

SUPPLEMENTAL GEOTECHNICAL INFORMATION INTERSTATE 95 TRAFTON ROAD INTERCHANGE WATERVILLE, MAINE MAINEDOT WIN 18129.10

#### PREPARED FOR:

Maine Department of Transportation Augusta, Maine

#### PREPARED BY:

Schonewald Engineering Associates, Inc. Cumberland, Maine 04021

### April 2016



## SUBSURFACE EXPLORATION LOGS

200-SERIES TRAFTON ROAD UNDERPASS

]	Main	e Dep	artment	of Transport	ation	ı	Proje	ect:	I-95 T	rafton R	oad Interchange	Boring No.:	HB-W	AT-201
			Soil/Rock Exp US CUSTOM				Loca	tior	ı: Wat	erville, l	Maine	WIN:	1812	29.10
Drille	er:		MaineDOT		Ele	vation	(ft.)		208	.4		Auger ID/OD:	5" Soild Stem	
Oper	ator:		Wilder/Dagge	tt	Dat	tum:			NA	VD88		Sampler:	Standard Split	Spoon
Logg	ed By:		B. Wilder		Rig	Type:			CM	E 45C		Hammer Wt./Fall:	140#/30"	_
	Start/Fi	inish:	3/1/2016; 08:3	30-13:30	_	lling M		d:	Cas	ed Wash	Boring	Core Barrel:	NQ-2"	
Borir	ng Loca	tion:	3026+45.9, 10	0.6 ft Rt.	_	sing ID			NW			Water Level*:	8.0 ft bgs.	
			actor: 0.908			mmer 1			Autom	atic ⊠	Hydraulic □	Rope & Cathead □		
Definiti D = Sp MD = U U = Th MU = U V = Ins	ions: olit Spoon S Jnsuccess in Wall Tu Jnsuccess situ Vane S	Sample sful Split Spo be Sample sful Thin Wal Shear Test,	on Sample attemp I Tube Sample att PP = Pocket Pen ne Shear Test atte	SSA = Si bt HSA = H RC = Ro empt WOH = V tetrometer WOR/C	Core Sar olid Stem ollow Ster ller Cone weight of 1 = weight of Weight of	Auger m Auger 140lb. hai of rods or	casing			$S_u$ = Insir $T_V$ = Poc $q_p$ = Unc N-uncorr Hammer $N_{60}$ = SF	tu Field Vane Shear Strength (psf) ket Torvane Shear Strength (psf) onfined Compressive Strength (ksf) scted = Raw field SPT N-value Efficiency Factor = Annual Calibrati TN-uncorrected corrected for ham ammer Efficiency Factor/60%)*N-ur	Su(lab WC = ) LL = Li PL = P ion Value PI = PI imer efficiency G = Gr	= Lab Vane Shear S water content, percen quid Limit lastic Limit asticity Index ain Size Analysis ensolidation Test	trength (psf) t
				Sample Information		ı			ì					Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing	Blows	Elevation (ft.)	Graphic Log	Visual De	escription and Remarks		Testing Results/ AASHTO and Unified Class
0							SS	A			13" PAVEMENT.			
							+		207.32				1.08	
											Brown, moist, medium dens	e, Gravelly, fine to coarse	SAND, little silt.	
	1D	24/14	2.00 - 4.00	13/11/11/16	22	33							,	
									204.40				4.00	
- 5 -											Olive-brown, moist, very sti	ff Clavey SILT little fine	cand	
	2D	24/20	5.00 - 7.00	7/7/13/16	20	30					Onve-brown, moist, very str	ii, Clayey SiL1, ittie iiie	sanu.	
								,						
	D.1	60/50	0.00 14.00	DOD 970/				f			Set in NW Casing.			
- 10 -	R1	60/58	9.90 - 14.90	RQD = 87%			a\5  -NQ		198.50		a50 50 blows for 0.9 ft.		9.90	
											Top of Bedrock at Elev. 198	3.5 ft.		
											R1:Bedrock: R1:Core Times (min:sec)			
											9.9-10.9 ft (3:05)			
											10.9-11.9 ft (3:02) 11.9-12.9 ft (3:00)			
											12.9-13.9 ft (3:00)			
											13.9-14.9 ft (3:06) 97% Rec	overy		
- 15 -								<u>/_</u>	193.50				14.90	
10											<b>Bottom of Exploration</b>	at 14.90 feet below grou		
							_							
							-							
20														
- 20 -														
							$\vdash$							
							_							
							_							
25														
25 Rema	arks:						1							I

\* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

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I	Main	e Dep	artment	of Transporta	tion	Ţ	Project	: I-95 T	rafton F	pad Interchange Boring N	o.: <u>HB-W</u>	AT-202
			Soil/Rock Exp JS CUSTOM/			ŀ	Locatio	n: Wa	terville,	Maine WIN:	1812	29.10
Drille	er:		MaineDOT		Elevati	ion (	(ft.)	208	.4	Auger ID/OE	5" OD	
Oper	ator:		Wilder/Dagget	t	Datum	:		NA	VD88	Sampler:	Standard Split	Spoon
Logg	ed By:		B. Wilder		Rig Ty	pe:		CM	E 45C	Hammer Wt	/Fall: 140#/30"	
Date	Start/Fi	nish:	3/1/2016; 08:3	0-13:30	Drilling	g Me	ethod:	Sol	d Stem	Auger Core Barrel:	N/A	
Borir	ng Loca	tion:	3026+70.9, 10	.5 ft Rt.	Casing	j ID/	OD:	NW	'-3"	Water Level	*: 7.5 ft bgs.	
Hamı	mer Effi	ciency Fa	ctor: 0.908		Hamm		уре:	Autom		Hydraulic ☐ Rope & Cathea		
MD = U U = Th MU = U V = Ins	lit Spoon S Jnsuccess in Wall Tu Jnsuccess itu Vane S	oful Split Spoot be Sample oful Thin Wall Shear Test,	on Sample attemp Tube Sample atte PP = Pocket Pen le Shear Test atte	SSA = Soli   SSA = Hol   HSA = Hol   RC = Rolle   PMC = WOH = We   etrometer   WOR/C =	Core Sample d Stem Auge low Stem Auger Cone eight of 140lb weight of one	er ger . ham ls or o	casing		$T_V = Poole q_p = Une N-uncor Hammer N_{60} = S$	u Field Vane Shear Strength (psf) tet Torvane Shear Strength (psf) onfined Compressive Strength (ksf) teted = Raw field SPT N-value Efficiency Factor = Annual Calibration Value T N-uncorrected corrected for hammer efficiency ammer Efficiency Factor/60%)*N-uncorrected	S <sub>U(lab)</sub> = Lab Vane Shear S WC = water content, percen LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test	trength (psf) t
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N60	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and F	Remarks	Laboratory Testing Results/ AASHTO and Unified Class
0							SSA			13" PAVEMENT.		
	1D	24/13	2.00 - 4.00	10/12/7/12	19 2	29		207.3		Brown, moist, medium dense, Gravelly, fine	1.08 to coarse SAND, little silt.	
. 5 -								203.40		Olive-brown, moist, very stiff, SILT, little fi	ne sand.	
	2D	24/13	5.00 - 7.00	7/12/12/31	24 3	36				Olive-brown, moist, very stiff, SILT, some f	ine sand.	
- 10 <b>-</b>	3D	13.2/10	10.00 - 11.10	11/16/30(1.2")				199.90	) 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Grey, wet, medium dense, Silty, fine to coar	8.50-se SAND, little gravel.	
	3D	13.2/10	10.00 - 11.10	11/10/30(1.2 )				197.30		Bottom of Exploration at 11.10 feet be REFUSAL, very good hammer bounce.	elow ground surface.	
· 15 -												
								- -				
- 20 <del>-</del>								  -    -				
25												
Rema	arks:											

\* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

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	Main	e Dep	artment	of Transport	ation	ı	Project:	I-95 T	rafton F	Road Interchange	Boring No.:	HB-W	AT-203
			Soil/Rock Exp US CUSTOM				Location	n: Wat	erville,	Maine	WIN:	1812	29.10
Drill	er:		MaineDOT		Ele	vation	(ft.)	208.	1		Auger ID/OD:	5" OD	
Ope	rator:		Wilder/Dagge	ett	Dat	tum:		NA	VD88		Sampler:	Standard Split	Spoon
Log	ged By:		B. Wilder		Rig	Туре	:	CM	E 45C		Hammer Wt./Fall:	140#/30"	
Date	Start/F	inish:	3/1/2016; 08:3	30-13:30	Dril	lling N	lethod:	Soli	d Stem	Auger	Core Barrel:	N/A	
Bori	ng Loca	tion:	3026+01.9, 10	).8 ft Rt.	Cas	sing II	D/OD:	NW	-3"		Water Level*:	6.5 ft bgs.	
Ham	mer Effi	iciency Fa	actor: 0.908			mmer	Туре:	Automa			Rope & Cathead □		
MD = U = TI MU = V = In	olit Spoon Unsuccess nin Wall Tu Unsuccess situ Vane S	sful Split Spo abe Sample sful Thin Wal Shear Test,	on Sample attemp I Tube Sample att PP = Pocket Per ne Shear Test attr	SSA = S   pt	k Core San Solid Stem A Hollow Stem bller Cone weight of 1 = weight of	Auger n Auger   40lb. ha   f rods o	r casing		$T_V = Poole q_p = Une N-uncor Hammer N_{60} = S$	itu Field Vane Shear Strength (psf) cket Torvane Shear Strength (psf) confined Compressive Strength (ksf) rected = Raw field SPT N-value Efficiency Factor = Annual Calibrati PT N-uncorrected corrected for ham lammer Efficiency Factor/60%)*N-ur	WC = LL = Li PL = P on Value PI = PI mer efficiency G = Gi	= Lab Vane Shear S water content, percent quid Limit lastic Limit asticity Index ain Size Analysis unsolidation Test	trength (psf) t
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows	Elevation (ft.)	Graphic Log	Visual De	scription and Remarks		Laboratory Testing Results/ AASHTO and Unified Class
0				-			SSA			13" PAVEMENT.			
	1D	24/15	2.00 - 4.00	9/6/5/5	11	17		207.02		Brown, moist, medium dens		2.80	
5 -	2D	24/16	5.00 - 7.00	7/15/14/11	29	44		203.10		Olive-brown, moist, very sti	ff, Clayey-SILT, little fine	5.00-sand.	
10 -								199.30		Bottom of Exploration REFUSAL	n at 8.80 feet below groui	8.80-nd surface.	
15 -													
20 -													
25 Rem													

\* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

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I	Maine	e Dep	artment	of Transporta	tion		Project:	I-95 T	rafton Road Interchange	Boring No.:	HB-WA	T-204
			Soil/Rock Exp US CUSTOM/				Location	ı: Wat	erville, Maine	WIN:	181	29.10
Drille	r:		MaineDOT		Elev	/ation	(ft.)	207.	9	Auger ID/OD:	5" OD	
Oper	ator:		Wilder/Dagget	tt	Dati	um:		NA	/D88	Sampler:	N/A	
Logg	ed By:		B. Wilder		Rig	Type:		CM	E 45C	Hammer Wt./Fall:	N/A	
Date	Start/Fir	nish:	3/14/2016; 07:	30-12:00	Drill	ling M	ethod:	Soli	d Stem Auger	Core Barrel:	N/A	
	g Locat	ion:	607+99.5, 7.9	ft Rt.	_	ing ID	/OD:	N/A		Water Level*:	None Observe	d
MD = U U = Thi R = Ro V = Ins	lit Spoon Sa Insuccessf n Wall Tub ck Core Sa itu Vane Sh	ful Split Spo be Sample ample hear Test	Sample off Auger pon Sample attemp	ot ff Auger Flight	S <sub>u</sub> = T <sub>V</sub> = q <sub>p</sub> = S <sub>u</sub> (la	Pocket 1 Unconfir (b) = Lab	eld Vane Shorvane Shored Compressivane Sheat of 140lb.	ear Stren essive Str ar Streng	gth (psf) ength (ksf)	Definitions: WC = water content, perce LL = Liquid Limit RC = Ro PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test		l too
		$\overline{}$	_	Sample Information								Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log		ription and Remarks		Testing Results/ AASHTO and Unified Class
0						SSA			No material descriptions given, aug	ger probe.		
5 - 10 - 15 - 20 -							198.40		Bottom of Exploration at REFUSAL	9.50 feet below ground	9.50 surface.	
							$\dashv$					
25 Rema	rks:							<u> </u>	[			L

\* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

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]	Main	e Dep	artment	of Transporta	tion		Project:	I-95 T	rafton F	Road Interchange	Boring No.:	HB-W	AT-205
		- ;	Soil/Rock Exp US CUSTOM	loration Log			Location	n: Wat	erville,	Maine	WIN:	1812	29.10
Drille	er:		MaineDOT		Eleva	ation	(ft.)	208.	1		Auger ID/OD:	5" Solid Stem	
Oper	ator:		Wilder/Dagge	tt	Datui	m:		NA	VD88		Sampler:	Standard Split	Spoon
Logg	ed By:		B. Wilder		Rig T	уре		CM	E 45C		Hammer Wt./Fall:	140#/30"	
Date	Start/Fi	nish:	3/14/2016; 07:	:30-12:00	Drilli	ng N	lethod:	Case	ed Wash	n Boring	Core Barrel:	NQ-2"	
Borir	ng Locat	tion:	608+34.9, 7.5	ft Rt.	Casir	ng IC	OOD:	NW	-3"		Water Level*:	None Observed	i
Ham	mer Effic	ciency Fa	octor: 0.908				Туре:	Automa			Rope & Cathead □		
MD = l U = Th MU = l V = Ins	lit Spoon S Jnsuccess in Wall Tub Jnsuccess itu Vane S	ful Split Spo be Sample ful Thin Wall hear Test,	on Sample attemp Tube Sample att PP = Pocket Pen ne Shear Test atte	SSA = So t	Core Samp id Stem Au llow Stem A er Cone eight of 140 weight of re	iger Auger Olb. ha ods or	casing		$T_V = Poole q_p = Une N-uncor Hammer N_{60} = S$	itu Field Vane Shear Strength (psf) cket Torvane Shear Strength (psf) confined Compressive Strength (ksf) rected = Raw field SPT N-value Efficiency Factor = Annual Calibrati PT N-uncorrected corrected for ham lammer Efficiency Factor/60%)*N-ur	WC = W $LL = Lic$ $PL = PL$ on Value $PL = PL$ mer efficiency $PL = PL$ $PL = PL$ $PL = PL$	= Lab Vane Shear S vater content, percen quid Limit astic Limit isticity Index ain Size Analysis asolidation Test	trength (psf)
.)	No.	c. (in.)		Sample Information  (i.g., (%))	ected			_	Log	Visual De	scription and Remarks		Laboratory Testing Results/
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	09 <sub>N</sub>	Casing Blows	Elevation (ft.)	Graphic Log	Visual De	sorption and remarks		AASHTO and Unified Class
0							SSA			Similar to HB-WAT-201.			
								ł					
							1/	1					
5 -							26						
							20						
							33						
							46						
							38						
10 -							52						
10	R1	60/55	10.70 - 15.70	RQD = 18%			а85 NФ-2-	197.40		a85 blows for 0.7 ft.	4.6	10.70	-
										Top of Bedrock at Elev. 197 R1:Bedrock:	.4 ft.		
										R1:Core Times (min:sec) 10.7-11.7 ft (1:00)			
										11.7-12.7 ft (1:20) 12.7-13.7 ft (1:00)			
										13.7-14.7 ft (1:38)			
15 -										14.7-15.7 ft (2:00) 92% Rec	overy		
10							$  \vee  $	192.40				15.70	
										Bottom of Exploration	at 15.70 feet below groun	nd surface.	
							-						
20 -								1					
							+	1					
								1					
					-+		+						
25	- ul							]					
Rema	arks:												

\* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

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N	Main	e Dep	artment	of Transporta	tion	P	roject:	I-95 T	rafton Road Interchange	Boring No.:	HB-WA	T-206
			Soil/Rock Expl US CUSTOM			L	ocation.	: Wat	erville, Maine	WIN:	1812	29.10
Drille	r:		MaineDOT		Elevati	on (	ft.)	208.	2	Auger ID/OD:	5" OD	
Opera	ator:		Wilder/Dagget	t	Datum	:		NAV	/D88	Sampler:	N/A	
Logg	ed By:		B. Wilder		Rig Ty	pe:		CMI	E 45C	Hammer Wt./Fall:	N/A	
Date	Start/Fir	nish:	3/14/2016; 07:	30-12:00	Drilling	ј Ме	thod:	Soli	l Stem Auger	Core Barrel:	N/A	
	g Locat	ion:	608+52, 7.5 ft	Rt.	Casing		OD:	N/A		Water Level*:	None Observed	d
MD = U U = Thi R = Ro V = Insi	it Spoon S Insuccessf n Wall Tub ck Core Sa itu Vane Sl	ful Split Spo be Sample ample hear Test	Sample off Auger on Sample attemp	t f Auger Flight	T <sub>V</sub> = Poc q <sub>p</sub> = Unc S <sub>U(lab)</sub> =	u Fiel ket To onfine Lab \	/ane Shea	ar Stren ssive Str r Streng	gth (psf) ength (ksf)	Definitions: WC = water content, percer LL = Liquid Limit RC = Rol PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test		too
				Sample Information			1					Laboratory
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Blows	Elevation (ft.)	Graphic Log		ption and Remarks		Testing Results/ AASHTO and Unified Class
0					S	SA			No material descriptions given, aug	er probe.		
5 - 10 - 15 - 20 - 25							194.80		Bottom of Exploration at REFUSAL	13.40 feet below ground	surface.	
25 <b>Rema</b>	rke							<u> </u>				<u> </u>
<u>kema</u>	ıı KS:											

\* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

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# SUBSURFACE EXPLORATION LOGS

300-SERIES GUIDE SIGNS

			Schonewal	D	PRC	JEC	<b>T</b> : I-9	5 Tr	afton Road Interchange	Boring No.:	HB-W	AT-301
			Engineering <b>A</b> ssociates,		100	47174	J. \^/	oto=	villa Maina	WIN:	1812	29.10
Driller			New England	Boring Contra			ation (		ville, Maine	Auger ID/OD:	4.5" OD	
Opera			Enos/Share	Donnig Contra	101013	Datu		11.)	NAVD88	Sampler:	Standard Spl	it Snoon
	ed By:		Schonewald			+	Type:		Mobile Drill B-53, track-mounted	Hammer Wt./Fall:	140#/30" (rope	
	Start/Fin		3/18/16; 0835	-1015		+	ing Me	thod		Core Barrel:	N/A	a catricad)
			NB Sign 3A, 15.			+	ing ID/		Solid Stem Auger N/A	Water Level*:	10 ft (open to	20 F H)
	g Locati SAMPLIN	IG AND TES		I II. OII EF	Al	DDITION				REHOLE ADVANCEMENT M		20.5 11)
MD = Ur U = Thin MU = Ur V = Insite	Wall Tubensuccessfu u Vane Sh	ul Split Spoor e Sample ul Thin Wall I lear Test	n Sample attemp  Fube Sample atte  Shear Test atte	empt		S <sub>u</sub> = I R = R RQD WOH WOR	Insitu Fie ock Core = Rock C = weight = weight ot record	eld Vane Samp Quality I t of 140 t of rods	e Shear Strength (psf) le LAE Designation (%) lb. hammer	SSA= solid stem auger / R: BORATORY TEST RESULTS LL=Liquid Limit / PL=Plasti WC = water content, perce -#220 = percent fines from UCT qp = peak compressiv	: c Limit / PI=Plasticity int grain size analysis	Index
		(in.)	£									
Depth (ft.)	Sample No.	Pen./Rec. (ir	Sample Depth (ft.)	Blows (/6 in.) Shear Strength	or RQD (%)	N-value	Casing Blows	Graphic Log	Visual Descriptio	n and Remarks		Lab. Testing Results
0							SSA		grass-covered embankment slope		— — — <b>-</b> 4.0	
- 5 -	1D	24/23	5.0 - 7.0	6-7-7-	7	14			1D Olive brown, mottled, damp, stiff, Cl CRUST	ayey SILT, little fine sar	nd. CLAY	
- 10 -	2D	24/24	10.0 - 12.0	3-4-4-	5	8			2D Olive brown grading to grey at tip of moist, medium stiff, Clayey SILT to SILT CRUST	spoon, upper 12 in. slig 「& CLAY,trace fine sa	and. CLAY	
45									Grade to grey at approx. 12.5 ft bgs.		— — —12.5 <sup>-</sup>	
- 15 -	3D	24/24	15.0 - 17.0	vane inte	rval				3D Grey with occasional black mottling,	moist to saturated, CLA	AY & SILT.	
	V1_	- "-	15.6 - 16.0	Su=759 / 13	34 psf				raw torque rdgs: Tu=17.0/Tr=3.0 ft-lbs (55 x 110 mm vane)			
	V2		16.6 - 17.0	Su=938 / 17	79 psf		ر ليا		raw torque rdgs: Tu=21.0/Tr=4.0 ft-lbs			
	4D	24/24	17.0 - 19.0	1-1-4-6	6	5			(55 x 110 mm vane) Grey, saturated, (soft), CLAY & SILT;		— — — —18 5-	
- 20 -	5D	24/10	19.0 - 21.0	20-20-21	-20	41	V		Changing at 18.5 ft to 4D: Grey, Silty fin (TRANSITION) 5D Grey, moist (tight), dense, fine to me Silt, trace coarse Sand. TILL	•		
								- 197 A	Bottom of Exploration at 21.0 No refusal.	feet below ground su	21.0- irface.	
25												
Rema		staked loc	ation; 15.1 ft.	off EP.								
Stratifica	ation lines	represent a	oproximate bound	daries between so	oil types; tr	ransitions	may be	gradua	l	Page 1 of 1		
		-	een made at time ments were made		itions state	ed. Grou	ndwater	fluctua	tions may occur due to conditions other than those	Boring No	.: HB-WAT	-301

			Schonewali	D	PRO	JEC	<b>T</b> : I-9	5 Tr	afton Road Interchange	Boring No.:	HB-W	AT-302
			Engineering <b>A</b> ssociates,		1.004	A T! ^ *	.I. \A/	oto =	villa Maina	WIN:	1812	29.10
Drille	<b>,</b> .		New England	Boring Contra			ation (		ville, Maine	Auger ID/OD:	4.5" OD	
Opera			Enos/Share	Donnig Contra	101013	Datu		11.,	NAVD88	Sampler:	Standard Spli	it Spoon
	ed By:		Schonewald			+	Type:		Mobile Drill B-53, track-mounted	Hammer Wt./Fall:	140#/30" (rope	
	Start/Fin		3/18/16; 1025	1115		+	ing Me	thod		Core Barrel:	N/A	& cameau)
			NB Sign 2A, 13.			-	ing ID/		Solid Stem Auger N/A	Water Level*:		
	g Locati	IG AND TES		I II. OII EF	AI	DDITION				REHOLE ADVANCEMENT MI	9.5 ft (open) ETHOD:	
	Spoon Sa		n Sample attempt				Insitu Fie		e Shear Strength (psf)	SSA= solid stem auger / RG BORATORY TEST RESULTS:		
U = Thin MU = Ur V = Insit	n Wall Tube nsuccessfu u Vane Sh	e Sample Il Thin Wall I ear Test	Γube Sample atte	empt		RQD WOH WOR	= Rock C = weight = weight	Quality I of 140 of rods	Designation (%) lb. hammer	LL=Liquid Limit / PL=Plastic WC = water content, percei-#200 = percent fines from	c Limit / PI=Plasticity int grain size analysis	Index
MV = Ur	nsuccessfu	I Insitu Vane	Shear Test atter	mpt		= n	ot record		ole Information	UCT qp = peak compressiv	e strength of rock	
		·	ے						ne information			
	ġ	. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength	<u>@</u>			l go				Lab.
Depth (ft.)	Sample No.	Pen./Rec.	9	s (/6 gth	<u>0</u>	ē	۵,	Graphic Log	Visual Descriptio	n and Remarks		Testing Results
epth	amp	]/ue	mg .	ows rear	. g	N-value	Casing Blows	lap				
0	ΐ	<u>a</u>	ις Ε	<u>面 访 货 9</u>	} გ	Ż		Θ				
0							S\$A	$\otimes$	grass-covered embankment slope			
								₩				
								-₩				
								$\bowtie$				
								₩				
	<u> </u>						$\vdash$	-₩				
_								m	<del></del>		— — — —4.5	
- 5 -	1D	24/24	5.0 - 7.0	3-4-3-4	1	7			1D Olive brown, moist, m. stiff, Clayey	SILT, trace fine sand, tra	ace fine Gravel.	
		24/24	3.0 - 7.0	3-4-3-	•	,		-1999	CLAY CRUST			
								-1000				
- 10 -								-1000	2D Olive brown, saturated, soft, Clayey	SILT to SILT & CLAY. v	with six seams	
	2D	24/24	10.0 - 12.0	2-2-2-3	3	4			rust-stained fine Sandy SILT, trace fine	Gravel. Grey SILT & Cl	LAY, little fine	
								m	Sand in tip of spoon.			
								-			— — — —12.2-	
								1//	Grade to grey at approx. 12.2 ft bgs.			
								1	Boney material at 14.0 ft bgs		14.0-	
- 15 -									,	iina ta aaaraa Candu CE	3A\/EL   :# c C: #	
	3D	24/7	15.0 - 17.0	12-38-39	-39	77			3D Brown grey, moist (tight), v. dense, f TILL	ine to coarse Sandy GR	AVEL, IITTIE SIIT.	
								1//				
							$  \cdot  $	1//				
							$\square$					
							\ /					
- 20 -	4D	22/10	20.5. 22.2	/ 10 12 F	0/4"	23						
	40	22/10	20.5 - 22.3	4-10-13-5	U/ <del>4</del>	23	<u> </u>	1//	4D: Grey, wet, m. dense, fine to coarse	Sandy GRAVEL, little S	iit. TILL	
								7%			22.3-	
	<u> </u>							4	Bottom of Exploration at 22.3 Split-spoon refusal.	feet below ground su	rface.	
									CP.II. OPOGITTOIUGUI.			
								1				
25 Bomo	rke:											
Rema												
1. Dr	illed at s	taked loc	ation; 13.1 ft.	off EP.								
Stratific	ation lines	renrecent a	oproximate bound	tarios hotuson o	nil types: 4=	ancitiona	may he	aradus	1	Page 1 of 1		
										lageron		
		-	een made at times ments were made		itions state	ea. Grou	nawater	riuctua	ions may occur due to conditions other than those	Boring No.	.: HB-WAT	-302
preser	a. u10 tll	cusuiei	word made									

			Schonewali	D	PRO	JEC.	<b>T:</b> I-9	95 T	rafton Road Interchange	Boring No.:	HB-W	AT-303
			Engineering <b>A</b> ssociates,		1004	יסודא	VI- 14	lata:	ville Maine	WIN:	1812	29.10
Driller	<b>,</b> .		New England	Boring Contra			<b>v:</b> ۷۷ ation		ville, Maine	Auger ID/OD:	4.5" OD	
Opera			Enos/Share	Donnig Contra	201013	Dati		(11.)	NAVD88	Sampler:	Standard Spl	it Spoon
	ed By:		Schonewald			_	Type:		Mobile Drill B-53, track-mounted	Hammer Wt./Fall:	140#/30" (rope	· ·
	Start/Fin		3/18/16; 1200-	1205		+	ing Mo	othor	· · · · · · · · · · · · · · · · · · ·	Core Barrel:	N/A	a cameau)
		· N	NB Sign 1A (N60	09553.1752,		+	ing ID		Solid Stem Auger N/A	Water Level*:	5.8 ft (open to	116#\
	g Locati	IG AND TES	1159496.4306) STING:	)	ΑI	DDITION				REHOLE ADVANCEMENT M		14.6 11)
MD = Ur	t Spoon Sansuccessful Wall Tube	ıl Split Spoor	n Sample attempt	t		S <sub>u</sub> = R = R	Insitu Fi	eld Var e Sam	e Shear Strength (psf)	SSA= solid stem auger / Resolution   BORATORY TEST RESULTS LL=Liquid Limit / PL=Plasti	C=roller cone :	Index
MU = Ur V = Insite	nsuccessfu u Vane Sh	ıl Thin Wall 1 ear Test	Fube Sample atte	•		WOH WOR		nt of 14	Olb. hammer	WC = water content, perce -#200 = percent fines from UCT qp = peak compressiv	nt grain size analysis	macx
				•					ple Information			
	١.	(in.)	Sample Depth (ft.)	<u>-</u>				_				Lab.
t.)	Sample No.		De	Blows (/6 in.) Shear Strength	(%)			Graphic Log	75 15 15			Testing
Depth (ft.)	ble	Pen./Rec.	<u>a</u>	vs ( ar ngth	8	N-value	Casing	:   ig	Visual Descriptio	n and Remarks		Results
Эері	San	Jen J	Rt.)	3lov She	r R	-\ -\ -\	Casi	.   S				
0	0,	-	0,0	ш 0, 0, с				$-\mathbf{x}$	grass-covered embankment slope			
							S\$A	` ₩	g			
								₿				
								$ \otimes$				
								₿				
								$ \otimes$				
- 5 -												
3	1D	24/16	5.0 - 7.0	3-7-6-8	3	13		₿	Grey-brown, wet, m. dense, MISCELLA	NEOUS SANDY FILL w	ith organics;	
								$-\!\otimes\!$			0.4	
									Changing at 6.4 ft to 1D: Red-brown, da	amp, Clayey SILT, some	6.4- fine sand.	
									CLAY CRUST			
											— — — <del></del> 8.5	
- 10 -		0.4/4.0	400 400	00.04.00	00				2D Dark grey, wet, v. dense, GRAVEL,		nd, trace to little	
	2D	24/12	10.0 - 12.0	26-24-36	-22	60			Silt. Gravel appears to be weathered ro	ock. TILL		
								- 2				
								1/3				
- 15 -								-3	3D Grey-brown, wet, GRAVEL, some fir	ne to coarse Sand trace	to little Silt	
	3D	8/5	15.0 - 15.7	53-50/2	2"	-			TILL	no to obaroo caria, traoc	o to intio ont.	
	<u> </u>	-					\ /	-[//	1			
							ΙV				40.0	
								7	Bottom of Exploration at 18.0	) feet below ground su	18.0- rface.	
		-						$\dashv$	Auger refusal.	-		
- 20 -												
20 -												
								$\dashv$				
								$\dashv$				
25 Rema	rks:						<u> </u>		1			
		takad las	ation: 12 6 th	off ED								
ı. Dr	meu at s	siakeu 100	ation; 13.6 ft.	UII EP.								
Stratifica	ation lines	represent ap	oproximate bound	daries between so	oil types; tr	ansitions	may be	gradu	al.	Page 1 of 1		
١.									ations may occur due to conditions other than those			
		-	ments were made			2.30			,	Boring No	.: HB-WAT	-303

			Schonewal	.D	PRC	)JEC	<b>T</b> : I-9	95 Tr	afton Road Interchange	Boring No.:	HB-W	AT-304
			Engineering Associates,							WIN:	1812	29.10
									ville, Maine			
Driller				Boring Contra	actors	+	ation	(ft.)		Auger ID/OD:	SSA to 4 ft	
Opera			Enos/Share			Datu			NAVD88	Sampler:	Standard Spli	
Logge	ed By:		Schonewald			Rig	Type:		Mobile Drill B-53, track-mounted	Hammer Wt./Fall:	140#/30" (rope	& cathead)
Date S	Start/Fir		3/18/16; 1310			Drill	ing Me	thod	Cased Wash Boring	Core Barrel:	N/A	
	g Locat	ion:	E1159564.7531	(N610409.9803, )			ing ID/		3" (NW) spun	Water Level*:		
	SAMPLIN t Spoon Sa	NG AND TES	STING:		Α	DDITION S=			IS: BORI	EHOLE ADVANCEMENT ME SSA= solid stem auger / RC		
MD = Ur	nsuccessfu	ıl Split Spoo	n Sample attemp	ot		R = R	ock Cor	e Samp	le LABO	DRATORY TEST RESULTS:		
MU = Ur V = Insite	u Vane Sh	ul Thin Wall near Test	Tube Sample atte	·		WOH WOR	= weigh = weigh	t of 140 t of rod	Designation (%) lb. hammer S	LL=Liquid Limit / PL=Plastic WC = water content, percent -#200 = percent fines from g	it grain size analysis	index
MV = Ur	nsuccesstu	ıl Insitu Vane	e Shear Test atte	empt		= n	ot record		ble Information	UCT qp = peak compressive	e strength of rock	
		Ē	£					T				
_	ું	: (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength	<u>@</u>			l g				Lab.
Depth (ft.)	Sample No.	Pen./Rec.	9	gt / (%	ي و	e e	ر م	Graphic Log	Visual Description	and Remarks		Testing Results
əpth	l mg	J.u.	l gm C	ows rear	RG RG	N-value	Casing Blows	, ap				
O O	ιχ	4	ıÿ €	<u></u> 面 あ お な	- გ	Ż	ÜΜ	Ō				
U							S\$A	╴⋙	grass-covered embankment slope			
											— — — —1.0-	
							$\sqcup \bot$		TILL boood on system as and design at 1	vior		
									TILL based on cuttings and drilling behave	noi.		
			1									
			1				$\perp \!\! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! $	1//	3.5 ft BGS: top of weathered rock based	on drilling behavior.	4.0	
	R1	53/52	4.0 - 8.4	RQD: 23" =	43%				4.0 ft BGS: auger refusal; seat casing.		-	
- 5 -								-88	R1: Hard, typically fresh, aphanitic to fine with high angle calcite veins and quartzite			
								_88	visible. Close to moderately spaced, typi	ically moderately dippin	g to high angle	
									breaks; undulating, rough, typically disco clay infilling.	lored, typically open wit	th occasional	
								-88	ciay illilling.			
								_				
								K			8.4	
								$\dashv$	Bottom of Exploration at 8.4 f	eet below ground surf	face.	
40												
- 10 -												
								4				
								1				
								4				
- 15 -								4				
								4				
								1				
			1				-	4				
- 20 -							l	1				
								4				
			<u> </u>					$\dashv$				
		1	1					4				
			+					$\dashv$				
_ 25 _	<u> </u>											
Rema	ırks:											
1. Dr	rilled at s	staked loc	ation; 13.2 ft.	off EP.								
0: ""	-4: "			audust :	- 11 4-					Dono 4 -4.4		
١.				daries between s			-	-		Page 1 of 1		
		-			litions stat	ed. Grou	ndwater	fluctua	ions may occur due to conditions other than those	Boring No.	· HR-\Λ/ΔΤ	-304
preser	nt at the tir	ne measure	ments were mad	ie.						borning ino.	. IID-VVAI	-304

			Schonewal	LD	PRC	)JEC	<b>T:</b> I-9	95 Tı	afton Road Interchange	Boring No.:	HB-W	AT-311
			Engineering Associates,	G						WIN:	_ 1812	29.10
									ville, Maine			
Driller	r:		New England	Boring Contra	actors	Elev	ation	(ft.)		Auger ID/OD:	4.5" OD	
Opera	tor:		Enos/Share			Datu	ım:		NAVD88	Sampler:	Standard Spli	t Spoon
Logge	ed By:		Schonewald			Rig	Туре:		Mobile Drill B-53, track-mounted	Hammer Wt./Fall:	140#/30" (rope	& cathead)
Date S	Start/Fin	ish:	3/22/16; 1340			Drill	ing Me	ethod	: Solid Stem Auger	Core Barrel:	N/A	
	g Locati		E1159351.5425	(N610955.3027, 5)			ing ID/			Water Level*:	3.7 ft (open to	6.8 ft)
	SAMPLIN Spoon Sai		ESTING:	,	Al	DDITION			NS: BOF e Shear Strength (psf)	REHOLE ADVANCEMENT MI SSA= solid stem auger / RO		
MD = Un	nsuccessful	Split Spc	on Sample attemp	pt		R = R	lock Core	e Samp	le LAE	SORATORY TEST RESULTS:		
MU = Un	Wall Tube nsuccessful u Vane She	Thin Wa	Il Tube Sample att	empt		WOH		t of 140	Designation (%) olb. hammer s	LL=Liquid Limit / PL=Plastic WC = water content, percei-#200 = percent fines from	nt	Index
MV = Un	nsuccessful	Insitu Va	ne Shear Test atte	empt			ot record	led	ple Information	UCT qp = peak compressiv	e strength of rock	
		(in.)	ŧ									
·	Š	. <u>=</u>	Sample Depth (ft.)	Blows (/6 in.) Shear Strength	8			Graphic Log				Lab. Testing
Depth (ft.)	Sample No.	Pen./Rec.	<u>e</u>	s (%	g	ne	gc s	i je	Visual Descriptio	n and Remarks		Results
eptl	ami	en./	am (:)	low hea	r RC	N-value	Casing Blows	rap				
0	S		o €	<u> ш</u> и и у	9 ₀	z		<u> </u>	grass-lined ditch			
Ů							S\$A	₩	grass-imed ditori			
								₩				
								-₩	FILL based on cuttings and drilling beha	vior		
								₩	The bassa on saturige and arming bone			
											— — — —3.5-	
				-			$\vdash$		3.5 ft BGS: top of native material (Brown	n, fine Sandy SILT).	5.5	
_								30	4.0.4= 0.0.6 BOO: besides able to a suppl			
- 5 -									4.8 to 6.0 ft BGS: boulder; able to penet	rate with augers		
							$\perp V$		6.8 ft BGS: top of weathered rock based	d on drilling behavior.		
									Bottom of Exploration at 7.0		7.0- face.	
									7.0 ft BGS auger refusal	· ·		
								-				
- 10 -												
10												
								+				
								+				
- 15 -								+				
								$\dashv$				
								_				
- 20 -								_				
-												
								$\dashv$				
								_				
								$\dashv$				
								_				
25												
Rema	rks:		1	1								
1. Dr	illed at st	aked lo	cation; ditchlir	ne.								
Stratifica	ation lines r	epresent	approximate boun	ndaries between s	oil types; tr	ransitions	may be	gradua	al.	Page 1 of 1		
		-			ditions state	ed. Grou	ındwater	fluctua	tions may occur due to conditions other than those	Boring No.	• HR_\\/\Т	_311
preser	nt at the tim	e measu	rements were mad	ie.						Boring No.	. D-WAI	-311

			Schonewal	D	PRO	JECT	Г: І-9	5 Tr	afton Road Interchange	Boring No.:	HB-W	AT-312
			Engineering Associates,			. <b>.</b>				WIN:	1812	29.10
D-:!!-									ville, Maine	A	004 - 04	
Driller				Boring Contra	actors	+	ation (	rt.)		Auger ID/OD:	SSA to 9 ft	
Opera			nos/Share			Datu			NAVD88	Sampler:	Standard Spli	•
Logge	ed By:		Schonewald			Rig	Гуре:		Mobile Drill B-53, track-mounted	Hammer Wt./Fall:	140#/30" (rope	& cathead)
Date S	Start/Fin		3/23/16; 1235			Drill	ing Me	thod:	Cased Wash Boring	Core Barrel:	N/A	
	g Locati	ion: <sub>E</sub>	SB Sign 1B (N6 1159411.3273				ng ID/0		3" (NW) spun	Water Level*:	2.6 ft (open)	
D = Split MD = Ur U = Thin MU = Ur V = Insiti	Spoon Sansuccessful Wall Tubensuccessful Vane Sh	ul Split Spoor e Sample ul Thin Wall 1 ear Test	STING:  n Sample attemp  Tube Sample atte  s Shear Test atte	empt	AC	R = R RQD : WOH WOR	nsitu Fiel ock Core = Rock C = weight = weight ot recorde	d Vane Samp Quality I of 140 of rods	e Shear Strength (psf) le LABC Designation (%) lb. hammer	EHOLE ADVANCEMENT ME SSA= solid stem auger / RC PRATORY TEST RESULTS: LL=Liquid Limit / PL=Plastic WC = water content, percer -#200 = percent fines from g UCT qp = peak compressive	eroller cone Limit / PI=Plasticity It It grain size analysis	ndex
		(in.)	ŧ									
O Depth (ft.)	Sample No.	Pen./Rec. (ir	Sample Depth (ft.)	Blows (/6 in.) Shear Strength	or RQD (%)	N-value	Casing Blows	Seraphic Log	Visual Description	and Remarks		Lab. Testing Results
							SSA		grass-lined ditch		— — — —2.0-	
- 5 -	1D	24/13	5.0 - 7.0	14-13-14	-28	27			1D: Brown, wet, m. dense, Gravelly fine t trace coarse Sand. TILL	o medium SAND, little	to some Silt,	
							$\bigvee$		8.4 ft BGS: top of weathered rock based	on drilling behavior.	9.0-	
- 10 -	R1	41/35	9.0 - 12.4	RQD: 13" =	: 32%				9.0 ft BGS: auger refusal; seat casing. R1: Hard, typically fresh, aphanitic to fine with high angle calcite veins and quartzite visible. Close to moderately spaced, typi breaks; undulating, rough, typically discol clay infilling. Open fracture from 10.3 to 12.4 ft.  Bottom of Exploration at 12.4 f	e intrusions; high angle cally moderately dippin ored, typically open wit 11.5 ft; vertical fracture	relic bedding g to high angle th occasional from 11.5 to	
- 15 -								_				
- 20 -								- - -				
								+				
25 Rema	rks:											
		staked loc	ation.									
Stratifica	ation lines	represent ap	proximate boun	daries between s	oil types; tra	ansitions	may be	gradua	l.	Page 1 of 1		
		-	en made at time ments were mad		litions state	ed. Grou	ndwater	fluctuat	tions may occur due to conditions other than those	Boring No.	: HB-WAT	312

			Schonewali	D	PRO	JEC	<b>T</b> : I-9	5 Tı	afton Road Interchange	Boring No.:	HB-W	AT-313
			Engineering <b>A</b> ssociates,		100	1 TIO	J. 147	nto-	villa Maina	WIN:	1812	29.10
Driller			New England	Boring Contra			ation (		ville, Maine	Auger ID/OD:	4.5" OD	
Opera			Enos/Share	Donnig Contra	101013	Datu		11.,	NAVD88	Sampler:	Standard Spli	it Spoon
	ed By:		Schonewald			_	Type:		Mobile Drill B-53, track-mounted	Hammer Wt./Fall:	· · · · · · · · · · · · · · · · · · ·	
				1005		+		اء ماۂ	·	+		
	Start/Fin		3/23/16; 1110			+	ing Me			Core Barrel:	N/A	
	g Locati	ION: S	SB Sign 2B, 14.0	0 ft. off EP	Λ1	Casi	ing ID/		N/A	Water Level*: 12.3 ft (open to 14.5 ft		
D = Split	Spoon Sa	ample			Α.	$S_u = 1$	Insitu Fie	ld Van	e Shear Strength (psf)	SSA= solid stem auger / R0	C=roller cone	
U = Thin MU = Ur V = Insite	Wall Tubensuccessful UVane Sh	e Sample ul Thin Wall I near Test	n Sample attempt	empt		RQD WOH WOR	= weight	of 140 of rod	Designation (%) Db. hammer	BORATORY TEST RESULTS: LL=Liquid Limit / PL=Plastic WC = water content, percei -#200 = percent fines from	c Limit / PI=Plasticity nt grain size analysis	Index
MV = Ur	successfu	ıl Insitu Vane	Shear Test atter	mpt		= n	ot record		ple Information	UCT qp = peak compressiv	e strength of rock	
		$\overline{}$	ے					Sam				
	<u>.</u>	. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength	©			go				_Lab.
Depth (ft.)	Sample No.	Pen./Rec.	<u>e</u>	%) tf	<u>د</u>	ē	<b>Б</b> .	Graphic Log	Visual Descriptio	n and Remarks		Testing Results
pth	m d	n./F	m (	ows ear eng	\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	N-value Casing Blows		aph				ixesuits
	Sa	Pe	Sa ∓.	<u> </u>	ž 5	ź	ပ္မည္ဆ	ΰ				
0							S\$A	$\otimes$	grass-covered embankment slope			
								₩				
								$\bowtie$				
								₩				
								-₩				
								$\bowtie$				
								₩				
- 5 -								₩	1D Olive brown maint lease Ell Lagra	inting of mixture of fine t	o modium	
	1D	24/20	5.0 - 7.0	3-3-3-3	3	6		$\otimes$	1D Olive brown, moist, loose FILL consi SAND, trace Silt and Clayey SILT, little		o meaium	
								₩	o, iii 2, ii ass siii ai a siaysy si21, iii iis	o Garra.		
								₩				
								$\bowtie$				
								₩				
								$\bowtie$				
								₩				
- 10 -								₩	2D Olive brown, moist to wet, loose FILI	L consisting predominat	ely of Clavey	
	2D	24/20	10.0 - 12.0	3-2-2-2	2	4		$\otimes$	SILT, little fine Sand with one 6 inch lay			
								₩	three 1/4 inch layers of organics.			
								-₩				
								$\otimes$				
								₩				
								-₩				
								$\bowtie$				
- 15 -	3D	24/16	15.0 - 17.0	4-16-29-	20	45		₩	Brown, wet, Sandy FILL;			
	30	24/10	13.0 - 17.0	4-10-29-	20	40				n moist dense Gravell	— — — —15.7- ly fine to coarse	
							$  \setminus   /$		SAND, little to some Silt. TILL	, moiot, donoc, Oravell	, and to todatse	
							<u> </u>	<b>%</b>				
							$\sqcup \mathbb{V}$	1/5	17.5 ft Possible top of weathered rock b	ased on drilling behavio	r.	
							∛	<b>*</b>	Dettom of Front 12 11 11 11	Start hal	18.5	
								1	Bottom of Exploration at 18.5 18.5 ft auger refusal	reet below ground su	пасе.	
- 20 -		1						4				
								1				
								+				
					T							
25 Rema	rks:	1					<u> </u>		l .			l
		4-1	-4 44 5 1	-# 55								
1. Dr	illed at s	staked loc	ation; 14.0 ft.	OTT EP.								
Strotifi-	ation lines	represent	oproximate bound	dariae haturaan -	ail typos: *	ancition -	moviho	arod	al .	Page 1 of 1		
							-	-		l age i oi i		
		-	een made at times ments were made		itions state	ed. Grou	ndwater	lluctua	tions may occur due to conditions other than those	Boring No.	.: HB-WAT	-313
preser	a. uie III	c measuiel	were middt								**/ (1	5.5

			Schonewali	D	PRO	JECT	T: I-9	5 Tr	afton Road Interchange	Boring No.:	HB-W	AT-314	
			Engineering <b>A</b> ssociates, <sup>1</sup>	3	1.00	\ T! C ·	I. 14.	_1-	illa Maina	WIN:	1812	29.10	
Drille	,.		New England	Boring Contro			I: VV ation (		ville, Maine	Auger ID/OD:			
Opera			Enos/Share	Bolling Contra	aciois	Datu		11.)	NAVD88	Sampler:	Standard Spli	t Spoon	
			Schonewald			+			Mobile Drill B-53, track-mounted	· ·	•		
	ed By:			1015		+	уре:		,	Hammer Wt./Fall:			
	Start/Fir		3/23/16; 0820-			_	ng Me			Core Barrel:	N/A		
	g Locat	ion:	SB Sign 3B; 18.8	8 ft off EP	٨٢	Casi	ng ID/		3" (NW) spun	Water Level*:			
D = Split	Spoon Sa	ample			AL	$S_u = I$	nsitu Fie	ld Van	e Shear Strength (psf)	SSA= solid stem auger / RC			
U = Thin MU = Ur V = Insit	Wall Tubensuccessfu u Vane Sh	e Sample ul Thin Wall T near Test	n Sample attempt  Fube Sample atte	empt		RQD : WOH WOR	= weight = weight	of 140 of rod	Designation (%) llb. hammer	ORATORY TEST RESULTS: LL=Liquid Limit / PL=Plastic WC = water content, percer- #200 = percent fines from g	t grain size analysis	Index	
MV = Ur	successfu	ıl Insitu Vane	Shear Test atter	mpt		= nc	t record			UCT qp = peak compressive	strength of rock		
		$\overline{}$	ے					Sam	ole Information				
	<u>o</u>	(in.)	ept	Blows (/6 in.) Shear Strength	。			go				Lab.	
Depth (ft.)	Sample No.	Pen./Rec. (in.) Sample Depth (ft.) Blows (/6 in.) Shear Strength			0)	Θ	ח	Graphic Log	Visual Description	n and Remarks		Testing Results	
pth	m du	n./F	m (	ows ear eng	~ <u>@</u>	N-value	Casing Blows	ws ws ing applications of the state of the s				results	
	Sa	Pe	Sa F.	<u> </u>	ž 5	ź	ပ္ပိုဆိ	Ö					
0							RC	$\otimes$	grass-lined ditch				
							-				— — —1.0-		
									4. 50 101				
							_		1 to 5 ft: multiple gravel layers				
- 5 -							_	-7/	1D: Olive brown, damp (tight), v. dense,	Gravelly fine to medium	n SAND some		
	1D	24/16	5.0 - 7.0	17-26-31	-33	57			Silt, trace coarse Sand. TILL	Gravelly life to medicin	II SAND, Some		
									,				
								<b>%</b> /2	5 to 10 ft: boney; difficult advancement				
							_		o to 10 ft. bolley, difficult davanteement				
- 10 -							2D: same as 1D TILL						
	2D R1	5/2 60/29	10.0 - 10.4 10.5 - 15.5	50/5"					R1: Cored through boulder; till at 11.5 ft				
	'``	00/20	10.0						advancement rate; till very dense; able t	o obtain core of till. TIL	_		
							_						
							_						
45													
- 15 -	3D	24/20	15.5 - 17.5	37-39-42	-54	81		1/2	05.0 1 (1.1) 1 0 1		0.11		
	ļ	2 1/20	10.0	0. 00 .2	-				3D: Grey, damp (tight), v. dense, Gravel trace coarse Sand. TILL	ly fine to medium SAND	, some Slit,		
								1/2	11000 000100 <b>0</b> 01101 1.22				
							Π.						
	<u> </u>						+	- 1					
							\ /						
							\ /	1/2					
- 20 -							V	1/2			20.0-		
									Bottom of Exploration at 20.0	feet below ground sur			
								1	No refusal				
								1					
								1					
25 Rema	rks:	1							l				
		4-1		-# FD									
1. Dr	illed at s	staked loc	ation; 18.8 ft o	oπ EP.									
Strotifi-	ation line-	represent	onrovimata have	dariae haturaan -	ail typos: *-	ancition-	mayba	arod	ıl	Page 1 of 1			
			oproximate bound				-	-		aye i oi i			
		-	een made at times ments were made		litions state	ed. Grou	ndwater	fluctua	tions may occur due to conditions other than those	Boring No.	: HR-WAT	-314	
preser	ıı aı ıne tir	ne measufel	nents were made	z.						Borning No.	. IID WAT	J17	



## **SUBSURFACE EXPLORATION LOGS**

300-SERIES NB OFF RAMP / SB ON RAMP

	Schonewald					JEC	<b>Γ:</b> I-9	5 Tr	afton Road Interchange	Boring No.: HB-WAT-30		AT-305
			Engineering							VAZINI.	<b>WIN:</b> 18129.10	
			Associates,	Inc.	LOCA	ATIO	ı: W	ater	ville, Maine	WIN:	1812	29.10
Drille	r:		New England	Boring Contr			ation (			Auger ID/OD:	4.5" OD	
Opera	ator:		Enos/Share			Datu	ım:		NAVD88	Sampler:	Standard Spli	t Spoon
Logge	ed By:		Schonewald			Rig	Туре:		Mobile Drill B-53, track-mounted	Hammer Wt./Fall:	140#/30" (rope	& cathead)
Date S	Start/Fin	nish:	3/22/16; 0920	-1015		Drill	ing Me	thod	Solid Stem Auger	Core Barrel:	N/A	
	g Locati		NB off ramp Sta	tion 209+00 CL			ng ID/			Water Level*:	dry	
D = Split	t Spoon Sa				Al		nsitu Fie	ld Van	Shear Strength (psf)	REHOLE ADVANCEMENT ME SSA= solid stem auger / RC		
	nsuccessfu n Wall Tube		on Sample attemp	ot		RQD		Quality	Designation (%)	BORATORY TEST RESULTS: LL=Liquid Limit / PL=Plastic	Limit / PI=Plasticity	Index
V = Insit	u Vane Sh	ear Test	Tube Sample atte	•		WOR	= weight	of rod	lb. hammer s	WC = water content, percent -#200 = percent fines from g	rain size analysis	
MV = Ur	nsuccessfu	ıl Insitu Van	e Shear Test atte	empt		= n	ot record		ole Information	UCT qp = peak compressive	strength of rock	
		<u>-</u>	£					Sami	sie information			
<u> </u>	ġ	];	Dept	i.	(%			Log				Lab. Testing
π E	ole [	Rec	l ed	s (/6	g	ne	gu s	hic I	Visual Descriptio	n and Remarks		Results
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength	pst)	N-value	Casing Blows	Graphic Log				
0	0)	ш	0, €	ш 0, 0, ,	90				√ forest mat			
							S\$A	1/2	\		0.3	
	1D	24/15	2.0 - 4.0	3-10-12	-18	22			1D: Olive brown, damp, medium dense,			
	<u> </u>						$\vdash$					
							$\vdash \downarrow$				4.2-	
- 5 -	L						L		Bottom of Exploration at 4.2	feet below ground surf		
5 -									4.2 ft BGS auger refusal			
								1				
								4				
								+				
- 10 -								4				
								+				
								1				
- 15 -								-				
								1				
								-				
								1				
- 20 -								1				
								-				
					7							
								1				
							-	-				
25	<u> </u>							$\perp$				
Rema	rks:											
Seco	ond bore	hole 2 fe	et northbound	l; confirm aug	er refusa	al at 4.0	ft BGS	3				
Stratific	ation lines	represent a	approximate boun	daries between s	oil types; tr	ransitions	may be	gradua	l.	Page 1 of 1		
١.									tions may occur due to conditions other than those			
		-	ements were mad							Boring No.	: HB-WAT	-305

			Schonewal	D	PRO	JEC	<b>Γ:</b> I-9	5 Tr	afton Road Interchange	Boring No.:	Boring No.: HB-WAT-306	
			Engineering Associates,							WIN:	18129.10	
<u> </u>									ville, Maine	4 10/00	4.5".00	
Driller			New England	Boring Contra	actors	+	ation (	π.)	MANDO	Auger ID/OD:	4.5" OD	. 0
Opera			Enos/Share			Datu			NAVD88	Sampler:	t Spoon	
	ed By:		Schonewald			Rig	Туре:		Mobile Drill B-53, track-mounted	Hammer Wt./Fall:	140#/30" (rope	& cathead)
Date S	Start/Fin	ish:	3/22/16; 1020	-1035		Drill	ing Me	thod	Solid Stem Auger	Core Barrel:	N/A	
	g Locati		NB off ramp Sta	tion 210+00 CL			ng ID/			Water Level*:	dry	
	SAMPLIN Spoon Sa	IG AND TE	STING:		AD	DITION S <sub>II</sub> = I			NS: BOF e Shear Strength (psf)	REHOLE ADVANCEMENT MI SSA= solid stem auger / RO		
MD = Ur U = Thin	nsuccessfu Wall Tube	Il Split Spoo Sample	on Sample attemp			R = R RQD	ock Core = Rock C	Samp Quality		ORATORY TEST RESULTS: LL=Liquid Limit / PL=Plastic WC = water content, percei	: c Limit / PI=Plasticity	Index
V = Insit	u Vane She	ear Test	e Shear Test atte			WOR	= weight ot record	of rode	S	-#200 = percent fines from UCT qp = peak compressiv	grain size analysis	
			T =					Sam <sub>l</sub>	ole Information			
	o	(in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength				l g				Lab.
(ft.)	Ž	ec.	e D	(/e	%	Φ	_	۱,	Visual Description	n and Remarks		Testing
Depth (ft.)	Sample No.	Pen./Rec.	ld m	ws ear eng	~ g	N-value Casing Blows Graphic Log		jphi	·			Results
	Sal	Pe	Sal (ft.)	S S S S	9 9	ź	Sa Bo	ပြီ				
0							S\$A	<b>*</b>	√forest mat			
											0.3	
	1D	24/6	2.0 - 4.0	4-5-6-1	1	11			1D: Olive brown, damp, medium dense,	SILT, some fine Sand,	trace Gravel;	
	'B	24/0	2.0 - 4.0	4-3-0-1	'	- ' '			piece of stone in tip of spoon.			
							1/					
- 5 -							$\vee$		Battam of Fundamina at 4.0	f 4 l 1	4.8	
									Bottom of Exploration at 4.8 4.8 ft BGS auger refusal	reet below ground sur	Tace.	
								1				
								-				
- 10 -								-				
								-				
								-				
45												
- 15 -												
								4				
								1				
- 20 -								4				
								1				
								4				
								1				
25 Rema	rks:	1										
<u>a</u>												
Ctrotif -	otion line -	roproses*	nnrovimete he	darion between -	ail tunce: t-	onoitios -	mov b-	aro di		Page 1 of 1		
١.			approximate bound							Page 1 of 1		
					itions state	ed. Grou	ndwater	fluctua	tions may occur due to conditions other than those	Boring No.	.: HB-WAT	-306
preser	n at the tim	ne medsure	ements were made	σ.						2011119 140	٧٧٨١	500

		D	PRO	JEC	<b>T</b> : I-9	5 Tr	afton Road Interchange	Boring No.:	Boring No.: HB-WAT-307				
			Engineering Associates,		1.00	\ <b>T</b> ! \	.I. 34'	_1-	illa Maina	WIN:	1812	29.10	
Driller			New England	Parina Cantro			ation (		ville, Maine	Auger ID/OD:	4.5" OD		
				Boning Contra	iciois	+		π.)	NAVEGO			. 0	
Opera			Enos/Share			Datu			NAVD88	Sampler: Standard Split Spor			
	ed By:		Schonewald			+	Туре:		Mobile Drill B-53, track-mounted	Hammer Wt./Fall:	140#/30" (rope	& cathead)	
Date S	Start/Fin	ish:	3/22/16; 1040	-1055		Drill	ing Me	thod	Solid Stem Auger	Core Barrel:	N/A		
	g Location		NB off ramp Sta	tion 211+00, 5' l			ing ID/			Water Level*:	dry		
	SAMPLIN Spoon Sai		ESTING:		ΑI		AL DEFI		NS: BOF e Shear Strength (psf)	REHOLE ADVANCEMENT ME SSA= solid stem auger / RO			
MD = Ur U = Thin MU = Ur	nsuccessful Wall Tube	Split Spo Sample Thin Wal	on Sample attemp  I Tube Sample atte			R = R RQD WOH	ock Core = Rock C = weight	Samp Quality of 140	le LAB Designation (%) lb. hammer	CORATORY TEST RESULTS: LL=Liquid Limit / PL=Plastic WC = water content, percei	c Limit / PI=Plasticity	Index	
V = Insite	u Vane She successful	ear Test Insitu Var	ne Shear Test atte	mpt		WOR = n	= weight ot record	ed	ble Information	-#200 = percent fines from UCT qp = peak compressiv	grain size analysis e strength of rock		
			£	_				<u> </u>					
Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength	r RQD (%)	N-value	Casing Blows	Graphic Log	Visual Description and Remarks				
0	S	<u>п</u>	o €	ш о о з	<del>5</del> 0			<del></del>	forest mat				
							S\$A		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		0.3		
	MD	0/-	2.0 - 2.0	bounce	e		+		No recovery 2.1 ft BGS: possible top of weathered ro	ck based on drilling beh	navior.		
									Bottom of Exploration at 2.5	feet below ground sur	2.5- face.		
								1	2.5 ft BGS auger refusal				
- 5 -								-					
								4					
- 10 -								1					
								-					
								4					
- 15 -													
								1					
								-					
- 20 -													
20 -													
								1					
								+					
								-					
								4					
_ 25													
Rema													
Seco	ond boreh	nole 8 fe	eet northbound	; confirm auge	er refusa	l at 2.4	ft BGS	3					
Ctrotif:	ation liv	onree	approvimate to	darios hatura	sil tuma	oncisi	mout.	are al.	1	Page 1 of 1			
١.			approximate bound						II.  tions may occur due to conditions other than those	Fage 1011			
			ements were made		orio statt	.a. 010U	. rawatel	uoiud	and may occur and to continuous other than those	Boring No.	.: HB-WAT	-307	

			Schonewali	D	PRO	JECT	<b>Γ</b> : I-9	5 Tr	afton Road Interchange	Boring No.:	HB-W/	AT-308	
			Engineering Associates,							WIN:	1812	29.10	
<u> </u>									ville, Maine		4 = 1 0 0		
Driller			New England	Boring Contra	actors	_	ation (1	t.)	NAME OF THE PROPERTY OF THE PR	Auger ID/OD:	4.5" OD	. 0	
Opera			nos/Share			Datu			NAVD88	Sampler:	Standard Spli		
Logge			Schonewald			<del>+ -</del>	Туре:		Mobile Drill B-53, track-mounted	Hammer Wt./Fall:	140#/30" (rope	& cathead)	
	Start/Fin		3/22/16; 1105			_	ing Me		Solid Stem Auger	Core Barrel:	N/A		
	g Locati	ion:        G AND TES	NB off ramp Stat	tion 212+00, 25			ng ID/O		Ie. PO	Water Level*: REHOLE ADVANCEMENT ME	Water Level*: 9.5 ft (open to 11.4 ft)		
D = Split MD = Un U = Thin MU = Un V = Insitu	Spoon Sansuccessful Wall Tube successful Successful Vane Sh	ample Il Split Spoo e Sample Il Thin Wall <sup>-</sup> ear Test	n Sample attempl rube Sample atte	empt	AL	S <sub>u</sub> = I R = R RQD : WOH WOR	nsitu Fiel ock Core = Rock Q = weight = weight ot recorde	d Vano Samp uality of 140 of rode	e Shear Strength (psf) le LAE Designation (%) lb. hammer S	SSA= solid stem auger / RC=roller cone BORATORY TEST RESULTS: LL=Liquid Limit / PL=Plastic Limit / Pl=Plasticity Index WC = water content, percent -#200 = percent fines from grain size analysis UCT qp = peak compressive strength of rock			
		1					;	Samı	ole Information				
O Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength	or RQD (%)	N-value	Casing Blows	Seraphic Log	Visual Descriptio	n and Remarks		Lab. Testing Results	
Ů							S\$A		lorest mat		0.3		
	1D	24/8	2.0 - 4.0	3-3-4-	4	7			1D: Olive brown, slightly mottled, damp little fine Sand.	to moist, medium stiff, C	Clayey SILT,		
- 5 -	2D	24/12	5.0 - 7.0	2-3-3-	4	6			2D: Olive brown, moist, medium stiff, m grading to olive brown, SILT & CLAY at		fine Sand		
									Apparent stratum change at 7.0 ft BGS	to reddish-brown, Silty fi			
									8.5 ft BGS: Material becomes gravelly b	ased on drilling behavio	r.		
- 10 -	3D	24/14	10.0 - 12.0	7-6-7-1	3	13			3D: Brown, moist, medium dense, Silty trace coarse Sand; gravel appears to be	fine to medium SAND, to e subangular pieces of b	race Gravel, edrock.		
									12.0 ft BGS Material becomes boney ba	ased on drilling behavior			
							$\forall$		13.5 ft BGS: possible top of weathered	rock based on drilling be	havior. 14.6-		
- 15 -									Bottom of Exploration at 14.6 14.6 ft BGS auger refusal	feet below ground su	rface.		
- 20 -													
	rko.												
Rema	<u> 1KS:</u>												
Stratifica	ation lines	represent a	oproximate bound	daries between s	oil types; tra	ansitions	may be g	gradua	l.	Page 1 of 1			
		-	een made at times ments were made		litions state	ed. Grou	ndwater f	luctua	tions may occur due to conditions other than those	Boring No.	: HB-WAT	-308	

			Schonewai	LD	PRO	JEC.	<b>T</b> : I-9	95 T	ra	ofton Road Interchange	Boring No.:	HB-W	AT-309
			Engineerin Associates,								WIN:	1812	29.10
Driller			New Feelens	l Darina Cantr					rv	ille, Maine	Average ID/OD:	4.5" OD	
				Boring Contr	aciois	Dati	ation	(11.)		NAV/Dog	Auger ID/OD:	4.5" OD	4.0
Opera			Enos/Share							NAVD88	Sampler:	Standard Split Spoon	
	ed By:		Schonewald			+	Туре:			Mobile Drill B-53, track-mounted	Hammer Wt./Fall:	140#/30" (rope & cathead)	
Date S	Start/Fin	ish:	3/22/16; 1500	0-1525		Drill	ing Me	etho	d:	Solid Stem Auger	Core Barrel:	N/A	
	g Locati			ation 514+00, 35			ing ID/				Water Level*:	dry	
	SAMPLIN Spoon Sa		ESTING:		Al	DDITION S <sub>11</sub> =				S: BOF Shear Strength (psf)	REHOLE ADVANCEMENT M SSA= solid stem auger / Re		
MD = Ur	nsuccessful Wall Tube	Split Sp	oon Sample attem	pt		R = R	ock Cor	e Sam	nple		BORATORY TEST RESULTS LL=Liquid Limit / PL=Plasti		Indov
MU = Ur V = Insite	nsuccessful u Vane She	l Thin Wa ear Test	all Tube Sample att			WOH WOR		t of 14	40lb	b. hammer	WC = water content, perce -#200 = percent fines from UCT qp = peak compressiv	nt grain size analysis	ilidex
1010 = 01	Successia	i ilioita ve	ane onear rest att	СПР			ot recore		np	le Information	OOT qp = peak compressiv	re strength of rock	
		(in.)	£						Ť				
·	ું	E	Sample Depth (ft.)	Blows (/6 in.) Shear Strength	8			5	3				Lab. Testing
Depth (ft.)	Sample No.	Pen./Rec.	e)C	s (%	g	ne	Visual Description and Remarks  Visual Description and Remarks						Results
eptl	ami	en./	aml (:)	low hea	[8]	N-value	Casing Blows	מ	<u>g</u>				
	S			<u> </u>	3 0	z				forest mot			
							S\$A		3	forest mat		0.3	
									Ä				
									1				
								<b>*</b>					
							$\sqcup \bot$		X				
								1					
- 5 -								7/3					
								-0					
							$  \setminus   /$			7.5 ft BGS: possible top of weathered ro	ock based on drilling bel	navior.	
								<b>7</b> 2	4			8.5	
								$\dashv$	١	Bottom of Exploration at 8.5	feet below ground sur		
40									١	8.5 ft BGS auger refusal			
- 10 -								1	١				
								-	١				
									١				
								1	١				
								-	١				
									١				
									١				
- 15 -								4	١				
									١				
								7					
								_					
								$\dashv$					
								_					
- 20 -								-					
								$\perp$					
								$\dashv$					
								$\dashv$					
25													
Rema	rks:		•				-						
Stratifica	ation lines i	represent	t approximate bour	ndaries between s	oil types; tr	ansitions	may be	gradı	ual.		Page 1 of 1		
										ons may occur due to conditions other than those			
			rements were made		State	5100			-411	.,	Boring No	.: HB-WAT	-309

	Schonewald				PRO	JEC	Г: І-9	5 Tr	afton Road Interchange	Boring No.:	Boring No.: HB-WAT-3	
			Engineering Associates,		1004	TIO	J. \A/-	nto	villa Maina	WIN:	1812	29.10
Driller	,.		New England	I Boring Contr			<b>v:</b>		ville, Maine	Auger ID/OD:	4.5" OD	
Opera	-		Enos/Share	Donnig Conti	actors	Datu		,	NAVD88	Sampler:	Standard Spli	it Spoon
			Schonewald							Hammer Wt./Fall:	140#/30" (rope	-
Logge				2.4450		+	Гуре:	dl	Mobile Drill B-53, track-mounted			& catneau)
	Start/Fin		3/22/16; 1440			+-	ing Me		Solid Stem Auger	Core Barrel:	N/A	
	g Locati SAMPLIN			ation 514+50, 11			ng ID/0		IS. BOR	Water Level*: EHOLE ADVANCEMENT ME	dry	
D = Split	Spoon Sa	mple			AL	S <sub>u</sub> = 1	nsitu Fiel	d Van	Shear Strength (psf)	SSA= solid stem auger / RC		
	nsuccessfu Wall Tube		on Sample attemp	pt			ock Core = Rock Q		le LAB Designation (%)	ORATORY TEST RESULTS: LL=Liquid Limit / PL=Plastic	Limit / PI=Plasticity	Index
V = Insit	u Vane She	ear Test	Il Tube Sample att	•		WOR	= weight = weight of recorde	of rod	lb. hammer	WC = water content, percent -#200 = percent fines from g UCT qp = peak compressive	grain size analysis	
									ole Information	, , , , , , , , , , , , , , , , , , ,	<i>y</i>	
		(in.)	듚	· ·				_				
·	9		Dep	. <u>⊆</u>	%			Log				Lab. Testing
Depth (ft.)	Sample No.	Pen./Rec.	Sample Depth (ft.)	Blows (/6 in.) Shear Strength	용	Ine	ng /s	hic	Visual Description and Remarks			Results
Sept	)am	en.	) ft.)	Slow Shee	pst)	N-value Casing Blows Graphic Log						
0	0)	<u> </u>	0) =	шоо	90			+	√ grass-lined ditch			
							S\$A	Ž	/grade inited dittori		0.3	
		-							2.0 ft BGS: blast rock / riprap encountere	ed		
	L	L							' '		avior	
								Τ	2.0 it boo. possible top of weathered to		3.0-	
								┨	Bottom of Exploration at 3.0 f 3.0 ft BGS auger refusal	eet below ground surf	face.	
_	_								··			
5	5											
								┨				
								1				
								1				
- 10 -								1				
								1				
								-				
45												
- 15 -								1				
								1				
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- 20 -		-						1				
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25		<u></u>										
Rema	rks:		•					-				
Rock	expose	d in bac	kslope cut.									
			-1									
Stratifica	ation lines	represent	approximate bour	ndaries between s	oil types; tra	ansitions	may be	gradua	l.	Page 1 of 1		
* Water	level readi	ings have	been made at time	es and under con-	ditions state	d. Grou	ndwater f	luctua	tions may occur due to conditions other than those	5		046
preser	nt at the tim	ne measu	rements were mad	de.						Boring No.	: HB-WAT	-310
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