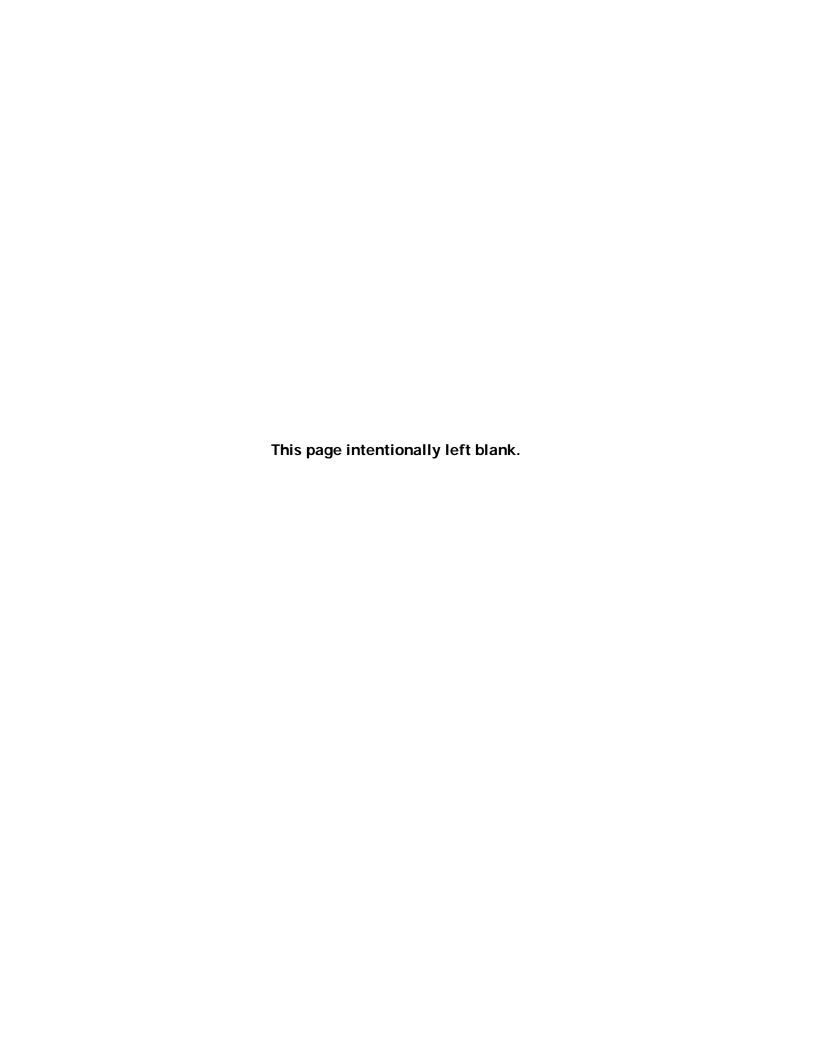
Appendix I Monitoring Well Construction Logs



Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: A Borden	
Location ID: CH-MW001	Northing: 335505.8 Easting: 1569044.6	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 38.9	Depth to Bedrock (ft bgs): NA	
Start Date: 12-06-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 5-20	
Finish Date: 12-06-16	Borehole Diameter (in): 7	Total Depth (ft): 25.0	

12-00-1			20.0	ole Diameter (m). 7		
Old	Percent	Recovery	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Well Informati	on
0 1.7, 0		13%	H	-10.5	Seal	
0 0.5, 1)%		7.0 SILTY SAND, wet, loose, dark brown, medium sand, coarser than above, trace gravel (0.5-1"), subangular, poorly sorted		
		S	м	11.0 LEAN CLAY, moist, dense, dark brown/ gray, fine sand, silt, some organics, cohesive a plastic	nd Screen	
0 1.1, 0			L			
0 2.1, 1		5%		18.0 FAT CLAY, moist to dry, dense and pliable, light gray, clay with trace silt, cohesive and plastic, TD = 20': Borehole backfilled to have screen in waterbearing zone	nighly	
0 1.1, 3					End Cap/Base Backfill	
5.	G.O 1.7, 0 5.0 0.5, 1. 6.0 2.1, 1.	1.7, 0.7 1.7, 0.7 1.1, 0.7 1.1, 0.7 1.1, 0.7 1.1, 0.7 1.1, 0.7	(mdd) (mdd) 293	Geo nuit Code 1.7, 0.7 43% SM SM CL CH 360 1.1, 0.7 81% CH	Soil and Rock Description Classification Scheme: USCS OH OH OS ORGANICS, moist, dark brown, decaying roots and leaves, trace gravel SILTY SAND, moist, slightly compacted, yellowish brown with minor orange oxidation, medium to fine sand with silt, well sorted, cohesive, not plastic, some small gravel (pea s at 5.5 bgs) SM SILTY SAND, wet, loose, dark brown, medium sand, coarser than above, trace gravel (0.5-1'), subangular, poorly sorted LEAN CLAY, moist, dense, dark brown/ gray, fine sand, silt, some organics, cohesive at plastic, TD = 20'. Borehole backfilled to have screen in waterbearing zone CH CH CH CH CH CH CH CH CH C	Soil and Rock Description Classification Scheme: USCS Stickup— OH Sit TY SAND, well, loose, dark brown, medium sand, coarser than above, trace gravel Sit TY SAND, well, loose, dark brown, medium sand, coarser than above, trace gravel Sit TY SAND, well, loose, dark brown, medium sand, coarser than above, trace gravel Sit TY SAND, well, loose, dark brown, medium sand, coarser than above, trace gravel Sit TY SAND, well, loose, dark brown, medium sand, coarser than above, trace gravel Sit TY SAND, well, loose, dark brown, medium sand, coarser than above, trace gravel Sit TY SAND, well, loose, dark brown, gray, fine sand, sit, some organics, cohesive and plassic. The LEAN CLAY, moist, dense, dark brown/gray, fine sand, sit, some organics, cohesive and highly plassic. To = 20° Borehole backfilled to have screen in waterbearing zone CH End Clay Gases Backfillii End C

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: A Borden	
Location ID: CH-MW002	Northing: 335054.1 Easting: 1569043.9	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 38.7	Depth to Bedrock (ft bgs): NA	
Start Date: 12-05-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 15-30	
Finish Date: 12-06-16	Borehole Diameter (in): 7	Total Depth (ft): 30.0	

Finish	Finish Date: 12-06-16				Borehole Diameter (in): 7 Total Depth (ft): 30.0		J			
Depth (ft bgs)	Recovery Length	PID (ppm)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS		Well Inform	nation	
0				ОН		ORGANIC MATERIAL, dry, soft, dark brown, leaves, roots, and de 1.0	ecaying organic material			4.00 2.00 2.00 2.00
2				SM		SILTY SAND, dry, compacted, yellowish brown, fine to medium sa 2.0 sorted	and with some silt, poorly			
4	2.4/5.0	1.0, 1.7	50%	ML	× × × × × × × × × × × × × × × × × × ×	SANDY SILT, dry, compacted, grayish brown, fine sand with silt a sorted, cohesive and slightly plastic		Annular Ba <u>ckfill</u>		
6 8 10	2.5/5.0	0.8, 0.4	50%	SW		SAND, moist, loose, yellowish brown with orange oxidation stainin gravel (pea sized), poorly sorted, color change to gray brown, san- coarse, return to fine to medium sand at 15' bgs	g, medium sand with trace d becomes medium to	Riser		
12	2.5/5.0	0.8, 0.4	50%	SW				Seal		
16 18	2.5/5.0	1,0, 1.1		ML	× × × × × × × × × × × × × × × × × × ×	SANDY SILT, dry, compacted, brownish gray, medium sand with smaterial cemented 18.0	silt and gravel (till material),			
 20			50%	SW	<u>////</u>	SANDY GRAVEL, dry, loose, medium sand with cobbles (0.5-1"), 20.0	highly heterogenous			
22	2.0/5.0	1.2, 0.7	3%			SILTY SAND, moist to wet, compacted, medium sand and silt, trai (pea size), poorly sorted, heterogeneous, large cobbles, poorly sorted aquifer material	ce clay, trace fine gravel rted, TD = 30' bgs, reach	Screen		
26 - 28 - 30	3.0/5.0	0.5, 1.2	60%	SM		30.0				

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: A Borden	
Location ID: CH-MW003	Northing: 334839.0 Easting: 1569050.0	Drilling Company: Cascade	
Project # : 60443903	Ground & TOC Elevations (FT NAVD88): 34.4	Depth to Bedrock (ft bgs): NA	
Start Date: 12-05-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 15-20	
Finish Date: 12-05-16	Borehole Diameter (in): 7	Total Depth (ft): 30.0	

Finisn	Date: 1	2-05-16			Boreno	ole Diameter (in): 7	Total Depth (ft): 30.			
					ø			Well Infor	matio	n
Oepth (ft bgs)	Recovery Length	OIA (mdd)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS		Stickup——	>	
0				ОН		Organics, dark brown/black, roots and root structures				100
2 4	1.2/5.0	1.8, 0.9	25%	SM		SILTY SAND, dry, loose, yellowish brown with orange oxidation other pathways, medium sand with some silt, gravel (0.5-2"), ve sorted, Same as above, color change to light gray, very heterog	ery heterogeneous, poorly	Annular Ba <u>ckfill</u>		
6 8	3.8/5.0	1.1, 0.5				7.5		Riser	+	
8 	5.0/5.0	1.1, 0.3	76%	ML	× × × × × × × × × × × × × × × × × × ×	SANDY SILT, moist, dark brown, fine to medium sand with som 8.5 cohesive, not plastic SILTY SAND, moist to slightly wet, yellowish brown, medium s gravel (0.5-2 inches), poorly sorted				
 12 14	1.4/5.0	1.7, 0.8	28%	SM				Seal		
16 18 - 20	2.0/5.0	0.8	42%			20.0		Screen		
22	3.9/5.0	1.1, 2.6	78%	SM		SILTY SAND, wet/very moist, light gray, medium to fine sand w sorted 24.5 CLAYEY SAND, moist to wet, light gray, medium to fine sand	with clay, trace gravel.	End Cap/Base Backfill ——		
26 - 28 - 30	3.3/5.0	1.0, 0.4	67%	sc		poorly sorted sand, cohesive and slightly plastic. TD = 30' bgs material	, reached desired aquifer			

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: A Borden	
Location ID: CH-MW004	Northing: 334385.3 Easting: 1569185.1	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 54.4	Depth to Bedrock (ft bgs): NA	
Start Date: 12-06-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 17-32	
Finish Date: 12-06-16	Borehole Diameter (in): 7	Total Depth (ft): 35.0	

Finish	Date: 1	2-06-16			Boreh	ole Diameter (in): 7	otal Depth (ft): 35.0)	
Depth (ft bgs)	Recovery Length	PID (ppm)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS		Well Informa	ition
0				ОН		ORGANICS, wet, cohesive, dark brown to black, grass, roots and 1.0	decaying material	4 : 2 :	102 A 102 A 102 A 102
2 4	1.4/5.0	1.1, 14.7	28%	SM	V7/77	SILTY SAND, dry to slightly moist, loose, yellowish brown, fine to silt, trace gravel (0.5"-1"), heterogeneous, poorly sorted 4.5 CLAYEY SAND, moist, yellowish brown, fine sand with clay, coher		Annular Ba <u>ckfill</u>	
6				SC		very heterogeneous	sive and oliginal places,		
 8 	1.6/5.0	0.7, 1.1	33%	SM		SILTY SAND WITH GRAVEL, moist to dry, cemented, yellow brown and clay, gravel, subangular to rounded, poorly sorted 9.0 CLAYEY SAND, lens, same as above	wn, medium sand with silt	Riser	+
10				sc					
12 14	1.6/5.0	13.6, 14.7	33%	SM		SILTY SAND WITH GRAVEL, same as above, hit boulder during to 15.0	run, limited recovery	Seal	
16 18 20	1.5/5.0	2.1, 1.7	30%	SP		SAND, dry, loose, yellow brown, medium to coarse sand, trace s and rounded, wet at 20' bgs, becoming more silty	ilt, well sorted	Filter Pac <u>k</u>	
2224	4.0/5.0	14.7, 7.8	80%			24.0 SILTY SAND, wet, compacted, yellowish brown, sand with some s	silt, trace clay, rounded to	Screen	
	4.2/5.0	8.8, 5.7	85%	SM		subangular, well sorted			
30 32 32 34	5.0/5.0	1.8, 1.7	100%	sc		CLAYEY SAND WITH GRAVEL, dry to moist, cemented, yellow b some silt and clay, cemented gravel (0.5-2" diameter), poorly sorts 32' bgs: Well screen moved up to put within waterbearing material	ed and sub angular, TD =	End Cap/Base Backfill	

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: M Glinski	
Location ID: CH-MW005	Northing: 336287.5 Easting: 1571273.4	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 67.0	Depth to Bedrock (ft bgs): NA	
Start Date: 12-06-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 17.9-32.9	
Finish Date: 12-06-16	Borehole Diameter (in): 7	Total Depth (ff): 33 0	

Finish	Date: 1	2-06-16			Boreh	ole Diameter (in): 7	al Depth (ft): 33.0)
Oepth (ft bgs)	Recovery Length	PID (ppm)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS		Well Information Stickup—
	3.5/5.0	0.3, 0.8, 0.5,		ML	× × × × × × × × × × × × × × ×	10% fine sand, 7.5YR 4/6 strong brown, soft, dry		Annular Backfill
4		0.0	70%		X	25% fine gravel, 25% fine sand, 7.5YR 4/6 strong brown, soft, dry, sl subangular gravel	lightly cohesive, trace	
6 8	3.8/5.0	1.0, 1.7, 0.6,	NA	ML	× × × × × × × × × × × × × × × × × × ×	8.0		Riser
10	0.0.0	2.8			X X X X X X X X X X X X X X X X X X	10% fine sand, 7.5YR 4/6 strong brown, medium stiff, moist		
12	3.5/5.0	0.4, 0.0, 1.6, 2.8	NA	ML	× × × × × × × × × × × × × × × × × × ×			Seal
14				ML	× × × × × × × × × × × × × × × × × × ×	14.0 35% fine sand, 7.5YR 4/6 strong brown, loose, moist, trace coarse sa	and and fine gravel	Filter Pac <u>k</u>
18	3.9/5.0	0.6, 1.2, 0.4, 0.1	NA	SPSM	× × ×	17.0 fine to medium sand, 7.5YR 4/6 strong brown, loose, moist, slightly c		
20				-	× × × × × × × × × × × ×	35% fine sand, 7.5YR 4/6 strong brown, loose, moist, trace coarse sat 19 ft bgs	and, pulverized boulder	
	4/5.0	0.0, 0.3, 0.4, 0.1	NA		X X X X X X X X X X X X X X X X X X X			
26	4.3/5.0	0.0, 0.0, 0.0, 0.0	NA	ML	X X			Screen
30					X X X X X X X X X X X X X X X X X X X			
32					X X X X X X X X X X X X X X X X X X X	33.0		End Cap/Base Backfill

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: M Glinski	
Location ID: CH-MW006	Northing: 336021.3 Easting: 1571547.0	Drilling Company: Cascade	
Project # : 60443903	Ground & TOC Elevations (FT NAVD88): 60.9	Depth to Bedrock (ft bgs): NA	
Start Date: 12-07-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 15-30	
Finish Date: 12-07-16	Borehole Diameter (in): 7	Total Depth (ft): 31 0	

Finish	Date: 1:	2-07-16			Boren	ole Diameter (in): 7	Fotal Depth (ft): 31.0	J	
Depth (ft bgs)	Recovery Length	PID (ppm)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS		Well Information	n
2 4	3/5.0	0.1, 0.3, 0.3, 0.4	NA		× × × × × × × × × × × × × × × × × × ×	20% fine sand, 10YR 4/4 dark yellowish brown, soft, dry, cohesiv gravel, increase in fine sand (25%) at 10 ft bgs, increase in grave at 19 ft bgs, decrease in sand (15%) at 20 ft bgs	ve, trace well rounded el (5-10%) at 15 ft bgs, moist	Riser	
6 - 8 - 10	3.5/5.0	0.0, 0.0, 0.0, 0.2	NA		X X X X X X X X X X X X X X X X X X X			Annular Ba <u>çkfill</u>	
	5/5.0	0.0, 0.0, 0.4, 0.3	NA	ML	X X X X X X X X X X X X X X X X X X X			SealFilter Pack	
16 18 20	4.2/5.0	0.0, 0.0, 0.1, 0.2	NA		X				
2224	4.5/5.0	0.0, 1.2, 2.3, 0.3	NA		× × × × × × × × × × × × × × × × × × ×	22.5 35% fine to medium sand, 10YR 4/6 dark yellowish brown, stiff, n subrounded gravel (10 mm), wet at 27 ft bgs	noist, cohesive, trace	Screen	
	NA	0.0, 0.0, 0.0, 0.3	NA	ML	x x			End Cap/Base	
]						31.0		Backfill	

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: A Borden
Location ID: CH-MW007	Northing: 335781.7 Easting: 1573852.4	Drilling Company: Cascade
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 60.8	Depth to Bedrock (ft bgs): NA
Start Date: 12-06-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 20-35
Finish Date: 12-06-16	Borehole Diameter (in): 7	Total Depth (ft): 40.0

Fillian	Date: 12	2-00-10			Doren	ole Diameter (in): 7 Total Depth (ft): 4	0.0
Depth (ft bgs)	Recovery Length	PID (mdd)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Well Information
0				SWSC	<i>/////////////////////////////////////</i>	1.0 Fill material, sand, silt, clay, and gravel, heterogenous	Stickup Annular Backfill
2 - 4	3.0/5.0	24.1, 11.7	60%	SP		SAND, dry, loose, yellow brown, medium sand with small gravel (pea size), gravel at 2' bgs, well sorted, slightly cohesive boulder, no recovery	
6 8 10	3.6/5.0	25.3, 15.7	71%	SM		SILTY SAND, dry, compacted, yellowish brown, sand with silt, trace amounts of clay, trace gravel, very heterogenous, poorly sorted, grains rounded to subrounded, highly cemented a 8' bgs	Riser
12	3.8/5.0	1.6, 3.2	75%			13.0 SILTY SAND, dry to moist, loose, yellowish brown, sand with silt, poorly sorted, rounded to subrounded, trace small gravel	
 16				SM			
18 20	4.2/5.0	3.4, 5.7, 3.0	85%			17.0 SILTY SAND WITH GRAVEL, dry to moist, dense and compact, sand with silt, trace clay, some small gravel in cemented matrix, poorly sorted, subangular, oxidation staining throughout 25-30' bgs, moist	Seal
22 24	5.0/5.0	1.3, 2.1, 1.7	100%	SM			
26 - 28 - 30	4.3/5.0	0.7, 0.3, 0.4	86%				Screen
32	5.0/5.0	0.4, 0.2	100%	CLML		CIETT CENT, most, locat, mediam dana with some sin, poorly dorsed, concerts, not pictoria	
36 38 - 40	3.9/5.0	0.3, 0.4	78%	SM		SILTY SAND WITH GRAVEL, same as above, dry, highly compacted,TD = 35' bgs: moved screen to target waterbearing units 40.0	End Cap/Base Backfill

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: M Glinski
Location ID: CH-MW008	Northing: 335891.3 Easting: 1571897.8	Drilling Company: Cascade
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 56.5	Depth to Bedrock (ft bgs): NA
Start Date: 12-07-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 9.85-19.85
Finish Date: 12-07-16	Borehole Diameter (in): 7	Total Depth (ft): 20.0

Recovery Length (ft bgt) Recovery Length (gpm) Soil and Rock Description Classification Scheme: USCS Code	Well Information
0 OH	decaying organic material Riser :
OH	ular gravel (20mm), increase) at 7.5 ft bgs Annular Backfill
6	Seal
8 3.7/5 1.0, 0.5, 0.7, 0.1	Filter Pack
10	
12	
10YR 4/3 brown, medium plasticity stiff, dry, 5% fine to medium	
	Screen
18 5/5 0.0, 0.0, 0.0, 100%	
20	End Cap/Base Backfill

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: A Borden	
Location ID: CH-MW009	Northing: 335088.5 Easting: 1572872.1	Drilling Company: Cascade	
Project # : 60443903	Ground & TOC Elevations (FT NAVD88): 55.4	Depth to Bedrock (ft bgs): NA	
Start Date: 12-07-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 5-20	
Finish Date: 12-07-16	Borehole Diameter (in): 7	Total Depth (ft): 25.0	

	Date: 1				Boron	Die Diameter (in): / Total Depth (i	y. 20.		
Depth (ft bgs)	Recovery Length	PID (mdd)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS		Well Informa	ation
				ОН		Organics, moist, loose and soft, dark brown, grass, roots		Annular Ba ckfill 	
2	2.5/5.0	2.3, 1.7		SP		1.5 SAND, dry, loose yellowish brown, medium sand with trace silt, well sorted, subrou rounded, slightly cohesive	nded to	Seal	
4	2.0/3.0	2.0, 1.7	51%	SM		3.0 SILTY SAND, dry, loose/brittle, dark brown with orange staining, medium sand with roots in sleeve, cohesive, not plastic	some silt,	Filter Pac <u>k</u>	
6				SW	/: / / /: / /	5.5 SAND, dry to moist, loose, dark brown, fine sand with trace silt, poorly sorted, com	pacted		
8	3.2/5.0	3.2, 1.4	66%	SM		SILTY SAND, dry, loose/brittle, dark brown with orange staining, medium sand with roots, cohesive, not plastic	some silt,		
10				sw	/.'//. /.'//. /.'//.	GRAVELLY SAND, moist, loose, yellowish brown/tan, coarse to medium sand, gravel (0.5-1"), very poorly sorted, heterogeneous, wet at 11' bgs			
12 14	3.5/5.0	3.3, 1.7	71%	ML	X X X X X X X X X X X X X X X X X X X	SANDY SILT WITH GRAVEL, dry, compacted and dense, brownish yellow, silt a trace clay with some fine sand, very poorly sorted, color change: gray at 15' bgs, wet, very heterogeneous, poorly sorted	nd	Screen	
16 	3.5/5.0	2.7, 1.8, 2.6	70%		× × × × × × × × × × × × × × × × × × ×	16.5 SILTY CLAY WITH SAND, dry, compacted/cemented, light gray, silt and clay with trace small gravel, cohesive, low plasticity, subangular	ine sand,		
				CLML					
	4.3/5.0	1.7, 1.6, 4.2	86%	OLIVIL		24.0		End Cap/Base Backfill	
				ML	× × × × × ×	SANDY SILT, dry to moist, compacted/slightly loose, fine sand with silt and clay, gravel, poorly sorted, cohesive and slightly plastic. END OF BORING- reached to depth and water bearing zone	trace rget	[

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: A Borden
Location ID: CH-MW010	Northing: 335687.7 Easting: 1571269.8	Drilling Company: Cascade
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 64.8	Depth to Bedrock (ft bgs): NA
Start Date: 12-07-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 10-25
Finish Date: 12-07-16	Borehole Diameter (in): 7	Total Depth (ft): 25.0

Well Information **Geo Unit Code** JSCS Code Soil and Rock Description Classification Scheme: USCS Stickup-CLAYEY SILT, soft, moist, yellowish brown/tan, silt with clay, cohesive and low plasticity, MLCL 4.3, 1.7, 40.7 3.3/5.0 66% Annular Backfill CLAYEY SILT WITH SAND, dry, soft/loose, light brownish yellow, silt with trace clay, some fine sand and gravel (0.5-1"), poorly sorted MLCL 6 SAND, soft, moist, brownish yellow, medium sand, rounded, well sorted, small gravel 3.1/5.0 3.4, 2.3, 1.3 8 61% wet at 10' bgs 10 silty seam at 12' bgs 12 3.6/5.0 0.7, 2.2, 1.4 14 coarse to medium sand at 14' bgs, gravel is 0.5-1", rounded, not spherical SP sand becomes coarser at 16', well sorted, rounded, angular 16 2.0/5.0 1.5, 1.0 18 40% Screen finer sand at 20' bgs, some trace gravel 20 22 3.7/5.0 1.7, 2.5, 3.1 75% SILTY SAND, soft, moist, fine sand with silt 24

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: M Glinski	
Location ID: CH-MW011	Northing: 333753.9 Easting: 1570930.0	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 82.4	Depth to Bedrock (ft bgs): NA	
Start Date: 12-06-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 10-25	
Finish Date: 12-06-16	Borehole Diameter (in): 7	Total Depth (ft): 27.0	

Finish	Date: 1:	2-06-16			Boreh	ole Diameter (in): 7 Total De	pth (ft): 27.0	
Depth (ft bgs)	Recovery Length	PID (ppm)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS		Well Information
0				SM		5Y 2.5/1 black, angular, roots, organics from 0-2 inches bgs		Riser
2				ML	× × × × × × × × ×	25% fine sand, 10YR 4/6 dark yellowish brown, soft, dry		
4	3.3/5.0	0.6, 0.0, 0.9, 0.8	66%	ML	X X X X X X X X X X X X X X X X X X X	5% fine sand, 5Y 2.5/1 black, soft, dry		Annular Ba <u>ckfill</u>
6 8	3.5/5.0	1.1, 0.4, 1.0, 0.9	70%		× × × × × × × × × × × × × × × × × × ×	6.0 20% SILT, 5% gravel, 5Y 4/1 dark gray, loose, moist, cohesive, gravel is su 20mm in size	brounded and	Seal
10 12	3.4/5.0	0.1, 0.8, 0.4,	68%	SM		13.0 2.5Y 3/2 very dark grayish brown, non plastic, increasingly cohesive		
14 				SC		16.0		
18 20	4/5.0	1.1, 0.8, 2.0, 3.4	80%	ML	× × × × × × × × × × × × × × × × × × ×	25% fine sand, 7.5YR 4/6 strong brown, medium stiff, dry, trace gravel (up t at 20 ft bgs	to 60 mm in size)	Filter Pack Screen
	4.5/5.0	0.8, 0.7, 0.2, 0.0	90%	SM	× × × × × × × × × × × × × × × × × × ×	22.0 20% SILT, 10YR 5/6 yellowish brown, loose, moist 24.0 5Y 5/1 gray, low plasticity stiff, dry, grading to olive grey (5Y 4/2) with brown	(7.5YR 4/4)	
_ 26 	NA	0.0, 0.1		CL		laminations (5mm in width) at 25 ft bgs		End Cap/Base Backfill

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: A Borden	
Location ID: CH-MW012	Northing: 335301.1 Easting: 1571415.8	Drilling Company: Cascade	
Project # : 60443903	Depth to Bedrock (ft bgs): NA		
Start Date: 12-07-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 15-30	
Finish Date: 12-07-16	Borehole Diameter (in): 7	Total Depth (ff): 30.0	

Finish	n Date: 1	2-07-16			Boreno	ole Diameter (in): 7 Total Depth (ft):	30.0		
Depth (ft bgs)	Recovery Length	PID (mdd)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Well Infor	mation	ī
0	Œ.		<u>- œ</u>	, N	ő			15 No. 17	3 Tests
2 4	2.1/5.0	8.2, 2.6	43%			SAND, dry, loose, yellowish brown, medium sand, trace silt, well sorted, rounded, not cohesive, increasing gravel size (0.5") large piece of rock at 5' bgs, slight color change, more yellowish/tan	Riser		
6 8 	2.3/5.0	1.6, 2	46%	SP		moist at 9' bgs	Annular Ba <u>çkfill</u>		
12 14	No recovery		0%			15.0	Seal		
16 - 18 - 20	3.5/5.0	3.8, 2.2, 2.3	70%			SILTY SAND, wet, loose/compact, light brown, medium to coarse sand, some silt with trace amounts of clay, poorly sorted, heterogenous, rounded to subrounded, subangula TD = 30' bgs, reached water bearing unit	6		
22	No recovery		0%	SM			Filter Pac <u>k</u> Screen		
26 - 28 - 30	No recovery		0%			30.0			

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: M Glinski	
Location ID: CH-MW013	Northing: 334759.0 Easting: 1569949.4	Drilling Company: Cascade	
Project # : 60443903	Ground & TOC Elevations (FT NAVD88): 58.0	Depth to Bedrock (ft bgs): NA	
Start Date: 12-05-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 18-33	
Finish Date: 12-05-16	Borohole Diameter (in): 7	Total Depth (ff): 33.0	

Finish	Date: 1	2-05-16			Boreh	ole Diameter (in): 7	Total Depth (ft): 33.0			
O Depth (ft bgs)	Recovery Length	PID (ppm)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS		Well Inforr	mation	
2	5.0/5.0	0.0, 0.0, 0,0,	100%	SM		poorly graded, 20% fine sand, 10YR 4/4 dark yellowish brown, loos		Riser		
4		0.1			X X X X X X X X X X X X X X X X X X X	15% fine sand, 10YR 5/4 yellowish brown, medium stiff, dry, cohesi 8-8.5 ft bgs, rare subrounded gravel at 12-13 ft bgs, grading to brown	ive, pulverized concrete at wn (7.5YR 4/4)			
6 8 	5.0/5.0	0,0. 0.0, 0.0,	100%		X X X X X X X X X X X X X X X X X X X			Annular Baç <u>kfill</u>		
12	5.0/5.0	0.2, 0.0, 0.2,	100%	ML	X X X X X X X X X X X X X X X X X X X			Seal		
16 18	5.0/5.0	0.0, 0.0, 0.0, 0.0	100%		× × × × × × × × × × × × × × × × × × ×	19.0 20% SILT, 7.5YR 4/6 strong brown, loose, dry, yellowish red (5YR	4/6) from 17-18 ft has			
20 22 24	5.0/5.0	0.2, 0.4, 0.0,	100%	SM	× × × × × × × × × × × × × × × × × × ×	23.0 7.5YR 4/2 brown, loose, dry, slightly cohesive		Filter Pac <u>k</u>		
				SM	****	20% SILT, 7.5YR 4/6 strong brown, loose, dry, slightly cohesive				<u>]</u>
	5.0/5.0	0.0, 0.0, 0.0,	100%	SWSM		10YR 4/6 dark yellowish brown, loose, moist, slightly cohesive, very sand, subangular sand, less than 5% gravel (40 mm)	y fine to coarse grain	Screen		
32				SM		33.0				

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: M Glinski		
Location ID: CH-MW014	Northing: 334249.2 Easting: 1570186.4	Drilling Company: Cascade		
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 61.3	Depth to Bedrock (ft bgs): NA		
Start Date: 12-05-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 15.07-30.07		
Finish Date: 12-05-16	Borehole Diameter (in): 7	Total Depth (ft): 31.0		

Depth (ft bgs)	Recovery Length	PID (mdd)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Well Information
0 2	5.0/5.0	0.0, 0.0, 0.0,	100%	ML	X X	7.5YR 4/6 strong brown, soft, dry, cohesive 3.0 2.5Y 5/2 grayish brown, non plastic , medium stiff, cohesive	Riser
6				ML	× × × × × × × × × × × × × × × × × × ×		Annular Ba <u>ckfill</u>
8	3.0/5.0	0.2, 0.1, 0.1	60%		× × × × × × × ×	7.0 25% fine sand, 10YR 3/6 dark yellowish brown, stiff, dry, less than 5% subrounded gravel at 14 ft bgs	
10 12 14	3.0/5.0	0.1, 0.0, 0.0	60%		* * * * * * * * * * * * * * * * * * *		Seal
16 18 20	2.5/5.0	0.0, 0.0, 0.1	50%	ML	X X X X X X X X X X X X X X X X X X X		
22 24	3.0/5.0	0.0, 0.0, 0.0	60%		X X X X X X X X X X X X X X X X X X X	24.0 10YR 3/6 dark yellowish brown, soft, dry, grading to dark grey (2.5Y 4/1) at 24.5 ft bgs	Filter Pack Screen
26	5.0/5.0	0.0, 0.0, 0.1,	100%	ML	X X X X X X X X X X X X X X X	27.5	
	5.U/5.U	0.2	100%	ML	× × × × × × × × × × × × × × × × × × ×	15% fine sand, 2.5Y 4/1 dark gray, soft, dry	End Cap/Base Backfill

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: M Glinski		
Location ID: CH-MW015	Northing: 333545.2 Easting: 1570005.0	Drilling Company: Cascade		
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 74.0	Depth to Bedrock (ft bgs): NA		
Start Date: 12-06-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 25.1-40.1		
Finish Date: 12-06-16	Borehole Diameter (in): 7	Total Depth (ft): 41.0		

Finish	Date: 1:	2-06-16			Boren	ole Diameter (in): 7 Total Depth (ft): 4	1.0
Depth (ft bgs)	Recovery Length	PID (ppm)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Well Information
0 2 - 4	3.5/5.0	27.9, 71.4, 1991	70%	ML	X X X X X X X X X X X X X X X X X X X	20% fine sand, 7.5YR 4/4 brown, soft, dry, cohesive	Riser
6 - 8 - 10	4.0/5.0	1077, 1222, 1282, 1991	80%		× × × × × × × × × × × × × × × × × × ×	10% fine sand, 5Y 3/2 dark olive gray, non plastic, stiff, dry, cohesive, at 8.5 ft bgs decreasing sand, olive grey (5Y 4/2), <5% sub-rounded gravel (40 mm)	Annular Backfill
- 12 - 14 16	4.0/5.0	541, 377, 1991, 8.7	80%	ML	X X X X X X X X X X X X X X X X X X X		
- 18 - 20	4.5/5.0	62.3, 35.7, 84.6, 65.0	90%		× × × × × × × × × × × × × × × × × × ×	17.0 10YR 4/4 dark yellowish brown, low plasticity stiff, dry, cohesive, 5% coarse sand and small gravel (10mm) at 19 ft bgs, increase sand to 25% and 5% small gravel at 31 ft bgs, moist at 38 ft bgs, PID malfunctioning (?) no odor throughout	
 	3.8/5.0	95.2, 646, 48.1, 152	76%		× × × × × ×		Seal
26 28 - 30	4.0/5.0	17.1, 44.7, 81.3, 42.4	80%	ML	× × × × × × × × × × × × × × × × × × ×		
_ 32 _ 34	4.0/5.0	8.8, 23.8, 24.2, 39.3	80%		X		Filter Pack Screen
36 38 40	4.5/5.0		90%		X X X X X X X X X X X X X X X X X X X		End Cap/Base
<u> </u>					X	41.0	Backfill

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: A Borden		
Location ID: CH-MW016	Northing: 333368.4 Easting: 1570265.0	Drilling Company: Cascade		
Project # : 60443903	Ground & TOC Elevations (FT NAVD88): 80.7	Depth to Bedrock (ft bgs): NA		
Start Date: 12-08-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 15-30		
Finish Date: 12-08-16	Borehole Diameter (in): 7	Total Depth (ft): 30.0		

Finish Date: 12-08-16 Borehold		Boreh	Diameter (in): 7 Total Depth (ft): 30							
					o o			Well Infor	matior	1
o Depth (ft bgs)	Recovery Length	OIA (mdd)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS		Stickup	>	
0				ОН		0.5 ORGANIC MATERIAL, dry, soft, dark brown, leaves, roots, and decaying orga			100	
2 - 4	3.0/5.0	4.1, 9.2, 5.5, 3.7	60%			CLAYEY SAND, dense, dry, brownish yellow, fine to medium sand with clay cohesive and low plasticity, poorly sorted, subrounded, not spherical (till), be medium sand, trace fine to medium gravel, less cohesive, very dense, lots o becoming moderetly dense at 14' bgs	trace silt, coming more staining,	Riser		
6 8 	3.6/5.0	173, 325, 321, 1447, 737	73%	sc				Annular Ba <u>ckfill</u> Filter Pack		
12		255, 195,						Seal		
14	3.6/5.0	160, 117, 8.9	73%							
16		365, 440,				17.5				
18 	3.0/5.0	168, 72.1, 27.1	61%	sw	///// ////	SAND, loose, moist, light gray, medium sand, trace silt, poorly sorted, sub rou	nded			
2224	3.3/5.0	3.1, 2.7, 3.4, 3.1, 1.1	66%	СН		FAT CLAY, soft, light brown to gray, clay and silt, trace fine sand, plastic and o	ohesive	Screen		
26						26.5 SAND, loose, moist, light yellowish brown, medium to fine sand, trace silt, well	sorted, sub			
28	3.4/5.0		68%	SP		rounded				
30						30.0			<u> : </u>	<u>∃∷</u>

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: A Borden	
Location ID: CH-MW017	Northing: 333325.0 Easting: 1570231.4	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 81.4	Depth to Bedrock (ft bgs): NA	
Start Date: 12-08-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 15-30	
Finish Date: 12-08-16	Borehole Diameter (in): 7	Total Depth (ft): 30.0	

	Date. 1	- 00 .0			20.0	rotal beptil (it).	Well Infor	mation	_
O Depth (ft bgs)	Recovery	PID (mdd)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Stickup——	>	
2 4	3.5/5.0	2.2, 2	71%	SM		SILTY SAND, moist, moderate stiff, yellowish orange, fine sand with silt, cohesive, not plastic, well rounded, poorly sorted, rock in shoe, no recovery 5-10' bgs	Riser		
6 8 	No recovery		0%			9.0 CLAYEY SAND, dry, stiff, yellowish orange to light gray, fine sand with clay, trace silt, cohesive, low plasticity, poorly sorted, sub rounded	Annular Ba <u>çkfill</u> Filter Pack		
10 12 14	2.6/5.0	20.4, 21.6, 18.4, 24.5, 16.7	53%	sc		corresive, low plasticity, poorly sorted, sub rounded	Seal		
16 18 20	3.6/5.0	240, 210, 186, 88.4, 255	73%	swsc		16.0 CLAYEY SAND to SAND, stiff, moist, light gray, fine to medium sand with trace silt and poorly sorted, rounded, slightly cohesive, not plastic	clay,		
22 24	3.8/5.0	24.8, 110, 226, 194	76%			22.5 SILTY SAND, stiff, moist, light gray, medium sand with silt, trace clay and gravel, poorly sorted, rounded, slightly cohesive, not plastic	Screen		
26 - 28 - 30	2.0/5.0	370, 410, 360, 440, 382	40%	SM		29.0 FAT CLAY, soft, moist, brownish yellow, silt and clay, cohesive and plastic 30.0			

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: M Glinski	
Location ID: CH-MW018	Northing: 333279.2 Easting: 1570144.4	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 61.1	Depth to Bedrock (ft bgs): NA	
Start Date: 12-08-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 5-15	
Finish Date: 12-08-16	Borehole Diameter (in): 7	Total Depth (ft): 15.0	

Finish	Date: 12	2-08-16			Borene	ole Diameter (in): 7 Total De	epth (ft): 15.0	
O Depth (ft bgs)	Recovery Length	PID (ppm)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS		Well Information Stickup →
2	5.0/5.0	0.8, 0.3, 1.9, 4.3	100%	ML	X X X X X X X X X X X X X X X X X X X	25% fine sand, 7.5YR 4/6 strong brown, soft, dry, some organics and roots grading to black at 3.5-4 ft bgs 4.0 5GY 6/1 greenish gray, non plastic, wet, cohesive, laminations from 8-10 ft brown (7.5YR 4/6), grading to dark grey (5Y 4/1) at 10 ft bgs		Seal
6 8	4.0/5.0	0.0, 0.0, 1.0,	80%	ML	X X X X X X X X X X X X X X X X X X X			Filter Pack
12	5.0/5.0	0.0, 0.2, 0.0,	100%		X X X X X X X X X X X X X X X X X X X	15.0		Screen

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: M Glinski		
Location ID: CH-MW019	Northing: 333217.8 Easting: 1570237.1	Drilling Company: Cascade		
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 86.1	Depth to Bedrock (ft bgs): NA		
Start Date: 12-08-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 5-20		
Finish Date: 12-08-16	Borehole Diameter (in): 7	Total Depth (ft): 21.0		

FIIIISI	Date: 1	2-00-10			Doren	ole Diameter (m): 7 Total Depth (it	
O Depth (ft bgs)	Recovery Length	PID (mdd)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Well Information
_ 2 4	3.5/5.0	0.1, 0.3, 0.8,1.4	70%	ML	× × × × × × × × × × × × × × × × × × ×	10YR 4/4 dark yellowish brown, non plastic, stiff, dry, trace subrounded gravel	Annular Backfill > Riser
6 8	4.7/5.0	0.0, 0.0, 0.0,	94%	ML	× × × × × × × × × × × × × × × × × × ×	7.5 10YR 4/4 dark yellowish brown, low plasticity stiff, dry 7.5 10YR 4/4 dark yellowish brown, medium plasticity, stiff, dry, wet at 10 ft bgs, gradi olive grey (5Y 5/2) at 16 ft bgs	ng to
10 12	5.0/5.0	0.0, 0.0, 0.1,	100%				Filter Pack Screen
14 16		00 00 00	2004	CL			
18	4.6/5.0	0.0, 0.0, 0.0, 0.2	92%			21.0	End Cap/Base Backfill

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: A Borden	
Location ID: CH-MW020	Northing: 333303.1 Easting: 1570356.8	Drilling Company: Cascade	
Project # : 60443903	Ground & TOC Elevations (FT NAVD88): 93.7	Depth to Bedrock (ft bgs): NA	
Start Date: 12-08-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 10-25	
Finish Date: 12-08-16	Borehole Diameter (in): 7	Total Denth (ft): 25.0	

FILLIST	Date: 1	2-08-16			boreno	ble Diameter (in): 7 Total Depth (ft): 2	25.0
Depth (ft bgs)	Recovery Length	PID (ppm)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Well Information Stickup →
2 4	1.9/5.0	3.4, 1.5	38%	SP		SAND, dry, loose, light yellowish brown, medium sand, trace silt, trace small gravel, well sorted, slightly cohesive, rounded, sub-spherical, gravel is rounded, trace organics and roots, moist at 4' bgs, large gravel piece	Riser
6 8	2.7/5.0	5.5, 37.2, 1330	55%	SP SC		Rock in shoe, no recovery 7.0 CLAYEY SAND, dense, dry to moist, grayish brown with minor staining (oxidation), fine sar with clay, trace silt, poorly sorted, sub rounded, cohesive and low plasticity, trace fine grave	Seal
10 12 14	3.7/5.0	78.1, 53.2, 72.3	75%	sw		SAND, wet, loose, grayish brown, fine to medium sand (coarse to medium), trace clay and silt, slightly cohesive, poorly sorted, angular, not spherical 13.5 CLAYEY SAND, dense, dry, grayish orange, fine to medium sand with clay and trace silt, poorly sorted, rounded, not spherical, cohesive and slightly plastic	
16 - 18 - 20	3.0/5.0	16.2, 5.5	60%	sc			Screen
22	2.8/5.0	1.5, 7.2	57%	CLML		23.0 SILTY CLAY, dense, dry to moist, brownish gray, fine to medium sand, poorly sorted, some silt, trace gravel	

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Background	Logged By: A Borden	
Location ID: CH-MW021	Northing: 333245.8 Easting: 1570329.5	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 92.2	Depth to Bedrock (ft bgs): NA	
Start Date: 12-07-16	Drilling Method: Sonic	Well Screen Interval (ft bgs): 5-15	
Finish Date: 12-07-16	Borehole Diameter (in): 7	Total Depth (ft): 25.0	

1 111131	Date:	2-07-10			Boron	pie Diameter (in): /	tai Deptin (ft): 25.0		
Oepth (ft bgs)	Recovery Length	PID (mdd)	Percent Recovery	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS		Well Inform	nation
0				ОН		0.5 ORGANICS, silty clay, grass, roots SILTY CLAY, moist, dense, brown with orange staining, clay with fin	e sand poorly sorted	Annular Backfill	
2	2.9/5.0	1.0, 1.8	58%	CLML		cohesive and plastic, some trace gravel, subrounded	e sanu, poorly sorteu,	Seal	
4				SW	1///	SAND lens, dry			
6 - 8	3.4/5.0	4.8, 3.2, 2.2	68%	sc		CLAYEY SAND, dry, soft, grayish brown, clay with fine sand, poorly plastic, some trace gravel, impacted soil at 10' bgs to 12.5' bgs; high	sorted, cohesive and n PID hits and staining		
10								Filter Pack	
12 -	4.3/5.0	336, 453, 382	86%			FAT CLAY, soft and dense, grayish brown, dry to moist in places, fine sand, cohesive and highly plastic, no staining or odor	clay with silt, trace	Screen	
16									
18	4.6/5.0	28.6, 19.2, 15.1	91%	CH CL				End Cas/Poss	
				1				End Cap/Base Backfill	.
- 22 - 24	5.0/5.0	48.2, 16.1	100%	CL SC		21.0 LEAN CLAY, soft and dense, dry, grayish brown, fine sand, poorly s staining 22.5 CLAYEY SAND, slight odor, no staining	orted, slight odor, no		
24						24.0 LEAN CLAY, TD = 25' bgs, set well from 5-15' bgs to monitor impa	icted zone		
					1				· · · · · · .

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU01	Logged By: M Glinski	
Location ID: CH-MW022	Northing: 333417.3 Easting: 1570302.9	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 86.6	Depth to Bedrock (ft bgs): NA	
Start Date: 06-08-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 6-15.5	
Finish Date: 06-08-17	Borehole Diameter (in): 6 in	Total Depth (ft): 25.0	

	Date. 00				renote Diameter (m). Om	Total Depth (it). 2	5.0		
O Depth (ft bgs)	Recovery Length	PID (mdd)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS		Well Inforr	nation -	
24	3	0.0, 0.0, 0.0	ML	× × × × × × × × × × × × × × × × × × ×	SILT WITH SAND, 20% fine sand, ML, 10YR 4/4 dark yellowish brow	vn, non plastic stiff, dry	Bentonite chi <u>ps</u> Seal Riser		
6 8	4.4	0.0, 0.0, 0.0,	SPSM		POORLY GRADED SAND WITH SILT, SPSM, 10YR 5/4 yellowish b stiff, dry	orown, non plastic medium	Annular Backfill Filter Pack		
10 - 12 14	4.4	0.0, 0.0, 0.0, 0.0	SM		SILTY SAND, 30% silt, SM, 10YR 5/3 brown, medium stiff 11.0 POORLY GRADED SAND WITH SILT, SPSM, 10YR 5/4 yellowish b stiff, dry	prown, non plastic medium			
	5	0.0, 0.0, 0.0, 0.0	СН		FAT CLAY, 10YR 4/3 brown, high plasticity medium stiff, dry		End Cap/Base B <u>ackfil</u>		
	5	0.0, 0.0, 0.0,	CL		21.0 LEAN CLAY, 7.5YR 5/6 strong brown, low plasticity medium stiff 25.0				

Remarks:

Ambient PID 0.0ppm

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU01	Logged By: M Glinski	
Location ID: CH-MW023	Northing: 333370.5 Easting: 1570058.3	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 58.1	Depth to Bedrock (ft bgs): NA	
Start Date: 06-08-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 10-24.5	
Finish Date: 06-08-17	Borehole Diameter (in): 6 in	Total Depth (ft): 25.0	

	Date. 00				T T T T T T T T T T T T T T T T T T T	Total Depth (it).	20.0
			o	g e			Well Information
(ft bgs)	Recovery Length	Old (mdd)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	5	Stickup —
0				× × × × × × × × × × × × × × × ×	SILT WITH SAND, non-plastic soft {n=2-4}, dry, (10YR 4/4) dark 15%, cohesive	yellowish brown, fine sand	
2				× × × × × × × × × × × × × × × × ×			Riser
	3.3	0.1, 0.2, 0.1		X X X X X X X X X X X X X X X X X X X			Bentonite chips
				× × × × × × × × × × × × × × × ×			
			ML	X X X X X X X X X X X X X X X X X X X			
				X X X X X X X X X X X X X X X X X X X			Seal
	4.1	0.1, 0.1, 0.1		× × × × × × × × × × × × × × × ×			
_				X			Annular Backfill Filter Pack
				X	10.5		
4				× × × × × × × × × × × × × × × ×	SANDY SILT, increasing fine sand to SANDY SILT		Screen
1		0.1, 0.1, 0.2,		× × × × × × × × × × × × × × × ×			
$\frac{1}{2}$	5	0.1, 0.1, 0.2,		X			
+			ML	× × × × × × × × × × × × × × × × × × ×			
				X X X X X X X X X X X X X X X X X X X			
1	5	0.1, 0.0, 0.2,		× × × × × × × × × × × × × × × × ×			
_		0.1		X X X X X X X X X X X X X X X X X X X			
-					20.0		
1				XXXX	SILT, non-plastic stiff {n=9-15}, dry, (5Y 4/1) dark gray, cohesive		
1			ML	× × × × × × × × × × × × × × × × × × ×	22.0		
	5	0.0, 0.1, 0.1, 0.1, 0.1		× × × × × × × × × × × × × × × ×	SILT WITH SAND, stiff {n=9-15}, dry, (2.5Y 4/3) olive brown, 20%	% fine sand, micaceous	
			ML	× × × × × × × × × × × × × × × ×			
				× × × ×	25.0		End Cap/Base Backfill

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU01	Logged By: M Glinski	
Location ID: CH-MW024	Northing: 333430.6 Easting: 1570159.0	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 64.3	Depth to Bedrock (ft bgs): NA	
Start Date: 06-12-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 5-14.5	
Finish Date: 06-12-17	Borehole Diameter (in): 6 in	Total Depth (ft): 15.0	

FIIIISI	Date: 00)-12-17		ь	orenole Diameter (in): 6 III	rotai Deptii (it):	15.0	
							Well Infor	mation
O Depth (ft bgs)	Recovery Length	PID (mpq)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS		Stickup ——	
				× × × × × × × × × × × × × × × × × × ×	SILT, non-plastic stiff {n=9-15}, dry, (10YR 3/1) very dark gray, trace odor 3 - 4 ft bgs	e sand, moderate chemical	Cement ——	
2	3.8	0.0, 0.7, 7.8, 2.5, 3.2		× × × × × × × × × × × × × × × × × × ×			Seal	-
4				× × × × × × × × × × × × × × × × × × ×			Riser	
6				**************************************			Screen	
8	3.8	1.8, 3.4, 1.3, 3.3, 65.3,34.1	ML	X X X X X X X X X X X X X X X X X X X				
10				× × × × × × × × × × × × × × × × × × ×				
12	4	20.9, 31.7,		X X X X X X X X X X X X X X X X X X X				
14	4	22.5, 23.8		X X X X X X X X X X X X X X X X X X X				
					15.0		End Cap/Base Backfill	

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU01	Logged By: A Borden	
Location ID: CH-MW025	Northing: 333494.4 Easting: 1570092.4	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 71.6	Depth to Bedrock (ft bgs): NA	
Start Date : 06-07-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 10-20	
Finish Date: 06-07-17	Borehole Diameter (in): 6 in	Total Depth (ft): 22.5	

Depth (ft bgs)						Well Inforn	nation
0	Recovery Length	PID (ppm)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Stickup ——▶	-
			ОН		Organic soil, loamy, roots, grass		
_ 2	2	0.9, 1.3, 2.7, 3.2	SM		SILTY SAND, firm, dry, light reddish brown, fine to medium sand, poorly sorted, subrounded, silt, cohesive, trace gravel 4.5	Bentonite chi <u>ps</u> Riser	
6 8	3	0.7, 0.4, 0.2,	MLCL		SILTY SAND WITH CLAY, soft, dry, light gray, fine to medium sand, poorly sorted, subrounded, silt and clay, cohesive and slightly plastic becoming very soft with higher percentage of clay, less silt, moderate plasticity	Seal Annular Backfill Filter Pack	
10 12 14	3	0.2, 0.3, 0.4,	SM		11.8 SILTY SAND, firm, dry, dark grayish brown, medium sand, poorly sorted, silt, cohesive, becoming light reddish brown, fine to medium sand with silt, moist	Screen	
16			SP		SAND, loose, wet, reddish brown, medium sand, very poorly sorted, subrounded, trace amount of silt and clay, not cohesive		
18	3.5	0.4, 0.4, 0.6,	CL		CLAYEY SILT, dense to very dense, dry, light reddish brown to gray, silt and clay, massive, cohesive, non plastic, fine sand and trace small gravel	End Cap/Base B <u>ackfill</u>	

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Suspected Tank B	Logged By: M Glinski	
Location ID: CH-MW026	Northing: 334576.4 Easting: 1570062.1	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 60.9	Depth to Bedrock (ft bgs): NA	
Start Date: 06-05-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 10-19.5	
Finish Date: 06-05-17	Borehole Diameter (in): 6 in	Total Depth (ft): 20.0	

O Depth (ft bgs)	Recovery Length	PID (ppm)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Well Information
 	2	0.0, 0.0	ML	X X X X X X X X X X X X X X X X X X X	SANDY SILT, non-plastic soft {n=2-4}, dry, (10YR 5/4) yellowish brown, 35% fine sand	Capped Riser Bentonite chips
6 8	5	0.0, 0.0, 0.0, 0.0	CL		LEAN CLAY WITH SAND, low plasticity stiff {n=9-15}, dry, (10YR 4/3) brown, 20% fine sand	Seal Annular Backfill Filter Pack
12 14	5	0.0, 0.0, 0.0,		10.5	CLAYEY SAND, non-plastic medium stiff {n5-8}, wet, (10YR 5/4) yellowish brown, 20% fines	Screen
16 18 20	5	0.0, 0.0, 0.0, 0.0	SC	20.0		End Cap/Base Backfil

Remarks:

No Stickup

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Suspected Tank B	Logged By: M Glinski	
Location ID: CH-MW027	Northing: 334683.8 Easting: 1570053.0	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 58.6	Depth to Bedrock (ft bgs): NA	
Start Date: 06-05-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 20-29.5	
Finish Date: 06-05-17	Borehole Diameter (in): 6 in	Total Depth (ft): 30.0	

O Depth (ft bgs)	Recovery Length	PID (ppm)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Well Information
 2 4	5	0.0, 0.0, 0.0, 0.0, 0.0		X X X X X X X X X X X X X X X X X X X	SILT WITH SAND, non-plastic soft {n=2-4}, dry, (7.5YR 3/2) dark brown	Capped Riser
6 8 	5	0.0, 0.0, 0.0, 0.0, 0.0		X X X X X X X X X X X X X X X X X X X		Bentonite Chi <u>os</u>
12 14	5	0.0, 0.0, 0.0, 0.0	ML	X X X X X X X X X X X X X X X X X X X		
16 18 20	5	0.0, 0.0, 0.0,		X X X X X X X X X X X X X X X X X X X		Seal Annular Backfill Filter Pack
22	5	0.0, 0.0, 0.0,		X X X X X X X X X X X X X X X X X X X		Screen
26 28 30	5	0.0, 0.0, 0.0, 0.0	SPSM	× × × × × × × × × × × × × × × × × × ×	POORLY GRADED SAND WITH SILT, non-plastic medium dense {n=11-30}, moist, (2.5Y 5/3) light olive brown 30.0	End Cap/Base Backfill

Remarks: No Stickup

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Suspected Tank B	Logged By: M Glinski	
Location ID: CH-MW028	Northing: 334647.6 Easting: 1570092.0	Drilling Company: Cascade	
Project # : 60443903	Ground & TOC Elevations (FT NAVD88): 57.5	Depth to Bedrock (ft bgs): NA	
Start Date: 06-05-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 20-29.5	
Finish Date: 06-05-17	Borehole Diameter (in): 6 in	Total Depth (ft): 30.0	

<u> </u>		_				(19)
o Depth (ft bgs)	Recovery Length	Old (mdd)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Well Information
 2			sc		CLAYEY SAND, soft {n=2-4}, dry, (10YR 4/3) brown	Capped Riser
4	4	0.0, 0.0, 0.0, 0.0, 0.0		× × × × × × × × × × × × × × × × × × ×	2.0 SILT WITH SAND, soft {n=2-4}, dry, (7.5YR 4/3) brown, 15% fine sand trace grav	el
6 - 8 - 10	5	0.0, 0.0, 0.0, 0.0, 0.0	ML	****** ****** ****** ****** ****** ****		Bentonite chi <u>ps</u>
 12 14	5	0.0, 0.0, 0.0, 0.0			11.0 CLAYEY SAND, soft {n=2-4}, dry, (7.5YR 4/3) brown, fine SAND, trace gravel	
16 18 - 20	5	0.0, 0.0, 0.0, 0.0, 0.0				Seal Annular Backfill Filter Pack
2224	5	0.0, 0.0, 0.0, 0.0, 0.0	sc			Screen
26 28 - 30	3	0.0, 0.0, 0.0			30.0	End Cap/Base Backfill

Remarks: No Stickup

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU17	Logged By: M Glinski	
Location ID: CH-MW029	Northing: 335299.4 Easting: 1571864.5	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 50.0	Depth to Bedrock (ft bgs): NA	
Start Date: 06-06-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 10-19.5	
Finish Date: 06-06-17	Borehole Diameter (in): 6.0 in	Total Depth (ft): 20.0	

1 111131	n Date: 06	-00-17			Borehole Diameter (in): 6.0 in	Total Depth (ft):	20.0	
Depth (ft bgs)	Recovery Length	PID (mdd)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS		Well Information	on
0)SN	Geo			N//	
 2			SPSM		POORLY GRADED SAND WITH SILT, loose {n=5-10}, moist, (7.5' gravel	YR 3/2) dark brown, 5%	Bentonite chips	
	2.7	0.1, 0.1, 0.1			SILTY SAND, non-plastic loose {n=5-10}, moist, (7.5YR 5/3) brown	, 20% fines		
_ 4							Riser	
6			SM				Seal	
8	3.4	0.0, 0.0, 0.0					Annular Backfill Filter	
10							Pack ——	
12					POORLY GRADED SAND WITH SILT, cohesive loose {n=5-10}, m brown, fine SAND	noist, (2.5Y 5/2) grayish	Screen	
_ 14	3	0.1, 0.0, 0.1						
_ 16			SPSM					
_ 18	3	0.0, 0.0, 0.0						
 20					20.0		End Cap/Base B <u>ackfill</u>	

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU12	Logged By: A Borden	
Location ID: CH-MW030	Northing: 335186.5 Easting: 1572152.3	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 49.2	Depth to Bedrock (ft bgs): NA	
Start Date: 06-06-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 10-20	
Finish Date: 06-06-17	Borehole Diameter (in): 6 in	Total Depth (ft): 22.5	

Depth (ft bgs)	Recovery Length	PID (mdd)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Well Information
0					Organic soil, grass, roots	
2 4	2.5	0.4, 1.7, 2.3, 4.3, 2.1	OH		SILTY SAND, loose, moist, brown, medium sand, poorly sorted, subrounded, some silt, slightly cohesive, trace gravel, non spherical, medium to fine sand, moist to wet	Bentonite chips Riser
6 8 	0	NA	SM		10.0	Seal Annular Backfill Filter Pack
12	3	0.3, 0.7, 0.2, 2.4	sc		CLAYEY SAND, soft, moist to wet, light grayish brown, medium to coarse sand, rounded to subrounded, poorly sorted, clay, cohesive and low to moderate plasticity	Screen
16 18 20 22	4.2	0.4, 0.5, 0.9, 1.3, 0.2	MLCL		SILTY SAND WITH CLAY AND GRAVEL, dense, moist, light reddish brown, medium sand, poorly sorted, subrounded, silt and clay matrix, cohesive, slightly plastic, some gravel, sub rounded, very hetergeneous	End Cap/Base Backfill

Remarks: No Stickup

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU14	Logged By: A Borden	
Location ID: CH-MW031	Northing: 335162.2 Easting: 1572582.1	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 44.1	Depth to Bedrock (ft bgs): NA	
Start Date: 06-07-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 8-18	
Finish Date: 06-07-17	Borehole Diameter (in): 6 in	Total Depth (ft): 20.0	

				T		Well Information	_
Depth (ft bgs)	Recovery Length	Old (mdd)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Stickup —	
			ОН		Organic soil, loamy, roots, fine sand	Bentonite chips	
4	3.4	0.4, 0.7, 1.4, 2.3	SP		SAND, soft, moist, light grayish brown, fine sand, well sorted, rounded, trace silt, slightly cohesive	Riser	
<u> </u>			MLCL		CLAYEY SILT, lens, organics, root structures 5.5	Seal	
8	3.1	1.1, 2.4, 3.3, 0.7			SAND, soft, moist to wet, fine sand, well sorted, rounded, coarse sand seam, very poorly sorted, wet to saturated, subrounded SAND, SAA, trace gravel, becoming moist to wet, higher silt content	Annular Backfill Filter Pack	
10	3.3	0.3, 0.5, 0.1,	SP			Screen	
14					15.0 SILTY SAND, loose, moist to wet, light grayish brown, fine sand, poorly sorted, subrounded, trace amount of fine gravel		
18	4	0.1, 0.5, 0.6, 0.3	SM		20.0	End Cap/Base B <u>ackfill</u>	

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU11	Logged By: M Glinski	
Location ID: CH-MW032	Northing: 334983.3 Easting: 1571877.5	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 57.2	Depth to Bedrock (ft bgs): NA	
Start Date: 06-08-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 10-24.5	
Finish Date: 06-08-17	Borehole Diameter (in): 6 in	Total Depth (ft): 25.0	

					10000 - 10000 (100)	Well Information
Oepth (ft bgs)	Recovery Length	OIA (mdd)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Stickup —
2		0.0, 0.1, 0.1,	ML	× × × × × × × × × × × × × × × × × × ×	SANDY SILT, medium stiff {n=5-8}, moist, (7.5YR 5/4) brown, 30% fine sand	Bentonite chi <u>os</u>
4	3.5	0.1		× × × × × × × × × × × × × × × × × × ×	SILT WITH SAND, non-plastic, 20% fine sand	
6	3.6	0.0, 0.0, 0.0,	ML	X X X X X X X X X X X X X X X X X X X		Seal
 10	5.5	0.0			CLAYEY SAND, non-plastic loose {n=5-10}, moist, (7.5YR 5/4) brown, fine SAND, 25% fines 10% medium sand	Annular Backfill Filter
12	4.1	0.2, 0.1, 0.0, 0.0	SC			Screen
16				<i>Y././/</i>	POORLY GRADED SAND, loose {n=5-10}, moist, (10YR 5/6) yellowish brown, fine to medium SAND	
18	4	0.0, 0.0, 0.0, 0.0, 0.0	SP			
20 22					21.0 SILTY SAND, cohesive medium dense {n=11-30}, moist, (10YR 5/3) brown, 20% fines, trace very dark gray (5Y 3/1)	
	3.7	0.0, 0.0, 0.0, 0.0, 0.0	SM			End Cap/Base Backfill
F 1				<u> </u>	25.0	2000

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU11	Logged By: M Glinski	
Location ID: CH-MW033	Northing: 335094.6 Easting: 1572040.4	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 48.1	Depth to Bedrock (ft bgs): NA	
Start Date: 06-06-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 15-29.9	
Finish Date: 06-06-17	Borehole Diameter (in): 6.0 in	Total Depth (ft): 30.0	

	Date. 00				venore planteter (iii). 0.0 iii	Total Depth (it):	Well Inform	ation
Depth (ft bgs)	Recovery Length	OIA (mdd)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS		Stickup —	
0			ML	XXXX	0.5 SILT, soft {n=2-4}, moist, (10YR 2/1) black, with roots			
2 4	3	0.0, 0.0, 0.0	ML	***** ***** ***** ***** ***** ***** ***** *****	SILT WITH SAND, soft {n=2-4}, moist, (10YR 4/4) dark yellowish b gravel	rown, 20% fine sand 5%	Bentonite chi <u>os</u>	
6				× × × × × × × × × × × × × × × × × × ×	7.0	2412	Riser	
8 10	3	0.0, 0.0, 0.0	SW		WELL GRADED SAND, loose {n=5-10}, moist, (7.5YR 4/4) brown,	fine to coarse SAND		
 12 	4	0.0, 0.0, 0.0, 0.0, 0.0	ML	× × × × × × × × × × × × × × × × × × ×	SILT WITH SAND, soft {n=2-4}, moist, (10YR 4/3) brown, 15% fine	e sand	Seal	
14			SPSM	× × × × × × × × × × × × × × × × × × ×	POORLY GRADED SAND WITH SILT		Annular Backfill Filter Pack	
16 18 20	3	0.0, 0.5, 0.3	SP		POORLY GRADED SAND, loose {n=5-10}, dry, (10YR 5/4) yellowi:	sh brown, 5% gravel	Screen	
 22 24	2.6	0.1, 0.3, 0.4	G.		24.0			
			SPSM		POORLY GRADED SAND WITH SILT, loose {n=5-10}, moist, (10\) medium gravel 25.5	/R 4/3) brown, trace fine to	ŀ	
26 28 30	1.6	0.0, 0.0, 0.0	sw		WELL GRADED SAND, loose {n=5-10}, wet		End Cap/Base Backfil	

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU13	Logged By: A Borden	
Location ID: CH-MW034	Northing: 334975.9 Easting: 1572442.8	Drilling Company: Cascade	
Project # : 60443903	Ground & TOC Elevations (FT NAVD88): 48.9	Depth to Bedrock (ft bgs): NA	
Start Date: 06-06-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 20-35	
Finish Date: 06-06-17	Borehole Diameter (in): 6 in	Total Depth (ft): 37.5	

1 111131	Date: 0			T	orenoie Diameter (in): δ in 1 otal Deptin (π):	Well Information
Oepth (ft bgs)	Recovery Length	Old (mdd)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Stickup —
-			OH		0.5 Organic soil, roots, grass	
2			SM		SANDY SILT, loose, dry to moist, light reddish brown, silt, cohesive, slightly plastic, fine sand well sorted	
4	3.8	0.0, 0.0, 0.0, 0.0	SM		SILTY SAND, loose, dry, light grayish brown, medium sand, poorly sorted, subrounded, trace some silt, trace gravel	e to Riser Bentonite chips
6 8 10	5	0.0, 0.0, 0.0, 0.0, 0.0			5.5 SILTY SAND WITH CLAY, dense and firm, light reddish brown, medium to fine sand, poorly sorted, silt and clay, cohesive, slightly plastic, trace amount of gravel,	
 12 14	5	0.0, 0.0, 0.0, 0.0, 0.0, 0.0	MLCL			
16	3.1	0.0, 0.0, 0.0			some orange oxidation staining along preferential pathways at 17 feet bgs, not moist or wet	Seal Annular Backfill Fitter Pack
					21.0	
 22			CL		21.5 LEAN CLAY, lens, cohesive, plastic, very dense	
24	5	0.0, 0.0, 0.0, 0.0, 0.0, 0.0	SM		SILTY SAND, firm to moist, light grayish brown, fine to medium sand, poorly sorted, sub rounded, silt, slightly cohesive, trace gravel at 24' bgs, more moist than above	
26				·····	27.0 SILTY SAND WITH CLAY, firm to dense, light grayish brown, dry to moist, fine to medium sa	Screen
28 	5	0.0, 0.0, 0.0, 0.0, 0.0, 0.0	CL		poorly sorted, sub rounded, silt and clay, cohesive, not plastic 29.5	
30 32 34 36	5	0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0	SM		SILTY SAND, dense, moist to wet, light reddish gray, fine to medium sand, poorly sorted, su rounded, silt, cohesive, trace gravel, sub rounded	
					37.5	End Cap/Base B <u>ackfill</u>

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU13	Logged By: A Borden	
Location ID: CH-MW035	Northing: 335018.2 Easting: 1572552.8	Drilling Company: Cascade	
Project # : 60443903	Ground & TOC Elevations (FT NAVD88): 42.0	Depth to Bedrock (ft bgs): NA	
Start Date: 06-06-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 20-30	
Finish Date: 06-06-17	Borehole Diameter (in): 6 in	Total Depth (ft): 32.5	

FIIIISII	Date: 06)-UU-1 <i>1</i>			БОГ	enoie Diameter (in): δ in lotal Depth (π):	32.5	
Depth (ft bgs)	Recovery Length	PID (ppm)	USCS Code	Geo Unit Code		Soil and Rock Description Classification Scheme: USCS	Well Inform	mation
0			OU		***	Organic soil, roots, loamy soil		
2 4	3.5	0.4, 0.6, 1.3, 0.5	OH SM		1.0	SILTY SAND, loose to dense, dry, light reddish brown, fine to medium sand, poorly sorted, subrounded, silt, cohesive, non plastic fine sand at 4 feet bgs, trace gravel, broken rock fragment	Riser	
6 8 	3.8	0.1, 0.4, 0.1, 0.8			5.5	SILTY SAND WITH CLAY, dense, moist to dry, reddish brown, fine to medium sand, poorly sorted, sub rounded to rounded, silt and clay, cohesive, low plasticity, sticky, orange oxidation staining, bright orange to red, trace gravel and fragmented rock, becoming moist to dry, higher sand content at 14 feet bgs, moist, rock fragment	Surreme united	
12	4.1	0.1, 1.7, 2.3, 3.3, 2.4	MLCL					
16 18 20	4.5	0.3, 0.2, 1.3, 2.0, 0.7			16.	SILTY SAND, firm/slightly dense, moist, light reddish brown, fine to medium sand, poorly sortrounded to subrounded, silt, slightly cohesive, trace to some gravel, rounded, non spherical, moisture limited to pore spaces trace large diameter gravel ~1-2"	Seal	
22	4.1	0.1, 0.2, 0.7, 1.1, 1.0,	SM			till material, heterogenous sand, silt, and gravel SAA, tight to firm, less moisture in core material		
26 - 28 - 30 - 32	4.3	0.4, 0.6, 0.2, 1.0, 1.5					Screen	

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU08	Logged By: M Glinski	
Location ID: CH-MW036	Northing: 333730.5 Easting: 1572712.9	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 18.0	Depth to Bedrock (ft bgs): NA	
Start Date: 06-09-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 5-14.5	
Finish Date: 06-09-17	Borehole Diameter (in): 6 in	Total Depth (ft): 15.0	

<u> </u>					()	
O Depth (ft bgs)	Recovery Length	PID (mdd)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Well Information
				X X X X X X X X X X X X X X X X X X X	SANDY SILT, soft {n=2-4}, dry, (10YR 3/3) dark brown, 30% fine sand trace medium sand	Capped Riser Cement
2	2.4	0.4, 0.6	ML	X X X X X X X X X X X X X X X X X X X		Seal
4				× × × × × × × × × × × × × × × × × × ×		Annular Backfill Filter
6				× × × × × × × × × × × × × × × × × × ×	SILTY SAND, loose {n=5-10}, wet, (2.5Y 5/3) light olive brown, fine to medium SAND, 5% gravel	Screen
	2.9	1.1, 0.5, 0.8			guu	
			SM			
10				1	10.5	
					POORLY GRADED SAND WITH SILT, loose {n=5-10}, wet, (10Y 5/1) greenish gray	
_ 12	2.8	0.5, 0.5	SPSM			
14						
				1	15.0	End Cap/Base Backfill

Remarks: No Stickup

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU08	Logged By: A Borden	
Location ID: CH-MW037	Northing: 333765.9 Easting: 1572787.9	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 18.8	Depth to Bedrock (ft bgs): NA	
Start Date: 06-09-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 5-15	
Finish Date: 06-09-17	Borehole Diameter (in): 6 in	Total Depth (ft): 17.5	

O Depth (ft bgs)	Recovery Length	PID (ppm)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Well Information
			ОН		Organic soil, tight, wet, roots, grass	
	2	0.0, 0.1, 0.0	SP		SAND, lose, moist, grayish brown, medium sand, some coarse sand, subrounded, poorly sorted, rootsrock in shoe, crushedincreasing silt contentsand becomes coarse	Bentonite chi <u>os</u> Annular Backfill Filter Pack Riser
6				0 0 0 0 0 0	6.5	
8	3	0.2, 0.3, 0.2	SWGP		GRAVELLY SAND, very loose, wet, dark brownish gray, coarse sand, poorly sorted, subrounded, gravel, slightly spherical, rounded, 1" diameter	Screen
10					SILTY SAND lens, firm, moist, dark brown, fine to medium sand, silt	
			SM		11.0	
12			SW	/ / / / / / / / / / / / / / / / / / /	SAND, lose, wet, light brown, medium to coarse sand, well sorted, rounded, trace silt 12.5	
14	3.1	0.1, 0.1, 0.1	SPGP		GRAVELLY SAND, loose, wet, dark brown, poorly sorted, rounded gravel, sub spherical, 1" diameter	
16					17.5	End Cap/Base B <u>ackfil</u>

Remarks: No Stickup

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU07	Logged By: M Glinski		
Location ID: CH-MW038	Northing: 335849.6 Easting: 1571322.0	Drilling Company: Cascade		
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 63.7	Depth to Bedrock (ft bgs): NA		
Start Date: 06-07-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 10-19.5		
Finish Date: 06-07-17	Borehole Diameter (in): 6 in	Total Depth (ft): 20.0		

	Date. 00	1 1		1 - 0	Total Depth (it).	14/ 11/ 6	
o Depth (ft bgs)	Recovery Length	PID (mdd)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Well Inform	nation
	2.5	0.0, 0.0			SILTY SAND, soft {n=2-4}, wet, (7.5YR 4/6) strong brown, fine SAND, 20% fines trace gravel	Bentonite chi <u>ps</u>	
8	3	0.0, 0.0, 0.0	SM			Riser Seal	
10 12 12 14	3.4	0.0, 0.0, 0.0				Screen	
16 18 20	3.6	0.0, 0.0, 0.0	SPSM		POORLY GRADED SAND WITH SILT, loose {n=5-10}, moist, (10YR 4/4) dark yellowish brown, fine to medium SAND	End Cap/Base B <u>ackfil</u> L	

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU15	Logged By: M Glinski	
Location ID: CH-MW039	Northing: 335245.2 Easting: 1571285.3	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 66.2	Depth to Bedrock (ft bgs): NA	
Start Date: 06-07-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 5-14.5	
Finish Date: 06-07-17	Borehole Diameter (in): 6 in	Total Depth (ff): 15.0	

Finish	Date : 06	-07-17			ВО	rehole Diameter (in): 6 in	Total Depth (ft):	5.0		
								Well Inforr	nation	1
Depth (ft bgs)	Recovery Length	PID (ppm)	USCS Code	Geo Unit Code		Soil and Rock Description Classification Scheme: USCS		Stickup ——	•	
						SILTY SAND, non-plastic medium dense {n=11-30}, dry, (2.5Y 4/3) SAND, 20% fines	olive brown, fine to medium	Cement ——		
2								Seal	Þ	
	2.9	0.0, 0.0, 0.0						Riser		
4			SM					Annular Backfill Filter Pack		
								i don		
6								Screen		
8	2.5	0.0, 0.0				0				
						POORLY GRADED SAND WITH SILT, non-plastic loose {n=5-10}, brown, fine to medium SAND	wet, (2.5Y 5/3) light olive			
10			SPSM							
12						POORLY GRADED SAND w SILT + GRAVEL, 15% gravel		_		
	3		SPSM			3.0				
14			SPSM			POORLY GRADED SAND WITH SILT, non-plastic loose {n=5-10}, brown, fine to medium SAND	wet, (2.5Y 5/3) light olive			
						5.0		End Cap/Base Backfill		∄

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU17	Logged By: M Glinski	
Location ID: CH-MW040	Northing: 335365.1 Easting: 1571217.5	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 71.5	Depth to Bedrock (ft bgs): NA	
Start Date: 06-12-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 5-14.5	
Finish Date: 06-12-17	Borehole Diameter (in): 6 in	Total Depth (ff): 15.0	

\vdash						Well Inforr	motion
Depth (ft bgs)	Recovery Length	OIA (mdd)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Stickup —	
				X X X X X X X X X X X X X X X X X X X	SANDY SILT, non-plastic soft {n=2-4}, dry, (10YR 4/4) dark yellowish brown, 30% fine sand	Cement ——▶	
	1.2	0.0, 0.0		X		Seal	
4			ML	\(\times		Riser Annular Backfill Filter Pack	
6				X X X X X X X X X X X X X X X X X X X	0	Screen	
8	2.9	0.0, 0.0, 0.0			SILTY SAND, non-plastic medium dense {n=11-30}, moist, (10YR 5/4) yellowish brown		
_ 10			SM				
				10	POORLY GRADED SAND, loose {n=5-10}, wet, (2.5Y 5/3) light olive brown, fine to medium SAND		
	4.8		SP				
14			SM		SILTY SAND, loose {n=5-10}, wet, (2.5Y 5/2) grayish brown	End Cap/Base B <u>ackfil</u>	

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: DU06	Logged By: A Borden	
Location ID: CH-MW041	Northing: 334117.5 Easting: 1570083.1	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 59.6	Depth to Bedrock (ft bgs): NA	
Start Date: 06-05-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 15-25	
Finish Date: 06-05-17	Borehole Diameter (in): 6 in	Total Depth (ft): 30.0	

Finish	Date: 06	5-05-17			orehole Diameter (in): 6 in	Total Depth (ft): 3	80.0	
o Depth (ft bgs)	Recovery Length	OIG (mdd)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS		Well Informat	tion
			ОН		Organic soil, grass, roots, coal fragments			
2	4.1	0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0	SM		SILTY SAND, loose, moist, light brown with orange staining, fine t poorly sorted, trace silt, cohesive, gray at 3 feet bgs 3.5	to medium sand, rounded,	Riser	
4			ОН		Peat/organic layer, leaves, roots, woody fragments		Bentonite chips	
6			SM		SILTY SAND, loose to firm, moist, light brown, fine sand, poorly s	orted, rounded, silt, cohesive	Demonite dri <u>ps</u>	
			SP		SAND, loose, wet, medium sand, well sorted			
8	4	0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0	SM		7.5 SILTY SAND, firm, dry, gray with orange staining, fine sand with s plastic	silt, trace clay, cohesive, non		
<u>12</u> 14	2.8	0.0, 0.0, 0.0, 0.0, 0.0, 0.0	SW	/	SAND, loose, dry to moist, light brown, medium sand, trace silt, grapoorly sorted 13.5 SILTY SAND, loose to firm, light gray, moist, fine to medium sand		Seal	
16 18	3.8	0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0			SILTY SAND, loose to firm, light gray, moist, fine to medium sand silt, cohesive, non plastic, trace gravel, rounded, non spherical denser at 18 feet bgs, higher percentage of clay SILTY SAND continued, loose to firm, moist to slightly wet, light/d sorted, subrounded, silt, cohesive, non plastic, trace gravel, round slight coarser grained, more firm	ark gray, medium sand, poorly	Pack	
	0	NA	SM					
26 - 28 - 30	3	0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0			30.0		End Cap/Base Backfill	

Remarks:

Boring and Well Construction Log

Sheet 1 of 1

a : 4 0 11	A DUIGO		
Client: Camp Hero	Area: DU06	Logged By: A Borden	
Location ID: CH-MW042	ation ID: CH-MW042 Northing: 334148.3 Easting: 1570132.9		
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 61.1	Depth to Bedrock (ft bgs): NA	
Start Date: 06-05-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 22-32	
Finish Date: 06-05-17	Borehole Diameter (in): 5.5 in	Total Depth (ft): 35.0	

FIIIISII	Date: 0	J-03-17			DUIE	enole Diameter (In): 5.5 In	Total Depth (π):	35.0		
O Depth (ft bgs)	Recovery Length	Old (mdd)	USCS Code	Geo Unit Code		Soil and Rock Description Classification Scheme: USCS		Well Infor	matior	1
-			ОН	 	0.5	Organic soil (loam), grass, roots			M	K
2	2	0.0, 0.0, 0.7	SM		3.0	SILTY SAND, moist, loose, black to dark brown, fine to medium sand sorted		Bentonite chi <u>ps</u>		
4			SM			SILTY SAND WITH GRAVEL, loose, moist, light reddish brown, fine gravel, poorly sorted, grafel is rounded and non-spherical, moist to w	to medium sand with trace let at 5-6 feet bgs			
6					6.5					
8	4.5	0.0, 0.0, 0.4, 0.0, 0.0	MLCL		8.0	SILTY CLAY, soft, moist to wet, light brown, fine sand with trace med slightly plastic				:
 10						SILTY SAND, soft, dry to moist, light brown with orange staining, fine poorly sorted, cohesivebecoming moist at 11 feet bgscoarsening at 1 gravelorange staining, medium to coarse sand at 14 feet bgs, poorly	2 feet bastrace	Riser		
12		0.0, 0.0, 0.0,						NSCI		
_ 14	4	0.0, 0.0, 0.0,	SM							
16					17.0	0				
18 	4.5	0.0, 0.0, 0.0	MLCL			SILTY SAND WITH CLAY, dense, dry to moist, medium brown with a sand, trace gravel, poorly sorted, sand is rounded, non-sphericalbear difficult to break open core	orange staining, medium oming stiff and dense,	Seal		
					21.	SAND, loose, moist to wet, light gray, medium sand, poorly sorted, ro	ounded, trace silt, slightly	Annular Backfill Filter Pack		
	2.5	0.0, 0.0, 0.0			<u></u>	cohesive, trace amount of gravel				
26 28	0	NA	SW	/	^; ^; ^;			Screen		
30				<u>//./.</u> -////	30.0					
32	4.2	0.0, 0.0, 0.0, 0.0, 0.0	SM			SILTY SAND, stiff, moist to dry, light gray, medium to coarse sand, a poorly sorted, silt, stiff, cohesive, not plastic very coarse, wet, loose, poorly sorted at 35 feet bgs	inguiar to sub rounded,			
34					35.0	0		End Cap/Base Backfill		<u>:::</u>

Remarks: No Stickup

Boring and Well Construction Log

Sheet 1 of 1

Client: Camp Hero	Area: Motor Pool	Logged By: M Glinski	
Location ID: CH-MW043	Northing: 334982.2 Easting: 1571822.1	Drilling Company: Cascade	
Project #: 60443903	Ground & TOC Elevations (FT NAVD88): 56.9	Depth to Bedrock (ft bgs): NA	
Start Date: 06-27-17	Drilling Method: Sonic	Well Screen Interval (ft bgs): 10-19.5	
Finish Date: 06-27-17	Borehole Diameter (in): 6 in	Total Denth (ft): 20.0	

o Depth (ft bgs)	Recovery Length	PID (mdd)	USCS Code	Geo Unit Code	Soil and Rock Description Classification Scheme: USCS	Well Information
	5	0.0, 0.0, 0.0, 0.0	ML	X X X X X X X X X X X X X X X X X X X	SILT, soft {n=2-4}, dry, (7.5YR 3/1) very dark gray, 5% fine sand	Capped Riser
6 8 10	4.2	0.2, 0.1, 0.8,	ML	X X X X X X X X X X X X X X X X X X X	SILT WITH SAND, soft {n=2-4}, dry, (10YR 4/4) dark yellowish brown	Seal
12	4.4	0.1, 0.2, 0.5, 0.1	ML	X X X X X X X X X X X X X X X X X X X	SANDY SILT, medium stiff {n5-8}, dry, (10YR 4/3) brown, 30% fine sand	Screen
16	5	0.0, 0.1, 0.2,	SPSM		POORLY GRADED SAND WITH SILT, cohesive soft {n=2-4}, wet, (10YR 5/4) yellowish brown 19.3 SILTY SAND, 25% fines	End Cap/Base Backfill_

Remarks: No Stickup

