Exhibit D

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SOIL SURVEYS GROUP INC.

103 CHURCH ST • SALINAS, CALIFORNIA 93901 • TELEPHONE (831) 757-2172

October 19, 2017
Job #6860

McNickle Construction
Attn: Ryan McNickle
209 Dundee Drive
Monterey, CA 93940

Dear Mr. McNickle:

Submitted herewith is the report of our Geotechnical Investigation for the proposed new single family residence with retaining wall to be located at 26425 Laureles Grade Road, APN 416-051-005, in Carmel Valley, California. Three borings were drilled on August 23, 2017, for geotechnical investigation purposes. Laboratory tests were subsequently made on driven soil core samples taken from the test borings to determine the near surface and subsurface soil conditions and suitability for the proposed new single family residence. We find that the project site is suitable for the proposed use with the recommendations made herein.

It is a pleasure working with you on this project. If you have any questions regarding our geotechnical investigation or this report, please contact us.

Very truly yours,

SOIL SURVEYS GROUP, INC.

REGISTERED PROFESSIONAL ENGINEER
BELINDA A. TALUBAN
No. 44217
Exp. 6/30/19
CIVIL
STATE OF CALIFORNIA

Belinda A. Taluban, P.E.
R.C.E. 44217

CERTIFIED ENGINEERING GEOLOGIST
MICHELLE GARCIA
NO 2668
Exp 3/31/19
STATE OF CALIFORNIA

Michelle M. Garcia, C.E.G.
Engineering Geologist 2668

BAT/MMG/tr

cc. Monterey County Resource Management Agency Divisions of Planning and Building Inspection

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SOIL SURVEYS GROUP INC.

103 CHURCH ST • SALINAS, CALIFORNIA 93901 • TELEPHONE (831) 757-2172

GEOTECHNICAL INVESTIGATION

FOR THE PROPOSED NEW SINGLE FAMILY RESIDENCE

26425 LAURELES GRADE, APN 416-051-005,

IN CARMEL VALLEY, CALIFORNIA

FOR MR. RYAN MCNICKLE

OCTOBER 19, 2017; JOB #6860

I. INTRODUCTION:

This Geotechnical Investigation was made to determine the suitability of the soils at the project site for the proposed new single family residence with retaining wall to be located at 26425 Laureles Grade, APN 416-051-005, in Carmel Valley, California. Three borings were drilled on August 23, 2017 for geotechnical investigative purposes. Core samples were taken from the borings for laboratory testing. The boring logs, our field observations, and field and laboratory test data were analyzed to determine the following:

1. **Suitability of the soils at the project site for the proposed new residence.**
2. **Expansive, unsuitable or unstable soil conditions, if any.**
3. **Foundation and retaining wall design criteria for the proposed new residence.**
4. **Subsurface groundwater and soil moisture considerations.**
5. **Surface drainage considerations.**
6. **Analysis of seismic hazards and seismic design factors per the 2016 California Building Code.**

Site Setting: The project consists of a proposed new single family residence on a 4.12 acre vacant parcel located on the east side of Laureles Grade. The parcel is approximately 300 feet southeast of the intersection of Laureles Grade and Jeanette Road. The general topography of the parcel is relatively flat within the building envelope, with a descending slope of greater than 25 percent to the east of the envelope. There are no obvious signs of major soil erosion, slippage or mass movement in the areas surrounding the proposed residence.

II. LABORATORY TEST DATA[1]:

Sixteen moisture density tests were made from the driven core samples. Standard Penetration Tests (SPT) were performed with a Terzaghi Split Spoon sampler. Core samples were also taken with a 2-inch interior diameter (i.d.) Modified California Sampler. All samplers were driven into the soil by a 140 lb. hammer dropped a vertical distance of 30 inches at each of the sample locations. Results of these tests are shown as follows:

MOISTURE DENSITY TESTS

Boring No.	Depth/ Ft.	Water Content %	Dry Density p.c.f.	Standard penetration Tests, Blows /foot	Pocket Penetrometer Tons S.F.
B-1	2-2.5	19.1	50.3	13	>4.5
B-1	4.5-5	38.5	46.2	15	3.25
B-1	9.5-10	44.2	48.9	30	>4.5
B-1	14.5-15	49.1	52.9	96	2.5
B-1	18.625-19.125	44.5	56.3	85/7.5"	>4.5
B-1	24-24.5	43.8	56.6	48	3.5
B-2	1.5-2	65.0	57.2	36(29)*	>4.5
B-2	2-2.5	54.0+	60.4+	67(54)*	>4.5
B-2	3.5-4	52.8	54.9	46	4.5
B-2	5-5.5	54.9	51.4	48	4.0
B-2	9.5-10	44.2	50.8	71	3.25
B-2	14.5-15	43.0	58.9	42	3.75
B-3	2-2.5	34.4	51.8	20	3.75
B-3	4.5-5	45.3	51.6	25	>4.5
B-3	9.5-10	35.8	66.8	47	4.0
B-3	14.5-15	40.3	67.5	89	4.0

* = 2-inch mod. Cal, not SPT () = Blow counts adjusted to approximate SPT values
+ = Direct Shear Test - Average values shown

[1]Boring Logs are located in Appendix A

Four Sieve Analysis tests were made from the driven core samples. Results of these tests are shown as follows:

A.S.T.M. D 422 SIEVE ANALYSIS TEST-Percent Passing

Boring No.	Depth/ Ft.	Sieve No. 4	Sieve No. 10	Sieve No. 20	Sieve No. 30	Sieve No. 40	Sieve No. 100	Sieve No. 200
B-1	2-2.5	85	77	68	63	59	45	37
B-1	9.5-10	59	46	35	30	26	15	11
B-2	1.5-2	59	46	35	32	29	22	18
B-3	14.5-15	93	82	70	66	62	50	43

Four plasticity index tests were performed on driven core samples. Results of these tests are as follows:

PLASTICITY INDEX TEST

Test Hole No.	Depth/ Feet	% Passing Sieve No. 40	% Passing Sieve No. 200	Liquid Limit	Plastic Limit	Plasticity Index
B-1	2-2.5	59	37	66	30	36
B-1	9.5-10	26	11	87	48	39
B-2	1.5-2	29	18	95	42	53
B-3	14.5-15	62	43	78	46	32

The test results for the samples taken from the borings indicate that the fine fraction of the near surface silty sandy soils in Boring 1 from 2.0 to 2.5 feet in depth and in Boring 2 from 1.5 to 2.0 feet in depth are moderately to highly expansive and moderately plastic. The fine fraction of the deeper subsurface fractured shale with silty sands in Boring 1 from 9.5 to 10.0 feet in depth and in Boring 3 from 14.5 to 15.0 feet in depth are moderately to highly expansive and moderately to highly plastic.

One Direct Shear test was made from driven core samples taken from the borings. Results of these tests are summarized as follows (see Appendix B for full report sheet):

Boring No.	Depth/ Ft.	Internal Frict. Angle, φ^{o}	Cohesion, C p.s.f.	Soil Weight p.c.f.	Description of soil
B-2	2-2.5	33.3	500	93.0	Pale, brown CLAYSTONE

Boring 1 was located approximately in the northeasterly edge of the proposed building pad footprint. The near surface soil consists of medium dense, silty sand with fractured shale gravels to 2.5 feet in depth overlying stiff/medium dense, cemented silt with silty sand to five feet in depth. Below this depth, the soils consist of very stiff to hard, fractured shale and siltstone to the bottom of the boring at 24.5 feet in depth.

Boring 2 was located inside of the proposed building pad, adjacent to the existing cut in the grade. The near surface soil consists of very stiff to hard, slightly clayey, sandy silt to 5.5 feet in depth underlain by hard, shale with traces of sand to 9.5 feet in depth overlying hard, fine grained sandy, cemented siltstone to the bottom of the boring at 15.0 feet in depth.

Boring 3 was located near the southerly edge of the proposed building pad footprint. The near surface soil consists of soft, fine grained sandy, silt with fractured shale gravels to one foot in depth overlying very stiff, sandy silt with fractured shale gravels to five feet in depth. Below this depth, the soil consists of hard, clayey, silty, fine grained, sandy silt and fractured shale with silty sand to the bottom of the boring at 15.0 feet in depth.

No groundwater was observed in the borings to a maximum depth explored of 24.5 feet, prior to backfilling the holes with soil cuttings on the date of drilling. The actual depth to groundwater during rainy months is unknown, but it should be noted that groundwater fluctuations can occur due to variations in rainfall, temperature and other factors not evident during the time of our investigation.

III. SUITABILITY OF SITE FOR PROPOSED USE:

No unsuitable or unstable soil conditions were found at the proposed building location except for loose near surface soils to a depth of one foot and of moderately to highly expansive soils at footing depths. In our opinion, the site is suitable for the proposed building with the recommendations made herein, specifically the recommendations for recompaction of loose soil and mitigation for expansive soil.

IV. RECOMMENDED FOUNDATION DESIGN CRITERIA:

Spread footings may be used for the proposed residence foundations after the site is cleared, grubbed and the proposed building pad is graded, compacted and properly prepared. Spread footings shall be installed to a minimum depth of 18 inches below lowest adjacent grade for both one and two story portions of the building. The minimum depths shall be measured from the **inside building pad soil subgrade.** Mitigation for recompaction of loose soil conditions must be followed.

Allowable foundation pressures after proper compaction of the building pad areas are:
Continuous footings = 1500 p.s.f.
Isolated rectangular footings = 1800 p.s.f.

We recommend that continuous footings shall be reinforced with four #4 steel reinforcement bars, two placed near the bottom of footing and two placed at the top of the footing. Spread footings shall also meet the minimum requirements of the 2016 California Building Code and Monterey County building ordinances for width, thickness, embedment and reinforcement steel. The proposed new residence and any future additions shall be designed in strict accordance with the requirements specified in the 2016 California Building Code, or latest approved edition, to resist seismic forces.

All concrete floor slabs-on-grade shall be a minimum of five inches thick and shall be reinforced with a minimum of #3 steel reinforcement bars at 12 inches on center or #4 steel reinforcement bars placed 24 inches on center, each way and shall be extend into perimeter foundation. *The reinforcement steel must be firmly held in the vertical center of the slabs during placement and finishing of concrete with pre-cast concrete dobies.* All new concrete floor slabs-on-grade shall be underlain by an approved 15 mil. vapor barrier installed over a minimum four inch thick open graded gravel capillary break with two inches of clean

sand placed over the vapor barrier as recommended in Section IX-C herein. ***Concrete slabs shall have weakened plane joints a maximum of fifteen feet on center, each way. All concrete shall be properly cured with an approved curing compound or wetted burlap for a minimum of 14 days.***

Soil Surveys Group, Inc. shall inspect and approve the foundation footing excavations and the subgrade beneath concrete floor slabs for suitable soil bearing and proper penetration into competent soil. We also recommend that Soil Surveys Group, Inc. review and approve the grading, drainage and foundation plans prior to building construction.

A. Concrete Sidewalks and Outside Flatwork:
We recommend that any new on-site concrete sidewalks and outside flatwork be at least five inches thick and be placed over a compacted subgrade. All concrete flatwork should be divided into as nearly square panels as possible. Frequent joints should be installed to provide articulation to the concrete panels. Landscaping and planters adjacent to concrete flatwork should be designed in such a manner that positive drainage away from the new project buildings is achieved. It is assumed that the outside concrete flatwork will be subjected only to pedestrian traffic.

V. LOOSE AND EXPANSIVE SOIL MITIGATION:

To mitigate the effects of the loose and expansive near surface soil conditions, the following measures are recommended:

1. Any existing loose soil within the proposed building envelope and extending a minimum of five feet in all directions outside of the proposed building foundations shall be recompacted **as necessary** to 90 percent relative compaction at the direction of Soil Surveys Group, Inc. prior to placing any additional building pad fill or finishing the building pad subgrade. Soil Surveys Group, Inc. shall determine the depth of recompaction, if any, within the building perimeter.

2. If the new building will bear on both cut and fill, the cut portion of the building pad shall be subexcavated and recompacted a minimum of two feet deep for a distance of five feet outside the building, so that the entire building overlies engineered fill, prior to excavating for the foundation footings.

3. Spread footings shall be constructed a minimum of 18 inches for the proposed new residence as measured from the lowest adjacent grade and continuous non-retaining footings shall be reinforced with four steel reinforcement bars, two placed near the bottom of the footing and two at the top of the footing.

4. All concrete floor slabs-on-grade shall be a minimum of five inches thick and shall be reinforced with a minimum of #3 steel reinforcement bars at 12 inches on center or #4 steel reinforcement bars at 24 inches on center, each way.

5. Roof and site rain water should be directed away from the proposed building foundations. Rainfall runoff must not be allowed to collect or flow in a downslope direction against any new or existing building foundations.

6. Soil Surveys Group, Inc. shall be retained to inspect and test the recompaction of all loose soil and engineered fill within the building pad perimeter and shall inspect and approve foundation and any retaining wall footing excavations for soil bearing conditions. Soil Surveys Group, Inc. shall also

inspect and approve the subgrade below concrete floor and garage slabs-on-grade prior to placement of reinforcing steel and shall inspect and approve the installation of all roof and site drainage facilities.

VI. SURFACE AND SUBSURFACE DRAINAGE AND EROSION CONSIDERATIONS:

The near surface soil at the project site has the potential to erode, especially if protective vegetation is removed. Therefore all new cut and fill slopes, as well as disturbed soil areas, must be seeded with grass or landscape plants for erosion control and to prevent sloughing soil from blocking drainage patterns at the project site. Such erosion control measures shall be taken during and at completion of grading and during building construction operations.

Concentrated storm water runoff from the project site should not be allowed to discharge uncontrolled onto sloping ground. Suitable energy dissipation systems shall be designed where rainfall runoff is concentrated, or the drainage water should be collected and piped to flat ground or discharged onto a rocked energy dissipater down slope of the building foundations. Rock energy dissipaters consisting of four inch to six inch diameter rock or rubble rip rap should be installed at collection pipe discharge points to reduce soil erosion. Rain gutter downspouts shall discharge onto concrete splash blocks, or shall discharge into collector pipes. The building site, any new paved areas and ground adjacent to the residence shall be graded so that rainfall runoff does not become trapped or flow against any building foundations.

The boring logs do not indicate the need for a subsurface drain system, but the Geotechnical engineer may recommend a system of subsurface drains should wet subsurface soil conditions be encountered during site preparation or excavations for any new building foundations.

VII. RETAINING WALL DESIGN CRITERIA:

The following design criteria are recommended for the project retaining walls:

Friction Angle	φ	*= 33.3 °*
Cohesion	*c*	*= 500 p.s.f.*
Soil Weight,	*w*	*= 93.0 p.c.f.*
Equivalent fluid pressure, active		*= 27 pounds per square foot per foot of depth for* ***Level Grade***
Equivalent fluid pressure, active		*= 39 p.c.f. with* ***2:1 slope behind wall***
Equivalent fluid pressure, at rest,		*= 42 p.c.f., restrained condition*
Equivalent fluid pressure, passive		*= 320 p.c.f.*
Sliding friction	*f*	*= 0.35*
Allowable Footing Toe Pressure		*= 2700 p.s.f. plus ⅓ additional for seismic force (if added)*

Retaining walls that are part of or within ten feet of a building should include the seismic force of the soil against the wall. The estimated seismically generated ground accelerations to be used for this area are:

PAGA = 0.354g
RHGA =0.24g = k_h
w = 93.0 p.c.f.

The resultant seismic force is calculated by the formula: 3/8 w $H^2 k_h$ per linear foot of retaining wall, or for this case **8.4 H^2**, ***where H is the height of the retaining wall. These forces, where needed, should be***

applied at a height of 0.6H above the base of the retaining wall and must be combined with the force produced by active soil pressure.

These retaining wall design criteria are based on a fully drained condition. Therefore, we recommend that a four-inch diameter perforated NDS or PVC pipe be installed behind or along the top of the footing, holes placed down, behind all walls that retain earth. The pipe shall be covered with a 12-inch wide envelope of ¾-inch drain rock or Class 2 Permeable Material (per Caltrans Standard Specifications Section 68-1.025) which shall extend to within one foot of the retained ground surface. Filter fabric shall be installed over the top of the drain rock. No gravel shall be placed below the pipe. The remainder of the trench can be backfilled with native soil. As an alternative to installing drain rock or permeable material, a composite filter material, eg. Miradrain, can be installed with a perforated pipe at the bottom of the material. Clean-out risers must be installed on the perforated pipe at the up-stream ends, every 100-feet, and at 90° angle points. The capped end of the cleanout riser shall be located at the ground surface outside of or behind the retaining walls.

VIII. RECOMMENDED SPECIFICATIONS:

A. GRADING:

The building pads, extending a minimum of five feet in each direction past new foundation footings shall be cleared and grubbed of all surface vegetation, demolition debris, and organic topsoil before recompacting the original ground, placing engineered fill or finishing the subgrade for the new residence. On site surface or subsurface grass, roots, deleterious material, or brush (if any) within any new building pad areas shall be removed. Soil Surveys Group, Inc. should determine if any subexcavation is necessary after clearing and grubbing are completed. Any subexcavated soil shall then be backfilled in eight inch loose lifts and recompacted to 90 percent relative compaction, prior to placing engineered fill or finishing subgrade of the new building pads.

Any new cut and fill slopes shall be 2:1 or flatter unless retained. The native soil is suitable to be used as engineered fill provided any organics or debris are first removed from the soil to be used as fill. Any native soil used for fill, or any imported fill soil for the new building pads shall be compacted to at least 90 percent relative compaction, and any cut portions of a new building pads, if located within both cut and fill, shall be subexcavated a ***minimum*** of two feet, backfilled in eight inch loose lifts and recompacted to a minimum of 90 percent relative compaction. All fills placed on slope grades of 5:1 or greater shall be provided with a keyway excavated a minimum of two feet below grade, a minimum of 10 feet wide and at a 2% slope into the slope. The bottom of the keyway should be moisture conditioned, compacted (if necessary) and approved by Soil Surveys Group, Inc. prior to backfilling in eight inch loose lifts and compacting the backfill to 90 percent relative compaction. ***Grading, filling, compaction operations and foundation excavations shall be inspected and tested by Soil Surveys Group, Inc.***

B. COMPACTION:

Laboratory soils compaction test method shall be *A.S.T.M. D 1557-09.* Subgrade *in existing soil* beneath the new building pad shall be compacted to 90 percent relative compaction unless waived by the Geotechnical engineer. Subgrade soil below any new pavement shall be compacted to 95 percent relative compaction, and aggregate base beneath new pavement shall be compacted to 95 percent relative compaction. Any imported sandy soil fill placed for the new building pad shall be compacted to a minimum of 95 percent relative compaction.

C. CONCRETE FLOOR SLABS-ON-GRADE:

Subgrade in recompacted soil under any new concrete floor slabs-on-grade shall be brought to at least 2% over optimum moisture prior to placing native or imported sandy soil fill, prior to placing the capillary break rock and moisture proof barrier or prior to pouring concrete. We recommend that a capillary break consisting of:

- a mat of clean, open graded rock, four inches thick, shall be placed over the finished soil subgrade
- a minimum 15 mil. water-proof membrane (such as Stego, Moistop or equal) shall be placed over the open graded rock
- two inches of clean, moistened sand shall be placed between the water-proof membrane and the bottom of the concrete floor slab. The moistened sand will help protect the membrane and will assist in equalizing the concrete curing rate to minimize shrinkage cracking.

Class 2 Aggregate Base or sand should not be used as the capillary break material. Capillary break material shall comply with and be installed according to the following:

1. MATERIAL:

   The mineral aggregate for use under the floor slabs shall consist of broken stone, crushed or uncrushed gravel, quarry waste, or a combination of the above. The aggregate shall be free of adobe, vegetable matter, loam, volcanic tuff and other deleterious materials. It shall be of such quality that the absorption of water in a saturated, surface dry condition does not exceed 3% of the oven dry weight of the sample.

2. GRADING:

   The mineral aggregate shall be of such size that the percentage composition by dry weight as determined by laboratory sieves (U.S. Sieves) will conform to the following grading:

Sieve Size	Percentage Passing Sieve
⅜" to ½"	100
No. 4	0-10
No. 200	0-2

3. PLACING:

   Subgrade, upon which aggregate base, gravel or crushed rock is to be placed, shall be prepared by removing grass and roots. Where loose topsoil is present, it shall be removed and cleaned of debris and recompacted to 90 percent of maximum density.

4. THICKNESS AND STRENGTH:

   Concrete slabs should be at least five inches thick. Concrete shall be five sack minimum (5.5 sack if pumped) and shall achieve a 28 day compressive strength of at least 2500 p.s.i., or as specified by the project engineer.

5. REINFORCEMENT:

   Concrete slabs-on-grade shall be reinforced with a minimum of #3 steel reinforcement bars placed 12 inches on center, each way, or #4 steel reinforcement

bars placed 24 inches on center, each way, and shall be bent to extend a minimum of eight inches into the perimeter footings.

D. UTILITY TRENCH BACKFILL:

All new on-site utility trenches shall be backfilled with a clean sand having a sand equivalent of 30 or higher. A two feet thick plug of compacted, **clayey soil backfill** or lean concrete shall be required around the pipe or conduit at places where utility trenches intersect the building perimeter. All trench backfill of imported clean sand shall be compacted to 95 percent relative compaction at all locations. Clean native sand shall be approved by Soil Surveys Group, Inc. prior to using for trench backfill.

IX. GEOLOGIC AND SEISMIC CONSIDERATIONS:

Monterey County is in a seismically active area of the state of California. The following table provides a list of faults that produce an earthquake that could impact the project site:

Fault Name	Approximate Distance to Site	Orientation from Site	Data Source
Chupines Fault (Approximate)	1.42 km	Northwest	Clark and Others, 2000
Corral de Tierra Fault (Concealed)	2.11 km	Northeast	Clark and Others, 2000
Laureles Fault (Certain)	2.41 km	Southwest	Clark and Others, 1997
Berwick Canyon Fault (Inferred)	3.13 km	Southwest	Clark and Others, 1997
Tularcitos Fault (Certain)	3.47 km	Southwest	Clark and Others, 1997
Monterey Bay-Tularcitos	4.25 km	Southwest	Uniform Building Code, 1997
Rinconada	10.5 km	Northeast	Uniform Building Code, 1997
San Gregorio (Sur Region)	20.5 km	Southwest	Uniform Building Code, 1997
San Andreas (Creeping Section)	25.1 km	Northeast	Uniform Building Code, 1997
Zayante-Vergeles	32.8 km	Northeast	Uniform Building Code, 1997
San Andreas (Pajaro Section)	38.1 km	Northeast	Uniform Building Code, 1997

The proposed new single family residence and any future additions must be designed in strict compliance with the 2016 California Building Code, or current edition to help withstand such seismically generated ground accelerations for a reasonably expected duration without suffering major damage.

The following are the project site coordinates and the seismic design criteria/coefficients per the requirements of the 2016 California Building Code (CBC):

Site Class	Latitude	Longitude	S_S	S_1	F_a	F_v
D	36.54129°	-121.753°	1.409	0.509	1.00	1.50

Frame and semi-rigid structures with proper strengthening connections and hold-down fasteners (where needed) are recommended for the proposed new residence and any future building additions. With proper design parameters, seismic damage to the building can be mitigated for major earthquakes centered near the project area.

Surface rupture, liquefaction, lurch cracking, lateral spreading, and differential settlement are seismic hazards that must be considered at the project site. Surface rupture usually occurs along fault lines, and no known faults have been mapped through the project site. Therefore, the potential for surface rupture or lurch cracking is considered to be low.

Liquefaction and lateral spreading tend to occur in loose, fine saturated sands and in places where the liquefied soils can move toward a free face (e.g. a cliff or ravine). The deeper soils underlying the project site are typically hard, fractured shales and silts. No ground water was encountered in the geotechnical borings to a maximum depth explored of 24.5 feet. Considering the deeper, hard, fractured shales and siltstone and lack of presence of groundwater, the potential risk for occurrence of damaging liquefaction or lateral spreading is considered to be low during a strong seismic event.

Differential compaction and settlement occur generally in loose, granular or unconsolidated semi-cohesive soils during severe ground vibration. In our opinion, the risk for soil consolidation caused differential compaction and settlement during a major seismic event is considered to be low.

X. UNFORESEEN OR UNUSUAL CONDITIONS:

If any unforseen or unsuitable soils conditions are found during grading or construction the Geotechnical engineer shall be notified immediately so that remedial action can be taken. Such unsuitable conditions could be:

1. Wet, soft or unsuitable pockets of clayey soil within the proposed building site.
2. Soil with a high organic content at the finished subgrade of the building pad.
3. Any other unforeseen conditions that would require remedial action by the Geotechnical engineer, project engineer, architect or contractor.

XI. CONCLUSIONS AND RECOMMENDATIONS:

From our field observations, analysis of the test data, and knowledge of the general area soils, the following are concluded:

1. The project soil conditions are suitable for the proposed new residence, provided any loose near surface soil is recompacted prior to excavating for the new building foundations or finishing the subgrade of the building pads as recommended in Sections V and VIII herein.

2. Design criteria for a spread footing foundation system are provided in Sections IV and V. Design criteria for any proposed or future retaining walls are provided in Section VII. Design criteria for concrete slabs-on-grade are provided in Sections IV, V and VIII herein.

3. Surface storm water runoff should be carefully controlled around the proposed building pad and foundations to provide positive drainage away from any building foundations as discussed in Section VI herein.

4. The Geotechnical engineer should review the building and site grading plans for compliance with the recommendations herein and may provide additional specific recommendations for surface or subsurface drainage. The Geotechnical engineer shall inspect and approve all new foundation footing excavations.

5. Grading, compaction specifications, and specifications for new concrete floor slabs-on-grade are provided in Section VIII herein.

6. Seismic considerations are discussed, and geoseismic design coefficients are provided in Section IX herein per the 2016 CBC. The potential for damaging earthquake related liquefaction is considered to be low at the project site.

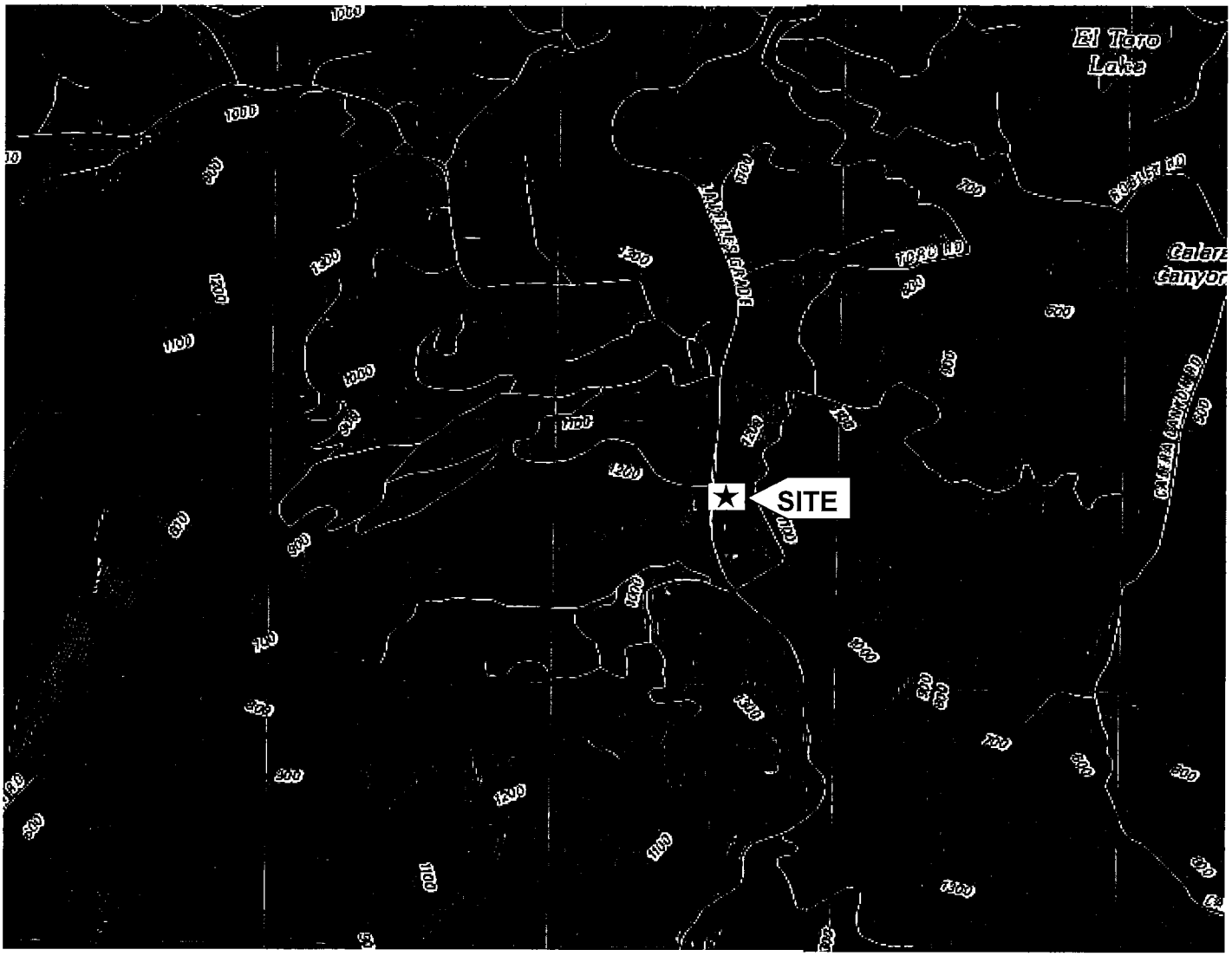
XII. LIMITATIONS:

This report necessarily assumes that the subsurface conditions are as found in the borings. It should be recognized that the soil conditions described in this report are based on three borings and our knowledge of the general area soils. It must be understood that subsurface soil conditions can vary between borings and from site to site. If any unusual soil conditions are found during grading, installation of underground utilities or building construction, the Geotechnical engineer should be notified immediately so that remedial action can be taken (see Section X).

This report is issued with the understanding that it is the responsibility of the Owner or his representative to ensure that the applicable provisions of the recommendations contained herein are incorporated into the plans and specifications and that the necessary steps are taken to see that contractors and subcontractors carry out such provisions in the field. The use of this report, its contents or any part thereof, by a party or its agents, other than Mr. Ryan McNickle, his engineer, architect, contractor or designated agents, is hereby disallowed unless specific permission is given to do so by Soil Surveys Group, Inc. This investigation and report were prepared with the understanding that a proposed new single family residence is to be constructed on the vacant parcel shown on the Figure II map enclosed herein. The use of this report, boring logs and laboratory test data shall be restricted to the original use for which they were prepared and publication by any method, in whole or in part, is prohibited without the written consent of Soil Surveys Group, Inc. Title to the designs remains with Soil Surveys Group, Inc. without prejudice. Visual contact with this report and drawings constitutes prima facie evidence of the acceptance of these restrictions.

Soil Surveys Group, Inc. will not take responsibility for or assume any liability for the recommendations made in this report unless Soil Surveys Group, Inc. performs the field inspections and testing mentioned herein.

The findings and recommendations of this report are considered valid at the present date. However, changes in the property conditions can occur with the passage of time on this or adjacent properties, whether due to natural processes or the works of man. Therefore, the findings of this report shall be considered valid for a period of not more than three years without being reviewed and updated by Soil Surveys Group, Inc.



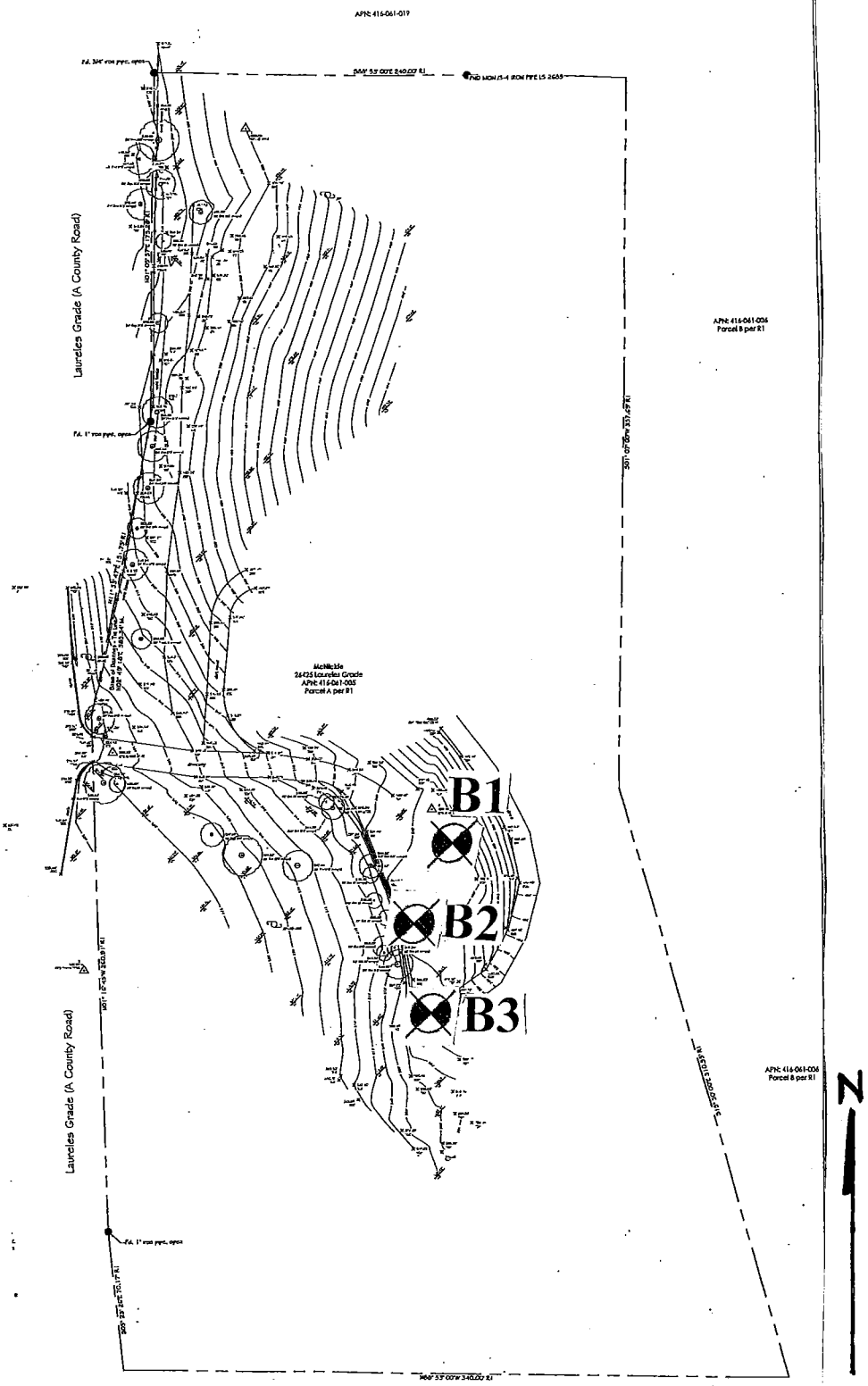
BASE: U.S. Geological Survey, Seaside and Spreckels 7.5' Quadrangles, Carmel Valley, California

FIGURE I: VICINITY MAP

SCALE
1" = 2000'

Job #6860

By: Soil Surveys Group, Inc.
103 Church Street
Salinas, CA 93901
831-757-2172



NO SCALE

FIGURE II

Boring Locations (approx.)

BASE: 26425 Laureles Grade Road, Carmel Valley
APN 416-061-005
Topographic Survey by Rasmussen Land Surveying, Inc.,
Job #6808

By: Soil Surveys Group, Inc.
103 Church Street
Salinas, CA 93901
ph. 831-757-2172
fax 831-755-7330
email: info@soilsurveys.net

APPENDIX A
BORING LOGS

PRIMARY DIVISIONS			GROUP SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS (MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE)	GRAVELS (MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE)	CLEAN GRAVELS (LESS THAN 5% FINES)	GW	Well graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVEL WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines
			GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines.
	SANDS (MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE)	CLEAN SANDS (LESS THAN 5% FINES)	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures, non-plastic fines.
			SC	Clayey sands, sand-clay mixtures, plastic fines.
FINE GRAINED SOILS (MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE)	SILTS AND CLAYS (LIQUID LIMIT IS 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 clays of low plasticity.
	SILTS AND CLAYS (LIQUID LIMIT IS GREATER THAN 50%)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.

GRAIN SIZES

U.S STANDARD SERIES SIEVE — CLEAR SQUARE SIEVE OPENINGS

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

SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

RELATIVE DENSITY

SANDS AND GRAVELS	BLOWS/FT*
VERY LOOSE	0 - 4
LOOSE	4-10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

CONSISTENCY

SILTS AND CLAYS	STRENGTH**	BLOWS/FT*
VERY SOFT	0 - 1/4	0 - 2
SOFT	1/4 - 1/2	2 - 4
FIRM	1/2 - 1	4 - 8
STIFF	1 - 2	8 - 16
VERY STIFF	2 - 4	16 - 32
HARD	OVER 4	OVER 32

*Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1 3/8 inch I.D) split spoon (ASTM D-1586)

**Unconfined compressive strength in tons/ft^2 as determined by laboratory testing or approximated by the standard penetration test (ASTM D-1586), pocket penetrometer, torvane, or visual observation

FIGURE NO. KEY TO LOGS

EXPLORATION DRILL LOG

HOLE NO. B-1

PROJECT 26425 Laureles Grade, CV - McNickle Residence Job #6860 DATE 8.23.17 LOGGED BY JG

DRILL RIG EGI B-53 w/ 140 lb Auto Hammer HOLE DIA. 8" Hollow SAMPLER Terzaghi Split Spoon (SPT)

GROUNDWATER DEPTH: INITIAL --- FINAL --- HOLE ELEV. ---

DESCRIPTION	SOIL TYPE	DEPTH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (pcf)	WATER CONTENT %	LIQUID LIMIT	PLASTIC LIMIT	POCKET PEN. (tsf)
Light gray, silty SAND with scattered, fractured	SM								
shale gravels, shale cobbles, granitic cobble		1							
Light grayish-tan, silty SAND/sandy SILT with	SM/ML		SPT						
fractured light tan, shale gravels; slightly moist,		2							
medium dense/stiff			XXX	13	50.3	19.1	66	30	>4.5
		3							
Light tan, yellowish-reddish tan, dark tan, cemented	ML/SM	4	SPT						
SILT with tan silty SAND; slightly moist, stiff/									
medium dense		5	XXX	15	46.2	38.5			3.25
(Added water)									
		6							
		7							
		8							
Dark olive-tan, yellowish-reddish tan, fractured	ML	9	SPT						
SHALE with reddish-yellow tan, silty sand; slightly									
moist, very stiff		10	XXX	30	48.9	44.2	87	48	>4.5
		11							
		12							
		13							
Light tan, diatomaceous SILTSTONE with iron	ML	14	SPT						
staining; slightly moist, hard									
		15	XXX	96	52.9	49.1			2.5
		16							
		17							
		18							
Light tan, light gray, siliceous SHALE; slightly	ML	19	SPT						
moist, hard			XXX	85/7.5"	56.3	44.5			>4.5
		20							

DEPTH 24.5'

SOIL SURVEYS GROUP, INC.

EXPLORATION DRILL LOG

HOLE NO. B-1 CONTINUED

DESCRIPTION	SOIL TYPE	DEPTH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (pcf)	WATER CONTENT %	LIQUID LIMIT	PLASTIC LIMIT	POCKET PEN. (tsf)
Light tan, light gray, siliceous SHALE; slightly moist, hard		21							
(Added water)									
		22							
(Auger refusal)		23							
Light tan, SHALE with iron staining; slightly moist, hard	ML		SPT						
		24							
Bottom of boring at 24.5'	ML		XXX	48	56.6	43.8			3.5
		25							
		26							
		27							
		28							
		29							
		30							
		31							
		32							
		33							
		34							
		35							
		36							
		37							
		38							
		39							
		40							
		41							
		42							

DEPTH 24.5' Job#6860 SOIL SURVEYS GROUP, INC.

EXPLORATION DRILL LOG

HOLE NO. B-2

PROJECT 26425 Laureles Grade, CV - McNickle Residence Job #6860 DATE 8.23.17 LOGGED BY JG

DRILL RIG EGI B-53 w/ 140 lb Auto Hammer HOLE DIA. 8" Hollow SAMPLER Terzaghi Split Spoon (SPT) + 2" Mod. Cal

GROUNDWATER DEPTH: INITIAL --- FINAL --- HOLE ELEV. ---

DESCRIPTION	SOIL TYPE	DEPTH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (pcf)	WATER CONTENT %	LIQUID LIMIT	PLASTIC LIMIT	POCKET PEN. (tsf)
Grayish-tan, sandy SILT with scattered shale	ML								
		1							
Light tan, cemented SILT; moist, hard	ML		2"Cal						
		2	XXX	36(29)	57.2	65.0	95	42	>4.5
			XXX	67(54)	60.4	54.0	shear	test	>4.5
Light grayish tan, light yellowish tan, slightly	ML	3	SPT						
clayey, fine grained, sandy SILT; moist, hard									
		4	XXX	46	54.9	52.8			4.5
Tan, brown, cemented, slightly sandy SILT with	ML		SPT						
traces of clay and iron staining; slightly moist, hard		5							
			XXX	48	51.4	54.8			4.0
		6							
		7							
		8							
Light grayish-tan, siliceous SHALE with traces of	ML	9	SPT						
sand and iron staining; slightly moist, hard			XXX	71	50.8	44.2			3.25
		10							
		11							
		12							
		13							
Olive-tan, fine grained, sandy, cemented	ML	14	SPT						
SILTSTONE; moist, hard									
Bottom of boring at 15.0'	ML	15	XXX	42	58.9	43.0			3.75
		16							
		17							
		18							
		19							
		20							

DEPTH 15.0'

SOIL SURVEYS GROUP, INC.

EXPLORATION DRILL LOG

HOLE NO. B-3

PROJECT 26425 Laureles Grade, CV - McNickle Residence Job #6860 DATE 8.23.17 LOGGED BY JG

DRILL RIG EGI B-53 w/ 140 lb Auto Hammer HOLE DIA. 8" Hollow SAMPLER Terzaghi Split Spoon (SPT)

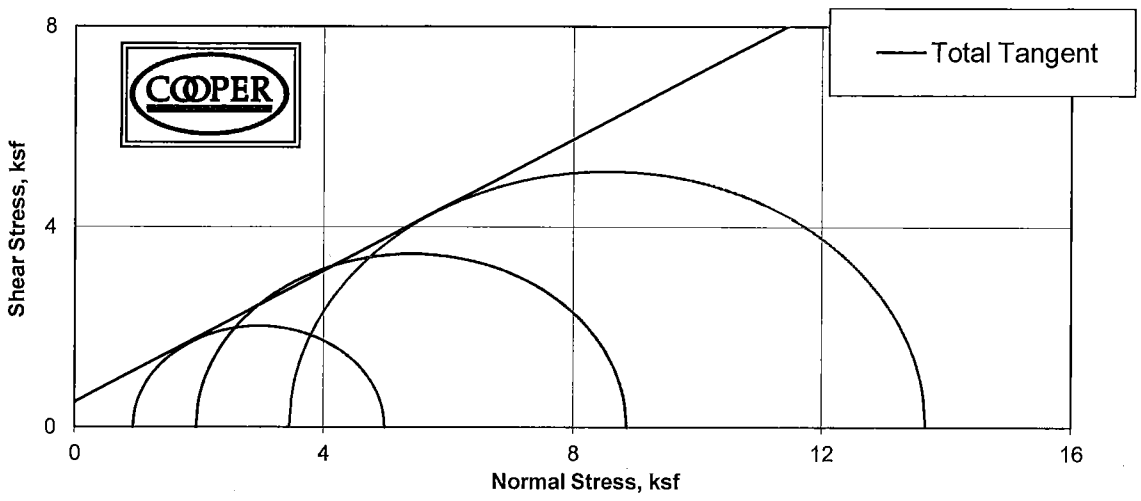
GROUNDWATER DEPTH: INITIAL --- FINAL --- HOLE ELEV. ---

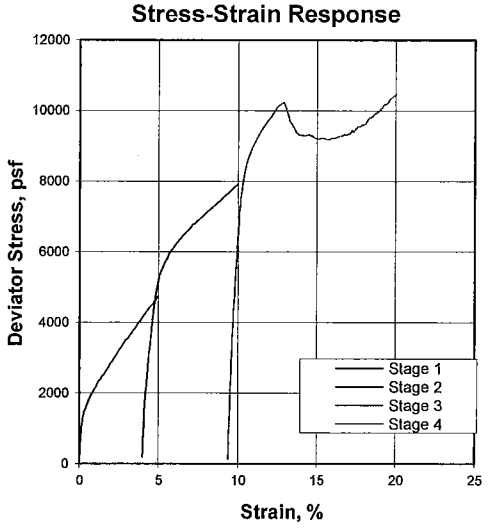
DESCRIPTION	SOIL TYPE	DEPTH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (pcf)	WATER CONTENT %	LIQUID LIMIT	PLASTIC LIMIT	POCKET PEN. (tsf)
Light grayish-tan, slightly clayey, fine grained,	ML								
sandy SILT with scattered, fractured shale gravel;		1							
dry, soft	ML/SM		SPT						
Dark brown, slightly clayey, fine grained, sandy		2							
SILT/silty SAND with scattered, light reddish-			XXX	20	51.8	34.4			3.75
white, tan, fractured, shale gravel; slightly moist,		3							
very stiff/medium dense									
Dark tan, clayey, sandy SILT with scattered,	ML/CL	4	SPT						
fractured, shale gravels; moist, very stiff									
		5	XXX	25	51.6	45.3			>4.5
		6							
		7							
		8							
White, light gray, light tan, clayey, fine grained,	ML	9	SPT						
sandy SILT with iron staining; moist, hard									
		10	XXX	47	66.8	35.8			4.0
		11							
		12							
		13							
Grayish-white, fractured SHALE with fine grained,	ML	14	SPT						
silty sand; moist, hard									
Bottom of boring at 15.0'	ML	15	XXX	89	67.5	40.3	78	46	4.0
		16							
		17							
		18							
		19							
		20							

DEPTH 15.0' SOIL SURVEYS GROUP, INC.

APPENDIX B
SHEAR TEST

Staged Consolidated Undrained Triaxial Compression
ASTM D4767m





CTL Number:	699-065
Client Name:	Soil Surveys Inc
Project Name:	Laureles Grade Road
Project Number:	6860
Date:	9/11/2017 By: MD/DC
Total C	0.500 ksf
Total phi	33.3 degrees
Eff. C	N/A ksf
Eff. Phi	N/A degrees ©

Stage	1	2	3	4
Boring	B-2			
Sample				
Depth	2-2.5			
Visual Description	Pale Brown Claystone			
MC (%)	54.0			
Dry Density (pcf)	60.4			
Saturation (%)	81.4			
Void Ratio	1.790			
Diameter (in)	1.94			
Height (in)	4.00			
	Final			
MC (%)	61.6	60.7	60.0	
Dry Density (pcf)	63.3	63.9	64.4	
Saturation (%)	100.0	100.0	100.0	
Void Ratio	1.662	1.639	1.619	
Diameter (in)	1.89	1.92	1.97	
Height (in)	4.00	3.84	3.62	
Cell Pressure (psi)	45.4	52.4	62.8	
Back Pressure (psi)	38.9	38.9	38.9	
	Total Stresses At:			
Strain (%)	3.8	3.8	3.8	
Deviator (ksf)	4.046	6.923	10.218	
Excess PP (psi)				
Sigma 1 (ksf)	4.982	8.867	13.660	
Sigma 3 (ksf)	0.936	1.944	3.442	
P (ksf)	2.959	5.405	8.551	
Q (ksf)	2.023	3.461	5.109	
Stress Ratio	5.323	4.561	3.969	
Rate (in/min)	0.0199	0.0194	0.0194	

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