Exhibit F

LIB170355

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August 23, 2017 File No.: SH-13379-SA

Mr. Angelo Fratantoni
Fratantoni Design
9811 E. Bell Road, Suite 105
Scottsdale, AZ 85260

PROJECT: RANCHO RIO VISTA LOT 26
CHIQUITO PLACE, CARMEL
MONTEREY COUNTY, CALIFORNIA

SUBJECT: Geotechnical Engineering Report

REF.: Proposal for a Geotechnical Engineering Investigation, Rancho Rio Vista Lot 26, Chiquito Place, Carmel, Monterey County, California, by Earth Systems Pacific, dated June 9, 2017

Dear Mr. Fratantoni:

In accordance with your authorization of the above-referenced proposal, this geotechnical engineering report was prepared for use in development of plans and specifications for the planned residence on Chiquito Place (Rancho Rio Vista Lot 26) in the Carmel area of Monterey County. As shown on the plans that you provided, the residence will have a main level and a partial basement level. A garage will be attached to the main level. The main level will utilize raised wood floors, and the basement and garage will have concrete floor slabs-on-grade. A detailed grading plan was not provided for our review, but based on the site plan, it appears that maximum cuts and fill will be on the order of 9 feet. Portions of the basement walls will support the deeper cuts, and fill will be placed within the garage, driveway, and flatwork areas in front of the residence. Low retaining walls are also planned along the driveway. The residence will be served by municipal utilities.

Scope of Services

The scope of work for the geotechnical engineering investigation included a general site reconnaissance, subsurface exploration, laboratory testing of soil samples, engineering evaluation of the data collected, and preparation of this report. The analysis and subsequent recommendations were based on the architectural site plan and preliminary floor plans and elevations provided by the client (dated 05.03.17).

The report and recommendations are intended to comply with the considerations of Sections 1803.1 through 1803.6, 1803.7 (portions of), J104.3 and J104.4 of the 2016 California Building Code (CBC), and common geotechnical engineering practice in this area at this time under similar conditions. The tests were performed in general conformance with the standards noted, as modified by common geotechnical practice in this area at this time under similar conditions.

Preliminary geotechnical recommendations for site preparation and grading, foundations, retaining walls, slabs-on-grade and exterior flatwork, utility trenches, site drainage and finish improvements, and geotechnical observation and testing are presented to guide the development of project plans and specifications. It is our intent that this report be used by the client to form the geotechnical basis of the design of the project as described herein, and in the preparation of plans and specifications.

Evaluation of the site geology; analyses of the soil for infiltration rates, mold or other microbial content, asbestos, corrosion potential, radioisotopes, hydrocarbons, or other chemical properties are beyond the scope of this report. This report does not address issues in the domain of contractors such as, but not limited to, site safety, loss of volume due to stripping of the site, shrinkage of soils during compaction, excavatability, shoring, temporary slope angles, and construction means and methods. Ancillary features such as temporary access roads, fences, light poles, swimming pools, effluent disposal systems, LID/BMP improvements, and nonstructural fills are not within our scope and are also not addressed.

To verify that pertinent issues have been addressed and to aid in conformance with the intent of this report, it is requested that grading and foundation plans be submitted to this office for review as they near completion. In the event that there are any changes in the nature, design, or locations of improvements, or if any assumptions used in the preparation of this report prove to be incorrect, the conclusions and recommendations contained herein shall not be considered valid unless the changes are reviewed and the conclusions of this report are verified or modified in writing by the geotechnical engineer. The criteria presented in this report are considered preliminary until such time as they are verified or modified in writing by the geotechnical engineer in the field during construction.

Site Setting

The site (Rancho Rio Vista Lot 26) is located off the cul-de-sac terminus of Chiquito Place in the Carmel area of Monterey County, California. The property is on a steeply-inclined west-facing slope that descends to a natural drainage course. Slope inclinations range from about 20 percent in the proposed building area, to over 40 percent at toward the rear of the property. At the time of the investigation, the site was undeveloped, and the parcels to the northeast and southeast were occupied by single family residences. The site was vegetated with a dense growth of weeds and grass that had recently been mowed, with several mature trees toward the rear of the property.

Subsurface Investigation and Laboratory Testing

The subsurface investigation consisted of logging the soils and bedrock encountered in four test pits excavated at the site on July 22, 2017. The test pits were excavated utilizing a Caterpillar 420-E backhoe equipped with an 18-inch wide bucket. The approximate test pit locations are indicated on the attached Test Pit Location Map.

Soils encountered in the test pits were classified and logged in general accordance with the Unified Soil Classification System (ASTM D 2488-09a), and the bedrock was categorized with regard to type, hardness, degree of weathering, and amount of fracturing. Copies of the test pit logs are attached. As the test pits were excavated, soil samples were obtained using a hand-driven internally-lined barrel sampler, and a bulk sample was obtained from the excavated materials.

Five liner samples were tested for unit weight and moisture (ASTM D 2937-10, modified for ring liners), and the bulk sample was tested for grain size distribution (ASTM D 1140-14 and D 422-63/07) and plasticity index (ASTM D 4318-10). Copies of the laboratory test results are attached.

General Subsurface Profile

The subsurface profile at the boring locations consisted of 0 to 3 feet of medium dense to dense clayey sand soil (SC) over shale and sandstone Monterey Formation bedrock. The thin surface layer of soil at the location of Test Pit 4 was interpreted to be previously placed fill. The bedrock was soft to moderately soft (in terms of bedrock consistency), slightly to moderately weathered, and variably fractured. The soils were generally moist at the time of drilling. Free subsurface water was not encountered within the 10-foot depth of exploration.

Conclusions

Site Suitability:

Based on the results of the field investigation and laboratory testing program, in our opinion, the site is geotechnically suitable for the proposed residence provided that the recommendations contained herein are implemented in the design and construction. The primary geotechnical considerations are the hillside setting of the site, and the potential for excessive foundation differential settlement that could be caused by the variable depths of cuts and fills. For these reasons, the residence and retaining walls attached to the structure should be supported by a system of drilled, cast-in-place concrete piers interconnected by grade beams. The piers should penetrate through any fill and surface soil to be embedded into firm sandstone bedrock. Fills should be placed and compacted in accordance with common hillside grading practices. This will entail keying and benching of the slopes to receive fill. To help reduce the potential for subsurface water to affect the lower level floor slab, a sub-slab drainage system should be provided.

Soil Expansion Potential:

A plasticity index test of a sample of the upper clayey sand from the site resulted in a liquid limit (LL) of 28 and a plasticity index (PI) of 8, indicating that the sample tested has a low expansion potential. The bedrock at the site should also have a low expansion potential. Thus, measures other than moistening and compacting the soil are not considered necessary to mitigate soil expansion and contraction.

Seismic Setting:

The site is located within a seismically active area, but outside of Alquist-Priolo Earthquake Fault Zones. The USGS Working Group on California Earthquake Probabilities (WGCEP) (1995; cited in WGCEP 2008) originally classified seismic sources in California as either Type A, B, or C. The 1997 Uniform Building Code and the 2001 California Building Code (CBC) adopted these designations and classified faults based on the rate of their seismicity and likelihood of generating damaging earthquakes. Type A sources were defined as faults that have sufficient data on the location, timing, and slip during previous earthquakes that permanent rupture boundaries can be hypothesized. Type B sources were defined as faults that have slip-rate estimates but where data on distribution and timing of previous events are inadequate to estimate recurrence intervals. Type C sources were defined as crustal shear zones where significant strain is accumulated but where knowledge is insufficient to apportion slip onto specific faults. Type A faults have generally produced the strongest earthquakes, but Type B faults are capable of producing earthquakes of significant magnitude.

According to the Maps of Known Active Fault Near Source Zones in California and Adjacent Portions of Nevada (International Conference of Building Officials, February 1998), the site is located about 4-½ km southwest of the Type B Monterey Bay-Tularcitos Fault. No Type A faults are mapped within 20 km of the site. Strong ground shaking should be expected during the design life of the planned residence. At a minimum, the planned improvements should be designed to resist seismic shaking in accordance with current California Building Code (CBC) requirements. Seismic design parameters based on the 2016 Edition of the CBC are presented later in the report.

Liquefaction Potential:

The term liquefaction refers to the liquefied condition and subsequent softening that can occur in soils when they are subjected to cyclic strains, such as those generated during a seismic event. Studies of areas where liquefaction has occurred have led to the conclusion that saturated soil conditions, low soil density, grain sizes within a certain range, and a sufficiently strong earthquake, in combination, create a potential for liquefaction. According to the Monterey County Relative Liquefaction Susceptibility map (L. I. Rosenberg, December 18, 2001) the site is in an area having a low potential for soil liquefaction, and potentially liquefiable soils were not encountered in our test pits. Thus, measures to mitigate potential soil liquefaction are not considered necessary for the project.

Recommendations

Site Preparation and Grading

1. The site should be prepared for grading by removing existing vegetation, large roots, debris, and other potentially deleterious materials from areas to receive improvements. The site preparation operations should be observed by the geotechnical engineer prior to continuing grading.

2. Existing utility lines that will not remain in service should be either removed or abandoned. The appropriate method of utility abandonment will depend upon the type, depth, and location of the utility. Recommendations for abandonment can be made as necessary.

3. Keyways should be provided near the toes of the proposed fill slopes. The keyways should be a minimum of 8 feet wide or 1.5 times the width of the compaction equipment, whichever is wider, and should penetrate through any loose soil to be embedded a minimum of 3 feet into firm soil or bedrock at the downslope edge of the keyway. The actual configurations and depths of the keyways should be identified by the geotechnical engineer at the time of grading.

4. The slopes above the keyways should be cut to create benches. The benches should be a minimum of 8 feet wide and should penetrate through any loose soil to be bottomed into firm native soil or bedrock.

5. The bottoms of the keyways and benches should be angled 2 to 3 percent back into the slope. The keying and benching operations should be observed by the geotechnical engineer during grading.

6. Due to the potential that seepage of subsurface water could destabilize the fill, subsurface drains should be installed in the keyways. The subsurface drains should consist of a minimum 4-inch diameter rigid perforated pipe covered with gravel encased by filter fabric. Alternatively, Caltrans Class 2 permeable material can be substituted for the gravel and filter fabric, or a pre-fabricated synthetic drain could be utilized. The locations and configurations of the drains should be as recommended by the geotechnical engineer based on conditions observed at the time of grading. The subsurface drain systems should be connected to one or more non-perforated pipes that discharge in a non-erosive manner away from slopes, foundations, and other improvements. Depending on the observed conditions, installation of drains in the benches may also be recommended.

7. Soil exposed on the bottoms of the keyways and benches should be scarified to an approximate depth of 8 inches, moisture conditioned to a level above optimum, and recompacted to a minimum of 90 percent of maximum dry density. Soil exposed in cut surfaces to receive improvements should be scarified and recompacted in a similar manner. Firm undisturbed bedrock exposed in these areas should not be scarified and recompacted.

8. The on-site materials can be used as fill provided that it is cleared of excessive quantities of potentially deleterious materials. Fill should be placed in moisture conditioned lifts not exceeding 8 inches in loose thickness and compacted to a minimum of 90 percent of maximum dry density. Prior to compaction, the soil should be cleared of any pieces of rock larger than 4 inches in diameter. When the fill contains rocks, the rocks should be placed in a sufficient soil matrix to ensure that voids do not occur and that the material can be properly compacted.

9. If fill is to be imported for general use at the site, the fill should be coarse grained with a plasticity of 15 or less. Proposed imported soils should be evaluated by the geotechnical engineer before being transported to the site, and on an intermittent basis during placement and compaction on the site.

10. In areas to be paved, the upper 8 inches of subgrade soil should be compacted to a minimum 92 percent of maximum dry density. The aggregate base courses should be compacted to a minimum of 95 percent of maximum dry density. The subgrade and base should be firm and unyielding when proofrolled with heavy, rubber-tired equipment prior to continuing construction. The subgrade soils should also be periodically moistened as necessary prior to placement of the aggregate base to maintain the soil moisture content near optimum.

11. Angles of cut and fill slopes should not exceed 2:1, measured horizontally to vertically.

Foundations

1. The residence and retaining walls attached to the structure should be supported by foundation systems utilizing drilled, cast-in-place reinforced concrete friction piers interconnected by grade beams. The piers should have minimum diameters of 16 inches and should be reinforced as directed by the architect/engineer. Use of larger diameter piers should be considered if the reinforcement pattern would be such that obtaining the required concrete coverage will be difficult. Minimum clear spacing between piers should be 3 pier diameters.

2. The piers should penetrate through any fill to be embedded a minimum of 6 feet into firm bedrock. The geotechnical engineer should be present during pier drilling operations to observe the recommended penetration into bedrock. As dense bedrock may be encountered in the pier holes, use of heavy drilling equipment should be planned.

3. The piers should be designed to derive support from skin friction against the bedrock; end-bearing capacity of the piers, and skin friction in soil should be disregarded in the calculations. The bedrock should be assigned a maximum allowable skin friction value of 800 psf. The allowable skin friction value may be increased by one-third when transient loads such as wind or seismicity are included. Using these values, total and differential settlements are expected to be on the order of ¼-inch.

4. Lateral loads should be resisted by passive resistance of the bedrock against the piers. Passive resistance should be calculated based on an equivalent fluid pressure of 350 pcf acting over two pier diameters. Due to possible disturbance during drilling, lateral resistance in the upper 2 feet of bedrock should be neglected in the calculations.

5. The piers should not deviate from a plumb line by more than 2 percent of the pier length, as measured from the top to the point of interest. Adequate pier oversize may be assumed to provide the recommended tolerance. The bottoms of the pier excavations should be firm and should not contain excessive loose debris and slough material. Loose drilling spoils should be removed or compacted prior to placement of reinforcing steel.

6. All perimeter piers should be laterally restrained by concrete grade beams. The grade beams should be reinforced as directed by the architect/engineer. To help cut off subsurface water that could otherwise enter the subfloor area, perimeter grade beams should penetrate a minimum of 6 inches below lowest adjacent interior (crawl space) grade.

7. The seismic design parameters for the site per Chapter 16 of the California Building Code (2016 Edition) are as follows. The values were determined utilizing the USGS U.S. Seismic Design Maps web-based tool and the 2015 International Building Code (2016 CBC) provisions. The site coordinates were determined using the Google Earth web site.

Site Class = C

Short Term Spectral Acceleration Parameter, S_S = 1.544 g
1 Second Spectral Acceleration Parameter, S_1 = 0.574 g

Site Coefficient, F_a = 1.0
Site Coefficient, F_v = 1.3

Adjusted Spectral Acceleration Parameter, S_{MS} = 1.544 g
Adjusted Spectral Acceleration Parameter, S_{M1} = 0.746 g

Design Spectral Acceleration Parameter, S_{DS} = 1.029 g
Design Spectral Acceleration Parameter, S_{D1} = 0.497 g

Retaining Walls

1. Retaining walls attached to the structure should be supported by drilled cast-in-place concrete friction piers, designed and constructed in accordance with the recommendations provided above. Detached site retaining walls can be supported by conventional spread footings bearing in bedrock, or firm native or compacted soil.

2. Conventional spread footings should have minimum depths of 18 inches below lowest adjacent grade and should be reinforced as directed by the architect/engineer. The foundation design should be based on a maximum allowable bearing capacity of 2,500 psf. The allowable bearing capacity can be increased by one-third for seismic loading.

3. Resistance to lateral loads for conventional spread footings should be based on a passive equivalent fluid pressure of 300 psf and a friction factor of 0.25. Passive and frictional resistance can be combined in the calculations without reductions.

4. The retaining wall design should be based on the following parameters:

Active equivalent fluid pressure (horizontal retained surface)	45 pcf
At-rest equivalent fluid pressure (horizontal retained surface)	60 pcf
Active equivalent fluid pressure (sloping surface above wall)	70 pcf
At-rest equivalent fluid pressure (sloping surface above wall)	100 pcf

If seismic forces are to be considered in the retaining wall design, the seismic increment of earth pressure should be 8H pounds per square foot, where H is the height of the retained soil. The seismic pressure should be applied uniformly on the back of the wall along the height of the retained soil.

5. No surcharges are taken into consideration in the above values. The equivalent fluid pressures and friction factor are ultimate values and will require application of appropriate factors of safety by the architect/engineer.

6. Retaining wall backfill should be fully drained utilizing either a free draining gravel blanket, permeable material, or a manufactured synthetic drainage system. Water from the drainage medium should be collected and discharged via either a rigid perforated pipe or weep holes. Collection pipes should be placed perforations downward near the bottom of the drainage medium and should discharge in a nonerosive manner away from foundations, slopes, and other improvements. Drainage medium consisting of a gravel blanket or permeable material should have a width of approximately 1 foot and should extend upward to within 1 foot of the top of the wall backfill. The upper foot of backfill over the drainage medium should consist of native soil to reduce the flow of surface drainage into the wall drain system. Gravel blankets should be separated from the backfill soil using a permeable synthetic fabric conforming to Caltrans Standard Specifications, Section 88-1.02B, Class A. Permeable material should conform to Section 68-2.02F(3), Class 2, of the Caltrans Standard Specifications. Manufactured synthetic drains such as Miradrain or Enkadrain should be installed in accordance with the recommendations of the manufacturer.

7. The architect/engineer should bear in mind that retaining walls by their nature are flexible structures, and the flexibility can often cause cracking in surface coatings. Where walls are to be plastered or will otherwise have a finish surface applied, this flexibility should be considered in determining the suitability of the surfacing material, spacing of horizontal and vertical joints, connections to structures, etc.

8. Retaining walls facing habitable areas or areas where intrusion of moisture would be undesirable should be thoroughly waterproofed in accordance with the specifications of the architect/engineer.

9. Retaining walls should be backfilled with either native soil or clean imported granular material. The backfill material should be placed in thin, moisture conditioned lifts, compacted in accordance with the recommendations provided in the Site Preparation and Grading section of this report.

10. Long-term settlement of properly compacted sand or gravel retaining wall backfill should be assumed to be about ¼ percent of the depth of the backfill. Long-term settlement of properly compacted clayey retaining wall backfill should be assumed to be about ½ to 1 percent of the depth of the backfill. Improvements constructed near the tops of retaining walls should be designed to accommodate the estimated settlement.

Slabs-on-Grade and Exterior Flatwork

1. Interior slabs-on-grade and exterior flatwork should have minimum thicknesses of 4 full inches and should be reinforced and doweled into grade beams as directed by the architect/engineer. The garage slab can be designed to be “free floating” based on the specifications of the architect/engineer. However, the garage slab should be doweled into the grade beams at door openings.

2. Due to the potential that subsurface water could enter the lower level slab subgrade, the lower level slab should be constructed over a minimum 6-inch thick layer of clean crushed gravel. A permeable synthetic fabric conforming to Caltrans Standard Specifications, Section 88-1.02B, Class A, should be placed below the gravel blanket to provide separation from the subgrade material. The subgrade surface below the gravel layer should be contoured to at least three points where water can be discharged via gravity flow into the storm drain system.

3. In areas where moisture transmitted from the subgrade would be undesirable, a vapor retarder should be utilized between the floor slab and the gravel layer. The vapor retarder should comply with ASTM Standard Specification E 1745-11 and the latest recommendations of ACI Committee 302. The vapor retarder should be installed in accordance with ASTM Standard Practice E 1643-11. Care should be taken to properly lap and seal the vapor retarder, particularly around utilities, and to protect it from damage during construction.

4. If sand or other permeable material is to be placed over the vapor retarder, the material over the vapor retarder should be only lightly moistened and not saturated prior to casting the slab concrete. Excess water above the vapor retarder would increase the potential for moisture damage to floor coverings. Recent studies, including those by ACI Committee 302, have concluded that excess water above the vapor retarder would increase the potential for moisture damage to floor coverings and could increase the potential for mold growth or other microbial contamination. The studies also concluded that it is preferable to eliminate the sand layer and place the slab concrete in direct contact with the vapor retarder, particularly during wet weather construction. However, placing the concrete directly on the vapor retarder would require special attention to using the proper vapor retarder, concrete mix design, and finishing and curing techniques.

5. To reduce shrinkage cracks in concrete, the concrete aggregates should be of appropriate size and proportion, the water/cement ratio should be low, the concrete should be properly placed and finished, contraction joints should be installed, and the concrete should be properly cured. Concrete materials, placement and curing specifications should be at the direction of the architect/engineer; ACI 302.1R-04 and ACI 302.2R-04 are suggested as resources for the architect/engineer in preparing such specifications.

6. Due to the low expansion potential of the soil and bedrock, exterior flatwork can be cast directly upon the compacted subgrade soil or bedrock. However, a cushion layer of compacted clean sand or aggregate base would enhance the slab and flatwork performance. Prior to placement of the cushion material or concrete, the subgrade soil should be moistened to close any desiccation cracks.

7. Assuming that movement (i.e., ¼-inch or more) of exterior flatwork beyond the structure is acceptable, the flatwork should be designed to be independent of the building foundations. The flatwork should not be doweled to foundations, and a separator should be placed between the two.

8. If differential movement of flatwork is considered undesirable, the flatwork should be designed and constructed in roughly the same manner as the structure slabs and should be doweled into perimeter grade beams.

Utility Trenches

1. A select, noncorrosive, granular, easily compacted material should be used as bedding and shading immediately around utility pipes. The site soils may be used for trench backfill above the select material. However, if obtaining compaction is difficult with the site soils, use of a more easily compacted sand may be desirable. The upper foot of backfill in unimproved areas should consist of native material to reduce the potential for seepage of water into the backfill.

2. Trench backfill in the upper 8 inches of subgrade beneath pavement areas should be compacted to a minimum of 92 percent of maximum dry density. Trench backfill in other areas should be compacted to a minimum of 90 percent of maximum dry density. Jetting of utility trench backfill should not be allowed.

3. Where utility trenches extend under perimeter foundations, exterior flatwork, or pavement, the trenches should be backfilled entirely with compacted native soil. The zone of native soil should extend to a minimum distance of 2 feet on both sides of the foundation, as well as the edges of flatwork or pavement. If utility pipes pass through sleeves cast into the perimeter foundations, the annulus between the pipes and sleeves should be sealed.

Site Drainage and Finish Improvements

1. Unpaved ground surfaces should be finish graded to direct surface runoff away from site improvements at a minimum 5 percent grade for a minimum distance of 10 feet. The site should be similarly sloped to drain away from improvements during construction. If this is not practicable due to the terrain, property lines, or other site features, swales with improved surfaces or other drainage facilities should be provided to divert runoff from those areas. The landscape should be planned and installed to maintain proper surface drainage conditions.

2. Raised planter beds adjacent to foundations should be provided with sealed sides and bottoms so that irrigation water is not allowed to penetrate the subsurface beneath foundations. Outlets should be provided in the planters to direct accumulated irrigation water away from foundations.

3. Runoff should discharge in a non-erosive manner away from foundations, slopes, pavements, and other improvements in accordance with the requirements of the governing jurisdictions.

4. Stabilization of surface soils, particularly those disturbed during construction, by vegetation or other means during and following construction is essential to protect the site from erosion damage. Care should be taken to establish and maintain vegetation.

5. Open areas adjacent to foundations, exterior flatwork, and other improvements should be irrigated or otherwise maintained so that constant moisture conditions are created throughout the year. However, irrigation systems should be controlled to the minimum levels that will sustain the vegetation without saturating the soil.

Geotechnical Observation and Testing

1. It must be recognized that the recommendations contained in this report are based on a limited subsurface investigation and rely on continuity of the subsurface conditions encountered.

2. It is assumed that the geotechnical engineer will be retained to provide consultation during the design phase, to interpret this report during construction, and to provide construction monitoring in the form of testing and observation.

3. Unless otherwise stated, the terms "compacted" and "recompacted" refer to soils placed in level lifts not exceeding 8 inches in loose thickness and compacted to a minimum of 90 percent of maximum dry density. The standard tests used to define maximum dry density and field density should be ASTM D 1557-12 and ASTM D 6938-10, respectively, or other methods acceptable to the geotechnical engineer and jurisdiction.

4. Unless otherwise stated, “moisture conditioning” refers to adjusting the soil moisture to at least optimum moisture prior to application of compactive effort.

5. At a minimum, the following should be provided by the geotechnical engineer:

    - Review of grading and foundation plans as they near completion

- Professional observation during site preparation, grading, and foundation construction
- Oversight of soil compaction testing during grading
- Oversight of soils special inspection during grading

6. Special inspection of grading and foundation construction should be provided as per Sections 1705.6 and 1705.8, and Tables 1705.6 and 1705.8 of the CBC; the soils special inspector should be under the direction of the geotechnical engineer. In our opinion, the following operations should be subject to continuous soils special inspection:

    - Slope keying and benching
    - Keyway and bench drain installation
    - Scarification and recompaction
    - Fill placement and compaction
    - Foundation pier drilling

7. In our opinion, the following operations may be subject to *periodic* soils special inspection; subject to approval by the Building Official:

    - Site preparation
    - Moisture conditioning of sub-slab soils
    - Compaction of retaining wall backfill
    - Compaction of utility trench backfill
    - Compaction of pavement subgrade and aggregate base courses

8. It will be necessary to develop a program of quality control prior to beginning grading. It is the responsibility of the owner, contractor, or project manager to determine any additional inspection items required by the architect/engineer or the governing jurisdiction.

9. The locations and frequencies of compaction tests should be as per the recommendations of the geotechnical engineer at the time of construction. The recommended test locations and frequencies may be subject to modification by the geotechnical engineer based upon soil and moisture conditions encountered, the size and type of equipment used by the contractor, the general trend of the compaction test results, and other factors.

10. A preconstruction site conference between a representative of the owner, the geotechnical engineer, the soils special inspector, the architect/engineer, and contractors is recommended to discuss planned construction procedures and quality control requirements. This firm should be notified at least 48 hours prior to beginning grading operations.

Closure

This report is valid for conditions as they exist at this time for the type of project described herein. Our intent was to perform the investigation in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the locality of this project at this time under similar conditions. No representation, warranty, or guarantee is either expressed or implied. This report is intended for the exclusive use by the client as discussed in the Scope of Services section. Application beyond the stated intent is strictly at the user's risk.

If changes with respect to the project type or location become necessary, if items not addressed in this report are incorporated into plans, or if any of the assumptions stated in this report are not correct, the geotechnical engineer should be notified for modifications to this report. Any items not specifically addressed in this report should comply with the California Building Code and the requirements of the governing jurisdiction.

The preliminary recommendations of this report are based upon the geotechnical conditions encountered during the investigation, and may be augmented by additional requirements of the architect/engineer, or by additional recommendations provided by the geotechnical engineer based on conditions exposed at the time of construction.

If Earth Systems Pacific is not retained to provide construction observation and testing services, it shall not be responsible for the interpretation of the information by others or any consequences arising there from.

This document, the data, conclusions, and recommendations contained herein are the property of Earth Systems Pacific. This report should be used in its entirety, with no individual sections reproduced or used out of context. Copies may be made only by Earth Systems Pacific, the client, and their authorized agents for use exclusively on the subject project. Any other use is subject to federal copyright laws and the written approval of Earth Systems Pacific.

Thank you for this opportunity to have been of service. Please feel free to contact this office at your convenience if you have any questions regarding this report.

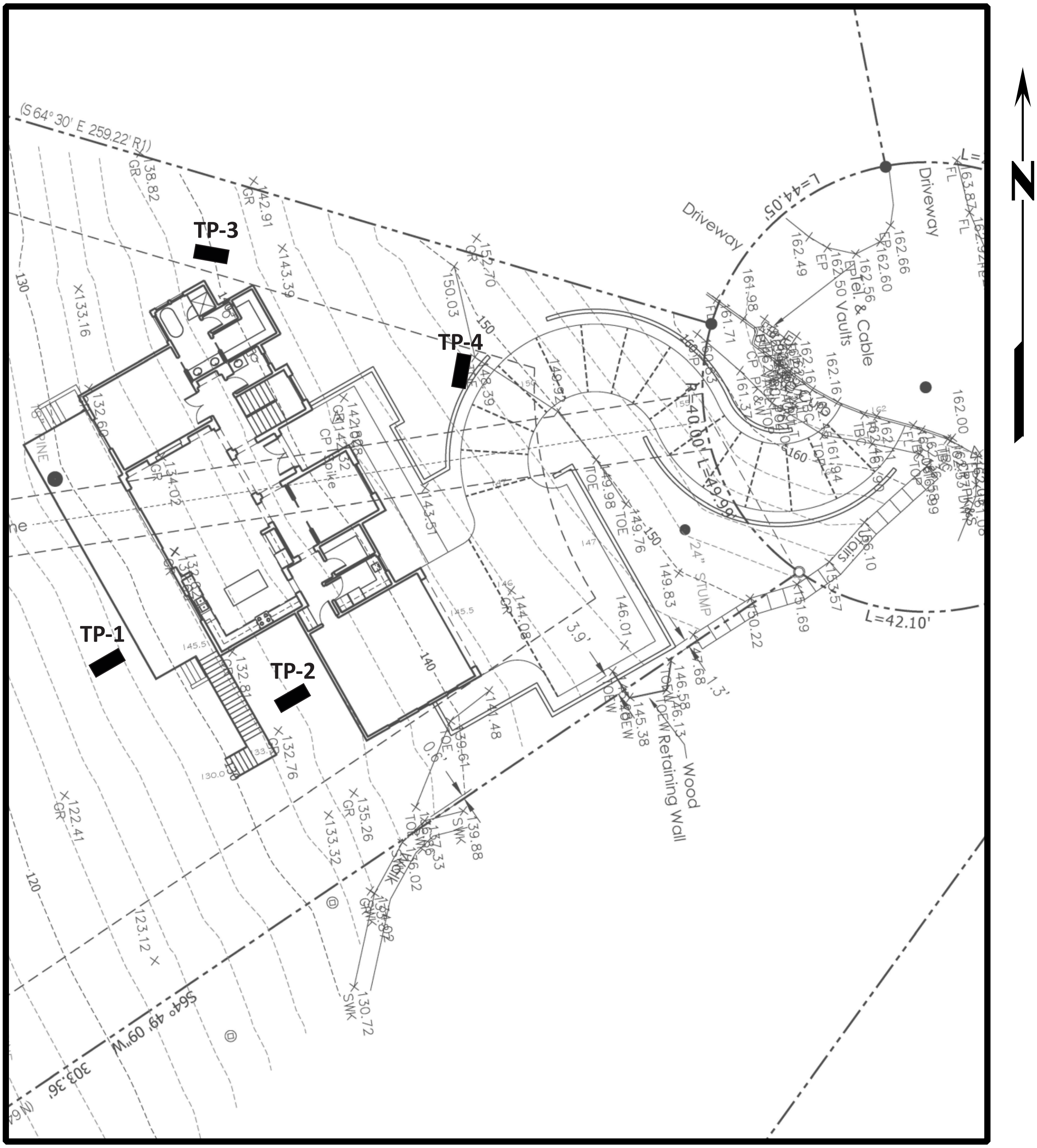
Sincerely,

Earth Systems Pacific

GEORGE J. BARNETT
GE2309

George J. Barnett
Geotechnical Engineer

Attachments:	Test Pit Location Map Test Pit Logs (4) Laboratory Test Results
Doc No:	1708-082.SER/ev



TP-4

▬ **Approximate Test Pit Location**

Base: Architectural Site Plan by Fratantoni Design (2017)

Earth Systems Pacific	**Rancho Rio Vista Lot 26** **Chiquito Place (APN 015-052-026)** **Carmel, California**	**Test Pit Location Map** **SH-13379-SA**

Earth Systems Pacific

Test Pit 1

LOGGED BY: D. Teimoorian
BACKHOE: Cat 420 E
18" Bucket

PAGE 1 OF 1
JOB NO: SH-13379-SA
DATE: 7/22/17

DEPTH (feet)	USCS CLASS	SYMBOL	**Rancho Rio Vista Lot 26** **Chiquito Place (APN 015-052-026)** **Carmel, California**	SAMPLE DATA						
			SOIL DESCRIPTION	INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	SC	▨	CLAYEY SAND; dense, gray brown, moist, fine sand, rootlets -dark brown							
-		▨		0.5-1.0	1-1	▬	80.0	13.2		>4.50
1		▨								
-		▨								
2		▨								
-		▨		2.0-2.5	1-2	▬	94.6	13.0		
3	Bdrx	▤	SANDY SHALE; soft, slightly weathered, minor fracturing, slightly oxidized [Monterey Formation]							
-		▤								
4		▤								
-		▤								
5		▤								
-		▤								
6		▤								
-			End of test pit at 6 feet Groundwater not encountered							
7										
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-										

LEGEND: ▬ 2.5" Mod Cal Sample ○ Bulk Sample ▭ 2.0" Mod Cal Sample ● SPT ▼ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Test Pit 2

LOGGED BY: D. Teimoorian
BACKHOE: Cat 420 E
18" Bucket

PAGE 1 OF 1
JOB NO: SH-13379-SA
DATE: 7/22/17

Rancho Rio Vista Lot 26
Chiquito Place (APN 015-052-026)
Carmel, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	SC	▨	CLAYEY SAND; dense, very dark brown, moist, fine sand, rootlets [LL = 28, PI = 8]	0.0-2.5	Bag A	○				
1		▨	-dark brown	1.0-1.5	2-1	■	97.6	12.3		
2		▨		2.5-3.0	2-2	■	92.2	25.3		
3	Bdrx	░	SANDSTONE; soft, moderately weathered, dark yellow to orange brown, fine to medium sand, slightly oxidized [Monterey Formation]							
4		░								
5		░								
6	Bdrx	┅	SANDY SHALE; soft, moderately weathered, dark tan, highly oxidized [Monterey Formation]							
7		┅	-clay interbed 1' thick							3.75
8		┅								
9		┅								
10			End of test pit at 10 feet Groundwater not encountered							
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										

LEGEND: ■ 2.5" Mod Cal Sample ○ Bulk Sample ▭ 2.0" Mod Cal Sample ● SPT ▼ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Earth Systems Pacific

Test Pit 3

LOGGED BY: D. Teimoorian
BACKHOE: Cat 420 E
18" Bucket

PAGE 1 OF 1
JOB NO: SH-13379-SA
DATE: 7/22/17

Rancho Rio Vista Lot 26
Chiquito Place (APN 015-052-026)
Carmel, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA						
				INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	Bdrx		SHALE; moderately soft, fresh, widely fracturing [Monterey Formation]							
1										
2										
3										
4										
5			End of test pit at 5 feet Groundwater not encountered							
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										

LEGEND: ■ 2.5" Mod Cal Sample ○ Bulk Sample ▭ 2.0" Mod Cal Sample ● SPT ▽ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Test Pit 4

LOGGED BY: D. Teimoorian
BACKHOE: Cat 420 E
18" Bucket

PAGE 1 OF 1
JOB NO: SH-13379-SA
DATE: 7/22/17

Rancho Rio Vista Lot 26
Chiquito Place (APN 015-052-026)
Carmel, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA						
				INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	SC		CLAYEY SAND; medium dense, brown, very moist, fine sand, organics [Fill]	0.0-0.5	4-1	▬	56.0	29.0		
-	Bdrx		SHALE; moderately soft, fresh, yellow brown, widely fractured [Monterey Formation]							
1										
2										
3										
4										
5			End of test pit at 5 feet Groundwater not encountered							
6										
7										
8										
9										
10										
11										
12										
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22										
23										
24										
25										
26										

LEGEND: ▬ 2.5" Mod Cal Sample ○ Bulk Sample ▭ 2.0" Mod Cal Sample ● SPT ▼ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Rancho Rio Vista Lot 26
Carmel, California

SH-13379-SA

BULK DENSITY TEST RESULTS

ASTM D 2937-10 (modified for ring liners)

July 28, 2017

BORING NO.	DEPTH feet	MOISTURE CONTENT, %	WET DENSITY, pcf	DRY DENSITY, pcf
TP-1	0.5 - 1.0	13.2	90.6	80.0
TP-1	2.0 - 2.5	13.0	106.9	94.6
TP-2	1.0 - 1.5	12.3	109.6	97.6
TP-2	2.5 - 3.0	25.3	115.6	92.2
TP-4	0.0 - 0.5	29.0	72.2	56.0

Rancho Rio Vista Lot 26
Carmel, California

SH-13379-SA

PARTICLE SIZE ANALYSIS

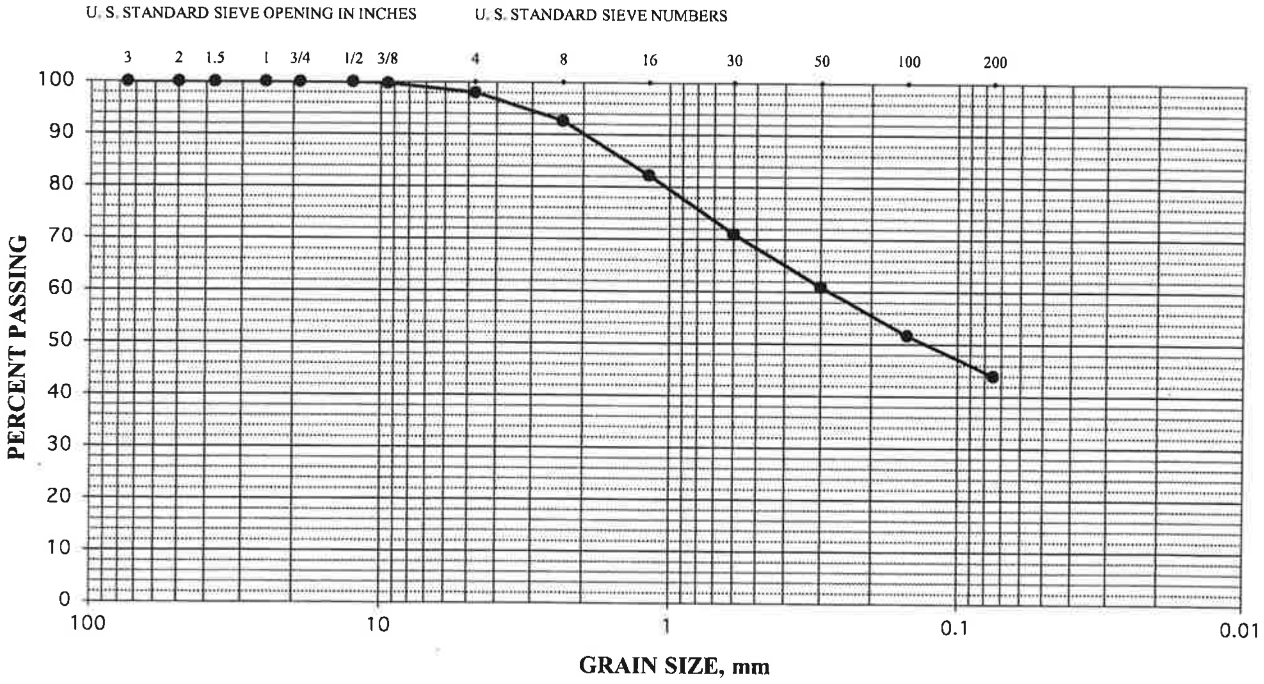
ASTM D 422-63/07; D 1140-14

Bag #A @ 0.0 - 2.5'
Clayey Sand (SC)

July 28, 2017

LL = 28; PL = 20; PI = 8

Sieve size	% Retained	% Passing
3" (75-mm)	0	100
2" (50-mm)	0	100
1.5" (37.5-mm)	0	100
1" (25-mm)	0	100
3/4" (19-mm)	0	100
1/2" (12.5-mm)	0	100
3/8" (9.5-mm)	0	100
#4 (4.75-mm)	2	98
#8 (2.36-mm)	7	93
#16 (1.18-mm)	18	82
#30 (600-µm)	29	71
#50 (300-µm)	39	61
#100 (150-µm)	48	52
#200 (75-µm)	56	44



Rancho Rio Vista Lot 26
Carmel, California

SH-13379-SA

PLASTICITY INDEX

ASTM D 4318-10

July 28, 2017

Test No.:	1	2	3	4	5
Boring No.:	Bag A, Test Pit 2				
Sample Depth:	0.0 - 2.5'				
Liquid Limit:	28				
Plastic Limit:	20				
Plasticity Index:	8