



May 13, 2024
ES-9388.01

Earth Solutions NW LLC

Geotechnical Engineering, Construction
Observation/Testing and Environmental Services

927 Alder, LLC
149 Lake Spring Circle
Georgetown, Texas 78633

Attention: Sunshine Kapus

Subject: Groundwater Level Monitoring Summary
927 Alder Avenue
Marysville, Washington

Dear Sunshine:

As requested, Earth Solutions NW, LLC (ESNW) has prepared this letter summarizing the results of seasonal groundwater level monitoring on the subject site.

Seasonal Groundwater Level Monitoring

The monitoring program consisted of installing piezometers at test pit locations TP-1, TP-2, and TP-3 depicted on Plate 2 (Test Pit Location Plan). The installation occurred on October 20, 2023 and daily groundwater levels have been recorded using dataloggers. ESNW personnel visited the site biweekly to download the collected data and perform manual measurements at each piezometer using a depth-to-water meter. The following table summarizes the depth to groundwater (GW) data collected during our monitoring program.

Test Pit	Depth of Test Pit (ft.)	Ground Elevation* (ft.)	Peak GW Depth† (ft.)	Peak GW Elevation* (ft.)	Peak Date
TP-1	10	34	4.9	29.1	1/30/2024
TP-2	10	34	4.5	29.5	1/30/2024
TP-3	10	34	4.9	29.1	1/30/2024

* Elevations are approximate, based on the referenced site plan; monitoring piezometer locations have not been surveyed.

† Depth measured from existing ground surface.

Groundwater level monitoring charts are attached to this letter, along with the relevant test pit logs and laboratory analyses from the October 2023 fieldwork. Based on the data collected during the monitoring period, it is our opinion the peak groundwater depths listed in the table above are indicative of the seasonal high groundwater levels.

We trust this letter meets your current needs. Should you have any questions regarding the content herein, or require additional information, please call.

Sincerely,

EARTH SOLUTIONS NW, LLC



Kyler T. Kelly, L.G.
Project Geologist



05/13/2024

Henry T. Wright, P.E.
Associate Principal Engineer

Attachments: Plate 1 – Vicinity Map
Plate 2 – Test Pit Location Plan
Test Pit Logs
Grain Size Distribution
Groundwater Level Monitoring Charts

References:

- Geotechnical Evaluation, prepared by ESNW, ES-9388, dated November 15, 2023
- Site Plan – 6-Plex Option, prepared by Land Technologies, Inc., undated



Reference:
Snohomish County, Washington
OpenStreetMap.org



NOTE: This plate may contain areas of color. ESNW cannot be responsible for any subsequent misinterpretation of the information resulting from black & white reproductions of this plate.



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Geotechnical Engineering, Construction
Observation/Testing and Environmental Services

Vicinity Map
927 Alder Avenue
Marysville, Washington

Drawn MRS

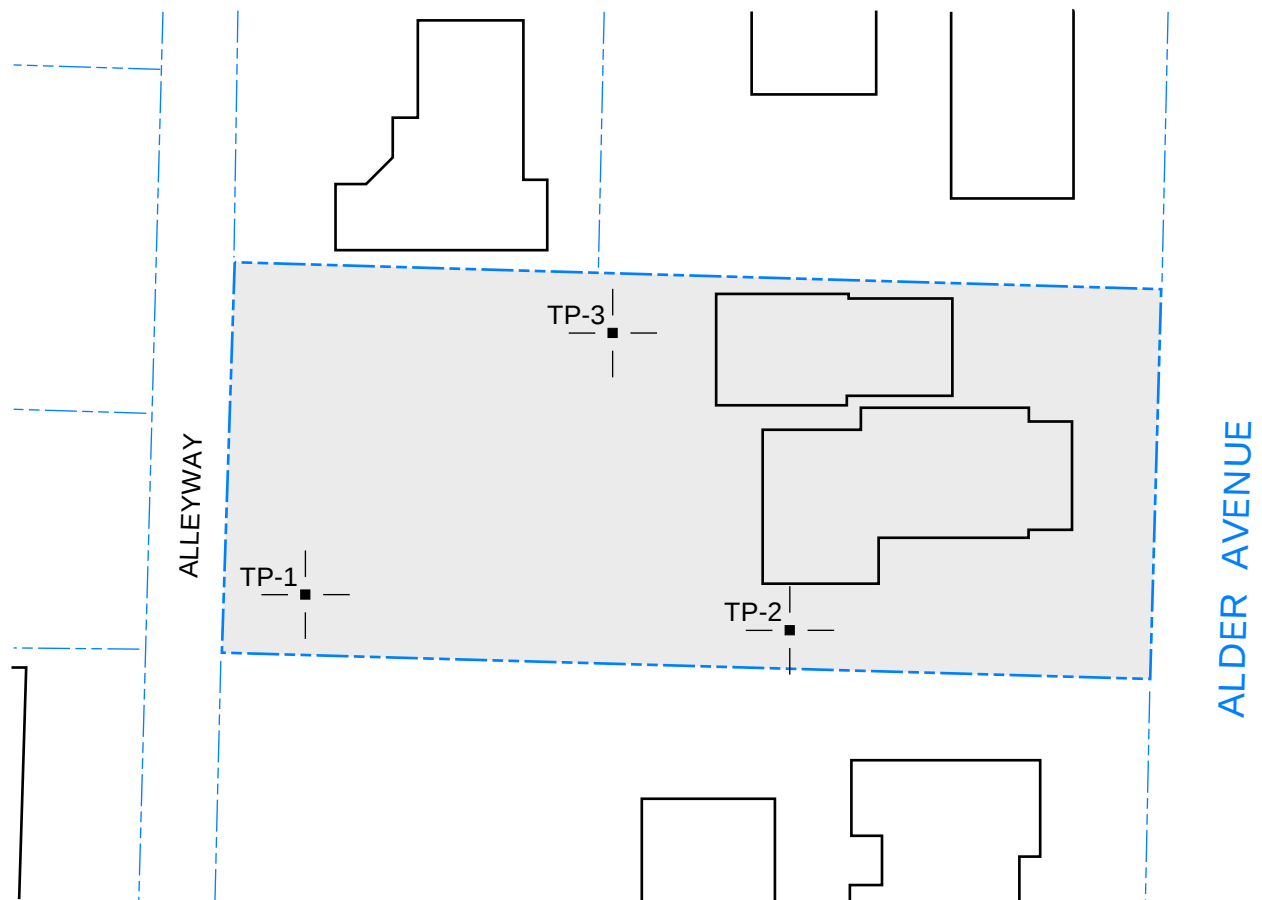
Date 11/08/2023

Proj. No. 9388

Checked KTK

Date Nov. 2023

Plate 1

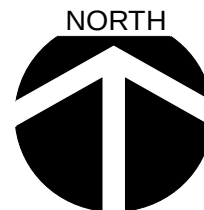


LEGEND

TP-1 — Approximate Location of
ESNW Test Pit, Proj. No.
ES-9388, Oct. 2023

 Subject Site

 Existing Building



NOT - TO - SCALE

NOTE: The graphics shown on this plate are not intended for design purposes or precise scale measurements, but only to illustrate the approximate test locations relative to the approximate locations of existing and / or proposed site features. The information illustrated is largely based on data provided by the client at the time of our study. ESNW cannot be responsible for subsequent design changes or interpretation of the data by others.

NOTE: This plate may contain areas of color. ESNW cannot be responsible for any subsequent misinterpretation of the information resulting from black & white reproductions of this plate.



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Geotechnical Engineering, Construction
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Test Pit Location Plan
927 Alder Avenue
Marysville, Washington

Drawn MRS

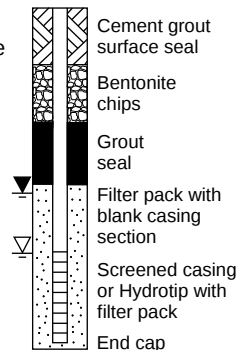
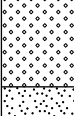
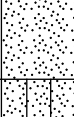
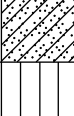
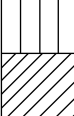
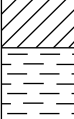
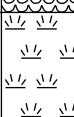
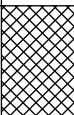
Date 11/08/2023

Proj. No. 9388

Checked KTK

Date Nov. 2023

Plate 2

Coarse-Grained Soils - More Than 50% Retained on No. 200 Sieve	Gravels - More Than 50% of Coarse Fraction Retained on No. 4 Sieve		GW	Well-graded gravel with or without sand, little to no fines	Moisture Content Dry - Absence of moisture, dusty, dry to the touch Damp - Perceptible moisture, likely below optimum MC Moist - Damp but no visible water, likely at/near optimum MC Wet - Water visible but not free draining, likely above optimum MC Saturated/Water Bearing - Visible free water, typically below groundwater table	Symbols 																										
			GP	Poorly graded gravel with or without sand, little to no fines																												
			GM	Silty gravel with or without sand																												
			GC	Clayey gravel with or without sand																												
	Sands - 50% or More of Coarse Fraction Passes No. 4 Sieve		SW	Well-graded sand with or without gravel, little to no fines																												
			SP	Poorly graded sand with or without gravel, little to no fines																												
Fine-Grained Soils - 50% or More Passes No. 200 Sieve	Sands - 50% or More of Coarse Fraction Passes No. 4 Sieve		SM	Silty sand with or without gravel	Terms Describing Relative Density and Consistency Coarse-Grained Soils: <table><tr><td><u>Density</u></td><td><u>SPT blows/foot</u></td></tr><tr><td>Very Loose</td><td>< 4</td></tr><tr><td>Loose</td><td>4 to 9</td></tr><tr><td>Medium Dense</td><td>10 to 29</td></tr><tr><td>Dense</td><td>30 to 49</td></tr><tr><td>Very Dense</td><td>≥ 50</td></tr></table> Fine-Grained Soils: <table><tr><td><u>Consistency</u></td><td><u>SPT blows/foot</u></td></tr><tr><td>Very Soft</td><td>< 2</td></tr><tr><td>Soft</td><td>2 to 3</td></tr><tr><td>Medium Stiff</td><td>4 to 7</td></tr><tr><td>Stiff</td><td>8 to 14</td></tr><tr><td>Very Stiff</td><td>15 to 29</td></tr><tr><td>Hard</td><td>≥ 30</td></tr></table>		<u>Density</u>	<u>SPT blows/foot</u>	Very Loose	< 4	Loose	4 to 9	Medium Dense	10 to 29	Dense	30 to 49	Very Dense	≥ 50	<u>Consistency</u>	<u>SPT blows/foot</u>	Very Soft	< 2	Soft	2 to 3	Medium Stiff	4 to 7	Stiff	8 to 14	Very Stiff	15 to 29	Hard	≥ 30
		<u>Density</u>	<u>SPT blows/foot</u>																													
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Stiff	8 to 14																															
Very Stiff	15 to 29																															
Hard	≥ 30																															
	SC	Clayey sand with or without gravel																														
Silt and Clays Liquid Limit Less Than 50		ML	Silt with or without sand or gravel; sandy or gravelly silt																													
		CL	Clay of low to medium plasticity; lean clay with or without sand or gravel; sandy or gravelly lean clay																													
		OL	Organic clay or silt of low plasticity																													
Silt and Clays Liquid Limit 50 or More		MH	Elastic silt with or without sand or gravel; sandy or gravelly elastic silt																													
		CH	Clay of high plasticity; fat clay with or without sand or gravel; sandy or gravelly fat clay																													
		OH	Organic clay or silt of medium to high plasticity																													
Highly Organic Soils		PT	Peat, muck, and other highly organic soils																													
Fill		FILL	Made Ground	Classifications of soils in this geotechnical report and as shown on the exploration logs are based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates, and should not be construed to imply field or laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D2487 and D2488 were used as an identification guide for the Unified Soil Classification System.																												





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Branch Office: Pasco, WA

TEST PIT NUMBER TP-1

PAGE 1 OF 1

PROJECT NUMBER	ES-9388	PROJECT NAME	927 Alder Avenue
DATE STARTED	10/12/23	COMPLETED	10/12/23
EXCAVATION CONTRACTOR	NW Excavating	LATITUDE	48.05725
LOGGED BY	KTK	CHECKED BY	HTW
NOTES			
SURFACE CONDITIONS	Grass	GROUND WATER LEVEL:	
		AT TIME OF EXCAVATION	8 ft
		AFTER EXCAVATION	

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					
			TPSL		Dark brown TOPSOIL, roots to 12"
		MC = 8.5			Brown poorly graded SAND, loose to medium dense, moist
2.5					-probed 18"
					-becomes gray, medium dense
		MC = 6.7 Fines = 1.4			-probed 6"
5.0			SP		[USDA Classification: slightly gravelly SAND]
					-slight caving to BOH, becomes wet
7.5		MC = 29.8			∇ -groundwater table, increased gravel content
					[USDA Classification: slightly gravelly SAND]
10.0		MC = 27.1 Fines = 2.4			

Test pit terminated at 10.0 feet below existing grade. Groundwater table encountered at 8.0 feet during excavation. Caving observed from 7.0 feet to BOH.

LIMITATIONS: Ground elevation (if listed) is approximate; the test location was not surveyed. Coordinates are approximate and based on the WGS84 datum. Do not rely on this test log as a standalone document. Refer to the text of the geotechnical report for a complete understanding of subsurface conditions.



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TEST PIT NUMBER TP-2

PAGE 1 OF 1

PROJECT NUMBER ES-9388

PROJECT NAME 927 Alder Avenue

DATE STARTED 10/12/23 COMPLETED 10/12/23

GROUND ELEVATION _____

EXCAVATION CONTRACTOR NW Excavating

LATITUDE 48.05724 LONGITUDE -122.17357

LOGGED BY KTK CHECKED BY HTW

GROUND WATER LEVEL:

NOTES _____

▽ AT TIME OF EXCAVATION 7.5 ft

SURFACE CONDITIONS Grass

AFTER EXCAVATION _____

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					
			TPSL		Dark brown TOPSOIL
		MC = 8.2			
2.5					
		MC = 7.8 Fines = 2.5			Brown poorly graded SAND, medium dense, moist -probed 6" -becomes gray [USDA Classification: slightly gravelly SAND]
5.0			SP		
		MC = 29.5			-becomes wet, slight caving to BOH
7.5					▽ -groundwater table
10.0		MC = 28.2			

Test pit terminated at 10.0 feet below existing grade. Groundwater table encountered at 7.5 feet during excavation. Caving observed from 6.0 feet to BOH.

LIMITATIONS: Ground elevation (if listed) is approximate; the test location was not surveyed. Coordinates are approximate and based on the WGS84 datum. Do not rely on this test log as a standalone document. Refer to the text of the geotechnical report for a complete understanding of subsurface conditions.



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TEST PIT NUMBER TP-3

PAGE 1 OF 1

PROJECT NUMBER	ES-9388	PROJECT NAME	927 Alder Avenue
DATE STARTED	10/12/23	COMPLETED	10/12/23
EXCAVATION CONTRACTOR	NW Excavating	LATITUDE	48.05742
LOGGED BY	KTK	CHECKED BY	HTW
NOTES			
SURFACE CONDITIONS	Grass	GROUND WATER LEVEL:	
		AT TIME OF EXCAVATION	8 ft
		AFTER EXCAVATION	

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					
			TPSL		Dark brown TOPSOIL, roots to 2'
		MC = 8.4 Fines = 2.5			Brown poorly graded SAND, medium dense, moist [USDA Classification: slightly gravelly SAND] -probed 6" -becomes gray -probed 3" -becomes wet, slight caving to BOH
2.5					
		MC = 5.6	SP		
5.0					
7.5					
10.0		MC = 28.8			

Test pit terminated at 10.0 feet below existing grade. Groundwater table encountered at 8.0 feet during excavation. Caving observed from 7.0 feet to BOH.

LIMITATIONS: Ground elevation (if listed) is approximate; the test location was not surveyed. Coordinates are approximate and based on the WGS84 datum. Do not rely on this test log as a standalone document. Refer to the text of the geotechnical report for a complete understanding of subsurface conditions.

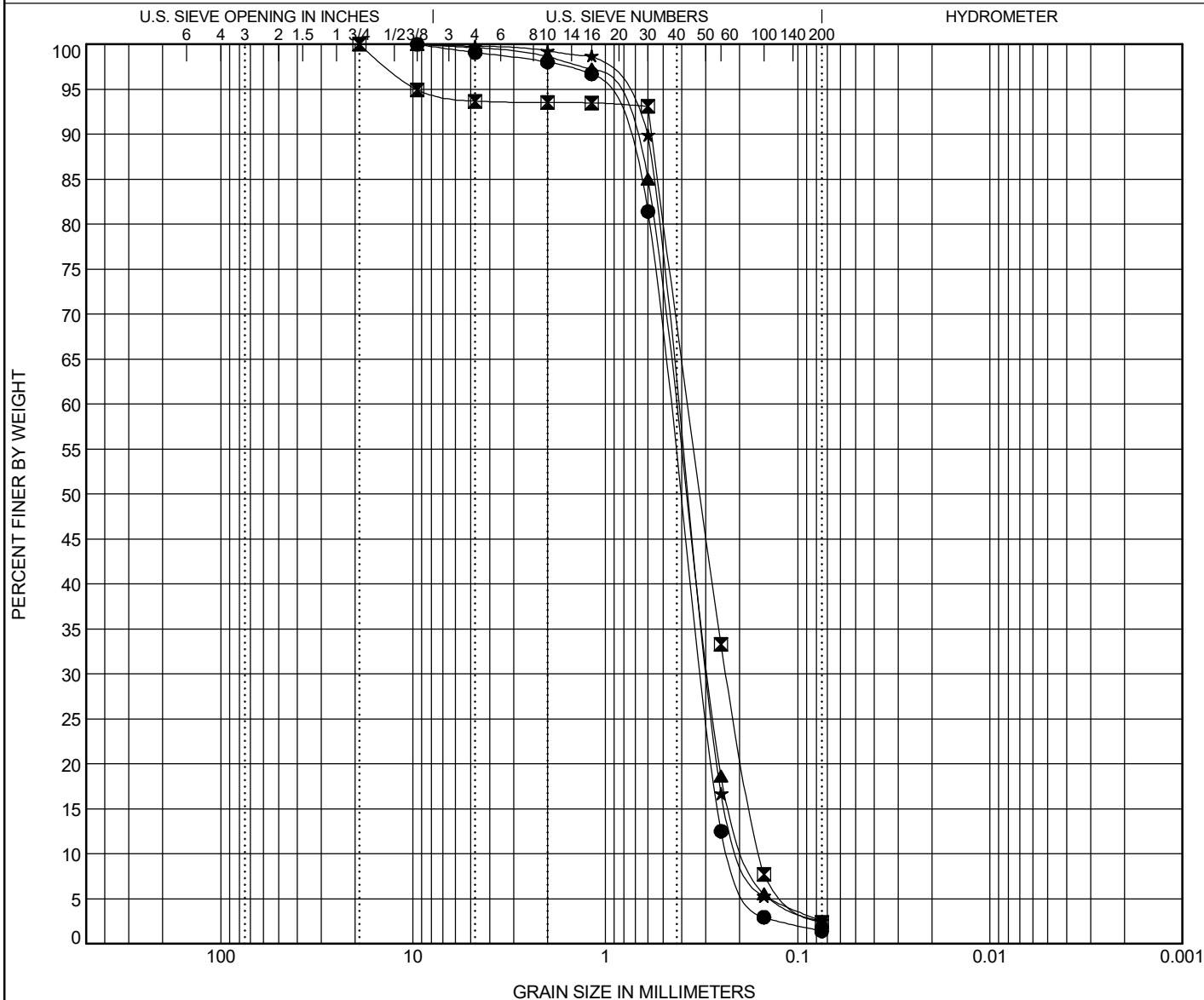


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GRAIN SIZE DISTRIBUTION

PROJECT NUMBER ES-9388

PROJECT NAME 927 Alder Avenue

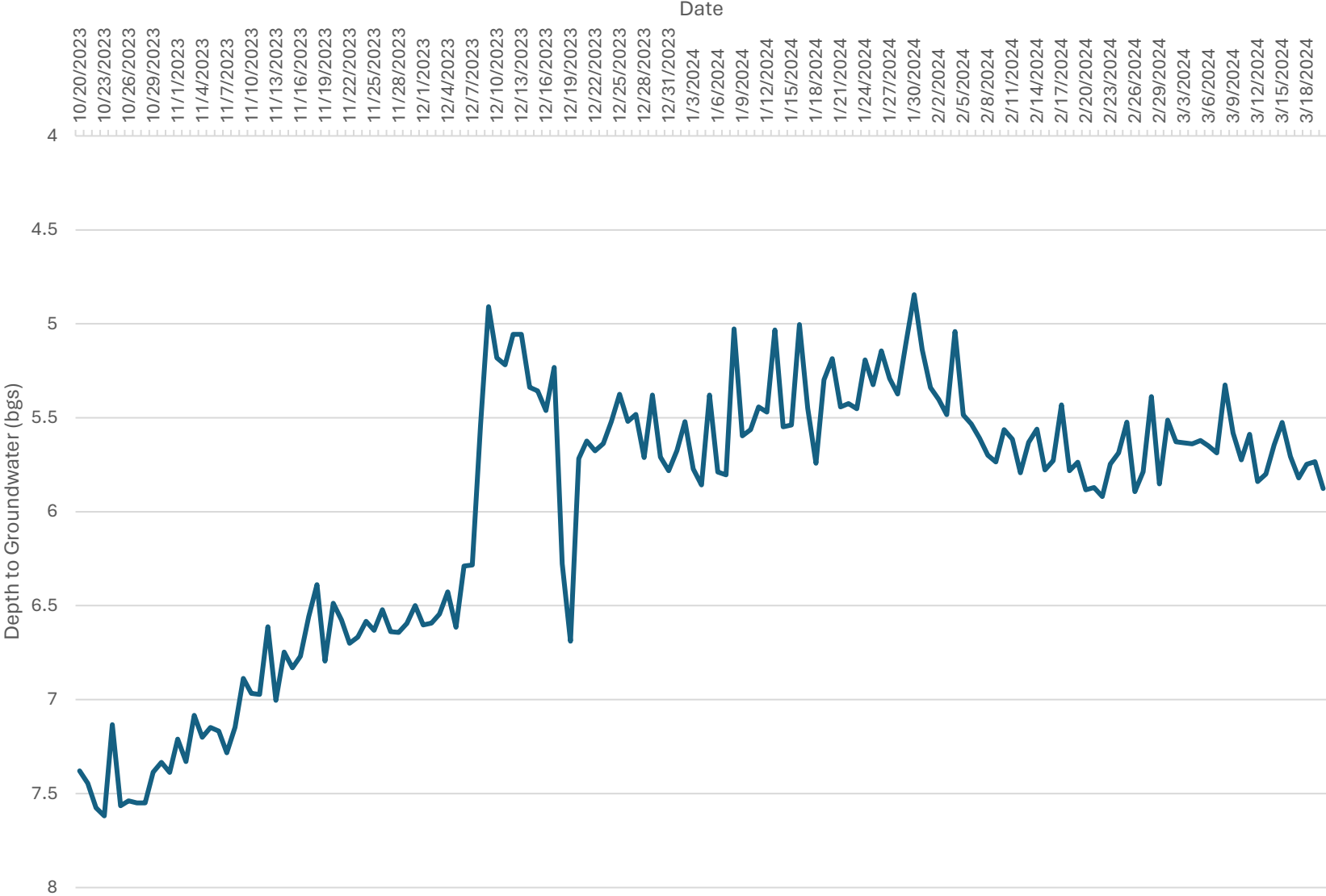


COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

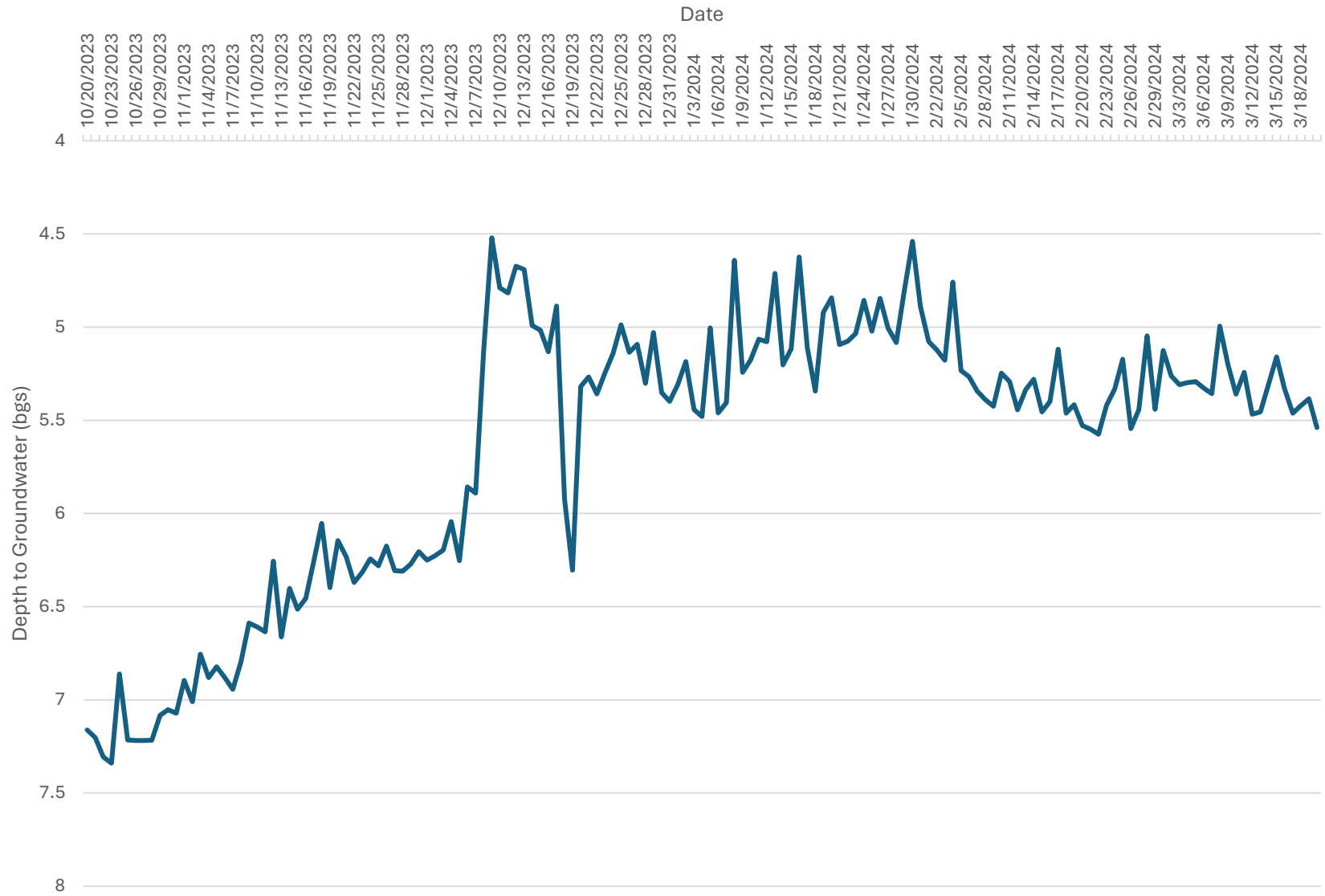
Specimen Identification			Classification								Cc	Cu
●	TP-01	4.5ft.	USDA: Gray Slightly Gravelly Sand. USCS: SP.								0.98	2.09
☒	TP-01	10.0ft.	USDA: Gray Slightly Gravelly Sand. USCS: SP.								0.94	2.35
▲	TP-02	4.0ft.	USDA: Gray Slightly Gravelly Sand. USCS: SP.								1.10	2.42
★	TP-03	2.0ft.	USDA: Brown Slightly Gravelly Sand. USCS: SP.								1.11	2.27
Specimen Identification			D100	D90	D60	D30	D10	LL	PL	PI	%Silt	%Clay
●	TP-01	4.5ft.	9.5	0.877	0.457	0.312	0.218				1.4	
☒	TP-01	10.0ft.	19	0.573	0.37	0.234	0.157				2.4	
▲	TP-02	4.0ft.	9.5	0.79	0.431	0.29	0.178				2.5	
★	TP-03	2.0ft.	9.5	0.603	0.42	0.293	0.185				2.5	

GRAIN SIZE USDA WITH D90 ES-9388 927 ALDER AVENUE.GPJ GINT US LAB.GDT 11/8/23

TP-1 Groundwater Level



TP-2 Groundwater Level



TP-3 Groundwater Level

