Exhibit E

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LANDSET ENGINEERS, INC.

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SOIL ENGINEERING INVESTIGATION
FOR THE
STIVER RESIDENCE
(APN 243-032-013)
2777 PRADERA ROAD
MONTEREY COUNTY, CALIFORNIA

PROJECT 1550-02

Prepared for

MR. & MRS. JARED AND ERIN STIVER
C/O MOORE DESIGN
225 CANNERY ROW, SUITE I
MONTEREY, CALIFORNIA 93940

Prepared by

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FEBRUARY 2018

LANDSET ENGINEERS, INC.

February 8, 2018 File No.: 1550-02

Mr. & Mrs. Jared and Erin Stiver
C/o Moore Design
225 Cannery Row, Suite I
Monterey, California 93940

Attention: Mr. John Moore

SUBJECT: SOIL ENGINEERING INVESTIGATION
Stiver Residence (APN 243-032-013)
2777 Pradera Road
Carmel Meadows Area of Monterey County, California

Dear Mr. & Mrs. Stiver:

In accordance with your authorization, Landset Engineers, Inc. has completed a soil-engineering investigation for your proposed remodel and additions to your residence located in the Carmel Meadows area of Monterey County, California. This report presents the results of our field investigation, laboratory testing, along with our preliminary conclusions and recommendations for site development.

It is our opinion that the proposed residential development is feasible from a soil engineering standpoint provided the recommendations included in this report are incorporated into the project plans, specifications, and implemented during construction. The preliminary conclusions and recommendations included herein are based upon applicable standards at the time this report was prepared.

It has been a pleasure to be of service to you on this project. If you have any questions regarding the attached report, please contact the undersigned at (831) 443-6970

Respectfully submitted,
LandSet Engineers, Inc.

Brian Papurello
CEG 2226

Guy R. Giraudo
RCE 56569

Distribution: Moore Design (2 mail & e-mail: john@mooredesign.org)
Mr. & Mrs. Jared and Erin Stiver (1 mail)

Doc. No.: 1802-108.SER

520-B Crazy Horse Canyon Rd. | Salinas, CA 93907 | TEL: 831-443-6970 | FAX: 831-443-3801 | LandSetEng.com

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INTRODUCTION

This report summarizes our findings and preliminary conclusions & recommendations for our soil engineering investigation for the proposed remodel and additions to a single family residence located on the northwesterly corner of Pradera Road and Meadow Way in the Carmel Meadows area of Monterey County, California (see Vicinity Map, Figure 1).

PURPOSE AND SCOPE OF SERVICES

This soil engineering investigation has been prepared to explore surface and subsurface soil and groundwater conditions at the site, and provide preliminary soil-engineering criteria for design and construction of the project.

The conclusions and recommendations of this report are intended to comply with Chapter 18 of the California Building Code (CBC) 2016 edition as modified by standard soil engineering practice in this area. Our scope of services included:

1. A visual site reconnaissance.
2. Exploration, sampling and classification of the surface and subsurface soils by means of drilling three exploratory borings to depths ranging from 6.5 to 10.5 feet below the ground surface.
3. Laboratory testing of selected soil samples collected from the exploratory borings and to determine their pertinent engineering and index properties.
4. Engineering analysis of the information collected based on the results of the field exploration; laboratory testing program and review of published and unpublished studies in the general area of the site.
5. Preparation of this report summarizing our preliminary findings and soil engineering conclusions and recommendations for site preparations, grading and compaction, foundations, retaining walls, utility trenches, slabs-on-grade, general site drainage, and erosion control.

SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The property (APN 243-032-013) is located at 2777 Pradera Road in the Carmel Meadows area of Monterey County, California (Figure 1). The overall property consists of a rectangular shaped parcel of about 0.22-acres in area. The site is fairly flat, sloping gently (~2%) to the northwest (Figure 2). An existing one story residence currently occupies the site.

Proposed site development will consist of the demolition of the existing garage and removal of all the walls down to the sub-floor and the construction of a new 3,388-ft^2 two-story single family residence with a 605-ft^2 attached garage. Other proposed improvements will likely consist of site walls and exterior patios and decks with associated landscaping and site drainage improvements.

FIELD EXPLORATION

A total of three exploratory borings were drilled on January 18, 2018 at the approximate locations shown on the Boring Location Map, Figure 2. The borings were drilled using a truck mounted drill rig equipped with a 4-inch outside diameter solid stem auger. The exploratory borings were drilled to depths ranging from 6.5 to 10.5 feet below the ground surface.

Soils encountered in each exploratory boring were visually classified in the field and a continuous log was recorded. Visual classifications were made in general accordance with the Unified Soil Classification System and ASTM D2487. Logs of the borings can be found in Appendix A (Figures A4 through A6). Appendix A also contains a Key to the Unified Soil Classification System, Key to Log of Borings and Soil Terminology (Figures A1 through A3).

Soil samples were obtained by drilling to the desired depth and then driving a 3-inch OD Modified California Sampler or a 2-inch OD Standard Penetration Test sampler. The samplers were driven into the ground using force generated by a 140-pound hammer dropping freely through a distance of 30-inches. The number of blows required to drive the last 12-inches of an 18-inch sampler were recorded as penetration resistance (blows/foot) on the exploratory boring logs. The penetration resistance values were used to describe the consistency/density of the subsurface materials.

LABORATORY TESTING

Laboratory tests were performed to determine the relevant physical and engineering characteristics on selected soil samples of the various soil materials encountered in the exploratory borings considered pertinent to the design of the project. The tests performed were selected on the basis of the probable design requirements as correlated to the site subsurface profile. A summary of the laboratory test results is presented in Appendix B. A brief generalized description of the tests performed is presented below.

- ❋ Moisture-Density Determinations: This test was conducted on fiberglass liner samples to measure their in-situ moisture contents and dry unit weights. The test results are used to assess the distribution of subsurface pressures and to calculate degrees of in-situ relative compaction.
- ❋ Grain Size Distribution (Gradation) Analysis: A grain size distribution analysis was performed on a selected soil samples. The grain size distribution is used to determine the classification of the site soils. This information is used for foundation design analysis.
- ❋ Atterberg Limits: This test was performed to determine liquid limit and plastic limit index values. This test provides water content values for the sample's liquid and plastic phases. This test aids in determining the expansive potential and other engineering characteristics of the soil.

SUBSURFACE CONDITIONS

Subsurface constituents were fairly uniform to the depths explored in each of the exploratory borings. Subsurface materials encountered consisted of approximately 3.5 feet of loose to medium dense silty SAND topsoil. Below the soil layers the borings encountered Cretaceous age granitic bedrock to the maximum depth explored of 10.5 feet below the ground surface. One notable exception was in boring B-2, where the boring encountered Pleistocene age semi-consolidated terrace deposits from 1.0 to 4.5 feet below the ground surface. The terrace deposits consist of interbedded silty SAND, fat CLAY & clayey SAND. Granitic bedrock was encountered in this boring at a depth of 4.5 feet below the ground surface.

GROUNDWATER

Groundwater was not encountered in any of the exploratory borings. Local groundwater levels can fluctuate over time depending on but not limited to factors such as seasonal rainfall, site elevation, groundwater withdrawal, and construction activities at neighboring sites. The influence of these time dependent factors could not be assessed at the time of our investigation.

SUMMARIZED CONCLUSIONS

The following preliminary conclusions are drawn from the data acquired and evaluated during this investigation for the proposed project. Soil and groundwater conditions can deviate from the conditions encountered at the boring locations. If significant variations in the subsurface conditions are encountered during construction, it may be necessary for Landset Engineers, Inc. to review the recommendations presented herein, and recommend adjustments as necessary.

Site Suitability: In our opinion, the site is suitable from a soil engineering standpoint for the proposed development provided that the recommendations contained herein are implemented in the design and construction. The following preliminary conclusions and recommendations are presented as guidelines to be used by project planners and designers for the soil engineering aspects of the project design and construction. These conclusions and recommendations have been prepared and are only valid if Landset Engineers, Inc. is retained to review proposed foundation plans before construction, and to observe, test and advise during remedial earthwork construction.

Soil Expansion: Atterberg limits test performed on a composite sample of native fat CLAY soil material from the borings at depths ranging from 2.5 to 3.0 feet below the ground surface resulted in plasticity index value of 38. This value indicates that some areas of the foundation bearing soils may locally have high expansion potential. Expansive soils experience volumetric changes with changes in moisture content, swelling with increases in moisture content and shrinking with decreasing moisture content. These volumetric changes that the soil undergoes in this cyclic pattern can cause distress resulting in damage to concrete slabs and foundations. The potential causal effects of expansive soils can be mitigated if precautionary measures are incorporated into the construction procedures and methods. Footings are typically deepened to penetrate through the most expansive zone.

Grading: Due to loose surficial soil conditions underlying the proposed additions, it is recommended that the top two feet of soil underlying future building areas be removed (subexcavated) down to firm native soil and replaced as an engineered and compacted fill prior to foundation construction.

Liquefaction Potential: Liquefaction is the transformation of soil from a solid to a liquid state as a consequence of increased pore-water pressures in response to strong ground shaking generated during an earthquake. Based on our field investigation and research (Dupre', 1990), it is our opinion that the potential for liquefaction to occur on the site is very low.

Surface Fault Rupture: The site is not located within an Earthquake Fault Zone as established in accordance with the Alquist-Priolo Earthquake Fault Zoning Act of 1972 (Hart & Bryant, 1999). The potential for surface rupture to occur on the site is determined to be very low.

Dynamic Compaction & Compressibility: Dynamic compaction occurs when loose, unsaturated soils densify in response to ground shaking during a seismic event. Because no such materials were encountered on the site, it is our opinion that the potential for dynamic compaction is low. Based on the dense consistencies encountered during our field exploration and local site geologic conditions, it is our opinion that the site soils exhibit very low compressibility characteristics.

Erosion: The earth materials underlying that site consist of a thin veneer of residual silty sand soil over dense earth materials. Review of the on-line geologic hazard map for Monterey County (http://montereyco.maps.arcgis.com/apps/webappviewer/index.html) indicates that the site is located in a moderate erosion hazard area. Based on our site reconnaissance and field exploration it is our opinion that the site topsoil is erodible when disturbed. A grading, drainage & erosion control plan prepared by a Registered Civil Engineer should be included in the project design. Erosion control measures should be implemented to provide surficial stability of the site soils.

Incorporation of LID drainage improvements are recommended to be incorporated in the project storm water development plans.

Landsliding and Slope Stability: Topographically the site slopes very gently to the northwest. Previous investigators have mapped no evidence of slope instability (Clark, Dupre' & Rosenberg, 1997). No evidence of past or present slope instability was noted to occur in the field as part of this study. The potential for landsliding to affect the project is very low. Foundations should be setback from slopes in accordance with Chapter 18 of the 2016 CBC.

Total & Differential Settlement: Post construction total and differential settlements from static loading of foundations are expected to be about 1-inch and ½-inch respectively. Post construction total and differential settlement of foundations is estimated to be about ¾-inch from seismic loading.

Seismic Design Parameters: For seismic design using the 2016 CBC, we recommend the following design values be used. The parameters were calculated using the U.S. Geological Survey Design Maps computer program and were based on the approximate center of the site located at 36.5320° N. latitude and –121.9236° W. longitude.

2016 CBC Seismic Design Parameters

Design Parameter	***Site Design Value***
Site Class	**B – Rock**
Spectral Acceleration Short Period	**(S_s) = 1.639g**
Spectral Acceleration 1 Second Period	**(S_1) = 0.627g**
Short Period Site Coefficient	**(F_a) = 1.00**
1 Second Period Site Coefficient	**(F_v) = 1.00**
MCE Spectral Response Acceleration Short Period	**(S_{MS}) = 1.639g**
MCE Spectral Response Acceleration 1-Second Period	**(S_{M1}) = 0.627g**
5% Damped Spectral Response Acceleration Short Period	**(S_{DS}) = 1.093g**
5% Damped Spectral Response Acceleration 1-Second Period	**(S_{D1}) = 0.418g**
Peak Horizontal Ground Acceleration	**(PGA) = 0.669g**

RECOMMENDATIONS

Site Preparation and Grading

1. The soil engineer should be notified **at least five (5) working days prior to any site clearing or grading** so that the work in the field can be coordinated with the grading contractor and arrangements for testing and observation services can be made. The recommendations contained in this report are based on the assumption that Landset Engineers, Inc. will perform the required testing and observation services during grading and construction. It is the owner's responsibility to make the necessary arrangements for these required services.

2. Prior to grading, building areas should be cleared of obstructions, trees and their associated root systems, deleterious materials, foundations, undocumented fill and buried structures. Site clearing should be observed by a field representative of Landset Engineers, Inc. Voids created by the removal of materials as described above should be called to the attention of the soil engineer. No fill should be placed unless a representative of this firm has observed the underlying soil.

3. Following site preparation, ***the upper 2.0 feet of native soil or the upper 2.0 feet below the proposed building pad (whichever is deeper) should be removed (overexcavated).*** Deeper overexcavation may be required if loose soils are observed at the time of grading. Building areas are defined as the soils within and extending a minimum of 5 feet beyond the foundation perimeters. The soils exposed by overexcavation should be scarified at least 12 inches and recompacted to a minimum of 90 percent of maximum dry density. Where referenced in this report, percent relative compaction and optimum moisture content shall be based on ASTM test D1557.

4. Structural fill, material may then placed within the subexcavation in thin (6"-8") lifts; moisture conditioned to a level above optimum moisture content, and compacted to a

minimum of 90 percent of maximum dry density. Prior to compaction, the soil should be cleaned of any rock, debris, and irreducible material larger than 3-inches in diameter.

5. Structural fill is defined herein as a native or import fill material which, when properly compacted, will support foundations, pavements, and other fills without detrimental settlement or expansion. Structural fill is specified as follows:

Structural Fill

- Clean native soil may be utilized, but import fill shall have a Plasticity Index of less than 12
- Be free of debris, vegetation, and other deleterious material
- Have a maximum particle size of 3-inches in diameter
- Contain no more than 15% by weight of rocks larger than 21/2-inches in diameter
- Have sufficient binder to allow footing and unshored excavation without caving
- Prior to delivery to the site, a representative sample of proposed import should be provided to Landset Engineers, Inc. for laboratory evaluation

6. In areas to be paved, the upper 12-inches of subgrade soils and all aggregate base should be compacted to a minimum of 95 percent of maximum dry density. Aggregate base and subgrade should be firm and unyielding when proof rolled by heavy rubber-tired equipment prior to paving.

Foundations

7. The new residence may be supported by conventional continuous and spread (pad) footings bearing entirely on recompacted fill as described in the "Site Preparation and Grading" recommendations section of this report. Footings should have minimum depths of 12-inches (trenching depth) below lowest adjacent grade for one story structures, and 18-inches (trenching depth) below lowest adjacent grade for two story structures. Footings should be reinforced as directed by the architect/structural engineer.

8. Footings should be designed using a maximum allowable bearing capacity of 2,000 psf for dead plus live loads. Footings should be reinforced as directed by the architect/structural engineer. These values may be increased by one-third for short-term loads such as wind or seismicity.

9. For calculating resistance to lateral loading, a friction coefficient of 0.35 may be assumed to act between the bottom of the foundations and the supporting soil. Where foundations are poured neat against excavated trenches, the engineered fill may be assumed to provide 350 pounds per cubic foot (ultimate value). Lateral support from soil that may later be excavated or used in landscaping near foundations should be neglected.

10. Post construction total and differential settlements from static loading of foundations is expected to be about 1-inch and ½-inch respectively. Post construction total and differential settlement of foundations is estimated to be about 1½-inch and 1-inch from seismic loading.

11. Footing excavations must be observed by a representative of this firm prior to placement of formwork or reinforcement. Concrete should be placed only in foundation excavations that have been kept moist, and contain no loose or soft soil debris.

12. Footings located adjacent to other footings or utility trenches should have their bearing surfaces founded below an imaginary 1:1 (horizontal to vertical) plane projected upward from the bottom edge of the adjacent footings or utility trenches.

Slabs-on-Grade and Exterior Flatwork

13. The slabs-on-grade should have minimum thickness of 4 full inches. Concrete slabs-on-grade and exterior flatwork should be reinforced with steel as specified by the architect/structural engineer.

14. Exterior flatwork should be constructed on compacted soil subgrade moisture conditioned to near optimum moisture content. Preparation of soil subgrades and compaction of fill should be performed as recommended in the section entitled "Site Preparation and Grading".

15. To minimize floor dampness at the ground floor level, such as where moisture sensitive floorings will be present, a section of capillary break material at least 4-inches thick covered with a membrane vapor barrier should be placed between the floor slab and the compacted soil subgrade. The capillary break should consist of a clean, free draining material such as ½ to ¾-inch drainrock with not more than 10 percent of the material passing a No. 4 sieve. The drainrock should be free of sharp edges that might damage the membrane vapor barrier. The membrane vapor barrier should be a minimum 10 mil in thickness, and care should be taken to properly lap and seal the vapor barrier, particularly around utilities. To protect the vapor barrier from damage during concrete placement, it should be covered with a minimum of 2 inches of clean sand. Clean sand is defined as clean sand (ASTM D 2488) of which less than 3 percent passes the No. 200 sieve. The sand cushion should be lightly moistened immediately prior to concrete placement.

16. Exterior concrete flatwork should be designed to act independently of building foundations. To reduce shrinkage cracks in concrete slabs and flatwork, contraction joints

should be installed. Joint spacing should be at the direction of the architect/structural engineer.

Retaining Walls

17. Retaining walls for the site may be designed using the following general design parameters, which assume fully drained wall backfill conditions. The average bulk density of material placed on the backfill sides of walls will be about 125 pounds per cubic foot (pcf).

18. The vertical plane extending down from the ground surface to the bottom of the heel of the vertical wall will be subject to lateral soil pressures (plus surcharge loads). An Active Soil Pressure of 35 pcf (equivalent fluid weight) should be used in design of site walls that are free to move laterally and resultant settlement of backfill is tolerable. An At-Rest Soil Pressure of 60 pcf should be used in design for walls, which are restricted from movement at the top (such as foundation walls). The above pressures are applicable to a horizontal retained surface behind the wall. Walls having a retained surface that slopes upward from the wall should be designed for an additional equivalent fluid pressure of 1 pcf for the active case and 1.5 pcf for the at rest case, for every two degrees of slope inclination.

19. The additional effects of earthquakes on the walls may be simulated by applying a horizontal line force of $12H^2$ pounds per foot length of wall. This force should be applied at a height of 0.6H above the wall heel. The additional effects of vertical live loads on the backfill side of walls may be simulated by applying 50 percent of the live loads as a horizontal surcharge force on the walls. The point of application of the live load surcharge may be estimated by assuming a 45-degree line of action down from the live load to the design plane or wall stem.

20. Retaining walls should be supported on foundations bearing on dense native earth materials assuming a footing depth of 18-inches below lowest adjacent grade. An increase of 1/3 is allowed when considering additional short-term wind or seismic loading. The ultimate coefficient of friction below the base of the wall = 0.35. Passive soil resistance against the portion of the wall base and key is 350psf/ft for level ground in front of the wall. Lateral support from the soil that may be excavated or used in landscaping near the wall footing should be neglected. Typically this would include the top 12-inches of soil around the wall.

21. The earth pressures are based on fully drained conditions. We recommend that a zone of drainage material at least 12-inches wide should be placed on the backfill side of the walls. Drainage materials should consist of Class 2 permeable material complying with Section 68 of the Caltrans Standard Specifications, latest edition, or ¾-inch permeable drainrock wrapped in Mirafi 140N or equivalent. Manufactured drains such as Miradrain or Enkadrain are acceptable alternatives to the use of permeable or gravel material, provided that they are installed in accordance with the recommendations of the manufacturer. The drains should extend from the base of the walls to within 12-inches of the top of the wall backfill. The upper 12-inches of wall backfill should consist of compacted structural fill. A perforated pipe should be placed (holes down) about 4-inches above the bottom of the wall or below lowest adjacent grades in front of the wall. The perforations should be no larger than ¼-inch diameter, and the perforated pipe should be connected via a solid collector pipe to an approved point appropriate discharge (sump) facility.

22. Wall backfill should be moisture conditioned and compacted to a minimum of 90% of maximum dry density. If heavy compaction equipment will be used for compaction of the wall backfill, the wall design should include a compaction surcharge in addition to the soil pressures given above. Landset Engineers, Inc. should be consulted for proper

compaction surcharge pressures. To avoid surcharging the walls, backfill within 3-feet of the wall should be compacted by hand operated equipment.

Utility Trenches

23. On-site soils should be properly shored and braced during construction to prevent sloughing and caving of trench sidewalls. The contractor should comply with the Cal/OSHA and local safety requirements and codes dealing with excavations and trenches.

24. A select non-corrosive, granular, material should be used as bedding and shading immediately around underground utility pipes and conduits. Native soils may be used for trench backfill above the select material.

25. Trench backfill in landscaped or unimproved areas should be compacted to a minimum of 85 percent of maximum dry density. Trench backfill beneath asphalt and concrete pavements should be compacted to a minimum of 95 percent of maximum dry density. Trench backfill in other areas should be compacted to a minimum of 90 percent of maximum dry density.

26. The bottoms of utility trenches that are parallel to foundations should not extend below an imaginary plane sloping downward at a 1:1 (horizontal to vertical) angle from the bottom outside edges of foundations.

Site Drainage

27. A drainage & erosion control plan prepared by a registered civil engineer is essential to the project. Fluctuations of moisture contents are a major consideration, both before and after construction. Properly designed drainage & erosion control mitigations are essential to the long-term sustainability of the project.

28. Surface drainage should provide for positive drainage so that runoff is not permitted to pond adjacent to foundations, concrete slabs-on-grade, and pavements. Pervious 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. If this is not practicable due to the terrain or other site features, swales with improved surfaces should be provided to divert drainage away from improvements. Surface runoff collected in this swale should be controlled and flow in a non-erosive manner to an approved point of discharge.

29. Roof gutters should be utilized around the building eaves. Roof gutters should be connected to downspouts, which in turn should discharge onto splash blocks. Runoff from downspouts, planter drains and other improvements should discharge in a non-erosive manner away from site improvements in accordance with the requirements of the governing agencies.

30. The migration of water or spread of root systems below foundations, slabs, or pavements may cause differential movement and subsequent damage. Landscaping runoff collection facilities should be incorporated in the project design.

NOTICE TO OWNER & QUALITY CONTROL

The conclusions and recommendations contained in this update report are preliminary in nature. We recommend that Landset Engineers, Inc. be retained to review final plans once they are available. ***Any earthwork or foundation construction performed without engineering supervision, direct observation and/or testing by Landset Engineers, Inc., will not be certified as complete and in accordance with the requirements set forth herein.***

Additional recommendations will be provided if necessary based on our review, to interpret this report during construction, and to provide construction testing and observation services. These services are beyond the scope of this soil engineering investigation and are not considered part of the fees as charged by Landset Engineers, Inc., for the report contained herein.

At a minimum the following items must be reviewed, tested, or observed by this firm:

- ***Grading, drainage & erosion control plans***
- ***Building and foundation plans***
- ***Site stripping and clearing***
- ***Subexcavation, fill placement and compaction***
- ***Foundation excavations***
- ***Surface and subsurface drainage improvements***
- ***Compaction of utility trench & retaining wall backfill and pavement areas***

If Landset Engineers, Inc. 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 therefrom.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The preliminary recommendations contained in this report are based, in part, on certain plans, information, and data that has been provided to us. Any changes in those plans, information, and data will render our recommendations invalid unless we are commissioned to review the changes and to make any necessary modifications and/or additions to our recommendations. The criteria in this report are considered preliminary until such time as they are modified or verified by the soil engineer in the field during construction. No representation, warranty, or guarantee is either expressed or implied. This report is intended for the exclusive use by the client and the client's architect/engineer. Application beyond the stated intent is strictly at the user's risk.

The recommendations of this report are based upon the assumption that the soil conditions do not deviate from those disclosed in the borings. If any variations or undesirable conditions are encountered during construction, Landset Engineers, Inc. should be notified so that supplemental recommendations can be given.

This report is issued with the understanding that it is the responsibility of the owner, or his representative, to ensure that the information and recommendations contained herein are called to the attention of the Architects and Engineers for the project and incorporated into the plans, and that the necessary steps are taken to ensure that the Contractor and Subcontractors carry out such recommendations. The conclusions and recommendations contained herein are professional opinions derived in accordance with current and local standards of professional practice.

The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether due to natural processes or to the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes outside of our control. Therefore, this report should not be relied upon after a period of three years, without being reviewed by Landset Engineers, Inc. from the date of issuance of this report.

This report does not address issues in the domain of the contractor such as, but not limited to, loss of volume due to stripping of the site, shrinkage of fill soils during compaction, excavatability, and construction methods. The scope of our services did not include any determination or evaluation of site geology, soil corrosion potential, environmental assessment of wetlands, radioisotopes, hydrocarbons, hazardous or toxic materials, or other chemical properties in the soil, surface water, groundwater or air, on or below or around the site.

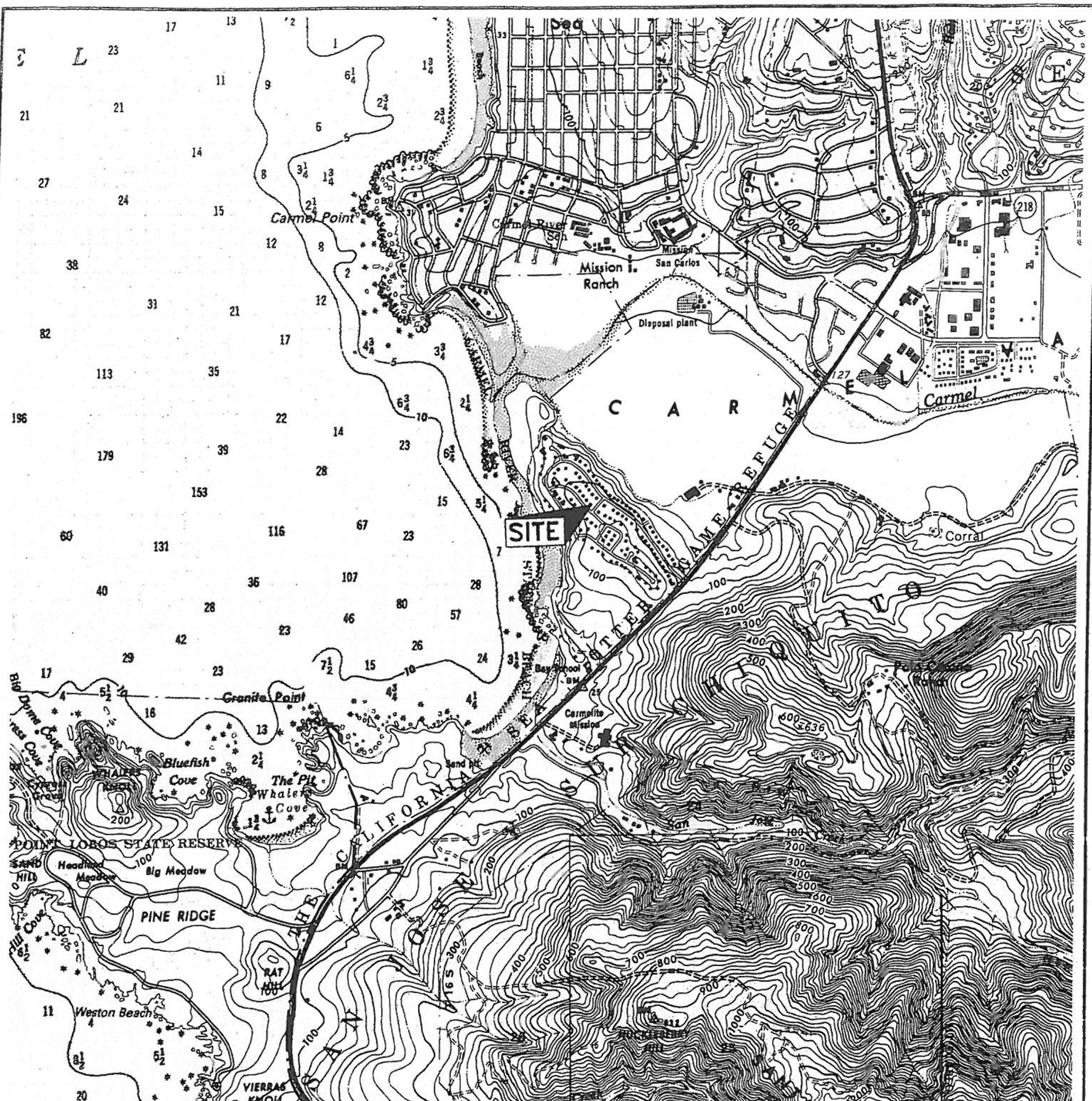
REFERENCES

Clark, J.C., Dupre, W.R., Rosenberg, L.I., 1997, Geologic map of the Monterey and Seaside quadrangles, Monterey County, California: U.S. Geological Survey Open File Report 97-30, 26 p. 2 plates scale 1:24,000.

Dupre', W.R., 1990, Maps showing geology and liquefaction susceptibility of Quaternary deposits in the Monterey, Seaside, Spreckels, and Carmel Valley quadrangles, Monterey County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2096, 2 map sheets, scale 1:24,000.

Hart, E.W., Bryant, W.A., 1997 (revised 1999), Fault-rupture hazard zones in California: California Division of Mines and Geology Special Publication 42, 38p.

FIGURES



BASE MAP: Monterey, California
U.S.G.S. 7.5' Topographic
Quadrangle Map
Scale: 1"=2000'

N

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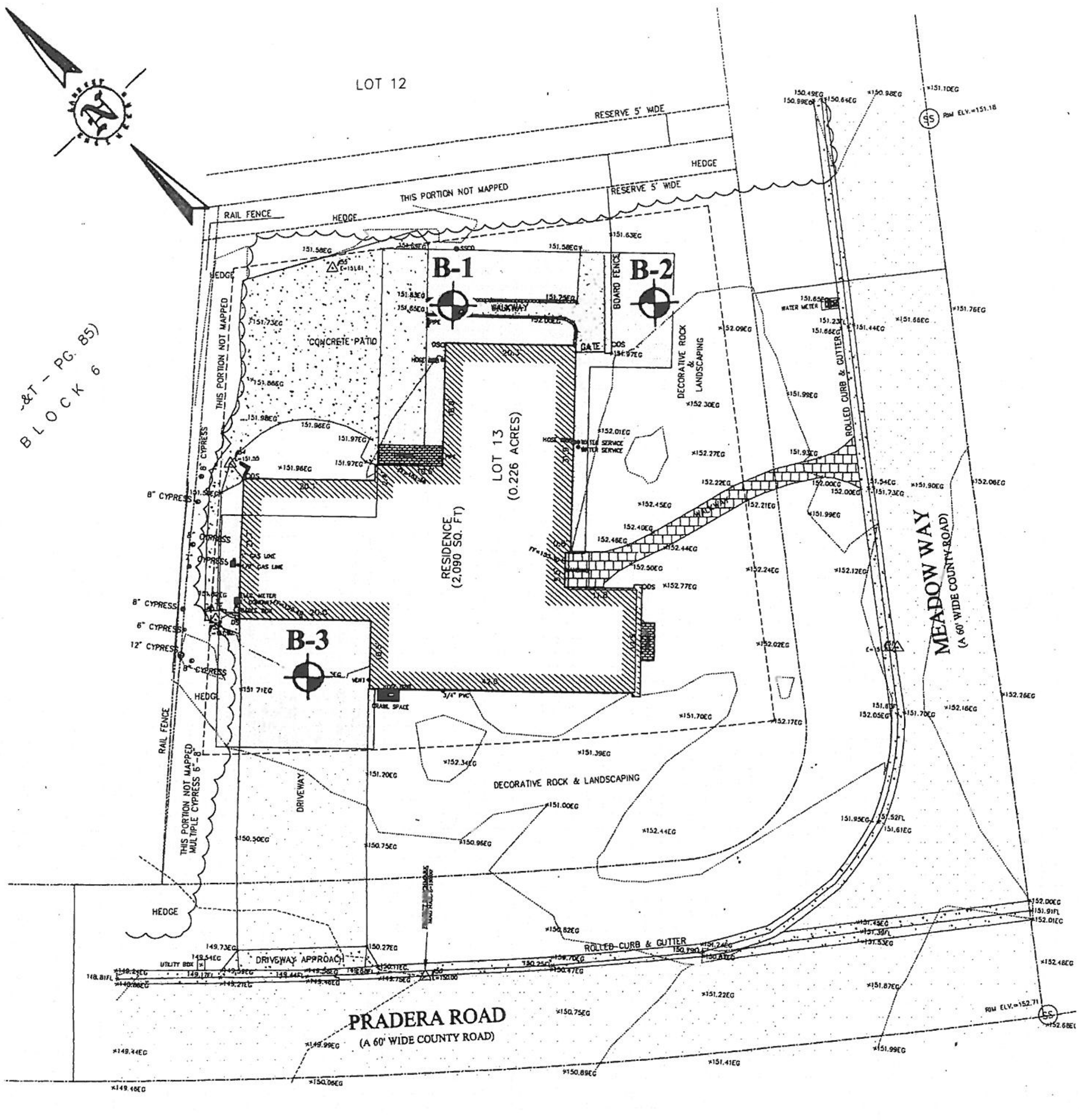
Vicinity Map
Stiver Residence (APN 243-032-013)
2777 Pradera Road
Monterey County, California

FIGURE
1
PROJECT
1550-02



Explanation

B-3

Approximate Boring Location

LANDSET ENGINEERS, INC.
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Boring Location Map
Stiver Residence (APN 243-032-013))
2777 Pradera Road
Monterey County, California

FIGURE 2
PROJECT 1550-02

APPENDIX A

Unified Soil Classification Systems
Key to Log of Borings
Soil Terminology
Exploratory Boring Logs B-1 through B-3

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS More than 50% of material is larger than No. 200 sieve size.	GRAVEL AND GRAVELLY SOILS More than 50% of coarse fraction retained on No. 4 sieve.	CLEAN GRAVELS		GW	Well-graded gravels, gravel-sand mixtures, little or no fines.
				GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES		GM	Silty gravel, gravel-sand-silt mixtures.
				GC	Clayey gravels, gravel-sand-clay mixtures.
	SAND AND SANDY SOILS More than 50% of coarse fraction passing No. 4 sieve.	CLEAN SAND (Little or no fines)		SW	Well-graded sands, gravelly sands, little or no fines.
				SP	Poorly-graded sands, gravelly sands, little or no fines.
		SAND WITH FINES (Appreciable amount of fines)		SM	Silty sands, sand-silt mixtures.
				SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS More than 50% of material is smaller than No. 200 sieve size.	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity.
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
				OL	Organic silts and organic silty clay of low plasticity.
		LIQUID LIMIT GREATER THAN 50		MH	Inorganic silty, micaceous or diatomaceous fine sand or silty soils.
				CH	Inorganic clays of high plasticity, fat clays.
				OH	Organic clays or medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS				PT	Peat, humus, swamp soils with high organic contents.
VARIOUS SOILS AND MAN MADE MATERIALS					Fill materials.
MAN MADE MATERIALS					Asphalt and concrete.

KEY TO LOG OF BORINGS

Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil-Group	Moisture (% dry weight)	Dry Density (pcf)
1								
2					Shelby Sampler Thin walled, 3" diameter, 3 ft long, hydraulically advanced.			
3								
4					Modified California Sampler 3" diam. split-barrel sampler with brass liners driven by a 140 lb hammer with a drop of 30".			
5								
6					Standard Penetration Test (SPT) Sampler 2" diam. split-barrel sampler driven by a 140 lb hammer with a drop of 30".			
7								
8					Bulk Sample Loose soil removed for testing.			
9								
10								
11					California Sampler 2.5" diam. split-barrel sampler with brass liners driven by a 140 lb hammer with a drop of 30". Shaded area denotes sample taken.			
12								
13					Hand Sampler (2.5" diam. driven by hand).	Grounwater encountered during drilling		
14								
15					Continuous Core Sampler 94 mm Christianson Sampler.	Grounwater after drilling		
16						Seepage		
17			75		Approximate blows per foot.			
18					Solid line denotes soil or lithologic change.			
19								
20					Dashed line denotes gradiational or approximate soil or lithologic change.			
21								
22					Heavy line denotes termination of boring.			
23								
24					N/R = No sample recovered D.S. = Disturbed sample			
25								
26								
27								

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Figure A2

SOIL TERMINOLOGY

SOIL TYPES (Ref. 1)

Boulders:	Particles of rock that will not pass a 12 inch screen.
Cobbles:	Particles of rock that will pass a 12 inch screen, but not a 3 inch sieve.
Gravel:	Particles of rock that will pass a 3 inch sieve, but not a No.4 sieve.
Sand:	Particles that will pass a No. 4 sieve, but not a No. 200 sieve.
Silt:	Soil that will pass a No. 200 sieve, that is non-plastic or very slightly plastic, and that exhibits little or no strength when dry.
Clay:	Soil that will pass a No. 200 sieve, that can be made to exhibit plasticity (putty-like properties) within a range of water contents, and that exhibits considerable strength when dry.

MOISTURE AND DENSITY

Moisture Condition:	An observational term; dry, slightly moist, moist, very moist, saturated.
Moisture Content:	The weight of water in a sample divided by the weight of dry soil in the soil sample, expressed as a percentage.
Dry Density:	The pounds of dry soil in a cubic foot of soil.

DESCRIPTORS OF CONSISTENCY (Ref. 3)

Liquid Limit:	The water content at which a No. 40 soil is on the boundary between exhibiting liquid and plastic characteristics. The consistency feels like soft butter.
Plastic Limit:	The water content at which a No. 40 soil is on the boundary between exhibiting plastic and semi-solid characteristics. The consistency feels like stiff putty.
Plasticity Index:	The difference between the liquid limit and the plastic limit, i.e. the range in water contents over which the soil is in a plastic state.

MEASURES OF CONSISTENCY OF COHESIVE SOILS (CLAYS) (Ref's. 2 & 3)

Very soft	N=0-1 *	C=0-250 psf	Squeezes between fingers
Soft	N=2-4	C=250-500 psf	Easily molded by finger pressure
Medium Stiff	N=5-8	C=500-1000 psf	Molded by strong finger pressure
Stiff	N=9-15	C=1000-2000 psf	Dented by strong finger pressure
Very Stiff	N=16-30	C=2000-4000 psf	Dented slightly by finger pressure
Hard	N>30	C>4000 psf	Dented slightly by a pencil point

* N = Blows per foot in the Standard Penetration Test. In cohesive soils, with the 3" diameter sampler, 140 pound weight, divide the blow count by 1.2 to get N (Ref. 4).

MEASURES OF RELATIVE DENSITY OF GRANULAR SOILS (GRAVELS, SANDS AND SILTS) (Ref's. 2 & 3)

Very Loose	N=0-4 **	RD=0-30	Easily push a 1/2" reinforcing rod by hand
Loose	N=5-10	RD=30-50	Push a 1/2" reinforcing rod by hand
Medium Dense	N=11-30	RD=50-70	Easily drive a 1/2" reinforcing rod
Dense	N=31-50	RD=70-90	Drive a 1/2" reinforcing rod 1 foot
Very Dense	N>50	RD=90-100	Drive a 1/2" reinforcing rod a few inches

** N = Blows per foot in the Standard Penetration Test. In granular soils, with the 3" diameter sampler, 140 pound weight, divide the blow count by 2 to get N (Ref. 4). RD = Relative Density

Ref. 1: ASTM Designation: D 2487-93, Standard Classification of Soils for Engineering Purposes (Unified Soils Classification System).

Ref. 2: Terzaghi, Karl, and Peck, Ralph B., Soil Mechanics in Engineering Practice, John Wiley & Sons, New York, 2nd Ed., 1967, pp. 30, 341, 347.

Ref. 3: Sowers, George F., Introductory Soil Mechanics and Foundations: Geotechnical Engineering, Macmillan Publishing Company, New York, 4th Ed., 1979, pp. 80,81 and 312.

Ref. 4: Lowe, John III, and Zaccheo, Phillip F., Subsurface Explorations and Sampling Chapter 1 in "Foundation Engineering Handbook," Hsai-Yang Fang, Editor, Van Nostrand Reinhold Company, New York, 2nd Ed., 1991, p. 39.

EXPLORATORY BORING LOG

No. B-1

PROJECT: Stiver Residence	DATE DRILLED: 01/18/2018	PROJECT: 1550-02	
DRILLER: California Geotech	DRILLING METHOD: B-24	LOGGED BY: BP	
BORING DIAMETER: 4" SS	BORING DEPTH: 10.25'	GROUNDWATER DEPTH: N/A	

Depth (ft)	Sample	Graphic Log	Blows per Foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)
0								
1					Dark brown silty SAND, loose, moist, very fine to fine grained, 25-30% fines			
2	1-1			1.75	Color change to grayish brown, medium dense, very moist, 30-35% fines	SM	10.7	95.3
	1-2		12	1.00			12.2	82.5
3								
4	1-3			4.50	Granite (Cretaceous): Very dense, weathered		15.6	96.9
	1-4		94/10	4.50			8.0	123.1
5								
6	1-5							
7			85/9				6.0	
8								
9								
10	1-6		50/3				4.4	
11					TD @ 10.25'			
12					NO GROUNDWATER ENCOUNTERED			
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								

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FIGURE A-4

EXPLORATORY BORING LOG

No. B-2

PROJECT:	Stiver Residence	DATE DRILLED:	01/18/2018	PROJECT:	1550-02
DRILLER:	California Geotech	DRILLING METHOD:	B-24	LOGGED BY:	BP
BORING DIAMETER:	4" SS	BORING DEPTH:	10.5'	GROUNDWATER DEPTH:	N/A

Depth (ft)	Sample	Graphic Log	Blows per Foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)
0								
1					Dark brown silty SAND, loose, moist, very fine to fine grained, 25-30% fines	SM		
2	2-1 2-2		16	1.25 1.75	Qt: Terrace Deposits (Pleistocene) Grayish brown to light yellowish brown silty SAND, medium dense, moist		10.3 17.4	109.8 93.1
3					Dark gray fat CLAY, very stiff	CH		
4	2-3 2-4		96/10	4.50 4.50	Yellowish brown clayey SAND with gravel, very dense, moist	SC	15.3 10.2	95.8 89.0
5					Granite (Cretaceous): Very dense, weathered			
6	2-5		79				6.1	
7								
8								
9								
10	2-6		50/6				5.5	
11					TD @ 10.5'			
12					NO GROUNDWATER ENCOUNTERED			
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								

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FIGURE A-5

EXPLORATORY BORING LOG

No. B-3

PROJECT:	Stiver Residence	DATE DRILLED:	01/18/2018	PROJECT:	1550-02
DRILLER:	California Geotech	DRILLING METHOD:	B-24	LOGGED BY:	BP
BORING DIAMETER:	4" SS	BORING DEPTH:	6.5'	GROUNDWATER DEPTH:	N/A

Depth (ft)	Sample	Graphic Log	Blows per Foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)
0								
1					Dark brown silty SAND, very loose, moist, very fine to fine grained, 20-30% fines			
2	3-1			0.25	Very moist to saturated	SM	11.3	78.3
	3-2		7	0.25			12.3	90.5
3	3-3			4.50	Color change to yellowish brown, medium dense		20.9	97.9
4	3-4		63/11	4.50	Granite (Cretaceous): Very dense, weathered		12.2	111.4
5								
6	3-5		89/11				6.8	
7					TD @ 6.5'			
8					NO GROUNDWATER ENCOUNTERED			
9								
10								
11								
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APPENDIX B

Laboratory Test Results

Table B-1
Summary of Laboratory Test Results

Sample No.	Depth (ft.)	Dry Density (pcf)	Water Content (%)	Pocket Penetrometer (tsf)	Liquid Limit	Plastic Limit	Plasticity Index	% Passing #200
1-1	1.5-2.0	95.3	10.7	1.75	- -	- -	- -	- -
1-2	2.0-2.5	82.5	12.2	1.00	- -	- -	- -	32
1-3	3.5-4.0	96.9	15.6	4.50	- -	- -	- -	- -
1-4	4.0-4.5	123.1	8.0	4.50	- -	- -	- -	- -
1-5	5.0-5.75	- -	6.0	- -	- -	- -	- -	- -
1-6	10.0-10.25	- -	4.4	- -	- -	- -	- -	- -
2-1	1.5-2.0	109.8	10.3	1.25	- -	- -	- -	26
2-2	2.0-2.5	93.1	17.4	1.75	- -	- -	- -	- -
2-2A	2.5-3.0	- -	- -	- -	63	25	38	- -
2-3	3.0-3.5	95.8	15.3	4.50	- -	- -	- -	- -
2-4	3.5-4.0	89.0	10.2	4.50	- -	- -	- -	- -
2-5	5.0-6.5	- -	6.1	- -	- -	- -	- -	- -
2-6	10.0-10.5	- -	5.5	- -	- -	- -	- -	- -
3-1	1.5-2.0	78.3	11.3	0.25	- -	- -	- -	- -
3-2	2.0-2.5	90.5	12.3	0.25	- -	- -	- -	- -
3-3	3.0-3.5	97.9	20.9	4.50	- -	- -	- -	- -
3-4	3.5-4.0	111.4	12.2	4.50	- -	- -	- -	- -
3-5	5.0-6.5	- -	6.8	- -	- -	- -	- -	- -