GOLD COAST GEOSERVICES, INC.
Engineering Geologic and Geotechnical Consultants

January 16, 2023
File No. GC22-113377

NSE BLUEWATER, LLC
1250 4th Street
Santa Monica, CA 90401

SUBJECT: Percolation Test Results and Onsite Wastewater Treatment System Design Report for Proposed Single Family Residence, APN 4457-002-053 and -055, 2919 Malibu Canyon Road, Malibu.

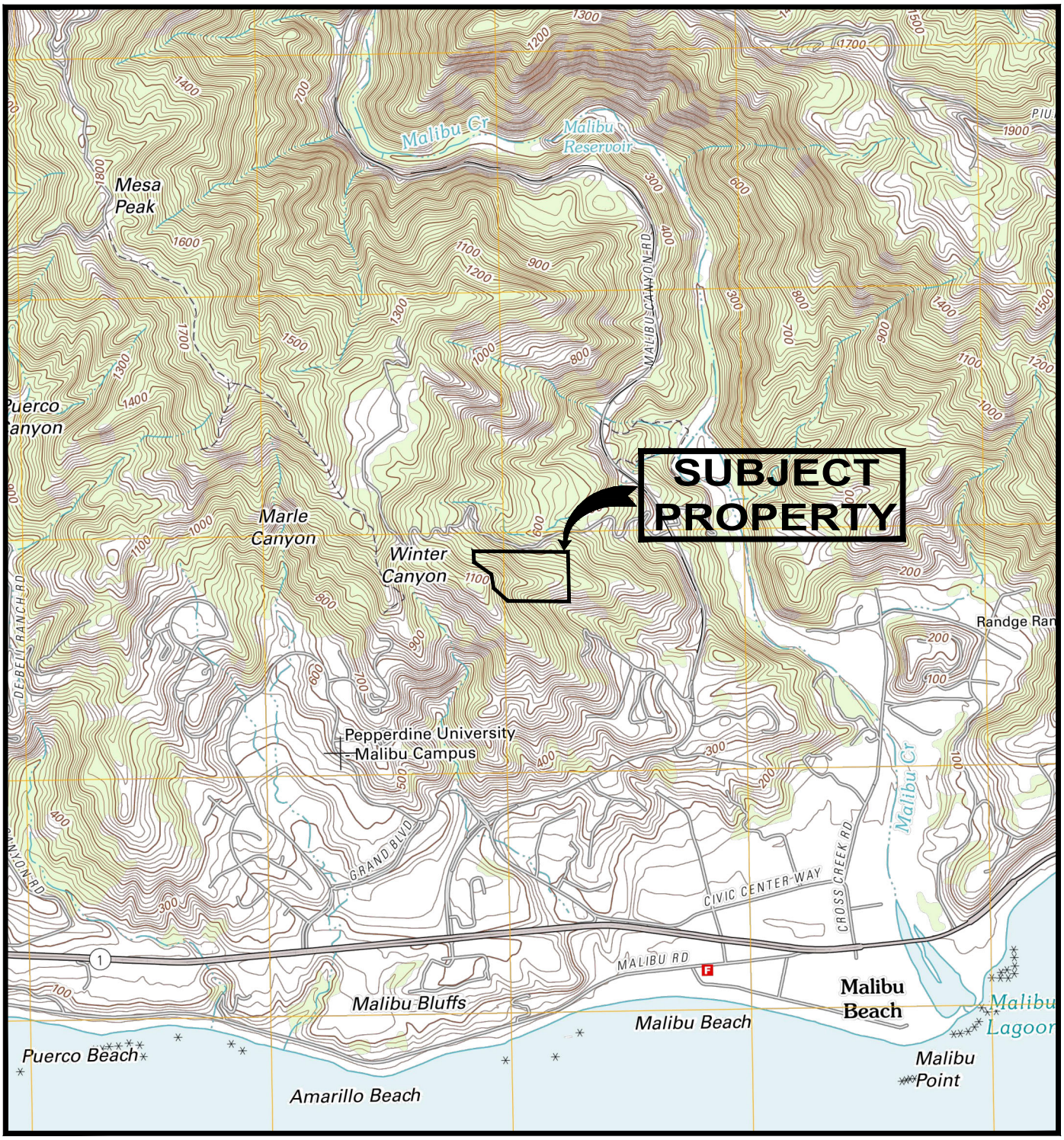
Gentlemen:

In accordance with your request, this report presents the results of percolation testing and design of an onsite wastewater disposal system (OWTS) for the proposed residence within APN 4457-002-053 at 2919 Malibu Canyon Road in Malibu. Based on building plans provided by the project architect, the proposed residence will have a total of 3 bedroom equivalents.

The proposed septic system layout is shown on the OWTS Plot Plan included with this report. The OWTS will utilize seepage pits and treatment tank. It is noted that the proposed seepage pits are to be constructed within a sewerage easement within APN 4457-002-055 (under same ownership).

SITE CONDITIONS

The subject parcel incorporates hillside terrain within the southerly side of Rancho Francisco, a 560-acre ranch located in the southwest Santa Monica Mountains (see Site Location Map, Figure 1). Rancho Francisco is located along the westerly side of Malibu Canyon, and consists of ridge and valley terrain, with a broad mesa ("Adamson Flat") at the northwest side of the ranch. An existing residence (2621 Malibu Canyon Road) is located at the north end of Francisco Ranch Road at the north side of Rancho Francisco, north of Adamson Flat.



BASE MAP: USGS 7.5' MALIBU BEACH QUADRANGLE

NORTH
1" = 2000'

GOLD COAST GEOSERVICES, INC.	**SITE LOCATION MAP** **2919 MALIBU CANYON ROAD, MALIBU**	**DATE: 01/17/2023** **FILE NO.: GC22-113377** **FIGURE 1**

The proposed access road and proposed building site are situated within a northeasterly facing hillside along the southerly side of Rancho Francisco. Slopes within the project area typically vary from 3h:1v to 2h:1v slope ratio along the access road alignment, with steeper slopes up to 1.5h:1v descending along the northerly and southerly sides of the proposed building site. The Geologic Cross-Section with this report shows representative profiles of the slopes in the area of the proposed seepage pits.

Drainage

Site drainage is by sheetflow runoff. The proposed residence and access driveway are not situated in areas subject to concentrated flows. No drainage courses occur in the area of the proposed hilltop building site.

WATER WELLS AND DRAINAGE COURSES

No water wells are located within 200 feet from the proposed OWTS. The proposed seepage pit and proposed septic tank are setback more than 150 feet from the drainage courses along the west and north sides of the site.

FIELD INVESTIGATION

On November 29, 2022, borings B-17 to B-20 were drilled at the proposed seepage pit locations shown on the OWTS Plot Plan with this report. The borings were downhole logged by the undersigned engineering geologist, and descriptive logs of the borings are attached with this report (see "Sub-Surface Data Boring Logs"). All borings encountered sandstone bedrock assigned to the Vaqueros Formation. All borings including Boring B-1 (drilled to a depth of 10 feet or more below the proposed seepage pit depth) were found to be free of groundwater at the time of drilling and after a time period of more than 5 days of monitoring for potential groundwater after drilling. It is our determination that the potential high groundwater level is more than 10 feet below the planned bottom elevations of the proposed seepage pits. The proposed seepage pit locations are considered to be suitable from an engineering geologic standpoint.

PERCOLATION TESTING

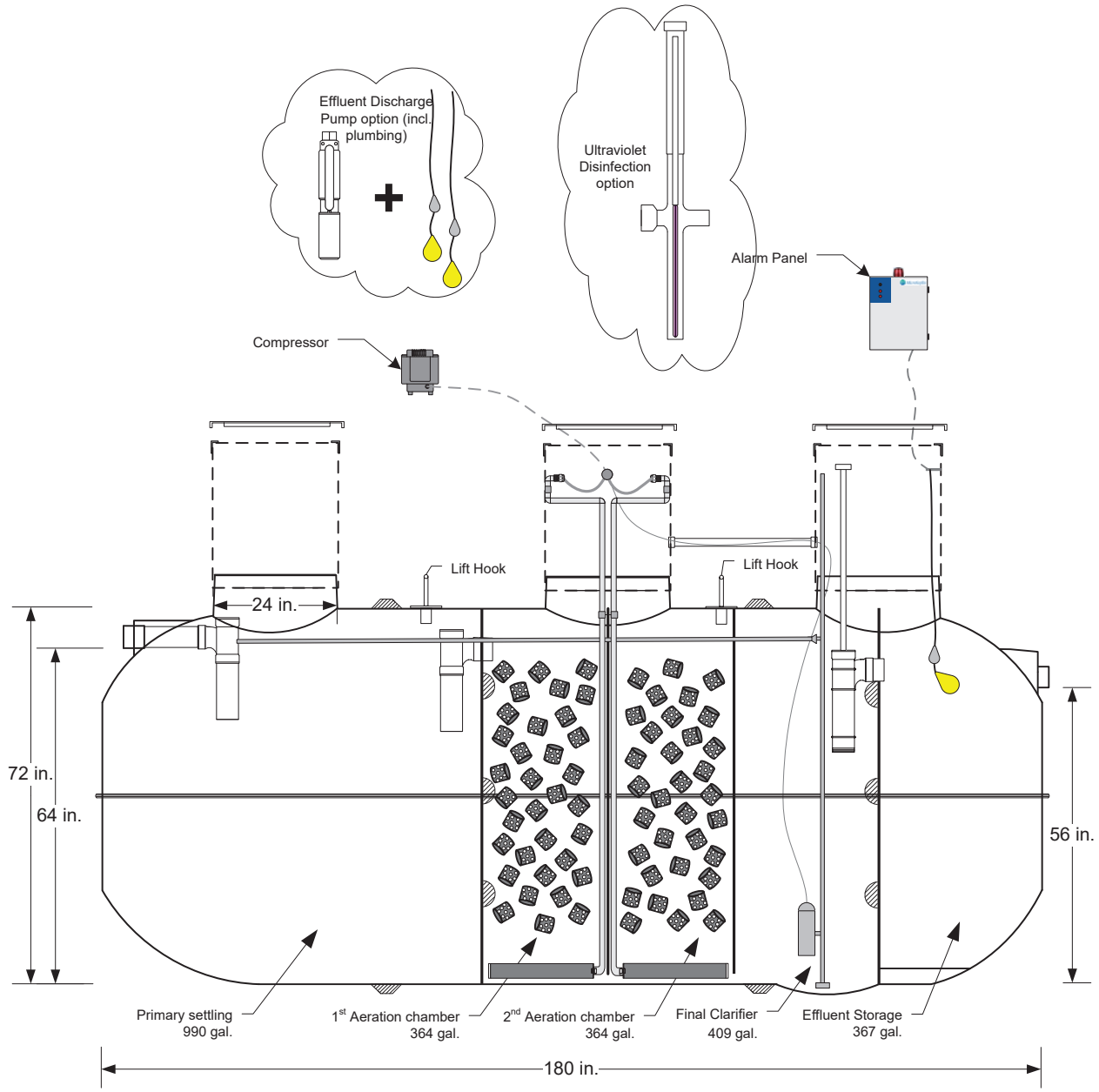
Percolation testing was performed in accordance with the "Meter Test Method". Worksheets showing the percolation test field data are included with this report. The percolation test results are summarized in the following table:

Boring Number	Diameter (Feet)	Effective Depth (Feet)	Volume Absorbed (Gallons)	Percolation Rate (Gal./Sq.Ft./Day)
B-17	2	25	1,483	9.4
B-18	2	25	1,590	10.1
B-19	2	25	1,643	10.5
B-20	2	25	1,636	10.4

OWTS DESIGN

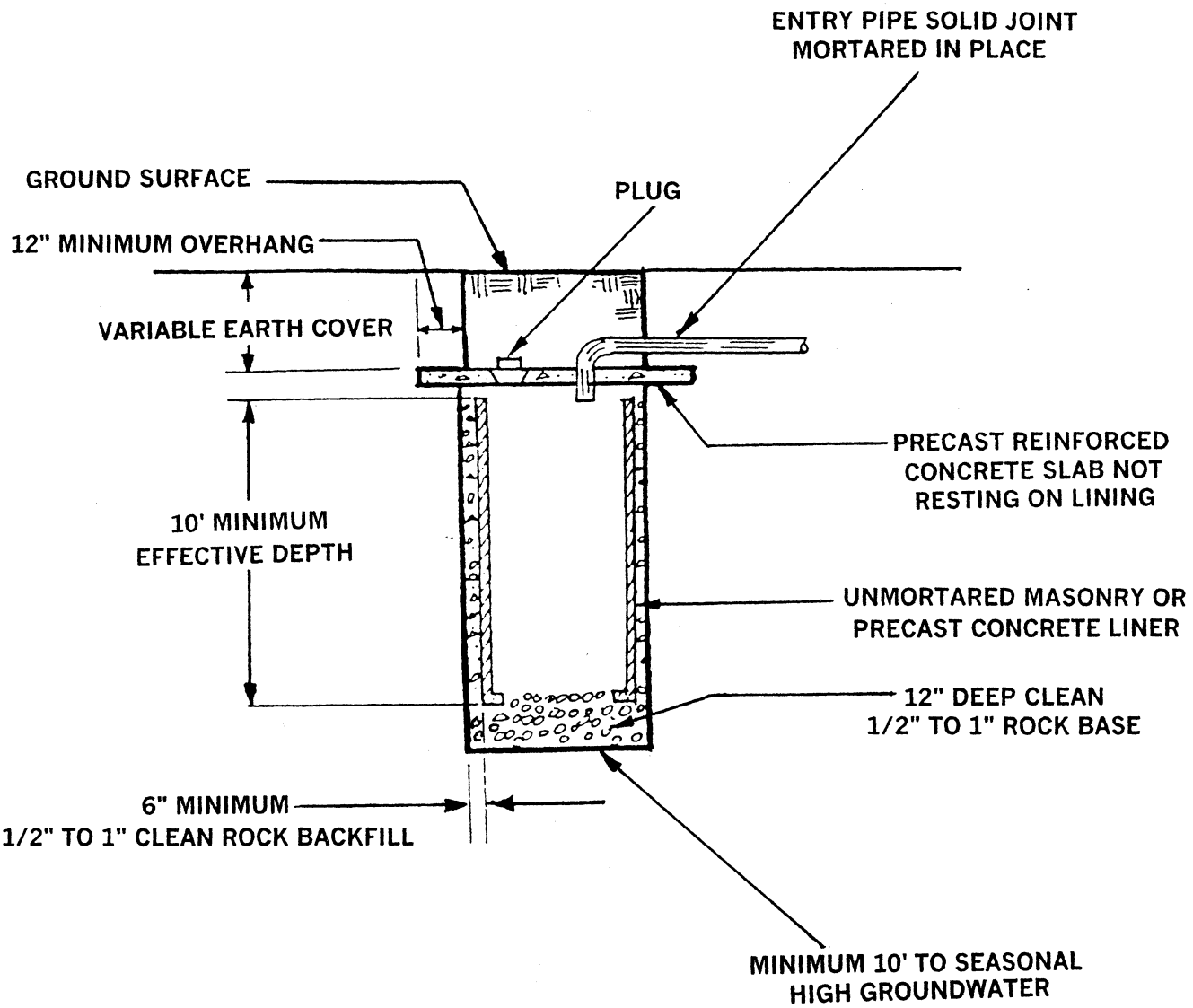
In accordance with current Los Angeles County Department of Health Services (DHS) requirements, a "secondary" treatment system with "de-nitrification" is required, due to the fact that the percolation rate exceeds 5.12 gallons per square foot per day. Per County of Los Angeles requirements, the "secondary" effluent treatment tank requires a minimum total daily output capacity of 600 gallons, and a minimum total capacity of 1,000 gallons. MicroSepTec Model No. ES-6 treatment tank, or equivalent acceptable Los Angeles County approved treatment tank, may be used (see Figure 2). It is recommended that the telemetry option be included, so that the treatment tank can be monitored remotely.

Treated effluent in the treatment tank will then be discharged into two 4-foot diameter, 30-foot deep seepage pits. The seepage pits are designed with a 5-foot capping depth (to maintain a setback of at least 15 feet from the seal to the closest descending slope surface) and 25 feet effective depth. The primary seepage pits are proposed at the location of percolation test borings B-17 and B-18. A typical seepage pit detail is included herewith as Figure 3.



ES6 Overview

FIGURE 2



NOT TO SCALE

Gold Coast GeoServices, Inc.	**TYPICAL SEEPAGE PIT DETAIL** LOS ANGELES COUNTY	**DATE: 01/2023** **FIGURE 3**

The expansion areas for "future" seepage pits are proposed at borings B-19 and B-20, as shown on the OWTS Plot Plan with this report. The future or expansion area seepage pit location may be used in the event that the primary seepage pit becomes inadequate to perform the intended function over time.

COVENANT AND AGREEMENT

As required by the Los Angeles County Uniform Plumbing Code, all septic systems that include a tertiary treatment system require the establishment of a covenant and agreement between the property owner and the County of Los Angeles. The covenant and agreement must include the following:

a. The proposed septic system will at all times comply with all current and future ordinances addressing Alternative/Enhanced Private Sewage Treatment/Disposal Systems.

b. The proposed septic system will at all times be properly maintained, in good and operable condition.

c. The OWNER shall at all times maintain in force a maintenance agreement with an approved servicing company.

d. The OWNER shall provide, upon request, all maintenance and monitoring information to the County of Los Angeles, Division of Environmental Health.

e. The OWNER shall grant easement rights to inspect the Alternative/Enhanced Private Sewage Treatment/Disposal Systems to insure compliance with the covenant and agreement.

f. The OWNER shall promise, covenant, and agree with the County of Los Angeles that any subsequent owner of the property and the appurtenant easement, shall be fully and completely informed of the existence of the Alternative/Enhanced Private Sewage Treatment/Disposal System, and the obligation that said Alternative/Enhanced Private Sewage Treatment/Disposal System shall be properly repaired and maintained at all times per the covenant and agreement.

MAINTENANCE REQUIREMENTS

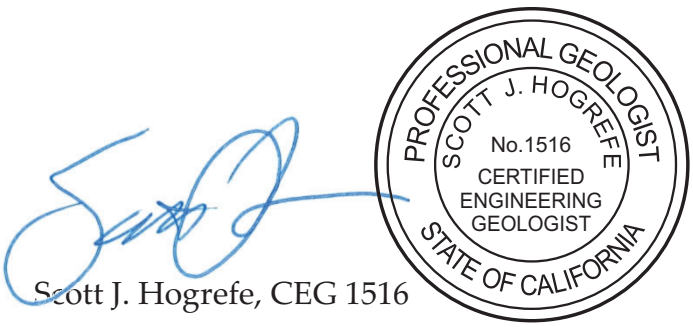
Periodic maintenance of the septic system is necessary in order to maintain a trouble-free system. Follow the recommendations of the manufacturer, supplier, and installer of the system, as well as the recommendations of your maintenance service provider.

REMARKS

It is the responsibility of the owner or contractor to notify this office, and County of Los Angeles Environmental Health Department personnel, for any required observations and approval of the OWTS construction.

The data and conditions presented herein are generally considered valid for one year from the date of this report. Reports and system designs older than one year shall be updated to assure compliance with current regulations.

Respectfully submitted,
GOLD COAST GEOSERVICES, INC.



Scott J. Hogrefe, CEG 1516

NSE BLUEWATER, LLC **FILE NO. GC22-113377**
2919 MALIBU CANYON ROAD

ONSITE WASTEWATER TREATMENT SYSTEM DESIGN

1. Planned usage: Single Family Residence
   3 Bedroom Equivalents

2. Required septic tank capacity: 1,000 gallons

3. Required absorption capacity for seepage pits:
   Septic Tank Capacity x 5 = Absorption Capacity
   1,000 gallons x 5 = 5,000 gal/day

4. Treatment tank sizing:
   3 bedrooms: 1(300) + 2(150) = 600 gallons/day
   Recommended Treatment Tank: **MicroSepTec ES-6**

5. Groundwater check: Boring B-17 was drilled to 40' and no groundwater was encountered. Boring B-17 was monitored for at least 5 days and was found to be dry after 5 days. The proposed seepage pits will maintain a setback of 10 feet from potential high groundwater.

6. **PRIMARY SEEPAGE PITS:**
   Two 4-foot diameter seepage pits at B-17 and B-18.

Boring No.	Volume Percolated (GAL)	Percolation Test Pit Depth (FT)	Proposed Capping Depth (FT)	Proposed Effective Depth (FT)	Proposed Seepage Pit Depth (FT)	Absorption Rate for 4' diameter Seepage Pit (GPD)
B-17	1,483	30	5	25	30	2,966
B-18	1,590	30	5	25	30	3,180
					TOTAL:	**6,146**

FUTURE (EXPANSION) SEEPAGE PITS:

Two 4-foot diameter seepage pits at B-19 and B-20.

Boring No.	Volume Percolated (GAL)	Percolation Test Pit Depth (FT)	Proposed Capping Depth (FT)	Proposed Effective Depth (FT)	Proposed Seepage Pit Depth (FT)	Absorption Rate for 4' diameter Seepage Pit (GPD)
B-19	1,643	30	5	25	30	3,286
B-20	1,636	30	5	25	30	3,272
					TOTAL:	**6,558**

7. It is the responsibility of the OWTS installation contractor to verify setbacks during construction.

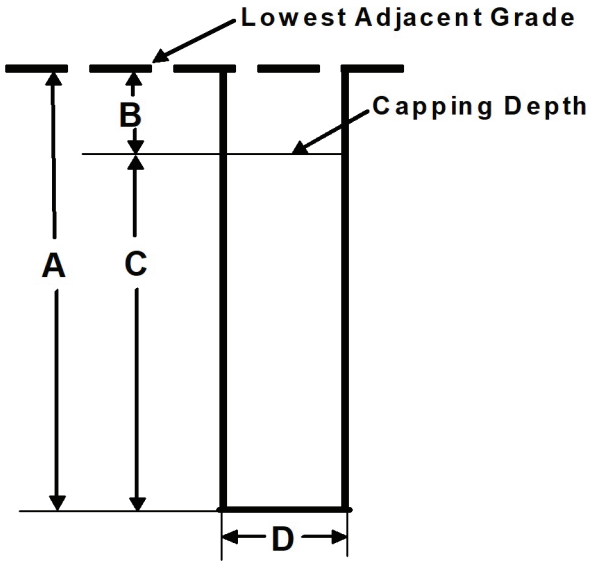
NSE BLUEWATER, LLC **FILE NO. GC22-113377**
2919 MALIBU CANYON ROAD

GOLD COAST GEOSERVICES, INC.
PERCOLATION TEST FIELD DATA SUMMARY
BORING B-17

Date Drilled: 11/29/2022
Drilled Depth: 40' (backfilled to 30')

Depth of Proposed Seepage Pit (A): 30'
Seepage Pit Capping Depth (B): 5'
Effective Pit Depth (C): 25'
Test Pit Diameter (D): 2'

Percolation Test Performed by: GH



Total Gallons Used in Percolation Test: 1,530 gallons
Total Gallons Absorbed by Boring B-17: 1,530 - (2 x 23.5) = **1,483 gallons**

Projected Absorption Rates Based Upon Percolation Test Results at B-17

Seepage Pit Diameter (ft)	Seepage Pit Sizing Calculation	Projected Absorption Rate (gal./day)
4	2 x 1,483	2,966
5	2.5 x 1,483	3,708
6	3 x 1,483	4,449

NSE BLUEWATER, LLC **FILE NO. GC22-113377**
2919 MALIBU CANYON ROAD

PERCOLATION TEST RESULTS FOR B-17

PRE-SATURATION:

Date: 12/5/2022

Time: 8:00

Pit Dry at 30' from lowest adjacent grade

Pit Filled to 5' from lowest adjacent grade

PERCOLATION TEST:

Date: 12/6/2022

Pit Wet at 25' (zero level is 20' b.c.)

Initial Meter Reading: 5570 gallons

Time/Depth	Meter Reading	Gallons	Time/Depth	Meter Reading	Gallons
@ 7:35 pit wet @ 25' filled to 5' (cap)	5570 6120	550	@ 1:40 drop to 1.5' b.c. refilled to cap	0880 0980	100
@ 8:40 drop to 4' b.c. refilled to cap	7890 8080	190	@ 2:40 drop to 1.5' b.c. refilled to cap	1320 1410	90
@ 9:40 drop to 2.5' b.c. refilled to cap	8690 8830	140	@ 3:40 drop to 1.5' b.c. refilled to cap	1740 1830	90
@10:40 drop to 2' b.c. refilled to cap	9330 9450	120	**TOTAL GALLONS USED:**		**1,530**
@ 11:40 drop to 2' b.c. refilled to cap	9880 0010	130	water remaining in test pit 24 hrs after start of 8 hr test period		2'
@ 12:40 drop to 2' b.c. refilled to cap	0380 0500	120	**TOTAL GALLONS ABSORBED:**		**1,483**

b.c. = distance below capping depth

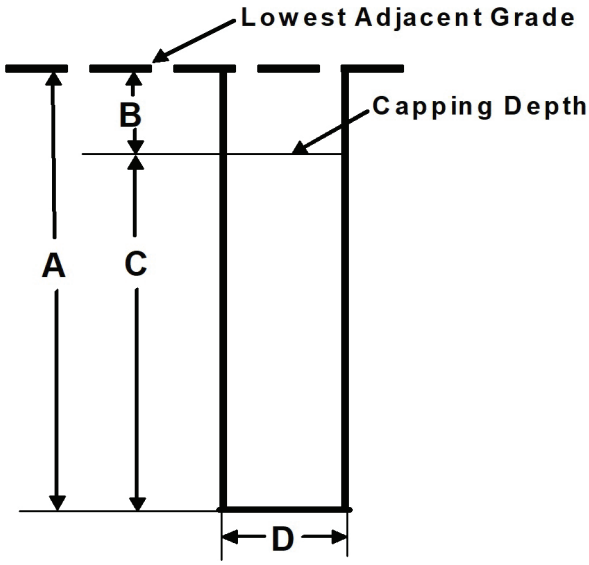
NSE BLUEWATER, LLC **FILE NO. GC22-113377**
2919 MALIBU CANYON ROAD

GOLD COAST GEOSERVICES, INC.
PERCOLATION TEST FIELD DATA SUMMARY
BORING B-18

Date Drilled: 11/29/2022
Drilled Depth: 30'

Depth of Proposed Seepage Pit (A): 30'
Seepage Pit Capping Depth (B): 5'
Effective Pit Depth (C): 25'
Test Pit Diameter (D): 2'

Percolation Test Performed by: GH



Total Gallons Used in Percolation Test: 1,590 gallons
Total Gallons Absorbed by Boring B-18: **1,590 gallons**

Projected Absorption Rates Based Upon Percolation Test Results at B-18

Seepage Pit Diameter (ft)	Seepage Pit Sizing Calculation	Projected Absorption Rate (gal./day)
4	2 x 1,590	3,180
5	2.5 x 1,590	3,975
6	3 x 1,590	4,770

NSE BLUEWATER, LLC **FILE NO. GC22-113377**
2919 MALIBU CANYON ROAD

PERCOLATION TEST RESULTS FOR B-18

PRE-SATURATION:

Date: 12/5/2022

Time: 8:22

Pit Dry at 30' from lowest adjacent grade

Pit Filled to 5' from lowest adjacent grade

PERCOLATION TEST:

Date: 12/6/2022

Pit Wet at 22' (zero level is 17' b.c)

Initial Meter Reading: 6120 gallons

Time/Depth	Meter Reading	Gallons	Time/Depth	Meter Reading	Gallons
@ 7:45 pit wet @ 22'	6120	570	@ 1:45 drop to 2' b.c.	0980	110
filled to 5' (cap)	6690		refilled to cap	1090	
@ 8:45 drop to 4.5' b.c.	8080	210	@ 2:45 drop to 1.5' b.c.	1410	100
refilled to cap	8290		refilled to cap	1510	
@ 9:45 drop to 3' b.c.	8830	170	@ 3:45 drop to 1.5' b.c.	1830	90
refilled to cap	9000		refilled to cap	1920	
@ 10:45 drop to 2' b.c.	9450	120	**TOTAL GALLONS USED:**		**1,590**
refilled to cap	9570				
@ 11:45 drop to 2' b.c.	0010	110	water remaining in test pit 24		0
refilled to cap	0120		hrs after start of 8 hr test period		
@ 12:45 drop to 2' b.c.	0500	120	**TOTAL GALLONS**		**1,590**
refilled to cap	0620		**ABSORBED:**		

b.c. = distance below capping depth

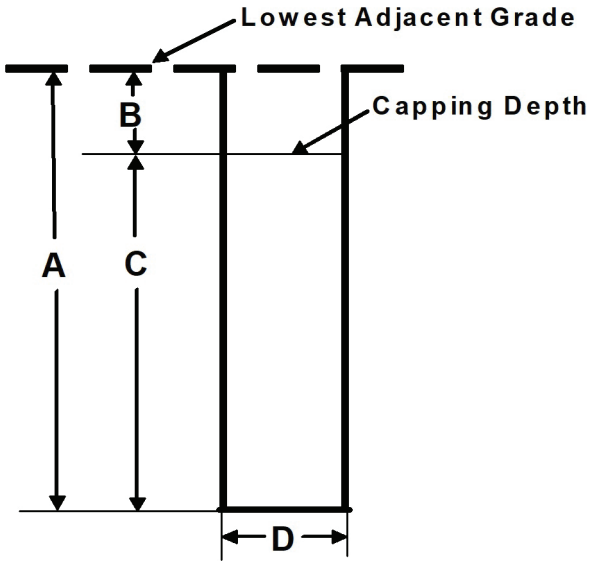
NSE BLUEWATER, LLC **FILE NO. GC22-113377**
2919 MALIBU CANYON ROAD

GOLD COAST GEOSERVICES, INC.
PERCOLATION TEST FIELD DATA SUMMARY
BORING B-19

Date Drilled: 11/29/2022
Drilled Depth: 30'

Depth of Proposed Seepage Pit (A): 30'
Seepage Pit Capping Depth (B): 5'
Effective Pit Depth (C): 25'
Test Pit Diameter (D): 2'

Percolation Test Performed by: GH



Total Gallons Used in Percolation Test: 1,690 gallons
Total Gallons Absorbed by Boring B-19: 1,690 - (2 x 23.5) = **1,643 gallons**

Projected Absorption Rates Based Upon Percolation Test Results at B-19

Seepage Pit Diameter (ft)	Seepage Pit Sizing Calculation	Projected Absorption Rate (gal./day)
4	2 x 1,643	3,286
5	2.5 x 1,643	4,108
6	3 x 1,643	4,929

NSE BLUEWATER, LLC **FILE NO. GC22-113377**
2919 MALIBU CANYON ROAD

PERCOLATION TEST RESULTS FOR B-19

PRE-SATURATION:

Date: 12/5/2022

Time: 9:00

Pit Dry at 30' from lowest adjacent grade

Pit Filled to 5' from lowest adjacent grade

PERCOLATION TEST:

Date: 12/6/2022

Pit Wet at 28' (zero level is 23' b.c)

Initial Meter Reading: 6690 gallons

Time/Depth	Meter Reading	Gallons	Time/Depth	Meter Reading	Gallons
@ 7:55 pit wet @ 28' filled to 5' (cap)	6690 7300	610	@ 1:55 drop to 2' b.c. refilled to cap	1090 1200	110
@ 8:55 drop to 5' b.c. refilled to cap	8290 8510	220	@ 2:55 drop to 2' b.c. refilled to cap	1510 1620	110
@ 9:55 drop to 3.5' b.c. refilled to cap	9000 9160	160	@ 3:55 drop to 1.5' b.c. refilled to cap	1920 2020	100
@ 10:55 drop to 3' b.c. refilled to cap	9570 9710	140	**TOTAL GALLONS USED:**		**1,690**
@ 11:55 drop to 2' b.c. refilled to cap	0120 0240	120	water remaining in test pit 24 hrs after start of 8 hr test period		2'
@ 12:55 drop to 2' b.c. refilled to cap	0620 0740	120	**TOTAL GALLONS ABSORBED:**		**1,643**

b.c. = distance below capping depth

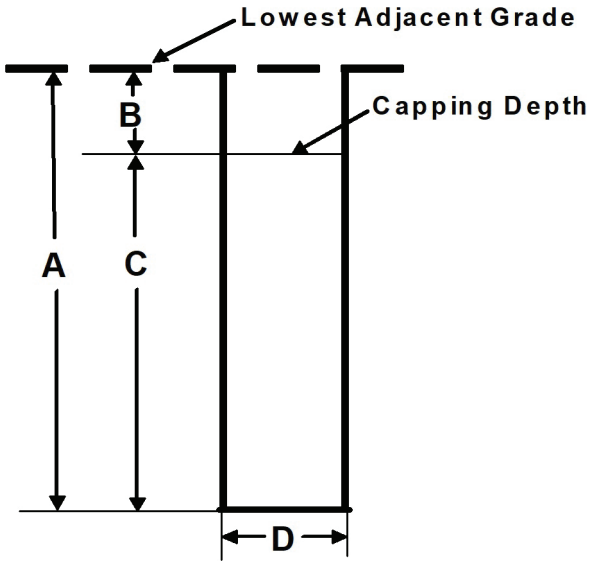
NSE BLUEWATER, LLC **FILE NO. GC22-113377**
2919 MALIBU CANYON ROAD

GOLD COAST GEOSERVICES, INC.
PERCOLATION TEST FIELD DATA SUMMARY
BORING B-20

Date Drilled: 11/29/2022
Drilled Depth: 30'

Depth of Proposed Seepage Pit (A): 30'
Seepage Pit Capping Depth (B): 5'
Effective Pit Depth (C): 25'
Test Pit Diameter (D): 2'

Percolation Test Performed by: GH



Total Gallons Used in Percolation Test: 1,730 gallons
Total Gallons Absorbed by Boring B-20: 1,730 - (4 x 23.5) = **1,636 gallons**

Projected Absorption Rates Based Upon Percolation Test Results at B-20

Seepage Pit Diameter (ft)	Seepage Pit Sizing Calculation	Projected Absorption Rate (gal./day)
4	2 x 1,636	3,272
5	2.5 x 1,636	4,090
6	3 x 1,636	4,908

NSE BLUEWATER, LLC **FILE NO. GC22-113377**
2919 MALIBU CANYON ROAD

PERCOLATION TEST RESULTS FOR B-20

PRE-SATURATION:

Date: 12/5/2022

Time: 9:15

Pit Dry at 30' from lowest adjacent grade

Pit Filled to 5' from lowest adjacent grade

PERCOLATION TEST:

Date: 12/6/2022

Pit Wet at 27' (zero level is 22' b.c)

Initial Meter Reading: 7300 gallons

Time/Depth	Meter Reading	Gallons	Time/Depth	Meter Reading	Gallons
@ 8:05 pit wet @ 27'	7300	590	@ 2:05 drop to 2' b.c.	1200	120
filled to 5' (cap)	7890		refilled to cap	1320	
@ 9:05 drop to 4' b.c.	8510	180	@ 3:05 drop to 2' b.c.	1620	120
refilled to cap	8690		refilled to cap	1740	
@ 10:05 drop to 4' b.c.	9160	170	@ 4:05 drop to 1.5' b.c.	2020	100
refilled to cap	9330		refilled to cap	2120	
@ 11:05 drop to 4' b.c.	9710	170	**TOTAL GALLONS USED:**		**1,730**
refilled to cap	9880				
@ 12:05 drop to 3' b.c.	0240	140	water remaining in test pit 24		4'
refilled to cap	0380		hrs after start of 8 hr test period		
@ 1:05 drop to 3' b.c.	0740	140	**TOTAL GALLONS**		**1,636**
refilled to cap	0880		**ABSORBED:**		

b.c. = distance below capping depth

APPENDIX

OWTS PLOT PLANS, GEOLOGIC CROSS-SECTION, AND BORING LOGS

APN
4457-002-053

APN
4457-002-055

PROPOSED TREATMENT TANK
(MicroSepTec ENVIROSERVER ES-6)

SEWER LINE

CLEANOUT

PROPOSED
SEWER EASEMENT

B-17 B-18 B-20

B-19

D. BOX

TWO FUTURE SEEPAGE PITS
4' DIAMETER, 30' DEEP, SEAL AT 5'
(25' EFFECTIVE DEPTH)

TWO PRIMARY SEEPAGE PITS
4' DIAMETER, 30' DEEP, SEAL AT 5'
(25' EFFECTIVE DEPTH)

PROPOSED
RESIDENCE

A

A'

24" SD

LIMITS OF GRADING, TYP.

SQ. FT. BUILDING SITE
TH PROPOSED ACCESS
ENTS SHOWN HEREON

APN
4457-002-055

LEGEND

B-17 APPROXIMATE LOCATION OF EXPLORATORY BORING (2022)

A A LINE OF GEOLOGIC CROSS-SECTION

N

SCALE: 1" = 20'

0 20 40 60

REGISTERED PROFESSIONAL ENGINEER
RICHARD P. WEBER
No. 55219
CIVIL
STATE OF CALIFORNIA

Whitson ENGINEERS

Civil Engineering
Land Surveying
5200 West Century Blvd.
Suite 430
Los Angeles, California
310.445.3205
whitsonengineers.com

PLATE 1.1	**GOLD COAST GEOSERVICES, INC.**		
	OWTS PLOT PLAN **2919 MALIBU CANYON ROAD, MALIBU**		
DATE: 12-28-2022	SIZE: D	CLIENT: NSE BLUEWATER, LLC	REV:
FILE NO: GC22-113377	SCALE: 1" = 20'	DRAWN BY: GH	APPROVED BY: SJH

5251 VERDUGO WAY, SUITE J * CAMARILLO, CA 93012 * (805) 484-5070

FRANCISCO RANCH ROAD

PROPOSED 20' ACCESS IMPROVEMENTS.

APN 4457-002-044

APN 4457-002-045

APN 4457-002-045

APN 4457-002-055

APN 4457-002-054

APN 4457-002-053

APN 4457-002-055

APN 4457-002-053

APN 4457-002-055

APN 4457-002-055

APN 4457-002-054

APN 4457-002-051

PROPOSED 1,600± SQ. FT. BUILDING SITE ASSOCIATED WITH PROPOSED ACCESS IMPROVEMENTS SHOWN HEREON.

PROPOSED RESIDENCE

PROPOSED TREATMENT TANK (MicroSepTec ENVIROSERVER ES-6)

SEWER LINE

CLEANOUT

PROPOSED SEWER EASEMENT

B-17 B-18 B-20 B-19

I.D. BOX

TWO FUTURE SEEPAGE PITS 4' DIAMETER, 30' DEEP, SEAL AT 5' (25' EFFECTIVE DEPTH)

TWO PRIMARY SEEPAGE PITS 4' DIAMETER, 30' DEEP, SEAL AT 5' (25' EFFECTIVE DEPTH)

A A

LIMITS OF GRADING, TYP.

PROPERTY LINE, TYP.

LEGEND

B-17 APPROXIMATE LOCATION OF EXPLORATORY BORING (2022)

A A LINE OF GEOLOGIC CROSS-SECTION

N

SCALE: 1" = 50'

0 50 100 180

REGISTERED PROFESSIONAL ENGINEER RICHARD P. WEBER No. 55219 CIVIL STATE OF CALIFORNIA

Whitson ENGINEERS

Civil Engineering
Land Surveying
5200 West Century Blvd.
Suite 430
Los Angeles, California
310.645.3205
whitsonengineers.com

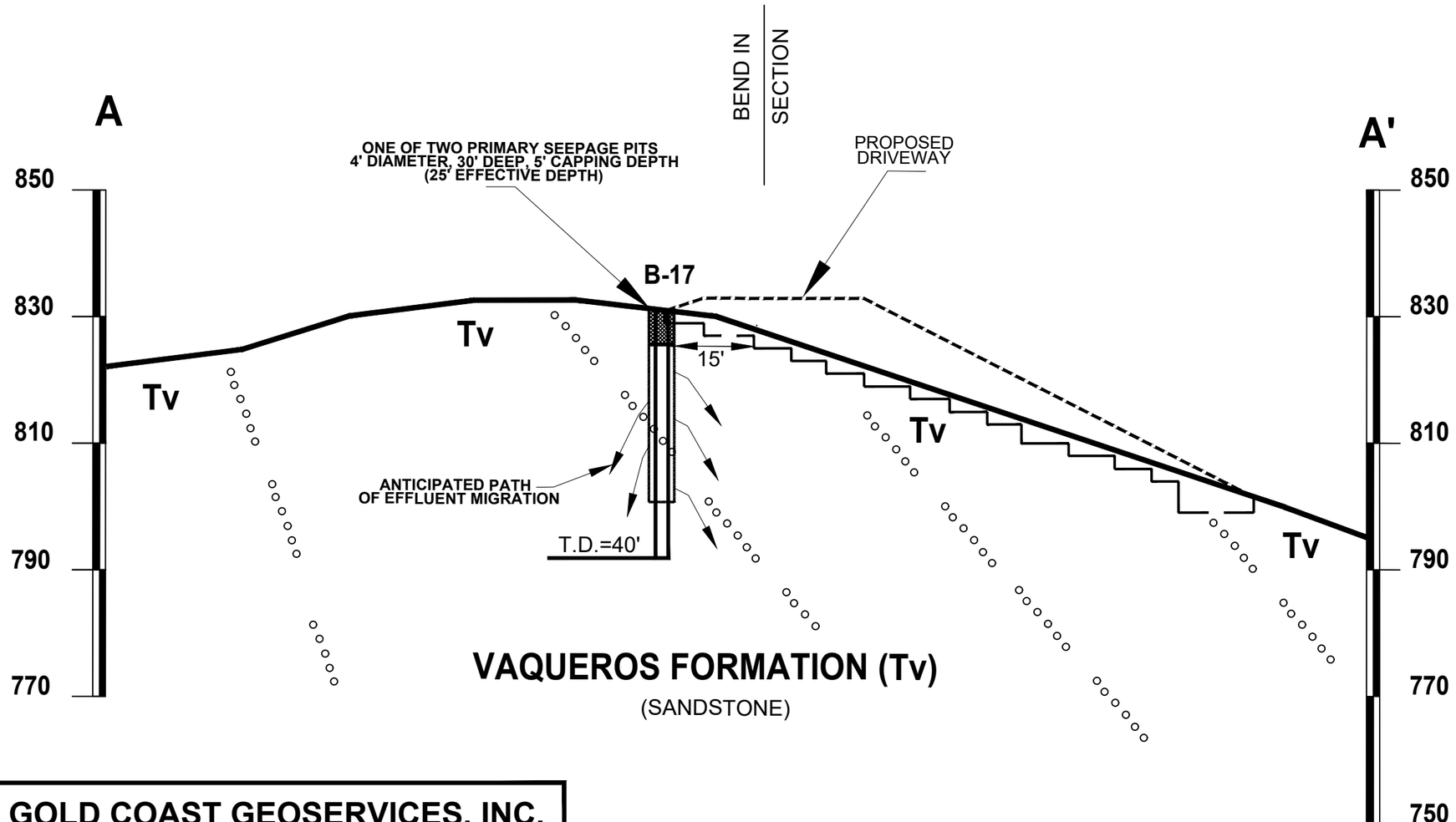
PLATE 1.2	GOLD COAST GEOSERVICES, INC.			
	OWTS PLOT PLAN 2919 MALIBU CANYON ROAD, MALIBU			
DATE: 12-28-2022	SIZE: D	CLIENT: NSE BLUEWATER, LLC		REV:
FILE NO: GC22-113377	SCALE: 1" = 50'	DRAWN BY: GH	APPROVED BY: SJH	

5251 VERDUGO WAY, SUITE J * CAMARILLO, CA 93012 * (805) 484-5070

GEOLOGIC CROSS-SECTION A - A'

N 07 E

N 19 E



VAQUEROS FORMATION (Tv)

(SANDSTONE)

PLATE 2	**GOLD COAST GEOSERVICES, INC.**			
	GEOLOGIC CROSS-SECTION A - A' **2919 MALIBU CANYON ROAD, MALIBU**			
DATE: 12-28-2022	**SIZE: B**	**CLIENT: NSE BLUEWATER, LLC**		**REV:**
FILE NO: GC22-113377	**SCALE: 1" = 20'**	**DRAWN BY: IM**	**APPROVED BY: SJH**	

5251 VERDUGO WAY, SUITE J * CAMARILLO, CA 93012 * (805) 484-5070

GOLD COAST GEOSERVICES, INC.

SUB-SURFACE DATA — BORING LOG NO. 17

PROJECT: 2919 Malibu Canyon Road, Malibu
ELEVATION: See Plate 1
METHOD: 24" Flight Auger

FILE NO.: GC22-113377
DATE: 11/29/2022
DRILLING CO.: Roy Brothers Drilling

DEPTH (FT)	SAMPLES: BULK	SAMPLES: RING	LAB DATA: MOISTURE (%)	LAB DATA: DRY DENSITY (pcf)	LAB DATA: COHESION (psf)	LAB DATA: FRICTION ANGLE (deg)	LAB DATA: OPTIMUM MOISTURE (%)	LAB DATA: MAX. DENSITY (pcf)	GRAPHIC LOG	DESCRIPTION AND REMARKS
0										**COLLUVIUM - Qc - (0' - 3')**
-										0' - 3' - Medium brown silty fine-grained sand, slightly moist, medium dense
-										**VAQUEROS FORMATION - Tv - (3' - 40')**
-										3' - 7' - Yellowish brown coarse-grained sandstone, weathered, occasional open fractures, dense to hard
5										
-										7' - 14' - Grayish brown fine-grained sandstone, slightly moist, fractured, hard
-										@8' - N49W, 52NE (b)
-										
10										
-										
-										14' - 20' - Dark grayish to yellowish brown fine-grained sandstone, jointed, well-cemented, hard to very hard
-										@15' - N43W, 63NE (b)
15										
-										@19' - N50W, 58NE (b)
-										20' - 40' - Olive gray to gray medium-grained sandstone, jointed, slightly fractured, very hard, massive
-										
20										
-										
-										
-										
25										
-										
-										
-										
30										
-										
-										
-										
35										
-										
-										
-										
40										End @ 40'

Total Depth: 40'
Refusal: No
Groundwater: No
Caving: No
Backfilled: Yes to 30' for testing

COMMENTS: Downhole logged to 40' - no faulting observed
(b) = Strike and Dip of Bedding

PLATE 3.17

GOLD COAST GEOSERVICES, INC.

SUB-SURFACE DATA — BORING LOG NO. 18

PROJECT: 2919 Malibu Canyon Road, Malibu
ELEVATION: See Plate 1
METHOD: 24" Flight Auger

FILE NO.: GC22-113377
DATE: 11/29/2022
DRILLING CO.: Roy Brothers Drilling

DEPTH (FT)	SAMPLES: BULK	SAMPLES: RING	LAB DATA: MOISTURE (%)	LAB DATA: DRY DENSITY (pcf)	LAB DATA: COHESION (psf)	LAB DATA: FRICTION ANGLE (deg)	LAB DATA: OPTIMUM MOISTURE (%)	LAB DATA: MAX. DENSITY (pcf)	GRAPHIC LOG	DESCRIPTION AND REMARKS
0										**COLLUVIUM - Qc - (0' - 3')**
										0' - 3' - Medium brown silty fine-grained sand, slightly moist, medium dense
										VAQUEROS FORMATION - Tv - (3' - 30')
5										3' - 7' - Yellowish brown coarse-grained sandstone, weathered, occasional open fractures, dense to hard
										7' - 13' - Grayish brown fine-grained sandstone, slightly moist, fractured, hard
										@8' - N49W, 50NE (b)
10										
										13' - 21' - Dark grayish to yellowish brown fine-grained sandstone, jointed, well-cemented, hard to very hard
15										@16' - N44W, 59NE (b)
20										21' - 30' - Olive gray to gray medium-grained sandstone, jointed, slightly fractured, very hard, massive
										@23' - N64W, 53NE (b)
25										
30										End @ 30'
35										
40										

Total Depth: 30'
Refusal: No
Groundwater: No
Caving: No
Backfilled: Yes

COMMENTS: Downhole logged to 30' - no faulting observed
(b) = Strike and Dip of Bedding

PLATE 3.18

GOLD COAST GEOSERVICES, INC.

SUB-SURFACE DATA — BORING LOG NO. 19

PROJECT: 2919 Malibu Canyon Road, Malibu
ELEVATION: See Plate 1
METHOD: 24" Flight Auger

FILE NO.: GC22-113377
DATE: 11/29/2022
DRILLING CO.: Roy Brothers Drilling

DEPTH (FT)	SAMPLES: BULK	SAMPLES: RING	LAB DATA: MOISTURE (%)	LAB DATA: DRY DENSITY (pcf)	LAB DATA: COHESION (psf)	LAB DATA: FRICTION ANGLE (deg)	LAB DATA: OPTIMUM MOISTURE (%)	LAB DATA: MAX. DENSITY (pcf)	GRAPHIC LOG	DESCRIPTION AND REMARKS
0										**COLLUVIUM - Qc - (0' - 2')**
										0' - 2' - Medium brown silty fine-grained sand, medium dense, moist
										VAQUEROS FORMATION - Tv - (2' - 30')
										2' - 5' - Yellowish brown coarse-grained sandstone, weathered, occasional open fractures, dense to hard
5										5' - 15' - Grayish brown fine-grained sandstone, slightly moist, fractured, hard
										@9' - N49W, 56NE (b)
10										@13' - N48W, 63NE (b)
15										15' - 22' - Dark grayish to yellowish brown fine-grained sandstone, jointed, well-cemented, hard to very hard
20										22' - 30' - Olive gray to gray medium-grained sandstone, jointed, slightly fractured, very hard, massive
25										@25' - N44W, 50NE (b)
30										End @ 30'
35										Total Depth: 30' Refusal: No Groundwater: No Caving: No Backfilled: Yes
40										

COMMENTS: Downhole logged to 30' - no faulting observed
(b) = Strike and Dip of Bedding

PLATE 3.19

GOLD COAST GEOSERVICES, INC.

SUB-SURFACE DATA — BORING LOG NO. 20

PROJECT: 2919 Malibu Canyon Road, Malibu
ELEVATION: See Plate 1
METHOD: 24" Flight Auger

FILE NO.: GC22-113377
DATE: 11/29/2022
DRILLING CO.: Roy Brothers Drilling

DEPTH (FT)	SAMPLES: BULK	SAMPLES: RING	LAB DATA: MOISTURE (%)	LAB DATA: DRY DENSITY (pcf)	LAB DATA: COHESION (psf)	LAB DATA: FRICTION ANGLE (deg)	LAB DATA: OPTIMUM MOISTURE (%)	LAB DATA: MAX. DENSITY (pcf)	GRAPHIC LOG	DESCRIPTION AND REMARKS
0										**COLLUVIUM - Qc - (0' - 2')**
										0' - 2' - Medium brown silty fine-grained sand, medium dense, moist
										VAQUEROS FORMATION - Tv - (2' - 30')
										2' - 6' - Yellowish brown coarse-grained sandstone, weathered, occasional open fractures, dense to hard
5										6' - 12' - Grayish brown fine-grained sandstone, slightly moist, fractured, hard
										@8' - N66W 47NE (b)
10										12' - 19' - Dark grayish to yellowish brown fine-grained sandstone, jointed, well-cemented, hard to very hard
										@13' - N35W, 60NE (b)
15										20' - 30' - Olive gray to gray medium-grained sandstone, jointed, slightly fractured, very hard, massive
										@21' - N42W, 57NE (b)
20										
25										
30										End @ 30'
35										Total Depth: 30' Refusal: No Groundwater: No Caving: No Backfilled: Yes
40										

COMMENTS: Downhole logged to 30' - no faulting observed
(b) = Strike and Dip of Bedding

PLATE 3.20