FS

FIELD BOREHOLE LOG

Well ID:MW-318 Total Depth (ft. bgs):182

PROJECT: SRI Phase 4	DRILLING CONTRACTOR: Cascade
PROJECT NUMBER: 10058697	
SITE LOCATION: S. of Bldg. 650	DRILLER: <u>T. Taylor</u>
PROJECT MANAGER: T. Holmes	METHOD/RIG: Gus Pech Sonic Truck
LOGGED BY: <u>C. Mokri</u>	HOLE DIAMETER (IN): <u>8</u> GROUND SURFACE ELEVATION (NAVD): 304.59
DATE STARTED: <u>11/2/19</u>	DEPTH TO WATER (ft. btoc): See Table 1
DATE COMPLETED: <u>11/9/19</u>	BOREHOLE USE: Nested Monitoring Well

NOTES: PID measurement indicated where greater than 0. No water used during drilling.

Well installed on 11/9, pad installed on 11/15 and wells developed by 11/11.

o DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	LAYER DEPTH	MATERIAL DESCRIPTION	Environmental Data PID (ppm)	WELL DIAG	GRAM
	ML			SILT, (ML)			
	GP		2.0	POORLY GRADED GRAVEL, (GP) 2.5YR 6/2 pale red, angular, moist, loose, trace silt, with clay			
	ML			SILT, (ML) 5YR 4/2 dark reddish gray, dry, stiff, non plastic, little fine sand, trace clay			
	ML		6.0 7.0	SILT, (ML) 5YR 5/4 reddish brown, dry, stiff, low plasticity, little clay, trace fine sand			
	CL		8.0	LEAN CLAY, (CL) 2.5YR 4/3 reddish brown, moist, stiff, medium plasticity, little silt			
	CL		9.0	LEAN CLAY, (CL) 2.5YR 4/3 reddish brown, moist, very stiff, medium plasticity, little fine			
10	ML			sand SILT, (ML) 5YR 4/3 reddish brown, dry, very stiff, low plasticity, low dry strength, little fine			
			11.0	sand			
	CL		12.0	LEAN CLAY, (CL) 5YR 4/2 dark reddish gray, dry, stiff, low plasticity, little fine sand			
				LEAN CLAY, (CL) 7.5YR 5/3 brown, moist, medium stiff, medium plasticity, trace silt			
	CL						
15			15.0				
 _ 20	CL		21.0	LEAN CLAY, (CL) 7.5YR 5/3 brown, moist, soft, medium plasticity, trace fine sand		X111X111X11X1 X111X111X11X1 X111X111X11	
 25	CL		25.0	LEAN CLAY, (CL) 5YR 6/4 light reddish brown / light brown, soft, medium plasticity, trace fine gravel, little fine sand			
	CL		29.0	LEAN CLAY, (CL) 5YR 6/4 light reddish brown / light brown, soft, mottled, medium plasticity, trace fine gravel, little fine sand			
<u> </u>	CL		33.0	LEAN CLAY, (CL) 5YR 5/6 yellowish red / light brown, stiff, medium plasticity, with fine to medium sand			
 _ <u>_ 35</u>	sc		36.0	CLAYEY SAND, (SC) 10R 5/6 red, medium grained, moist, stiff, medium plasticity			
	SP		38.0	POORLY GRADED SAND, (SP) 10R 5/6 red, fine to medium grained, moist, loose, with clay			
 40	SP			POORLY GRADED SAND, (SP) 10R 5/6 red, fine to medium grained, moist, loose, trace clay			
		ATED B		<u>C. Mokri</u> <u>11/10/19</u> Page: 1 of 5		CHECKED BY: CHECKED DATE:	<u>T. Holmes</u> 2/28/20
	Cher	ע עביי	ΠĽ.	11/10/12		CHECKED DATE:	2/20/20

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(ft) 40	U.S.C.S.	GRAPHIC LOG	LAYER DEPTH	MATERIAL DESCRIPTION	Environmental Data PID (ppm)	WELL DIAGRAM
 45	SP			POORLY GRADED SAND, (SP) 10R 5/6 red, fine to medium grained, moist, loose, trace clay <i>(continued)</i>		
 _ 50			<u>50.0</u>	WELL GRADED GRAVEL, (GW) 5YR 7/3 pink, moist, very loose, with fine to medium		
	GW		52.0	sand, trace clay		
 _ 55	SP		56.0	POORLY GRADED SAND, (SP) 10YR 7/4 very pale brown / grayish orange, fine to medium grained, moist, very loose, with gravel		Cement-Bentonite Grout
 0	SP		00.0	POORLY GRADED SAND, (SP) 2.5YR 5/8 red, fine to medium grained, moist, very loose, little gravel		
 <u>65</u> 	SP		62.0	POORLY GRADED SAND, (SP) 10YR 7/4 very pale brown / grayish orange, fine to medium grained, moist, very loose, trace fine gravel		
	SP		68.0 69.0	POORLY GRADED SAND, (SP) 5YR 5/8 yellowish red, fine to medium grained, moist, very		
 	SP			POORLY GRADED SAND WITH GRAVEL, (SP) 10YR 7/4 very pale brown / grayish orange, very loose		
 _ 75 	SP		73.0	POORLY GRADED SAND, (SP) 7.5YR 6/4 light brown, medium grained, moist, very loose, with fine gravel		
	SP			POORLY GRADED SAND, (SP) 7.5YR 7/4 pink, fine to medium grained, moist, very loose		
 _ <u>80</u> 	sw		<u>79.0</u> 83.0	WELL GRADED SAND WITH GRAVEL, (SW) 7.5YR 6/6 reddish yellow, moist, very loose		
 _ 85	SP			POORLY GRADED SAND, (SP) 7.5YR 8/3 pink, fine grained, moist, very loose, trace clay		

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	LAYER DEPTH	MATERIAL DESCRIPTION	Environmental Data PID (ppm)	WEL	WELL DIAGRAM	
_	SP		87.0	POORLY GRADED SAND, (SP) 7.5YR 8/3 pink, fine grained, moist, very loose, trace clay (continued)				
	SP CL		87.8 88. 0	POORLY GRADED SAND, (SP) 7.5YR 8/1 white, fine grained, moist, very loose, trace clay			×	
_	SP		89.0	LEAN CLAY, (CL) 7.5YR 8/3 pink, moist, soft, medium plasticity				
90	CL		90.0	POORLY GRADED SAND, (SP) 7.5YR 8/1 white, fine grained, moist, very loose / LEAN CLAY, (CL) 7.5YR 8/3 pink, moist, soft, medium plasticity /				
_	SP	·/////	91.0	POORLY GRADED SAND, (SP) 7.5YR 8/1 white, fine grained, moist, very loose				
-	CL		92.0	LEAN CLAY, (CL) 7.5YR 8/3 pink, moist, soft, medium plasticity				
-	-			POORLY GRADED SAND, (SP) 2.5Y 7/3 pale yellow, fine to medium grained, wet, very			Ň	
-				loose				
95	1							
-							X	
-	SP							
-								
100	1							
	1							
			102.0				Š.	
	СН		103.0	FAT CLAY, (CH) 7.5YR 5/8 strong brown, soft, mottled, high plasticity				
_	SW		103.5	······································				
105				FAT CLAY, (CH) gray and red, soft, mottled, high plasticity			×.	
_	SP			very loose				
_			107.0				X	
-	SP			POORLY GRADED SAND, (SP) 10YR 7/4 very pale brown / grayish orange, fine to medium grained, wet, very loose, little gravel				
-		••••	109.0	WELL GRADED SAND, (SW) 10YR 7/8 yellow, wet, very loose, trace fine gravel				
110	SW						- Bentonite Chips	
-			111.0	WELL GRADED SAND, (SW) 7.5YR 6/8 reddish yellow, wet, very loose, little gravel			Onipa	
-	SW		113.0	······································				
-			113.0	WELL GRADED SAND WITH GRAVEL, (SW) 7.5YR 7/8 reddish yellow, loose, little clay,				
	sw			with cobbles, moderate cementation, Ironstone				
115			116.0					
_	SW		117.0	WELL GRADED SAND WITH GRAVEL, (SW) 7.5YR 3/4 dark brown, loose, little clay, with			· .	
	SW		118.0	cobbles, none cementation, Ironstone			: Prepacked	
_	GW		119.0	with cobbles, none cementation, Ironstone			Well Screen	
120				WELL GRADED GRAVEL, (GW) 7.5YR 3/4 dark brown, loose, with cobbles, Ironstone				
_	SW			WELL GRADED SAND, (SW) 7.5YR 6/6 reddish yellow, wet, loose, with medium to coarse gravel, with clay				
_			122.0					
-	<u></u>			WELL GRADED SAND WITH GRAVEL, (SW) 7.5YR 6/6 reddish yellow, wet, very loose, trace clay				
-	SW							
125		*****	125.0	POORLY GRADED SAND, (SP) 5Y 5/3 olive, fine to medium grained, wet, very loose, little				
-	1			clay, little gravel				
-	SP						- Bentonite Chips	
-	1							
- 130	1		130.0					
	SP		131.0	POORLY GRADED SAND, (SP) 5Y 4/2 olive gray, fine to medium grained, wet, very loose,				
-		•••••		trace cobbles, trace clay, trace fine gravel				

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	LAYER DEPTH	MATERIAL DESCRIPTION	Environmental Data PID (ppm)	Environmental Data PID (ppm) METT DIAGLAW		
	SW SW		133.5	WELL GRADED SAND WITH GRAVEL, (SW) 5YR 4/2 dark reddish gray, wet, very loose (continued)				
_ 135	SP SW		134.0	POORLY GRADED SAND, (SP) 5YR 6/3 light reddish brown, fine to medium grained, very dense, with gravel, strong cementation WELL GRADED SAND, (SW) 5YR 6/4 light reddish brown / light brown, very loose, no			· · ·	
	SP		138.0	gravel POORLY GRADED SAND, (SP) 5YR 4/6 yellowish red, medium grained, very dense, with				
	GW	<u>k</u>	140.0	WELL GRADED GRAVEL, (GW) 5YR 6/6 reddish yellow, very loose, with medium sand				
	SP SP GW	. – 4	141.0 142.0 142.5	POORLY GRADED SAND, (SP) 5YR 7/3 pink, fine grained, very loose, trace fine gravel POORLY GRADED SAND, (SP) 5YR 7/3 pink, fine grained, very loose, with gravel WELL GRADED GRAVEL, (GW) 5YR 7/3 pink, very loose, with fine sand			- Prepacked Well Screen	
 			143,0 144,0	LEAN CLAY, (CL) 5YR 8/1 white / pinkish gray, soft, medium plasticity, little gravel // POORLY GRADED SAND, (SP) 5YR 5/8 yellowish red, fine grained, very loose, little gravel/				
<u>145</u>	GP SP	$\hat{\mathbf{a}}$		POORLY GRADED GRAVEL, (GP) 7.5YR 6/4 light brown, medium to coarse grained, very loose, with coarse sand POORLY GRADED SAND, (SP) 7.5YR 8/2 pinkish white, fine grained, loose				
				CLAYEY SAND, (SC) 7.5YR 8/2 pinkish white, fine grained, soft, medium plasticity				
	SC							
			154.0				- Bentonite Chips	
_ 155 _			104.0	NO RECOVERY				
_ 160								
 							- Prepacked Well Screen	
 170								
							- Bentonite Chips	
	0.5		173.0	POORLY GRADED SAND, (SP) 10YR 7/2 light gray, fine grained, loose, no gravel				
_ <u>175</u> _	SP		<u>176.0</u> 176,5	LEAN CLAY, (CL) 10YR 7/1 light gray, soft, medium plasticity, little sand				
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DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data PID (ppm)	WELL DIAGRAM
 _ 180	SP		POORLY GRADED SAND, (SP) 10YR 7/1 light gray, fine grained, very loose, no gravel (continued) 32.0		- Prepacked Well Screen

Bottom of borehole at 182.0 feet.