



PERCOLATION TEST STUDY

**LA CRESTA
GEOTECHNICAL
INCORPORATED**

**GEOTECHNICAL
CONSULTANTS**

**MIMI COURT
APN NO.S 382-150-040
AND 382-150-039
RIVERSIDE COUNTY, CALIFORNIA**

PREPARED FOR

**JOHN E. COOGAN JR.
WILDOMAR, CALIFORNIA**

NOVEMBER 8, 2004



LA CRESTA GEOTECHNICAL INC.

Project No. 0410-14-01
November 8, 2004

John E. Coogan Jr.
33725 Tamerron Way
Wildomar, California 92595

Attention: Mr. Coogan:

Subject: MIMI COURT PROPERTY
APN NO. 382-150-040
AND 382-150-039
RIVERSIDE COUNTY, CALIFORNIA
PERCOLATION TEST STUDY

Reference: *Waste Disposal for Individual Homes, Commercial and Industrial*, prepared by County of Riverside, Department of Environmental Health

Gentlemen:

In accordance with your authorization, we have performed a percolation test studying for the subject property located on the south side of Mimi Court, in the Wildomar area, in Riverside County, California. The accompanying report presents the results of our percolation testing and includes our conclusions and recommendations pertaining to the general suitability of the site to support septic systems. In general, it is our opinion that the site is generally suitable for the development of septic systems.

Should you have questions regarding this report, or if we may be of further service, please contact the undersigned at your convenience.

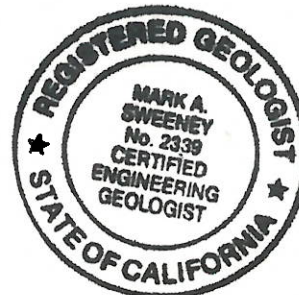
Very truly yours,

LA CRESTA GEOTECHNICAL INCORPORATED

Mark A. Sweeney
CEG 2339

MAS:

(2) Addressee



Reg. Exp 6-30-06

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PERCOLATION TEST STUDY



1. PURPOSE AND SCOPE

This report presents the findings of our percolation test study for two adjacent lots, which combined are approximately 2.03-acres, (APN NO.S 382-150-040 and 382-150-039), located on the south side of Mimi Court, in the Wildomar area in Riverside County, California (see Vicinity Map, Figure 1). The purpose of the testing was to evaluate the site's general suitability to support septic systems including determining percolation rates, identifying geologic conditions, documenting the prevailing soil conditions, including depth and type of soils encountered, and based on the conditions encountered, provide recommendations regarding the suitability of the site to support septic systems.

This *Percolation Test Study* includes review of pertinent geologic literature, including review of Riverside County requirements for the design and investigation procedures for residential waste disposal systems. Our investigation also included the excavation of one (1) exploratory trench and the completion of four (4)-percolation tests. The exploratory trench was advanced through topsoil and residual soil into formational granitic rock, to a maximum depth of 15 feet, to characterize the site soils. The approximate locations of the exploratory trench and percolation tests are depicted on the Geologic Map, Figure 2.

2. SITE AND PROJECT DESCRIPTION

The site consists of two adjacent parcels, approximate 1.01-acre and 1.02-acre parcels of property fronting Mimi Court in the Wildomar area, within the County of Riverside, California, Assessor's Parcel No.s 382-150-040 and 382-150-039. The property owner's name is John E. Coogan Jr. His address is 33725 Tamerron Way, Wildomar, California, and his phone number is (951) 751-5863. Specifically, the rectangular shaped property is bounded on the north by Mimi Court, on the south, east, and west by undeveloped property. Existing improvements include a rough graded dirt pad and driveway. It is understood that the site is to be developed with a single-family residence, which will occupy both parcels of property and will be serviced by one septic system. It is also our understanding that the home will have 59 fixture units.

Topographically, the site slopes to the northeast, with central portion of the site being relatively flat. A rough graded pad area was observed at the western end of the property, it is understood that this is the future location of the proposed residence.

The descriptions of the site and proposed development are based on a site reconnaissance, and observations during the field investigation. If project details differ significantly from those described, La Cresta Geotechnical should be contacted for review and possible revision to this report.

3. SOIL AND GEOLOGIC CONDITIONS

Granitic rock underlies the site at depth. Topsoil was observed at the surface, and overlies Residual Soils derived from the in-place weathering of the underlying Granitic Bedrock. The Topsoil and the Residual Soil as well as the formational units are discussed below. The approximate lateral extent of the materials is depicted on the Geologic Map, Figure 2 (map pocket).

3.1 Topsoil

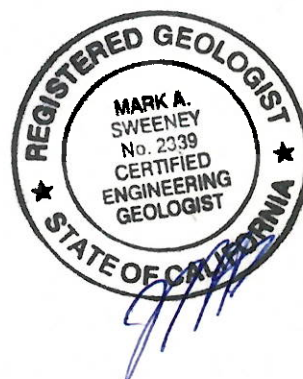
Topsoil was evident in the exploratory trench. Where encountered, the Topsoil was observed to a depth of approximately 30-inches, and is characterized as loose, dry, orange brown, silty fine to medium SAND, (Sm), with trace coarse sand.

3.2 Residual Soil

Residual Soil underlies the topsoil and is derived from the in-place weathering of the underlying granitic rock. The residual soil was found to be approximately 13 feet deep in the exploratory excavation. The residual soil is loose to medium dense, gray, dry, fine to coarse SAND, (Sm), with approximately 15% silt.

3.3 Granitic Rock (undifferentiated)

Granitic Rock underlies the site at depth and is expressed at the surface as rock outcroppings. The Granitic Rock appears moderately to highly fractured, coarse grained, and appears to be moderately to highly weathered. Granitic Rock was encountered in the exploratory trench at a depth of 13 feet.



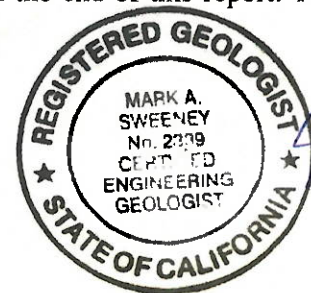
4. GROUNDWATER

Groundwater was not encountered within any of the exploratory trenches excavated during this investigation, and is expected to be in excess of 50 feet below grade over most of the site. Leach fields should be located a minimum of 50 feet away from drainage courses, and if groundwater should be encountered in the future, the bottoms of the leach lines need to be at least 10 feet above the high water table. It is our opinion that groundwater encroachment should not be a factor during grading and will not adversely affect the septic system and associated leach field, provided excavations for the proposed development, and leach lines remain at least 50 feet away from the natural drainage courses.

5. PERCOLATION TESTING AND EXPLORATION PROCEDURES

Percolation testing and site exploration procedures were performed in general conformance with the guidelines of the County of Riverside's Department of Environmental Health as outlined in their manual, *Waste Disposal for Individual Homes, Commercial and Industrial*. Severe conditions were assumed to develop evaluation procedures. The locations of the percolation tests and the exploratory trenches were determined based on conversations with the property owner (See Geologic Map, Figure 2), and were positioned in the area of the proposed leach field. One (1) exploratory trench as well as four (4) percolation test holes were excavated. The exploratory trench was excavated using a Caterpillar backhoe with extendable hoe. The percolation test holes were excavated using a posthole drill with an 8-inch diameter auger and were excavated in the bottom of 3-foot deep trenches excavated by the backhoe. Prior to performing any percolation testing one exploratory trench (T-1) was excavated in the general area of the proposed leach field to document that suitable site conditions exist to support a septic system including depth of suitable soil and underlying bedrock, and to classify soils encountered. The exploratory trench was excavated through Topsoil, and Residual Soil and into highly weathered granitic rock to a maximum depth of 15-feet. Log of the trench is provided in Appendix A.

Percolation test holes were excavated at a depth of 3 to 4 feet, which corresponds to the probable depth of the future leach field excavations. Two-inches of gravel was placed in the bottom of the holes, and the test holes were pre-soaked for 24 hours prior to commencement of the test. Testing was performed in conformance with the *Continuous Presoak Method*. Percolation rates were measured (minutes/inch) every 2 minutes to 36 minutes, and the tests were conducted for approximately 2 hours. The results of these tests are summarized on Table I, provided at the end of this report. The field data test sheets for the percolation tests are provided in Appendix A.



6. CONCLUSIONS AND RECOMMENDATIONS

6.1 General

6.1.1 The percolation test results indicated that overall the site should be suitable to support septic systems. The leach field should be located where there shall be at least 8 feet of soil between the bottom of any disposal system and the underlying bedrock (Undifferentiated Granite Formation), as per Section 5.1 of the referenced *Waste Disposal for Individual Homes, Commercial and Industrial*, prepared by the County of Riverside, Department of Environmental Health. Percolation rates varied from 2.2 minutes/inch to 29 minutes/inch. Riverside County guidelines classify impermeable strata as any soil strata, fractured rock, or bedrock; weathered or non-weathered that has a percolation rate in excess of 120 minutes/inch. It also specifies that soil in the area of the proposed leach field shall not have a percolation rate greater than 60 minutes/inch.

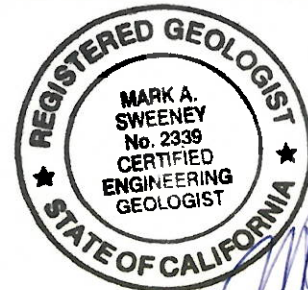
Percolation tests P-1, P-2, P-3 and P-4 were favorable with rates between 2.2 minutes/inch to 29 minutes/inch. The leach lines should be located in the area of P-1, P-2, P-3 and P-4. .

Based on the findings of this study it is the opinion of this firm that sufficient area exists to support the installation of an adequate leach field system and 100% expansion area, within the area of this study.

Based on the information derived from this study, it is the opinion of this firm that groundwater will not encroach within the required 10 feet of the bottom of the leach field system. Groundwater is believed to be in excess of 50 feet below the site.

Using a rate of 29minutes/inch a minimum of 65 square feet of leach field should be installed per 100 gallons of septic tank size, per the referenced guidelines produced by the County of Riverside, Table 3.1

Assuming the use of a septic tank with a capacity of 2500 gallons, a minimum of 1218 square feet of leach field should be installed, using 2-feet of rock below drain lines. As an alternative, a minimum of 975 square feet of leach field should be installed, using 3-feet of rock below drain lines. A 100% expansion area should be set-aside in the area of the proposed leach field.



LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, La Cresta Geotechnical should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by La Cresta Geotechnical.
2. This report is issued with the understanding that it is the responsibility of the owner, or of his representative, to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.
3. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.



TABLE I
SUMMARY OF PERCOLATION TEST RESULTS –APN NO.S 382-150-040
AND 382-150-039

Percolation Test No.	Associated Boring No.	Results (minutes/inch)
P-1	T-1	17
P-2	T-1	29
P-3	T-1	29
P-4	T-1	2.2

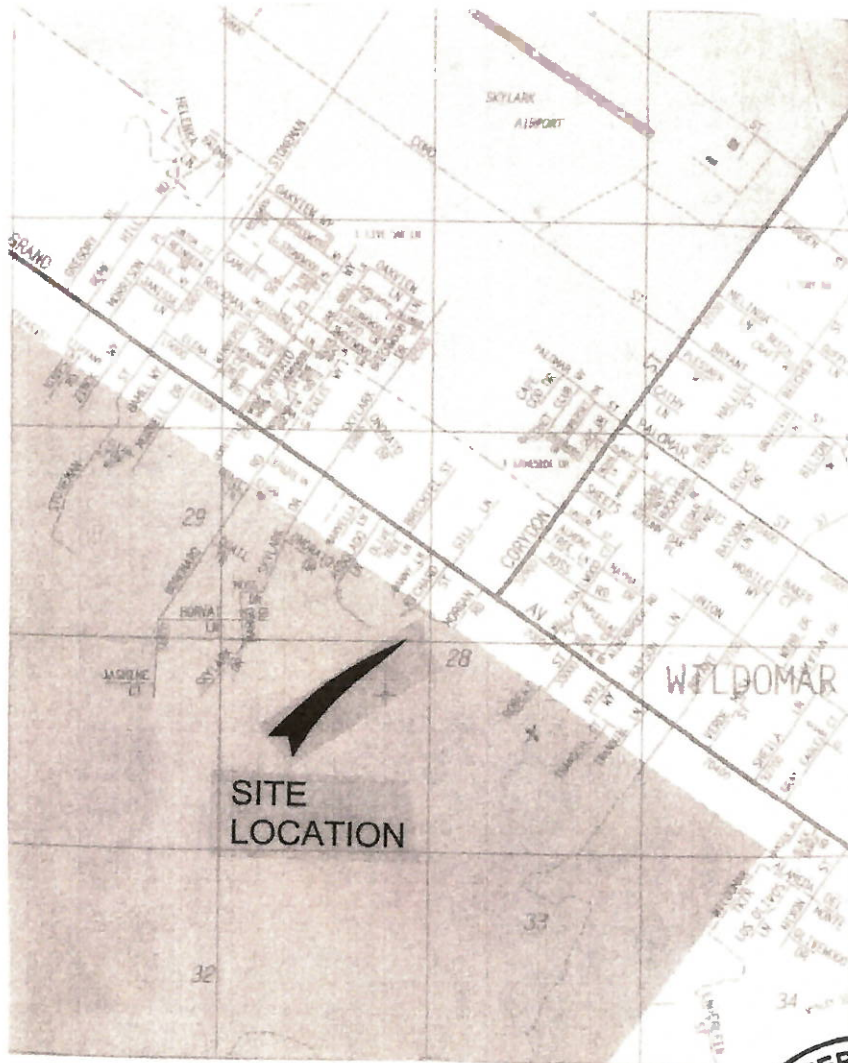


APPENDIX A
FIELD INVESTIGATION

The field investigation was performed on October 24th and 25th, 2004, and consisted of excavating 1 exploratory trench and performing 4 percolation tests. The exploratory trench and percolation test excavations were completed using a Caterpillar backhoe with an extendable hoe and a posthole drill with an 8-inch diameter auger. The exploratory trench was excavated to a depth of 15 feet. Percolation tests were performed at depths between 3 and 4 feet.

The soil conditions encountered in the excavations were visually examined, classified and logged in general accordance with American Society for Testing and Materials (ASTM) practice for Description and Identification of Soils (Visual-Manual Procedure D2488). A Log of the excavation is presented on Figure T-1. The logs depict the soil and geologic conditions encountered and the depths observed. The approximate locations of the exploratory excavation and the percolation tests are shown on the Geologic Map, Figure 2.





SOURCE: 2003 THOMAS BROTHERS MAP
RIVERSIDE COUNTY, CALIFORNIA

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JOHN E. COOGAN PROPERTY
APN NO.S 382-150-040
382-150-039

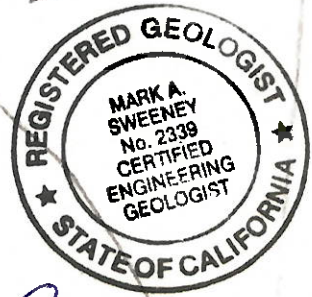
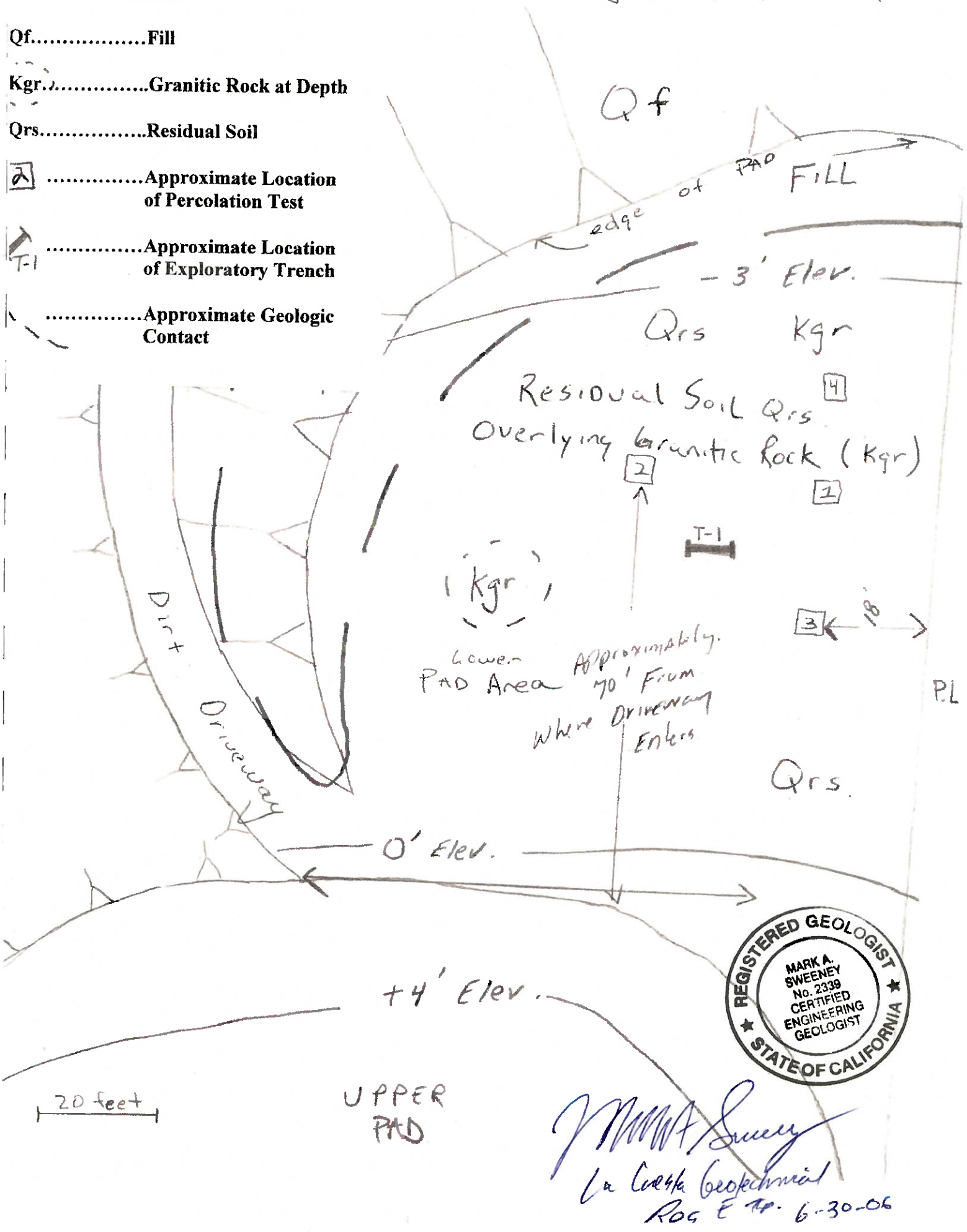
VICINITY MAP

DATE *11-8-04* PROJECT NO. *0411-18-01* FIG. 1

La Cresta Geotechnical
LEGEND

Prepared for: John Logan.
Job No. 0411-18-01

- Qf.....Fill
- Kgr.....Granitic Rock at Depth
- Qrs.....Residual Soil
- Approximate Location of Percolation Test
- Approximate Location of Exploratory Trench
- Approximate Geologic Contact



Mark A. Sweeney
La Cresta Geotechnical
ROG E No. 6-30-06

LOG OF EXPLORATION TEST PIT NO. T-1

Logged by: MAS

Date Excavated: 10/24/2004

Equipment Used: Cat 430D Backhoe with 24-inch bucket

Elevation: Pad minus 5'

DEPTH (FT)	BULK SAMPLE	DESCRIPTION	LAB TESTS
1		<u>TOPSOIL</u> Loose, dry orange brown, silty fine to coarse SAND,	
2			
3		<u>RESIDUAL SOIL</u>	
4		Loose to medium dense, light brown dry, fine to coarse SAND,	
5		approximately 15% silt .	
6			
7			
8			
9			
10			
11			
12			
13			
14		<u>GRANITIC ROCK FORMATION</u>	
15		Dense, moderately to highly weathered, gray to brown, fine to coarse grained granitic igneous rock	
16			
17		Trench terminated at 15 feet No groundwater Encountered	
18			
19			
20			



TEST HOLE NO.: 2
 SOIL CLASSIFICATION: _____
 DEPTH OF TEST HOLE: 3 FT

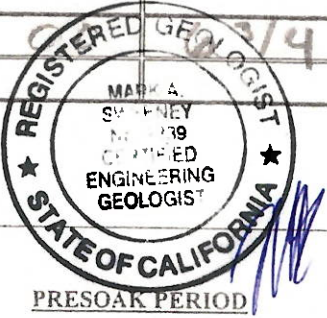
TEST HOLE SIZE: 8 inch
 DATE EXCAVATED: 10/24/04

PRESOAK PERIOD

TIME INTERVAL: 24 hours
 AMOUNT WATER USED: 5 gal
 START: 11/1/04
 STOP: 11/2/04

TEST PERIOD

TIME	TIME INTERVAL (MIN)	INITIAL WATER LEVEL (INCHES)	FIRST WATER LEVEL (INCHES)	RIN WATER LEVEL (INCHES)	PERCOLATION RATE (MIN/INCH)
2:04	14	8.00	6 1/2	1 1/2	9.3
2:18					
2:19	11	8.00	6 7/8	1 1/8	9.7
2:30					
2:30	17	8.00	6 3/4	1 1/4	13.6
2:47					
2:48	21	8.00	6 3/4	1 1/4	16.8
3:09					



TEST HOLE NO.: 2
 SOIL CLASSIFICATION: _____
 DEPTH OF TEST HOLE: 3 FT

TEST HOLE SIZE: 8 inch
 DATE EXCAVATED: 10/24/04

PRESOAK PERIOD

TIME INTERVAL: 24 hours
 AMOUNT WATER USED: 5 gal
 START: 11/1/04
 STOP: 11/2/04

TEST PERIOD

TIME	TIME INTERVAL (MIN)	INITIAL WATER LEVEL (INCHES)	FIRST WATER LEVEL (INCHES)	RIN WATER LEVEL (INCHES)	PERCOLATION RATE (MIN/INCH)
2:06	22	8.00	7	2	22
2:28					
2:28	27	8.00	6 7/8	1 1/8	24
2:55					
2:55	33	8.00	6 3/4	1 1/4	26.4
3:28					
3:28	29	8.00	7	2	29
3:57					



LA CRESTA GEOTECHNICAL INC. TECHNICIAN: D. Linsley DATE: 11/2/04

LEACHLINE PERC DATA SHEET/CONTINUOUS PRE-SOAK

JOB NO.: 0411-18-0

TEST HOLE NO.: 3

TEST HOLE SIZE: 8 inch

SOIL CLASSIFICATION:

DEPTH OF TEST HOLE: 3ft

DATE EXCAVATED: 10/24/04

PRESOAK PERIOD

TIME INTERVAL
START 10/24
STOP 10/25

24 hours

AMOUNT WATER USED
5 gal

TEST PERIOD

TIME	TIME INTERVAL (MIN)	INITIAL WATER LEVEL (INCHES)	FIRST WATER LEVEL (INCHES)	2IN WATER LEVEL (INCHES)	PERCOLATION RATE (MIN/INCH)
9:12	36	8.00	6 1/4	1 3/4	20.6
9:48					
9:49	24	8.00	6 3/8	1 1/8	21.3
10:13					
10:14	23	8.00	7	1	23
10:37					
10:38	32	8.00	6 1/8	1 1/8	28.4
11:06					

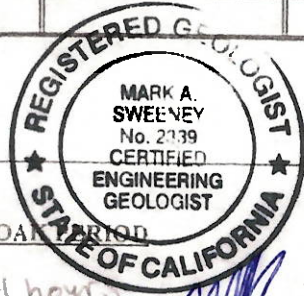
TEST HOLE NO.: 4

SOIL CLASSIFICATION

DEPTH OF TEST HOLE: 3ft

TEST HOLE SIZE: 8 inch

DATE EXCAVATED: 10/24/04



PRESOAK PERIOD

TIME INTERVAL
START 10/24
STOP 10/25

24 hours

AMOUNT WATER USED
5 gal

TEST PERIOD

TIME	TIME INTERVAL (MIN)	INITIAL WATER LEVEL (INCHES)	FIRST WATER LEVEL (INCHES)	2IN WATER LEVEL (INCHES)	PERCOLATION RATE (MIN/INCH)
9:13	1	8.00	7	2	2
9:14					
9:15	3	8.00	6 3/4	1 1/4	2.4
9:18					
9:18	2	8.00	7	1	2
9:20					
9:21	3	8.00	6 3/4	1 3/8	2.2
9:24					



LA CRESTA GEOTECHNICAL INC. TECHNICIAN: J. Linsley

DATE: 10/25/04