

APPENDIX A

Well Permit



PASADENA WATER AND POWER

September 4, 2024

Gernot Penzhorn, Vice President & Division Manager
Layne Christensen Company
Gernot.Penzhorn@gcinc.com

Via e-mail

Subject: Permit for Construction of Explorer Well, located in the Hahamongna Watershed of the Arroyo Seco, on and near the former JPL East Parking Lot, for the City of Pasadena

Dear Mr. Penzhorn:

I reviewed the design for the construction of Explorer well. This letter serves as a well permit to drill a new well located in the Hahamongna Watershed of the Arroyo Seco, on and near the former JPL East Parking Lot, based on the following conditions:

1. All required construction and building permits shall be obtained from the City of Pasadena, Building & Safety Division (Permit Center, 175 North Garfield Avenue).
2. The contractor must hold and maintain a California C-57 Contractors License.
3. The well shall be constructed according to the California Department of Water Resources, "Water Well Standards" Bulletins 74-90 and 74-81.
4. The construction of the well shall comply with the Raymond Basin Management Board's "Guidelines for Construction of a New Well in the Raymond Basin".
5. After construction is complete provide a copy of the well driller's log to me.

If you have any questions, please contact me by e-mail at gtakara@cityofpasadena.net.

Sincerely,


Gary Takara
Engineering Manager

c: Manuel Carmona, Acting Director of Public Health and Health Officer - City of Pasadena
Stacie N. Takeguchi, Chief Assistant General Manager - City of Pasadena
Jesse De Anda, Building Official - City of Pasadena
Kelly Gardner, Executive Officer - Raymond Basin Management Board

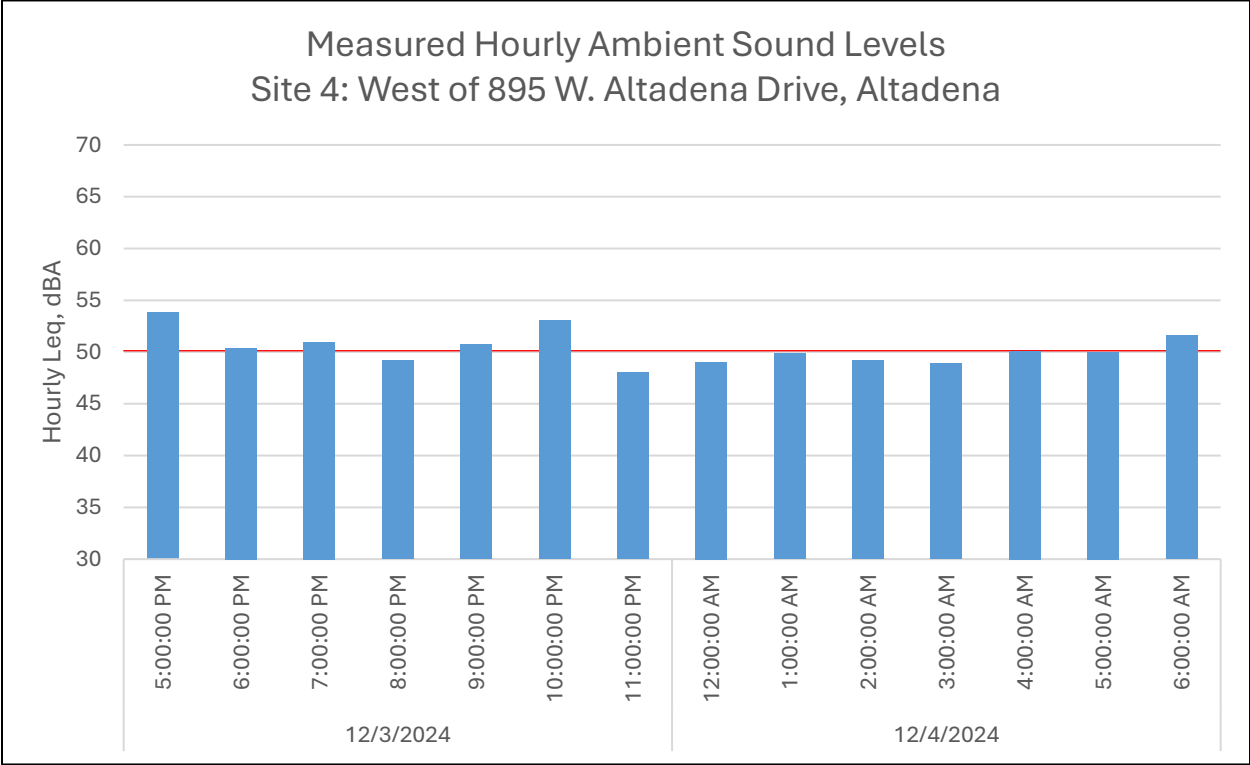
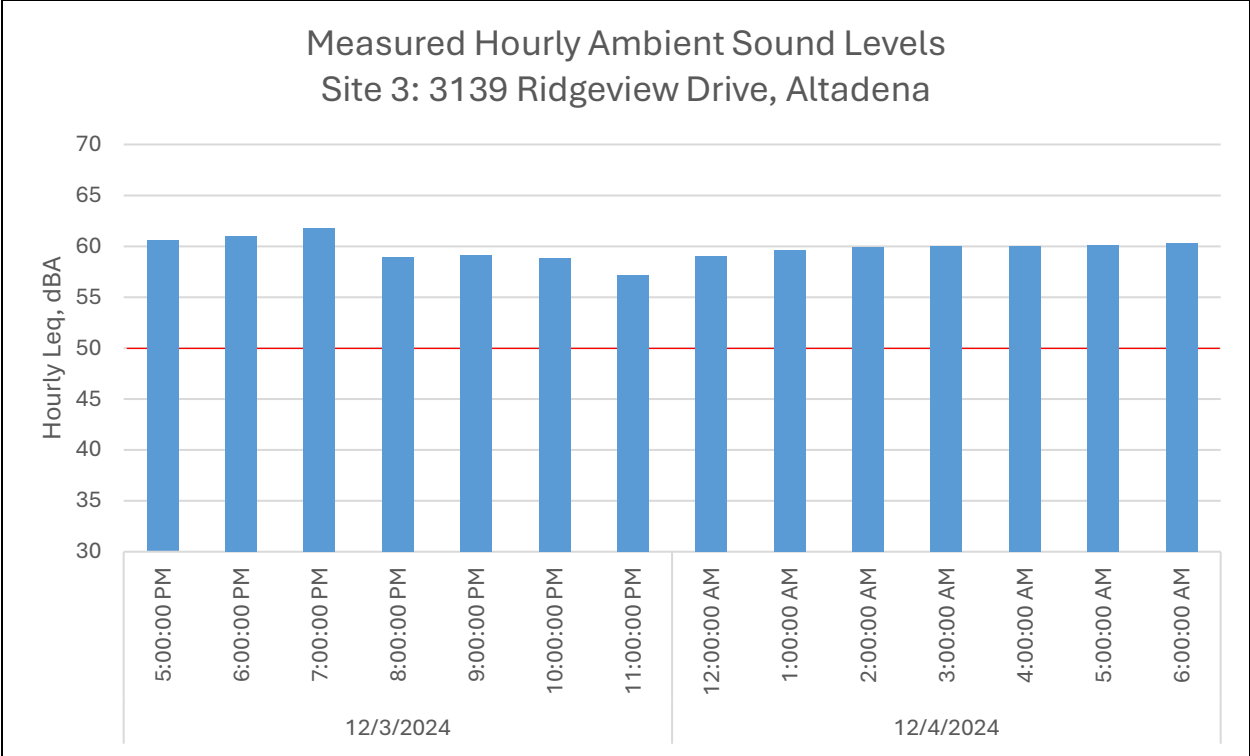
Enclosures

APPENDIX B

Noise Monitoring Results



Noise Monitoring Locations for Explorer Well



Typical A-Weighted Sound Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

dBA = A-weighted decibels; mph = miles per hour

Source: California Department of Transportation, *Technical Noise Supplement*, September 2013.

APPENDIX C

Explorer Road

Compaction Memorandum

the HVEEM method (Civiltec, 2024). The provided lab reports for subgrade, base, and asphalt are included in **Attachment B, C, and D**. Field testing of the compacted material was performed utilizing the ASTM D 6938-08a nuclear method. Delivery tickets for materials used onsite are included as **Attachment E**.

Please contact Jerko Kocijan at jkocijan@geosyntec.com with questions or comments regarding this compaction memo.

Sincerely,



Jerko Kocijan, Ph.D., P.E., G.E.
Principal Engineer

ATTACHMENTS

Attachment A – Geosyntec Daily Field Reports

Attachment B – Subgrade Test Results Report

Attachment C – Base Lab Results Report

Attachment D – Asphalt Mix Design Report

Attachment E – Delivery Tickets

REFERENCES

AASHTO T 230. Standard Method of Test for Determining Degree of Pavement Compaction of Bituminous Aggregate Mixtures.

ASTM D 2041. Standard Test Method for Theoretical Maximum Specific Gravity of Bituminous Paving Mixtures.

ASTM D 2950. Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Method.

ASTM D 3665. Standard Practice for Random Sampling of Construction Materials.

ASTM D 698. Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.

Civiltec Engineering, Inc., for Pasadena Water and Power, “Explorer Well Project” Special Provisions, Part 2 – Well Drilling Technical Specifications. April 2024.

“GREENBOOK” Standard Specifications for Public Works Construction (SSPWC), 2018 Edition. Public Works Standards, Inc., Vista, CA.

State of California Standard Specifications. Issued by: Department of Transportation, 2010.

ATTACHMENT – A

Geosyntec Daily Field Reports

DAILY FIELD REPORT

PROJECT AND SITE INFORMATION

LOCATION: Pasadena, CA		DATE: 9/16/2024	
PROJECT: Explorer Well Below-Grade Improvements Construction Management, Inspection and Hydrogeological Services (2024-IFB-LM-043)		PROJECT NO.: HPA110004	TASK NO.: 01
CLIENT: City of Pasadena - Water and Power Department		DESCRIPTION: Explorer Road Realignment Compaction Testing	
CONTRACTOR(S): Layne Christensen Company, Regan Paving		WEATHER: Cloudy	

CONTRACTOR ACTIVITIES

Subgrade compaction.

GEOSYNTEC OBSERVATIONS AND NOTES

7:00 am – Arrived on site and met with the Geosyntec Inspector, Jake Howick.

7:30 am – Started taking nuke gauge density readings on the subgrade. Density readings and test locations are presented in Table and Image below.

10:50 am – Completed taking readings on south portion of the road. Contractor compacting the northern portion of the road.

11:00 am – Left site.

1:00 pm – Arrived back on site.

1:20 pm – Started taking nuke gauge readings on the north portion of the road.

2:00 pm – Took the last density reading. All the density readings are tabulated in the Table below. Compaction at all the test location was found more than 95%.

2:10 pm – Left site.

Test Location	Dry Density(pcf)	Moisture Content (%)	Maximum Dry Density (pcf)	% Compaction
1	131.9	2.3	136.5	96.6
2	133.3	3.2	136.5	97.7
3	138.1	3.2	136.5	101.2
4	128.9	4.4	129.0	99.9
5	127.5	3.5	129.0	98.8
6	129.5	4.8	129.0	100.4



Image 1: Taking nuke gauge density reading on subgrade at test location #3.

DAILY FIELD REPORT

PROJECT AND SITE INFORMATION

LOCATION: Pasadena, CA		DATE: 9/16/2024	
PROJECT: Explorer Well Below-Grade Improvements Construction Management, Inspection and Hydrogeological Services (2024-IFB-LM-043)		PROJECT NO.: HPA110004	TASK NO.: 01
CLIENT: City of Pasadena - Water and Power Department		DESCRIPTION: Explorer Road Realignment Compaction Testing	
CONTRACTOR(S): Layne Christensen Company, Regan Paving		WEATHER: Cloudy	

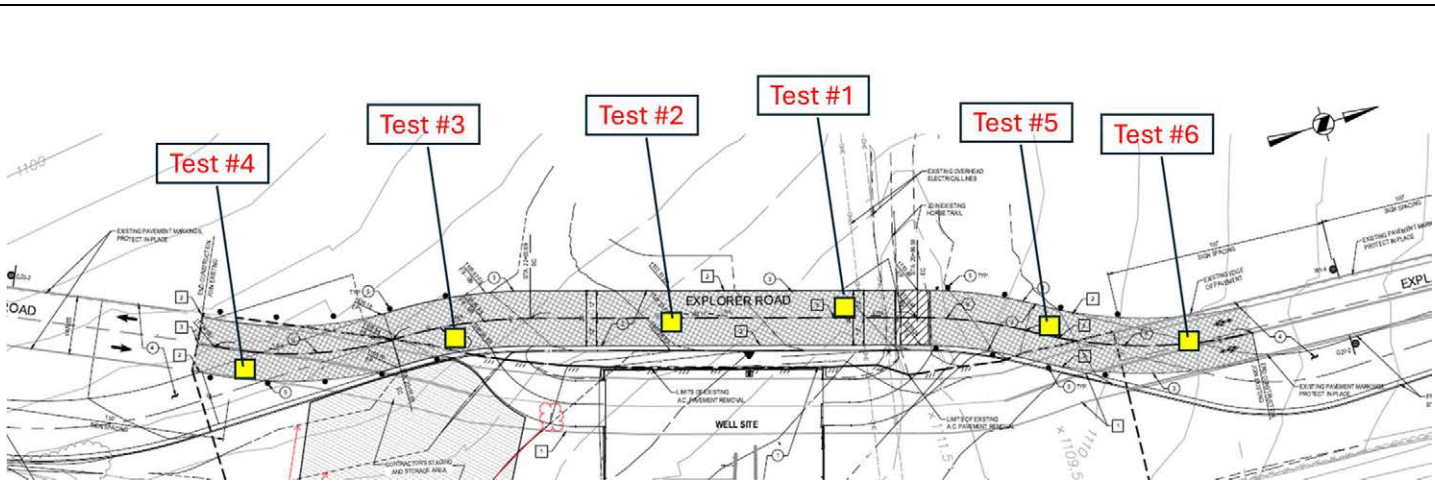


Image 2: Approximate locations of nuke gauge density measurements.

OTHER INFORMATION

Prepared By: Ravi Prakash, *Ph.D.*

DAILY FIELD REPORT

PROJECT AND SITE INFORMATION

LOCATION: Pasadena, CA	DATE: 9/18/2024	
PROJECT: Explorer Well Below-Grade Improvements Construction Management, Inspection and Hydrogeological Services (2024-IFB-LM-043)	PROJECT NO.: HPA110004	TASK NO.: 01
CLIENT: City of Pasadena - Water and Power Department	DESCRIPTION: Explorer Road Realignment Compaction Testing	
CONTRACTOR(S): Layne Christensen Company, Regan Paving	WEATHER: Cloudy	

CONTRACTOR ACTIVITIES

Base layer compaction.

GEOSYNTEC OBSERVATIONS AND NOTES

12:20 pm – Arrived on site and met with the Geosyntec Inspector, Jake Howick.
 12:50 am – Started taking nuke gauge density readings on the base material layer.
 3:30 pm – Took the last density reading. All the density readings are tabulated in the Table below. Test locations are shown on the figure below. Compaction at all the test location was found more than 95%.
 3:40 pm – Left site.

Test Location	Dry Density(pcf)	Moisture Content (%)	Maximum Dry Density (pcf)	% Compaction
1	119.7	13.4	120.5	99.3
2	130.5	12.7	120.5	108.3
3	119.9	13.1	120.5	99.5
4	115.3	13.2	120.5	95.7
5	116.3	14.5	120.5	96.5



Image 1: Taking nuke gauge density reading on base layer at test location #4.

DAILY FIELD REPORT

PROJECT AND SITE INFORMATION

LOCATION: Pasadena, CA		DATE: 9/18/2024	
PROJECT: Explorer Well Below-Grade Improvements Construction Management, Inspection and Hydrogeological Services (2024-IFB-LM-043)		PROJECT NO.: HPA110004	TASK NO.: 01
CLIENT: City of Pasadena - Water and Power Department		DESCRIPTION: Explorer Road Realignment Compaction Testing	
CONTRACTOR(S): Layne Christensen Company, Regan Paving		WEATHER: Cloudy	

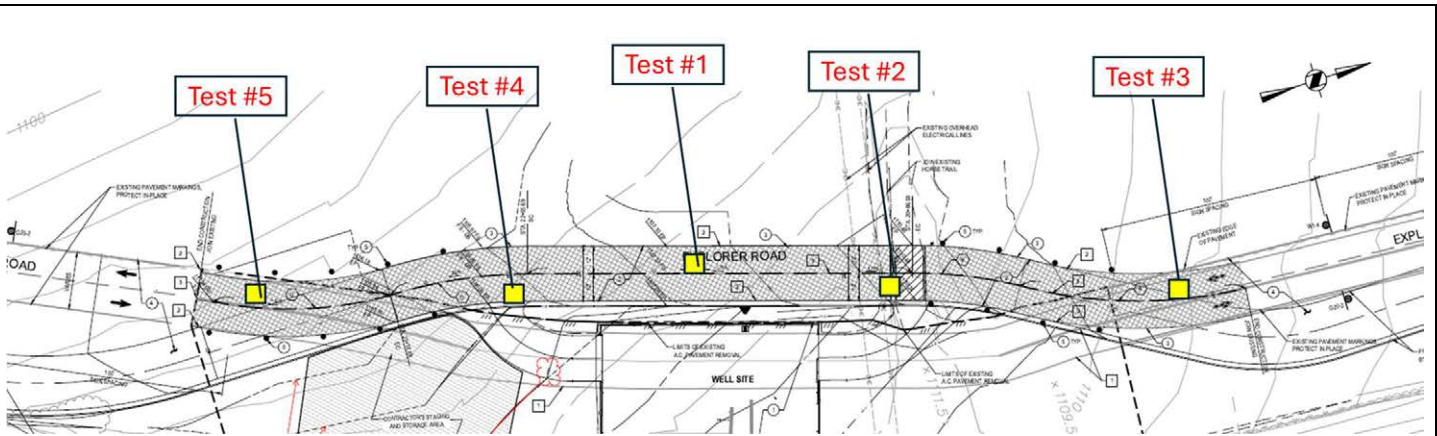


Image 2: Approximate locations of nuke gauge density measurements.

OTHER INFORMATION

Prepared By: Ravi Prakash, *Ph.D.*

DAILY FIELD REPORT

PROJECT AND SITE INFORMATION

LOCATION: Pasadena, CA	DATE: 9/23/2024	
PROJECT: Explorer Well Below-Grade Improvements Construction Management, Inspection and Hydrogeological Services (2024-IFB-LM-043)	PROJECT NO.: HPA110004	TASK NO.: 01
CLIENT: City of Pasadena - Water and Power Department	DESCRIPTION: Explorer Road Realignment Compaction Testing	
CONTRACTOR(S): Layne Christensen Company, Regan Paving	WEATHER: Sunny	

CONTRACTOR ACTIVITIES

Hot Mix Asphalt laying.

GEOSYNTec OBSERVATIONS AND NOTES

11:00 pm – Arrived on site and met with the Geosyntec Inspector, Jake Howick. Contractor paving asphalt from south to north side of the road.
 11:50 am – Started taking nuke gauge density readings on the Asphalt layer.
 5:15 pm – Took the last density reading. All the density readings are tabulated in the Table below. Test locations are shown on the figure below. Compaction at all the test location was found more than 92% and average of all the readings was more than 97% as required.
 5:30 pm – Left site.

Test Location	Density(pcf)	Maximum Density (pcf)	% Compaction
1	143.4	149.0	96.2
2	155.6	149.0	104.4
3	143.2	149.0	96.1
4	146.3	149.0	98.2
5	153.6	149.0	103.1
6	145.1	149.0	97.4



Image 1: Taking nuke gauge density reading on Asphalt layer at test location #6.

DAILY FIELD REPORT

PROJECT AND SITE INFORMATION

LOCATION: Pasadena, CA	DATE: 9/23/2024	
PROJECT: Explorer Well Below-Grade Improvements Construction Management, Inspection and Hydrogeological Services (2024-IFB-LM-043)	PROJECT NO.: HPA110004	TASK NO.: 01
CLIENT: City of Pasadena - Water and Power Department	DESCRIPTION: Explorer Road Realignment Compaction Testing	
CONTRACTOR(S): Layne Christensen Company, Regan Paving	WEATHER: Sunny	

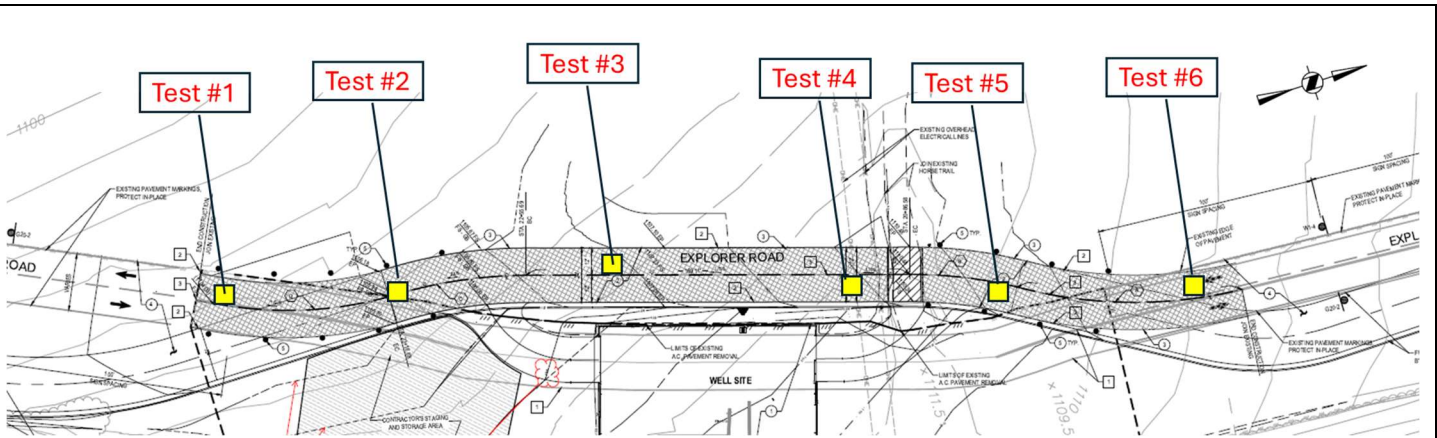


Image 2: Approximate locations of nuke gauge density measurements.

OTHER INFORMATION

Prepared By: Ravi Prakash, *Ph.D.*

ATTACHMENT – B

Subgrade Test Results Report



MODIFIED PROCTOR COMPACTION TEST

ASTM D 1557

Project Name: Civiltec/PWP Explorer Well and Behner
 Project No.: 11877.001
 Boring No.: TP-1
 Sample No.: B-2
 Soil Identification: Yellowish brown poorly-graded sand with gravel (SP)g

Tested By: O. Figueroa Date: 01/04/18
 Input By: J. Ward Date: 01/09/18
 Depth (ft.): 3-8

Note: Corrected dry density calculation assumes specific gravity of 2.70 and moisture content of 1.0% for oversize material

Preparation Method:	<input checked="" type="checkbox"/>	Moist	Scalp Fraction (%)	Rammer Weight (lb.) =	10.0
		Dry	#3/4	Height of Drop (in.) =	18.0
Compaction Method:	<input checked="" type="checkbox"/>	Mechanical Ram	#3/8		
		Manual Ram	#4	Mold Volume (ft ³)	0.07450

TEST NO.	1	2	3	4	5	6
Wt. Compacted Soil + Mold (g)	7178	7318	7447	7425		
Weight of Mold (g)	2672	2672	2672	2672		
Net Weight of Soil (g)	4506	4646	4775	4753		
Wet Weight of Soil + Cont. (g)	767.3	857.0	958.5	970.0		
Dry Weight of Soil + Cont. (g)	733.7	802.0	880.9	874.5		
Weight of Container (g)	72.5	74.3	82.8	77.8		
Moisture Content (%)	5.08	7.56	9.72	11.99		
Wet Density (pcf)	133.3	137.5	141.3	140.6		
Dry Density (pcf)	126.9	127.8	128.8	125.6		

Maximum Dry Density (pcf) **129.0**
Corrected Dry Density (pcf) **136.5**

Optimum Moisture Content (%) **9.5**
Corrected Moisture Content (%) **7.5**

Procedure A
 Soil Passing No. 4 (4.75 mm) Sieve
 Mold : 4 in. (101.6 mm) diameter
 Layers : 5 (Five)
 Blows per layer : 25 (twenty-five)
 May be used if + #4 is 20% or less

Procedure B
 Soil Passing 3/8 in. (9.5 mm) Sieve
 Mold : 4 in. (101.6 mm) diameter
 Layers : 5 (Five)
 Blows per layer : 25 (twenty-five)
 Use if + #4 is >20% and +3/8 in. is 20% or less

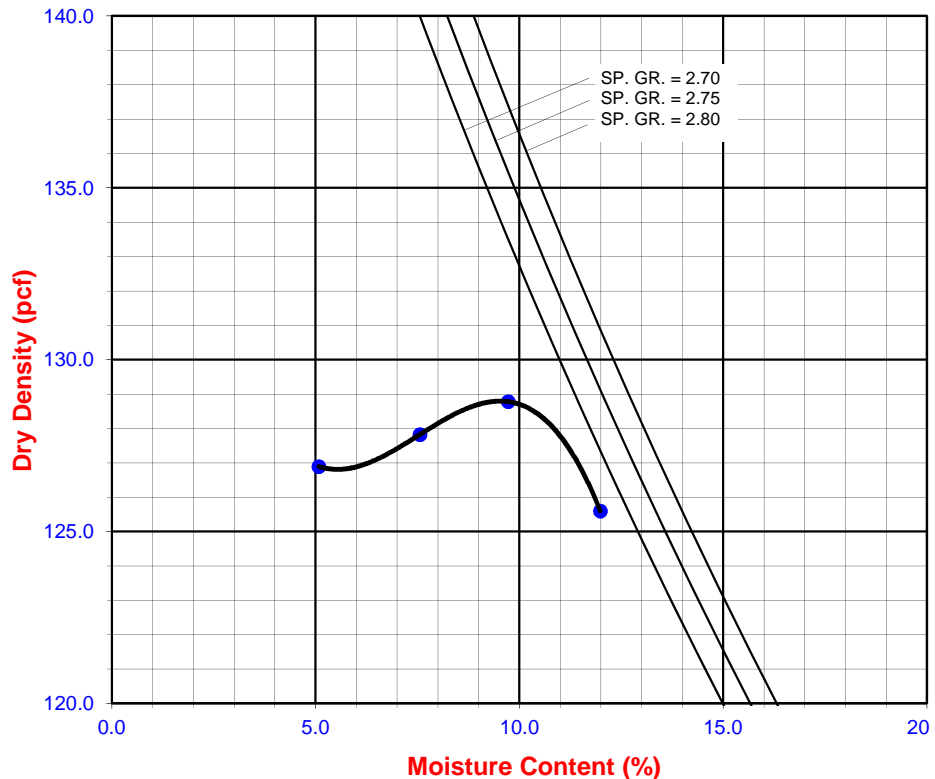
Procedure C
 Soil Passing 3/4 in. (19.0 mm) Sieve
 Mold : 6 in. (152.4 mm) diameter
 Layers : 5 (Five)
 Blows per layer : 56 (fifty-six)
 Use if +3/8 in. is >20% and +3/4 in. is <30%

Particle-Size Distribution:

43:54:3
 GR:SA:FI

Atterberg Limits:

LL, PL, PI





MODIFIED PROCTOR COMPACTION TEST

ASTM D 1557

Project Name: Civiltec/PWP Explorer Well and Behner
 Project No.: 11877.001
 Boring No.: TP-2
 Sample No.: B-2
 Soil Identification: Dark brown poorly-graded sand with silt and gravel (SP-SM)g

Tested By: O. Figueroa Date: 01/04/18
 Input By: J. Ward Date: 01/09/18
 Depth (ft.): 2-5

Note: Corrected dry density calculation assumes specific gravity of 2.70 and moisture content of 1.0% for oversize material

Preparation Method:	<input checked="" type="checkbox"/>	Moist			Rammer Weight (lb.) =	10.0
		Dry		Scalp Fraction (%)	Height of Drop (in.) =	18.0
Compaction Method:	<input checked="" type="checkbox"/>	Mechanical Ram		#3/4		
		Manual Ram		#3/8		
				#4	Mold Volume (ft ³)	0.07450

TEST NO.	1	2	3	4	5	6
Wt. Compacted Soil + Mold (g)	7114	7313	7445	7449		
Weight of Mold (g)	2672	2672	2672	2672		
Net Weight of Soil (g)	4442	4641	4773	4777		
Wet Weight of Soil + Cont. (g)	760.9	742.6	803.8	880.9		
Dry Weight of Soil + Cont. (g)	732.7	699.5	744.0	797.4		
Weight of Container (g)	82.7	75.6	77.8	76.8		
Moisture Content (%)	4.34	6.91	8.98	11.59		
Wet Density (pcf)	131.4	137.3	141.2	141.4		
Dry Density (pcf)	126.0	128.5	129.6	126.7		

Maximum Dry Density (pcf) 129.5	Optimum Moisture Content (%) 9.0
Corrected Dry Density (pcf) 138.0	Corrected Moisture Content (%) 7.0

Procedure A
 Soil Passing No. 4 (4.75 mm) Sieve
 Mold : 4 in. (101.6 mm) diameter
 Layers : 5 (Five)
 Blows per layer : 25 (twenty-five)
 May be used if + #4 is 20% or less

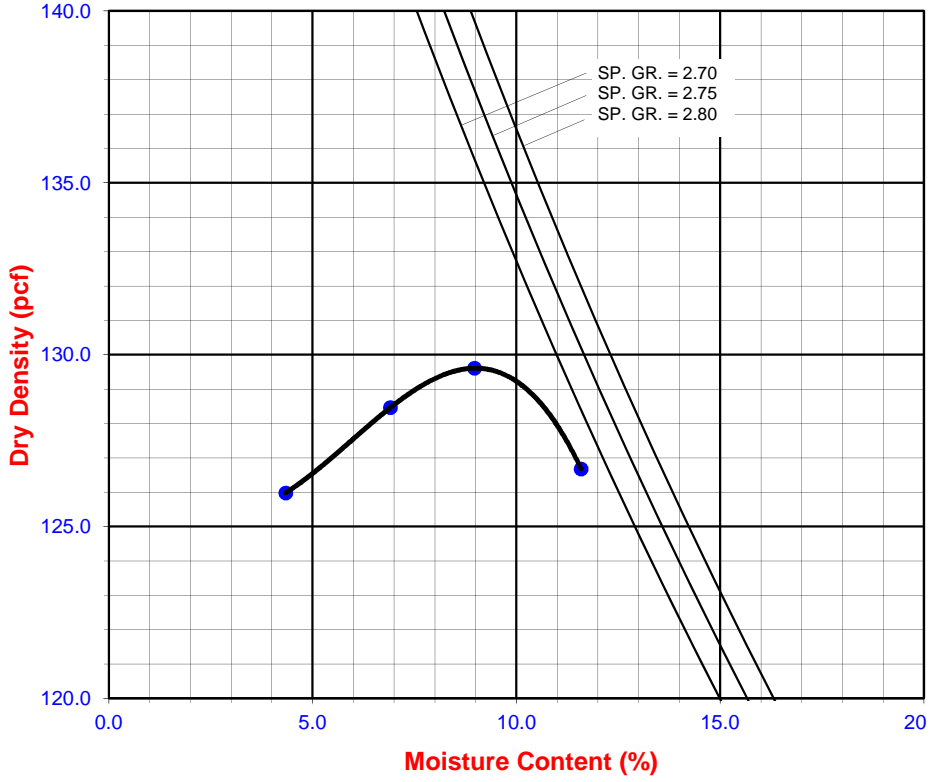
Procedure B
 Soil Passing 3/8 in. (9.5 mm) Sieve
 Mold : 4 in. (101.6 mm) diameter
 Layers : 5 (Five)
 Blows per layer : 25 (twenty-five)
 Use if + #4 is >20% and +3/8 in. is 20% or less

Procedure C
 Soil Passing 3/4 in. (19.0 mm) Sieve
 Mold : 6 in. (152.4 mm) diameter
 Layers : 5 (Five)
 Blows per layer : 56 (fifty-six)
 Use if +3/8 in. is >20% and +3/4 in. is <30%

Particle-Size Distribution:
42:53:5
 GR:SA:FI

Atterberg Limits:

 LL,PL,PI



ATTACHMENT – C

Base Lab Results Report



1350 E. Cooley Drive
Colton, CA 92324
P (909) 824-7311
F (909) 301-6016
Terracon.com

May 20, 2024

ARCOSA
2655 First Street Suite 210
Simi Valley, California 93065

Attn: Mr. Kyle Stansbury
Sales Manager
T: (909) 566-8853
E: kyle.stansbury@arcosa.com

Re: Laboratory Test Results
Crushed Miscellaneous Base
Sun Valley Plant
Terracon Project No. CB231256

Dear Mr. Stansbury,

Enclosed is a summary of the test results provided by Terracon Consultants, Inc. The samples were tested in general accordance with Test Methods specified in the current Greenbook Standard Specifications for Public Works Construction Section 200-2.4 Crushed Miscellaneous Base.

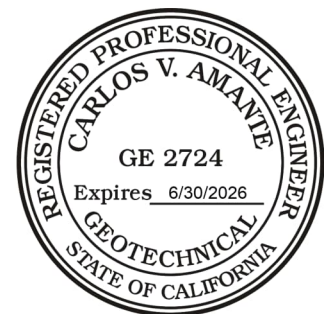
The results indicate that the material sampled on April 17, 2024, for the ARCOSA Sun Valley Plant conform to the minimum requirements.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Tom Rimmel
Laboratory Department Manager

Carlos V. Amante, P.E., G.E.
Senior Project Manager
California Registered Geotechnical Engineer No. 2724
Registration Expires 6/30/2024



PARTICLE SIZE DISTRIBUTION REPORT

Report Number: CB231256.0010
Service Date: 04/17/24
Report Date: 05/20/24
Task: Sun Valley Plant



1355 E Cooley Dr
 Colton, CA 92324-3954
 909-824-7311

Client

Arcosa Crushed Concrete
 Attn: Kyle Stansbury
 2655 First St., Ste. 210
 Simi Valley, CA 93065

Project

Arcosa - Lab Testing on
 Samples from Various Plants
 Rialto, CA

Project Number: CB231256

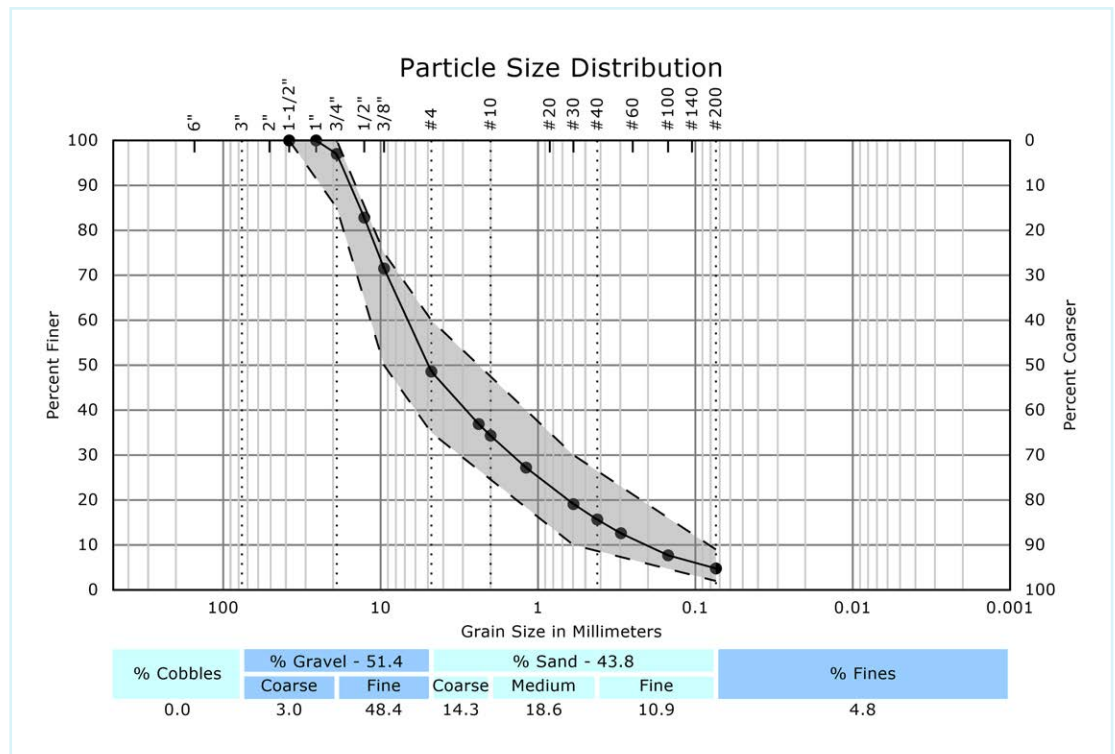
Sample Information

Sample Type: Bulk
 Sample Location: Sun Valley Plant
 Sample Description: Crushed Miscellaneous Base
 USCS: Well-graded gravel with sand (GW)

Laboratory Test Data

Test Method: CT 202
 Method: NA
 Atterberg Limits:
 Sample Preparation: Oven Dried
 Sieving Method: Composite Sieving-Single Separation

Sieve Size	Percent Finer	Spec.*	Pass (X=Fail)
1-1/2"	100	100	
1"	100		
3/4"	97	85-100	
1/2"	83		
3/8"	72	50-75	
#4	49	35-60	
#8	37		
#10	34		
#16	27		
#30	19	10-30	
#40	16		
#50	13		
#100	8		
#200	4.8	2-9	



* CMB Greenbook 2021 Table 200-2.4.2

$D_{60} = 6.73$	$D_{30} = 1.47$	$D_{10} = 0.205$	$C_c = 1.6$	$C_u = 32.9$	FM =
-----------------	-----------------	------------------	-------------	--------------	------

Comments:

Services: Determine particle size distribution by sieving.

Terracon Rep.: Client

Reported To:

Contractor:

Report Distribution:

(1) Arcosa Crushed Concrete, Kyle Stansbury (1) Arcosa Crushed Concrete, Michael Anselmo

Reviewed By:

Thomas Rimmel
 Laboratory Manager

Test ASTM D2487, CT202

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

SAND EQUIVALENT TEST REPORT



Report Number: CB231256.0010A
Service Date: 04/17/24
Report Date: 05/20/24
Task: Sun Valley Plant

1355 E Cooley Dr
Colton, CA 92324-3954
909-824-7311

Client

Arcosa Crushed Concrete
Attn: Kyle Stansbury
2655 First St., Ste. 210
Simi Valley, CA 93065

Project

Arcosa - Lab Testing on
Samples from Various Plants
Rialto, CA

Project Number: CB231256

MATERIAL: Crushed Miscellaneous Base

SAMPLE TYPE: Bulk

DATE TESTED: 04-30-2024

LOCATION: Sun Valley Plant

SAND EQUIVALENT: 68
(CT 217)

SPECIFICATION: 35 Minimum

Services: Provide results of the requested tests performed on a sample from the above project. The sample was delivered to this firm by a representative of our Client.

Terracon Rep.: Client

Reported To:

Contractor:

Report Distribution:

(1) Arcosa Crushed Concrete, Kyle Stansbury

(1) Arcosa Crushed Concrete, Michael Anselmo

Reviewed By:

Thomas Rimmel
Laboratory Manager

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

DURABILITY INDEX TEST REPORT



Report Number: CB231256.0010A
Service Date: 04/17/24
Report Date: 05/20/24
Task: Sun Valley Plant

1355 E Cooley Dr
Colton, CA 92324-3954
909-824-7311

Client

Arcosa Crushed Concrete
Attn: Kyle Stansbury
2655 First St., Ste. 210
Simi Valley, CA 93065

Project

Arcosa - Lab Testing on
Samples from Various Plants
Rialto, CA

Project Number: CB231256

MATERIAL: Crushed Miscellaneous Base

LOCATION: Sun Valley Plant

SAMPLE TYPE: Bulk

DATE TESTED: 05-01-2024

COARSE DURABILITY INDEX (Dc): 78

FINE DURABILITY INDEX (Df): 53

DURABILITY INDEX: 53
(CT229)

SPECIFICATION: No Requirement

Services: Provide results of the requested tests performed on a sample from the above project. The sample was delivered to this firm by a representative of our Client.

Terracon Rep.: Client

Reported To:

Contractor:

Report Distribution:

(1) Arcosa Crushed Concrete, Kyle Stansbury

(1) Arcosa Crushed Concrete, Michael Anselmo

Reviewed By:

Thomas Rimmel
Laboratory Manager

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

LA ABRASION TEST REPORT



Report Number: CB231256.0010A
Service Date: 04/17/24
Report Date: 05/20/24
Task: Sun Valley Plant

1355 E Cooley Dr
Colton, CA 92324-3954
909-824-7311

Client

Arcosa Crushed Concrete
Attn: Kyle Stansbury
2655 First St., Ste. 210
Simi Valley, CA 93065

Project

Arcosa - Lab Testing on
Samples from Various Plants
Rialto, CA

Project Number: CB231256

MATERIAL:

Crushed Miscellaneous Base

LOCATION:

Sun Valley Plant

SAMPLE TYPE:

Bulk

DATE TESTED:

04-30-2024

LOS ANGELES ABRASION:

(ASTM C131)

Grade "B"

Percent Loss After 100 Revolutions	10
Percent Loss After 500 Revolutions	33

SPECIFICATION:

Grade "B"

Percent Loss After 100 Revolutions	15 Maximum
Percent Loss After 500 Revolutions	52 Maximum

Services: Provide results of the requested tests performed on a sample from the above project. The sample was delivered to this firm by a representative of our Client.

Terracon Rep.: Client

Reported To:

Contractor:

Report Distribution:

(1) Arcosa Crushed Concrete, Kyle Stansbury

(1) Arcosa Crushed Concrete, Michael Anselmo

Reviewed By:

Thomas Rimmel
Laboratory Manager

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

R-VALUE TEST REPORT



Report Number: CB231256.0010A
Service Date: 04/17/24
Report Date: 05/20/24
Task: Sun Valley Plant

1355 E Cooley Dr
Colton, CA 92324-3954
909-824-7311

Client

Arcosa Crushed Concrete
Attn: Kyle Stansbury
2655 First St., Ste. 210
Simi Valley, CA 93065

Project

Arcosa - Lab Testing on
Samples from Various Plants
Rialto, CA

Project Number: CB231256

MATERIAL:

Crushed Miscellaneous Base

LOCATION:

Sun Valley Plant

SAMPLE TYPE:

Bulk

DATE TESTED:

05-15-2024

R-VALUE: (CT 301)

78

SPECIFICATION:

78 Minimum

Services: Provide results of the requested tests performed on a sample from the above project. The sample was delivered to this firm by a representative of our Client.

Terracon Rep.: Client

Reported To:

Contractor:

Report Distribution:

(1) Arcosa Crushed Concrete, Kyle Stansbury

(1) Arcosa Crushed Concrete, Michael Anselmo

Reviewed By:

Thomas Rimmel
Laboratory Manager

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

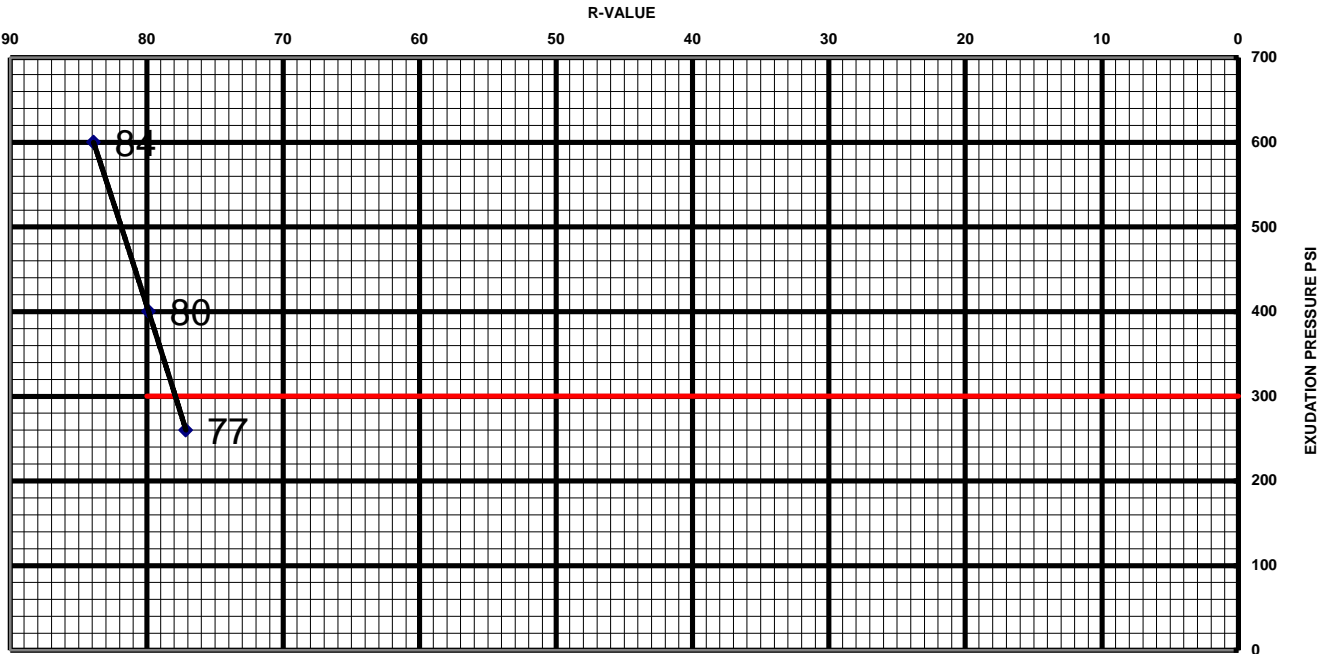
**LABORATORY RECORD OF TESTS MADE ON
 BASE, SUBBASE, AND BASEMENT SOILS**

CLIENT: Arcosa
PROJECT Sun Valley Plant
LOCATION: Sun Valley Plant
R-VALUE # : Crushed Miscellaneous Base
T.I. :

COMPACTOR AIR PRESSURE P.S.I.
 INITIAL MOISTURE %
 WATER ADDED, ML
 WATER ADDED %
 MOISTURE AT COMPACTION %
 HEIGHT OF BRIQUETTE
 WET WEIGHT OF BRIQUETTE
 DENSITY LB. PER CU.FT.
 STABILOMETER PH AT 1000 LBS.
 2000 LBS.
 DISPLACEMENT
 R-VALUE
 EXUDATION PRESSURE
 THICK. INDICATED BY STAB.
 EXPANSION PRESSURE
 THICK. INDICATED BY E.P.

	A	B	C	D
COMPACTOR AIR PRESSURE P.S.I.	350	350	350	
INITIAL MOISTURE %	0.9	0.9	0.9	
WATER ADDED, ML	90	85	80	
WATER ADDED %	8.7	8.2	7.7	
MOISTURE AT COMPACTION %	9.6	9.1	8.6	
HEIGHT OF BRIQUETTE	2.50	2.51	2.51	
WET WEIGHT OF BRIQUETTE	1045	1048	1049	
DENSITY LB. PER CU.FT.	115.6	116.0	116.6	
STABILOMETER PH AT 1000 LBS.	13	11	8	
2000 LBS.	19	17	14	
DISPLACEMENT	5.50	5.30	5.00	
R-VALUE	77	80	84	
EXUDATION PRESSURE	260	400	600	
THICK. INDICATED BY STAB.	0.00	0.00	0.00	
EXPANSION PRESSURE	0	0	0	
THICK. INDICATED BY E.P.	0.00	0.00	0.00	

EXUDATION CHART



R-Value: 78

LABORATORY COMPACTION CHARACTERISTICS OF SOIL REPORT

Report Number: CB231256.0010B
Service Date: 04/17/24
Report Date: 05/20/24
Task: Sun Valley Plant



1355 E Cooley Dr
Colton, CA 92324-3954
909-824-7311

Client

Arcosa Crushed Concrete
Attn: Kyle Stansbury
2655 First St., Ste. 210
Simi Valley, CA 93065

Project

Arcosa - Lab Testing on
Samples from Various Plants
Rialto, CA

Project Number: CB231256

Material Information

Source of Material: Sun Valley Plant
Proposed Use: Crushed Miscellaneous Base

Sample Information

Sample Date: 04/16/24
Sampled By: Client
Sample Location: Sun Valley Plant

Sample Description: (GW) Sandy Gravel, Fine to Coarse Sands, Gravels to 3/4-Inch,

Laboratory Test Data

Test Procedure: ASTM D1557
Test Method: Method C
Sample Preparation: Wet
Rammer Type: Mechanical
Maximum Dry Unit Weight (pcf): 120.5
Optimum Water Content (%): 9.5

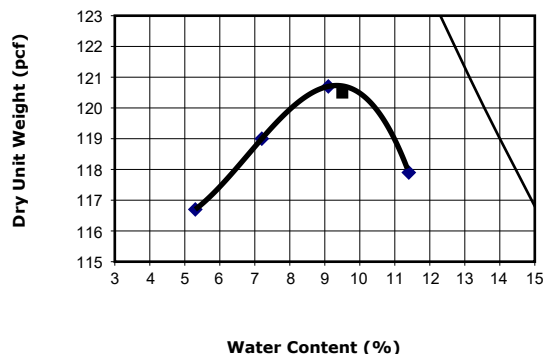
Liquid Limit:
Plastic Limit:
Plasticity Index:
In-Place Moisture (%):

USCS: GW

Result

Specifications

Zero Air Voids Curve for Assumed Specific Gravity
2.60



Comments:

Services: Sample fill material at project site and return it to laboratory. Prepare and test sample for moisture-density relationship.

Terracon Rep.: Client

Reported To:

Contractor:

Report Distribution:

(1) Arcosa Crushed Concrete, Kyle Stansbury (1) Arcosa Crushed Concrete, Michael Anselmo

Reviewed By:

Thomas Rimmel
Laboratory Manager

Test Methods: ASTM D1557, ASTM D2216, ASTM D2488

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.



1350 E. Cooley Drive
Colton, CA 92324
P (909) 824-7311
F (909) 301-6016
Terracon.com

May 20, 2024

ARCOSA
2655 First Street Suite 210
Simi Valley, California 93065

Attn: Mr. Kyle Stansbury
Sales Manager
T: (909) 566-8853
E: kyle.stansbury@arcosa.com

Re: Laboratory Test Results
Class II Base
Sun Valley Plant
Terracon Project No. CB231256

Dear Mr. Stansbury,

Enclosed is a summary of the test results provided by Terracon Consultants, Inc. The samples were tested in general accordance with Test Methods specified in the current Caltrans Standard Specifications, Section 26-1.02B Class II Aggregate Base.

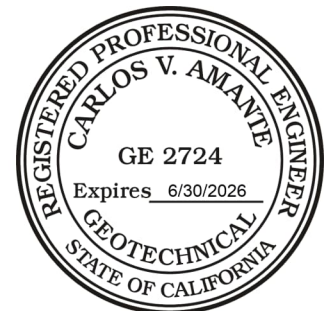
The results indicate that the material sampled on April 17, 2024, for the ARCOSA Sun Valley Plant conform to the minimum requirements.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Tom Rimmel
Laboratory Department Manager

Carlos V. Amante, P.E., G.E.
Senior Project Manager
California Registered Geotechnical Engineer No. 2724
Registration Expires 6/30/2026



PARTICLE SIZE DISTRIBUTION REPORT

Report Number: CB231256.0010C
Service Date: 04/17/24
Report Date: 05/20/24
Task: Sun Valley Plant



1355 E Cooley Dr
 Colton, CA 92324-3954
 909-824-7311

Client

Arcosa Crushed Concrete
 Attn: Kyle Stansbury
 2655 First St., Ste. 210
 Simi Valley, CA 93065

Project

Arcosa - Lab Testing on
 Samples from Various Plants
 Rialto, CA

Project Number: CB231256

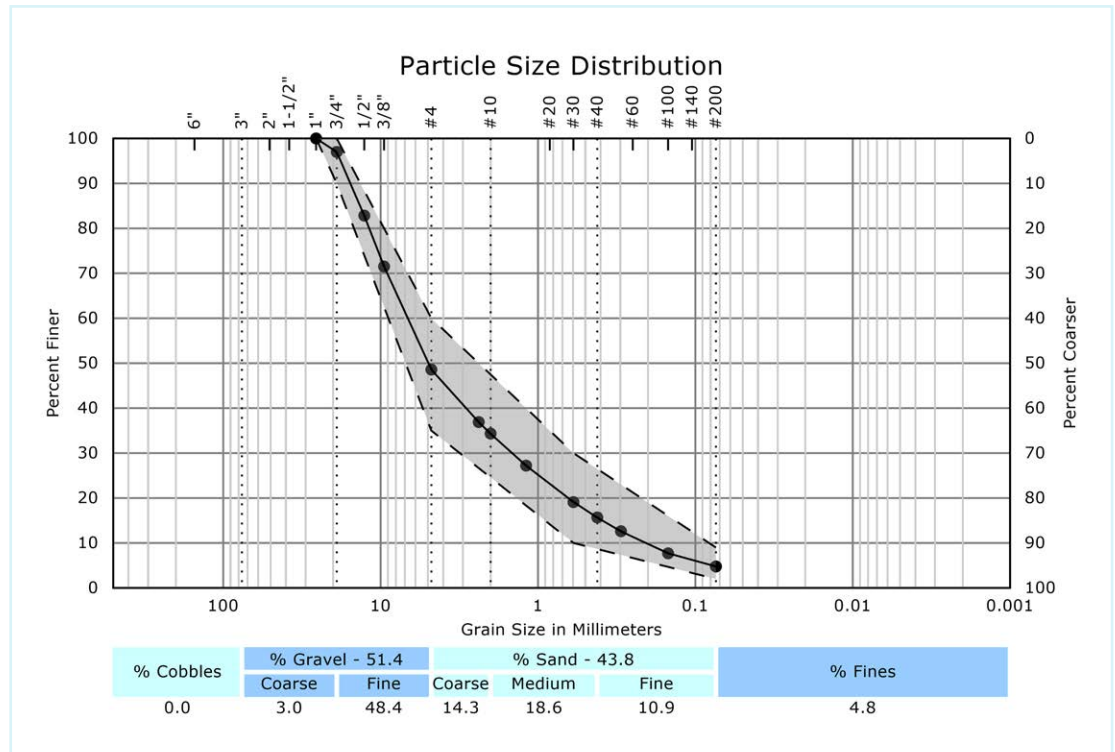
Sample Information

Sample Type: Bulk
 Sample Location: Sun Valley Plant
 Sample Description: Class 2 Base
 USCS: Well-graded gravel with sand (GW)

Laboratory Test Data

Test Method: CT 202
 Method: NA
 Atterberg Limits:
 Sample Preparation: Oven Dried
 Sieving Method: Composite Sieving-Single Separation

Sieve Size	Percent Finer	Spec.*	Pass (X=Fail)
1"	100	100	
3/4"	97	90-100	
1/2"	83		
3/8"	72		
#4	49	35-60	
#8	37		
#10	34		
#16	27		
#30	19	10-30	
#40	16		
#50	13		
#100	8		
#200	4.8	2-9	



* CT Section 26.1.02B Class 2 Base

$D_{60} = 6.73$	$D_{30} = 1.47$	$D_{10} = 0.205$	$C_c = 1.6$	$C_u = 32.9$	FM =
-----------------	-----------------	------------------	-------------	--------------	------

Comments:

Services: Determine particle size distribution by sieving.

Terracon Rep.: Client

Reported To:

Contractor:

Report Distribution:

(1) Arcosa Crushed Concrete, Kyle Stansbury (1) Arcosa Crushed Concrete, Michael Anselmo

Reviewed By:

Thomas Rimmel
 Laboratory Manager

Test ASTM D2487, CT202

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

SAND EQUIVALENT TEST REPORT



Report Number: CB231256.0010D
Service Date: 04/17/24
Report Date: 05/20/24
Task: Sun Valley Plant

1355 E Cooley Dr
Colton, CA 92324-3954
909-824-7311

Client

Arcosa Crushed Concrete
Attn: Kyle Stansbury
2655 First St., Ste. 210
Simi Valley, CA 93065

Project

Arcosa - Lab Testing on
Samples from Various Plants
Rialto, CA

Project Number: CB231256

MATERIAL: Class 2 Base

SAMPLE TYPE: Bulk

DATE TESTED: 04-30-2024

LOCATION: Sun Valley Plant

SAND EQUIVALENT: 68
(CT 217)

SPECIFICATION: 25 Minimum

Services: Provide results of the requested tests performed on a sample from the above project. The sample was delivered to this firm by a representative of our Client.

Terracon Rep.: Client

Reported To:

Contractor:

Report Distribution:

(1) Arcosa Crushed Concrete, Kyle Stansbury

(1) Arcosa Crushed Concrete, Michael Anselmo

Reviewed By:

Thomas Rimmel
Laboratory Manager

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

DURABILITY INDEX TEST REPORT



Report Number: CB231256.0010D
Service Date: 04/17/24
Report Date: 05/20/24
Task: Sun Valley Plant

1355 E Cooley Dr
Colton, CA 92324-3954
909-824-7311

Client

Arcosa Crushed Concrete
Attn: Kyle Stansbury
2655 First St., Ste. 210
Simi Valley, CA 93065

Project

Arcosa - Lab Testing on
Samples from Various Plants
Rialto, CA

Project Number: CB231256

MATERIAL: Class 2 Base

LOCATION: Sun Valley Plant

SAMPLE TYPE: Bulk

DATE TESTED: 05-01-2024

COARSE DURABILITY INDEX (Dc): 78

FINE DURABILITY INDEX (Df): 53

DURABILITY INDEX: 53
(CT229)

SPECIFICATION: 35 Minimum

Services: Provide results of the requested tests performed on a sample from the above project. The sample was delivered to this firm by a representative of our Client.

Terracon Rep.: Client

Reported To:

Contractor:

Report Distribution:

(1) Arcosa Crushed Concrete, Kyle Stansbury

(1) Arcosa Crushed Concrete, Michael Anselmo

Reviewed By:

Thomas Rimmel
Laboratory Manager

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

LA ABRASION TEST REPORT



Report Number: CB231256.0010D
Service Date: 04/17/24
Report Date: 05/20/24
Task: Sun Valley Plant

1355 E Cooley Dr
Colton, CA 92324-3954
909-824-7311

Client

Arcosa Crushed Concrete
Attn: Kyle Stansbury
2655 First St., Ste. 210
Simi Valley, CA 93065

Project

Arcosa - Lab Testing on
Samples from Various Plants
Rialto, CA

Project Number: CB231256

MATERIAL: Class 2 Base

LOCATION: Sun Valley Plant

SAMPLE TYPE: Bulk

DATE TESTED: 04-30-2024

LOS ANGELES ABRASION:

(ASTM C131)

Grade "B"

Percent Loss After 100 Revolutions	10
Percent Loss After 500 Revolutions	33

SPECIFICATION:

Grade "B"

Percent Loss After 100 Revolutions	No Requirement
Percent Loss After 500 Revolutions	No Requirement

Services: Provide results of the requested tests performed on a sample from the above project. The sample was delivered to this firm by a representative of our Client.

Terracon Rep.: Client

Reported To:

Contractor:

Report Distribution:

(1) Arcosa Crushed Concrete, Kyle Stansbury

(1) Arcosa Crushed Concrete, Michael Anselmo

Reviewed By:

Thomas Rimmel
Laboratory Manager

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

R-VALUE TEST REPORT



Report Number: CB231256.0010D
Service Date: 04/17/24
Report Date: 05/20/24
Task: Sun Valley Plant

1355 E Cooley Dr
Colton, CA 92324-3954
909-824-7311

Client

Arcosa Crushed Concrete
Attn: Kyle Stansbury
2655 First St., Ste. 210
Simi Valley, CA 93065

Project

Arcosa - Lab Testing on
Samples from Various Plants
Rialto, CA

Project Number: CB231256

MATERIAL:

Class 2 Base

LOCATION:

Sun Valley Plant

SAMPLE TYPE:

Bulk

DATE TESTED:

05-15-2024

R-VALUE:

78

(CT 301)

SPECIFICATION:

78 Minimum

Services: Provide results of the requested tests performed on a sample from the above project. The sample was delivered to this firm by a representative of our Client.

Terracon Rep.: Client

Reported To:

Contractor:

Report Distribution:

(1) Arcosa Crushed Concrete, Kyle Stansbury

(1) Arcosa Crushed Concrete, Michael Anselmo

Reviewed By:

Thomas Rimmel
Laboratory Manager

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

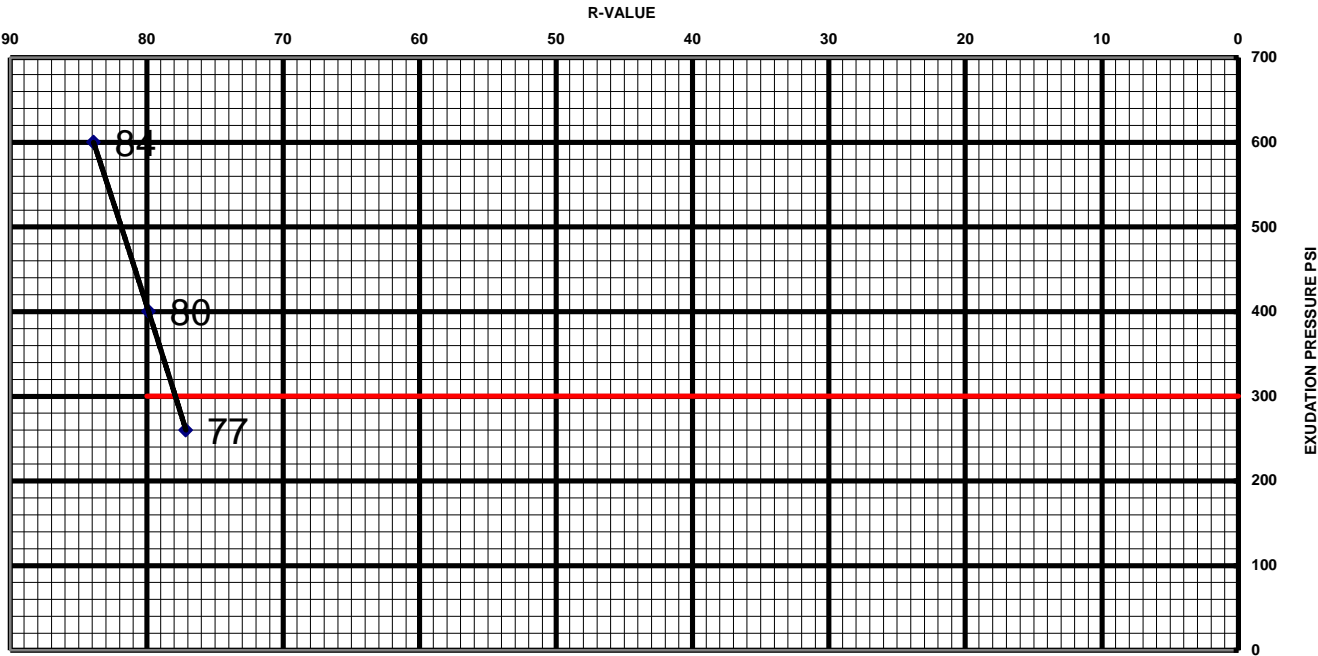
**LABORATORY RECORD OF TESTS MADE ON
 BASE, SUBBASE, AND BASEMENT SOILS**

CLIENT: Arcosa
PROJECT Sun Valley Plant
LOCATION: Sun Valley Plant
R-VALUE # : Class 2 Base
T.I. :

COMPACTOR AIR PRESSURE P.S.I.
 INITIAL MOISTURE %
 WATER ADDED, ML
 WATER ADDED %
 MOISTURE AT COMPACTION %
 HEIGHT OF BRIQUETTE
 WET WEIGHT OF BRIQUETTE
 DENSITY LB. PER CU.FT.
 STABILOMETER PH AT 1000 LBS.
 2000 LBS.
 DISPLACEMENT
 R-VALUE
 EXUDATION PRESSURE
 THICK. INDICATED BY STAB.
 EXPANSION PRESSURE
 THICK. INDICATED BY E.P.

	A	B	C	D
COMPACTOR AIR PRESSURE P.S.I.	350	350	350	
INITIAL MOISTURE %	0.9	0.9	0.9	
WATER ADDED, ML	90	85	80	
WATER ADDED %	8.7	8.2	7.7	
MOISTURE AT COMPACTION %	9.6	9.1	8.6	
HEIGHT OF BRIQUETTE	2.50	2.51	2.51	
WET WEIGHT OF BRIQUETTE	1045	1048	1049	
DENSITY LB. PER CU.FT.	115.6	116.0	116.6	
STABILOMETER PH AT 1000 LBS.	13	11	8	
2000 LBS.	19	17	14	
DISPLACEMENT	5.50	5.30	5.00	
R-VALUE	77	80	84	
EXUDATION PRESSURE	260	400	600	
THICK. INDICATED BY STAB.	0.00	0.00	0.00	
EXPANSION PRESSURE	0	0	0	
THICK. INDICATED BY E.P.	0.00	0.00	0.00	

EXUDATION CHART



R-Value: 78

LABORATORY COMPACTION CHARACTERISTICS OF SOIL REPORT



Report Number: CB231256.0010E
Service Date: 04/17/24
Report Date: 05/20/24
Task: Sun Valley Plant

1355 E Cooley Dr
Colton, CA 92324-3954
909-824-7311

Client

Arcosa Crushed Concrete
Attn: Kyle Stansbury
2655 First St., Ste. 210
Simi Valley, CA 93065

Project

Arcosa - Lab Testing on
Samples from Various Plants
Rialto, CA

Project Number: CB231256

Material Information

Source of Material: Sun Valley Plant
Proposed Use: Class 2 Base

Sample Information

Sample Date: 04/16/24
Sampled By: Client
Sample Location: Sun Valley Plant

Sample Description: (GW) Sandy Gravel, Fine to Coarse Sands, Gravels to 3/4-Inch,

Laboratory Test Data

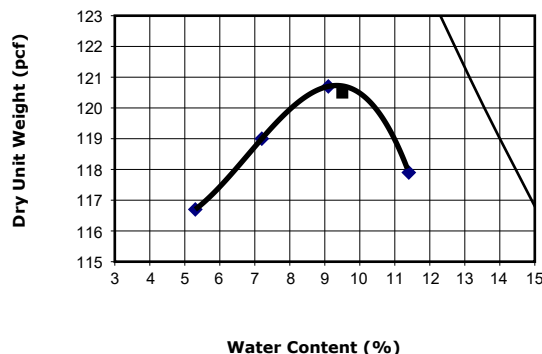
Test Procedure: ASTM D1557
Test Method: Method C
Sample Preparation: Wet
Rammer Type: Mechanical
Maximum Dry Unit Weight (pcf): 120.5
Optimum Water Content (%): 9.5

Result	Specifications
--------	----------------

Liquid Limit:
Plastic Limit:
Plasticity Index:
In-Place Moisture (%):

USCS: GW

Zero Air Voids Curve for Assumed Specific Gravity
2.60



Comments:

Services: Sample fill material at project site and return it to laboratory. Prepare and test sample for moisture-density relationship.

Terracon Rep.: Client

Reported To:

Contractor:

Report Distribution:

(1) Arcosa Crushed Concrete, Kyle Stansbury (1) Arcosa Crushed Concrete, Michael Anselmo

Reviewed By:

Thomas Rimmel
Laboratory Manager

Test Methods: ASTM D1557, ASTM D2216, ASTM D2488

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

ATTACHMENT – D

Asphalt Mix Design Report



Contractor: Regan Paving
 Project: JPL Bridge Explorer Rd - Altadena
 Plant: Vulcan Materials - Irwindale HMA
 Mix Design: Greenbook Section 203 Type III C3 PG 64-10 20% RAP
 Product Code: 300807

September 10, 2024

Vulcan Materials Company (Vulcan) shall furnish asphalt paving materials in connection with the above-referenced project and that this product will conform to Section 203 of the Standard Specifications for Public Works Construction. Vulcan will furnish such materials in accordance with the mix design below. The Asphalt Cement will conform to PG 64-10 for Performance Grade.

	Man Fines	RD	3/8"	1/2"	3/4"	RAP	Combined Gradation	Mix Guidelines
% USED	30.0	17.0	17.0	16.0		20		
1-1/2"	100.0	100.0	100.0	100.0		100	100	
1"	100.0	100.0	100.0	100.0		100	100	
3/4"	100.0	100.0	100.0	100.0		100	100	100
1/2"	100.0	100.0	100.0	76.0		100	96	95 - 100
3/8"	100.0	100.0	93.0	35.0		98	88	80 - 95
#4	99.0	95.0	19.0	8.0		76	66	55 - 72
#8	75.0	67.0	6.0	5.0		56	47	38 - 55
#16	51.0	46.0	1.6	4.0		43	33	--
#30	30.0	32.0	0.5	4.0		33	22	18 - 33
#50	15.0	22.0	0.1	3.0		23	13	--
#100	7.0	16.0	0.0	3.0		15	8	--
#200	3.2	10.7	0.0	2.3		10.6	5.3	4 - 8

Aggregate Properties			Asphalt Concrete Properties		
Test	CTM	1/2" Mix	Mix Design		
% Crushed Particle	CT 205	Coarse = 100%	AC Content (%)	TWM	DWA
	CT 205	Fine = 100%		5.4	5.7
LA Rattler @ 500 Rev.	CT 211 (B)	30%	Air Voids		4.0%
Sand Equivalent	CT 217	71	S-value (Hveem)	CT 366	37

Vulcan makes no representations or warranties as to whether the attached mix design complies with any other specifications or standards set forth in any contracts or design drawings, and is not responsible for obtaining any necessary approvals or certifications for use of this mix design. Vulcan's sale of asphalt paving materials will be governed by the Vulcan Sales Documents, as such term is defined in the General Terms and Conditions which form a part of Vulcan's Quotation relating to the above-referenced project.

Submitted by:

ML/rm

Mauricio Lizarraga
 Manager Technical Services



ATTACHMENT – E

Delivery Tickets



WEIGHMASTER CERTIFICATE

DATE: 9/16/2024
TIME: 6:14:34AM

CRUSHED CONCRETE

9005 Bradley Ave
Sun Valley CA 91352

818-767-0700

TICKET NO: 81105039

THIS IS TO CERTIFY that the following described commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

WEIGHMASTER *Haley Downer*

COMMODITY: CLASS II BASE

JOB NO. : 8445

SOLD TO: 12169326-REGAN PAVING
SHIP TO: Explorer Rd N/O Windsor Ave Alt
Altadena, CA 91001

TRUCK NO. : 35221V1 LICENSE : 35221v1 Trailer1:

LOAD NO. : 1
Tons Today: 25.17 Ton

m Manual Weight, *
Trailer2:

PO:

CUST JOB:

Comments: Mike 909 239 7287

TONS
GROSS: 40.00
TARE: 14.83 m
NET: 25.17 *

(DRIVER ON BOTH GROSS AND TARE)

Drivers shall attempt to place material where Customer designates, but Arcosa Crushed Concrete assumes no responsibility for damages inside curb or property line. Title to the materials is passed at the plant site. Material price is FOB plant and subject to sales tax on material only. Transportation charges for material are made by licensed, independent truck operators at Public Utilities Commission rates and subject, if applicable, to transportation tax. The Terms, Conditions and Sales Agreement can be found at: <https://www.ramco.us.com/terms/> WARNING ⚠ This Product can expose you to chemicals, including lead and lead compounds, which are known to the State of California to cause cancer and birth defects and other reproductive harm. For more information, go to www.P65Warnings.ca.gov

ARRIVAL TIME	15 MINS	LEFT JOB
7:00 AM		8:20
DRIVER'S SIGNATURE:		

APPROVED	HAUL BACK TONS
<i>F HOUR</i>	
RECEIVED BY:	



CalMat Co.
 IRWINDALE HMA
 16005 FOOTHILL BLVD
 IRWINDALE, CA 91702

DANGER



Do not handle until the safety information presented in the Safety Data Sheet (SDS) has been read and understood. Follow applicable local, state and federal health and safety standards. For further health and safety information regarding this product, please refer to the SDS. An electronic version of the SDS is available at <http://www.vulcanmaterials.com/construction-materials/safety-data-sheets> or by calling 1-866-401-5424

PELIGRO

No usar hasta que la informacion de seguridad presentada en la Ficha de Datos de Seguridad (SDS) haya sido completamente leida y entendida. Siga las reglas locales, estatales y federales de salud y seguridad. Para mayor informacion sobre la salud y seguridad de este producto, por favor referirse al documento de SDS. Una version de SDS electronica esta disponible en <http://www.vulcanmaterials.com/construction-materials/safety-data-sheets> o llamando al 1-866-401-5424


RECEIVED BY: X DRIVER		CUSTOMER/CONSIGNEE MIKE		9092397287
DATE 9/23/2024	TIME 1:49PM	PLANT 4977-211 IRWINDALE HMA	Ticket No 10993485	
WEIGHMASTER CERTIFICATE THIS IS TO CERTIFY that the following described commodity was weighed, measured, or counted by a weighmaster, whose signature is on the certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture				
WEIGHMASTER DEPUTY: RAUL TERRIQUEZ JR				

LIMITED WARRANTY AND WARRANTY DISCLAIMER: Seller warrants for a period of one (1) year from date of delivery only that the material sold hereunder substantially complies with Seller's specification for said material or the specifications set forth in the Seller's quotation. **SELLER HEREBY EXCLUDES ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PURPOSE, AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, OF THE MATERIAL SOLD HEREUNDER, OTHER THAN THE EXPRESS WARRANTY STATED ABOVE.** In addition, except to the extent otherwise set forth in the specification described above, Seller makes no warranty whatsoever with respect to specific gravity, absorption, whether the material is innocuous, non-deleterious, or non-reactive, or whether the material is in conformance with any plans, other specifications, regulations, ordinances, statutes, or other standards applicable to customer's job or to said material as used by customer, SELLER SHALL IN NO EVENT BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGE CAUSED BY NON-COMPLIANCE OF THE MATERIAL WITH SPECIFICATION, OR FOR ANY DEFECTS IN THE MATERIALS SOLD HEREUNDER.

ALL SALES AND DELIVERS MADE SUBJECT TO SELLER'S GENERAL TERMS AND CONDITIONS.

AS EVIDENCED BY SIGNATURE, OR DEPARTURE FROM SELLER'S FACILITY, CARRIER ACKNOWLEDGES THAT CARRIER IS SOLELY RESPONSIBLE FOR THE ACCURACY OF THIS VEHICLE'S TARE WEIGHT, AXLE WEIGHTS AND GROSS WEIGHT. CARRIER SHALL BE RESPONSIBLE FOR NOTIFYING SELLER WHEN ANY TRUCK OR TRAILER HAS BEEN OVERLOADED SO AS TO RENDER IT OUT OF COMPLIANCE WITH ANY APPLICABLE WEIGHT LIMITS. TO THE MAXIMUM EXTENT ALLOWED BY LAW, CARRIER SHALL INDEMNIFY SELLER FOR ANY LOSS CAUSED BY OVERLOADING.

TRUCK TARE AND GROSS WEIGHTS ARE DETERMINED WITH THE DRIVER IN THE VEHICLE.

CUSTOMER: 216911 CK# REGAN PAVING / CHARLES C		CUSTOMER PURCHASE ORDER: 41939		GOVT CONTRACT:	
ORDER: 1203458224	JPL BRIDGE / ALTADENA EXPLORER RD			DELIVERED Dispatch: 211394	
DESTINATION: DEL1	EXPLORER RD & WINDSOR AVE / ALTADENA JPL BRIDGE JUST N/OFF VENTURA ST - LEFT HAND SIDE OF VENTURA			ZONE/MILES	
PRODUCT: 300807	203 3C3 PG64-10				
COMMENTS: MIKE 909-239-7287					
TRUCK LICENSE FREIGHT TYPE L	TRUX41782 41782 L	AC13-GARY SUPER10 AXLES 0	CARRIER TRAILER ID NO TARE DATE	WETRX TRUX, INC. TRAILER ID NO TARE EXPIRE	10/01/2024
GROSS LBS (Scale 1) 65,680	TARE LBS (Scale 1) 26,420	NET LBS 39,260	TONS 19.63	TONS TODAY 155.68	LOADS TODAY 8
GROSS KG 29,792	TARE KG 11,984	NET KG 17,808	NET MG 17.81	MG TODAY 141.23	IN PLANT 1:48 pm
CASH SALE PER TON	MATERIAL	HAUL	OTHER CHARGE		
TOTAL	MATERIAL		TAX	OTHER CHARGES	COD TOTAL
FREIGHT TIME REPORT	ARRIVE JOB	START UNLOAD	FINISH UNLOAD	JOB TIME	DELAY TIME

We make deliveries inside the curb line at the customer's risk only and accept no responsibility whatsoever for damage resulting from such deliveries.

APPENDIX D

Borehole Lithologic Logs



440 E. Huntington Drive
Suite 425
Arcadia, CA 91006

BORING Explorer Well
START DRILL DATE Oct 31, 24
FINISH DRILL DATE Dec 10, 24
LOCATION Pasadena, CA
PROJECT Explorer Well
NUMBER HPA110004

SHEET 1 OF 18

ELEVATION DATA:
GROUND SURF. 1,110
TOP OF CASING
DATUM

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)	RSN (Ohm-m)	Spontaneous Potential (mV)	RLN (Ohm-m)				
			50 125 200 275 350	0 75 150 225 300		65 68 71 74 77				
			-80 -10 60 130 200	0 75 150 225 300		0.2 0.1 0.0 -0.1 -0.2				
			20 40 60 80 100	0 75 150 225 300						
	Asphalt									
	Poorly graded Sand with gravel (SP); dark grayish brown (10YR 4/2); 15% angular gravel, 0.5 in to 4 in diameters; 85% fine to medium sand; non-plastic; moist.									
5	Poorly graded Sand with gravel (SP); brown (10YR 4/3); 20% angular gravel, 1 in to 3.5 in diameter; 80% fine to medium sand; non-plastic; loose; moist. Boulders, maximum diameter 29 in.									
10	Poorly graded Sand with gravel (SP); brown (10YR 4/3); 20% round to angular gravel, 0.5 in to 2.5 in diameter; 80% fine to medium sand; non-plastic; loose; moist.									
15	Poorly graded Sand with gravel (SP); dark yellowish brown (10YR 4/4); Trace round to subangular boulders, 5 in to 8 in; 15% round to subangular gravel, 1 in to 3.5 in diameter; 85% fine to medium sand; non-plastic; loose; moist.									
20	Poorly graded Sand (SP); brown (10YR 4/3); 10% subangular gravel, 0.5 in to 1 in diameter; 90% fine to medium sand; non-plastic; loose; moist.									
25	Poorly graded Sand (SP); brown (10YR 4/3); 10% subangular to angular gravel, 1 in to 3 in diameter; 90% fine to medium sand; non-plastic; loose; moist. Boulders, maximum diameter 36 in.									
30	Well-graded Sand (SW); olive brown (2.5Y 4/4); 10% angular gravel, 0.5 in to 2.5 in diameter; 85% fine to medium sand; 5% fines; non-plastic; soft; moist.									
35	Well-graded Sand (SW); olive brown (2.5Y 4/3); 10% subangular to angular gravel, 0.5 in to 3.5 in diameter; 85% fine to coarse sand; 5% fines; non-plastic; soft; moist.									
40										

07-WELL BORE - GEOPHYS HPA110004 PILOT HOLE.GPJ GEOSNTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FA; FRC
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:

WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS								ZONE TESTS	COMMENTS							
			Gamma Ray (gAPI)				RSN (Ohm-m)						Temperature (°F)						
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50	125	200	275	350	0	75	150	225	300	65	68	71	74	77		1) Rig Behavior 2) Misc
			Spontaneous Potential (mV)				RLN (Ohm-m)				Differential Temperature (°F)								
			-80	-10	60	130	200	0	75	150	225	300	0.2	0.1	0.0	-0.1	-0.2		
			Single-Point Resistance (ohm)				Shallow Resistivity (Ohm-m)												
			20	40	60	80	100	0	75	150	225	300							
45	Well-graded Sand (SW); light olive brown (2.5Y 5/3); 5% subangular to angular 90% fine to coarse sand; 5% fines; non-plastic; soft; moist. Boulders, maximum diameter 36 in.																	Sample Collected on 11/1/24 at 10:12 (35'-40')	
50	Well-graded Sand (SW); dark yellowish brown (10YR 4/4); 10% subangular to angular gravel, 0.5 in to 3 in; 85% fine to coarse sand; 5% fines; non-plastic; loose; moist. Maximum diameter 1 in																	Sample Collected on 11/1/24 at 11:49 (40'-45')	
55																		Sample Collected on 11/1/24 at 14:25 (45'-50')	
60	Boulders, maximum diameter 127 in.																	Sample Collected on 11/4/24 at 7:35 (50'-55')	
65	Well-graded Sand (SW); brownish yellow (10YR 6/6); 5% subangular gravel, up to 2 in diameter; 90% fine to coarse sand; 5% fines; non-plastic; loose; moist.																	Sample Collected on 11/4/24 at 8:15 (55'-60')	
70	Well-graded Sand with silt (SW-SM); dark yellowish brown (10YR 4/4); 5% angular to subangular gravel; 85% fine to coarse sand; 10% fines; slightly moist.																	Sample Collected on 11/4/24 at 11:05 (60'-65')	
75	Well-graded Sand with silt (SW-SM); light olive brown (2.5Y 5/4); 10% angular to subangular gravel, up to 3 in diameter; 80% fine to coarse sand; 10% fines; boulders; slightly moist.																	Sample Collected on 11/4/24 at 13:15 (65'-70')	
80																		Sample Collected on 11/4/24 at 14:40 (70'-75')	

07-WELL BORE - GEOPHYS HPA110004 PILOT HOLE.GPJ GEOSNTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FA; FRC
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)	RSN (Ohm-m)	Spontaneous Potential (mV)	RLN (Ohm-m)				
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0 75 150 225 300	0 75 150 225 300	65 68 71 74 77	0.2 0.1 0.0 -0.1 -0.2		1) Rig Behavior 2) Misc	
	Well-graded Sand with gravel (SW); light olive brown (2.5Y 4/4); 15% angular to subangular fine to coarse gravel; 80% fine to coarse sand; 5% fines; boulders; slightly moist.								Sample Collected on 11/5/24 at 08:08 (75'-80')	
85	Well-graded Sand with silt (SW-SM); light olive brown (2.5Y 4/4); 10% angular to subangular gravel, up to 3 in diameter; 80% coarse sand; 10% fines; boulders; slightly moist.								Sample Collected on 11/5/24 at 11:30 (80'-85')	
90	Well-graded Sand with gravel (SW); dark brown (10YR 3/3); 15% subangular fine to coarse gravel, 6 in diameter; 80% sand; 5% fines; boulders; moist.								Sample Collected on 11/5/24 at 15:15 (85'-90')	
95	Cobbles, maximum diameter 6 in.								Conductor Casing installed on 11/6/24 (0'-96') Sample Collected on 11/6/24 at 09:50 (90'-95')	
100	Well-graded Sand (SW); dark grayish brown (10YR 4/2); 95% fine to medium subangular sand; 5% fines.								Sample Collected on 12/3/24 at 16:00 (95'-100')	
105	Well-graded Sand (SW); dark grayish brown (10YR 4/2); 5% gravel; 90% fine to medium subangular sand; 5% fines.								Sample Collected on 12/3/24 at 18:25 (105'-110')	
110	Well-graded Sand (SW); very dark grayish brown (2.5Y 3/2); 10% subangular gravel; 0.5 in to 1.5 in diameter; 85% fine to coarse sand; 5% fines; loose.								Slow Drilling	
115										
120										

07-WELL BORE - GEOPHYS HPA110004 PILOT HOLE.GPJ GEOSNTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FA; FRC
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:

WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)	RSN (Ohm-m)	Spontaneous Potential (mV)	RLN (Ohm-m)				
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0 75 150 225 300	0 75 150 225 300	65 68 71 74 77	0.2 0.1 0.0 -0.1 -0.2		1) Rig Behavior 2) Misc	
125	Well-graded Sand (SW); brown (10YR 5/3); 5% subangular gravel; 0.5 in to 1 in diameter; 90% fine to medium sand; 5% fines.								Sample Collected on 12/4/24 at 03:11 (110'-120')	
130	Well-graded Sand (SW); pale brown (10YR 6/3); 5% subangular gravel; up to 0.5 in diameter; 90% fine to medium sand; 5% fines.								Sample Collected on 12/4/24 at 04:23 (120'-130')	
140	Well-graded Sand (SW); grayish brown (10YR 5/2); 5% subangular gravel; up to 0.5 in diameter; 90% fine to medium sand; 5% fines.								Sample Collected on 12/4/24 at 07:33 (130'-140')	
150	Well-graded Sand (SW); brown (10YR 5/3); 5% subangular gravel; up to 0.5 in diameter; 90% fine to coarse sand; 5% fines. Cobbles and boulders.								Sample Collected on 12/4/24 at 11:05 (140'-150')	
160										

07-WELL BORE - GEOPHYS HPA110004 PILOT HOLE.GPJ GEOSINTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company **NORTHING** 34.200
EQUIPMENT Milltooth Tricone Bit **EASTING** -118.166
DRILL MTHD FA; FRC **COORDINATE SYSTEM:**
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc. **REVIEWER** T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)	Spontaneous Potential (mV)	RSN (Ohm-m)	RLN (Ohm-m)				
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0	75 150 225 300	65 68 71 74 77	0.2 0.1 0.0 -0.1 -0.2		1) Rig Behavior 2) Misc	
165	Well-graded Sand (SW); pale brown (10YR 6/3); 5% subangular gravel, 0.5 in to 1 in diameter; 90% fine to course sand; loose; 5% fines.								Sample Collected on 12/4/24 at 14:55 (150'-160')	
170								Slow Drilling; Equipment knocking, grinding due to cobbles and boulders		
175										Sample Collected on 12/4/24 at 17:40 (160'-170')
180	Well-graded Sand with silt (SW-SM); grayish brown (10YR 5/2); 5% subangular gravel, up to 0.5 in diameter; 85% fine to medium sand; loose; 10% fines.								Sample Collected on 12/4/24 at 23:59 (180'-190')	
185										
190	Well-graded Sand with silt (SW-SM); grayish brown (10YR 5/2); 5% subangular gravel, up to 0.5 in diameter; 85% fine to medium sand; loose; 10% fines.								Sample Collected on 12/5/24 at 02:02 (190'-200')	
195										
200										

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FA; FRC
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)	RSN (Ohm-m)	Spontaneous Potential (mV)	RLN (Ohm-m)				
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0 75 150 225 300	0 75 150 225 300	65 68 71 74 77	0.2 0.1 0.0 -0.1 -0.2		1) Rig Behavior 2) Misc	
205	Well-graded Sand with silt (SW-SM); grayish brown (10YR 5/2); 5% subangular to angular gravel, up to 1 in diameter; 85% fine to coarse sand; 10% fines.								Sample Collected on 12/5/24 at 02:02 (190'-200')	
210	Well-graded Sand (SW); grayish brown (10YR 5/2); 5% subangular to angular gravel, up to 2 in diameter; 90% fine to coarse sand; 5% fines.								Sample Collected on 12/5/24 at 08:00 (200'-210')	
220	Well-graded Sand with silt (SW-SM); light yellowish brown (10YR 6/4); 5% subangular to angular gravel; up to 2 in diameter; 85% fine to coarse sand; loose; 10% fines.								Sample Collected on 12/5/24 at 10:15 (210'-220')	
230	Clayey Sand (SC); light yellowish brown (10YR 6/4); 10% subangular to angular gravel, up to 2 in diameter; 75% sand; 15% fines.								Sample Collected on 12/5/24 at 13:10 (220'-230')	
240										

07-WELL BORE - GEOPHYS HPA110004 PILOT HOLE.GPJ GEOSNTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FA; FRC
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)	RSN (Ohm-m)	Spontaneous Potential (mV)	RLN (Ohm-m)				
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0 75 150 225 300	0 75 150 225 300	65 68 71 74 77	0.2 0.1 0.0 -0.1 -0.2		1) Rig Behavior 2) Misc	
245	Well-graded Sand with clay (SW-SC); light yellowish brown (10YR 6/4); 5% subrounded to subangular gravel; 85% fine to coarse sand; 10% fines.								Sample Collected on 12/5/24 at 17:00 (230'-240')	
250									Sample Collected on 12/5/24 at 19:00 (240'-250')	
255									Slow Drilling	
260	Clayey Sand (SC); light olive brown (2.5YR 5/3); 10% subangular to angular gravel, 0.25 in to 0.5 in diameter; 75% fine to coarse sand; 15% fines; low plasticity.								Sample Collected on 12/5/24 at 21:35 (250'-260')	
265									Fast Drilling	
270	Well-graded Sand with clay (SW-SC); brown (10YR 5/3); 5% subangular gravel; 0.5 in to 1 in diameter; 85% fine to medium sand; 10% fines.								Sample Collected on 12/5/24 at 23:03 (260'-270')	
275										
280										

07-WELL BORE - GEOPHYS HPA110004 PILOT HOLE.GPJ GEOSNTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FA; FRC
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)	RSN (Ohm-m)	Spontaneous Potential (mV)	RLN (Ohm-m)				
			50 125 200 275 350	0 75 150 225 300		65 68 71 74 77				
			-80 -10 60 130 200	0 75 150 225 300			0.2 0.1 0.0 -0.1 -0.2			
			20 40 60 80 100	0 75 150 225 300						
285	Well-graded Sand with clay (SW-SC); light olive brown (2.5Y 5/4); 5% subangular gravel, up to 1 in diameter; 85% fine to medium sand; 10% fines; low plasticity.								Sample Collected on 12/6/24 at 01:01 (270'-280')	
290	Silty Sand with gravel (SM); brown (10YR 5/3); 30% subangular to round gravel, up to 1 in; 50% fine to medium sand; 20% fines.								Sample Collected on 12/6/24 at 04:20 (280'-290')	
300	Silty Sand with gravel (SM); brown (10YR 5/3); 30% subangular to round gravel, up to 1 in; 40% fine to medium sand; 30% fines; clayey.								Sample Collected on 12/6/24 at 04:20 (280'-290')	
310	Sandy lean Clay (CL); yellowish brown (10YR 5/6); 40% medium sand; 60% fines; low plasticity; slow dilatancy; low toughness.								Sample Collected on 12/6/24 at 12:30 (300'-310')	
315										
320										

07-WELL BORE - GEOPHYS HPA110004 PILOT HOLE.GPJ GEOSNTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FA; FRC
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)	Spontaneous Potential (mV)	Single-Point Resistance (ohm)	RSN (Ohm-m)				
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0	75 150 225 300	65 68 71 74 77	0.2 0.1 0.0 -0.1 -0.2		1) Rig Behavior 2) Misc	
325	Sandy lean Clay (CL); yellowish brown (10YR 5/6); 30% medium sand; 70% fines; medium plasticity; slow dilatancy; low toughness.								Sample Collected on 12/6/24 at 14:15 (310'-320')	
330	Lean Clay (CL); yellowish brown (10YR 5/6); 5% subrounded to subangular gravel; up to 0.5 in; 10% sand; 85% fines; soft consistency; slow dilatancy; medium plasticity.								Sample Collected on 12/6/24 at 16:10 (320'-330')	
340	Lean Clay with sand (CL); yellowish brown (10YR 5/6); 25% coarse sand; 75% fines; medium to low toughness; low plasticity.								Sample Collected on 12/6/24 at 17:55 (330'-340')	
350	Clayey Sand (SC); yellowish brown (10YR 5/6); 70% coarse, subangular sand; 30% fines.								Sample Collected on 12/6/24 at 19:20 (340'-350')	
360										

07-WELL BORE - GEOPHYS HPA110004 PILOT HOLE.GPJ GEOSNTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FA; FRC
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)	Spontaneous Potential (mV)	RSN (Ohm-m)	RLN (Ohm-m)				
			50 125 200 275 350	0	75 150 225 300	65 68 71 74 77				
			-80 -10 60 130 200	0	75 150 225 300	0.2 0.1 0.0 -0.1 -0.2				
			20 40 60 80 100	0	75 150 225 300					
365	Clayey Sand (SC); dark yellowish brown (10YR 4/3); 70% fine to coarse, round to angular sand; 30% fines.								Sample Collected on 12/6/24 at 21:40 (350'-360')	
370	Clayey Sand (SC); dark yellowish brown (10YR 4/3); 85% fine to coarse, round to subangular sand; 15% fines.								Sample Collected on 12/7/24 at 00:50 (360'-370')	
375									Zone 1A Constructed on 02/04/2025 - screen interval (371'- 391.3') Groundwater Sample Collected on 02/05/25 at 16:53	
380	Poorly-graded Sand (SW); yellowish brown (10YR 5/4); 10% gravel; 85% fine to medium; rounded sand; 5% fines.								Sample Collected on 12/7/24 at 03:40 (370'-380')	
385										
390	Clayey Sand (SC); yellowish brown (10YR 5/6); 5% gravel; 75% fine to medium, rounded to subrounded sand; 20% fines; medium plasticity.								Sample Collected on 12/7/24 at 09:10 (380'-390')	
395										
400										

07-WELL BORE - GEOPHYS HPA110004 PILOT HOLE.GPJ GEOSNTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FA; FRC
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)	Spontaneous Potential (mV)	RSN (Ohm-m)	RLN (Ohm-m)				
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0	75 150 225 300	65 68 71 74 77	0.2 0.1 0.0 -0.1 -0.2		1) Rig Behavior 2) Misc	
405	Poorly-graded Sand (SP); yellowish brown (10YR 5/6); 10% gravel; 85% fine to medium; rounded sand; 5% fines; low plasticity.								Sample Collected on 12/7/24 at 11:05 (390'-400')	
410	Silty Sand (SM); brown (10YR 5/3); 60% fine to coarse, subrounded to subangular sand; 40% fines; low plasticity.								Sample Collected on 12/7/24 at 13:20 (400'-410')	
420	Silty Sand (SM); brown (10YR 5/3); 70% fine to coarse, subrounded to subangular sand; 30% fines; low plasticity.								Sample Collected on 12/7/24 at 19:55 (410'-420')	
430	Clayey Sand (SC); brown (10YR 5/3); 60% fine to coarse, subrounded to subangular sand; 40% fines.								Sample Collected on 12/7/24 at 21:30 (420'-430')	
435									Zone 3 Constructed on 12/18/2024 - screen interval (432'- 452.3') Groundwater Sample Collected on 12/19/24 at 18:50	
440										

07-WELL BORE - GEOPHYS HPA110004 PILOT HOLE.GPJ GEOSINTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FA; FRC
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS						TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)			RSN (Ohm-m)						
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0 75 150 225 300	0 75 150 225 300	0 75 150 225 300	65 68 71 74 77	0.2 0.1 0.0 -0.1 -0.2			1) Rig Behavior 2) Misc	
445	Clayey Sand (SC); brown (10YR 5/3); 55% fine to coarse, subrounded to subangular sand; 45% fines; trace gravel.									Sample Collected on 12/7/24 at 22:50 (430'-440')		
450										Sample Collected on 12/8/24 at 02:05 (440'-450')		
455												
460	Sandy Silt (ML); yellowish brown (10YR 5/4); 30% fine, subrounded to subangular sand; 70% fines; low plasticity; trace gravel.									Sample Collected on 12/8/24 at 04:45 (450'-460')		
465												
470										Sample Collected on 12/8/24 at 05:30 (460'-470')		
475												
480												

07-WELL BORE - GEOPHYS HPA110004 PILOT HOLE.GPJ GEOSNTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FA; FRC
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:

WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)	RSN (Ohm-m)	Spontaneous Potential (mV)	RLN (Ohm-m)				
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0 75 150 225 300	0 75 150 225 300	65 68 71 74 77	0.2 0.1 0.0 -0.1 -0.2		1) Rig Behavior 2) Misc	
485	Silty Sand (SM); yellowish brown (10YR 5/4); 50% fine to medium, subrounded to subangular sand; 50% fines; low plasticity; trace gravel.								Sample Collected on 12/8/24 at 11:05 (470'-480')	
490	Silt with Sand (ML); yellowish brown (10YR 5/4); 25% fine to coarse, subrounded to subangular sand; 75% fines; medium plasticity; slow dilatancy; very soft.								Zone 2A Constructed on 02/01/2025 - screen interval (482'- 502.3') Groundwater Sample Collected on 02/05/25 at 03:00	
495									Sample Collected on 12/8/24 at 13:10 (480'-490')	
500	Sandy Silt (ML); yellowish brown (10YR 5/4); 45% fine to coarse, subrounded to subangular sand; 55% fines; low plasticity; slow dilatancy; very soft.								Sample Collected on 12/8/24 at 15:10 (490'-500')	
505										
510	Silt with Sand (ML); yellowish brown (10YR 5/4); 20% fine to coarse, subrounded to subangular sand; 80% fines; medium plasticity; slow dilatancy; very soft.								Sample Collected on 12/8/24 at 17:45 (500'-510')	
515										
520										

07-WELL BORE - GEOPHYS HPA110004 PILOT HOLE.GPJ GEOSNTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FA; FRC
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)	Spontaneous Potential (mV)	RSN (Ohm-m)	RLN (Ohm-m)				
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0	75 150 225 300	65 68 71 74 77	0.2 0.1 0.0 -0.1 -0.2		1) Rig Behavior 2) Misc	
525										
530	Sandy Silt (ML); yellowish brown (10YR 5/4); 40% coarse to fine, subrounded to subangular sand; 80% fines; low plasticity; slow dilatancy; low toughness.								Sample Collected on 12/8/24 at 21:00 (510'-520')	
535										
540	Sandy Silt (ML); yellowish brown (10YR 5/4); 30% medium to fine, subrounded to subangular sand; 70% fines; low plasticity; slow dilatancy; low toughness.								Sample Collected on 12/9/24 at 02:50 (530'-540')	
545										
550	Sandy Silt (ML); yellowish brown (10YR 5/4); 40% fine to coarse sand; 60% fines; low plasticity; slow dilatancy; low toughness.								Sample Collected on 12/9/24 at 05:35 (540'-550')	
555									Zone 2 Constructed on 12/16/2024 - screen interval (557'-577.3') Groundwater Sample Collected on 12/17/24 at 23:45	
560										

07-WELL BORE - GEOPHYS HPA110004 PILOT HOLE.GPJ GEOSNTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FA; FRC
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)	Spontaneous Potential (mV)	RSN (Ohm-m)	RLN (Ohm-m)				
			50 125 200 275 350	0	75 150 225 300	65 68 71 74 77	0.2 0.1 0.0 -0.1 -0.2			
			20 40 60 80 100	0	75 150 225 300					
565	Silty Sand (SM); yellowish brown (10YR 5/4); 70% fine to medium sand; 30% fines.								Sample Collected on 12/9/24 at 17:27 (550'-560')	
570	Silty Sand (SM); yellowish brown (10YR 5/4); 70% fine to coarse sand; 30% fines.								Sample Collected on 12/9/24 at 18:53 (560'-570')	
575										
580	Silty Sand (SM); brown (10YR 5/3); 5% subrounded gravel, up to 0.75 in; 70% fine to coarse sand; 25% fines; strong odor; no staining.								Sample Collected on 12/9/24 at 20:12 (570'-580')	
585										
590	Lean Clay with sand (CL); yellowish brown (10YR 5/4); 25% fine to coarse sand; 75% fines; low plasticity; medium toughness; slight odor; no staining.								Sample Collected on 12/9/24 at 22:19 (580'-590')	
595										
600										

07-WELL BORE - GEOPHYS HPA110004 PILOT HOLE.GPJ GEOSNTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FA; FRC
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)	Spontaneous Potential (mV)	RSN (Ohm-m)	RLN (Ohm-m)				
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0	75 150 225 300	65 68 71 74 77	0.2 0.1 0.0 -0.1 -0.2		1) Rig Behavior 2) Misc	
605	Clayey Sand (SC); yellowish brown (10YR 5/4); 75% fine to medium with trace of coarse sand; 25% fines; no odor; no staining.								Sample Collected on 12/10/24 at 01:20 (590'-600')	
610	slight odor.								Sample Collected on 12/10/24 at 03:16 (600'-610')	
615										
620	Silty Sand (SM); brown (10YR 5/3); 80% fine to medium, rounded sand, up to 0.25 in; 20% fines; no plasticity.								Sample Collected on 12/10/24 at 05:20 (610'-620')	
625									Zone 1 Constructed on 12/12/2024 - screen interval (622'-642.3') Groundwater Sample Collected on 12/15/24 at 13:15	
630	Silty Sand (SM); light olive brown (2.5Y 5/3); 75% fine, subrounded sand, up to 0.25 in; 25% fines; low plasticity.								Sample Collected on 12/10/24 at 06:10 (620'-630')	
635										
640										

07-WELL BORE - GEOPHYS HPA110004 PILOT HOLE.GPJ GEOSNTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FA; FRC
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)	Spontaneous Potential (mV)	Single-Point Resistance (ohm)	RSN (Ohm-m)				
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0	75 150 225 300	65 68 71 74 77	0.2 0.1 0.0 -0.1 -0.2		1) Rig Behavior 2) Misc	
645	Silty Sand (SM); light olive brown (2.5Y 5/3); 5% gravel; 65% fine to coarse, subrounded to subangular sand, up to 0.5 in; 30% fines; low plasticity.								Sample Collected on 12/10/24 at 08:11 (630'-640')	
650	Silty Sand (SM); yellowish brown (10YR 5/4); 5% gravel, up to 0.5 in; 65% fine to coarse sand; 25% fines; low plasticity.								Sample Collected on 12/10/24 at 09:07 (640'-650')	
655										
660									Sample Collected on 12/10/24 at 11:06 (650'-660')	
665										
670	Silty Sand (SM); yellowish brown (10YR 5/4); 10% fine, subangular gravel; 60 % fine to coarse, subangular sand; 30% fines.								Sample Collected on 12/10/24 at 11:49 (660'-670')	
675										
680										

07-WELL BORE - GEOPHYS HPA110004 PILOT HOLE.GPJ GEOSINTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FA; FRC
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				TEMPERATURE (°F)	DIFFERENTIAL TEMPERATURE (°F)	ZONE TESTS	COMMENTS
			Gamma Ray (gAPI)	RSN (Ohm-m)	Spontaneous Potential (mV)	RLN (Ohm-m)				
	1) Unit/Formation, Mem. 6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0 75 150 225 300	0 75 150 225 300	65 68 71 74 77	0.2 0.1 0.0 -0.1 -0.2		1) Rig Behavior 2) Misc	
685	Sandy lean Clay (CL); yellowish brown (10YR 5/4); 30% fine to medium, subrounded to subangular sand; 70% fines.								Sample Collected on 12/10/24 at 14:30 (670'-680')	
690									Sample Collected on 12/10/24 at 16:30 (680'-690')	
695										
700										
705										
710										
715										
720										

CONTRACTOR Layne, a Granite Company **NORTHING** 34.200
EQUIPMENT Milltooth Tricone Bit **EASTING** -118.166
DRILL MTHD FA; FRC **COORDINATE SYSTEM:**
DIAMETER 48.0", 17.75"
LOGGER JA, HA, etc. **REVIEWER** T. Rolfe PG, CHG (CA)

NOTES: Pilot Borehole. 0 ft - 96 ft bgs drilled with Flight Auger (FA) on 10/31/24 - 11/6/24; 96 ft - 690 ft bgs drilled by Flooded Reverse Circulation (FRC) on 12/02/24 - 12/10/24. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS



440 E. Huntington Drive
Suite 425
Arcadia, CA 91006

BORING Explorer Well

SHEET 1 OF 18

START DRILL DATE Mar 3, 25
FINISH DRILL DATE Mar 19, 25
LOCATION Pasadena, CA
PROJECT Explorer Well
NUMBER HPA110005

ELEVATION DATA:
GROUND SURF. 1,110
TOP OF CASING
DATUM

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				WELL LOG	COMMENTS
			Gamma Ray (gAPI)	RSN (Ohm-m)	Temperature (°F)	Differential Temperature (°F)		
			50 125 200 275 350	0 75 150 225 300	65 68 71 74 77			
			Spontaneous Potential (mV)	RLN (Ohm-m)				
			-80 -10 60 130 200	0 75 150 225 300				
			Single-Point Resistance (ohm)	Shallow Resistivity (Ohm-m)	0.2 0.1 0.0 -0.1 -0.2			
			20 40 60 80 100	0 75 150 225 300				
0	Asphalt							
0-4	Poorly graded Sand with gravel (SP); dark grayish brown (10YR 4/2); 15% angular gravel, 0.5 in to 4 in diameters; 85% fine to medium sand; non-plastic; moist.							
5	Poorly graded Sand with gravel (SP); brown (10YR 4/3); 20% angular gravel, 1 in to 3.5 in diameter; 80% fine to medium sand; non-plastic; loose; moist. Boulders, maximum diameter 29 in.							
10	Poorly graded Sand with gravel (SP); brown (10YR 4/3); 20% round to angular gravel, 0.5 in to 2.5 in diameter; 80% fine to medium sand; non-plastic; loose; moist.							
15	Poorly graded Sand with gravel (SP); dark yellowish brown (10YR 4/4); Trace round to subangular boulders, 5 in to 8 in; 15% round to subangular gravel, 1 in to 3.5 in diameter; 85% fine to medium sand; non-plastic; loose; moist.							
20	Poorly graded Sand (SP); brown (10YR 4/3); 10% subangular gravel, 0.5 in to 1 in diameter; 90% fine to medium sand; non-plastic; loose; moist.							
25	Poorly graded Sand (SP); brown (10YR 4/3); 10% subangular to angular gravel, 1 in to 3 in diameter; 90% fine to medium sand; non-plastic; loose; moist. Boulders, maximum diameter 36 in.							
30	Well-graded Sand (SW); olive brown (2.5Y 4/4); 10% angular gravel, 0.5 in to 2.5 in diameter; 85% fine to medium sand; 5% fines; non-plastic; soft; moist.							
35	Well-graded Sand (SW); olive brown (2.5Y 4/3); 10% subangular to angular gravel, 0.5 in to 3.5 in diameter; 85% fine to coarse sand; 5% fines; non-plastic; soft; moist.							
40								

07-WELL BORE - GEOPHYS HPA110005 REAM HOLE.GPJ GEOSINTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FRC
DIAMETER 48", 32", 28", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Borehole Reaming, 96 ft - 680 ft bgs drilled by Flooded Reverse Circulation (FRC) on 03/03/25 - 03/19/25. Elevation data is based on Civiltect Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS						WELL LOG	COMMENTS									
			Gamma Ray (gAPI)			RSN (Ohm-m)					Temperature (°F)								
			50	125	200	275	350	0			75	150	225	300	65	68	71	74	77
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		Spontaneous Potential (mV)			RLN (Ohm-m)			Differential Temperature (°F)			1) Rig Behavior 2) Misc							
			-80	-10	60	130	200	0	75	150	225	300	0.2	0.1	0.0	-0.1	-0.2		
			Single-Point Resistance (ohm)			Shallow Resistivity (Ohm-m)													
			20	40	60	80	100	0	75	150	225	300							

Well-graded Sand with gravel (SW); light olive brown (2.5Y 4/4); 15% angular to subangular fine to coarse gravel; 80% fine to coarse sand; 5% fines; boulders; slightly moist.

85 Well-graded Sand with silt (SW-SM); light olive brown (2.5Y 4/4); 10% angular to subangular gravel, up to 3 in diameter; 80% coarse sand; 10% fines; boulders; slightly moist.

90 Well-graded Sand with gravel (SW); dark brown (10YR 3/3); 15% subangular fine to coarse gravel, 6 in diameter; 80% sand; 5% fines; boulders; moist.

95 Cobbles, maximum diameter 6 in.

100 Well-graded Sand (SW); dark grayish brown (10YR 4/2); 95% fine to medium subangular sand; 5% fines.

105 Well-graded Sand (SW); dark grayish brown (10YR 4/2); 5% gravel; 90% fine to medium subangular sand; 5% fines.

110 Well-graded Sand (SW); very dark grayish brown (2.5Y 3/2); 10% subangular gravel; 0.5 in to 1.5 in diameter; 85% fine to coarse sand; 5% fines; loose.

115

120

Conductor Casing installed on 11/6/24 (0'-96')

07-WELL BORE - GEOPHYS HPA110005 REAM HOLE.GPJ GEOSINTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FRC
DIAMETER 48", 32", 28", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Borehole Reaming. 96 ft - 680 ft bgs drilled by Flooded Reverse Circulation (FRC) on 03/03/25 - 03/19/25. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				WELL LOG	COMMENTS									
			Gamma Ray (gAPI)		RSN (Ohm-m)				Temperature (°F)								
			50	125	200	275			350	0	75	150	225	300	65	68	71
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		Spontaneous Potential (mV)		RLN (Ohm-m)		Differential Temperature (°F)			1) Rig Behavior 2) Misc							
			-80	-10	60	130	200	0	75	150	225	300	0.2	0.1	0.0	-0.1	-0.2
			Single-Point Resistance (ohm)		Shallow Resistivity (Ohm-m)												
			20	40	60	80	100	0	75	150	225	300					

125 Well-graded Sand (SW); brown (10YR 5/3); 5% subangular gravel; 0.5 in to 1 in diameter; 90% fine to medium sand; 5% fines.

130 Well-graded Sand (SW); pale brown (10YR 6/3); 5% subangular gravel; up to 0.5 in diameter; 90% fine to medium sand; 5% fines.

140 Well-graded Sand (SW); grayish brown (10YR 5/2); 5% subangular gravel; up to 0.5 in diameter; 90% fine to medium sand; 5% fines.

150 Well-graded Sand (SW); brown (10YR 5/3); 5% subangular gravel; up to 0.5 in diameter; 90% fine to coarse sand; 5% fines. Cobbles and boulders.

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FRC
DIAMETER 48", 32", 28", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Borehole Reaming. 96 ft - 680 ft bgs drilled by Flooded Reverse Circulation (FRC) on 03/03/25 - 03/19/25. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE - GEOPHYS HPA110005 REAM HOLE.GPJ GEOSINTEC.GDT 6/29/25

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION 1) Unit/Formation, Mem. 6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, 5) Percent Grain Size Discoloration, Odor, etc.)	GRAPHIC LOG	GEOPHYSICAL LOGS				WELL LOG	COMMENTS 1) Rig Behavior 2) Misc									
			Gamma Ray (gAPI)		RSN (Ohm-m)				Temperature (°F)								
			50	125	200	275			350	0	75	150	225	300	65	68	71
			Spontaneous Potential (mV)		RLN (Ohm-m)		Differential Temperature (°F)										
			-80	-10	60	130	200	0	75	150	225	300	0.2 0.1 0.0 -0.1 -0.2				
			Single-Point Resistance (ohm)		Shallow Resistivity (Ohm-m)												
			20	40	60	80	100	0	75	150	225	300					
165																	
170	Well-graded Sand (SW); pale brown (10YR 6/3); 5% subangular gravel, 0.5 in to 1 in diameter; 90% fine to course sand; loose; 5% fines.																
175																	
180																	
185																	
190	Well-graded Sand with silt (SW-SM); grayish brown (10YR 5/2); 5% subangular gravel, up to 0.5 in diameter; 85% fine to medium sand; loose; 10% fines.																
195																	
200																	

07-WELL BORE - GEOPHYS HPA110005 REAM HOLE.GPJ GEOSINTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FRC
DIAMETER 48", 32", 28", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Borehole Reaming. 96 ft - 680 ft bgs drilled by Flooded Reverse Circulation (FRC) on 03/03/25 - 03/19/25. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				WELL LOG	COMMENTS
			Gamma Ray (gAPI)	Spontaneous Potential (mV)	Single-Point Resistance (ohm)	RSN (Ohm-m)		
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0	75 150 225 300	65 68 71 74 77		1) Rig Behavior 2) Misc
205	Well-graded Sand with silt (SW-SM); grayish brown (10YR 5/2); 5% subangular to angular gravel, up to 1 in diameter; 85% fine to coarse sand; 10% fines.							
210	Well-graded Sand (SW); grayish brown (10YR 5/2); 5% subangular to angular gravel, up to 2 in diameter; 90% fine to coarse sand; 5% fines.							
215								
220	Well-graded Sand with silt (SW-SM); light yellowish brown (10YR 6/4); 5% subangular to angular gravel; up to 2 in diameter; 85% fine to coarse sand; loose; 10% fines.							
225								
230	Clayey Sand (SC); light yellowish brown (10YR 6/4); 10% subangular to angular gravel, up to 2 in diameter; 75% sand; 15% fines.							
235								
240								

07-WELL BORE - GEOPHYS HPA110005 REAM HOLE.GPJ GEOSINTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FRC
DIAMETER 48", 32", 28", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Borehole Reaming. 96 ft - 680 ft bgs drilled by Flooded Reverse Circulation (FRC) on 03/03/25 - 03/19/25. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				WELL LOG	COMMENTS						
			Gamma Ray (gAPI)		RSN (Ohm-m)				Temperature (°F)					
			50	125	200	275			350	0	75	150	225	300
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		Spontaneous Potential (mV)		RLN (Ohm-m)		Differential Temperature (°F)			1) Rig Behavior 2) Misc				
			-80 -10 60 130 200		0 75 150 225 300		0.2 0.1 0.0 -0.1 -0.2							
			Single-Point Resistance (ohm)		Shallow Resistivity (Ohm-m)									
			20 40 60 80 100		0 75 150 225 300									
245	Well-graded Sand with clay (SW-SC); light yellowish brown (10YR 6/4); 5% subrounded to subangular gravel; 85% fine to coarse sand; 10% fines.													
250														
255														
260	Clayey Sand (SC); light olive brown (2.5YR 5/3); 10% subangular to angular gravel, 0.25 in to 0.5 in diameter; 75% fine to coarse sand; 15% fines; low plasticity.													
265														
270	Well-graded Sand with clay (SW-SC); brown (10YR 5/3); 5% subangular gravel; 0.5 in to 1 in diameter; 85% fine to medium sand; 10% fines.													
275														
280														

07-WELL BORE - GEOPHYS HPA110005 REAM HOLE.GPJ GEOSINTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FRC
DIAMETER 48", 32", 28", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Borehole Reaming. 96 ft - 680 ft bgs drilled by Flooded Reverse Circulation (FRC) on 03/03/25 - 03/19/25. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				WELL LOG	COMMENTS						
			Gamma Ray (gAPI)		RSN (Ohm-m)				Temperature (°F)					
			50	125	200	275			350	0	75	150	225	300
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		Spontaneous Potential (mV)		RLN (Ohm-m)		Differential Temperature (°F)							
			-80 -10 60 130 200		0 75 150 225 300		0.2 0.1 0.0 -0.1 -0.2							
			Single-Point Resistance (ohm)		Shallow Resistivity (Ohm-m)									
			20 40 60 80 100		0 75 150 225 300									
285	Well-graded Sand with clay (SW-SC); light olive brown (2.5Y 5/4); 5% subangular gravel, up to 1 in diameter; 85% fine to medium sand; 10% fines; low plasticity.													
290	Silty Sand with gravel (SM); brown (10YR 5/3); 30% subangular to round gravel, up to 1 in; 50% fine to medium sand; 20% fines.													
295														
300	Silty Sand with gravel (SM); brown (10YR 5/3); 30% subangular to round gravel, up to 1 in; 40% fine to medium sand; 30% fines; clayey.													
305														
310	Sandy lean Clay (CL); yellowish brown (10YR 5/6); 40% medium sand; 60% fines; low plasticity; slow dilatancy; low toughness.													
315														
320														

07-WELL BORE - GEOPHYS HPA110005 REAM HOLE.GPJ GEOSINTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company **NORTHING** 34.200
EQUIPMENT Milltooth Tricone Bit **EASTING** -118.166
DRILL MTHD FRC **COORDINATE SYSTEM:**
DIAMETER 48", 32", 28", 17.75"
LOGGER JA, HA, etc. **REVIEWER** T. Rolfe PG, CHG (CA)

NOTES: Borehole Reaming. 96 ft - 680 ft bgs drilled by Flooded Reverse Circulation (FRC) on 03/03/25 - 03/19/25. Elevation data is based on Civiltect Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				WELL LOG	COMMENTS
			Gamma Ray (gAPI)	Spontaneous Potential (mV)	RSN (Ohm-m)	RLN (Ohm-m)		
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0	75 150 225 300	65 68 71 74 77		1) Rig Behavior 2) Misc
			-80 -10 60 130 200	0	75 150 225 300	0.2 0.1 0.0 -0.1 -0.2		
			20 40 60 80 100	0	75 150 225 300			
325	Sandy lean Clay (CL); yellowish brown (10YR 5/6); 30% medium sand; 70% fines; medium plasticity; slow dilatancy; low toughness.							
330	Lean Clay (CL); yellowish brown (10YR 5/6); 5% subrounded to subangular gravel; up to 0.5 in; 10% sand; 85% fines; soft consistency; slow dilatancy; medium plasticity.							
340	Lean Clay with sand (CL); yellowish brown (10YR 5/6); 25% coarse sand; 75% fines; medium to low toughness; low plasticity.							
350	Clayey Sand (SC); yellowish brown (10YR 5/6); 70% coarse, subangular sand; 30% fines.							Explorer Well Constructed on 03/25/25 - upper screen interval (350'- 390'), lower screen interval (440'- 650') Groundwater Sample Collected on 04/29/25 at 07:00
355								
360								

07-WELL BORE - GEOPHYS HPA110005 REAM HOLE.GPJ GEOSINTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FRC
DIAMETER 48", 32", 28", 17.75"
LOGGER JA, HA, etc. **REVIEWER** T. Rolfe PG, CHG (CA)

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

NOTES: Borehole Reaming, 96 ft - 680 ft bgs drilled by Flooded Reverse Circulation (FRC) on 03/03/25 - 03/19/25. Elevation data is based on Civiltect Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				WELL LOG	COMMENTS
			Gamma Ray (gAPI)	Spontaneous Potential (mV)	RSN (Ohm-m)	RLN (Ohm-m)		
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0	75 150 225 300	65 68 71 74 77		1) Rig Behavior 2) Misc
			-80 -10 60 130 200	0	75 150 225 300	0.2 0.1 0.0 -0.1 -0.2		
			20 40 60 80 100	0	75 150 225 300			
365	Clayey Sand (SC); dark yellowish brown (10YR 4/3); 70% fine to coarse, round to angular sand; 30% fines.							
370	Clayey Sand (SC); dark yellowish brown (10YR 4/3); 85% fine to coarse, round to subangular sand; 15% fines.							
375								
380	Poorly-graded Sand (SW); yellowish brown (10YR 5/4); 10% gravel; 85% fine to medium; rounded sand; 5% fines.							
385								
390	Clayey Sand (SC); yellowish brown (10YR 5/6); 5% gravel; 75% fine to medium, rounded to subrounded sand; 20% fines; medium plasticity.							
395								
400								

07-WELL BORE - GEOPHYS HPA110005 REAM HOLE.GPJ GEOSINTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FRC
DIAMETER 48", 32", 28", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Borehole Reaming. 96 ft - 680 ft bgs drilled by Flooded Reverse Circulation (FRC) on 03/03/25 - 03/19/25. Elevation data is based on Civiltect Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				WELL LOG	COMMENTS						
			Gamma Ray (gAPI)		RSN (Ohm-m)				Temperature (°F)					
			50	125	200	275			350	0	75	150	225	300
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		Spontaneous Potential (mV)		RLN (Ohm-m)		Differential Temperature (°F)							
			-80 -10 60 130 200		0 75 150 225 300		0.2 0.1 0.0 -0.1 -0.2							
			Single-Point Resistance (ohm)		Shallow Resistivity (Ohm-m)									
			20 40 60 80 100		0 75 150 225 300									
405	Poorly-graded Sand (SP); yellowish brown (10YR 5/6); 10% gravel; 85% fine to medium; rounded sand; 5% fines; low plasticity.													
410	Silty Sand (SM); brown (10YR 5/3); 60% fine to coarse, subrounded to subangular sand; 40% fines; low plasticity.													
415														
420	Silty Sand (SM); brown (10YR 5/3); 70% fine to coarse, subrounded to subangular sand; 30% fines; low plasticity.													
425														
430	Clayey Sand (SC); brown (10YR 5/3); 60% fine to coarse, subrounded to subangular sand; 40% fines.													
435														
440														

07-WELL BORE - GEOPHYS HPA110005 REAM HOLE.GPJ GEOSINTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company **NORTHING** 34.200
EQUIPMENT Milltooth Tricone Bit **EASTING** -118.166
DRILL MTHD FRC **COORDINATE SYSTEM:**
DIAMETER 48", 32", 28", 17.75"
LOGGER JA, HA, etc. **REVIEWER** T. Rolfe PG, CHG (CA)

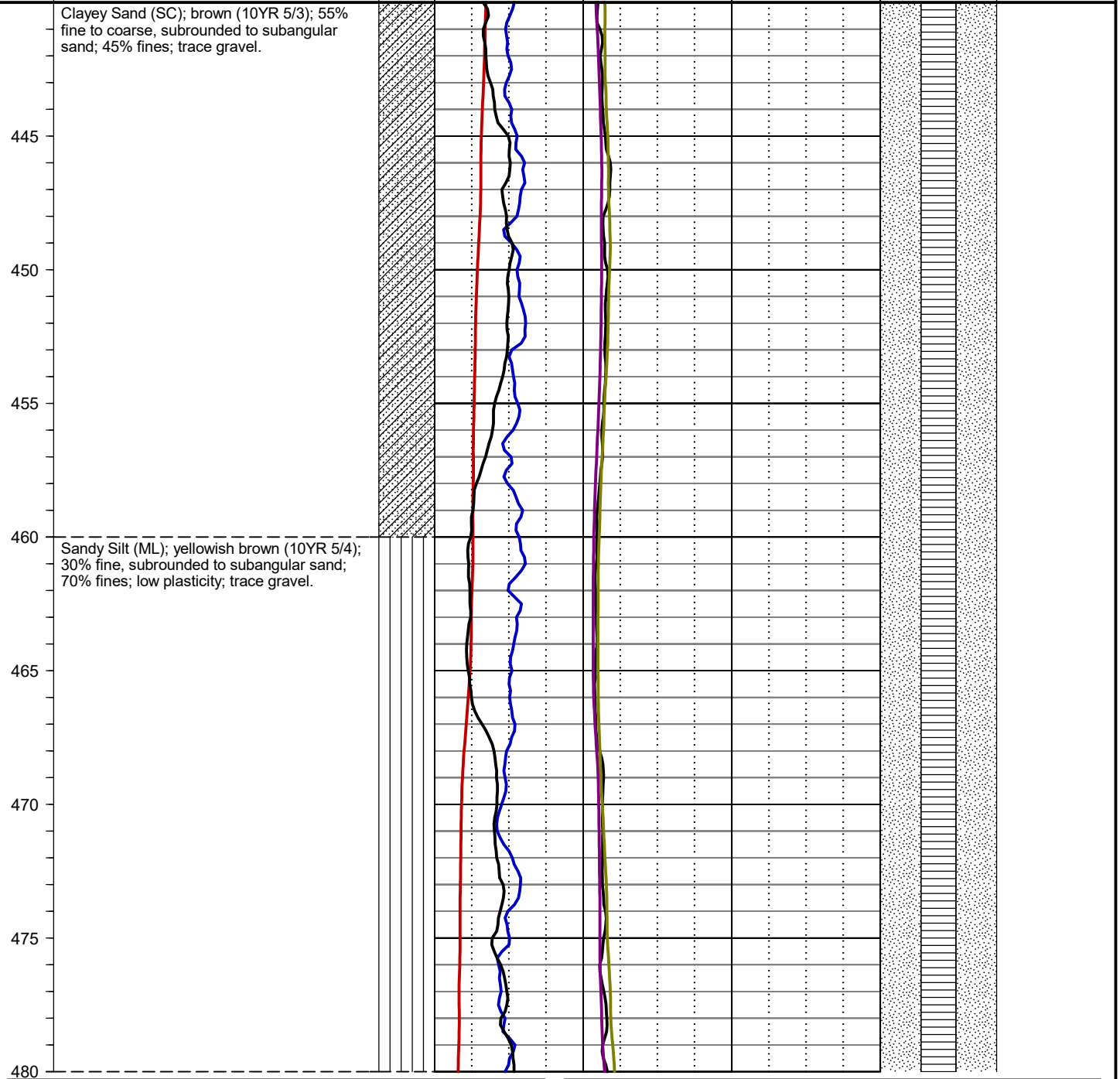
NOTES: Borehole Reaming. 96 ft - 680 ft bgs drilled by Flooded Reverse Circulation (FRC) on 03/03/25 - 03/19/25. Elevation data is based on Civiltect Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				WELL LOG	COMMENTS
			Gamma Ray (gAPI)	Spontaneous Potential (mV)	RSN (Ohm-m)	RLN (Ohm-m)		
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0	75 150 225 300	65 68 71 74 77		1) Rig Behavior 2) Misc
			-80 -10 60 130 200	0	75 150 225 300	0.2 0.1 0.0 -0.1 -0.2		
			20 40 60 80 100	0	75 150 225 300			



CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FRC
DIAMETER 48", 32", 28", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Borehole Reaming. 96 ft - 680 ft bgs drilled by Flooded Reverse Circulation (FRC) on 03/03/25 - 03/19/25. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

07-WELL BORE - GEOPHYS HPA110005 REAM HOLE.GPJ GEOSNTEC.GDT 6/29/25

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				WELL LOG	COMMENTS
			Gamma Ray (gAPI)	Spontaneous Potential (mV)	Single-Point Resistance (ohm)	RSN (Ohm-m)		
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0	75 150 225 300	65 68 71 74 77		1) Rig Behavior 2) Misc
485	Silty Sand (SM); yellowish brown (10YR 5/4); 50% fine to medium, subrounded to subangular sand; 50% fines; low plasticity; trace gravel.							
490	Silt with Sand (ML); yellowish brown (10YR 5/4); 25% fine to coarse, subrounded to subangular sand; 75% fines; medium plasticity; slow dilatancy; very soft.							
495								
500	Sandy Silt (ML); yellowish brown (10YR 5/4); 45% fine to coarse, subrounded to subangular sand; 55% fines; low plasticity; slow dilatancy; very soft.							
505								
510	Silt with Sand (ML); yellowish brown (10YR 5/4); 20% fine to coarse, subrounded to subangular sand; 80% fines; medium plasticity; slow dilatancy; very soft.							
515								
520								

07-WELL BORE - GEOPHYS HPA110005 REAM HOLE.GPJ GEOSINTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FRC
DIAMETER 48", 32", 28", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

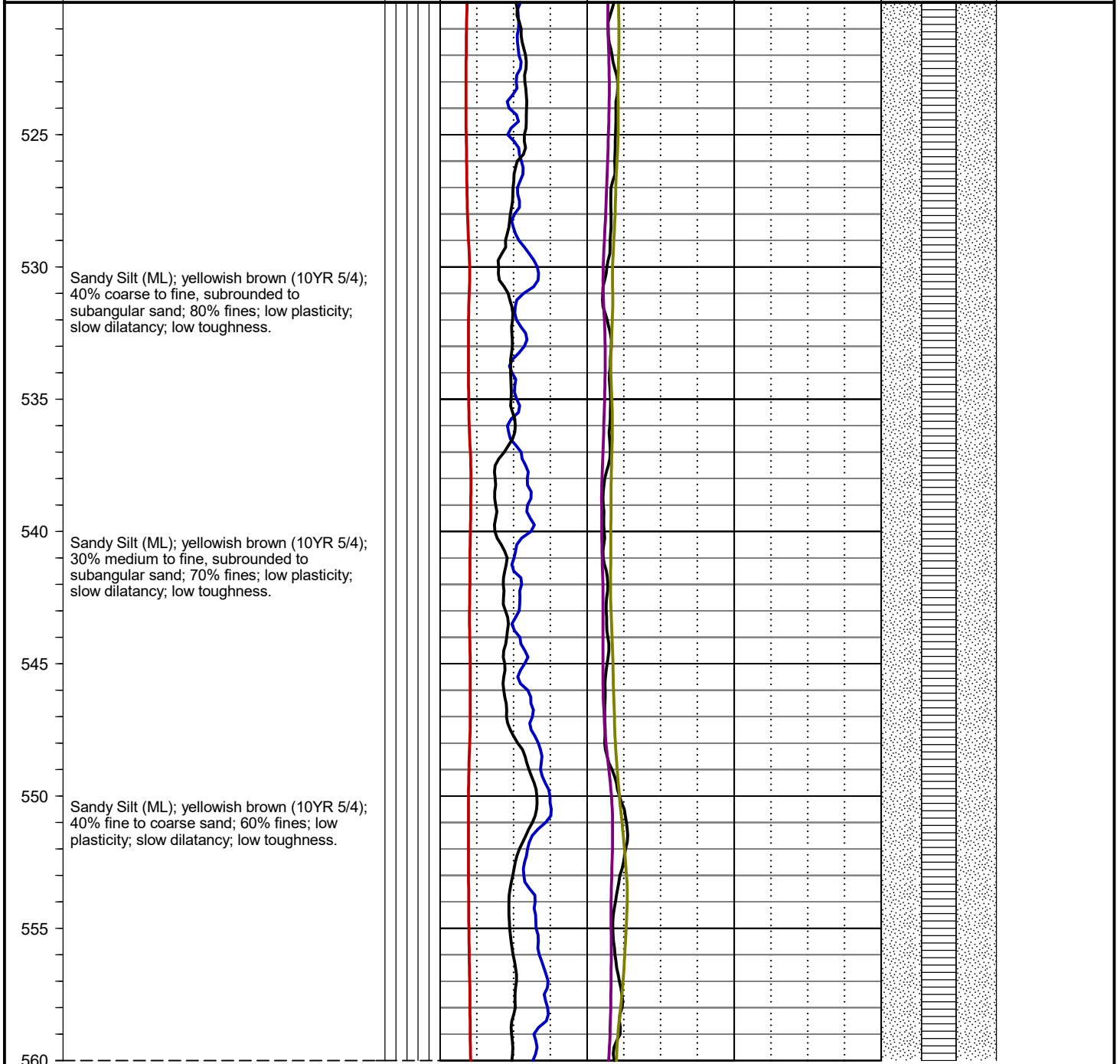
NOTES: Borehole Reaming. 96 ft - 680 ft bgs drilled by Flooded Reverse Circulation (FRC) on 03/03/25 - 03/19/25. Elevation data is based on Civiltect Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION 1) Unit/Formation, Mem. 6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, 5) Percent Grain Size Discoloration, Odor, etc.)	GRAPHIC LOG	GEOPHYSICAL LOGS				WELL LOG	COMMENTS 1) Rig Behavior 2) Misc
			Gamma Ray (gAPI) 50 125 200 275 350	Spontaneous Potential (mV) -80 -10 60 130 200	Single-Point Resistance (ohm) 20 40 60 80 100	RSN (Ohm-m) 0 75 150 225 300		



07-WELL BORE - GEOPHYS HPA110005 REAM HOLE.GPJ GEOSINTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company **NORTHING** 34.200
EQUIPMENT Milltooth Tricone Bit **EASTING** -118.166
DRILL MTHD FRC **COORDINATE SYSTEM:**
DIAMETER 48", 32", 28", 17.75"
LOGGER JA, HA, etc. **REVIEWER** T. Rolfe PG, CHG (CA)

NOTES: Borehole Reaming. 96 ft - 680 ft bgs drilled by Flooded Reverse Circulation (FRC) on 03/03/25 - 03/19/25. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				WELL LOG	COMMENTS
			Gamma Ray (gAPI)	Spontaneous Potential (mV)	RSN (Ohm-m)	RLN (Ohm-m)		
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0	75 150 225 300	65 68 71 74 77		1) Rig Behavior 2) Misc
			20 40 60 80 100	0	75 150 225 300	0.2 0.1 0.0 -0.1 -0.2		
565	Silty Sand (SM); yellowish brown (10YR 5/4); 70% fine to medium sand; 30% fines.							
570	Silty Sand (SM); yellowish brown (10YR 5/4); 70% fine to coarse sand; 30% fines.							
575								
580	Silty Sand (SM); brown (10YR 5/3); 5% subrounded gravel, up to 0.75 in; 70% fine to coarse sand; 25% fines; strong odor; no staining.							
585								
590	Lean Clay with sand (CL); yellowish brown (10YR 5/4); 25% fine to coarse sand; 75% fines; low plasticity; medium toughness; slight odor; no staining.							
595								
600								

07-WELL BORE - GEOPHYS HPA110005 REAM HOLE.GPJ GEOSINTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FRC
DIAMETER 48", 32", 28", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Borehole Reaming. 96 ft - 680 ft bgs drilled by Flooded Reverse Circulation (FRC) on 03/03/25 - 03/19/25. Elevation data is based on Civiltect Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				WELL LOG	COMMENTS
			Gamma Ray (gAPI)	Spontaneous Potential (mV)	Single-Point Resistance (ohm)	RSN (Ohm-m)		
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0	75 150 225 300	65 68 71 74 77		1) Rig Behavior 2) Misc
605	Clayey Sand (SC); yellowish brown (10YR 5/4); 75% fine to medium with trace of coarse sand; 25% fines; no odor; no staining.							
610	slight odor.							
615								
620	Silty Sand (SM); brown (10YR 5/3); 80% fine to medium, rounded sand, up to 0.25 in; 20% fines; no plasticity.							
625								
630	Silty Sand (SM); light olive brown (2.5Y 5/3); 75% fine, subrounded sand, up to 0.25 in; 25% fines; low plasticity.							
635								
640								

07-WELL BORE - GEOPHYS HPA110005 REAM HOLE.GPJ GEOSNTEC.GDT 6/29/25

CONTRACTOR Layne, a Granite Company
EQUIPMENT Milltooth Tricone Bit
DRILL MTHD FRC
DIAMETER 48", 32", 28", 17.75"
LOGGER JA, HA, etc.

NORTHING 34.200
EASTING -118.166
COORDINATE SYSTEM:

REVIEWER T. Rolfe PG, CHG (CA)

NOTES: Borehole Reaming. 96 ft - 680 ft bgs drilled by Flooded Reverse Circulation (FRC) on 03/03/25 - 03/19/25. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
WELL BORE 01/04

BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	GEOPHYSICAL LOGS				WELL LOG	COMMENTS
			Gamma Ray (gAPI)	RSN (Ohm-m)	Temperature (°F)			
	1) Unit/Formation, Mem.6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.) 5) Percent Grain Size		50 125 200 275 350	0 75 150 225 300	65 68 71 74 77			
			Spontaneous Potential (mV)	RLN (Ohm-m)	Differential Temperature (°F)			
			-80 -10 60 130 200	0 75 150 225 300	0.2 0.1 0.0 -0.1 -0.2			
			Single-Point Resistance (ohm)	Shallow Resistivity (Ohm-m)				
			20 40 60 80 100	0 75 150 225 300				
685	Sandy lean Clay (CL); yellowish brown (10YR 5/4); 30% fine to medium, subrounded to subangular sand; 70% fines.						Pilot Hole drilled on 12/10/24 (680'-690'); Backfilled with Native Soil.	
690								
695								
700								
705								
710								
715								
720								

CONTRACTOR Layne, a Granite Company **NORTHING** 34.200
EQUIPMENT Milltooth Tricone Bit **EASTING** -118.166
DRILL MTHD FRC **COORDINATE SYSTEM:**
DIAMETER 48", 32", 28", 17.75"
LOGGER JA, HA, etc. **REVIEWER** T. Rolfe PG, CHG (CA)

NOTES: Borehole Reaming. 96 ft - 680 ft bgs drilled by Flooded Reverse Circulation (FRC) on 03/03/25 - 03/19/25. Elevation data is based on Civiltec Drawings (2024) in ft above Mean Sea Level.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

KEY SHEET - CLASSIFICATIONS AND SYMBOLS

GS FORM:
KEY/SYMBOLS 01/04

EMPIRICAL CORRELATIONS WITH STANDARD PENETRATION RESISTANCE N60 VALUES *

	N60 VALUE * (BLOWS/FT)	CONSISTENCY	UNCONFINED COMPRESSIVE STRENGTH (TONS/SQ FT)		N60 VALUE * (BLOWS/FT)	RELATIVE DENSITY
FINE GRAINED SOILS	0 - 2	VERY SOFT	<0.25	COARSE GRAINED SOILS	0 - 4	VERY LOOSE
	3 - 4	SOFT	0.25 - 0.50		5 - 10	LOOSE
	5 - 8	FIRM	0.50 - 1.00		11 - 30	MEDIUM DENSE
	9 - 15	STIFF	1.00 - 2.00		31 - 50	DENSE
	16 - 30	VERY STIFF	2.00 - 4.00		>50	VERY DENSE
	31 - 50	HARD	>4.00			
	>50	VERY HARD				

* ASTM D 1586; NUMBER OF BLOWS OF 140 POUND HAMMER FALLING 30 INCHES TO DRIVE A 2 IN. O.D., 1.4 IN. I.D. SAMPLER ONE FOOT, CORRECTED FOR HAMMER EFFICIENCY.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

MAJOR DIVISIONS		SYMBOLS	DESCRIPTIONS	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS	GW WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
		LITTLE OR NO FINES	GP POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
		GRAVELS WITH FINES	GM SILTY GRAVELS, GRAVEL- SAND-SILT MIXTURES	
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO.4 SIEVE	APPRECIABLE AMOUNT OF FINES	GC CLAYEY GRAVELS, GRAVEL -SAND-CLAY MIXTURES	
		CLEAN SANDS	SW WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
		LITTLE OR NO FINES	SP POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
MORE THAN 50% OF MATERIAL COARSER THAN NO. 200 SIEVE SIZE	SANDS WITH FINES	SM SILTY SANDS, SAND-SILT MIXTURES		
		APPRECIABLE AMOUNT OF FINES	SC CLAYEY SANDS, SAND-CLAY MIXTURES	
FINE GRAINED SOILS	SILTS AND CLAYS	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
		OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	MORE THAN 50% OF MATERIAL FINER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILT
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS		PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENT	

NOTE: DUAL SYMBOLS USED FOR BORDERLINE CLASSIFICATIONS

PARTICLE SIZE IDENTIFICATION

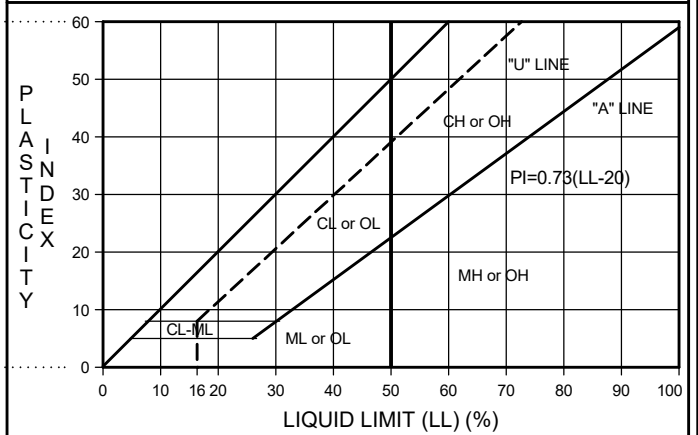
USCS (SOILS ONLY) *		SEDIMENTARY (ROCK ONLY)	
BOULDER	>300 mm	BOULDER	>256 mm
COBBLE	75 - 300 mm	COBBLE	64 - 256 mm
GRAVEL: COARSE	20 - 75 mm	PEBBLE	4 - 64 mm
GRAVEL: FINE	4.75 - 20 mm	GRANULE	2 - 4 mm
SAND: COARSE	2 - 4.75 mm	SAND: V. COARSE	1 - 2 mm
SAND: MEDIUM	0.42 - 2 mm	SAND: COARSE	0.5 - 1 mm
SAND: FINE	0.074 - 0.42 mm	SAND: MEDIUM	0.25 - 0.5 mm
SILT/CLAY	<0.074 mm	SAND: FINE	0.125 - 0.25 mm
		SAND: V. FINE	0.063 - 0.125 mm
		SILT	0.004 - 0.063 mm
		CLAY	<0.004 mm

* WELL GRADED - HAVING WIDE RANGE OF GRAIN SIZES AND APPRECIABLE AMOUNTS OF ALL INTERMEDIATE PARTICLE SIZES

* POORLY GRADED - PREDOMINANTLY ONE GRAIN SIZE, OR HAVING A RANGE OF SIZES WITH SOME INTERMEDIATE SIZES MISSING

PERCENTAGE OF PARTICLE TYPE IN DECREASING ORDER OF PARTICLE SIZE (GRAVEL, SAND, FINES), BASED ON VISUAL OBSERVATION

PLASTICITY CHART



OTHER MATERIAL SYMBOLS

Conglomerate	Sandy Claystone	Marker Bed
Sandstone	Granitic/Intrusive	
Silty Sandstone	Volcanic/Extrusive	Artificial Fill
Clayey Sandstone	Metamorphic	Refuse
Sandy Siltstone	Limestone	Concrete/Asphalt
Siltstone	Dolomite	
Claystone	Glacial Till	
Clayey Siltstone/ Silty Claystone	Landslide Debris	

WELL SYMBOLS

CONCRETE
GROUT
BENTONITE SEAL
TRANSITION SAND
SAND PACK
GRAVEL PACK
NATIVE/SLUFF
CENTRALIZER

SAMPLE TYPE AND OTHER SYMBOLS

BULK SAMPLE	Water Level at Time Drilling, or as Shown
STANDARD PENETRATION TEST	Static Water Level
MODIFIED CALIFORNIA SAMPLE	Pump Inlet
CORE SAMPLE	Loss of Drilling Fluid
SHELBY TUBE	MSL: Mean Sea Level
DRIVE SAMPLE	AGS: Above Ground Surface
	BGS: Below Ground Surface
	BTOC: Below Top of Casing
	HSA: Hollow Stem Auger