

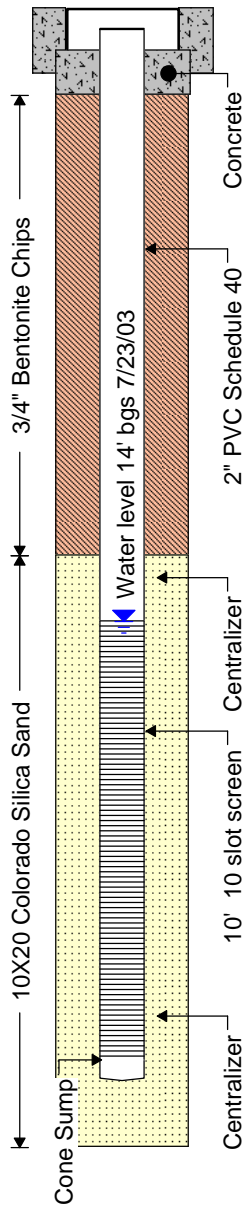


Well Number: MW-1

Client: Northwest Pipe Company
Project: Groundwater Investigation
Location: North Portland
Project Number: 161844.A0.ZZ

Driller: Geo-Tech Explorations
Drilling Method: Hollow Stem Auger
Sampling Method: Split Spoon
Logged by: Pat Heins
Start/Finish Date: 7/23/03

Depth (ft)	Sample Info					Soil Log	Soil Description	Depth / Elev	Well Completion Details	Comments
	Sample	Sample Type	Recovery (ft)	STP (6"-6"-6")	PID (ppm)					
0						Asphalt	Ground Surface	0.0		- Heavy duty Sherwood flush mount monument
1	1	SS	.5	8-13-17	0.8	GP/SW-SM 3/4" gravel with well graded sand, light brown, dry, medium to fine grain sand				- Ground elevation: 31.01' (NGVD '29)
5	2	SS	1	6-8-9	1.6	SP Poorly graded sand, light brown, moist, medium to fine grain sand				- Top of well casing elevation: 30.64' (NGVD '29)
	3	SS	1	4-4-5	0.8					- OWRD Well ID Number: L58982
10	4	SS	.75	4-4-4	0.7	SM Silty sand, light brown, moist, fine grain sand				- Start Card Number: 156646
	5	SS	1	3-4-5	6.8	SP Poorly graded sand, light brown, saturated, medium to fine grain sand				- Encountered fair amount of heaving at ~20'bgs. Water added to auger stem seems to
15	6	SS	1	2-2-3						- Water came from driller's rig, filled from Tualatin City water.
	7	SS	.75	3-3-6	6.5	SP/GP Poorly graded sand with 3/4" well weathered gravel, light brown, saturated (small piece of wood fiber)				
20	8	SS	1	2-6-6	8.4	SP Poorly graded sand, dark gray, saturated, medium to fine grain sand				
	9	SS	1	3-3-6	3.0					
25	10	SS	1.5	3-5-8	8.5	ML Silt, dark gray, moist				
30							End of Log			





Well Number: MW-2

Client: Northwest Pipe Company
Project: Groundwater Investigation
Location: North Portland
Project Number: 161844.A0.ZZ

Driller: Geo-Tech Explorations
Drilling Method: Hollow Stem Auger
Sampling Method: Split Spoon
Logged by: Pat Heins
Start/Finish Date: 7/23/03

Depth (ft)	Sample Info					Soil Log	Soil Description	Depth / Elev	Well Completion Details	Comments
	Sample	Sample Type	Recovery (ft)	STP (6"-6"-6")	PID (ppm)					
0							Ground Surface	0.0		
						Asphalt				
	1	SS	1	6-6-9	2.3	SP Poorly graded sand, light brown, moist, medium to fine grain sand				
5	2	SS	1	4-4-5	1.8					
	3	SS	1.5	6-7-6	3.4					
10	4	SS	1	3-4-4						
	5	SS	1	4-4-8	1.7	SP Poorly graded sand, light brown, saturated, medium to fine grain sand		13.0		
15	6	SS	1	1-4-4	3.5	SP Poorly graded sand, gray, saturated, medium to fine grain sand		14.0		
	7	SS	1	4-4-8	1.0	SW-SM/GP 3/4" gravel well weathered with well graded sand, gray, saturated		15.0		
20	8	SS	.75	1-1-2	2.5	SP Poorly graded sand, dark gray, saturated, medium to fine grain sand		18.0		
	9	SS	1.5	0-1-3		ML Silt, gray, moist (bottom 4" brown mottled rust color), firm, medium plasticity		21.0		
								23.0		
							End of Log			

The diagram illustrates the well's construction from the ground surface down to 23.0 feet. Key components include:

- Concrete** at the top.
- 3/4" Bentonite Chips** between 0 and 5 feet.
- 2" PVC Schedule 40** casing.
- Centralizer** at approximately 11 feet.
- 10X20 Colorado Silica Sand** between 13 and 18 feet.
- 10' 10 slot screen** between 18 and 21 feet.
- Centralizer** at approximately 21 feet.
- Cone Sump** at the bottom.
- Water level** is marked at 11' bgs on 7/23/03.

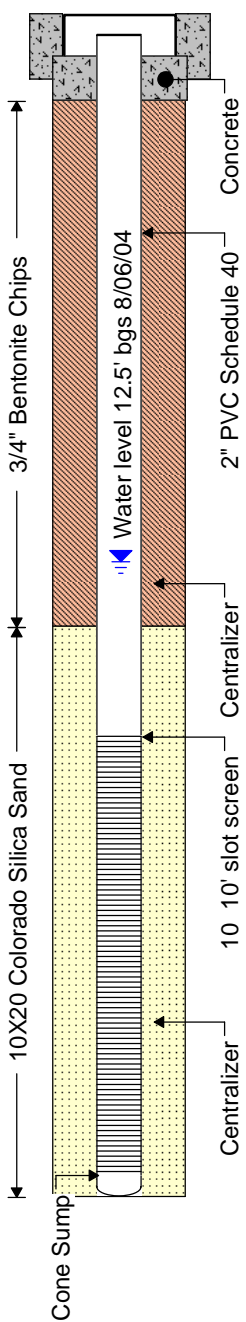


Well Number: MW-4

Client: Northwest Pipe
Project: Monitoring Wells 2004
Location: North Portland
Project Number: 161844.04.ZZ

Driller: Geo-Tech Explorations
Drilling Method: HSA CME
Sampling Method: Split Spoon
Logged by: C. Augustine
Start/Finish Date: 8/06/2004

Depth (ft)	Sample Info					Soil Log	Soil Description	Depth / Elev	Well Completion Details	Comments
	Sample	Sample Type	Recovery (ft)	STP (6"-6"-6")	PID (ppm)					
0							Ground Surface	0.0		-Heavy-duty Sherwood flush mount monument
2.5	1	SS	1	4-5-6	1.0	SP Poorly graded SAND, orange-brown, dry, loose, medium grained sand, some fine - coarse		2.5		-Ground elevation: 30.70' (NGVD '29)
5.0	2	SS	1.3	4-5-5	2.4	SP Poorly graded SAND with gravel, orange, dry, loose, medium sand, some fine gravel		5.0		-Top of well casing elevation: 30.13' (NGVD '29)
7.5	3	SS	1.4	2-3-5	3.2	SP Poorly graded SAND, orange-brown, dry, loose, fine to medium grained sand, some fine gravel 1/2"-3/4" in 5.0-5.5 feet layer		7.5		OWRD Well ID Number: L67930
13.0	5	SS	1.5	2-2-3	1.6	SP Poorly graded SAND, orange-brown, moist, loose, fine grained sand, some silt		13.0		Start Card number: 167488
17.5	6	SS	1.5	3-3-4	4.0	OL Organic SILT composed of woody vegetation with sand, gray, moist, firm, low plasticity		17.5		
23.5	7	SS	1.5	3-3-4	3.9	SM SILTY SAND, dark brown, wet, soft fine grained sand		23.5		
26.0	8	SS	1.5	1-1-1	3.9	SM Sand with Silt, dark orange-brown to brown, wet, soft, fine-medium sand, with wood.		26.0		
26.0	9	SS	1.3	2-2-3	2.4	SM Poorly graded SAND with SILT, gray, wet, soft Fine sand		26.0		
26.0	10	SS	1.5	1-1-1	2.0	ML SILT, grey, wet, firm, medium plasticity, low to no dilatancy		26.0		
26.0	11	SS	1.5	3						
30							End of Log			

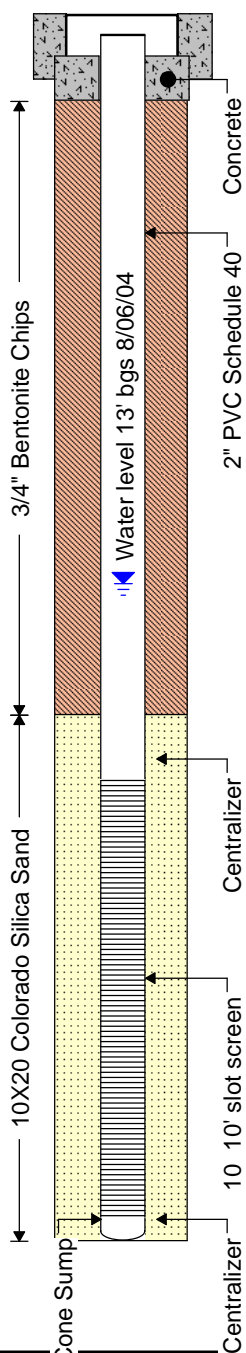


-Heavy-duty Sherwood flush mount monument
 -Ground elevation: 30.70' (NGVD '29)
 -Top of well casing elevation: 30.13' (NGVD '29)
 OWRD Well ID Number: L67930
 Start Card number: 167488
 Driller reports heaving at ~17 feet bgs, added water to stabilize the borehole

Client: Northwest Pipe
Project: Monitoring Wells 2004
Location: North Portland
Project Number: 161844.04.ZZ

Driller: Geo-Tech Explorations
Drilling Method: HSA CME
Sampling Method: Split Spoon
Logged by: C. Augustine
Start/Finish Date: 8/06/2004

Depth (ft)	Sample Info					Soil Log	Soil Description	Depth / Elev	Well Completion Details	Comments
	Sample	Sample Type	Recovery (ft)	STP (6"-6"-6")	PID (ppm)					
0							Ground Surface	0.0		-Heavy-duty Sherwood flush mount monument
2.5	1	SS	1.5	9-9-8	14.2	SP Poorly graded SAND, orange-brown, dry, loose, fine-med grained san, some gravel up to 1-inch	Asphalt	2.5		-Ground elevation: 30.79' (NGVD '29)
5.0	2	SS	1.2	5-6-9	5.2	SP Poorly graded SAND with gravel, orange, dry, loose fine - medium sand, gravel up to 1/2 inch in upper 6 inches of sample		5.0		-Top of well casing elevation: 30.38' (NGVD '29)
7.5	3	SS	1.5	3-4-5	2.4	SP Poorly graded SAND", orange-brown, dry, loose Fine to medium grained sand		7.5		OWRD Well ID Number: L67931
10.0	4	SS	1.5	4-5-5	2.0	SP Poorly graded SAND, orange-brown, moist, loose Fine to medium grained sand		10.0		Start Card number:167489
12.5	5	SS	1.5	4-4-4	6.1	SP Poorly graded SAND, orange-brown, moist, loose Fine to medium grained sand		12.5		
15.0	6	SS	1.5	3-5-6		SP/SM Poorly graded SAND with Silt, orange, moist, loose Fine-medium grained sand		15.0		
17.5	7	SS	1.5	4-5-6	1.0	ML SILT, orange brown to grey, moist, soft, low to no plasticity in upper 6-inches		17.5		
20.0	8	SS	1.5	2-5-7	1.0	SP Poorly graded SAND, dark brown, wet, loose, fine to medium sand, some silt		20.0		
22.5	9	SS	1.5	4-6-8	2.0	SP Poorly Graded Sand, dark orange-brown to brown, wet, soft, some silt		22.5		
25.0	10	SS	1.5	3-3-4	1.2	SP/SM Poorly graded SAND with SILT, orange brown to gray wet, very soft		25.0		
27.5	11	SS	1.5	1-1-1		SP Poorly graded SAND, orange brown to grey, wet, soft, some silt in lower 6-inches		27.5		



Driller reports heaving at ~17 feet bgs, added water to stabilize the borehole









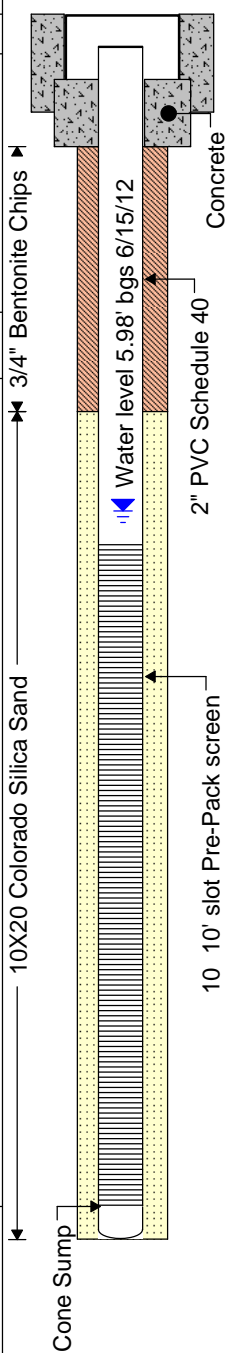
Well Number: MW-7

Sheet: 1 of 1

Client: Northwest Pipe
Project: Stained Soil
Location: North Portland
Project Number: 358932.TT.06

Driller: Cascade Drilling
Drilling Method: Direct Push
Sampling Method: Continuous Core
Logged by: Bruce Pratt
Start/Finish Date: 5/31/12

Depth (ft)	Sample Info		Soil Log	Soil Description	Depth / Elev	Well Completion Details	Comments
	Sample	STP (6"-6"-6")					
0				Ground Surface	0		
1				Asphalt			
5				GP Poorly graded SAND and GRAVEL, brown, dry, loose, fine -med grain sand. Gravel up to 1-inch			
6				SP Poorly graded SAND, brown, dry, loose fine - medium grain sand	5		
7				SP Poorly graded SAND", brown, moist to saturated, loose fine to medium grain sand	6		
10							
15							
18				End of Log	18		
20							



-Heavy-duty Sherwood flush mount monument
 -Ground elevation: 26.79' (COP)
 -Top of well casing elevation: 26.37' (COP)
 OWRD Well ID Number
 Start Card Number: 1016801
 Geofabric observed at 7'bgs
 Soil Sample GP302 collected 7'-8'
 -9.5' bgs sheen observed in soil core
 - 12' to 14.5' bgs heavy sheen observed in soil core
 Background PID reading 1.5 to 1.7 ppm.

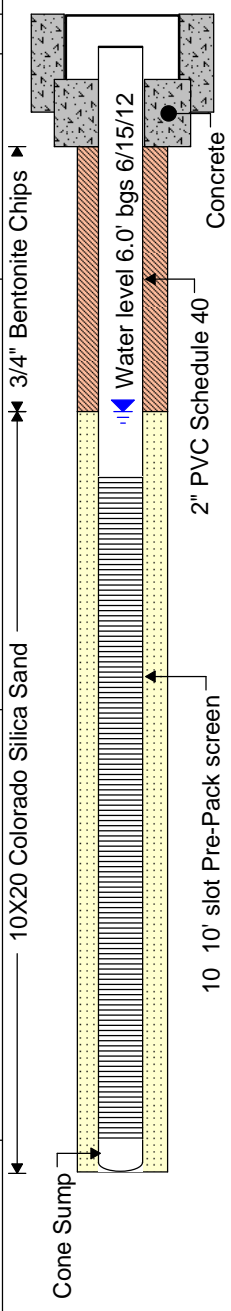


Well Number: MW-8

Client: Northwest Pipe
Project: Stained Soil
Location: North Portland
Project Number: 358932.TT.06

Driller: Cascade Drilling
Drilling Method: Direct Push
Sampling Method: Continuous Core
Logged by: Bruce Pratt
Start/Finish Date: 5/31/12

Depth (ft)	Sample Info		Soil Log	Soil Description	Depth / Elev	Well Completion Details	Comments
	Sample	STP (6"-6"-6")					
0				Ground Surface	0		
1			Asphalt				
1	1		GP Poorly graded SAND and GRAVEL, brown, dry, loose, fine -med grain sand. Gravel up to 1-inch				-Heavy-duty Sherwood flush mount monument -Ground elevation: 26.88' (COP) -Top of well casing elevation 26.36' (COP) OWRD Well ID Number
5			SP Poorly graded SAND, brown, dry to moist, loose fine - medium grain sand		4		Start Card Number: 1016802
2	2						Soil Sample GP306 collected 10.5' to 11.5' bgs
10			SP Poorly graded SAND", dark gray, saturated, loose fine to medium grain sand		11		No sheen at 10' bgs
3	3						Background PID 0.7 ppm
15							
17				End of Log	17		
20							





Well Number: MW-9

Client: Northwest Pipe
Project: Stained Soil
Location: North Portland
Project Number: 358932.TT.06

Driller: Cascade Drilling
Drilling Method: Direct Push
Sampling Method: Continuous Core
Logged by: Bruce Pratt
Start/Finish Date: 5/31/12

Depth (ft)	Sample Info		Soil Log	Soil Description	Depth / Elev	Well Completion Details	Comments
	Sample	STP (6"-6"-6")					
0				Ground Surface	0		
1			Asphalt				
3			GP Poorly graded SAND and GRAVEL, orange-brown, dry, loose, fine -med grain sand. Gravel up to 1-inch				
5			SP Poorly graded SAND, brown, dry to moist, loose fine - medium grain sand				
9			SP Poorly graded SAND", dark gray, saturated, loose fine to medium grain sand				
17			End of Log				

The diagram illustrates the well's construction from 0 to 17 feet depth. At the surface (0 ft), there is a heavy-duty Sherwood flush mount monument. Below this is a concrete seal. The casing is made of 2-inch PVC Schedule 40 pipe. A water level is indicated at 6 feet 15 inches (6/15/12) with a blue arrow. From 3 feet to 9 feet, the casing is surrounded by 3/4-inch bentonite chips. From 9 feet to 17 feet, the casing is surrounded by 10x20 Colorado Silica Sand. A 10-foot slot pre-pack screen is located at the bottom of the well. A cone sump is shown at the very bottom of the well casing.

-Heavy-duty Sherwood flush mount monument
 -Ground elevation: 26.17' (COP)
 -Top of well casing elevation 25.75' (COP)

OWRD Well ID Number

Start Card Number: 1016803

Soil Sample GP307 - 13' - 14' bgs

No sheen at 10' bgs

PID background 0.0 ppm