73	0	0
31	212.647	221.797	5674.44	0	0
32	214.167	221.727	5473.74	0	0
33	215.688	221.686	5243.81	0	0
34	217.208	221.673	4988.16	0	0
35	218.729	221.689	4710.7	0	0
36	220.249	221.734	4415.73	0	0
37	221.77	221.808	4107.96	0	0
38	223.29	221.911	3792.54	0	0
39	224.811	222.043	3475.1	0	0
40	226.263	222.196	3173.31	0	0
41	227.715	222.376	2864.18	0	0
42	229.168	222.583	2548.46	0	0
43	230.62	222.817	2229.2	0	0
44	232.072	223.078	1909.85	0	0
45	233.525	223.367	1594.3	0	0
46	234.977	223.684	1286.94	0	0
47	236.429	224.03	992.651	0	0
48	237.882	224.404	716.898	0	0
49	239.334	224.807	465.76	0	0
50	240.786	225.24	245.997	0	0
51	242.239	225.703	0	0	0

List Of Coordinates

External Boundary

X	Y
50	259.9
50	257
50	237
50	150
305.5	150
305.5	196
305.5	213
305.5	221
278	224
225.5	226.5
194	237.5
173	238
130.7	241
125.8	243
102.2	245
62	253.5

Material Boundary

X	Y
50	257
60	249
102	241
127	236
194	229
225	222
293	218
305.5	213

Material Boundary

X	Y
50	237
58	234
116	218

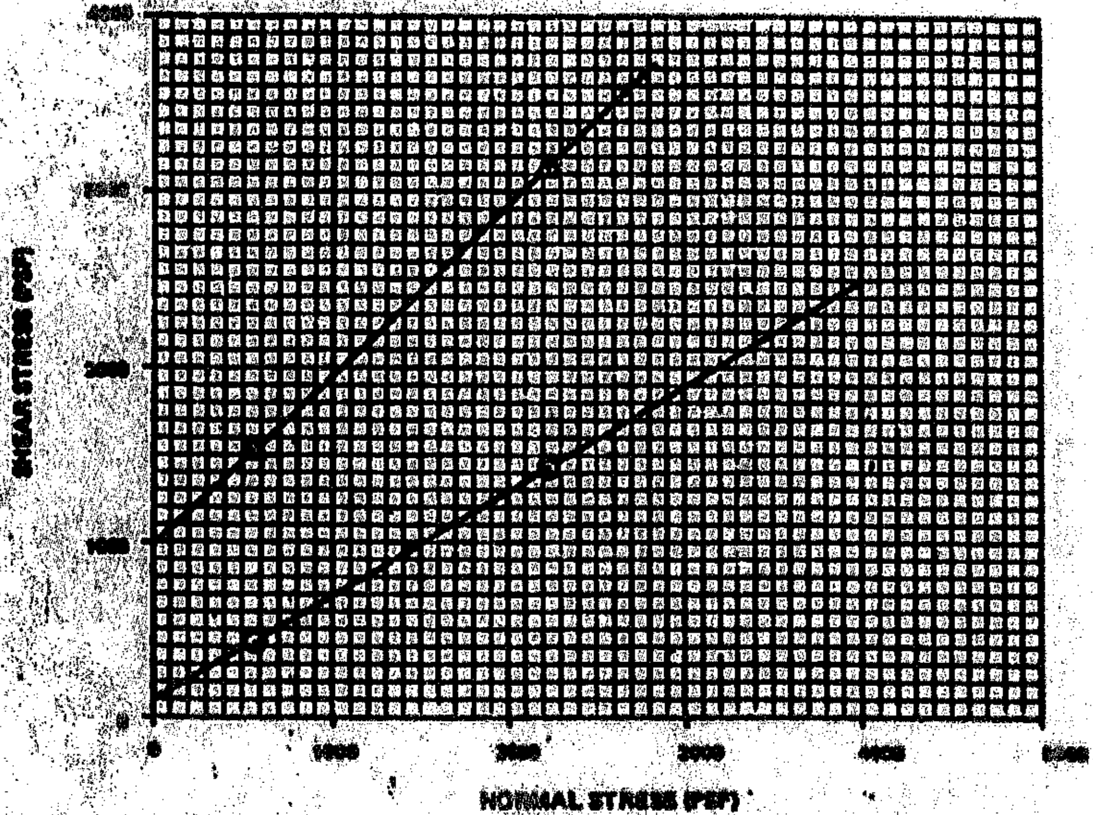
Material Boundary

X	Y
236	200
305.5	196

Material Boundary

X	Y
116	218
179	211
236	200

APPENDIX C

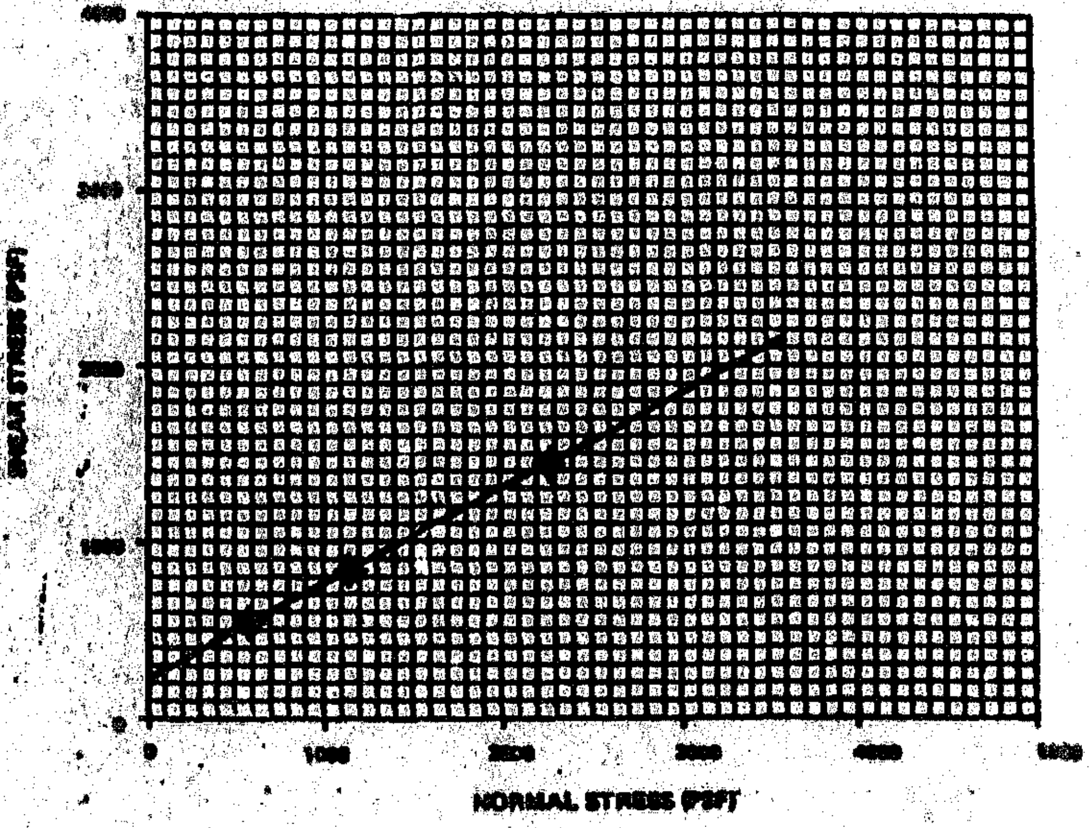


DESCRIPTION	SYMBOL	BORING NUMBER	SAMPLE NUMBER	DEPTH (FEET)	COHESION (PSF)	FRICTION ANGLE	SOIL TYPE
	△	B1	2	10'-11'	1,000	43°	SM
	⊙	B2	3	15'-16'	100	30°	SP/SM

Project No. 4881099-02

SNODY/LA JOLLA

DIRECT SHEAR TEST RESULTS



DESCRIPTION	SYMBOL	BORING NUMBER	SAMPLE NUMBER	DEPTH (FEET)	COHESION (PSF)	FRICTION ANGLE	SOIL TYPE
*		B2	3	5'-10'	240	28°	SM

* Sample is remolded to 90 percent relative compaction based on ASTM D1557.

Project No.	4841089-02
	SNODY/LA JOLLA

DIRECT SHEAR TEST RESULTS