Central Coast Regional Water Quality Control Board
Prosecution Team Evidence
in the matter of
Cease and Desist Order R3-2016-0015
Exhibit 6

Wastewater Analysis

for

Centrally Grown
Cambria, CA

October 2012

Prepared by:

WALLACE GROUP

612 Clarion Court
San Luis Obispo
California 93401

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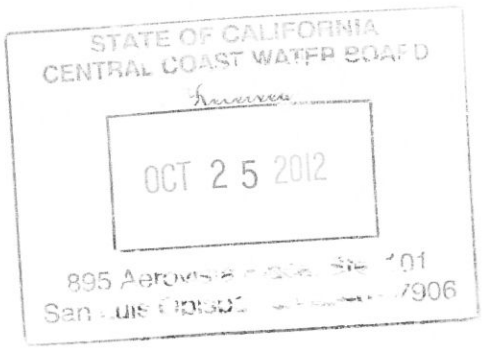
Certification

Engineering work performed for this document has been conducted under the direct supervision of a registered Professional Engineer (PE) in compliance with the requirements of the Professional Engineers Act, Business and Professions Code sections 6700-6799 and section 7838.

Shannon Peterson, a California Registered Professional Engineer (PE), as an employee of Wallace Group with expertise in winery wastewater system design, has supervised the preparation of, and reviewed the report with the title, "Wastewater Analysis for Centrally Grown, Cambria, CA", dated September 2012. Her signature and stamp appear below.

Shannon Peterson, PE C75578



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BACKGROUND AND SCOPE

Centrally Grown, Inc. intends to renovate the property formerly known as "The Hamlet" in Cambria, California. Renovation activities include a reconfiguration of existing use areas within the existing structure and a variety of upgrades to the structure and the site in order to meet current building code requirements. The project includes repair and interior remodel of the existing two story restaurant and bar. In addition to the restaurant, the site includes two residential units.

A system of septic tanks and leachfields are currently used for wastewater treatment at the existing restaurant and residential units. The on-site sanitary sewer system was evaluated by Specialty Construction Inc. on May 16, 2012. A Site Observation Report was generated summarizing the condition of the system. Based on what was found in the evaluation, it was determined that more wastewater infrastructure is required. The following report evaluates the flow estimates for the Centrally Grown facilities, and provides a detailed summary of the proposed wastewater treatment and effluent disposal improvements design.

FLOW ESTIMATES

The Centrally Grown restaurant is designed to have 144 seats and will be open for breakfast, lunch, and dinner. The nature of the restaurant will be to serve organically grown foods. Using data from similar restaurants in the Cambria area, Centrally Grown is estimating the restaurant will serve approximately 350 meals per day during the peak tourist period.

Hours?

In addition to the restaurant, the facility is planning on housing events, such as wedding receptions, and estimates that the maximum event turnout will be 120 people. The wastewater system will also be designed to serve the two existing residential units. One of the residential units, the main house, has 3 bedrooms with 2 baths. The second residential unit is an apartment and has 2 bedrooms with 1 bath.

In addition to the restaurant, events, and residential use, the facility expects approximately 15 employees to be working on-site at any one time. Table 1 (below) outlines the assumptions that were used to calculate the design flow for the Centrally Grown wastewater treatment plant.

where did these come from?

Table 1. Flow Estimate Calculations for Centrally Grown

	Unit Number	Unit Flow (gpd)	Estimated Flow (gpd)
Number of meals per day	350	8	2800
Number of event attendees concurrent with meals	120	8	960
Residential Unit (3 bed/2bath)	1	375 (BP)	375
Residential Unit (2 bed/1 bath)	1	375 (BP)	375
Employees	15	8	120
		Total	**4,630**

As shown in Table 1, the estimated peak flow for the facility is 4,630 gallons per day. Considering the nature of this type of facility, the seasonality, and variability in attendance during the tourist season, it can be assumed that the restaurant will not see this peak flow very often or for an extended period of time. Average wastewater flow to the treatment plant and disposal system on a regular basis is expected to be approximately half the peak value. For purposes of efficient and conservative design of the wastewater treatment and disposal system, the following water balance was generated to depict a weekly flow scenario during a peak summer week at the facility.

Table 2. Centrally Grown Water Balance – Peak Weekly Flow Estimate (summer)

	WW Generated (GPD)	Average Disposal[1] (GPD)	Equalization (Gallons)
Monday	2,000	2,800	
Tuesday	2,000	2,800	
Wednesday	2,000	2,800	
Thursday	2,000	2,800	
Friday	2,000	2,800	
Saturday	5,000	2,800	2,200
Sunday	5,000	2,800	2,200
	20,000		**4,400**

[1]Average Flow = Total flow for the week divided by 7 days

SOILS ANALYSIS/PERCOLATION RESULTS

A soils analysis was prepared by Earth Systems Pacific for the Centrally Grown facility on May 18, 2012. The soils report, titled "Soils Engineering Report and Percolation Test Results, Centrally Grown, 7432 Exotic Gardens Drive, Cambria California" is included in Appendix A of this report.

The percolation results from the initial testing showed slow percolation rates. The four test pits that were done for the initial study were taken in a relatively small area to the far north of the property where it was initially thought a new leachfield system would be located. However, using the percolation rates that were discovered in the initial soils investigation to calculate the appropriate leachfield size, it was determined that over 16,666 linear feet of leachline would be needed, which corresponds to an area over 1.50 acres. The facility does not have on-site capacity to install this type of treatment and disposal system. Therefore, the design team decided to consider a higher level of treatment combined with a shallow drip irrigation disposal system, instead of a leachfield.

A second soils analysis was prepared on September 19, 2012 by Earth Systems Pacific to test the shallow soils and to evaluate additional areas around the site to determine if better percolation rates could be found. The second set of percolation results is included in Appendix B. Six additional sites were tested for the second evaluation. Each site was tested at 12 inches and 24 inches in depth over a period of 6 hours. All of the test pits, with the exception of one, returned percolation rates faster than 20 minutes per inch.

Based on the more favorable percolation results in the upper soil layers, the decision to include advanced wastewater treatment with subsurface irrigation rather than septic tank/leachfield system was confirmed. L> shallow drip.

WASTEWATER TREATMENT AND DISPOSAL DESIGN

The proposed design is an Orenco Advantex textile-based biofilter package treatment system, combined with a Geoflow subsurface drip irrigation system for effluent disposal. The Orenco biofilter uses a textile media to treat wastewater to meet secondary effluent quality. The Geoflow subsurface drip irrigation system provides effluent dispersal underground and has more flexibility in layout design than traditional leachfield systems due to the flexible tubing and shallow depth of installation.

Treatment Plant Design

* Almost day detention time for peak flows.

A primary holding capacity of 15,000 gallons has been included at the front end of the treatment plant. The capacity will be accomplished using a series of three 5,000 gallon Jensen concrete tanks plumbed end to end. The first tank will be used as a settling tank, the second will be an aeration tank with the Orenco VBT aerator device, and the third will be a clarifying chamber.

Following the primary treatment portion of the plant, a three-pod Orenco Advantex AX100 system with 5,000 gallon recirculating tank will be provided for wastewater treatment. The design criteria for the treatment facility is outlined in Table 3, below.

Table 3. Orenco Advantex AX100 Design Criteria for Centrally Grown

Daily Design Flow	5,000 gpd
Average Daily Flow	2,500 gpd
Influent BOD	1,000 mg/L
Influent TSS	400 mg/L
Influent Ammonia	50-80 mg/L
Target Effluent BOD	30 mg/L
Target Effluent TSS	30 mg/L
Target Ammonia	50-60% reduction

Following the treatment portion of the plant, effluent will discharge from the recirculation tank into a 5,000 gallon effluent holding/equalization tank. Here the treated effluent will be stored and then pumped to the Geoflow subsurface drip irrigation disposal system. The disposal field is proposed to be buried approximately one foot (12 inches) below grade to maximize percolation into the soil and utilize some evapotranspiration uptake in the root zone. little due to climate

The disposal field will be installed such that the capacity of the driplines and Geoflow emitters will handle a peak flow of 5,000 gallons per day. However, as described above, the flow will be equalized throughout the week, and the disposal of treated effluent will be capped at 2,800 gallons per day.

Disposal Area Design Criteria

Geoflow driplines have factory-installed emitters evenly spaced along the tubing. The driplines are usually installed six to twelve inches below the surface, directly in the biologically active soil horizon where treated effluent can be absorbed by the plants, animal life, and soil. Wastewater is pumped into the dripline on a time-activated dose cycle. The slow, even application of effluent with resting periods is key to the dripline's success. The application rate through the dripline's emitters determines the required size of disposal field necessary to discharge the secondary effluent. The application rate for the Geoflow system is determined by the soil composition and percolation rates. The percolation rates from the Centrally Grown site are outlined in Table 4, below.

Table 4. Percolation Results on Centrally Grown Property

Percolation Site	Average Perc. Rate @12 inch depth (min/inch)	Average Perc. Rate @ 24 in depth (min/inch)
E, F	2	3
G, H	2	6
I, J	94	6
K, L	1	1
M, N	16	3
O, P	13	7

According to guidelines from the Central Coast Basin Plan and San Luis Obispo County standards, the percolation rates encountered onsite equate to an acceptable application rate of 0.8 gallons per day per square foot (0.8 gpd/sf) of disposal area. Using an application rate of 0.8 gpd/sf and a peak effluent flow of 5,000 gallons per day, the required disposal field size calculates to 6,250 square feet, or 3,125 linear feet of dripline.

Table 5. Disposal Field Size Design Criteria

Effluent Application Rate	0.8 gpd/sf
Design Flow	5,000 gpd
Required Disposal Field (square foot)	6,250 sf
Required Disposal Field (linear foot dripline)	3,125 lf

Disposal Site Layout

Using the standard local criteria for irrigation with secondary effluent, the total eligible area for effluent disposal was determined. The total eligible area includes all the available land on the property that could possibly be used for irrigation with secondary effluent, taking into consideration the specific setback requirements that are outlined in Table 6 below.

Table 6. Eligible Area Setback Requirements

Domestic Water Supply Line	5 ft
Property Line	5 ft
Buildings	8 ft

The total eligible area for secondary effluent disposal on the Centrally Grown property is approximately 75,000 square feet. Figure 1 is a site plan of the property with the total eligible area identified. In addition to the eligible area, Figure 1 outlines two other important areas on the site, 1) the area that will initially be used for the Geoflow disposal field, and 2) the area that will be precluded from the eligible area. The areas precluded from the eligible area will be irrigated with potable water only, and are highlighted in red on Figure 1.

water supply with ind well?

Because the site will be used for many uses, including hardscape pathways and public access gardens, a specific piece of the total eligible area has been set aside for the proposed Geoflow disposal area while the remainder of the eligible area will be available for landscape and hardscape. The total disposal area that is being set aside, as shown in Figure 1, is 10,000 square feet. The owners have identified the total eligible area with the concept that, if landscaping plans change in the future, the total eligible areas are identified as meeting the standard setback requirements such that Geoflow driplines could easily be added or moved in the future.

To offset potable water and maximize the reclamation potential of the effluent disposal, the Geoflow drip irrigation system is proposed to be used to maintain vegetation around the Centrally Grown site. A potable water supply line will be provided to supply the effluent holding tank with make-up water during times when the wastewater plant does not produce sufficient effluent capacity to meet irrigation demands. An air gap structure

will be used to prevent cross contamination of the potable water source. The air gap will consist of a catch basin with the potable water line goose-necking into the top. A gravity pipeline outlet at the bottom of the catch basin will deliver potable water to the effluent storage tank. A sample detail of the proposed air gap structure is provided in Figure 3.

BLACKWATER SYSTEM (?)

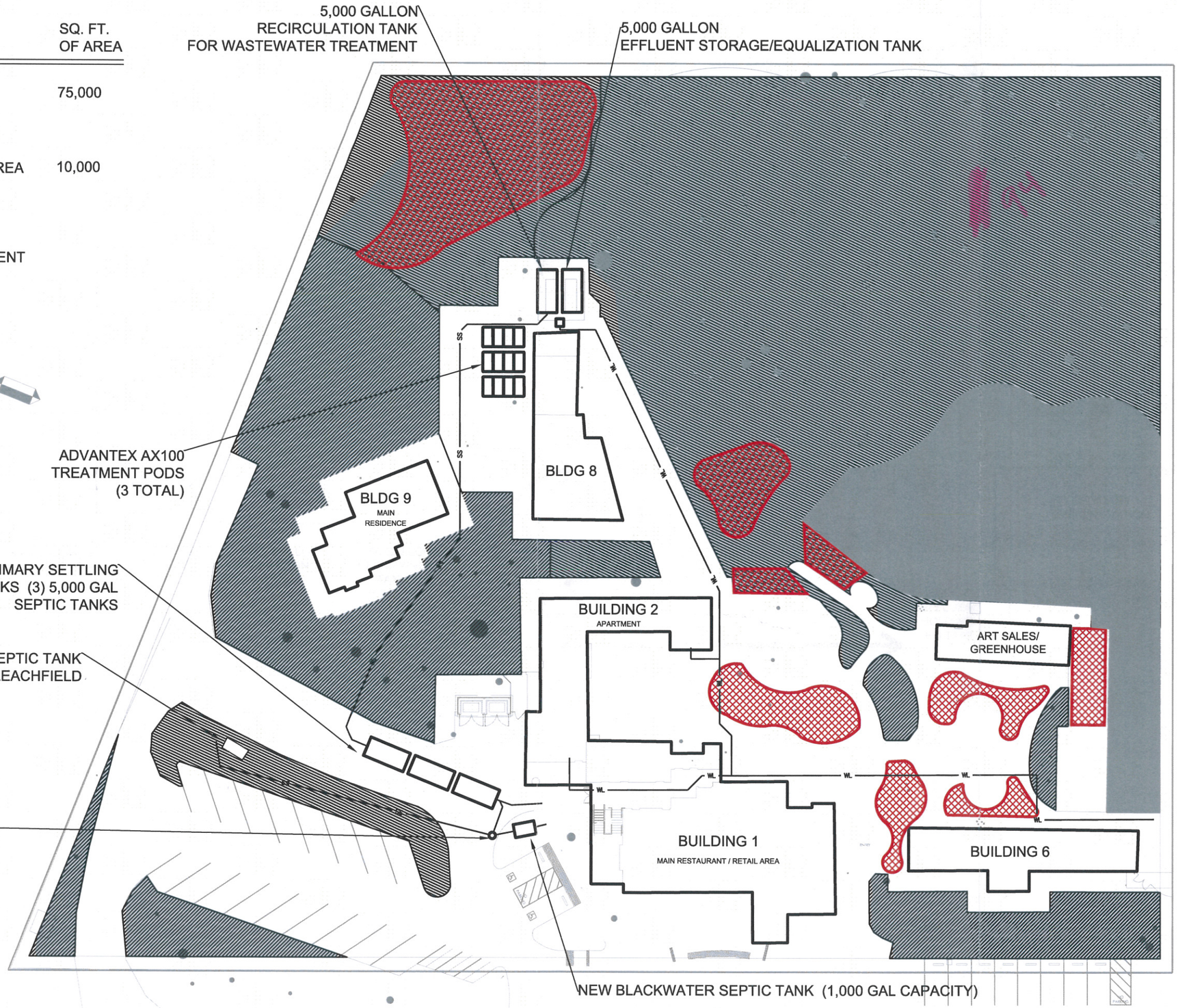
In an effort to increase psychological comfort for customers and visitors to the gardens, the owners intend to separate the "blackwater" from the main wastewater stream. Blackwater, in this project, is being defined as the waste stream from the toilets and urinals only. All toilets in the main restaurant and the apartment (Buildings 1 and 2) will be plumbed to a separate, new 1,000 gallon septic tank for primary treatment. All other wastewater, including sink drains, floor drains, shower drains, and kitchen drains, will be sent to the main wastewater treatment system.

carbon source in new system

Effluent from the blackwater system will be discharged to the existing leachfield, located in the northern part of the property. The existing leachfield has been operating for over 30 years with an average summer loading of 2,500 gpd (estimated) without sign of leachfield failure. In an effort to check for overflowing and/or daylighting, 17,350 gallons of water was recently added to the leachfield in 49 hours; no sign of leachfield failure was discovered. However, because the capacity of the existing leachfield cannot be confirmed in the conventional manner (no plans or drawings are available to locate the exact size of leachlines), the blackwater system will be designed with an overflow structure so that in the event the existing leachfield reaches capacity, the effluent from the blackwater septic tank will be diverted into the main wastewater treatment system. The location of the blackwater system septic tank is shown on Figure 1 and a process schematic of the entire wastewater system is shown in Figure 2.

LEGEND

SYMBOL	DESCRIPTION	SQ. FT. OF AREA
	TOTAL ELIGIBLE AREA	75,000
	GEOFLOW DISPOSAL AREA	10,000
	POTABLE WATER ONLY NO SECONDARY EFFLUENT	



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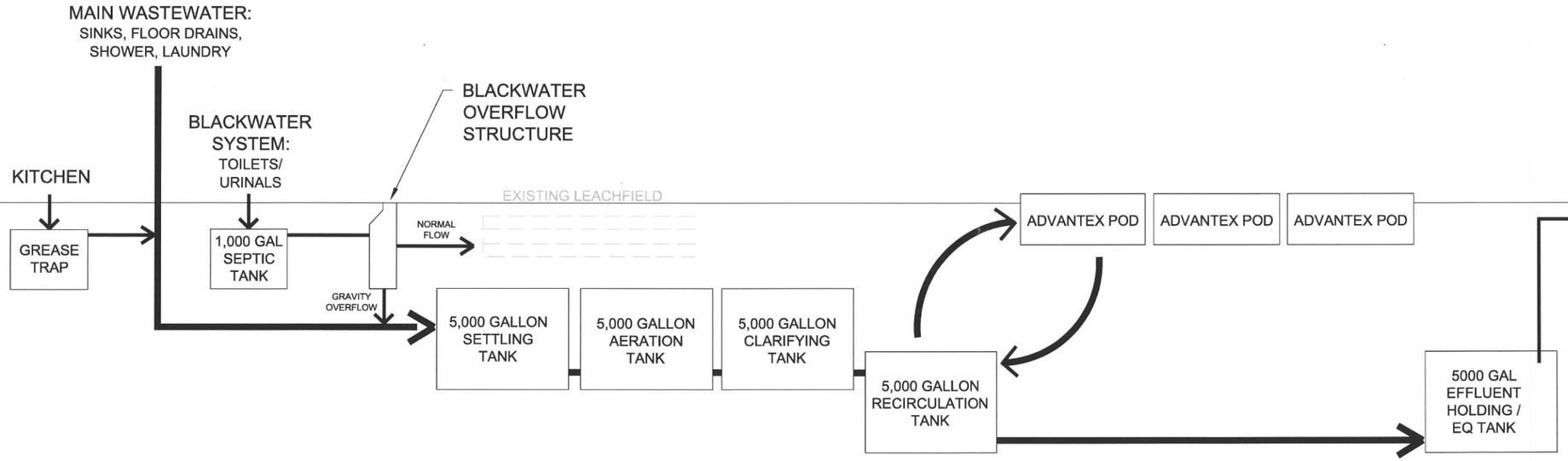
CENTRALLY GROWN
WASTEWATER SITE PLAN
FIGURE 1

JOB No. :	1137
DRAWING :	SCHEMATIC
DRAWN BY:	SJP
DATE :	10-18-12
SCALE :	NTS



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CENTRALLY GROWN
WASTEWATER SCHEMATIC
FIGURE 2

JOB No. :	1137
DRAWING :	SCHEMATIC
DRAWN BY:	SJP
DATE :	10-18-12
SCALE :	NTS

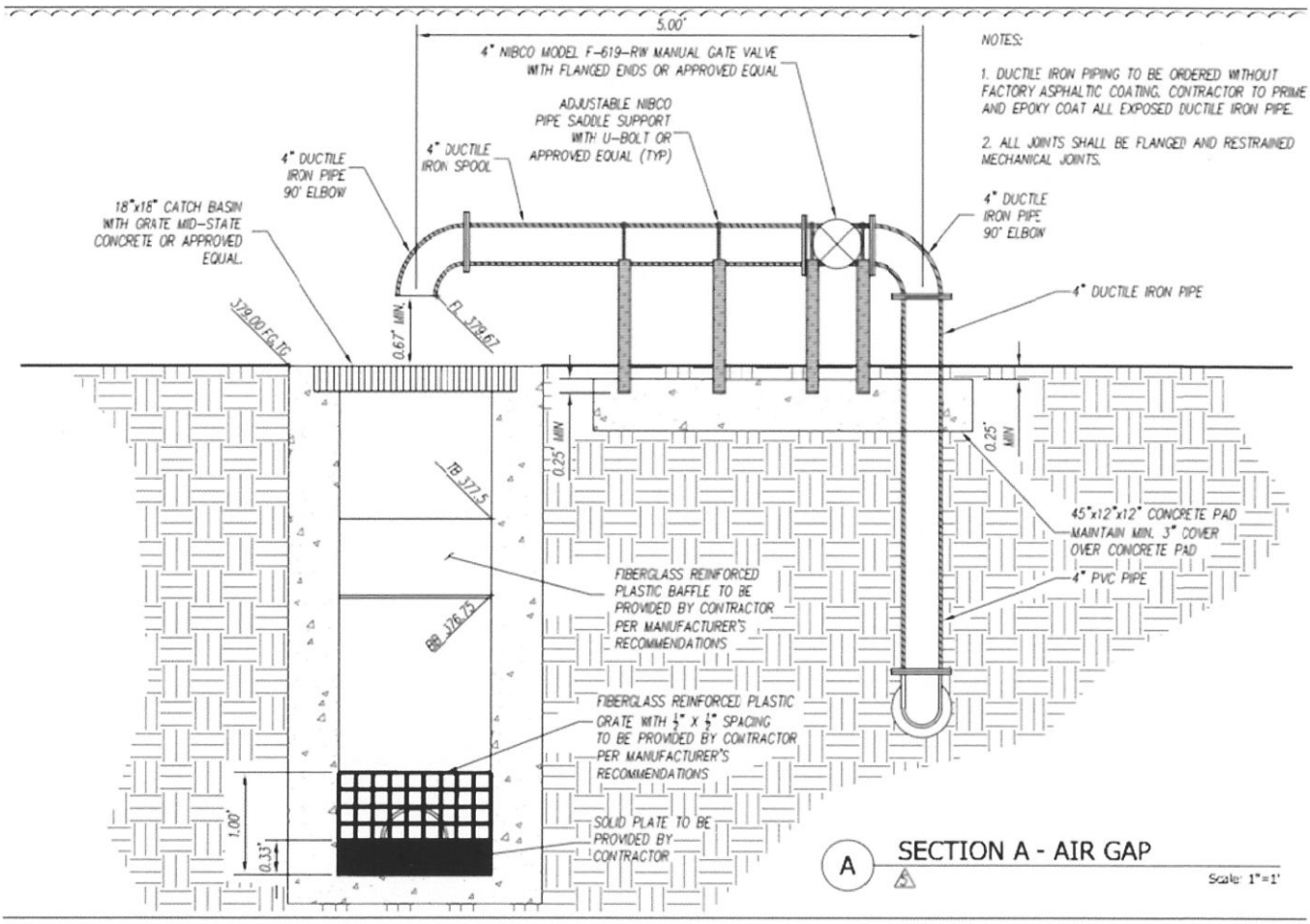

Figure 3. Example Air Gap for Potable Water Supply to Effluent Holding Tank

APPENDIX A – Soils Report: May 18, 2012

Earth Systems Pacific

4378 Old Santa Fe Road
San Luis Obispo, CA 93401-8116

(805) 544-3276 • FAX (805) 544-1786
E-mail: esp@earthsys.com

September 19, 2012

ESP FILE NO.: SL-16768-SB

Mr. Brian Wright, Executive Director
Centrally Grown
1241 Knollwood Drive, PMB 138
Cambria, CA 93428

PROJECT: CENTRALLY GROWN
7432 EXOTIC GARDENS DRIVE
CAMBRIA, CALIFORNIA

SUBJECT: Report of Additional Shallow Percolation Testing

REF.:
1) Work Order to Provide Additional Shallow Percolation Testing, Centrally Grown, 7432 Exotic Gardens Drive, Cambria, California, by Earth Systems Pacific, dated September 13, 2012

2) Soils Engineering Report and Percolation Test Results, Centrally Grown, 7432 Exotic Gardens Drive, Cambria, California, by Earth Systems Pacific, Doc. No. 1205-062.SER, dated May 18, 2012

Dear Mr. Wright:

As per your authorization of our work order (Ref. No. 1), we have completed shallow percolation tests in six locations at the site that are being considered for disposal of effluent via shallow "drip field" systems. The locations of the tests were determined by Shannon Peterson of Wallace Group. Two percolation tests were completed, at depths of 12 and 24 inches below existing grade, at each location.

Each percolation test location was prepared by a representative of this firm on September 13, 2012. Each test consisted of 4-inch diameter boring advanced to the planned depth using manual augers. The percolation tests were designated as Tests E through P, continuing the sequence begun in our soils engineering report for this site (Ref. No. 2). The approximate locations of the tests are indicated on the attached Percolation Test Location Map. Following drilling of the test holes, a 2-inch diameter perforated pipe was installed in each, and the annular spaces around the pipes were filled with gravel. The pipes were filled with water to presoak the test holes. Percolation testing was completed by a representative of this firm on September 14 and 17, 2012. Percolation Test Reports that provide the field data and a percolation rate for each test interval are attached.

Evaluation of the test results, development of disposal criteria, design of effluent disposal systems, and determination of suitability of the site for "drip field" effluent disposal are the responsibility of others.

If there are any questions concerning this letter, please do not hesitate to contact the undersigned.

Sincerely,
Earth Systems Pacific

REGISTERED PROFESSIONAL ENGINEER
FREDERICK J. POTTHAST
No. GE 2369
Exp. 03/31/12
GEOTECHNICAL
STATE OF CALIFORNIA

Fred Potthast, G.E.

9/19/12

Attachments: Percolation Test Location Map (1 page)
Percolation Test Results (37 pages)

Copy to: Wallace Group, Attn.: Shannon Peterson

Doc. No.: 1209-076.PERC/nh

PERCOLATION TEST LOCATION MAP

CENTRALLY GROWN - ADDITIONAL SHALLOW PERCOLATION TESTING

7432 Exotic Gardens Drive
Cambria, California

Base Map: Google Earth, 2012

LEGEND

E-P ● Percolation Test Location (Approx.)

NOT TO SCALE

Earth Systems Pacific
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(805) 544-3276 • FAX (805) 544-1786
E-mail: esc@earthsys.com

September 19, 2012 SB SL-16768-SB

CENTRALLY GROWN ADDITIONAL PERC TESTING-091912borings

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(408) 946-4569 Fax

REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: E
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 12"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
START	0	6.000	---	---	---	---
	5	11.250	5.3	2.35	2	27
RECHARGE	0	6.000	---	---	---	---
	5	11.500	5.5	2.35	2	28
RECHARGE	0	6.000	---	---	---	---
	5	10.750	4.8	2.35	2	24
RECHARGE	0	6.000	---	---	---	---
	5	11.125	5.1	2.35	2	26
RECHARGE	0	6.000	---	---	---	---
	5	10.875	4.9	2.35	2	25
RECHARGE	0	6.000	---	---	---	---
	5	11.250	5.3	2.35	2	27
RECHARGE	0	6.000	---	---	---	---
	5	11.125	5.1	2.35	2	26
RECHARGE	0	6.000	---	---	---	---
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RECHARGE	0	6.000	---	---	---	---

Earth Systems Pacific

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: E
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 12"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
	5	10.875	4.9	2.35	2	25
RECHARGE	0	6.000	---	---	---	---
	5	11.000	5.0	2.35	2	26
RECHARGE	0	6.000	---	---	---	---
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	5	11.000	5.0	2.35	2	26
RECHARGE	0	6.000	---	---	---	---
	5	10.625	4.6	2.35	3	24
RECHARGE	0	6.000	---	---	---	---
	5	10.875	4.9	2.35	2	25
RECHARGE	0	6.000	---	---	---	---
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RECHARGE	0	6.000	---	---	---	---
	5	10.750	4.8	2.35	2	24
RECHARGE	0	6.000	---	---	---	---
	5	10.875	4.9	2.35	2	25
RECHARGE	0	6.000	---	---	---	---
	5	10.750	4.8	2.35	2	24
RECHARGE	0	6.000	---	---	---	---
	5	10.375	4.4	2.35	3	22
RECHARGE	0	6.000	---	---	---	---
	5	10.875	4.9	2.35	2	25
RECHARGE	0	6.000	---	---	---	---
	5	10.750	4.8	2.35	2	24
RECHARGE	0	6.000	---	---	---	---
	5	10.875	4.9	2.35	2	25
RECHARGE	0	6.000	---	---	---	---
	5	10.625	4.6	2.35	3	24
RECHARGE	0	6.000	---	---	---	---
	5	10.750	4.8	2.35	2	24
RECHARGE	0	6.000	---	---	---	---
	5	10.625	4.6	2.35	3	24
RECHARGE	0	6.000	---	---	---	---
	5	10.750	4.8	2.35	2	24
RECHARGE	0	6.000	---	---	---	---
	5	10.500	4.5	2.35	3	23
RECHARGE	0	6.000	---	---	---	---
	5	10.750	4.8	2.35	2	24
RECHARGE	0	6.000	---	---	---	---
	5	10.375	4.4	2.35	3	22
RECHARGE	0	6.000	---	---	---	---
	5	10.500	4.5	2.35	3	23
RECHARGE	0	6.000	---	---	---	---
	5	10.750	4.8	2.35	2	24
RECHARGE	0	6.000	---	---	---	---
	5	10.875	4.9	2.35	2	25
RECHARGE	0	6.000	---	---	---	---
	5	10.625	4.6	2.35	3	24
RECHARGE	0	6.000	---	---	---	---

Earth Systems Pacific

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: E
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 12"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
	5	10.750	4.8	2.35	2	24
RECHARGE	0	6.000	---	---	---	---
	5	10.500	4.5	2.35	3	23
RECHARGE	0	6.000	---	---	---	---
	5	10.625	4.6	2.35	3	24
RECHARGE	0	6.000	---	---	---	---
	5	10.750	4.8	2.35	2	24
RECHARGE	0	6.000	---	---	---	---
	5	10.625	4.6	2.35	3	24
RECHARGE	0	6.000	---	---	---	---
	5	10.625	4.6	2.35	3	24
RECHARGE	0	6.000	---	---	---	---
	5	10.875	4.9	2.35	2	25
RECHARGE	0	6.000	---	---	---	---
	5	11.125	5.1	2.35	2	26
RECHARGE	0	6.000	---	---	---	---
	5	10.750	4.8	2.35	2	24

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: F
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
START	0	18.000	---	---	---	---
	5	22.000	4.0	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	22.000	4.0	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.500	3.5	2.35	3	18
RECHARGE	0	18.000	---	---	---	---
	5	21.125	3.1	2.35	4	16
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	21.125	3.1	2.35	4	16
RECHARGE	0	18.000	---	---	---	---
	5	20.875	2.9	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	21.125	3.1	2.35	4	16
RECHARGE	0	18.000	---	---	---	---
	5	20.750	2.8	2.35	4	14
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	21.250	3.3	2.35	4	17
RECHARGE	0	18.000	---	---	---	---
	5	21.125	3.1	2.35	4	16
RECHARGE	0	18.000	---	---	---	---
	5	20.625	2.6	2.35	4	13
RECHARGE	0	18.000	---	---	---	---
	5	21.000	3.0	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	20.750	2.8	2.35	4	14
RECHARGE	0	18.000	---	---	---	---
	5	20.875	2.9	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	21.250	3.3	2.35	4	17
RECHARGE	0	18.000	---	---	---	---
	5	20.750	2.8	2.35	4	14
RECHARGE	0	18.000	---	---	---	---
	5	21.000	3.0	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	21.125	3.1	2.35	4	16

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: F
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	PERCOLATION RATE min. / inch	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
RECHARGE	0	18.000	---	---	---	---
	5	20.750	2.8	2.35	4	14
RECHARGE	0	18.000	---	---	---	---
	5	20.875	2.9	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.875	2.9	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	21.250	3.3	2.35	4	17
RECHARGE	0	18.000	---	---	---	---
	5	20.875	2.9	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	20.750	2.8	2.35	4	14
RECHARGE	0	18.000	---	---	---	---
	5	20.875	2.9	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.875	2.9	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	21.125	3.1	2.35	4	16
RECHARGE	0	18.000	---	---	---	---
	5	21.000	3.0	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	20.750	2.8	2.35	4	14
RECHARGE	0	18.000	---	---	---	---
	5	21.125	3.1	2.35	4	16
RECHARGE	0	18.000	---	---	---	---
	5	20.625	2.6	2.35	4	13
RECHARGE	0	18.000	---	---	---	---
	5	20.875	2.9	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	20.875	2.9	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	21.125	3.1	2.35	4	16
RECHARGE	0	18.000	---	---	---	---
	5	20.875	2.9	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	21.250	3.3	2.35	4	17
RECHARGE	0	18.000	---	---	---	---
	5	21.125	3.1	2.35	4	16
RECHARGE	0	18.000	---	---	---	---
	5	21.250	3.3	2.35	4	17

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: F
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	PERCOLATION RATE min. / inch	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
RECHARGE	0	18.000	---	---	---	---
	5	20.625	2.6	2.35	4	13
RECHARGE	0	18.000	---	---	---	---
	5	20.750	2.8	2.35	4	14
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.875	2.9	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	20.750	2.8	2.35	4	14
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	21.000	3.0	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	21.125	3.1	2.35	4	16
RECHARGE	0	18.000	---	---	---	---
	5	20.750	2.8	2.35	4	14
RECHARGE	0	18.000	---	---	---	---
	5	21.000	3.0	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.375	3.4	2.35	3	17
RECHARGE	0	18.000	---	---	---	---
	5	21.500	3.5	2.35	3	18
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.250	3.3	2.35	4	17
RECHARGE	0	18.000	---	---	---	---
	5	21.375	3.4	2.35	3	17
RECHARGE	0	18.000	---	---	---	---
	5	21.250	3.3	2.35	4	17
RECHARGE	0	18.000	---	---	---	---

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: F
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	PERCOLATION RATE min. / inch	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
	5	21.500	3.5	2.35	3	18
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.375	3.4	2.35	3	17
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.500	3.5	2.35	3	18
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.375	3.4	2.35	3	17

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: G
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 12"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
START	0	6.000	---	---	---	---
	5	12.000	6.0	2.35	2	31
RECHARGE	0	6.000	---	---	---	---
	5	12.000	6.0	2.35	2	31
RECHARGE	0	6.000	---	---	---	---
	5	12.000	6.0	2.35	2	31
RECHARGE	0	6.000	---	---	---	---
	5	12.000	6.0	2.35	2	31
RECHARGE	0	6.000	---	---	---	---
		*				

* Readings continued at same rate throughout entire test duration

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: H
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
START	0	18.000	---	---	---	---
	5	21.500	3.5	2.35	3	18
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	22.125	4.1	2.35	3	21
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	22.000	4.0	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	22.250	4.3	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	22.000	4.0	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.500	3.5	2.35	3	18
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.125	3.1	2.35	4	16
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	22.250	4.3	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	22.250	4.3	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	22.125	4.1	2.35	3	21
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.500	3.5	2.35	3	18
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	22.000	4.0	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	22.125	4.1	2.35	3	21

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: H
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
RECHARGE	0	18.000	---	---	---	---
	5	21.500	3.5	2.35	3	18
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	22.375	4.4	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	22.000	4.0	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.375	3.4	2.35	3	17
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	22.125	4.1	2.35	3	21
RECHARGE	0	18.000	---	---	---	---
	5	21.500	3.5	2.35	3	18
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.500	3.5	2.35	3	18
RECHARGE	0	18.000	---	---	---	---
	5	22.250	4.3	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	22.250	4.3	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	22.250	4.3	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	22.125	4.1	2.35	3	21
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	22.000	4.0	2.35	3	20
RECHARGE	0	18.000	---	---	---	---

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: H
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.125	3.1	2.35	4	16
RECHARGE	0	18.000	---	---	---	---
	5	21.250	3.3	2.35	4	17
RECHARGE	0	18.000	---	---	---	---
	5	21.500	3.5	2.35	3	18
RECHARGE	0	18.000	---	---	---	---
	5	21.375	3.4	2.35	3	17
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.500	3.5	2.35	3	18
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.375	3.4	2.35	3	17
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	19.625	1.6	2.35	7	8
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	19.625	1.6	2.35	7	8
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: H
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"
Page: 4 of 4

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	19.750	1.8	2.35	7	9
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	19.625	1.6	2.35	7	8
RECHARGE	0	18.000	---	---	---	---
	5	20.000	2.0	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: I
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 12"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
START	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
	5	7.625	0.5	2.35	24	3
	5	8.000	0.4	2.35	31	2
RECHARGE	0	6.000	---	---	---	---
	5	7.250	1.3	2.35	9	6
	5	7.500	0.3	2.35	47	1
	5	7.625	0.1	2.35	94	1
	5	7.875	0.3	2.35	47	1
RECHARGE	0	6.000	---	---	---	---
	5	6.625	0.6	2.35	19	3
	5	6.875	0.3	2.35	47	1
	5	7.000	0.1	2.35	94	1
	5	7.125	0.1	2.35	94	1
	5	7.250	0.1	2.35	94	1
	5	7.375	0.1	2.35	94	1
	5	7.500	0.1	2.35	94	1
	5	7.625	0.1	2.35	94	1
	5	7.750	0.1	2.35	94	1
RECHARGE	0	6.000	---	---	---	---
	5	6.500	0.5	2.35	24	3
	5	6.750	0.3	2.35	47	1
	5	6.875	0.1	2.35	94	1
	5	7.000	0.1	2.35	94	1
	5	7.125	0.1	2.35	94	1
	5	7.250	0.1	2.35	94	1
	5	7.375	0.1	2.35	94	1
	5	7.500	0.1	2.35	94	1
	5	7.625	0.1	2.35	94	1
	5	7.750	0.1	2.35	94	1
	5	7.825	0.1	2.35	157	0.4
RECHARGE	0	6.000	---	---	---	---
	5	6.375	0.4	2.35	31	2
	5	6.625	0.3	2.35	47	1
	5	6.750	0.1	2.35	94	1
	5	6.875	0.1	2.35	94	1
	5	7.000	0.1	2.35	94	1
	5	7.125	0.1	2.35	94	1

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: I
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 12"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
	5	7.250	0.1	2.35	94	1
	5	7.375	0.1	2.35	94	1
	5	7.500	0.1	2.35	94	1
	5	7.625	0.1	2.35	94	1
	5	7.750	0.1	2.35	94	1
	5	8.000	0.3	2.35	47	1
RECHARGE	0	6.000	---	---	---	---
	5	6.625	0.6	2.35	19	3
	5	6.875	0.3	2.35	47	1
	5	7.000	0.1	2.35	94	1
	5	7.125	0.1	2.35	94	1
	5	7.375	0.3	2.35	47	1
	5	7.500	0.1	2.35	94	1
	5	7.625	0.8	2.35	16	4
	5	7.750	0.1	2.35	94	1
RECHARGE	0	6.000	---	---	---	---
	5	6.625	0.6	2.35	19	3
	5	6.875	0.3	2.35	47	1
	5	7.000	0.1	2.35	94	1
	5	7.125	0.1	2.35	94	1
	5	7.250	0.1	2.35	94	1
	5	7.375	0.1	2.35	94	1
	5	7.500	0.1	2.35	94	1
	5	7.625	0.1	2.35	94	1
	5	7.750	0.1	2.35	94	1
	5	7.875	0.1	2.35	94	1
	5	8.000	0.1	2.35	94	1
RECHARGE	0	6.000	---	---	---	---
	5	6.125	-1.4	2.35	-9	-7
	5	6.250	0.1	2.35	94	1
	5	6.375	0.1	2.35	94	1
	5	6.500	0.1	2.35	94	1
	5	6.750	0.3	2.35	47	1
	5	6.875	0.1	2.35	94	1
	5	7.000	0.1	2.35	94	1
	5	7.125	0.1	2.35	94	1
	5	7.250	0.1	2.35	94	1
	5	7.375	0.1	2.35	94	1
	5	7.500	0.1	2.35	94	1
	5	7.625	0.1	2.35	94	1

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: J
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
START	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.750	2.8	2.35	4	14
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.625	2.6	2.35	4	13
RECHARGE	0	18.000	---	---	---	---
	5	20.750	2.8	2.35	4	14
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.625	2.6	2.35	4	13
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	20.625	2.6	2.35	4	13
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

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RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	20.000	2.0	2.35	6	10
RECHARGE	0	18.000	---	---	---	---

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
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JOB NUMBER: SL-16768-SB

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	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.000	2.0	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
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	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	19.750	1.8	2.35	7	9
RECHARGE	0	18.000	---	---	---	---
	5	20.000	2.0	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.000	2.0	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	19.750	1.8	2.35	7	9
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	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
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7432 Exotic Gardens Way
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JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: J
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Test Depth: 24"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
	5	19.750	1.8	2.35	7	9
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	20.000	2.0	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	19.750	1.8	2.35	7	9
RECHARGE	0	18.000	---	---	---	---
	5	19.625	1.6	2.35	7	8
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11

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(408) 946-4569 Fax

REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: K
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 12"
Test Diameter: 4"
Page: 1 of 1

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
START	0	6.000	---	---	---	---
	5	12.000	6.0	2.35	2	31
RECHARGE	0	6.000	---	---	---	---
	5	12.000	6.0	2.35	2	31
RECHARGE	0	6.000	---	---	---	---
	5	12.000	6.0	2.35	2	31
RECHARGE	0	6.000	---	---	---	---
	5	12.000	6.0	2.35	2	31
RECHARGE	0	6.000	---	---	---	---
		*				

* Readings continued at same rate throughout the entire test duration

**						
RECHARGE	0	6.000	---	---	---	---
	3.783	12.000	6.0	2.35	1	40
RECHARGE	0	6.000	---	---	---	---
	3.866	12.000	6.0	2.35	2	40
RECHARGE	0	6.000	---	---	---	---
	3.716	12.000	6.0	2.35	1	41

** For final 3 readings, modified test to record time to percolate 6 inches of water instead of 5 - minute reading intervals

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: L
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"
Page: 1 of 1

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
START	0	6.000	---	---	---	---
	5	12.000	6.0	2.35	2	31
RECHARGE	0	6.000	---	---	---	---
	5	12.000	6.0	2.35	2	31
RECHARGE	0	6.000	---	---	---	---
	5	12.000	6.0	2.35	2	31
RECHARGE	0	6.000	---	---	---	---
	5	12.000	6.0	2.35	2	31
RECHARGE	0	6.000	---	---	---	---
		*				

* Readings continued at same rate throughout the entire test duration

**						
RECHARGE	0	6.000	---	---	---	---
	2.916	12.000	6.0	2.35	1	53
RECHARGE	0	6.000	---	---	---	---
	3.033	12.000	6.0	2.35	1	51
RECHARGE	0	6.000	---	---	---	---
	3.116	12.000	6.0	2.35	1	49

** For final 3 readings, modified test to record time to percolate 6 inches of water instead of 5 - minute reading intervals

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: M
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 12"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
START	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8
RECHARGE	0	6.000	---	---	---	---
	5	7.875	1.9	2.35	6	10
RECHARGE	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---
	5	7.875	1.9	2.35	6	10
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8
RECHARGE	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---
	5	7.875	1.9	2.35	6	10
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8
RECHARGE	0	6.000	---	---	---	---
	5	7.375	1.4	2.35	9	7
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: M
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 12"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
RECHARGE	0	0.000	---	---	---	---
	5	7.125	7.1	2.35	2	36
RECHARGE	0	6.000	---	---	---	---
	5	7.375	1.4	2.35	9	7
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	6.250	0.3	2.35	47	1
RECHARGE	0	6.000	---	---	---	---
	5	7.250	1.3	2.35	9	6
RECHARGE	0	6.000	---	---	---	---
	5	7.375	1.4	2.35	9	7
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.375	1.4	2.35	9	7
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.250	1.3	2.35	9	6
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.375	1.4	2.35	9	7
RECHARGE	0	6.000	---	---	---	---
	5	7.250	1.3	2.35	9	6
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.000	1.0	2.35	12	5
RECHARGE	0	6.000	---	---	---	---
	5	7.250	1.3	2.35	9	6
RECHARGE	0	6.000	---	---	---	---
	5	7.375	1.4	2.35	9	7
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: M
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 12"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.250	1.3	2.35	9	6
RECHARGE	0	6.000	---	---	---	---
	5	6.875	0.9	2.35	13	4
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.250	1.3	2.35	9	6
RECHARGE	0	6.000	---	---	---	---
	5	7.000	1.0	2.35	12	5
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.000	1.0	2.35	12	5
RECHARGE	0	6.000	---	---	---	---
	5	6.750	0.8	2.35	16	4
RECHARGE	0	6.000	---	---	---	---
	5	7.000	1.0	2.35	12	5
RECHARGE	0	6.000	---	---	---	---
	5	6.875	0.9	2.35	13	4
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	6.875	0.9	2.35	13	4
RECHARGE	0	6.000	---	---	---	---
	5	6.875	0.9	2.35	13	4
RECHARGE	0	6.000	---	---	---	---
	5	7.000	1.0	2.35	12	5
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---
	5	6.875	0.9	2.35	13	4
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	6.875	0.9	2.35	13	4
RECHARGE	0	6.000	---	---	---	---
	5	6.750	0.8	2.35	16	4
RECHARGE	0	6.000	---	---	---	---

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: M
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 12"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
	5	7.000	1.0	2.35	12	5
RECHARGE	0	6.000	---	---	---	---
	5	6.750	0.8	2.35	16	4
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.000	1.0	2.35	12	5
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.000	1.0	2.35	12	5
RECHARGE	0	6.000	---	---	---	---
	5	6.750	0.8	2.35	16	4
RECHARGE	0	6.000	---	---	---	---
	5	6.875	0.9	2.35	13	4
RECHARGE	0	6.000	---	---	---	---
	5	6.750	0.8	2.35	16	4

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: N
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
START	0	18.000	---	---	---	---
	5	22.250	4.3	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	22.500	4.5	2.35	3	23
RECHARGE	0	18.000	---	---	---	---
	5	22.375	4.4	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	22.750	4.8	2.35	2	24
RECHARGE	0	18.000	---	---	---	---
	5	22.500	4.5	2.35	3	23
RECHARGE	0	18.000	---	---	---	---
	5	22.625	4.6	2.35	3	24
RECHARGE	0	18.000	---	---	---	---
	5	22.375	4.4	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	22.250	4.3	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	22.375	4.4	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	22.000	4.0	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	22.250	4.3	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	22.375	4.4	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	22.375	4.4	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	22.125	4.1	2.35	3	21
RECHARGE	0	18.000	---	---	---	---
	5	22.250	4.3	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	22.250	4.3	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	22.375	4.4	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	22.125	4.1	2.35	3	21
RECHARGE	0	18.000	---	---	---	---
	5	22.125	4.1	2.35	3	21

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: N
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	22.000	4.0	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	22.250	4.3	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	22.125	4.1	2.35	3	21
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	22.000	4.0	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.500	3.5	2.35	3	18
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	22.000	4.0	2.35	3	20
RECHARGE	0	18.000	---	---	---	---

Earth Systems Pacific

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: N
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
	5	22.125	4.1	2.35	3	21
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	22.000	4.0	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	22.125	4.1	2.35	3	21
RECHARGE	0	18.000	---	---	---	---
	5	22.250	4.3	2.35	3	22
RECHARGE	0	18.000	---	---	---	---
	5	22.000	4.0	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	22.125	4.1	2.35	3	21
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	22.125	4.1	2.35	3	21
RECHARGE	0	18.000	---	---	---	---
	5	22.000	4.0	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	22.125	4.1	2.35	3	21
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: N
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	22.000	4.0	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.750	3.8	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.625	3.6	2.35	3	19
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20
RECHARGE	0	18.000	---	---	---	---
	5	21.875	3.9	2.35	3	20

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: O
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 12"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
START	0	6.000	---	---	---	---
	5	7.875	1.9	2.35	6	10
RECHARGE	0	6.000	---	---	---	---
	5	8.125	2.1	2.35	6	11
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---
	5	7.875	1.9	2.35	6	10
RECHARGE	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.875	1.9	2.35	6	10
RECHARGE	0	6.000	---	---	---	---
	5	8.000	2.0	2.35	6	10
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---
	5	7.875	1.9	2.35	6	10
RECHARGE	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.875	1.9	2.35	6	10
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8
RECHARGE	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---
	5	7.875	1.9	2.35	6	10
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: O
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 12"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8
RECHARGE	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8
RECHARGE	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8
RECHARGE	0	6.000	---	---	---	---
	5	7.250	1.3	2.35	9	6
RECHARGE	0	6.000	---	---	---	---
	5	7.375	1.4	2.35	9	7
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8
RECHARGE	0	6.000	---	---	---	---
	5	7.375	1.4	2.35	9	7
RECHARGE	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.375	1.4	2.35	9	7
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.750	1.8	2.35	7	9
RECHARGE	0	6.000	---	---	---	---

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: O
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 12"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
	5	7.875	1.9	2.35	6	10
RECHARGE	0	6.000	---	---	---	---
	5	7.375	1.4	2.35	9	7
RECHARGE	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8
RECHARGE	0	6.000	---	---	---	---
	5	7.625	1.6	2.35	7	8
RECHARGE	0	6.000	---	---	---	---
	5	7.500	1.5	2.35	8	8
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.250	1.3	2.35	9	6
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.375	1.4	2.35	9	7
RECHARGE	0	6.000	---	---	---	---
	5	7.000	1.0	2.35	12	5
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.375	1.4	2.35	9	7
RECHARGE	0	6.000	---	---	---	---
	5	7.000	1.0	2.35	12	5
RECHARGE	0	6.000	---	---	---	---
	5	7.250	1.3	2.35	9	6
RECHARGE	0	6.000	---	---	---	---
	5	7.250	1.3	2.35	9	6
RECHARGE	0	6.000	---	---	---	---
	5	7.375	1.4	2.35	9	7
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	7.250	1.3	2.35	9	6
RECHARGE	0	6.000	---	---	---	---
	5	6.875	0.9	2.35	13	4

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: O
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Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
RECHARGE	0	6.000	---	---	---	---
	5	7.000	1.0	2.35	12	5
RECHARGE	0	6.000	---	---	---	---
	5	6.750	0.8	2.35	16	4
RECHARGE	0	6.000	---	---	---	---
	5	6.875	0.9	2.35	13	4
RECHARGE	0	6.000	---	---	---	---
	5	6.875	0.9	2.35	13	4
RECHARGE	0	6.000	---	---	---	---
	5	6.625	0.6	2.35	19	3
RECHARGE	0	6.000	---	---	---	---
	5	7.000	1.0	2.35	12	5
RECHARGE	0	6.000	---	---	---	---
	5	6.750	0.8	2.35	16	4
RECHARGE	0	6.000	---	---	---	---
	5	7.125	1.1	2.35	10	6
RECHARGE	0	6.000	---	---	---	---
	5	6.875	0.9	2.35	13	4

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: P
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
START	0	18.000	---	---	---	---
	5	21.125	3.1	2.35	4	16
RECHARGE	0	18.000	---	---	---	---
	5	20.750	2.8	2.35	4	14
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.875	2.9	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	21.000	3.0	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	20.625	2.6	2.35	4	13
RECHARGE	0	18.000	---	---	---	---
	5	20.875	2.9	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	21.125	3.1	2.35	4	16
RECHARGE	0	18.000	---	---	---	---
	5	20.875	2.9	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	20.750	2.8	2.35	4	14
RECHARGE	0	18.000	---	---	---	---
	5	20.750	2.8	2.35	4	14
RECHARGE	0	18.000	---	---	---	---
	5	21.000	3.0	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	20.875	2.9	2.35	4	15
RECHARGE	0	18.000	---	---	---	---
	5	21.125	3.1	2.35	4	16
RECHARGE	0	18.000	---	---	---	---
	5	20.750	2.8	2.35	4	14
RECHARGE	0	18.000	---	---	---	---
	5	20.625	2.6	2.35	4	13
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.625	2.6	2.35	4	13
RECHARGE	0	18.000	---	---	---	---
	5	20.750	2.8	2.35	4	14
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	22.500	4.5	2.35	3	23
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
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JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: P
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Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.625	2.6	2.35	4	13
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.625	2.6	2.35	4	13
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---

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REPORT OF PERCOLATION TEST

PROJECT: Centrally Grown - Additional Shallow Percolation Testing
7432 Exotic Gardens Way
Cambria, California

JOB NUMBER: SL-16768-SB

REPORT DATE: 9/18/12

Site: P
Date Installed: 9/13/2012
Date Tested: 9/14/2012
Technician: P. Frith

Test Duration: 6 hours
Test Depth: 24"
Test Diameter: 4"

Notes	INTERVAL minutes	READING inches	INCREMENTAL DROP inches	CORRECTION FACTOR	PERCOLATION RATE min. / inch	PERCOLATION RATE inches / hour
	5	20.375	2.4	2.35	5	12
RECHARGE	0	18.000	---	---	---	---
	5	20.500	2.5	2.35	5	13
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	19.750	1.8	2.35	7	9
RECHARGE	0	18.000	---	---	---	---
	5	20.000	2.0	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	19.750	1.8	2.35	7	9
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	20.250	2.3	2.35	5	11
RECHARGE	0	18.000	---	---	---	---
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RECHARGE	0	18.000	---	---	---	---
	5	19.750	1.8	2.35	7	9
RECHARGE	0	18.000	---	---	---	---
	5	20.000	2.0	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	19.625	1.6	2.35	7	8
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	19.750	1.8	2.35	7	9
RECHARGE	0	18.000	---	---	---	---
	5	20.125	2.1	2.35	6	11
RECHARGE	0	18.000	---	---	---	---
	5	19.375	1.4	2.35	9	7

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RECHARGE	0	18.000	---	---	---	---
	5	19.750	1.8	2.35	7	9
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RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	19.875	1.9	2.35	6	10
RECHARGE	0	18.000	---	---	---	---
	5	19.625	1.6	2.35	7	8

APPENDIX B – Soils Report: September 19, 2012

SOILS ENGINEERING REPORT
AND PERCOLATION TEST RESULTS
CENTRALLY GROWN
7432 EXOTIC GARDENS DRIVE
CAMBRIA, CALIFORNIA

May 18, 2012

Prepared for

Mr. Brian Wright
Centrally Grown

Prepared by

Earth Systems Pacific
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San Luis Obispo, CA 93401

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May 18, 2012

FILE NO.: SL-16768-SA

Mr. Brian Wright
Centrally Grown
1241 Knollwood Drive, PMB 138
Cambria, CA 93428

PROJECT: CENTRALLY GROWN
7432 EXOTIC GARDENS DRIVE
CAMBRIA, CALIFORNIA

SUBJECT: Soils Engineering Report and Percolation Test Results

REF: Proposal for a Soils Engineering Report and Percolation Testing, Centrally Grown, 7432 Exotic Gardens Drive, Cambria, California, by Earth Systems Pacific, Doc. No. 1204-045.PRP, dated April 12, 2012

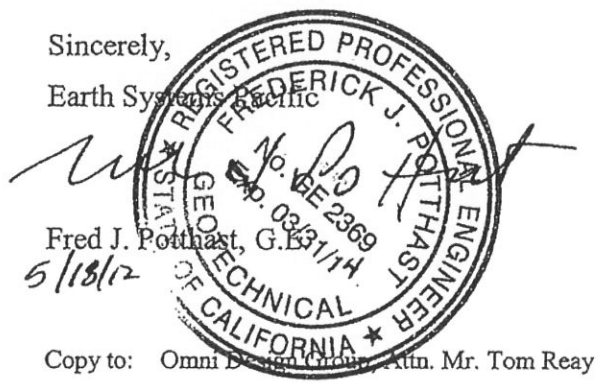
Dear Mr. Wright:

In accordance with your authorization of the referenced proposal, this soils engineering report has been prepared for use in the development of plans and specifications for the proposed improvements planned at 7432 Exotic Gardens Drive in Cambria, California. Preliminary geotechnical recommendations for site preparation, grading, utility trenches, interior slabs-on-grade and exterior pedestrian flatwork, retaining walls, drainage and maintenance, and observation and testing are presented herein. Results of shallow leach field percolation testing are also provided. Two bound and one electronic (via email) copies of the report are being furnished for your use; as per your request, an electronic copy has been forwarded to Tom Reay, Architect, of Omni Design Group.

We appreciate the opportunity to have provided professional services for this project and look forward to working with you again in the future. If there are any questions concerning this report, please do not hesitate to contact the undersigned.

Sincerely,

Earth Systems Pacific



Fred J. Potthast, G.E. 2369

5/18/12

Copy to: Omni Design Group, Attn. Mr. Tom Reay

Doc. No.: 1205-062.SER /sr

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Appendices

1.0 INTRODUCTION AND SITE SETTING

A former two-story restaurant building at 7432 Exotic Gardens Drive in Cambria, California is to be repaired and remodeled for re-use as a retail facility. The building appears to be of wood and possibly steel-frame construction. The site includes extensive mature landscaping and trees at the rear of the existing restaurant building (hereinafter referred to as the "main building"), with walking paths surfaced with flatwork, pavers or gravel. Arranged around the front half of the property in various locations are several single-story wood-frame structures that appear to have been used as additional retail space, storage areas, and an aviary. The rear half of the site is comprised of trees and landscaping, with a perimeter fence line. To the northwest of the existing buildings and grounds is a two-story single-family residence; we understand this structure is not be part of the proposed project. The main building appears to occupy the highest elevation on the site, and the topography slopes down gradually from the main building in all directions. Exotic Gardens Drive, which dead-ends just north of the site, and State Highway 1 are to the west of the site. Beyond the site to the north, east and south is large acreage ranchland. The approximate locations of the existing improvements on the site are shown on the Boring Location Map in Appendix A.

At the time of preparation of this report, preliminary project plans were not available. However, based on conversations with the client and Mr. Tom Reay, Architect, of Studio Design Group, we understand that the project will likely consist of the following: replacement of structural wood posts at the front of the main building; interior remodeling and site work to create a new entrance for the main building; the addition of an elevator and an extension of an existing deck at the rear of the main building; the construction of a storage building on the site of the existing aviary; and minor remodeling of the other existing structures adjacent to the main building. Modification and/or augmentation of the existing flatwork in the landscape area is anticipated to provide ADA access. The existing asphalt concrete (AC) parking areas at the front of the main building may be enlarged if determined to be needed.

The improvements will likely use a combination of conventional continuous and spread (pad) foundations; floor loads will be carried by either concrete slabs-on-grade or raised wood floors. For the purposes of this report, it was assumed that maximum loads on columns would not exceed 30 kips (dead load) and 50 kips (dead plus live load), and that maximum loads on continuous footings would not exceed 2 klf (dead plus live load). Cuts and fills are expected to be a maximum of 3 feet from the existing topography. Retaining walls for site work, or

connected to or forming part of a structure, and a maximum of 5 feet tall, may also be constructed. The site will continue to be served by the existing utility systems that are in place, however some lines may require realignment or replacement. A new on-site effluent disposal system may be required; a potential area for this system on-site was designated for percolation testing by the client in the northeast corner of the site.

2.0 SCOPE OF SERVICES

The scope of work for this soils engineering report included a general site reconnaissance, subsurface exploration, percolation testing, laboratory testing of soil samples, geotechnical analysis of data, and preparation of this report. The analysis and subsequent recommendations were based upon verbal information provided by the client and Mr. Tom Reay, Architect, of Studio Design Group.

This report and recommendations are intended to comply with applicable requirements of Sections 1803.2 through 1803.6 of the 2010 California Building Code (CBC) – (CBSC, 2010), Chapter 33 of the 1997 CBC (CBSC, 1997) as adopted by San Luis Obispo County, and common soils engineering practice in this area under similar conditions at this time. The test procedures were accomplished in general conformance with the standards noted, as modified by common soils engineering practice in this area under similar conditions at this time.

Preliminary soils engineering recommendations for site preparation, grading, utility trenches, foundations, interior slabs-on-grade and exterior pedestrian flatwork, retaining walls, drainage and maintenance, and observation and testing are presented herein. Results of shallow leach field percolation testing are also provided. As there may be geotechnical issues yet to be resolved, the soils engineer should be retained to provide consultation as the design progresses, and to review project plans as they near completion, to assist in verifying that pertinent geotechnical issues have been addressed, and to aid in conformance with the intent of this report.

It is our intent that this report be used exclusively by the client to form the geotechnical basis of the design of the project and in the preparation of plans and specifications. Application beyond this intent is strictly at the user's risk. If future property owners wish to use this report, such use will be allowed to the extent the report is applicable and only if the user agrees to be bound by the same contractual conditions as the original client, or by contractual conditions that may be applicable at the time of the report's use.

This report does not address issues in the domain of contractors such as, but not limited to, site safety, loss of volume due to stripping of the site, shrinkage of soils during compaction, excavatability, dewatering, shoring, temporary slope angles, construction means and methods, etc. Analyses of geologic hazards and of the soil for corrosivity, radioisotopes, lead, asbestos (either naturally occurring or man-made), mold potential, hydrocarbons, or other chemical properties is beyond the scope of this report. Evaluation of ancillary features, such as fences, flag and light poles, temporary access roads, signage, and nonstructural fills are not within our scope and are also not addressed. Evaluation of percolation test results, design of on-site effluent disposal systems, determination of disposal criteria, and testing in other areas or for other types of effluent disposal systems are beyond our scope of services. Development of criteria for detention basins, retention basins, infiltration systems or other LID/BMP improvements were beyond the scope of the services performed.

In the event that there are any changes in the nature, design, or location of improvements, or if any assumptions used in the preparation of this report prove to be incorrect, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report are verified as appropriate or modified by the soils engineer in writing. The criteria presented in this report are considered preliminary until such time as any peer review or review by any jurisdiction has been completed, conditions are observed by the soils engineer in the field during construction, and the recommendations have been either verified as appropriate or modified by the soils engineer in writing.

3.0 FIELD INVESTIGATION AND LABORATORY TESTING

To assess subsurface conditions and retrieve soil samples, five exploratory borings were drilled at the site on April 23, 2012. Borings 1 and 5 were drilled to a maximum depth of 11.5 feet using a truck-mounted Mobile Drill rig, Model B-24, equipped with 4-inch diameter solid stem auger. Borings 2, 3 and 4 were drilled with a 3-inch outside diameter solid stem hand auger. The approximate locations of the borings are shown on the Boring Location Map in Appendix A.

As the borings were drilled, soil samples were retrieved using a ring-lined barrel sampler (ASTM D 3550-07, with shoe similar to D 2937-04). Standard Penetration Tests were conducted in the B-24 borings at selected depths (ASTM D 1586-08a). Bulk soil samples were also obtained from the auger cuttings.

Soils encountered in the borings were categorized and logged in general accordance with the Unified Soil Classification System and ASTM D 2488-09a. Where rock was encountered, its properties were described based upon observation of ring and/or Standard Penetration samples, observation of the auger cuttings, the effort required to drill into the rock, and the energy required to drive samplers into the rock. Logs of the borings are presented in Appendix A, along with a boring log legend. In reviewing the boring logs and legend, the reader should recognize that the legend is intended as a guideline only, and there are a number of conditions that may influence the soil characteristics as observed during drilling. These include, but are not limited to, the presence of cobbles or boulders, cementation, variations in soil moisture, presence of groundwater, and other factors. Consequently, the logger must exercise judgment in interpreting soil characteristics, possibly resulting in soil descriptions that vary somewhat from the legend.

The ring samples were tested for unit weight and moisture (ASTM D 2937-10, as modified for ring liners). A bulk sample was tested for maximum density and optimum moisture (ASTM D 1557-09). The results of the laboratory tests are presented in Appendix B.

4.0 PERCOLATION TESTING

Following completion of the borings for the soils engineering investigation, one exploratory boring and four shallow percolation test holes were drilled in the designated leach field area in the northeast corner of the site. These borings were also drilled with the Mobile Drill B-24 rig, equipped with 4-inch diameter solid stem auger. The exploratory boring in the leach field area was designated No. 6, continuing the sequence begun for the soils investigation borings, and the percolation tests were designated as Tests A through D. A log that indicates the soil conditions encountered in Boring 6 is included in Appendix A. The approximate locations of Boring 6 and the percolation tests are indicated on the Boring and Percolation Location Map in Appendix A.

Following drilling of the boring and test holes, a 2-inch diameter perforated pipe was installed in each, and the annular spaces around the pipes were filled with gravel. The percolation test pipes were filled with water to presoak the test holes. A 24-hour reading for subsurface water in Boring 6, and percolation testing of the four test holes, were completed by a representative of this firm on April 24, 2012. Percolation Test Reports that provide the field data and a percolation rate for each test interval are included in Appendix C.

Evaluation of percolation test results, design of on-site effluent disposal systems, determination of disposal criteria, and testing in other areas or for other types of effluent disposal systems are beyond our scope of services.

5.0 GENERAL SUBSURFACE PROFILE

In Boring 1 at the front of the main building, the existing Portland cement concrete sidewalk was 3.5 inches thick. Underlying the sidewalk was residual soil composed of medium dense, poorly graded sand. At 3.5 feet, weathered bedrock (sandstone) was found. The sandstone was very soft to moderately hard, and poorly to well cemented; it extended to the boring termination depth of 11.5 feet.

Borings 2 and 3 at the rear of the main building found loose poorly graded sand topsoil from the surface to depths of 2.0 to 2.5 feet. Underlying the topsoil was loose to medium dense residual soil, followed by soft weathered bedrock (sandstone). The sandstone was found in Boring 2 at 5 feet, and in Boring 3 at 8.5 feet; the sandstone continued to the termination depths of 6.0 feet in Boring 2 and 10.0 feet in Boring 3.

Boring 4 in the proposed storage building area found loose poorly graded sand (topsoil) for the entire boring depth of 5 feet. Boring 5 in the proposed storage building area encountered 3 inches of well graded sand below the existing paver walkway, followed by loose to medium dense residual soil (poorly graded sand). From 7.0 feet to the boring termination depth of 11.5 feet, poorly cemented, soft weathered bedrock (sandstone) was found.

At the time of drilling, the soils and bedrock were in a slightly moist to moist state. No free subsurface water was observed in any of the borings.

It should be noted that the descriptions of rock must span a much wider range of density and strength characteristics than soil, and are relative to other *rock* strata. For example, fractured and weathered rock may be described as "soft", yet it will be considerably harder than almost any type of soil. Conversely, a sandy soil may be described as "dense", however it will not be nearly as hard as even "soft" rock.

6.0 CONCLUSIONS

In our opinion the site is suitable, from a soils engineering standpoint, for the proposed improvements, provided the recommendations contained in this report are implemented in the design and construction. The primary concerns, from a geotechnical standpoint, are the variable moisture and density conditions in the topsoil and residual soil, and the potential for differential settlement.

The topsoil and residual soil above the rock were classified during drilling as being loose to medium dense. The *in situ* density test results for the residual soils, when compared to the maximum dry density, yielded relative compaction values ranging from 82 to 99 percent. A minimum of 90 percent is generally considered suitable for support of foundations. In situ moisture contents also varied from approximately 5 percent below optimum to 2 percent above optimum for these soils. If unmitigated, new foundations and slabs-on-grade supported by these conditions could lead to unacceptable total and differential settlement, which could stress and damage them. To reduce the potential for unacceptable total and differential settlement, it is recommended that the site soils be overexcavated and recompacted in a controlled program prior to construction of foundations and slabs-on-grade.

Given their apparent age, the existing structures have probably experienced the majority of their potential settlement. Whether supported by new spread or continuous foundations, any additions to the existing structures will settle to some degree, even if the foundations are supported by recompacted soils as recommended in the previous paragraph. Therefore, structural connections and architectural finishes between the existing structures and any additions should be designed to accommodate this potential for differential settlement.

The poorly graded sands found on the site were identified as being nonexpansive, therefore no special measures with respect to expansive soils are considered necessary.

As bedrock was encountered at relatively shallow depths on this site, in our opinion, the potential for liquefaction to impact the site is nil.

7.0 PRELIMINARY GEOTECHNICAL RECOMMENDATIONS

These recommendations are applicable for the improvements as discussed in the "Introduction" section of this report. If any improvements not previously noted are included, the soils engineer should be contacted for revised recommendations.

"Building areas" are defined as the areas within and extending a minimum of 5 feet beyond the perimeter foundation of any new structure or series of interconnected structures; this area does not extend into the footprint of any existing structures. "Building areas" include any additions to an existing structure, such as the second-story deck and the elevator structure planned at the rear of the existing main building. A "building area" also includes any flatwork, stairways, retaining

walls, covered walkways, ground-level decks, etc. that will be connected to a building or addition and are expected to perform in a manner similar to it. The "foundation area" of a site work retaining wall is defined as the footprint of the foundation and extending a minimum of 1 foot beyond on all sides. "Pavement areas" comprise the entire footprint of areas to be surfaced with AC or Portland cement concrete (PCC) that are intended to support vehicular traffic. The "grading area" is defined as the entire area to be graded, including the building areas, sitework wall foundation areas, pavement areas and any areas where surface improvements will be constructed or where fill is to be placed. Interior slabs-on-grade are those slabs within the perimeter foundations of structures, while exterior pedestrian flatwork is considered to be PCC concrete cast on exterior grades that is not intended for vehicular use.

Site Preparation

1. The existing ground surface throughout the grading area should be prepared for construction by removing all existing improvements, vegetation, debris, and other deleterious material. Existing utility lines that will not remain in service should be either removed or properly abandoned. The appropriate method of utility abandonment will depend upon the type and depth of the utility. Recommendations for abandonment can be made as necessary.

2. Voids created by the removal of materials described above should be called to the attention of the soils engineer. No fill should be placed unless the underlying soil has been observed by the soils engineer.

Grading

General

1. All soils used as fill in the building areas should be nonexpansive. To reduce the potential for movement due to seasonal soil moisture variations, all soils used as fill to support exterior pedestrian flatwork should also be nonexpansive. Nonexpansive materials are defined as materials that fall in the GM, GC, GW, GP, SP, SW, SC and SM categories per ASTM D 2487-11, and that have an expansion index of 10 or less (ASTM D 4829-11). Nonexpansive soils may be either imported to the site or derived from excavations on the site.

2. Beyond the building and exterior pedestrian flatwork areas, all soils used should be similar to the site soils (i.e., granular), however they need not be nonexpansive as defined in the previous paragraph. Soils used as fill in pavement areas should be similar to the site soils with respect to R-value (resistance to deformation under traffic loading) characteristics. Landscape soils should be as specified by the landscape architect.

3. Proposed imported materials, if any, should be reviewed by the soils engineer before being brought to the site, and on an intermittent basis during placement.

4. All materials used as fill should be cleaned of all debris and any rocks larger than 3 inches in maximum dimension. When fill material includes rocks, the rocks should be placed in a sufficient soil matrix to ensure that voids caused by nesting of the rocks will not occur and that the fill can be properly compacted.

5. Fill soils should be placed in level, moisture conditioned lifts not exceeding 8 inches in loose thickness. Generally, fill soils should be compacted to a minimum of 90 percent of maximum dry density.

6. The upper foot of subgrade and all aggregate base in areas to be paved should be moisture conditioned and compacted to a minimum of 95 percent of maximum dry density. Subgrade and aggregate base in areas to be paved should also be firm and unyielding when proofrolled with heavy, rubber-tired grading equipment prior to continuing construction.

7. Soils and aggregate base should be moisture conditioned to optimum moisture content, or just above, prior to application of compactive effort.

8. Depending on *in situ* soil moisture content at the time of construction, there is a potential for the site soils to become unstable during grading. Unstable soils would be difficult to properly compact and are unsuitable for the placement of additional lifts of fill. Methods to correct instability include scarification and aeration of the soils in place, or the placement of gravel layers or geotextiles. The appropriate method to be utilized should be determined by a representative of this firm based on the conditions observed at the time of construction.

9. The recommended soil moisture content should be maintained throughout construction, and during the lives of the structures. Failure to maintain the soil moisture content can result in desiccation cracks and disturbance, which are an indication of degradation of soil compaction. If desiccation cracks are allowed to develop, or if soils desiccate near improvements such as foundations and flatwork, damage to those improvements may result. Soils that have cracked due to desiccation or are otherwise disturbed should be removed, moisture conditioned, and recompacted.

Building Areas

1. In building areas, following site preparation, the site soils should be overexcavated to a minimum of 2 feet below bottom-of-footing elevation.

2. Overexcavation depths should take into consideration any deepened foundation elements such as foundations for shear walls, moment frames, or those deepened to accommodate long anchor bolts, etc. The overexcavation may be stepped as necessary to accommodate areas where footing depths vary.

3. Where overexcavation operations will occur within 5 feet of an existing structure, the overexcavation should be staged in segments, so that a maximum of 5 feet of any existing foundations are left without lateral support at any given time. Additional segments should only be overexcavated when the adjacent segment has been completely backfilled and compacted to finish pad grade. Overexcavation operations for additions should extend to, but not below, any existing footings or within the footprint of any existing structure that will remain.

4. The resulting excavated surfaces should be scarified to a minimum depth of 1 foot, moisture conditioned to optimum moisture content, or just above, and recompacted.

5. Previously removed soil and acceptable imported soil (per the "Grading – General" section of this report) may be used as fill up to bottom of footing elevation or to pad grade within the building areas. Fill should be moisture conditioned and compacted in accordance with the recommendations presented in the "Grading, General."

6. The subfloor areas below any raised wood floors should be graded to a low point or a series of low points, and drainage inlets should be provided at the low points, to direct any accumulated water to an appropriate outlet. As an alternative to drainage inlets in the

subfloor areas, intercept drains can be provided to collect and discharge accumulated water. The intercept drains can be either gravel drains (minimum of 12 inches wide and 12 inches deep, wrapped with geotextile filter fabric, drained with a rigid perforated PVC pipe) or prefabricated geotextiles-wrapped direct burial panel-type drains.

7. The above recommendations may be modified or augmented by the soils engineer depending upon the conditions encountered during construction.

Site Retaining Walls

1. In site retaining wall areas, following site preparation, the site soils should be overexcavated to an elevation that is a minimum of 2 feet below bottom-of-footing elevation (not including any keyways). The overexcavation may be stepped as necessary to accommodate areas where footing depths vary.

2. The exposed surface should be lightly scarified, moisture conditioned to optimum moisture content, or just above, and recompacted.

3. Previously removed soil and acceptable imported soil (per the "Grading – General" section of this report) may be used as fill up to bottom of footing elevation within site retaining wall areas. Fill should be moisture conditioned and compacted in accordance with the recommendations presented in the "Grading, General."

4. The above recommendations may be modified or augmented by the soils engineer depending upon the conditions encountered during construction.

Pavement and Grading Areas

1. In pavement and other grading areas, following site preparation, the site soils should be scarified a minimum of 1 foot, moisture conditioned to optimum moisture content, or just above, and recompacted.

2. Previously removed soil and acceptable imported soil (per the "Grading – General" section of this report) may be used as fill to subgrade in pavement areas or to finish grade in grading areas. Fill should be moisture conditioned and compacted in accordance with the recommendations presented in the "Grading, General."

3. The above recommendations may be modified or augmented by the soils engineer depending upon the conditions encountered during construction.

Utility Trenches

1. Utility trenches adjacent to foundations should not be excavated within the zone of foundation influence, as shown in Typical Detail A in Appendix D.

2. Utilities that must pass beneath a foundation should be placed with properly compacted utility trench backfill and the foundation should be designed to span the trench.

3. A select, noncorrosive, granular, easily compacted imported material should be used as bedding and shading immediately around utilities. Granular imported soils or site soils may be used as backfill up to pad grade within building areas, up to subgrade in pavement areas, and to finish grade beyond building and pavement areas. In areas outside of building and pavement areas, the upper foot of backfill should consist of site soils.

4. In general, trench backfill should be compacted a minimum of 90 percent of maximum dry density. A minimum of 95 percent of maximum dry density should be achieved in the upper foot of subgrade in pavement areas, and in all aggregate base. Trench backfill should be moisture conditioned to optimum moisture content, or just above, prior to application of compactive effort. The backfill should be placed in level lifts not exceeding 6 inches in loose thickness and compacted to the minimums recommended above.

5. Compaction of trench backfill by jetting or flooding is not recommended except under extraordinary circumstances. However, to aid in *encasing* utility conduits, particularly corrugated drain pipes, and multiple, closely-spaced conduits in a single trench in the bedding and shading material, jetting or flooding may be useful. Flooding or jetting should only be attempted with extreme caution, and any jetting operation should be subject to review by the soils engineer.

6. To reduce the potential for subsurface water to enter the site via utility trench backfill, all utility trenches that slope more than 10 percent should be provided with sand-cement slurry or lean concrete plugs (seepage collars). The seepage collars should be provided,

where the utility lines enter each building area, and in the trenches at maximum 50-foot intervals. The plugs should be a minimum of 6 inches wide; they should extend a minimum of 1 foot below the bottom of the trench and should be cut a minimum of 1 foot into the sides of the trench. The top of the plug should be a minimum of 1 foot above the top of the utility line(s). If gravity flow to an appropriate discharge point can be provided, a gravel pocket drain should be constructed upgradient of each seepage collar. Each pocket drain should consist of a minimum of 1 cubic foot of free-draining gravel, wrapped in a geotextile filter fabric, per foot of trench width. A minimum 1-inch diameter rigid PVC pipe should extend from the gravel drain at a minimum 0.25 percent slope to an appropriate discharge point.

7. The recommendations of this section are minimums only, and may be superseded by the requirements of pipe manufacturers, utility companies or the governing jurisdiction.

Foundations

1. Continuous and spread (pad) footings bearing in firm recompacted soil may be used to support new structures or additions to the existing structures. Minimum footing depths of 12 inches below lowest adjacent grade for single story structures, and 18 inches below lowest adjacent grade for two-story loads, should be maintained. In addition, a minimum horizontal distance of 5 feet between the bottom of the footing and the face of any descending slope should be maintained; this may cause deepening of some footings.

2. Footings should be designed using maximum allowable bearing capacities of 2,000 psf dead load and 3,000 psf dead plus live loads. Using these criteria, maximum settlement and differential settlement are expected to be on the order of 3/4-inch and 1/2-inch in 25 feet, respectively.

3. As the existing structures on the site have probably experienced the majority of their potential settlement, differential settlement between the existing structures and any additions could approach 3/4-inch. Therefore, structural connections and architectural finishes between the existing structures and any additions should be designed to accommodate this potential for differential settlement.

4. All footings should be reinforced in accordance with the requirements of the architect/engineer. Minimum continuous footing and grade beam reinforcement should be two No. 4 rebar, one at the top and one at the bottom. Specification of reinforcement for spread footings is left to the architect/engineer.

5. Grade beams interconnecting spread footings are not considered necessary from a geotechnical standpoint, though they may be necessary for structural reasons. A grade beam meeting the same criteria as the continuous footings should be cast below any pedestrian or vehicle openings in any of the structures.

6. Allowable bearing capacities may be increased by one-third when transient loads such as wind or seismicity are included. Foundations may be designed using the following seismic parameters which are based, in part, on a latitude of 35.587 degrees north, and a longitude of 121.121 degrees west, as taken from the Google Earth web site.

Site Classification (CBC Table 1613.5.2)	D
Mapped Spectral Accelerations	
0.2 second period - S_S	1.595g
1.0 second period – S_1	0.655g
Design Response Spectral Acceleration	
0.2 second period - S_{DS}	1.063g
1.0 second period – S_{D1}	0.655g

7. Lateral capacity is based on the assumption that backfill adjacent to foundations is properly compacted. Please see "Retaining Walls" for information regarding lateral pressures.

8. Footing excavations should be observed by the soils engineer during excavation and prior to placement of reinforcing steel or concrete. Prior to concrete placement, the soil in the footing excavations should be lightly moistened and no cracks should be present.

Interior Slabs-on-Grade and Exterior Pedestrian Flatwork

1. Interior slabs-on-grade and exterior pedestrian flatwork should have a minimum thickness of 4 full inches. Reinforcement size, placement, and dowels should be as directed by the architect/engineer; minimum reinforcement should consist of No. 3 rebar placed at 24

inches on-center each way. At a minimum, slabs-on-grade and flatwork should be doweled to footings and grade beams with No. 3 dowels lapped to the slab rebar at 24-inches, center to center.

2. Due to the current use of impermeable floor coverings, water-soluble flooring adhesives, and the speed at which buildings are now constructed, moisture vapor transmission through slabs is a much more common problem than in past years. As it is assumed that moisture vapor transmitted from the underlying soil would be undesirable due to the proposed uses of the structures, the slabs should be protected from subsurface moisture vapor.

3. Where specified, vapor retarders should conform to ASTM Standard E 1745-11. This standard specifies properties for three performance classes: Class A, B and C. The appropriate class should be selected based on the sensitivity of floor coverings to moisture intrusion and the potential for damage to the vapor retarder during placement of slab reinforcement and concrete. Whichever retarder is used, proper installation is critical for optimum performance. All seams must be properly lapped, and all seams and utility penetrations properly sealed in accordance with the vapor retarder manufacturer's recommendations.

4. Several recent studies, including those of American Concrete Institute (ACI) Committees 302 and 306, have concluded that excess water above the vapor retarder increases the potential for moisture damage to floor coverings and could increase the potential for mold growth or other microbial contamination. The studies also concluded that it is preferable to eliminate the typical sand layer beneath the slab and place the slab concrete in direct contact with a Class A vapor retarder, particularly during wet weather construction. However, placing the concrete directly on the vapor retarder requires special attention to using the proper vapor retarder, a very low water-cement ratio in the concrete mix, and special finishing and curing techniques.

5. Probably the next most effective option would be the use of vapor-inhibiting admixtures in the slab concrete mix and/or application of a sealer to the surface of the slab. This would also require special concrete mixes and placement procedures, depending upon the recommendations of the admixture or sealer manufacturer.

6. Another option that may be a reasonable compromise between effectiveness and cost considerations is the use of a subslab vapor retarder protected by a sand layer. If a Class A vapor retarder is used, it may be placed directly on pad grade; 2 inches of clean sand should be placed atop the vapor retarder. If a less durable vapor retarder (Class B or C) is used, a minimum of 4 inches of clean sand should be provided on top of the prepared pad grade, and the retarder should be placed in the center of the clean sand layer. Clean sand is defined as a well or poorly graded sand (ASTM D 2487-10) of which less than 3 percent passes the No. 200 sieve. The site soils will not fulfill the criteria to be considered clean sand.

7. If sand is used between the vapor retarder and the slab, it should be moistened only as necessary to promote concrete curing; saturation of the sand should be avoided, as the excess moisture would be on top of the vapor retarder, potentially resulting in vapor transmission through the slab for months or years.

8. In conventional construction, it is common to use a minimum of 4 inches of sand beneath exterior pedestrian flatwork. As the site soils are considered to be nonexpansive, this typical practice would be considered acceptable on this site.

9. Exterior pedestrian flatwork should be constructed with frequent joints to allow articulation as the flatwork moves in response to seasonal soil moisture variations from the adjacent landscaped areas.

10. Where it is desired to maintain the elevation of exterior pedestrian flatwork at doorways and other areas, the flatwork should be doweled to the perimeter foundations or adjacent improvements, at a minimum, by No. 3 dowels lapped to the flatwork rebar at 24 inches on-center. In other areas, the flatwork may be doweled to the foundation or the flatwork may be allowed to "float free," at the discretion of the architect/engineer. Flatwork that is intended to float free should be separated from foundations by a felt joint or other means.

11. To reduce shrinkage cracks in concrete, the concrete aggregates should be of appropriate size and proportion, the water/cement ratio should be low, the concrete should be properly placed and finished, contraction joints should be installed, and the concrete should be properly cured. This is particularly applicable to slabs that will be cast directly upon a vapor retarder and those that will be protected from transmission of vapor by use

of admixtures or surface sealers. Concrete materials, placement, and curing specifications should be at the direction of the architect/engineer; AC 302.1R-04 is suggested as a resource for the architect/engineer in preparing such specifications.

Retaining Walls

1. Retaining walls should be founded in soils that have been moisture conditioned and recompacted, per the recommendations presented in the Grading section of this report. Retaining wall foundations should have a minimum depth (not including any keyway) of 18 inches below the lowest grade within 5 feet of the toe of the footing.

2. Retaining wall design should be based on the following parameters:

Active equivalent fluid pressure (site soils, or imported sand or crushed gravel)	35 pcf
At rest equivalent fluid pressure (site soils, or imported sand or crushed gravel)	50 pcf
Passive equivalent fluid pressure	350 pcf
Maximum allowable toe pressure	3,000 psf
Coefficient of sliding friction	0.40

3. No surcharges are taken into consideration in the values presented in Paragraph 2 of this section. The maximum toe pressure is an *allowable* value to which a factor of safety has been applied. No factors of safety, load factors or other factors have been applied to the remaining values.

4. Section 1803.5.12.1 of the 2010 CBC identifies the need for determining earthquake loads due to soils on buried structures and retaining walls. Such criteria are typically developed based upon research by Okabe (1926) and Mononobe and Matsuo (1929), as modified by Seed and Whitman (1970). This methodology has been the accepted geotechnical standard for development of seismic parameters for retaining wall design for over 35 years. In October, 2010, a professional paper was published in the Journal of Geotechnical and Environmental Engineering that has challenged this generally accepted view. The paper, entitled "Seismic Earth Pressures on Cantilever Retaining Structures" was authored by Linda Al Atik, Ph.D. and Nicholas Sitar, Ph.D. of the University of California at Berkeley. The paper was also presented, in association with several

prominent structural and geotechnical engineers, at the Structural Engineering Association of California (SEAOC) 2010 Convention. In their research, the paper's authors were able to model gravitational forces through the use of centrifuge modeling at U.C. Davis, an element that was lacking in previous studies. Among other findings, they concluded that the effects of seismic soil loading on retaining walls are negligible for peak ground acceleration of less than about 0.4g. The peak ground acceleration (PGA) at the site was found to be 0.26g (S_{DS}/2.5), as determined by Section 1803.5.12.2 of the CBC (CBSC, 2010). This value is below the threshold of 0.4g; in addition, retaining walls for this site are expected to have maximum heights of 5 feet. Therefore, we believe that the findings of Atik and Sitar apply to the project at this point and the need to design retaining walls for seismic *soil* loading is not warranted

5. The active and at-rest pressures presented Paragraph 2 of this section are applicable to a horizontal retained surface behind the wall. Walls having a retained surface that slopes upward from the wall should be designed for an additional equivalent fluid pressure of 1 pcf for the active case and 1.5 pcf for the at-rest case, for every two degrees of slope inclination.

6. The upper foot of backfill for any retaining wall should consist of native soil, the flatwork structural section, or the structural pavement section. It is assumed that wall heights will not exceed 5 feet.

7. Long-term settlement of properly crushed gravel retaining wall backfill should be assumed to be about 0.25 to 0.5 percent of the depth of the backfill. Long-term settlement of properly compacted site soil backfill should be assumed to be about twice the magnitude of imported sand or crushed gravel backfill. The magnitude of settlement of imported sand backfill will probably fall in between the values estimated for crushed gravel and site soils. Improvements that are constructed near the tops of retaining walls should be designed to accommodate the potential for settlement.

8. The active and at-rest pressures in Paragraph 2 of this section are for drained conditions. Consequently, all retaining walls should be drained with perforated pipe encased in a free-draining gravel blanket. The pipe should be placed perforations downward, and should discharge in a nonerosive manner away from foundations and other

improvements. The gravel blanket should have a width of approximately 1 foot and should extend upward to approximately 1 foot from the top of the wall backfill. The upper foot should be backfilled with native soil, except in areas where pavement or flatwork will abut the top of the wall. In such cases, the gravel should extend to the aggregate base, or other material, as appropriate. To reduce infiltration of the soil into the gravel, a permeable synthetic fabric conforming to the Standard Specifications, Section 88-1.02I Class 8 (Caltrans, 2010) should be placed between the two. Manufactured synthetic drains, such as Miradrain or Enkadrain are acceptable alternatives to the use of gravel, provided that they are installed in accordance with the recommendations of the manufacturer.

9. Where weep hole drainage can be properly discharged, the perforated pipe may be omitted in lieu of weep holes on maximum 4-foot centers. A filter fabric as described above should be placed between the weep holes and the drain gravel.

10. Walls facing areas where moisture transmission through the wall would be undesirable should be *thoroughly* waterproofed in accordance with the specifications of the architect/engineer.

11. The architect/engineer should bear in mind that retaining walls by their nature are flexible structures, and that surface treatments on walls often crack. Where walls are to be plastered or otherwise have a finish applied, the flexibility should be considered in determining the suitability of the surfacing material, spacing of horizontal and vertical control joints, etc. The flexibility should also be considered where a retaining wall will abut or be connected to a rigid structure, and where the geometry of the wall is such that its flexibility will vary along its length.

Drainage and Maintenance

1. Unpaved ground surfaces should be *graded during construction* and, per Section 1804.3 of the CBC (CBSC, 2010), *finish graded* to direct surface runoff away from foundations, slopes, and other improvements at a minimum 5 percent grade for a minimum distance of 10 feet. If this is not feasible due to the terrain, property lines, or other factors, swales with improved surfaces, area drains, or other drainage features should be provided to divert drainage away from these areas.

2. To reduce the potential for planter drainage gaining access to subslab areas, any raised planter boxes adjacent to foundations should be installed with drains and sealed sides and bottoms. Drains should also be provided for areas adjacent to any structure that would not otherwise freely drain.

3. The eaves of the structures should be provided with roof gutters. Runoff from roof gutters, downspouts, area drains, weep holes, etc., should discharge to an appropriate outlet in a nonerosive manner away from foundations and other improvements in accordance with the requirements of the governing agencies. Erosion protection should be placed at all discharge points unless the discharge is to a pavement surface.

4. Finished pavement surfaces should be sloped to freely drain away from foundations and other improvements, and toward appropriate drainage facilities. Water should not be allowed to stand or pond on or adjacent to pavement or other improvements as it could infiltrate into the aggregate base and/or subgrade, causing premature pavement deterioration.

5. To reduce migration of surface drainage into the subgrade, maintenance of pavement areas is critical. Any cracks that develop in the pavement should be promptly sealed.

6. The subfloor areas below any raised wood floors should be graded to a low point or a series of low points, and drainage inlets should be provided at the low points, to direct any accumulated water to an appropriate outlet. As an alternative to drainage inlets in the subfloor areas, intercept drains can be provided to collect and discharge accumulated water. The intercept drains can be either gravel drains (minimum of 12 inches wide and 12 inches deep, wrapped with geotextile filter fabric, drained with a rigid perforated PVC pipe) or prefabricated geotextiles-wrapped direct burial panel-type drains.

7. All exterior drains and all retaining wall drains should be cleaned and repaired as necessary to maintain free-flowing conditions.

8. Vegetation and erosion matting (if any) should be maintained and repaired or supplemented as needed. Irrigation systems should be maintained and adjusted so that the soils are not over-watered or allowed to desiccate.

9. The site soils are highly erodible. To reduce erosion damage it is essential that the surface soils, particularly those disturbed during construction be stabilized by vegetation or other means *during and following construction.* Care should be taken to establish and maintain vegetation. The landscaping and exterior flatwork should be installed to maintain the surface drainage recommended above.

Observation and Testing

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

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

3. Unless otherwise recommended, "moisture conditioning" refers to adjusting the soil moisture content to optimum moisture, or slightly above, prior to application of compaction effort or placement of concrete. If the soils are overly moist so that they become unstable, drying the soil to optimum moisture content, or just above, may be necessary. Placement of gravel layers or geotextiles may also be necessary to help stabilize soils if soils become unstable. The soils engineer should be contacted for recommendations for mitigating unstable soils.

4. At a minimum, the following should be provided by the soils engineer:
   - Review of final grading, foundation, and retaining wall plans and details
   - Professional observation during grading
   - Observation of footing excavations, including retaining wall footings
   - Oversight of special inspection during grading

5. Special inspection of any significant grading should be provided as per Section 1704.7 and Table 1704.7 of the CBC (CBSC, 2010); the soils special inspector should be under the direction of the soils engineer. In our opinion, most major grading operations should be subject to continuous special inspection, while other grading operations that are of a minor nature should be subject to periodic special inspection. Subject to approval by the

building official, special inspection requirements should be addressed by the soils engineer during the preconstruction meeting (see below) prior to the start of grading operations. At a minimum, the following items should be inspected and/or tested by the special inspector:

- Stripping and clearing of vegetation and debris
- Overexcavation, scarification, moisture conditioning, and recompaction
- Fill quality, placement, moisture conditioning, and compaction
- Foundation excavations
- Utility trench backfill
- Retaining wall drains and backfill
- Compaction and proofrolling of subgrade and aggregate base in pavement areas

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

7. Locations and frequency of compaction tests should be as per the recommendation of the soils engineer at the time of construction. The recommended test location and frequency may be subject to modification by the soils engineer, based upon soil and moisture conditions encountered, size and type of equipment used by the contractor, the general trend of the results of compaction tests, or other factors.

8. A preconstruction conference among a representative of the client, the soils engineer, the architect/engineer, the soils special inspector, and contractors is recommended to discuss planned construction procedures and quality control requirements. The soils engineer should be notified at least 48 hours prior to beginning grading operations.

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

8.0 CLOSURE

Our intent was to perform the investigation in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the locality of this project under similar conditions. No representation, warranty, or guarantee is either expressed or implied. This report is intended for the exclusive use by the client as discussed in the "Scope of Services" section.

This report is valid for conditions as they exist at this time for the type of project described herein. The conclusions and recommendations contained in this report could be rendered invalid, either in whole or in part, due to changes in building codes, regulations, standards of geotechnical or construction practice, changes in physical conditions, or the broadening of knowledge.

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

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

Thank you for this opportunity to have been of service. If you have any questions, please feel free to contact this office at your convenience.

End of Text.

BORING AND PERCOLATION TEST LOCATION MAP

CENTRALLY GROWN

7432 Exotic Garden Drive
Cambria, California

Base Map: Google Earth, 2012

LEGEND

6 Boring Location (Approx.)

D Percolation Test Location (Approx.)

NOT TO SCALE

Earth Systems Pacific

4378 Old Santa Fe Road
San Luis Obispo, CA 93401-8116

(805) 544-3276 • FAX (805) 544-1786
E-mail: esc@earthsys.com

April 26, 2012

RW

SL-16768-SA
CENTRALLY GROWN-042612borings.dwg

Earth Systems Pacific

Boring No. 5
PAGE 1 OF 1
JOB NO.: SL-16768-SA
DATE: 04/23/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile Drill, Model B-24
AUGER TYPE: 4" Solid Stem

CENTRALLY GROWN
7432 Exotic Gardens Way
Cambria, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0			3.0" well graded sand below pavers					
1	SP		POORLY GRADED SAND: orange brown, loose, moist (Residual Soil)	1.0–2.5	■	125.7	9.7	6 11 12
2			medium dense	2.0–5.0	○			
3								3
4				3.0–4.5	■	120.2	10.9	9 9
5								4
6			loose	5.0–6.5	■	117.3	11.3	7 8
7			SANDSTONE: yellow brown, soft, slightly moist, weathered, poorly cemented, clayey					
8								
9								
10				10.0–11.5	●			5 12 19
11			orange brown					
12			END OF BORING @ 11.5'					
13			No subsurface water encountered.					
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

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

Earth Systems Pacific

Boring No. 6
PAGE 1 OF 1
JOB NO.: SL-16768-SA
DATE: 04/23/12

LOGGED BY: R. Wagner
DRILL RIG: Mobile Drill, Model B-24
AUGER TYPE: 4" Solid Stem

CENTRALLY GROWN
7432 Exotic Gardens Way
Cambria, California

SOIL DESCRIPTION

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SP		POORLY GRADED SAND: dark brown, loose, moist, trace fine gravel (Topsoil)					
3			brown, gravels end					
5			SANDSTONE: orange brown, soft, slightly moist, weathered, poorly cemented					
10			clayey					
15			END OF BORING @ 15.0' No subsurface water encountered during drilling. No subsurface water found in boring during percolation testing 24 hours after drilling					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

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

APPENDIX B

Laboratory Test Results

Centrally Grown
7432 Exotic Gardens Dr., Cambria, CA

SL-16768-SA

BULK DENSITY TEST RESULTS

ASTM D 2937-10 (modified for ring liners)

May 4, 2012

BORING NO.	DEPTH feet	MOISTURE CONTENT, %	WET DENSITY, pcf	DRY DENSITY, pcf
1	3.0 - 3.5	12.9	134.8	119.5
2	2.5 - 2.75	6.2	111.2	104.6
3	1.0 - 1.25	11.2	125.5	112.9
3	3.5 - 3.75	10.4	121.8	110.4
4	1.5 - 1.75	8.3	112.8	104.2
4	3.0 - 3.25	7.0	113.0	105.6
5	2.0 - 2.5	9.7	137.9	125.7
5	4.0 - 4.5	10.9	133.3	120.2
5	6.0 - 6.5	11.3	130.6	117.3

Centrally Grown
7432 Exotic Gardens Dr., Cambria, CA

SL-16768-SA

MOISTURE-DENSITY COMPACTION TEST

ASTM D 1557-09 (Modified)

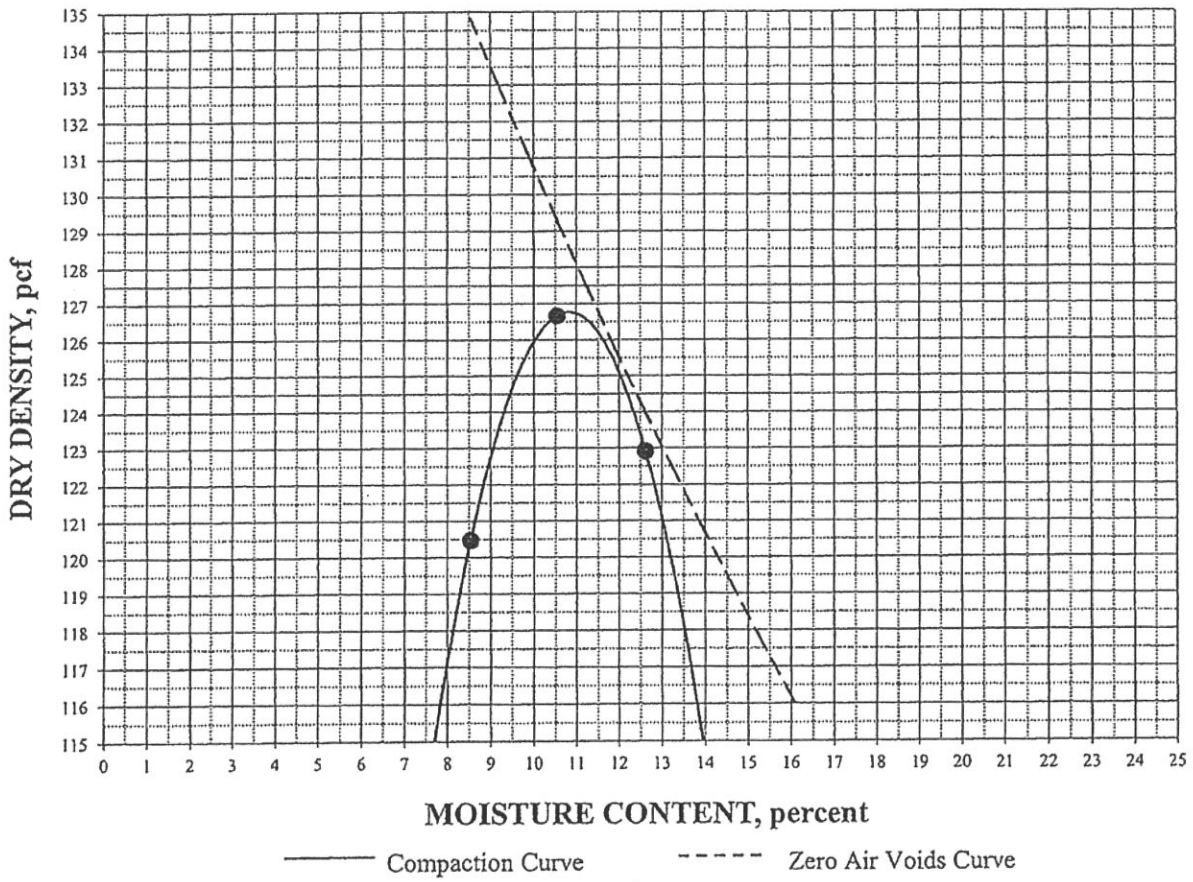
PROCEDURE USED: A
PREPARATION METHOD: Moist
RAMMER TYPE: Mechanical
SPECIFIC GRAVITY: 2.65 (assumed)

May 4, 2012
Boring #1 @ 1.0 - 3.5'
Orange Brown Poorly Graded Sand (SP)

SIEVE DATA:

Sieve Size	% Retained
3/4"	0
3/8"	0
#4	0

MAXIMUM DRY DENSITY: 126.8 pcf
OPTIMUM MOISTURE: 10.8%



APPENDIX C

Percolation Test Results

PERCOLATION TEST REPORT

PROJECT: Centrally Grown
Cambria, CA

DATE DRILLED: 4/23/2012

DRILLED BY: P. Frith

DATE TESTED: 4/24/2012

TESTED BY: P. Frith

DIAMETER: 4 inches

TEST LOCATION: A

DEPTH: 4.0 feet

TIME	INTERVAL, MINUTES	READING, FEET	INTERVAL, FEET	INITIAL RATE, MIN./INCH	CORR. FACTOR	FINAL RATE, MIN./INCH
9:15 AM	---	0.79	---	---	---	---
9:45 AM	30	0.98	0.19	13	2.35	31
10:15 AM	30	1.13	0.15	17	2.35	39
10:45 AM	30	1.27	0.14	18	2.35	42
11:15 AM	30	1.38	0.11	23	2.35	53
11:45 AM	30	1.48	0.10	25	2.35	59
12:15 PM	30	1.58	0.10	25	2.35	59
12:45 PM	30	1.69	0.11	23	2.35	53
1:15 PM	30	1.79	0.10	25	2.35	59
1:45 PM	30	1.90	0.11	23	2.35	53
2:15 PM	30	2.00	0.10	25	2.35	59
2:45 PM	30	2.10	0.10	25	2.35	59
3:15 PM	30	2.19	0.09	28	2.35	65

SL-16768-SA

1205-062.SER

PERCOLATION TEST REPORT

PROJECT: Centrally Grown
Cambria, CA

DATE DRILLED: 4/23/2012

DRILLED BY: P. Frith

DATE TESTED: 4/24/2012

TESTED BY: P. Frith

DIAMETER: 4 inches

TEST LOCATION: B

DEPTH: 5.0 feet

TIME	INTERVAL, MINUTES	READING, FEET	INTERVAL, FEET	INITIAL RATE, MIN./INCH	CORR. FACTOR	FINAL RATE, MIN./INCH
9:16 AM	---	0.35	---	---	---	---
9:46 AM	30	0.58	0.23	11	2.35	26
10:16 AM	30	0.81	0.23	11	2.35	26
10:46 AM	30	0.94	0.13	19	2.35	45
11:16 AM	30	1.08	0.14	18	2.35	42
11:46 AM	30	1.21	0.13	19	2.35	45
12:16 PM	30	1.31	0.10	25	2.35	59
12:46 PM	30	1.42	0.11	23	2.35	53
1:16 PM	30	1.50	0.08	31	2.35	73
1:46 PM	30	1.56	0.06	42	2.35	98
2:16 PM	30	1.63	0.07	36	2.35	84
2:46 PM	30	1.69	0.06	42	2.35	98
3:16 PM	30	1.75	0.06	42	2.35	98

SL-16768-SA

1205-062.SER

PERCOLATION TEST REPORT

PROJECT: Centrally Grown
Cambria, CA

DATE DRILLED: 4/23/2012

DRILLED BY: P. Frith

DATE TESTED: 4/24/2012

TESTED BY: P. Frith

DIAMETER: 4 inches

TEST LOCATION: C

DEPTH: 4.0 feet

TIME	INTERVAL, MINUTES	READING, FEET	INTERVAL, FEET	INITIAL RATE, MIN./INCH	CORR. FACTOR	FINAL RATE, MIN./INCH
9:17 AM	---	0.79	---	---	---	---
9:47 AM	30	1.04	0.25	10	2.35	24
10:17 AM	30	1.23	0.19	13	2.35	31
10:47 AM	30	1.40	0.17	15	2.35	35
11:17 AM	30	1.50	0.10	25	2.35	59
11:47 AM	30	1.60	0.10	25	2.35	59
12:17 PM	30	1.71	0.11	23	2.35	53
12:47 PM	30	1.81	0.10	25	2.35	59
1:17 PM	30	1.92	0.11	23	2.35	53
1:47 PM	30	2.02	0.10	25	2.35	59
2:17 PM	30	2.13	0.11	23	2.35	53
2:47 PM	30	2.23	0.10	25	2.35	59
3:17 PM	30	2.33	0.10	25	2.35	59

PERCOLATION TEST REPORT

PROJECT: Centrally Grown
Cambria, CA

DATE DRILLED: 4/23/2012

DRILLED BY: P. Frith

DATE TESTED: 4/24/2012

TESTED BY: P. Frith

DIAMETER: 4 inches

TEST LOCATION: D

DEPTH: 5.0 feet

TIME	INTERVAL, MINUTES	READING, FEET	INTERVAL, FEET	INITIAL RATE, MIN./INCH	CORR. FACTOR	FINAL RATE, MIN./INCH
9:18 AM	---	0.52	---	---	---	---
9:48 AM	30	0.73	0.21	12	2.35	28
10:18 AM	30	0.88	0.15	17	2.35	39
10:48 AM	30	1.08	0.20	13	2.35	29
11:18 AM	30	1.27	0.19	13	2.35	31
11:48 AM	30	1.42	0.15	17	2.35	39
12:18 PM	30	1.54	0.12	21	2.35	49
12:48 PM	30	1.67	0.13	19	2.35	45
1:18 PM	30	1.79	0.12	21	2.35	49
1:48 PM	30	1.94	0.15	17	2.35	39
2:18 PM	30	2.06	0.12	21	2.35	49
2:48 PM	30	2.17	0.11	23	2.35	53
3:18 PM	30	2.27	0.10	25	2.35	59

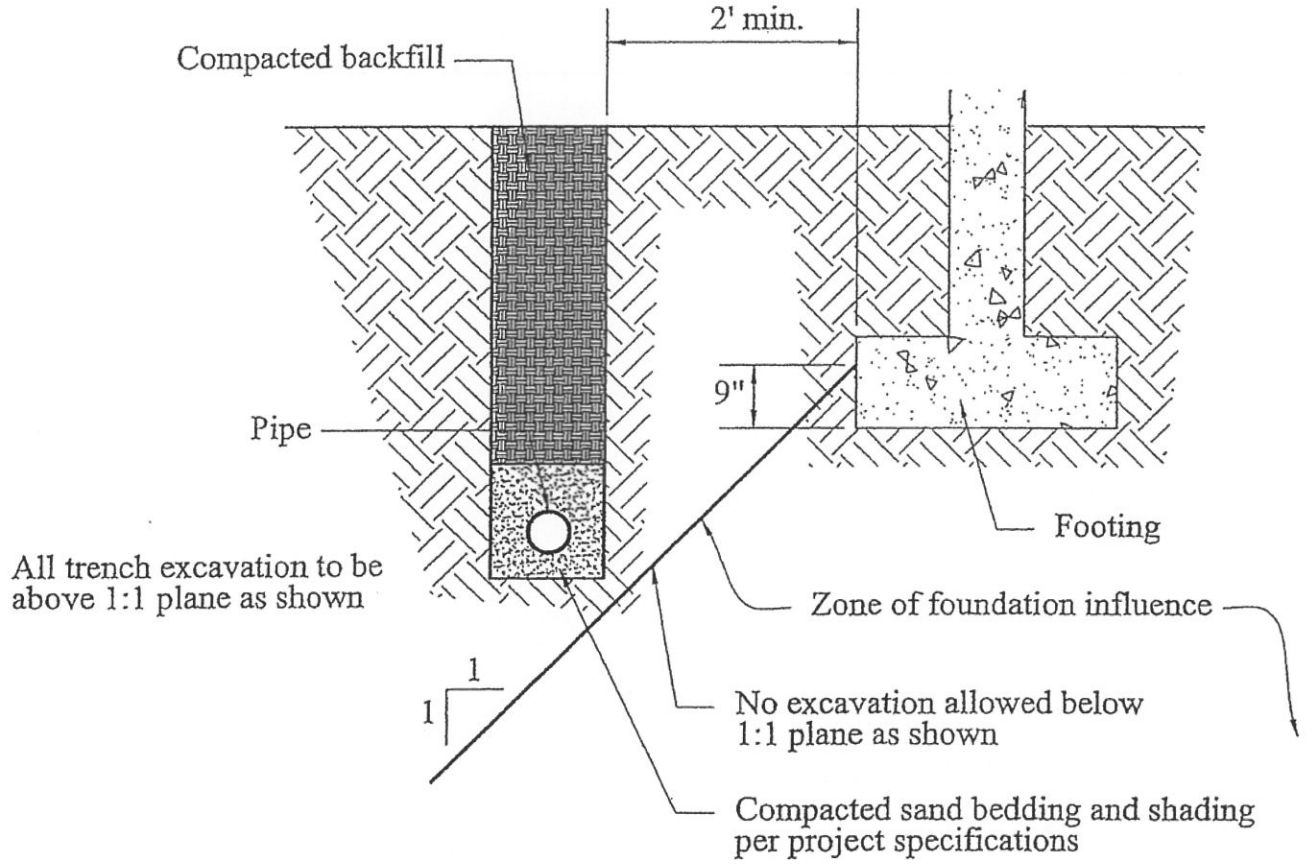
SL-16768-SA

1205-062.SER

APPENDIX D

Typical Detail A: Pipe Placed Parallel to Foundations

TYPICAL DETAIL A
PIPE PLACE PARALLEL TO FOOTING



SCHEMATIC ONLY
NOT TO SCALE

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