



LETTER OF TRANSMITTAL

City of San Clemente

Sandy Norman, Engineering Technician

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To: Dr. Peter Borella
900 N. Coast Highway
Laguna Beach, CA 92651

Date: March 11, 2004
Subject: 606 E. Ave San Juan
Geotechnical Review

Project #: 04-14
City W.O.#: n/a
Vendor #: 2627
Acct.#: 001-414-43535

The Following Items Are Transmitted Herewith:

- | | |
|---|---|
| 1 | Copy of "Preliminary Geotechnical Investigation of Distressed Residential Property, 60 E; Avenida San Juan" dated February 25, 2002 by Peter & Assoc. |
| 1 | Copy of Foundation Stabilization Plan sheets S-1 & S-2 of 2 by Peter & Assoc. dated 12/01/2003. |
| | |
| | |

3/24/04 Site Visit

House unsalvageable
going down slope

The Above Are Submitted:

- | | |
|---|-------------------|
| | At Your Request |
| X | For Your Review |
| | For Your Approval |
| | For Signature |

- | | |
|--|-------------------------------|
| | For Revision 2-3' wide cracks |
| | For Action |
| | For Your Information |
| | For Your Files |

Remarks: David Peter requested that you begin the review of this project and they will be submitting an update letter confirming that this report is unchanged and still valid.
Thanks, Sandy.

CC: To GeoFile #04-14



#100821303

Peter and Associates

04030991

Engineers, Geologists, Surveyors, Inc.
Civil, Municipal, Mining
Geological, Foundations

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February 25, 2002

Mrs. Jeannette Schotanus
606 E. Avenida San Juan
San Clemente, CA 92672

No stability Calculations
Deeper boring needed to insure that No Qls present Additional Lateral Force will be needed

→ SUBJECT: Preliminary Geotechnical Investigation of Distressed Residential Property, 606 E. Avenida San Juan, San Clemente, California

JN 01G1474

Dear Mrs. Schotanus:

In accordance with your authorization, Peter and Associates, Inc. performed a preliminary geotechnical investigation of the residential property located at 606 E. Avenida San Juan, San Clemente, California.

The purpose of our investigation was to assess the existing geotechnical conditions at the site in order to find the cause, or causes, of the distress, and to provide preliminary geotechnical recommendations for repair of the distressed structure.

Our investigation generally consisted of: research and review of previous data pertinent to the site; reconnaissance to evaluate existing surface conditions at the property; exploratory borings; laboratory testing of selected undisturbed drive ring and bulk samples; and engineering analysis and evaluation of all relevant data to develop our conclusions and recommendations.

This report summarizes the investigation findings, and provides our conclusions and recommendations within the limitation of the authorized scope of work.

Site Location and Description

The subject site is Lot 1 of Tract 3981, located on the upper portion of East Avenida San Juan near (east of) Avenida Salvador in the southeast portion of San Clemente. Refer to the attached street index map.

The property comprises a graded pad with a 60± ft. high descending 1.5H:1V slope at the rear (westerly) and a 30± ft. high descending 1.5H:1V slope on the north side. A 13± ft. high ascending side yard slope exists on the south side of the lot.

Stability Cals on both faces

different with one row of caissons

The existing residence consists of a one-story wood-framed structure with an attached two-car garage supported by shallow footings and slabs-on-grad.

Exterior concrete slabs and a covered patio exist in the rear yard. An existing 2.5± ft. high block wall is located along the top of the rear descending slope. The rear slope is currently covered with thick, healthy, deep-rooted acacia.

Summary of Distress

In general, distress noted in the structure consist of cracks/separations on house walls and interior and exterior concrete slabs-on-grade. Old and re-opened patched cracks were noted. Cracking and tilting of the block wall located along the top of the rear descending slope was observed. The columns supporting the patio cover tilt. The structure is separating from it's brick chimney by as much as 1-in. at it's worst section.

Cracking, tilting, lateral movement of concrete sidewalk along the northerly side yard above the top of the northerly descending slope was noted.

The most severe observed distress was a 4± wide separation between the rear house wall and the rear exterior concrete slabs with a deep crack into the underlying earth materials.

Subgrade Exploration and Laboratory Testing

Two (2) test holes were drilled at the site using a mini-drill rig equipped with 24-in. diameter bucket auger. The approximate locations of the drilled test holes are depicted on the Geotechnical Map; the geotechnical logs of the drilled holes are included in Appendix B.

As the borings were advanced, relatively undisturbed soil samples were secured using a steel tube sampler lined with 1-inch high, thin-wall brass rings. The sampler was driven into undisturbed earth materials by using a standard 140 lb. steel hammer freely dropped 30-in. The blow counts are included on the geotechnical boring logs.

Laboratory testing consisting of moisture content and dry density, pocket penetrometer, and direct shear was performed in general accordance with ASTM and/or UBC test methods on selected samples to obtain engineering characteristics of the underlying earth materials. The test methods and results are included in Appendix C, with the exception of the field moisture content, in-situ dry densities, and pocket penetrometer readings of the undisturbed ring samples, which are included on the geotechnical boring logs. A soluble sulfate content test was performed by Del Mar Analytical; the test results are also included in Appendix C.

Site Geotechnical Conditions

In general, the subject residential structure is underlain by compacted fill materials which were placed in 1963± during the rough grading of Tract 3981. The compacted fill generally consisted of silty clay. Beneath the existing fill was Capistrano Formation clayey siltstone bedrock. The bedrock was encountered in our rear yard boring B-12 at approximately 14 feet below the existing ground surface and in the front yard boring B-1 at approximately 10 feet. Some seepage,

but no free-standing ground water level was encountered in our borings. The clayey siltstone bedrock materials have very high moisture contents varying from approximately 25% to 33%. The fill materials have a relatively lower moisture content of approximately 11 to 17% in Boring B-1, and 26-27% in Boring B-2.

Unoxidized bedrock was encountered at 38 1/2± ft. in Boring 1, and at 35± ft. in Boring 2.

According to Reference 1 (Figure 1), the bedrock strata dips gently southeast (e.g., 2 to 17 degrees). Relative to the terrain, it is generally neutral to the natural terrain and cut slope portion, and therefore, is considered favorable for gross bedrock stability.

Need copy original grading map
Slope Stability

Based on the previous data, the upper portion of the rear slope was a fill, and the bottom portion of the rear slope was a cut. (See Cross Section A-A') Surficial failure occurred previously (in 1982) on the adjacent rear slope of the southerly neighboring property (Lot 2), which has similar fill over cut slope conditions (but not on the subject rear slope of Lot 1). The surficial failure of the southerly neighboring rear slope was previously repaired by installing a revetment system of twelve level rows of pipes and boards.

The rear slope is currently covered with healthy, thick, deep-rooted acacia. No evidence of surficial failure was observed.

We believe the rear slope at the site is subject to creep, an imperceptibly slow, downslope movement of the surface and near slope face earth materials (on sloping terrain under the perpetual force of gravity), and slope creep has contributed to the observed distress at the site. Note that per Mrs. Jeanette Schotanus, when she bought the property in 1968, only hairline cracks were observed on the interior concrete slabs (when the carpet was removed for replacement) but not the currently observed severe distress.

Conclusions and Recommendations

The observed distress at the subject site was primarily due to settlement of the underlying existing fill caused by infiltration of water into the soils. Soil expansion/heaving has also contributed to some distress. Slope creep has also caused lateral movement of the objects located within the creep-affected zone near the top of the descending slopes, including rear patio slabs, rear patio cover columns, rear fence wall, and northerly sidewalk concrete slabs, etc.

Proper improvement and maintenance of surface drainage to reduce the potential surface water entering the underlying soils would reduce (but not totally stop) the potential for additional distress.

To prevent the potential for additional distress in the future, existing objects should be underpinned with a caisson and grade beam system.

Existing distressed slabs-on-grade can be removed and replaced with structural slabs, which can be connected to the caissons and grade beam system.

Underpinning the Residential Structure

A caisson and grade beam system can be installed to underpin the existing residential structure. (Note: It is not necessary, but the existing fill materials underlying the residential structure can also be additionally densified by compaction grouting.)

Caissons

Caissons should be at least 24-inches in diameter and should be embedded through the existing fill into the underlying competent bedrock a minimum depth equal to the thickness of the existing fill. The estimated depths of competent bedrock vary from approximately 14-ft. along the rear (westerly) wall to 13± ft. along the northerly side wall, and 10± ft. in the front area of the house.

Caissons should be installed to support the perimeter walls and interior walls of the house. Locations and depths of caissons must be properly determined by a qualified civil/structural engineer in consultation with the project geotechnical engineer. Final structural design of caissons and grade-beams/haunches should be geotechnically reviewed by the geotechnical engineer and/or the city engineer prior to construction.

For vertical support of a caisson, skin friction value of 1000 psf of bonding area between caisson and surrounding competent bedrock may be used. (The existing fill materials above the bedrock contact should be conservatively excluded from the friction resistance calculations.) A passive resistance value of 400 psf, with the maximum value of 4,000 psf, may be used for the competent bedrock materials. (Again, the existing fill materials should be excluded from the passive resistance calculations).

A friction coefficient of 0.25 may be used at the concrete and soil interface.

A soil unit weight of 120 pcf can be used. An allowable bearing pressure of 1,000 psf can be conservatively used for a shallow footing/grade beam/haunch, if any.

show that
this
will provide
a factor
of safety
of
1.1. pseudo
1.5 static

In addition, for caissons to be located within the potential creep affected zone near the descending slopes, a lateral creep force of 1,000 pounds per foot of depth for the creep affected zone should be used for structural design calculations. The thickness of the creep-affected zone can be [conservatively] assumed to be the thickness of the existing fill, approximately 15-ft. for the northerly side, and 16-ft. for the rear. The lateral creep force should also be conservatively used for other caissons located far from the slope (with the creep/fill thickness of 10± ft.).

Interior Slabs-on-Grade

Cracked interior slab portions, or the whole slabs, can be removed and replaced with new ones. New slabs-on-grade should be fully 5-inches thick (actual), be reinforced with #3

rebars at 12-inches on centers, each way, and be placed at mid-height of the slab. The slabs may be tied to the footings/grade beams/caissons as directed by the structural engineer (such as with dowels consisting of #3 rebars placed at maximum 24-inches on centers in the footings and bent 3 feet into the slabs).

New slabs should be underlain by 6-inches of clean sand or crushed rock. For moisture sensitive floor areas, the slabs should also be underlain by a 10-mil polyethylene moisture barrier (such as a Visqueen) sandwiched between a 2-inch thick clean sand [or crushed rock] layer above and a 4-inch thick clean sand [or crushed rock] layer below. **The moisture barrier should be properly lapped and sealed at joints and around any breaks such as openings for utility conduits.**

The existing underlying soils are anticipated to have high moisture contents. Therefore, pre-saturation of the slab subgrade earth materials is probably not required. However, this will be determined by the geotechnical engineer based on the exposed conditions after completion of excavations.

Other Recommendations for Reducing Slab Cracking

While not a geotechnical issue, the potential for slab cracking may also be reduced by careful control of water/cement ratio and slump of concrete. The contractor should take appropriate curing precautions during the pouring of concrete in hot weather to reduce cracking of slabs.

A slip sheet (or equivalent) can be utilized if grouted tile, marble tile, or other crack-sensitive floor covering is planned directly on concrete slabs.

Exterior Concrete Flatwork

Because of expansive soil forces, exterior concrete flatwork has the potential for cracking and/or heaving. To reduce the potential for excessive cracking and/or heaving, concrete slab should be a minimum of 4-inches thick and should be provided with construction or weakened plane joints at frequent intervals (e.g., every 6-feet or less), as well as a minimum 4-inch thick layer of crushed rock, gravel, or clean sand. Pre-saturation of the slab subgrade, to a minimum of 140 percent of the optimum moisture content, to a minimum depth of 24-inches should be considered. Reinforcing the slabs with #3 bars at 18-inches on centers, both directions, at slab mid-height, should also be considered.

Deepening the edges of concrete slabs (such as to 18-inches below the adjacent grade) should also be considered to reduce lateral migration of soil moisture into the slab subgrade.

For slab portions located within the slope creep affected zone, special structural designs, such as structurally connecting with caissons/footings and/or additional deepening the edge of the slab to 3-4 ft. deep, should be considered to reduce the potential adverse creep effects.

Cement Type for Concrete in Contact with Earth Materials

Test data indicate the on-site earth materials have a negligible water soluble sulfate content; therefore, per 1997 UBC, Type V cement with a maximum water/cement ratio of 0.45 and a minimum concrete strength f'_c of 4,500 psi is not required. Type II cement with a lower concrete strength to be designed by the structural engineer can be used for concrete in contact with on-site earth materials.

Option: Caissons Supporting Rear Fence Wall

The existing rear fence wall can be removed and replaced with a new one to be supported by a grade beam and caisson system. For areas near the house walls, the caissons to support the house walls can be used to support the fence wall by using an extended haunch. The location of the caissons will be determined by the project civil/structural engineer in consultation with the geotechnical engineer.

The above recommended geotechnical criteria can be utilized for caisson design. The thickness of the creep-affected zone can be conservatively assumed to be the thickness of the existing fill materials at the caisson locations, approximately 15-ft. for the northerly side yard and 16-ft. for the rear side yard.

Faulting and Seismicity

The subject site is located within Seismic Zone Factor 4, in Southern California, which is a tectonically active area; therefore the owner(s) of this property should be aware of the seismic risks.

The type and magnitude of seismic hazards affecting a site are dependent on the distance to causative faults, the intensity and magnitude of the seismic event, and ground conditions. The seismic hazard may be primary, such as surface rupture and/or ground shaking; or secondary, such as liquefaction and/or ground lurching.

No active faults are known to exist along, or to cross, the site. Therefore, the probability of primary surface rupture or deformation at the site is considered very low.

The Newport-Inglewood Structural Zone (NISZ) is located approximately 7 kilometers from the site. This fault is considered to be a major active fault capable of generating significant ground-shaking at the site in the event of a future earthquake.

In summary, this property is not subject to any special seismic hazard as compared to other nearby properties in similar geologic environments. It is not designated as a special studies zone under the Alquist-Priolo Special Studies Act. A design in accordance with the applicable Uniform Building Code and seismic design parameters published by the Structural Engineers Association of California is anticipated to satisfactorily mitigate potential effects of ground shaking. The following data are considered applicable using the 1998 CDMG Published Data Sources and the applicable tables in 1997 UBC:

The subject site is located within Seismic Zone Factor 4; $Z = 0.4$
 Closest known seismic source type = The Newport-Inglewood Fault = B fault
 Proximity to source = 7 km
 Soil profile type = S_D

Near source effect factors:

$$N_A = 1.0$$

$$N_V = 1.12$$

Seismic co-efficients:

$$C_A = 0.44 \quad N_A = 0.44$$

$$C_V = 0.64 \quad N_V = 0.7168$$

Liquefaction

Liquefaction is the phenomenon where the buildup of excess pore pressures in saturated, loose, predominantly granular (sandy) soils by seismic agitation results in a temporary "quick" or "liquefied" condition. Loose granular soils do not exist at this site (site is underlain by clayey materials); therefore, liquefaction potential is considered low for the site terrain.

The potential for other secondary seismic effects, such as seiche or dynamic settlement, is considered nil and very low, respectively

Surface Drainage and Maintenance

In general, the yard areas of the site should be re-graded to ensure surface water flows away from all improvement structures and into a drainage system for outletting. No drainage runoff should be directed onto adjacent properties, and no runoff from graded surfaces should be directed onto descending slopes.

If the existing exterior concrete slabs are not to be totally removed and replaced with new ones, cracks/separations on exterior slabs should be properly sealed/repaired and maintained.

We recommend the use of area drains, with sufficient inlet grates, to facilitate surface drainage.

Roof gutters and downspouts should be, checked and repaired as needed, to direct all roof drainage to a non-erodable finish surface. Downspouts should be directly connected to a drain pipe system for outletting. Roof drains, gutters and downspouts should be maintained to function, as intended.

Area drains, graded berms and swales, if any, are designed to carry surface water from pad areas, and should not be blocked or destroyed.

Subdrain outlets, if any, should be maintained to prevent burial or other blockage.

Irrigation of yard landscaping should be applied as short duration watering at minimal rates required for support of plant life.

Water should not be allowed to pond anywhere at the site (i.e., no undermined depressions allowed!).

The property should be frequently monitored for uncontrolled water, such as leaky sewer, water, domestic, irrigation, or drainpipes, and any identified source should be repaired (and maintained).

It is emphasized that proper drainage of the lot be provided and maintained in order to reduce the potential for surface water infiltrating the underlying soil, which may cause additional earth movement and additional structural distress.

Slope Maintenance

The adjacent descending slopes should be continued to be properly maintained to reduce the potential of slope creep. Bare areas on the slope face should be properly replanted with deep-rooted ground cover plants.

Geotechnical Observation and Testing During Repair Construction

It is recommended that geotechnical observations and/or testing be performed by the geotechnical consultant at the following stages:

1. During caisson drilling to verify the adequacy of underlying earth materials.
2. During compaction grouting application, if any.
3. After excavation for shallow footings/grade beams/haunches and slabs, if any, to verify the adequacy of underlying materials.

4. After pre-saturation of slab subgrade earth materials, if any, prior to pouring concrete.
5. When/if any unusual geotechnical conditions are encountered.

Geotechnical Impact on Neighboring Properties

Adverse geotechnical impact of the proposed repair on neighboring properties is considered insignificant, provided the recommendations in this report are properly implemented.

Closure

The findings, conclusions and recommendations of this report are based on information as derived or interpreted from our limited investigation. Although not anticipated, our recommendations (which are considered preliminary) are subject to revision if geotechnical conditions exposed during construction significantly differ from our preliminary findings and interpretations.

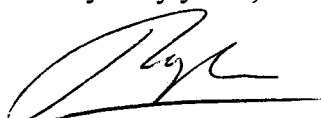
Our recommendations are considered minimum and may be superseded by more restrictive requirements of the design engineer, building codes, or governing agencies.

The following are attached and complete our report:

- Appendix A - References
- Appendix B - Geotechnical Boring Logs (of Lot 1 & Lot 2)
- Appendix C - Laboratory Test Methods and Results
- Figure 1 - Street Index Map
- Figure 2 - Previous General Topographic Map
- Figure 3 - Previous Generalized Geologic Map (with Explanation Sheet)
- Figure 5 - Site Plan/Geotechnical Map
- Figure 6 - Cross Section A-A'
- Figure 7 - Cross Section B-B'

If you have any questions or require clarification, please contact this office. This opportunity to be of service is sincerely appreciated.

Very truly yours,


Lan N. Pham, Director
Geotechnical Engineering
RGE 686, Exp. 3/31/07



*Report to be
Signed by
CEG.*
*Carson's holes
to be
monitored
by [signature]*

APPENDIX A

REFERENCES

REFERENCES

JN01G1474

1. California Department of Conservation, Division of Mines and Geology 1988, "Planning Scenario for a Major Earthquake on the Newport-Inglewood Fault Zone", Special Publication 99, published in 1988.
2. California Division of Mines and Geology, 1968, "Natural Slope Stability as Related to Geology, San Clemente Area, Orange and San Diego Counties, California", Special Report 98, published in 1968.
3. California Division of Mines and Geology, Department of Conservation, 1998 (Published by International Conference of Building Officials), "Maps of Known Active Fault Near Source zones in California and Adjacent Portions of Nevada", (Sheet N-35, Newport-Inglewood Fault), Scale $\frac{1}{4}$ " = 1 km, dated 1998.
4. Uniform Building Code (UBC), 1997, Volume 2, Structural Engineering Design Provisions, Seismic Zone Map of the United States, Figure 16-2, Tables 16-I, 16-J, 16-Q, 16-R, 16-S, 16-T, 16-U and Table 19-A-4, dated 1997.
5. USGS, California Department of Water Resources, 1968, 1975, "Topographic Map, San Clemente Quadrangle, California, 7.5 Minute Series", dated 1968, photo-revised 1975.
6. G. A. Nicoll and Associates, Inc., 1982, "Slope Reconnaissance, 610 Avenida San Juan, San Clemente, California", Project No. 2619, dated 8/26/1982.
7. G. A. Nicoll and Associates, Inc., 1983, "Slope Repair Report, 610 Avenida San Juan, San Clemente, California", Project No. 2619-51, dated 1/28/83.
8. H.V. Lawmaster & Company, 1963, "Foundation Soil Investigation, Tract No. 3981, Avenida San Juan & Avenida Salvadore, San Clemente, California" File No. 63-358, dated 10/2/1963
9. H.V. Lawmaster & Company, 1964, "Soil Compaction Tests, Final Report, Tract No. 3981, East Avenida San Juan & Avenida Salvador, San Clemente, Orange County, California", File No. 63-503, dated February 27, 1964.
10. William R. Munson, Inc. 1989, "Engineering Geology Property Evaluation/Study and Limited Manometer Level Survey; 610 Avenida San Juan, San Clemente, California", (Lot 2 of Tract 3981), dated 9/11/1989.
11. William R. Munson, Inc. 1998, "Limited Subsurface Geotechnical Investigation and Update of Floor Levelness Data and Site Conditions; 610 East Avenida San Juan, 'Salvador Summit', San Clemente, California, (Lot 2, Tract 3981)", Project No. 97762, dated 4/28/1998.
12. William R. Munson, Inc., 2001, "Non-Intrusive Geotechnical Assessment (Handout Document Package, Inclusive of Appendices A-E), Site Work AND/OR ORAL REPORT

CONSULTATION, Jeanette Schotanus, 606 E. Avenida San Juan, San Clemente, CA”, dated 2/12/01.

APPENDIX B

GEOTECHNICAL BORING LOGS (LOT 1 & LOT 2)

GEOTECHNICAL BORING LOG

DATE 12/27/01 - 12/28/01 DRILL HOLE NO. 1 SHEET 1 OF 2
 PROJECT Schotanus JOB NO. 01G1474
 DRILLING CO. Peter Drilling TYPE OF RIG Mini
 HOLE DIAMETER 24" DRIVE WEIGHT 140lbs DROP 30 in.
 ELEVATION TOP OF HOLE _____ REF. OR DATUM Back of Garage

DEPTH (FEET)		POCKET PENETROMETER TSF	SAMPLE NO.	BLOWS PER 1/2 FOOT	DRY DENSITY PCF	MOISTURE CONTENT, %	SOILS CLASS (U.S.C.S.)	LOGGED BY <u>BLR</u>	SAMPLED BY <u>BLR</u>
0									
2	BAG Af	4.5+	1	10 18 18	96.7	15.5	CL	0-2' Yellowish Lt. brnish grey clayey silt, moist stiff-very stiff. Fine gravel size chips of siltstone, and cobble size chunks of earthy dark brn clay inclusions throughout fill.	
5		4.5+	2	6 10 22	107.3	11.5	CL	2' sample - Same artificial fill derived from Capistrano Formation (Tc) and slope wash (Qsw) Mottled	
								5' sample - same + Trace brown silty sand	
								FILL	
10	BAG	4.5+	3	5 8 11	98.3	17.0	CL	10' sample DK brn earthy clay, Very moist, very stiff. Siltstone chips, Mottled	
								FILL	
15	BAG Oxid. Tc	3.75	4	3 8 12	94.6	28.7	CL	14' Yellowish Grey clayey silt, Increase in moisture-wet weathered oxidized Bedrock Capistrano Formation (Tc)	
								15' sample Same + small Pocket of med orange sand. Fractures with rust and Gypsum veins. stiff, very moist Oxidized bedrock	
20		4.5+	5	4 14 30	99.1	26.4	CL	17 1/2' very stiff	
								20' sample - same	
								24' Increasing hardness	
25		4.5+	6	8 24 44 5"	96.7	28.4	CL	25' sample - same - Fractured; Gypsum, rust veins - colored bands grey, rust brn, and olive.	
								(29 1/2') light brn siltstone with blueish green veins Water drips noticed on Auger source depth unknown	

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JOB NUMBER
01G1474
JOB NAME
Schotanus

PETER and ASSOCIATES

GEOTECHNICAL BORING LOG

DATE 12/27/01 - 12/28/01 DRILL HOLE NO. 1 SHEET 2 OF 2
 PROJECT Schotanus JOB NO. 0161474
 DRILLING CO. Peter Drilling TYPE OF RIG Mini
 HOLE DIAMETER 24" DRIVE WEIGHT 140 lbs DROP 30 in.
 ELEVATION TOP OF HOLE _____ REF. OR DATUM Back of Garage

DEPTH (FEET)	POCKET PENETROMETER TSF	SAMPLE NO.	BLOWS PER 1/2 FOOT	DRY DENSITY PCF	MOISTURE CONTENT, %	SOILS CLASS (U.S.C.S.)	LOGGED BY <u>BLR</u> SAMPLED BY <u>BLR</u>
30	4.5+	7	10 34 42	96.3	25.8	CL	30' sample Lt. brownish grey siltstone, very moist. very stiff. *END OF DAY 1 12-27-01 7 AM 1/2 of 1st Bucket contained saturated silt.
35	4.5+	8	10 37 40/5"	95.9	26.1	CL	35' sample Dark Grey, Bands of dk brn, red rust. 36' steam coming off extracted silt warm to the touch. 38 1/2' Black unoxidized bedrock
40	UNOX. Tc 4.5	9	18 42 1/4"	95.7	30.0	CL	40' sample same. - End of hole - Total Depth: 40' - Very high moisture @ 14'; Wet - No Caving - 7 AM 12-28-01 1/2 of 1st Bucket contained Saturated silt. - Hole Back filled with cuttings

GEOTECHNICAL BORING LOG

DATE 12/28/01 DRILL HOLE NO. 2 SHEET 1 OF 2
 PROJECT Schotanus JOB NO. 0161474
 DRILLING CO. Peter Drilling TYPE OF RIG Mini
 HOLE DIAMETER 24" DRIVE WEIGHT 140 lbs DROP 30 in.
 ELEVATION TOP OF HOLE _____ REF. OR DATUM Front of Garage - Next to Driveway

DEPTH (FEET)	POCKET PENETROMETER TSF	SAMPLE NO.	BLOWS PER 1/2 FOOT	DRY DENSITY PCF	MOISTURE CONTENT, %	SOILS CLASS (U.S.C.S.)	LOGGED BY <u>BLR</u>	SAMPLED BY <u>BLR</u>
0								
2	4.5+	1	4 7 10	104.1	27.2	CL	0-2' Yellowish Lt. brnsh grey clayey silt + fine sand, v. moist, very stiff, roots. Fine Gravel size chips of siltstone and Cobble size chunks of earthy dark brn clay Inclusions throughout Fill 2' sample same artificial fill derived from Capistrano Formation (T _c) and Slope Wash (Q _{sw}) 5' sample Earthy dk brn clay, very stiff, very moist. Lt Grey clayey silt + yellow veins in sample head FILL	
5	4.5+	2	4 5 6	94.4	26.3	CL		
10	3.75	3	3 7 16	98.1	26.6	CL		
15	4.5+	4	4 9 20	98.5	25.3	CL	10' sample - Yellowish brn grey clayey silt - Water seepage @ 10' + 12 1/2' very Moist, stiff, rust, Gypsum veins, Capistrano Formation Siltstone Oxid. Bedrock 12 1/2' Capistrano Formation Siltstone (Oxid) Bedrock Yellowish grey Siltstone very moist very stiff. Yellow stained bands. 15' sample - same Increasing hardness with depth.	
20	4.5+	5	8 18 28	95.2	28.5	CL		
25	4.5+	6	7 22	95.0	28.4	CL		
							20' sample same - rust stains throughout. 25' sample same - brownish grey color.	

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JOB NUMBER

0161474

JOB NAME

Schotanus

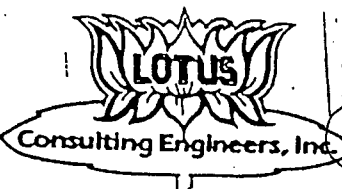
PETER and ASSOCIATES

GEOTECHNICAL BORING LOG

DATE 12/28/01 DRILL HOLE NO. 2 SHEET 2 OF 2
 PROJECT Schotanus JOB NO. 01G1474
 DRILLING CO. Peter Drilling TYPE OF RIG Mini
 HOLE DIAMETER 24" DRIVE WEIGHT 140lbs DROP 30 in.
 ELEVATION TOP OF HOLE _____ REF. OR DATUM Front of Garage - North of Driveway

DEPTH (FEET)	POCKET PENETROMETER TSF	SAMPLE NO.	BLOWS PER 1/2 FOOT	DRY DENSITY PCF	MOISTURE CONTENT, %	SOILS CLASS (U.S.C.S.)	LOGGED BY <u>BLR</u>	SAMPLED BY <u>BLR who is BLR</u>
30	4.5+		6 18 40/5 1/2"	85.8	32.8	CL	30' sample Same Increasing hardness 32' orange brown, + light grey bands siltstone Gypsum Abundant. 34 1/2' Black unoxidized siltstone 35' Sample Same	
35	UNOX. 4.5+		10	92.7	30.7	CL	- End of hole - Total depth: 35' - Seepage @ 10' + 12 1/2' - Very Minor Caving @ 12' - Hole backfilled with cuttings	

EQUIPMENT USED: <i>Limited access flight auger</i>				ELEVATION: <i>top of slope @ path to hole</i>		LOGGED BY: <i>WRM</i>					
GROUNDWATER: <i>None</i>				HOLE DIAM.: <i>6- INCH</i>		FIELDWORK: <i>12-5-97</i>					
ELEV.	BLOWS FOOT	SAMPLE			FIELD MOISTURE (%)	DRY DENSITY (P.C.F.)	DEPTH FEET	GRAPHIC SYMBOL	U.S.C.S. SYMBOL	DETAILED DESCRIPTION COLOR, MOISTURE, CONSISTENCY, ETC.	HOLE NO. <i>1</i>
		BULK	DRIVE	PUSH							
	<i>6 1/6"</i>									<i>Ag</i> <i>Silt, very fine sandy (B/L Silty, very fine sand), pale yellowish brown & yellowish gray, humid; friable & med. loose to med. dense</i> <i>Common inclusions of earthy dark brown silty clay & pale yellowish brown/gray siltstone fragments; humid</i> <i>Silt, sl. very fine sandy w/ common admixed pebble size fragments of yellow siltstone, humid; firm</i> <i>trace to sl. very fine sandy humid to sl. moist</i> <i>Silt, trace of v. fine sandy & nil to trace of clay, w/ some admixed siltstone fragments, pale olive gray - olive gray brown w/ yellow; humid to sl. moist; firm</i> <i>occas. clayey fine to medium sand</i> <i>Silt, silty clayey to clayey w/ minor v. fine sand; w/ admixed grit-to-pebble size siltstone fragments & some inclusions of earthy dark brown silty clay (topsoil); pale olive brown w/ yellw. brown & dark brown; sl. moist; firm</i>	
	<i>8 1/6"</i>	<i>1</i>				<i>1</i>					
	<i>11 1/6"</i>					<i>2</i>					
	<i>9 1/6"</i>					<i>3</i>					
	<i>12 1/6"</i>	<i>1</i>				<i>4</i>					
	<i>14 1/6"</i>					<i>5</i>					
	<i>8 1/6"</i>					<i>6</i>					
	<i>14 1/6"</i>					<i>7</i>					
	<i>19 1/6"</i>	<i>3</i>				<i>8</i>					
						<i>9</i>					
	<i>9 1/6"</i>					<i>10</i>					
	<i>13 1/6"</i>	<i>4</i>				<i>11</i>					
	<i>16 1/6"</i>					<i>12</i>					
						<i>13</i>					
	<i>8 1/6"</i>					<i>14</i>					
	<i>12 1/6"</i>	<i>5</i>				<i>15</i>					
	<i>14 1/6"</i>					<i>16</i>					
						<i>17</i>					
						<i>18</i>					
	<i>7 1/6"</i>					<i>19</i>					
	<i>9 1/6"</i>					<i>20</i>					
	<i>11 1/6"</i>	<i>26</i>				<i>21</i>					
						<i>22</i>					
						<i>23</i>					
	<i>10 1/6"</i>					<i>24</i>					
	<i>14 1/6"</i>	<i>7</i>				<i>25</i>					
	<i>20 1/6"</i>										



(714) 768-4466 ORANGE CO.
(714) 820-1015 RIVERSIDE CO.
(619) 722-4056 SAN DIEGO CO.

From Ref. 11.
Munson, 1998

N.R.-NO RECOVERY
BLOWS/FOOT-350 FOOT-LB. ENERGY/BLOW
PUSHED-3" DIAMETER SHELBY TUBES

LOG OF BORING

FIGURE NO.
A-1-1

PROJECT REPORT DATE SHEET
NO. 1 OF 2

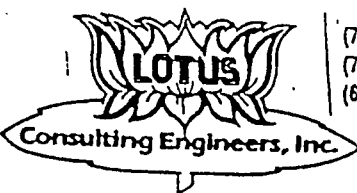
EQUIPMENT USED: *Limited access flight auger*ELEVATION: *top of slope @ pit deck*

LOGGED BY: WRM

GROUNDWATER: *None*HOLE DIAM.: *6-INCH*

FIELDWORK: 12-15-97

ELEV.	BLOWS FOOT	SAMPLE			FIELD MOISTURE (%)	DRY DENSITY (P.C.F.)	DEPTH FEET	GRAPHIC SYMBOL	U.S.C.S. SYMBOL	DETAILED DESCRIPTION COLOR, MOISTURE, CONSISTENCY, ETC.	HOLE NO. <u>1</u>
		BULK	DRIVE	PUSH							
							26	<i>As</i>		<i>Silt, silty clayey to clayey w/ minor 2 v. fine sand in cont'd</i>	
							27				
							28			<i>clayey</i>	
							29				
							30				
							31				
							32				
							33				
							34				
							35				
							36				
							37				
							38				
							39				
							40				
							41				
							42				
							43				
							44				
							45				
							46				
							47				
							48				
							49				
							50				



(714) 768-4466 ORANGE CO.
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From Ref. 11
Munson, 1998

N.R.-NO RECOVERY

BLOWS/FOOT-350 FOOT-LB. ENERGY/BLOW
PUSHED-3" DIAMETER SHELBY TUBES

LOG OF BORING


FIGURE
NO.
A-1-1

PROJECT
NO.

REPORT DATE

SHEET
2 OF 2

EQUIPMENT USED: *Limited access flight auger*ELEVATION: *Rear yard deck
adj. to living room*LOGGED BY: *WRM*GROUNDWATER: *None*HOLE DIAM.: *6-INCH*FIELDWORK: *12-5-97*

ELEV.	BLOWS FOOT	SAMPLE			FIELD MOISTURE (%)	DRY DENSITY (P.C.F.)	DEPTH FEET	GRAPHIC SYMBOL	U.S.C.S. SYMBOL	DETAILED DESCRIPTION COLOR, MOISTURE, CONSISTENCY, ETC.	HOLE NO. <u>2</u>
		BULK	DRIVE	PUSH							
	<i>10/6 24/6 28/6</i>	<i>1</i>	<i>7</i>				<i>26</i>	<i>1/2</i>		<i>Siltstone cont'd</i>	
							<i>27</i>			<i>End of boring @ 26' 1/2" due to limitations (viz. darkness & rain)</i> <i>Drive weight</i> 	
							<i>28</i>				
							<i>29</i>				
							<i>30</i>				
							<i>31</i>				
							<i>32</i>				
							<i>33</i>				
							<i>34</i>				
							<i>35</i>				
							<i>36</i>				
							<i>37</i>				
							<i>38</i>				
							<i>39</i>				
							<i>40</i>				
							<i>41</i>				
							<i>42</i>				
							<i>43</i>				
							<i>44</i>				
							<i>45</i>				
							<i>46</i>				
							<i>47</i>				
							<i>48</i>				
							<i>49</i>				
							<i>50</i>				

N.R.-NO RECOVERY

BLOWS/FOOT-350 FOOT-LB. ENERGY/BLOW
PUSHED-3" DIAMETER SHELBY TUBES

LOG OF BORING

FIGURE
NO.
*A-1-2*PROJECT
NO.

REPORT DATE

SHEET
2 OF 2

Consulting Engineers, Inc.

(714) 768-4466 ORANGE CO.
(714) 820-1015 RIVERSIDE CO.
(619) 722-4056 SAN DIEGO CO.*From Ref 11
Munson, 1998*

APPENDIX C

LABORATORY TEST METHODS AND RESULTS

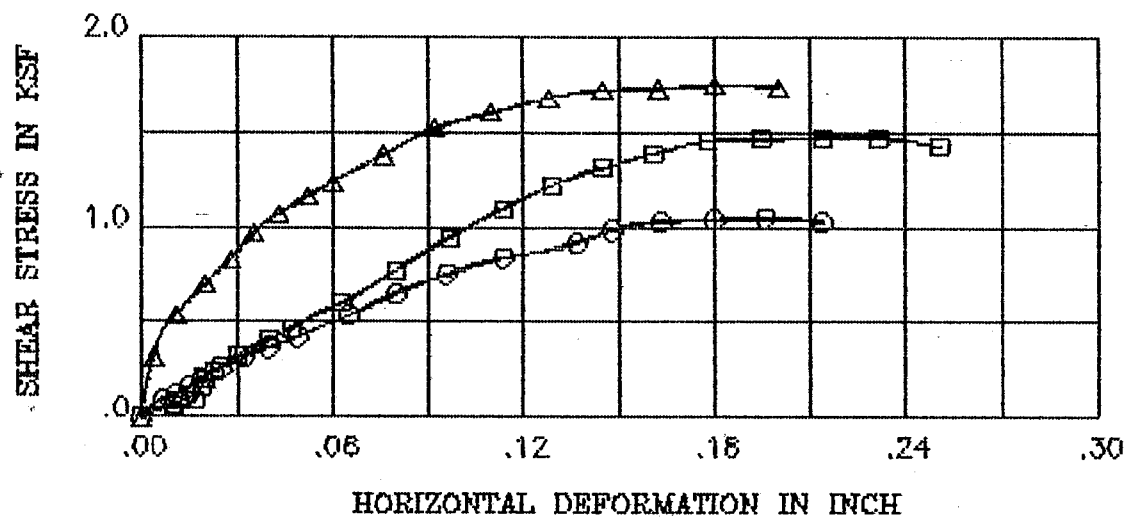
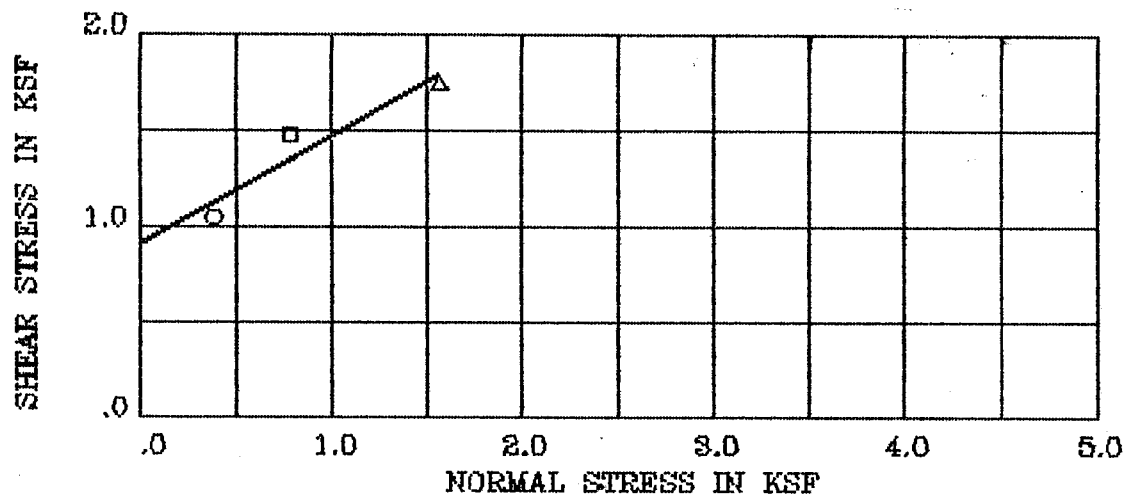
LABORATORY TESTING

Moisture Content and Dry Density Tests

Moisture content and dry density determinations were performed on relatively undisturbed samples obtained from the test borings and/or trenches. The tests were performed in general accordance with ASTM Test Method D4959. The test results are presented on the boring and/or trench logs. Where applicable, only moisture content was determined from “undisturbed” or disturbed samples.

Direct Shear Tests

Direct shear tests were performed on selected undisturbed samples (or remolded where noted), in general accordance with ASTM Test Method D3080. The specimens were soaked for a minimum of 24 hours for clayey materials, and approximately one hour for sandy materials under a surcharge equal to the applied normal force during testing. For clayey materials, after transfer of the specimen to the shear box and reloading the specimen, pore pressure set up in the specimen due to the transfer was allowed to dissipate for a period of approximately one hour prior to application of shearing force. For sandy materials, soaking was performed directly in the shear box to reduce the disturbance of the specimens. The specimens were tested under various normal loads, and a different specimen was used for each normal load. The specimens were sheared in a motor-driven, strain controlled, direct-shear testing apparatus at a strain rate of approximately 0.05 inch per minute. The test results were plotted on the “Direct Shear” form and included in this appendix.

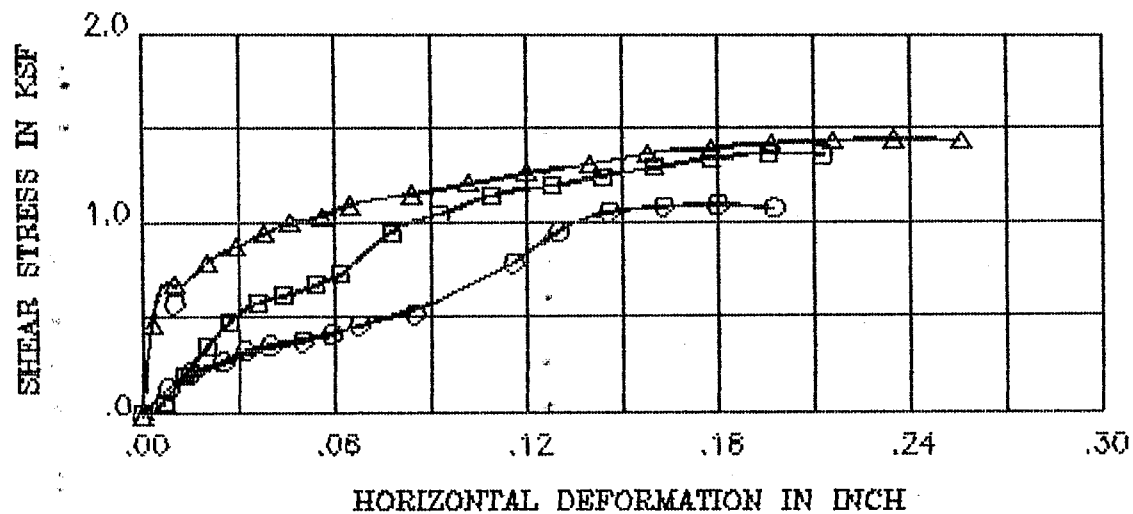
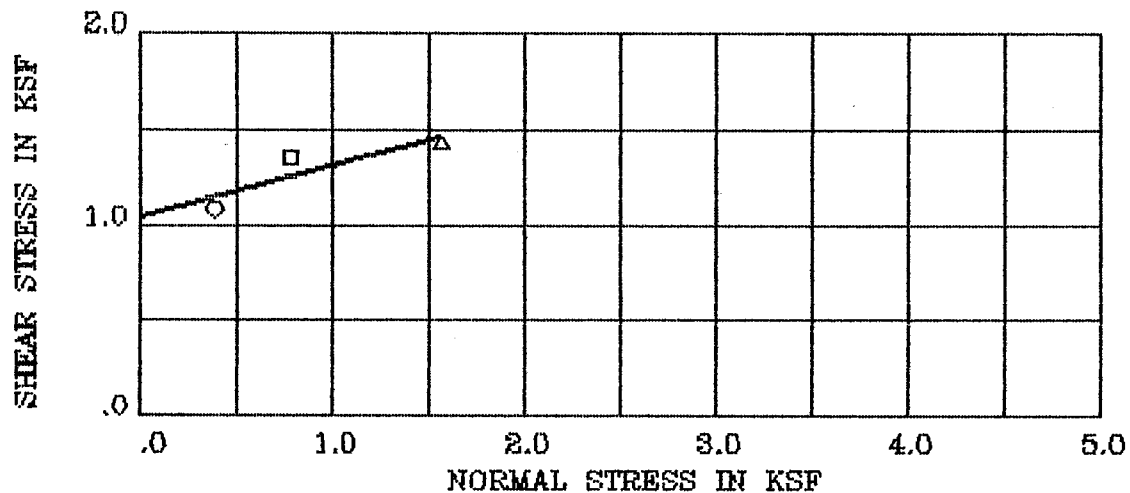


BORING/SAMPLE : 1 DEPTH (ft) : 20
 DESCRIPTION : SALTSTONE BEDROCK
 STRENGTH INTERCEPT (C) : .913 KSF
 FRICTION ANGLE (PHI) : 29.1 DEG (PEAK STRENGTH)

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	26.6	97.7	.724	.38	1.05	1.03
□	28.0	94.4	.785	.78	1.47	1.42
△	27.6	94.4	.785	1.57	1.74	1.73

Remark :

Project No.01G1474	SCHOTANUS
PETER & ASSOCIATES	DIRECT SHEAR TEST

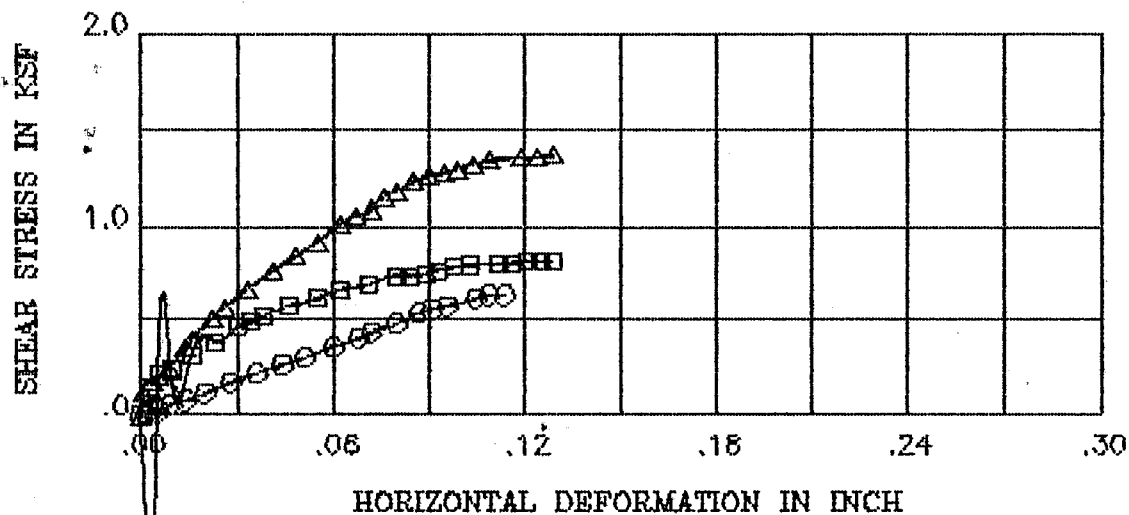
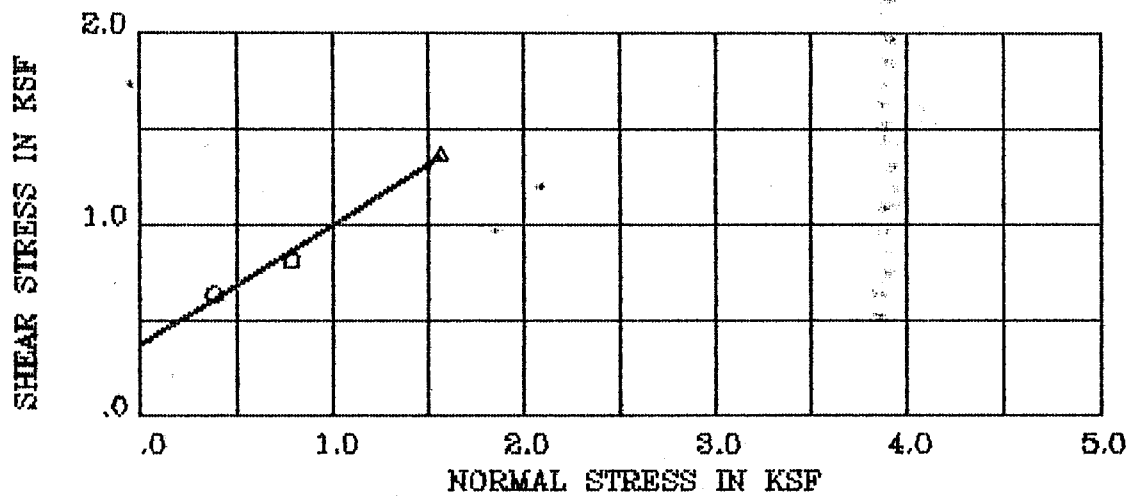


BORING/SAMPLE : 2 DEPTH (ft) : 5
 DESCRIPTION : ARTIFICIAL FILL--SILT--1ST BREAK BEFORE RESHEARS
 STRENGTH INTERCEPT (C) : 1.048 KSF
 FRICTION ANGLE (PHI) : 14.9 DEG (PEAK STRENGTH)

SYMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	23.5	98.9	.704	.38	1.08	1.06
□	22.7	98.9	.704	.70	1.36	1.35
△	27.6	89.0	.893	1.57	1.43	1.42

Remark :

Project No.01G1474	SCHOTANUS
PETER & ASSOCIATES	DIRECT SHEAR TEST



BORING/SAMPLE : 2 DEPTH (ft) : 10
 DESCRIPTION :
 STRENGTH INTERCEPT (C) : .361 KSF (PEAK STRENGTH)
 FRICTION ANGLE (PHI) : 32.2 DEG

SMBOL	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	VOID RATIO	NORMAL STRESS (ksf)	PEAK SHEAR (ksf)	RESIDUAL SHEAR (ksf)
○	25.0	96.3	.760	.38	.63	.63
□	25.8	95.5	.774	.79	.81	.81
△	25.7	95.5	.775	1.57	1.37	1.37

Remark :

Project No.01G1474	SCHOTANUS
PETER & ASSOCIATES	DIRECT SHEAR TEST



Del Mar Analytical

2852 Alton Ave., Irvine, CA 92606 (949) 261-1022 FAX (949) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
7277 Hayvenhurst, Suite B-12, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

Peter and Associates
1519 Calle Valle
San Clemente, CA 92672
Attention: Lan N. Pham

Project ID: Sulfate
01G1474/Schotanus
Report Number: ILA0036

Sampled: 12/27/01
Received: 01/03/02

INORGANICS

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
			%	%				
Sample ID: ILA0036-01 (Schotanus B1@ 0-2' - Soil)								
Soluble Sulfate	EPA 300.0	I2A0454	0.00050	0.023	1	1/4/02	1/7/02	

↳ Negligible

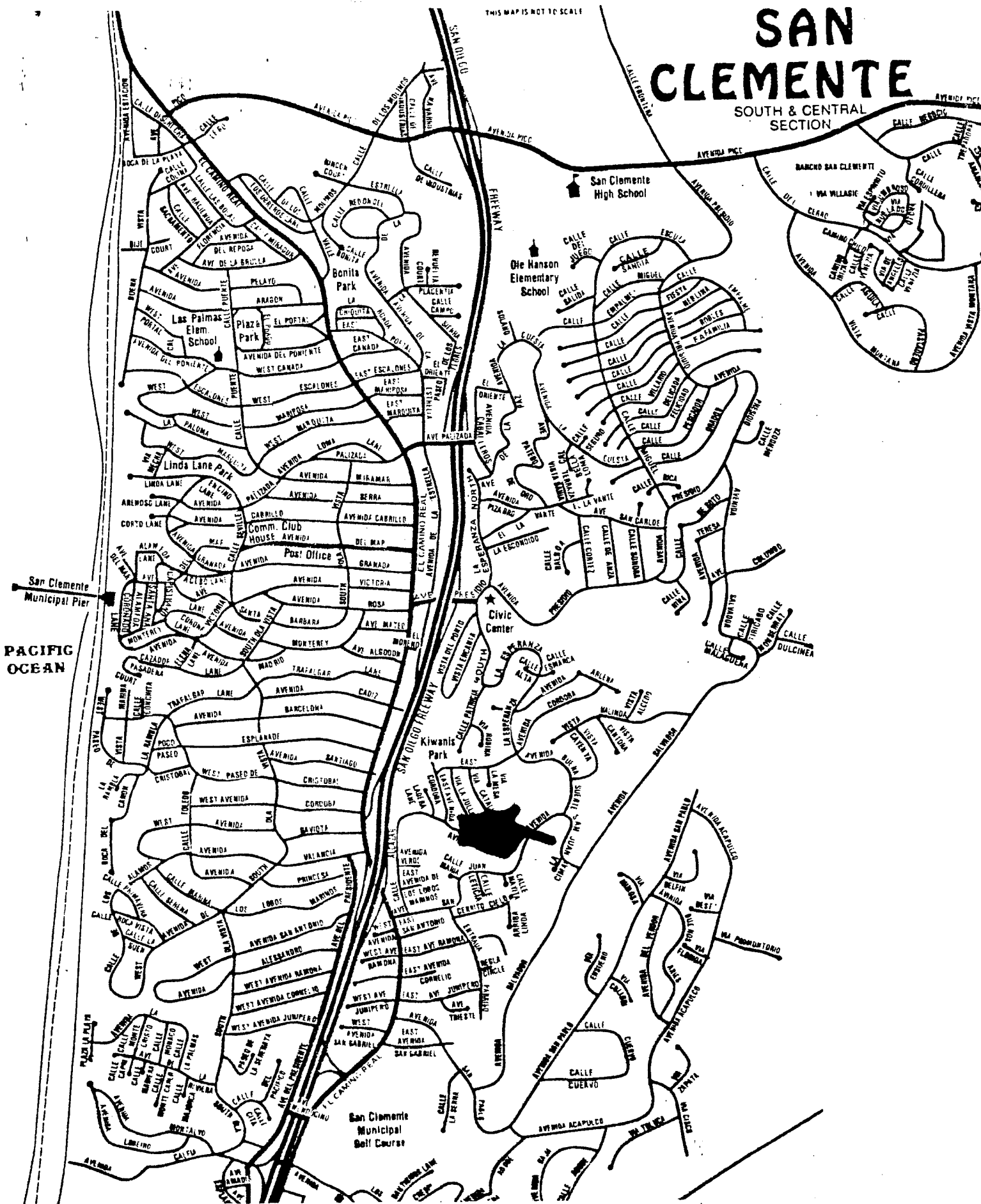
Del Mar Analytical, Irvine
Xuan Huong Dang
Project Manager

The results pertain only to the samples tested in the laboratory. This report shall not be reproduced,
except in full, without written permission from Del Mar Analytical.

ILA0036 <Page 2 of 4>

SAN CLEMENTE

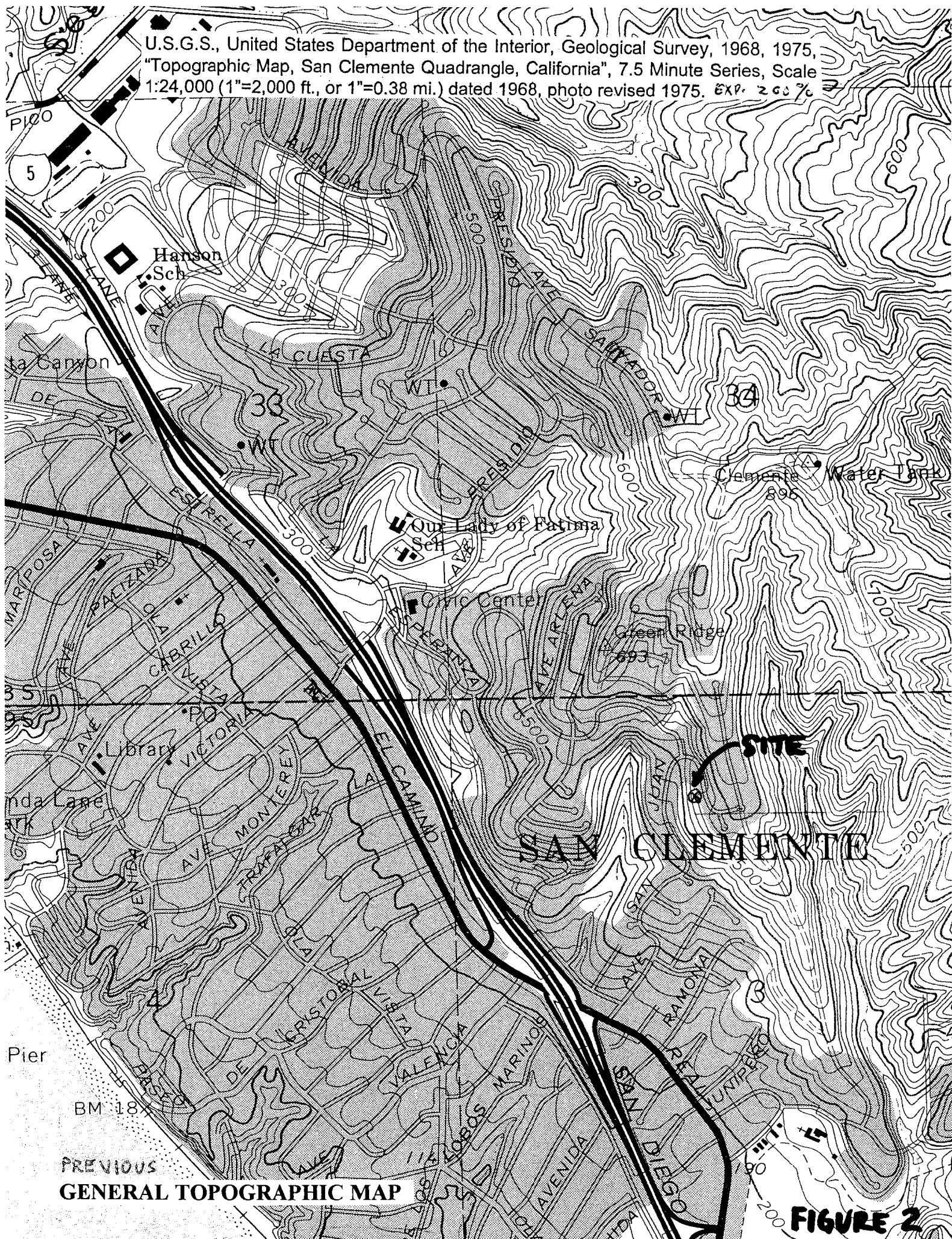
SOUTH & CENTRAL
SECTION



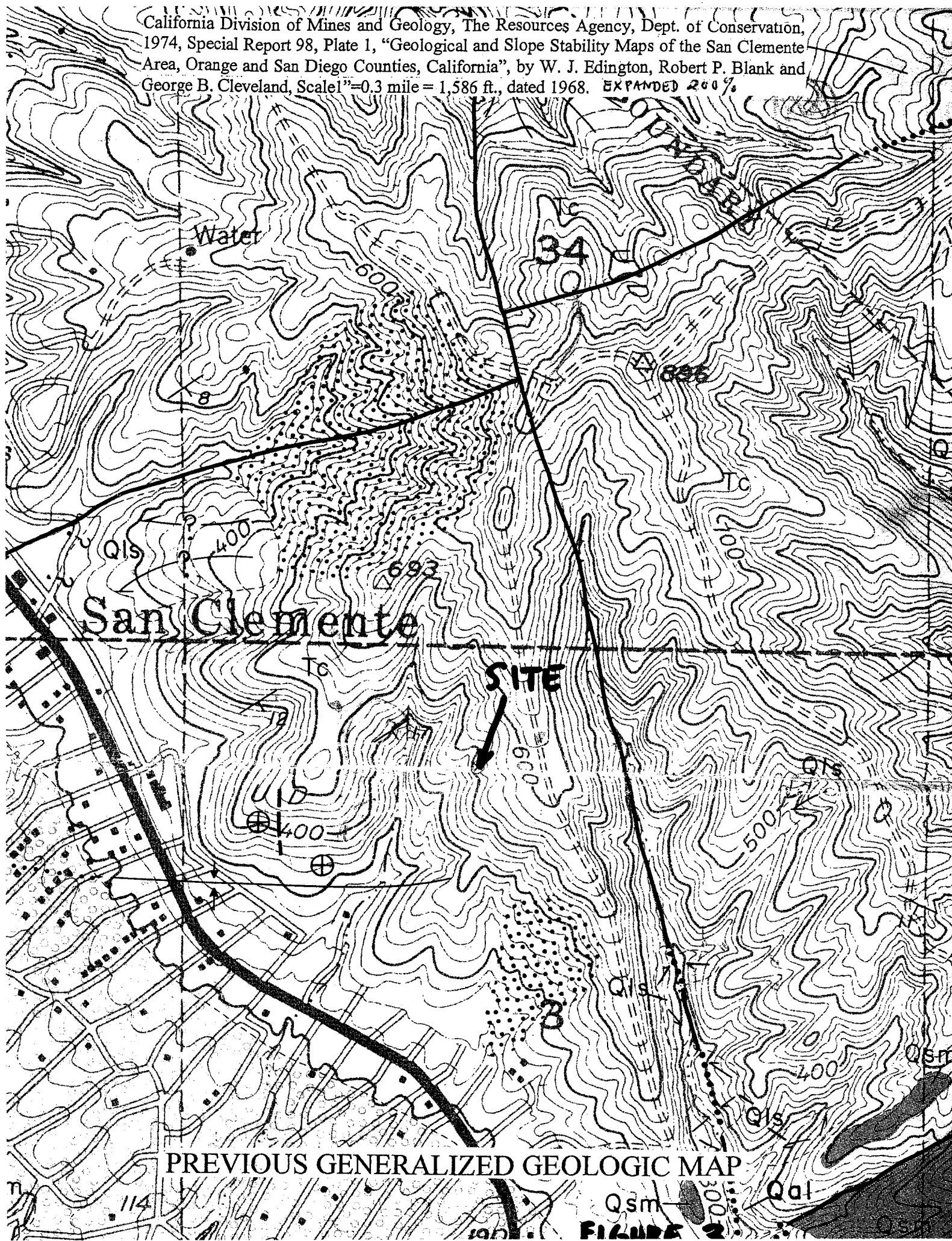
STREET INDEX MAP

FIGURE I

U.S.G.S., United States Department of the Interior, Geological Survey, 1968, 1975,
"Topographic Map, San Clemente Quadrangle, California", 7.5 Minute Series, Scale
1:24,000 (1"=2,000 ft., or 1"=0.38 mi.) dated 1968, photo revised 1975. EXP. 26576

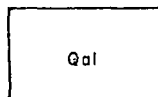


California Division of Mines and Geology, The Resources Agency, Dept. of Conservation,
 1974, Special Report 98, Plate 1, "Geological and Slope Stability Maps of the San Clemente
 Area, Orange and San Diego Counties, California", by W. J. Edington, Robert P. Blank and
 George B. Cleveland, Scale 1"=0.3 mile = 1,586 ft., dated 1968. EXPANDED 200%



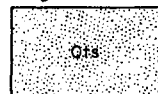
GENERALIZED GEOLOGIC MAP

EXPLANATION



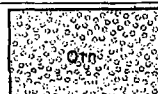
Alluvium, beach sand and pond deposits

Alluvium: mainly light-colored, poorly consolidated silt, sand, and gravel. Along San Juan and Cristianitos-San Mateo drainages locally contains high proportion of fragments common to San Onofre Breccia. *Beach sand*: light-colored, unconsolidated sand along modern strandline. *Pond deposits*: in depressions behind landslide blocks; dark brownish gray, pale gray weathering; poorly bedded and consolidated, clay to sand-size sediments up to 50 feet thick; locally rill-washed and subject to minor sloughing. Recognized only locally, but probably unit is more widespread in large landslides.



Stream terrace deposits

Low-lying deposits forming aprons along floodplains of major drainage courses; dark brown, poorly consolidated, poorly bedded, adobe-like, fine-grained sediments at least 15 feet thick; subject to minor sloughing. Cobbles of dominantly San Onofre Breccia locally deposited along San Juan drainage. Broad aprons of fine-grained materials at mouths of drainage courses near coast may be, in part, estuarine in origin.



Nonmarine terrace deposits

Ancient alluvial cover on marine terrace deposits in coastal area; brownish gray, fairly well consolidated, poorly bedded, fine-grained sediments greater than 10 feet thick; locally comprised in part of tabular chips of hard buff to white shale; locally grades into stream channels of pebbles and cobbles of milky quartz, and black, dark gray, green, purple and pinkish white volcanic rocks; stands in near vertical slopes but subject to minor sloughing. Lies unconformably on marine terrace deposits.



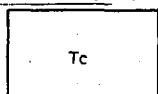
Marine terrace deposits

Forms cap on main marine terrace surface and overlies Capistrano and San Mateo Formations along coastal area; pale buff to reddish tan, poorly consolidated, faintly bedded, cross-bedded, medium-grained sandstone; locally rill washed; locally fossiliferous with a few pholad-bored cobbles; grades south-eastward along coast to pebble and cobble conglomerate; base locally saturated with groundwater. Lies unconformably on Capistrano and San Mateo Formations. Also includes remnants of older deposits lying at higher elevations.



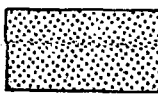
San Mateo Formation of Woodford (1925)

Locally distributed in southeastern part of area; pale grayish brown, poorly bedded, coarse arkosic sandstone; comprised of angular feldspar, quartz, and biotite fragments; thin pebble and cobble partings of quartz, quartzite, granite, gneiss, and schist fragments derived from San Onofre Breccia; thin, fine sandy partings and local iron-rich zones; rill washed; locally landslide on steep slopes. Unconformably overlies Capistrano Formation. Contact with Capistrano locally exhibits load casts and flame structures and subrounded fragments of Capistrano mudstone occur from a few inches to a few feet above lower contact, indicating formation may be, in part, a turbidite.



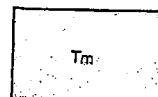
Capistrano Formation

Widely distributed in southern and western part of area; pale gray, pale greenish to bluish gray, poorly consolidated, massive to poorly bedded, silty shale and mudstone; local coarse buff to pale brown sandstone and siltstone lenses especially near base; locally gypsiferous; in gradational contact with underlying Monterey Formation; forms gradual slopes; most widely landslide formation in area. Foraminifers at locality no. 2 indicate lower Mohnian age at depth. Locally Capistrano Formation may be capped by Niguel Formation of Vedder and others (1957).



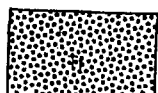
Ancient landslide terrain

Terrain where local morphologic expression is lacking, but general appearance of landscape suggests ancient landsliding



Monterey Formation

Covers large areas west of the Cristianitos fault in the northern half of the area; white, pale gray, and buff, thin-bedded shale and mudstone; diatomaceous, especially in lower half of section; platy siliceous shales common to the Monterey Formation in some areas, not observed locally; upper 200 feet of section as mapped includes siltstones and shales which are transitional from typical Monterey Formation to typical Capistrano Formation; forms rounded, grass and mustard-weed covered slopes, devoid of brush and trees, and mantled with black soil; the presence of cactus and sagebrush along with a change from the typical black to a sandy, yellow-brown soil in areas of Monterey Formation is generally indicative of lowest part of Capistrano Formation; outcrops generally limited to occasional exposures in stream bottoms; interfingers with San Onofre Breccia and conformably overlain by Capistrano Formation; very commonly landslide; transitional zone along with Capistrano Formation are most widely landslide rocks in the area; most readily identified by topography, vegetation and black soil. Foraminifers at locality no. 3 indicate lower Mohnian age; at locality no. 4, lower Mohnian age to a depth of 180 feet (questionable Luisian fossils were found near the surface).



Topanga Formation

Limited distribution in northwestern part of area; light buff to dark brown, massive, calcareous, arkosic sandstone; medium to coarse grained, poorly sorted, moderately to well indurated, with local conglomerate lenses; comprised predominantly of angular feldspar, quartz and biotite, with numerous fragments of glauconite schist; megafossils common; forms prominent outcrops; base not exposed, conformably (?) overlain by San Onofre Breccia. Most readily identified by brown color, coarse texture, schist fragments and abundant megafossils. Questionable Topanga Formation shown (Tt').



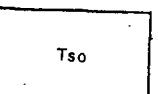
Sespe and Vaqueros Formations (undifferentiated)

Locally distributed along Cristianitos fault; buff, massive, fine- to coarse-grained, poorly sorted, poorly cemented, arkosic sandstone; locally conglomeratic; lies conformably on Santiago Formation; minor outcrops not mapped. Formations encountered in drill hole below landslide deposits at locality no. 1, 22 feet below surface.



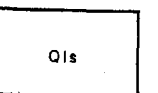
Santiago Formation

Widely distributed on northeast side of Cristianitos fault; white to gray, massive, fine- to coarse-grained, poorly sorted, uncemented, poorly to moderately consolidated, friable, arkosic sandstone; locally comprised of thin interbeds of greenish gray siltstone.



San Onofre Breccia

Crops out from place to place along the northwest-trending high ridge immediately west of the Cristianitos fault in the northern half of the area; large slabs and boulders of blue-green glauconite schist in a matrix of red and gray conglomerate and coarse-grained sandstone; well indurated, poorly sorted, angular fragments of a variety of igneous and metamorphic lithologies; typically forms steep slopes with a very dense cover of chaparral; locally conformably (?) overlies Topanga Formation and is both interfingering with and overlain by Monterey Formation; subject to landsliding where slopes are over-steepened and undercut. Most readily identified by dense vegetation, rocky soil and abundance of schist fragments.

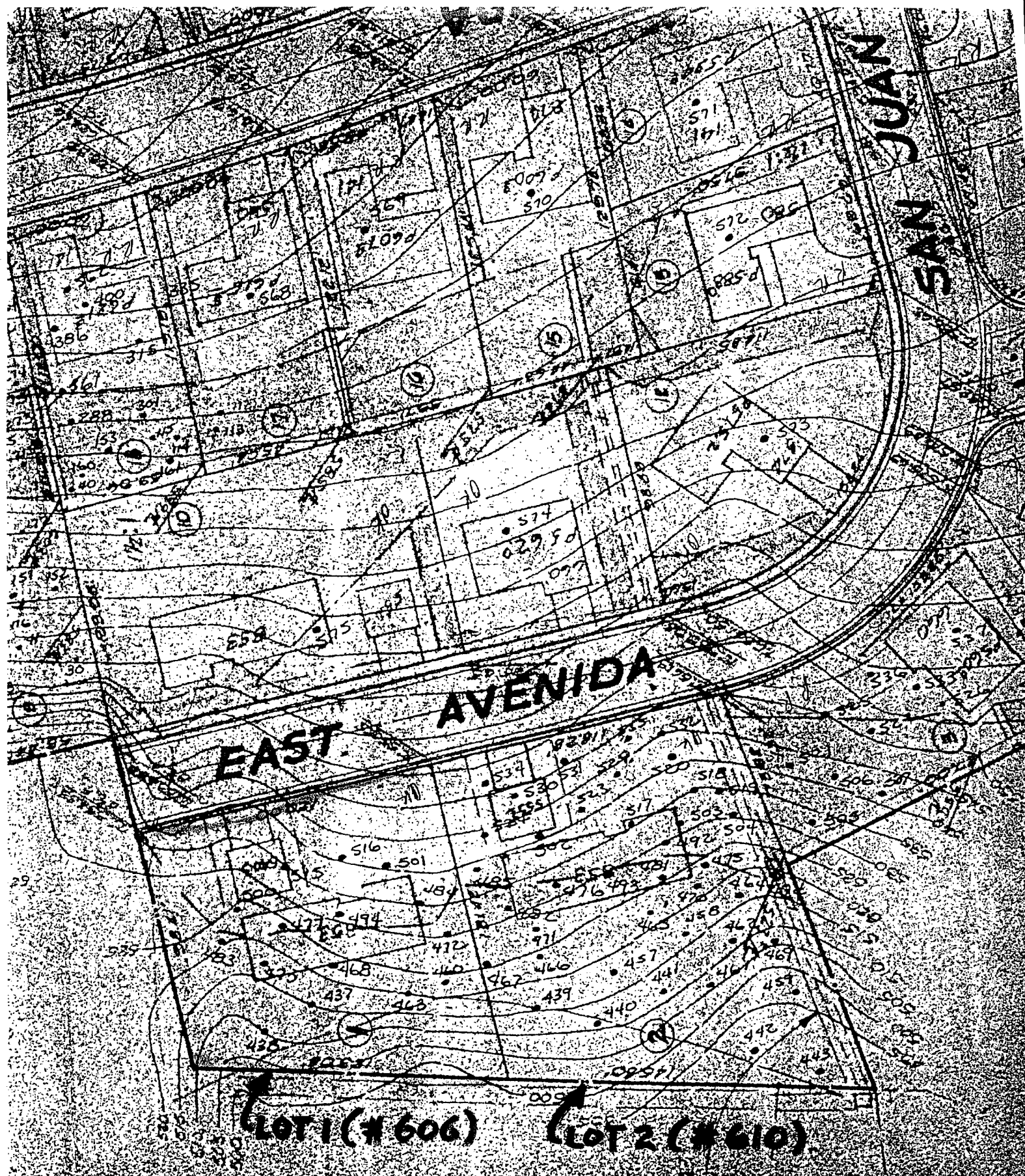


Landslide deposits

Confined to relatively small areas in side canyon failures, but may spread out over wide areas along major stream courses. Disordered blocks to highly fragmented debris commonly derived from one formational unit or locally comprised of a mixture of two or more formations. Arrows (✓) show principal directions of movement; terrain suspected of expressing landslide morphology shown (Qls').

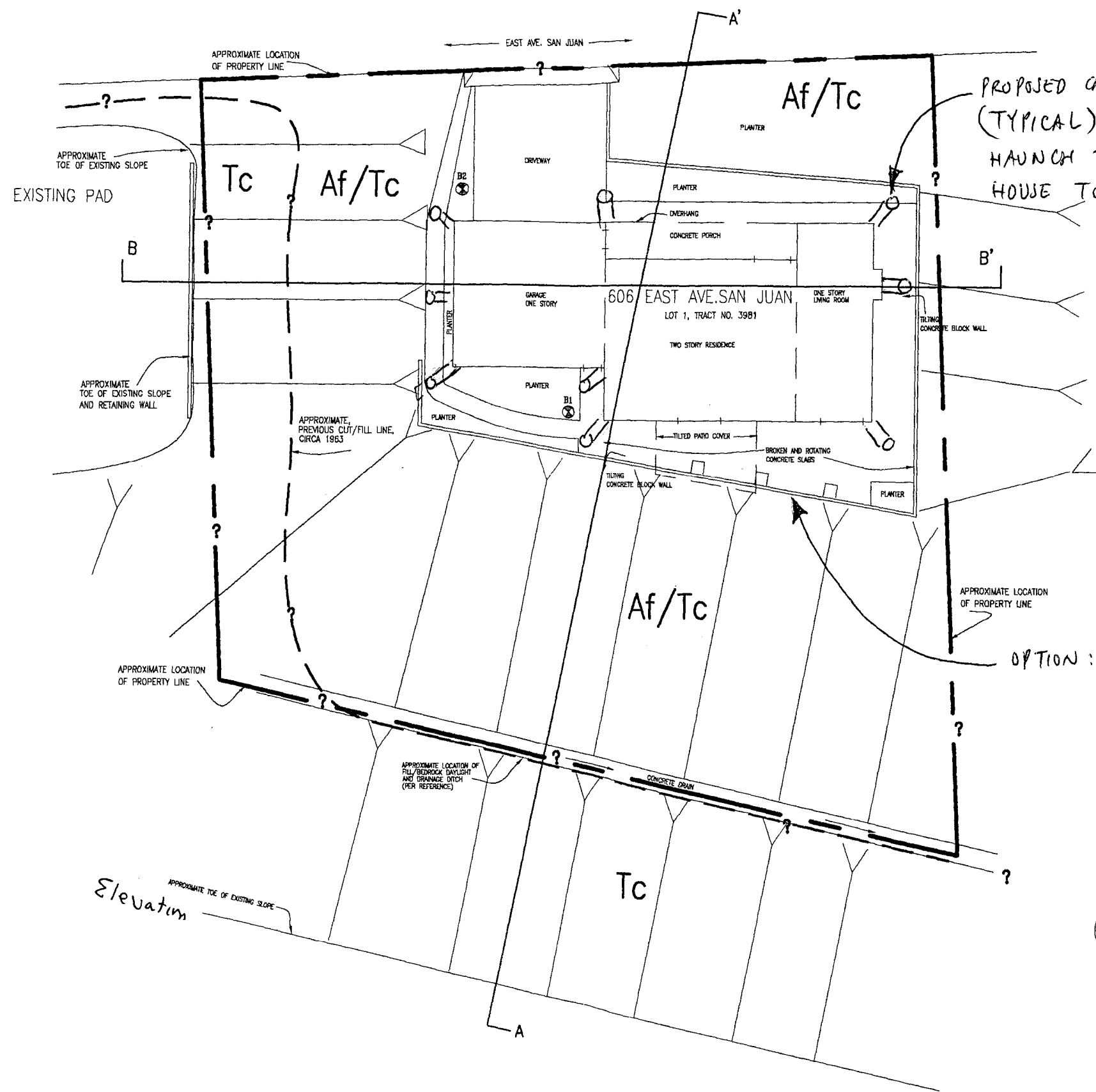
FIGURE 3

A



PREVIOUS FIELD DENSITY TEST LOCATION MAP

FIGURE 4



PROPOSED CAISSON + HAUNCH + (GRADE BEAM)
(TYPICAL) - ADDITIONAL CAISSON & GRADE BEAM +
HAUNCH TO SUPPORT INTERIOR WALLS & ENTIRE
HOUSE TO BE DETERMINED BY STRUCTURAL ENGINEER.

- LEGEND
- Af Artificial Fill (1963)
 - Tc Capistrano Formation Siltstone
 - Previous Cut/Fill Line
 - Af/Tc Artificial Fill Over Capistrano Formation Siltstone
 - △ Slope
 - A A Cross Section
 - B1 24 in. Diameter Bore Hole (2 TOTAL)
 - Approximate Property Line

OPTION: EXISTING REAR FENCE WALL CAN BE
REMOVED AND REPLACED WITH NEW WALL
TO BE SUPPORTED BY CAISSONS.
CAISSONS SUPPORTING THE HOUSE WALLS
CAN BE USED TO ADDITIONALLY SUPPORT
FENCE WALL + PATIO COVER COLUMNS
+ OTHER IMPROVEMENTS, AS NEEDED

GEOTECHNICAL MAP
1"=20'



FIGURE 5

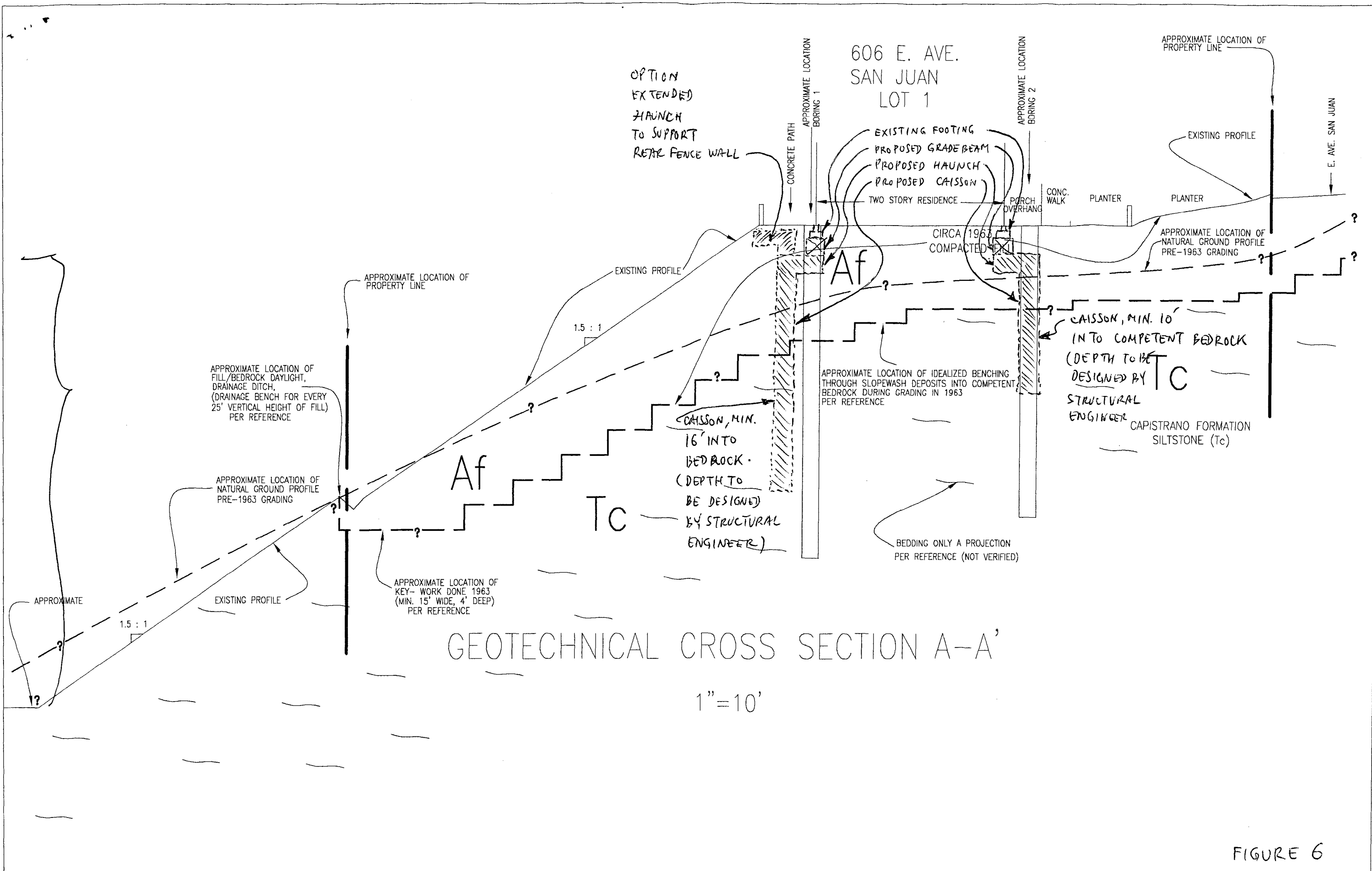
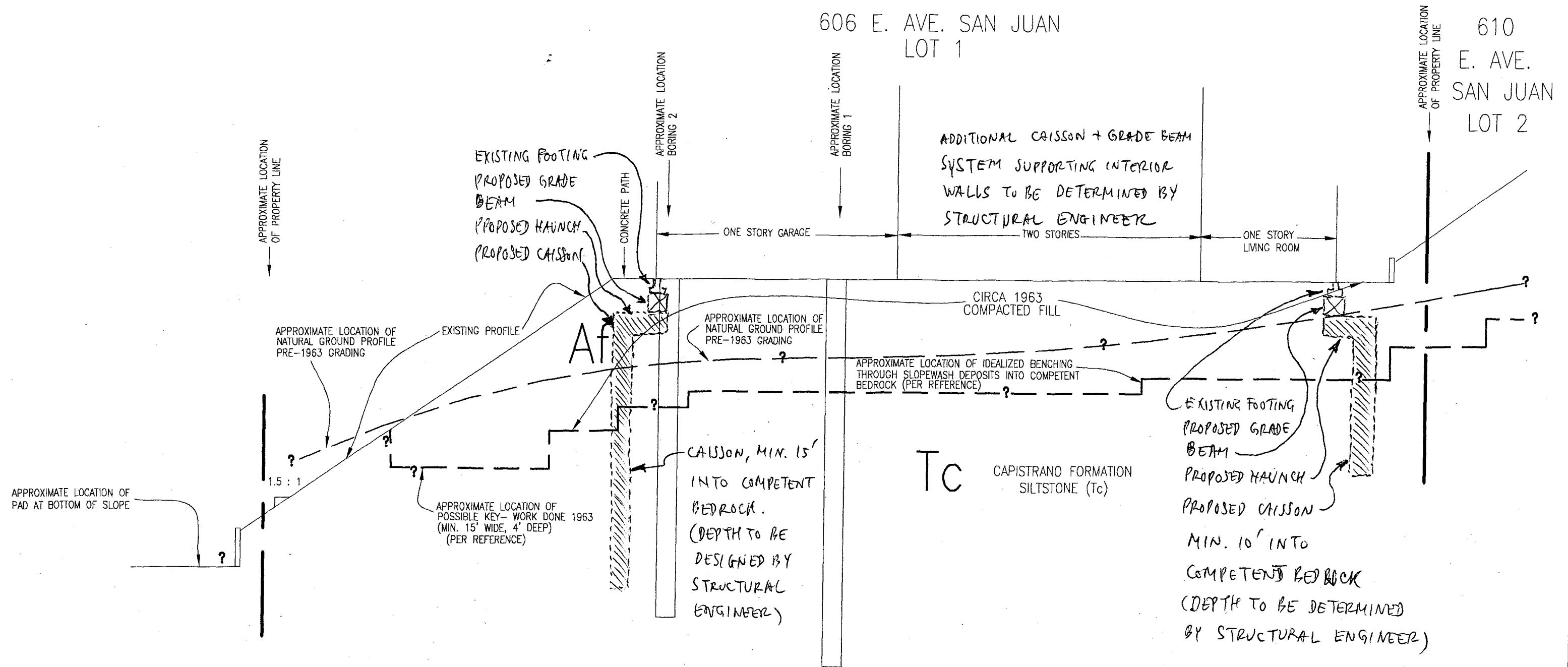


FIGURE 6



GEOTECHNICAL CROSS SECTION B-B'

1"=10'

LETTER OF TRANSMITTAL



City of San Clemente

Sandy Norman, Engineering Technician

Phone: (949) 361-6144 Fax: (949) 366-4741

To: Dr. Peter Borella
900 N. Coast Highway
Laguna Beach, CA 92651

Date: March 18, 2004
Subject: 606 E. Avenida San Juan
Geotechnical Review

Project #: 04-14
City W.O.#: n/a
Vendor #: 2627
Acct.#: 001-414-43535

The Following Items Are Transmitted Herewith:

- | | |
|---|---|
| 1 | Letter from Peter & Associates regarding "Geotechnical Acceptance of Our Preliminary Geotechnical Investigation Report dated Feb. 25, 2002 as Updated Report for Repair of Distressed Residential Structure, 606 E. Avenida San Juan" dated March 16, 2004. |
| | |
| | |
| | |

The Above Are Submitted:

- | | | | |
|-------------------------------------|-------------------|--------------------------|----------------------|
| <input type="checkbox"/> | At Your Request | <input type="checkbox"/> | For Revision |
| <input checked="" type="checkbox"/> | For Your Review | <input type="checkbox"/> | For Action |
| <input type="checkbox"/> | For Your Approval | <input type="checkbox"/> | For Your Information |
| <input type="checkbox"/> | For Signature | <input type="checkbox"/> | For Your Files |

Remarks:

CC: To GeoFile #04-14



Peter and Associates

Engineers, Geologists, Surveyors, Inc.
Civil, Municipal, Mining
Geological, Foundations

1519 Calle Valle • San Clemente, CA 92672
(949) 492-3735 • Fax (949) 492-1891
Toll Free: (888) 590-3735
E-mail: PeterAssoc@AOL.com

March 16, 2004

Mrs. Jeannette Schotanus
606 E. Avenida San Juan
San Clemente, CA 92672
949-492-5798

RECEIVED
MAR 18 2004
City of San Clemente
Engineering Div.

SUBJECT: Geotechnical Acceptance of Our Preliminary Geotechnical Investigation Report dated Feb. 25, 2002 as Updated Report for Repair of Distressed Residential Structure, 606 E. Avenida San Juan, San Clemente, California

JN 04G4109

Reference: Peter and Associates, Inc., 2002, "Preliminary Geotechnical Investigation of Distressed Residential Property, 606 E. Avenida San Juan, San Clemente, California", JN01G1474, dated Feb. 25, 2002.

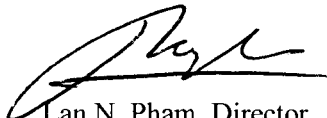
Dear Mrs. Schotanus:

In accordance with the requirements of the City of San Clemente and per your authorization, this letter has been prepared.

Based on our review, the content of the above referenced report is still considered valid. Updating the recommendations is not necessary. The referenced report is, therefore, geotechnically acceptable and can be used for the proposed repair of the distressed house located at 606 E. Avenida San Juan, San Clemente, California.

If you have any questions or require clarification, please contact our office. This opportunity to be of service is sincerely appreciated.

Very truly yours,



Lan N. Pham, Director
Geotechnical Engineering
RGE 686, Exp. 3/31/07

