ATTACHMENT M2C

2020 SEDIMENT INVESTIGATION REPORT



ENVIRONMENTAL DATA REPORT STATE PIER INFRASTRUCTURE IMPROVEMENTS STATE PIER COMPLEX NEW LONDON, CONNECTICUT

by Haley & Aldrich, Inc. Rocky Hill, Connecticut

for Moffatt & Nichol Newton, MA

File No. 133419-002 April 2020



HALEY & ALDRICH, INC. 100 Corporate Place Suite 105 Rocky Hill CT 06067 860.290.9400

17 April 2020 File No. 133419-002

Moffatt & Nichol 180 Wells Avenue, Suite 302 Newton, MA 02459

Attention: Joshua Singer, P.E.

New England Regional Lead at Moffatt & Nichol

Subject: Environmental Data Report

State Pier Infrastructure Improvements

State Pier Complex

New London, Connecticut

Ladies and Gentlemen:

We are pleased to submit this Environmental Data Report (EDR) for the proposed State Pier Infrastructure Improvement at the State Pier Complex in New London, Connecticut. This report summarizes the results of recent subsurface explorations, subsurface conditions, and laboratory testing. Our services have been provided in accordance with our 15 March 2020 Agreement.

We appreciate this opportunity to provide these environmental services, and look forward to our continued association with you on this project. Please contact us if you have any questions or require additional information.

Sincerely yours,

HALEY & ALDRICH, INC.

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Katrina T. Perez Mejia, P.E., LEED Green Associate

Senior Engineer

Chris Harriman, LEP

Associate

John G. DiGenova

Senior Project Manager

Jul & Shlow

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2 Exploration Location Plan



1. Introduction

1.1 GENERAL

This report summarizes subsurface information and environmental and geotechnical laboratory testing results for the proposed State Pier Infrastructure Improvement at the State Pier Complex in New London, Connecticut. The site location is shown on the Project Locus, Figure 1.

1.2 PURPOSE AND SCOPE

This investigation was undertaken to obtain supplemental information on subsurface soil and groundwater conditions at the project site. Our scope of services was based on a subsurface exploration and geotechnical and environmental laboratory testing program developed by AECOM that included:

- monitoring explorations on the Thames River and documenting subsurface conditions
- conducting a geotechnical and chemical laboratory testing program to assess soil management requirements during construction
- preparing this report

1.3 ELEVATION DATUM

Elevations in this report are in feet and refer to the North American Vertical Datum of 1988 (NAVD88).

1.4 SITE CONDITIONS AND PROJECT DESCRIPTION

The site is located in the Thames River east of the State Pier Complex, and includes the Delivery Berth, Installation Berth (East Berth), and Turning Basin. We understand that organic silt and sand will be dredged from these areas and that the dredged soils will be used to backfill between the State Pier and CVRR Pier.

The goal of the testing program is to environmentally characterize the proposed dredged material as well as the upper 2 ft of material that will be left in place in order to supplement previous sediment testing performed by AECOM. We understand that AECOM and CPA will use this information to support project permit-related efforts with the Connecticut Department of Energy and Environmental Protection (CTDEEP).

1.5 LIMITATIONS

This report has been prepared for specific application to the project in accordance with generally accepted geotechnical engineering practices. The data presented in this report are based in part upon information obtained from the subsurface explorations. The nature and extent of variations between the explorations may not become evident until construction. If significant variations appear, it will be necessary to reevaluate the information in this report.

This report is prepared for the exclusive use in connection with the geotechnical aspects of this project.



This report does not include an assessment for the presence of oil or hazardous material, nor any regulatory interaction and remedial activities with any contaminated soil, water, or materials that may exist along the proposed alignment.



2. Test Boring Program and Subsurface Conditions

2.1 TEST BORING PROGRAM

Haley & Aldrich monitored a subsurface exploration program developed by AECOM consisting of 12 test borings (Chem-1 through Chem-12). The borings were completed during the period 18 July through 24 March 2020 by TG&B Marine Services, Inc. of Monument Beach, Massachusetts and New England Boring Contractors of Derry, New Hampshire.

Test borings were advanced using a TG&B-BH-4 Pneumatic Vibracorer fitted with 3-in. dia. plastic liners, with the exception of Chem-7, which was advanced using a truck-mounted Mobile Drill B-48 drill rig using 4-in. dia. HW casing. Standard penetration tests were performed continuously at Chem-7, in general accordance with ASTM D1586 using either a 2 or 3-in. O.D. split-spoon sampler driven 24 in. (where possible) with a 140-lb automatic hammer falling 30 in. The borings ranged from about 3.5 to 37.0 ft below the mudline, and were terminated at target depths.

The borings were located in the field by Haley & Aldrich using a Trimble Geo7X GPS unit and are shown on Figure 2. Ground surface elevations were measured in the field and tide levels were accounted for by using measurements provided by the NOAA tide gauge station at the Northeast Bulkhead. Soils were classified according to the Unified Soil Classification System (USCS). A summary of the USCS description system is at the beginning of Appendix A. Logs of test borings are provided in Appendix A.

2.2 GEOLOGIC CONDITIONS

Test borings revealed the following materials, described below in order of increasing depth below ground surface.

Approximate Range In Thickness (ft) of Strata	Generalized Description
>3.5 to >37.0	ORGANIC DEPOSITS – Very soft ORGANIC SILT (OL/OH) with varying amounts sand and shells. This stratum was encountered in all the explorations.
>2.0 to >15.7	GLACIOFLUVIAL DEPOSITS – Dark gray-brown silty SAND with varying amounts of gravel (SM) and interbedded layers of SILT with varying amounts of sand (ML). This stratum was encountered at Chem-1 and Chem-12.

2.3 SEA LEVEL CONDITIONS

In the Thames River, the mean higher high water level (MHHW) is El. 1.21, and the mean lower low water level (MLLW) is El. -1.84.



3. Laboratory Testing

3.1 GEOTECHNICAL

Thirty one soil samples were obtained during the subsurface exploration program and submitted to GeoTesting Express of Acton, Massachusetts for grain size analysis (sieve and hydrometer) in accordance with ASTM D422 and moisture content in accordance with ASTM D2216. Copies of the results are provided in Appendix C.

3.2 CHEMICAL TESTING PROGRAM

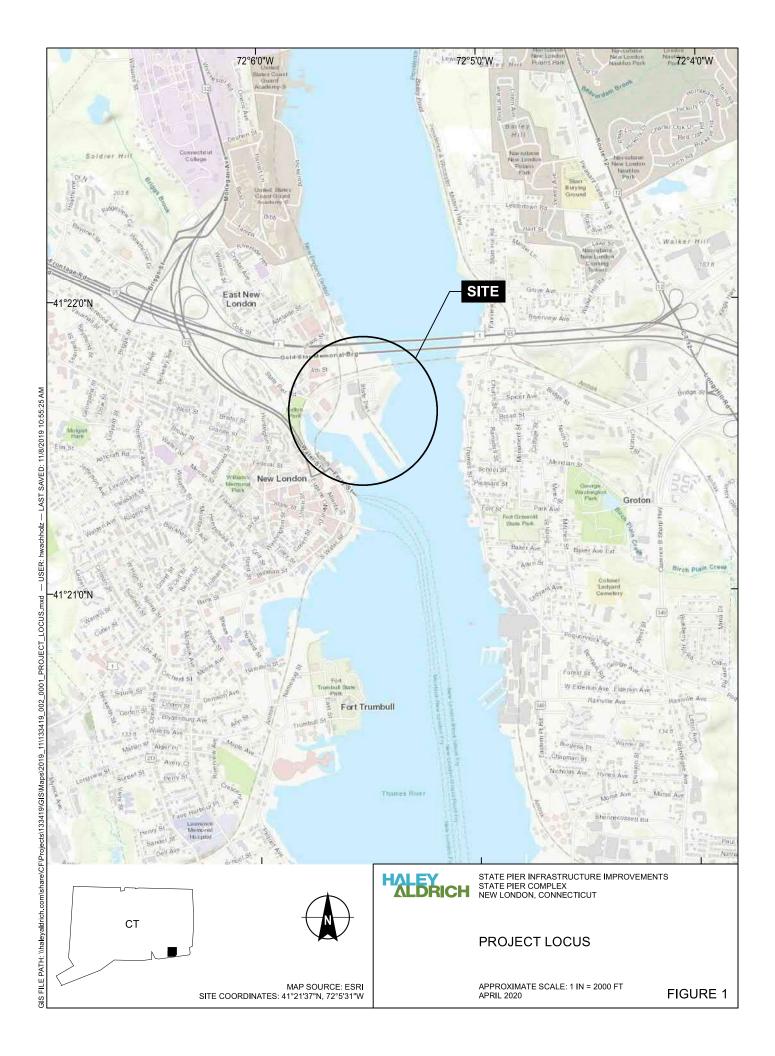
A laboratory chemical testing program was conducted in accordance with AECOM's Scope for H&A Environmental Testing (Revised 03/13/2020). Sample intervals were determined based on lithology encountered at each test boring. Additionally, where required, samples were collected from the uppermost 2-ft of material to remain after dredging.

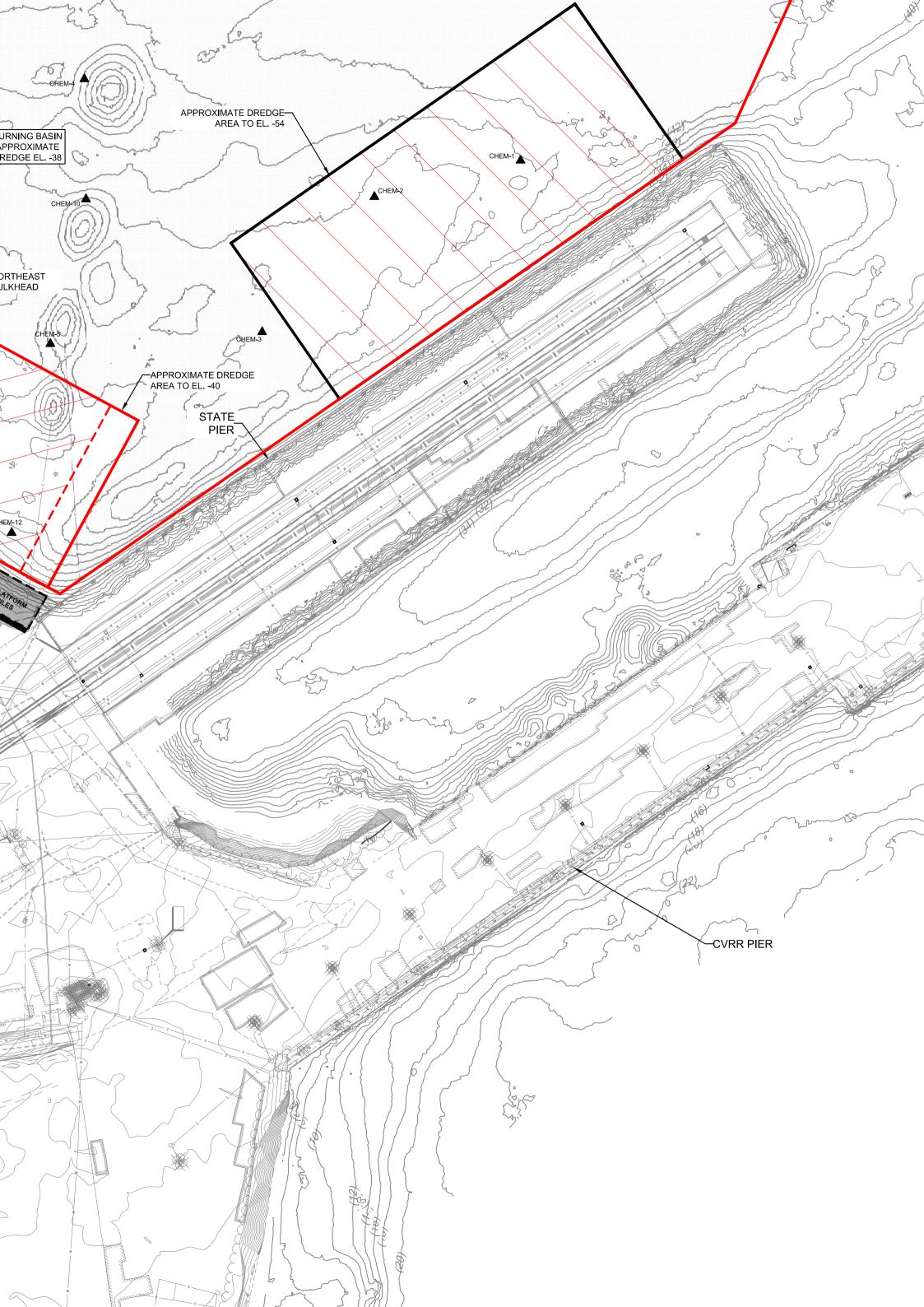
Twenty seven samples were collected and submitted to Alpha Analytical of Westborough, Massachusetts, a Connecticut state-certified laboratory, for chemical testing. Each sample was analyzed for one or more of the following, as applicable:

- Volatile Organic Compounds (VOCs) by SW-846/RCP EPA 8260
- Semi-volatile Organic Compounds (SVOCs) by SW 846/RCP Method 8270
- Polycyclic Aromatic Hydrocarbon (PAHs) by SW-846 Method 8270-SIM
- Connecticut Extractable Total Petroleum Hydrocarbons (CT ETPH) by CT DEEP Method
- Polychlorinated Biphenyls (PCBs) by SW-846/RCP Method 8082A
- Total Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Mercury,
 Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc by SW-846/RCP Methods 6010 and 6020
- Chlorinated Pesticides by EPA Method 8081B
- Herbicides by SW-846/RCP 8151
- Gamma Spectroscopy for Cobalt-60 and Cesium-137 by DOE HASL 300, 4.5.2.3/Ga-01-R
- Total Organic Carbon by SW-846 9060A

Copies of the laboratory reports and chain-of-custody documentation are provided in Appendix D.







APPENDIX A

Test Borings Logs

Н	TEST BORING REPORT roject State Pier Infrastructure Improvements, New London, CT												Воі	rin	g N	No.		СН	EM	I-1	
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		all (in	.)			-		PID Make & Model: Mini		1.8 eV						899 <u>148</u>					
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- 0 -		V1	0.0		OL/ OH	Blac	k ORGAN	IIC SILT (OL/OH), trace fine sa	and, organic o	odor, wet PID = 8.	1 nnm	-	-	-	-	5	95		Ħ		
		191	16.7		On	1		nt sample S1 collected for cher collected at 1.8 ft (8.1 ppm).	mical testing												
-				-42.0 2.7	OL/ OH		y ORGANI anic odor, v	C SILT (OL/OH), little clay, trai wet	ce fine sand,	occasional s			<u>-</u> -	<u>-</u> -	<u>-</u> -	5	95		-	-	
- 5 - - -					OL/ OH	Simi	ilar to abov	ve -ORGANIC DEPOS	SITS-	PID = 0.	7 ppm	-	-	-	-	5	95				
- - - 10 -					OL/ OH	orga	nic odor, v	IC SILT with sand (OL/OH), littl wet nt sample S2 collected for cher collected at 11.5 ft (1.3 ppm).	·	PID = 0.	4 ppm	ı	-	-	5	15	80				
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=				-54.0																	
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ım particle size (mps) is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

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	Gray clayey ORGANIC SILT (OL/OH), trace gravel (mps 2.0 in.), trace f sand, organic odor, wet							fine	_	\vdash	\vdash					\dashv	\dashv			
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						<u> </u>		S - Split Spoon Sample	Bentonite Seal	Borii	ng	No			(СН	EM	-4		
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- 0 -		V1 43	0.0	-36.7 0.5	OL/ \ OH .		-brown Ol	RGANIC SILT (OL/OH), trace	fine san	nd, organic odor, v PID = 2.							95				
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_				-38.0 1.8	OH OL/			it sample S1 collected for che ollected at 1 ft (2.6 ppm).	mical te	esting from 0 to 1.8	3 ft.	9	<u>-</u> -	 - 1	1-	1	88		-+		
					OH	Simi	lar to abov	ve, excpt trace gravel													
-								it sample S2 collected for che ollected at 2.6 ft (1.8 ppm).	mical te	esting from 1.8 to 3	3.8 ft.										
				-40.0 3.8		\		-ORGANIC DEPO	SITS-	PID = 1.	8 ppm/										
								BOTTOM OF EXPLORA	TION 3.		о ррину										
		3.87		1 2 1 2 1					T 12	/all Dia			<u> </u>	<u> </u>	<u> </u>	<u></u>					<u> </u>
<u> </u>				evel Dat osed		h (ft)	to:	Sample ID O - Open End Rod	† w	/ell Diagram Riser Pipe	Over	hur			nma ·۱		2 0				
D	ate	Time		hr Bo	ottom	Botton of Hole	Water	T - Thin Wall Tube		Screen Filter Sand	Rock			•	•		3.8 0.0				
					. son ig	UI I IUI		U - Undisturbed Sample	9, 9, 6	Cuttings	Sam			΄,	., 1'		5.0				
								S - Split Spoon Sample	4. A	Grout Concrete Bentonite Seal	Bori	ng	No	ο.		(CHI	EM	-5		
Field	d Tests	;:	1				S - Slow M - Mediu	I N - None Plastic m H - High Dry Sti	ity: N -	- Nonplastic L - Lov N - None L - Low	w M-N	/ledi	um	H -	High	ר ע -	Ven.	, Hic	h		
[†] No	te: Ma			e size (m	ps) is c	letermi	ned by dir	ect observation within the lim	nitations	of sampler size.							v GI Y	ny			
ш		NC	<u>ле: 3</u>	<u>oon iden</u>	<u>uncati</u>	<u>טוו ממ</u>	seu on Vi	<u>sual-manual methods of th</u>	16 02C	o as practiced t	y ⊓ale	yŌx	AIC	ITIC	ıı, If	ıC.					

H	ALE	RIC	Н			TEST	BORING REPO	RT			30	rin	g N	lo.	_ (CHE	:M-	- 6
Proj Clie Con		Мо	ffatt	er Infrast & Nichol ⁄larine Se			s, New London, CT			Sh Sta	eet art	No	. 1 Ma	of arch	19	, 202		
				Casing	Sam	oler Barrel	Drilling Equipmer	nt and Procedures			ish Iler				i 19, kian	202	20	
Туре)			_	Vibra	core	Rig Make & Model: TG	&B-BH-4 Pneumatic Vibr	acorer			₹ер		M.	van	No	ord	er
Insid	le Dia	meter	(in.)	_	3.0)	Bit Type: None Drill Mud: None				eva tun	tion า			5.0 NVD	(est. 88	.)	
	nmer F	Veight Fall (in		_ _		-	Casing: None Hoist/Hammer: Winch PID Make & Model: Mir			Lo	cati	Νθ	692	ee F 695 117				
Œ	Blows in.	8 (E)	<u>∌</u> <u>e</u>	E E E	Symbol	visu	JAL-MANUAL IDENTIFICATIO	ON AND DESCRIPTION			ivel		Sano	t			eld T	
Depth (ft)	Sampler B per 6 in	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Syl	(Density	//consistency, color, GROUP structure, odor, moisture, opt GEOLOGIC INTERPR	ional descriptions		% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	ssauubnoı	Plasticity
0		V1	0.0	-35.5	OL/		vn ORGANIC SILT (OL/OH),	trace fine sand, organic o	dor,	<u></u>		-	-	5 10	95			=
		204	21.0	0.5	OH / OL/ OH	\ wet \ Dark gray OR0 silt lenses, org	GANIC SILT (OL/OH), trace fi anic odor, wet		lack	-	_	-	-	10	90			
							nt sample S1 collected for che collected at 0.8 ft (2.9 ppm).	PID = 0. emical testing from 0 to 9										
5 -																		
				-42.0 7.0 -42.8 7.8	SP	Gray-brown po	oorly-graded SAND (SP), trac	e silt, slight organic odor, PID = 0.		<u>-</u> -	- <u>-</u> -	<u>-</u> -	- <u>-</u> -	95	5	-	+	
10 -				-45.0 10.0	OL/ OH OL/	Dark gray to bl organic odor, v	lack ORGANIC SILT with san wet	nd (OL/OH), occasional sh		- 	- - <u>-</u> -	- - <u>-</u> -	- 	20				
					OH	Black ORGAN odor, wet	IC SILT (OL/OH), trace fine s	and, occasional shells, or	ganic									
				-48.0		VOC sample c	nt sample S2 collected for che collected at 9.5 ft (0.0 ppm).		ft. 	<u> </u>					0.5			
				13.0	OL/ OH	Gray-brown cla shells, organic	ayey ORGANIC SILT (OL/OH odor, wet), trace fine sand, occasion PID = 0.		-	-	-	-	5	95			
15 -																		
				-52.5 17.5	OL/	,	indy organic SILT (OL/OH), o	ccasional shells, organic o	odor,	<u> </u>		2	5	43	50	-+	+	
20 -					OH		nt sample S3 collected for che collected at 19 ft (0.0 ppm).	PID = 0. emical testing from 19 to 2										
				-56.0 21.0			-ORGANIC DEPO											_
							BOTTOM OF EXTERNA	110N 21.01 1										
L		Wa	ater L	evel Data	a		Sample ID	Well Diagram			S	Sum	ma	ry ˈ				=
Da	ate	Time			ottom	n (ft) to: Bottom of Hole Water	O - Open End Rod T - Thin Wall Tube U - Undisturbed Sample	Riser Pipe Screen Filter Sand Cuttings	Over Rock Sam	(Co	red	•	,	(1.0 0.0			
							S - Split Spoon Sample	Grout Concrete Bentonite Seal	Bori	ing	No			C	HE	EM-(6	_
Field	Tests	 ::	•			Rapid S - Slow	N - None Plasti m H - High Dry St	city: N - Nonplastic L - Lo	w M-N	Mediu	ım	Н-	High	1				

H	ALE	RIC	Н				Т	EST	BORING REPOI	RT				Во	rin	g N	l o.		CH	ΕIV	I-7
Proj Clie Cor	•	Мо	ffatt	ier Infra & Nicha Marine	ol		•	ovement	s, New London, CT				Sh			. 1 M	of arcl	h 20), 20		
				Casin	gs	amp	ler	Barrel	Drilling Equipmer	it and Pr	rocedures			nish iller				n 24 ddai	l, 20 rd	20	
Туре	e			HW		s			Rig Make & Model: True	ck-moun	ted Diedrich D1	20	ł	&A I					cobs	en	ı
Insid	de Dia	meter	(in.)	4.0		1 3/8	3		Bit Type: Roller Bit Drill Mud: None					eva atun		l		9.3 AVE	(es	i.)	
Ham	nmer \	Weight	(lb)	300		140)	-	Casing: Driven Hoist/Hammer: Winch	A 4 4	lia I Iamanaan		_		ion		ee	Plar			
Ham		Fall (in	.)	20		30		-	PID Make & Model: Mir								921 <u>130</u>				
Œ(Blows in.	No Ne Ori	±,	e a (-)	h (ft)	Symbol		VISU	AL-MANUAL IDENTIFICATIO	N AND D	ESCRIPTION		_	avel	_	San	d d			eld ပွ	
Depth (ft)	Sampler B per 6 ir	Sample No. & Rec. (in.)	Sample	Stratum	Elev/Dept	USCS Syr			consistency, color, GROUP I structure, odor, moisture, opt GEOLOGIC INTERPR	ional des	criptions		% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity
0 -	W	S1 12	0.0		C	DL/ DH	Very	soft dark	gray ORGANIC SILT, trace s	hells, slig	ht organic odor, PID = 0		-	5	-	-	-	95			_
	R						VOC:	sample c	it sample S1 collected for che ollected at 0.8 ft (0.0 ppm).	emical tes	sting from 0 to 16	6 ft.		_				0.5			
	W	S2 8	2.0 4.0		1	DL/ DH		ar to abov			PID = 0	.0 ppm	-	5	-	-	-	95			
	R			-22 3		OT/ OH	Very	soft dark	gray ORGANIC SILT (OL/OH)				Γ						7	_
5 -	W O R	S3 14	4.0 6.0	- 1		DL/ DH	Simila	ar to abov	e		PID = 0	.0 ppm	-	5	-	-	-	95			
	W O R	S4 24	6.0 8.0			DL/ DH	Simila	ar to abov	e		PID = 0	.0 ppm	-	5	_	-	-	95			
	W O R	S5 18	8.0 10.0	- 1		DL/ DH	Simila	ar to abov	е		PID = 0	.0 ppm	-	5	-	-	-	95			
10 -	W O R	\$6 20	10.0 12.0	- 1		DL/ DH	Simila	ar to abov	е		PID = 0	.0 ppm	-	5	_	-	-	95			
	W O R	S7 24	12.0 14.0			DL/ DH	Simila	ar to abov	re		PID = 0	.0 ppm	-	5	_	_	-	95			
15 –	W O R	\$8 24	14.0 16.0	- 1		DL/ DH	Simila	ar to abov	е		PID = 0	.0 ppm	-	5	-	-	-	95			
	W O R	S9 7	16.0 18.0	- 1		DL/ DH	Note:	Sedimer	re, except with gravel it sample S2 collected for che ollected at 18 ft (0.3 ppm).	emical tes	PID = 0		-	10	_	_	5	85			
,	W	S10 24	18.0 20.0	- 1		DL/ DH		ar to abov			PID = 0	3 ppm	-	10	-	-	5	85			
	Ř		20.0	,					-ORGANIC DEPO	SITS-	, ib = 0	· > PPIII	-	10	-	-	5	85			
20 -		Wa	ater L	_evel D	ata				Sample ID	W	ell Diagram				Sum	ma	ry				=
Da	ate	Time		apsed_	D Bottor		(ft) to		O - Open End Rod		Riser Pipe Screen	Over			•	,	3	37 . C)		
			I IM	e (hr.)	f Casi	ng o	f Hole	Water	T - Thin Wall Tube U - Undisturbed Sample	9.9.0	Filter Sand Cuttings	Rock			l (ft	′		0.0			
									S - Split Spoon Sample	ه ۵	Grout Concrete Bentonite Seal	Samp Bori) .	18		СНІ	EM-	7	
Field	d Tests		1					S - Slow	l N - None Plasti m H - High Dry St		Nonplastic L - Lo										_

н	ALE	Y				TEST PODING DEDORT	1	3ori	_				CHE	:M-	7
		RIC	Н			TEST BORING REPORT	F S	ile l She	No. et N	lo.	1334 2	19-0 of)02 		
Œ)	lows .r	No in	e (ft)	n e h (ft)	loqu	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	-	avel	_	San				eld ပွ	
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	(Density/consistency, color, GROUP NAME, max. particle size [†] , structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity
20 -	W O R	S11 11	20.0 22.0		OL/ OH	Very loose dark gray ORGANIC SILT with gravel (OL/OH), trace shells, slight organic odor, wet PID = 0.1 ppm	-	10	-	-	5	85			
•	W O R	S12 20	22.0 24.0		OL/ OH	Similar to above PID = 0.3 ppm	-	10	-	-	5	85			
25 -	W O R	S13 24	24.0 26.0		OL/ OH	Similar to above PID = 0.0 ppm	-	10	-	-	5	85			
	R										5	85			
	0				1	Similar to above PID = 0.1 ppm	-	10	-	-	5	85			
30 -					1	Similar to above PID = 0.1 ppm	-	10	_	-	5	85			
	W O R	S17 24	32.0 35.0		OL/ OH	Similar to above PID = 0.1 ppm	-	10	-	-	5	85			
						-ORGANIC DEPOSITS-									
35 -	WOR WOR 1	S18 24	35.0 37.0	56.3 37.0	OL/ OH	Very loose dark gray ORGANIC SILT (OL/OH), trace shells, slight organic odor, wet PID = 0.0 ppm Note: Sediment sample S3 collected for chemical testing from 35 to 37 ft. VOC sample collected at 36 ft (0.0 ppm). BOTTOM OF EXPLORATION 37.0 FT	-	-	1	1	2	96			

Н	TEST BORING REPORT oject State Pier Infrastructure Improvements, New London, CT									Во	rin	g N	ю.	1	СН	ΕN	I-8		
Pro Clie Cor		Mo	ffatt 8	er Infrast & Nichol larine Se		·	rovemen	ts, New London, CT		Sh St	neet art	t No		of arcl	1 h 18	02 3, 20 3, 20			
				Casing	Sam	pler	Barrel	Drilling Equipment	t and Procedures	II.	nish iller		M. A				120		
Тур	Э			_	Vibra	core			B-BH-4 Pneumatic Vibraco	orer H8	ξΑ I	Rep).	M.	va	n N	oro	den	nei
Insid	le Dia	meter	(in.)	_	3.	0		Bit Type: None Drill Mud: None			eva atur	tion	1		4.4 4VE	(es	t.)		
Ham	nmer V	Veight	(lb)	_	_	-	-	Casing: None					S						
Han	nmer F	all (in	.)	_		-	-	Hoist/Hammer: Winch PID Make & Model: Min					692 118						
<u>.</u>	Swo	٥ ()		. £	8		VISI	JAL-MANUAL IDENTIFICATION		Gra	avel		Sand				ield	Tes	ŧ
th (fi	er Blc 6 in.	ë .	nple th (fi	atum ange epth	Symbol			//consistency, color, GROUP N		ße		rse	lium	a.	Si	ıcy	ness	iţ	₽
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	NSCS		(Bonon	structure, odor, moisture, opti GEOLOGIC INTERPRI	onal descriptions	% Coarse	Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
<u> </u>	Sa			i ii					<u> </u>		%	%				莅	Ĕ		<u>w</u>
		V1 55	0.0 5.6		OL/ OH	Blac	K ORGAN	IIC SILT (OL/OH), trace fine sa	and, organic odor, wet PID = 0.3 p	pm -	-	-	-	1	99				
-	Note: Sediment sample S1 collected for chemical testing from 0 to 3.6 ft. VOC sample collected at 1.2 ft (0.5 ppm).																		
-						VOC	sample o	collected at 1.2 ft (0.5 ppm).											
				-38.0		<u>_</u>		-ORGANIC DEPO		<u>_</u>	L.	<u>L</u>	L.			_	_	_	
-				3.6	OL/ OH	Blac	k ORGAN	IC SILT (OL/OH), trace sand,	trace shells, organic odor, w PID = 0.2 p		-	1	-	2	97				
- 5 -								nt sample S2 collected for che	mical testing from 3.6 to 5.6	ft.									
				-40.0 5.6		VOC	sample	collected at 3.8 ft (0.3 ppm). BOTTOM OF EXPLORA	TION 5.6 FT										
				0.0				DOTTOM OF LAW LOTT	7.017 0.0 7 7										
		Wa	ater Le	 evel Dat	a a			Sample ID	Well Diagram	<u> </u>		Sum	ıma	rv			1		=
	ate	Time	Flar	osed	Dept	h (ft)		O - Open End Rod	Riser Pipe	Overbur					5.6				_
	J. ()		Time		ottom Casing	Bottom of Hole			Filter Sand	Rock Co					0.0				
								U - Undisturbed Sample S - Split Spoon Sample	Cuttings S	Samples	S		1						
								, 12, 1211 5511, 191	Concrete B	oring	N	ο.		(CH	ΕM	-8		
Field	l Tests	:					S - Slow		Bentonite Seal ity: N - Nonplastic L - Low										
				Toughn	<u>iess: L</u>	- Low	M - Mediu	m H - High Dry St ı	rength: N - None L - Low M	 Mediun 	<u>n </u>	<u>1 - H</u>	ıgh	<u> </u>	Very	Hig	n		

†Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Project State Per Intersatvictive Improvements, New London, CT State Per Intersatvictive Improvements, New London, CT State Stat	Н	âLE	RIC	Н			•	TEST	BORING REPOR	RT		ı	Во	rin	g N	No.	1	СН	EM	I - 9	
Casing Sample Barre Distilling Equipment and Procodures Dist	Clie	nt	Мо	ffatt &	Nichol			rovement	ts, New London, CT			Sh Sta	eet art	No	. 1 M	of arcl	1 h 19	9, 20			
Type				(Casing	Sam	pler	Barrel	Drilling Equipment	t and Procedures									120		
Indicto Dameler (fin.)	Тур	Э			_	Vibra	core		<u> </u>	B-BH-4 Pneumatic Vibr	acorer	Н8	&A F						orc	den	nei
Hammer Weight (Ib)	Insid	le Dia	meter	(in.)	_	3.	0								l				t.)		
Part	Ham	nmer V	Veight	(lb)	_	-	-	-	Casing: None	NI/A				ion		ee	Plar				
V1	Han		all (in	.)	_		-	-													
V1	(ft)	Slows n.	S (E)	<u>=</u> (±)	He a	loqu		VISU	JAL-MANUAL IDENTIFICATION	N AND DESCRIPTION			avel	_		d 		Fi	eld g		
V1	Depth	Sampler E per 6 i	Sample & Rec.	Samp Depth	Stratu Chang Elev/Depl	USCS Sy		(Density	structure, odor, moisture, opti-	onal descriptions		% Coarse	% Fine	% Coarse	% Mediui	% Fine	% Fines	Dilatancy	Toughne	Plasticity	Strength
Note: Sediment sample S1 collected for chemical testing from 0 to 9 ft.	- 0 -					OL/	Dar	k gray OR	GANIC SILT (OL/OH), trace fir			-	-	-	-	5	95		T		
OH organic odor, wet PID = 0.3 ppm OH OH OH OH OH OH OH O	-		238	21.8		OH															
Note: Sediment sample S2 collected for chemical testing from 9 to 19.8 ft. VOC sample collected at 12 ft (0.0 ppm). OL	- - 5 -				-23.7 3.5			,	,, ,,	,	,	<u>-</u> -	<u> </u>	<u>-</u> -		5	95			_	
OL/ Similar to above OH Organic odor, wet PID = 0.0 ppm OL/ Similar to above OH OH ORGANIC DEPOSITS- ORGA	- - - 10 -					ОН	Note VO	e: Sedimer C sample c	nt sample S2 collected for che collected at 12 ft (0.0 ppm).	mical testing from 9 to 19	.8 ft.										
-15 - OL/ OH Similar to above PID = 0.0 ppm 5 95 -20 Water Level Data Date Time Elapsed Time (hr. of Casing OHole Vice) Of Casing OHole Sealed Septem OHole Vice Sealed					11.0	1				fine sand, occasional she	ells,	-	-	-	-	5	95				
Water Level Data Sample ID Well Diagram Summary Date Time Elapsed Time (hr.) Bottom Bottom of Hole Time (hr.) Bottom Bottom of Hole U - Undisturbed Sample S - Split Spoon Sample S - Split Spoon Sample S - Split Spoon Sample Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High	- - - 15 - -						Sim	ilar to abov	ve			-	-	-	-	5	95				
Date Time Elapsed Depth (ft) to: O - Open End Rod T - Thin Wall Tube D - Open End Sample D - Open End Rod T - Thin Wall Tube D - Open End Rod T	- - - 20 -				-40.0				-ORGANIC DEPO	SITS- 	· -										
Date Time Clapsed Bottom Bottom Grasing Bottom Grasing Grout Concrete Boring No. CHEM-9 CHEM-9 Chemical Ch			Wa				h /#\	to											_		_
S - Split Spoon Sample S - Split Spoon Sample Grout Concrete Bentonite Seal Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High	D	ate	Time		hr Bo	ottom	Bottor	n Water	T - Thin Wall Tube U - Undisturbed Sample	Screen Filter Sand Cuttings	Rock	Сс	red)						
Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High	!								S - Split Spoon Sample		<u> </u>).			СН	EM	-9		
· · · · · · · · · · · · · · · · · · ·	Field	l Tests	<u> </u>		Dilatan	cy: R-	Rapid	S - Slow	N - None Plastic	ity: N - Nonplastic L - Lo	w M-N	1edi	um	H -	High	า า					

H&A-TEST BORING-09 HAL1809-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \https://doi.org/10.00M/SHARE\CFIPROJECTS/133419\0002_REVISED DESIGN\GINT\133419-002-TB CHEM.GPJ Apr.17, 20

ım particle size (mps) is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Н	ALF	RIC	Н			TEST BORING REPORT	F	ile	No.	N c	334	19-0	CHE	IVI=E	,
			# · #	<u> </u>	-	T	-	shee avel		o. San		of		eld ⁻	
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION		_	_		u 			တ္တ	
) bth	pler er 6	nple tec.	amp	tratt than Dep	Š	(Density/consistency, color, GROUP NAME, max. particle size [†] ,	% Coarse	ne	oars	% Medium	ine	nes	Dilatancy	loughness	ticity
ے ک	Sam	Sar & F	S		nsc	structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	%	% Fine	% Coarse	2 %	% Fine	% Fines	E	ᅙ	Plasticity
20 –				19.8	OL/	Similar to above	-	-	-	-		95		1	_
					ОН	PID = 0.0 ppm Note: Sediment sample S3 collected for chemical testing from 19.8 to 21.8									
				-42.0 21.8		ft. VOC sample collected at 20 ft (0.0 ppm). -ORGANIC DEPOSITS-	ota								
				21.8		BOTTOM OF EXPLORATION 21.8 FT									
	_						L								_

Н	XLE	Y	Н			T	EST	BORING REPOR	RT		i	301	rin	g N	lo.	_	CHE	ΞM	-10)
Clie	oject ent ntracto	Mo	ffatt 8	er Infrast & Nichol Iarine Se			ovement	ts, New London, CT			Sh Sta	eet art	No	. 1 Ma	of arch	h 18	3, 20			
				Casing	Sam	pler	Barrel	Drilling Equipmen	t and Procedures			iish iller				n 18 ikiar	3, 20 n)20		
Тур	e			_	Vibra	core		Rig Make & Model: TG8	B-BH-4 Pneumatic Vibra				₹ер				n No	oor	den	ner
Insid	de Dia	meter	(in.)	_	3.	o		Bit Type: None Drill Mud: None					tion				(es	st.)		
Han	nmer V	Veight	(lb)	_	_	-	-	Casing: None		<u> </u>		tun cati		S		AVC Plar				
Han		-all (in	.)	_	_	-	-	Hoist/Hammer: Winch PID Make & Model: Min					Νθ	3924 1181	449)				
æ	swo.	9 C		, €	log		VISL	JAL-MANUAL IDENTIFICATIO			Gra	vel		Sanc		П		ield	Tes	ŧ
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol		(Density	y/consistency, color, GROUP N structure, odor, moisture, opti GEOLOGIC INTERPR	onal descriptions		% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
- 0 -	, ,	V1	0.0		OL/	Black	ORGAN	IIC SILT (OL/OH), trace sand,			-	-	-	1		97				
-		43	3.7	-38.0 1.7	ОН	voc	sample c	nt sample S1 collected for che collected at 0.4 ft (0.6 ppm).	PID = 0.6 mical testing from 0 to 1.7 — — — — — — — —							05			_	
-					OL/ OH	Note		nt sample S2 collected for che	PID = 1.6 mical testing from 1.7 to 3		-		ı	-	5	95				
				-39.8 3.5 -40.0 3.7	OL/	λ∟		collected at 2.8 ft (2.6 ppm). ORGANIC DEPO		/					10	90,	=	-+	_	
				3.7	/OH	Gray wet	ORGANI	C SILT (OL/OH), trace fine sa	nd, trace shells, organic of	dor,										
						\		BOTTOM OF EXPLORA	PID = 2.6	ppm/										
								BOTTOWIOF EXPLORA	110N 3.7 FT											
		W:	ater L	.evel Dat	<u></u> а			Sample ID	Well Diagram				Sum	ımaı	ry					_
ח	ate	Time	Ela	psed	Dept	h (ft) t		O - Open End Rod	Riser Pipe Screen	Overb	our					3.7				
<u> </u>		5	Tim		ottom Casing	Bottom of Hole		T - Thin Wall Tube U - Undisturbed Sample	Filter Sand	Rock			(ft			0.0				
								S - Split Spoon Sample	Cuttings Grout	Samp				1\		LIF		40		
									Concrete Bentonite Seal	Borir						, NE	EM-	. 10		
Field	d Tests	:					S - Slow M - Mediu		city: N - Nonplastic L - Low rength: N - None L - Low							Verv	Hig	h		

H&A-TEST BORING-09 HALLB09-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \(\text{NHALEYALDRICH.COM/SHARE/GFPROJECTS/1/33419/002_REVISED DESIGN/GINT/133419-002-TB CHEM.GPJ

†Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Н	ΆŁΕ	PRIC	Н			Т	EST	BORING REPOR	RT		I	Во	rin	g N	lo.	(CHE	ΞM	-11	
Clie	ject ent ntracto	Мо	ffatt 8	er Infrast & Nichol Iarine Se		•	ovement	s, New London, CT			Sh Sta	eet art	No). 1 M		1 h 20	0, 20			
				Casing	Sam	pler	Barrel	Drilling Equipment	t and Procedures			nish iller			arcr Ava), 20 n	J20		
Тур	е			_	Vibra	core		Rig Make & Model: TG&	B-BH-4 Pneumatic Vibr	acorer	Нδ	&A F					n N	oor	den	ıneı
Insid	de Dia	meter	(in.)	_	3.	o		Bit Type: None Drill Mud: None			l .	eva atun		1			(es 088			
Han	nmer V	Veight	(lb)	_			-	Casing: None Hoist/Hammer: Winch I	N1/A				on		ee l	Plai				
Har		Fall (in	.)	_			-	PID Make & Model: Min							871 <u>152</u>					
€	Blows in.	8 E	<u>e</u>	(±) 1+ 10+ 10+ 10+ 10+ 10+ 10+ 10+ 10+ 10+ 1	Symbol		VISU	JAL-MANUAL IDENTIFICATION	N AND DESCRIPTION		 	avel		Sand F	d			ield g		
Depth (ft)	Sampler E per 6 ii	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Sy		(Density	//consistency, color, GROUP N structure, odor, moisture, opti GEOLOGIC INTERPRI	onal descriptions		% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
- 0 -		V1 148	0.0		OL/ OH	Dark	gray ORO	GANIC SILT (OL/OH), trace fir	ne sand, organic odor, we PID = 3.		-	-	-	-	5	95				Π
-		140	14.7		011			nt sample S1 collected for che collected at 1.8 ft (3.4 ppm).		• •										
-				-28.1 2.8	OL/	Gray	ORGANI	C SILT (OL/OH), trace fine sa	nd, organic odor, wet		<u>-</u> -	<u> </u>		<u> </u>	5	95	\vdash		- +	<u> </u>
					ОН				PID = 0.	7 ppm										ĺ
					OL/	Simil	ar to abov	/e, except trace clay			_	_	_	_	5	95				
- 5 -					ОН				PID = 0.	3 ppm										ĺ
-																				
-				-32.3 7.0				ORGANIC DEPO	SITS- 			<u> </u>		<u> </u>			\vdash \dashv			- -
-					OL/ OH			C SILT (OL/OH), trace fine sa in.) every 8 to 12 in., trace she			-	-	-	-	5	95				
- 10 - -								nt sample S2 collected for che collected at 9 ft (0.3 ppm).	mical testing from 7 to 12	2.7 ft.										
-				-38 0																ĺ
_				-38.0 12.7	OL/ OH	Simil	ar to abov	/e	PID = 0.	- — — — 0 ppm	-				5	95				
-						1		nt sample S3 collected for che												
				-40.0 14.7		π. να	OC sampl	le collected at 13 ft (0.0 ppm). BOTTOM OF EXPLORAT	TION 14.7 FT								\vdash	\dashv		
	·	W	ater L	evel Dat		1		Sample ID	Well Diagram		_		Sum	ma	ry			=		=
D	ate	Time		psed e (hr.) Bo		h (ft) t Bottom		O - Open End Rod	Riser Pipe Screen	Over			•	•		14.7				
_			1 11116			of Hole		T - Thin Wall Tube U - Undisturbed Sample	Filter Sand	Rock Samp			(ft	:) 1'		0.0				
								S - Split Spoon Sample	Grout -	Bori			`	- 1		HE	EM-	<u></u>		
Field	d Tests	<u>.</u>		Dilatan	cv: R-	Rapid	S - Slow	N - None Plastic	Bentonite Seal					Hiah						
		ximum		Toughn le size (m	iess: L ps) is d	- Low etermin	M - Mediu ned by dir	m H - High Dry Str ect observation within the lim	rength: N - None L - Low nitations of sampler size.	M - Me	diun	n H	- Hi	igh	V - Y	Very	<u>/ Hig</u>	<u>h</u>		
		No	ote:	Soil iden	<u>tificati</u>	on bas	sed on vi	sual-manual methods of th	ne USCS as practiced b	y Hale	<u>y &</u>	Ald	ricl	h, Ir	ıc.					

H&A-TEST BORING-09 HAL1809-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \https://doi.org/10.00M/SHARE\CFIPROJECTS/133419\0002_REVISED DESIGN\GINT\133419-002-TB CHEM.GPJ Apr.17, 20

HALE	RIC	Н			TES	T BORING REPORT Boring No.	CHEM-12
Project Client Contracto	Mot	ffatt &	r Infrast Nichol arine Se		•		2 20, 2020
			Casing	Samp		Dailling Facilities at Dance down	20, 2020
Туре				Vibrac		5 T. Shiller W. Avar	uan van Noordenn
Inside Dia	meter (in.)		3.0		Bit Type: None Elevation -31	.3 (est.)
Hammer \		`	_		_	Casing: None Location See F	VD88 Ilan
Hammer I	all (in.)	_		-	Hoist/Hammer: Winch N/A N 692543 PID Make & Model: MiniRAE 3000 11.8 eV E 1181009	
Blows in.	<u>ه</u> ک		£	<u></u>	v	Gravel Sand	Field Test
Depth (ft) Sampler Blov per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol		sity/consistency, color, GROUP NAME, max. particle size [†] , structure, odor, moisture, optional descriptions	% Fines Dilatancy Toughness Plasticity
0	V1	0.0		OL/	Black ORG	NIC SILT (OL/OH), trace fine sand, organic odor, wet	
	296	24.7		ОН		PID = 3.6 ppm ent sample S1 collected for chemical testing from 0 to 9 ft. ecollected at 4.6 ft (99.7 ppm).	
			-33.6 2.3	OL/		RGANIC SILT (OL/OH), trace fine sand, trace shells, organic 5 20	75 + + + +
				ОН	odor, wet	PID = 5.2 ppm	
						-ORGANIC DEPOSITS-	
5 -				OL/	Similar to al		
				OH OL/	Similar to al	PID = 99.7 ppm - - 5 20 20 20 20 20 20 20	^{'5}
				OH		PID = 96.7 ppm	
				OL/ OH	Similar to a	PID = 9.6 ppm - - 5 20	5
				OL/ OH	Similar to al	piove PID = 4.1 ppm - - 5 20	75
			-40.3				
			-40.3 9.0	SM	Dark gray-b trace gravel	rown silty SAND (SM), slight organic / petroleum-like odor, wet, 5 - 5 75	15
10 -					Note: Sedin	PID = 2.6 ppm lent sample S2 collected for chemical testing from 9 to 22.7 ft. e collected at 9.3 ft (2.6 ppm).	
15 -			-46.3 15.0	SM	Similar to al	Dove PID = 1.8 ppm 5 5 75	ī5 — — —
20 Date	Wa Time	ter Le Elap Time	(hr \ Bo	Depth ottom	n (ft) to: Bottom of Hole Wat	T - Thin Wall Tube U - Undisturbed Sample S - Split Spoon Sample S - Split Spoon Sample S - Split Spoon Sample	4.7 0.0 HEM-12

H&A-TEST BORING-09 HAL1809-BOS-HAR.GLB HA-TB+CORE+WELL-07-1.GDT \https://doi.org/10.00M/SHARE\CFIPROJECTS/133419\0002_REVISED DESIGN\GINT\133419-002-TB CHEM.GPJ Apr.17, 20

ım particle size (mps) is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H	∆l-E	PRIC	L			TEST BORING REPORT			ing No.). 1334		OHE 202	IVI=	12
			П				S	She	et N	lo.	2	of	2		
æ	SMO	9 -	o ((#)	loqu	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION		ave	_	San	_		F	ield ဖ	Tes
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	(Density/consistency, color, GROUP NAME, max. particle size [†] , structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity
- 20 -						-GLACIOFLUVIAL DEPOSITS-									
				-54.0 22.7	- _{ML} -	Dark gray-brown sandy SILT (ML), slight organic / petroleum-like odor, wet	<u> </u>	<u>_</u> .	2	5	40	53		_	
-						PID = 0.2 ppm Note: Sediment sample S3 collected for chemical testing from 22.7 to 24.7 ft. VOC sample collected at 23.7 ft (0.2 ppm).			_						
-				-56.0 24.7		BOTTOM OF EXPLORATION 24.7 FT									

APPENDIX B

Photo Logs

Date Photograph Taken: 19 March 2020



Photo 1: View of Chem-1. Top run from left to right from 0 to 8 ft, bottom run from left to right 8 ft to 16.7 ft.

Date Photograph Taken: 19 March 2020



Photo 1: View of Chem-2. Top run from left to right from 0 to 7.2 ft, middle run from left to right 7.2 to 14.8 ft, bottom run from left to right 14.8 to 18.6 ft.

Date Photograph Taken: 18 March 2020



Photo 1: View of Chem-3. Run from left to right, 0 to 3.5 ft.

Date Photograph Taken: 20 March 2020



Photo 1: View of Chem-4. Run from left to right, 0 to 4.5 ft.

Date Photograph Taken: 19 March 2020



Photo 1: View of Chem-5. Run from left to right, 0 to 3.8 ft.

Date Photograph Taken: 19 March 2020



Photo 1: View of Chem-6. Top run from left to right from 0 to 10.2 ft, bottom run from left to right 10.2 ft to 21 ft.

Date Photographs Taken: 20 and 24 March 2020



Photo 1: View of Chem-7 from 0 to 2 ft.

Date Photographs Taken: 20 and 24 March 2020



Photo 2: View of Chem-7 from 2 to 4 ft.



Photo 3: View of Chem-7 from 4 to 6 ft.



Photo 4: View of Chem-7 from 6 to 8 ft.



Photo 5: View of Chem-7 from 8 to 10 ft.



Photo 6: View of Chem-7 from 10 to 12 ft.



Photo 7: View of Chem-7 from 12 to 14 ft.



Photo 8: View of Chem-7 from 14 to 16 ft.



Photo 9: View of Chem-7 from 16 to 18 ft.



Photo 10: View of Chem-7 from 18 to 20 ft.



Photo 11: View of Chem-7 from 20 to 22 ft.



Photo 12: View of Chem-7 from 22 to 24 ft.



Photo 13: View of Chem-7 from 24 to 26 ft.

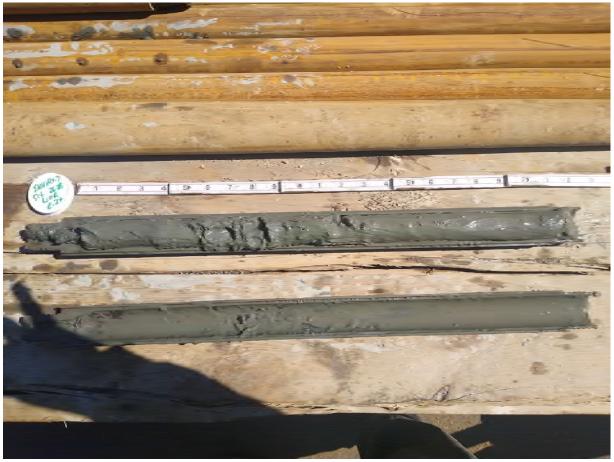


Photo 14: View of Chem-7 from 26 to 28 ft.



Photo 15: View of Chem-7 from 28 to 30 ft.



Photo 16: View of Chem-7 from 30 to 32 ft.



Photo 17: View of Chem-7 from 32 to 35 ft.



Photo 18: View of Chem-7 from 35 to 37 ft.

Date Photograph Taken: 18 March 2020



Photo 1: View of Chem-8. Run from left to right, 0 to 5.6 ft.

Date Photograph Taken: 19 March 2020



Photo 1: View of Chem-9. Top run from left to right from 0 to 12.6 ft, bottom run from left to right 12.6 ft to 21.8 ft.

Date Photograph Taken: 18 March 2020



Photo 1: View of Chem-10. From left to right, 0 to 3.7 ft.



Photo 1: View of Chem-11. Top run from left to right, 0 ft to 7.0 ft.



Photo 2: View of Chem-11. Bottom run from left to right, 7.0 to 14.7 ft.

Date Photograph Taken: 20 March 2020



Photo 1: View of Chem-12. Run from left to right, 0 ft to 24.7 ft.

APPENDIX C

Geotechnical Laboratory Test Results



Client: Haley & Aldrich, Inc. Project: New London State Pier

Location:New London, CTProject No:GTX-311544Boring ID:---Sample Type: ---Tested By:ckg

Boring ID: --- Sample Type: --- Tested By: ckg
Sample ID: --- Test Date: 04/10/20 Checked By: bfs

Depth: --- Test Id: 552998

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
CHEM-1	CHEM- 1 S1 (0-8)	0-8 ft	Moist, dark olive brown silt	87.9
CHEM-1	CHEM- 1 S2 (8-14.7)	8-14.7 ft	Moist, dark gray silt with sand	79.0
CHEM-1	CHEM- 1 S3 (14.7-16.7)	14.7-16.7 ft	Moist, very dark gray silty sand	33.4
CHEM-2	CHEM- 2 S1 (0-8.6)	0-8.6 ft	Moist, dark gray silt	91.2
CHEM-2	CHEM- 2 S2 (8.6-16.6)	8.6-16.6 ft	Moist, very dark gray silt	84.0
CHEM-2	CHEM- 2 S3 (16.6-18.6)	16.6-18.6 ft	Moist, dark gray silt	80.8
CHEM-3	CHEM- 3 S1 (0-1.5)	0-1.5 ft	Moist, very dark gray silt	138.8
CHEM-3	CHEM- 3 S2 (1.5-3.5)	1.5-3.5 ft	Moist, dark grayish brown silt	114.5
CHEM-4	CHEM- 4 S1 (0-2.5)	0-2.5 ft	Moist, dark grayish brown silt	155.7
CHEM-4	CHEM- 4 S2 (2.5-4.5)	2.5-4.5 ft	Moist, very dark gray silt	101.7



Client: Haley & Aldrich, Inc.
Project: New London State Pier
Location: New London, CT

Location: New London, CT Project No: C
Boring ID: --- Sample Type: --- Tested By: ckg
Sample ID: --- Test Date: 04/10/20 Checked By: bfs

GTX-311544

Depth: --- Test Id: 553008

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
CHEM-5	CHEM- 5 S1 (0-1.8)	0-1.8 ft	Moist, dark gray silt	116.3
CHEM-5	CHEM- 5 S2 (1.8-3.8)	1.8-3.8 ft	Moist, dark grayish brown silt	129.5
CHEM-6	CHEM- 6 S1 (0-9)	0-9 ft	Moist grayish brown silt with sand	120.0
CHEM-6	CHEM- 6 S2 (9-19)	9-19 ft	Moist, very dark grayish brown silt	116.2
CHEM-6	CHEM- 6 S3 (19-21)	19-21 ft	Moist, dark gray sandy silt	44.0
CHEM-7	CHEM- 7 S1 (0-16)	0-16 ft	Moist, dark gray silt	93.2
CHEM-7	CHEM- 7 S2 (16-35)	16-35 ft	Moist, dark olive gray silt with sand	107.2
CHEM-7	CHEM- 7 S3 (35-37)	35-37 ft	Moist, very dark gray silt	88.0
CHEM-8	CHEM- 8 S1 (0-3.6)	0-3.6 ft	Moist, very dark gray silt	103.2
CHEM-8	CHEM- 8 S2 (3.6-5.6)	3.6-5.6 ft	Moist, olive brown silt	105.0



Client: Haley & Aldrich, Inc. Project: New London State Pier

Location:New London, CTProject No:GTX-311544Boring ID:---Sample Type: ---Tested By:ckg

Boring ID: --- Sample Type: --- Tested By: ckg
Sample ID: --- Test Date: 04/10/20 Checked By: bfs

Depth: --- Test Id: 553016

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
CHEM-9	CHEM- 9 S1 (0-9)	0-9 ft	Moist, dark olive gray silt	124.1
CHEM-9	CHEM- 9 S2 (9-19.8)			92.6
CHEM-9	CHEM- 9 S3 (19.8-21.8)	19.8-21.8 ft	Moist, dark gray silt	87.0
CHEM-10	CHEM- 10 S1 (0-1.7)	0-1.7 ft	Moist, olive brown silt	101.5
CHEM-10	CHEM- 10 S2 (1.7-3.7)	1.7-3.7 ft	Moist, dark grayish brown silt	122.1
CHEM-11	CHEM- 11 S1 (0-7)	0-7 ft	Moist, very dark gray silt	99.7
CHEM-11	CHEM- 11 S2 (7-12.7)	7-12.7 ft	Moist, very dark gray silt	97.6
CHEM-11	CHEM- 11 S3 (12.7-14.7)	12.7-14.7 ft	Moist, dark gray silt	91.2



Client: Haley & Aldrich, Inc. Project: New London State Pier

Location:New London, CTProject No:GTX-311544Boring ID:---Sample Type: ---Tested By:ckg

Boring ID: --- Sample Type: --- Tested By: ckg
Sample ID: --- Test Date: 04/10/20 Checked By: bfs

Depth: --- Test Id: 553019

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
CHEM-12	CHEM- 12 S1 (0-9)	0-9 ft	Moist, very dark grayish brown silt with sand	107.8
CHEM-12	CHEM- 12 S2 (9-22.7)	9-22.7 ft	Moist, grayish brown silty sand	31.7
CHEM-12	CHEM- 12 S3 (22.7-24.7)	22.7-24.7 ft	Moist, very dark gray sandy silt	58.1



Client: Haley & Aldrich, Inc. Project: New London State Pier Location: New London, CT

Project No: Boring ID: CHEM-1 Sample Type: bag Tested By: ckg Sample ID: CHEM-1 S1 (0-8) Test Date: 04/10/20 Checked By: bfs

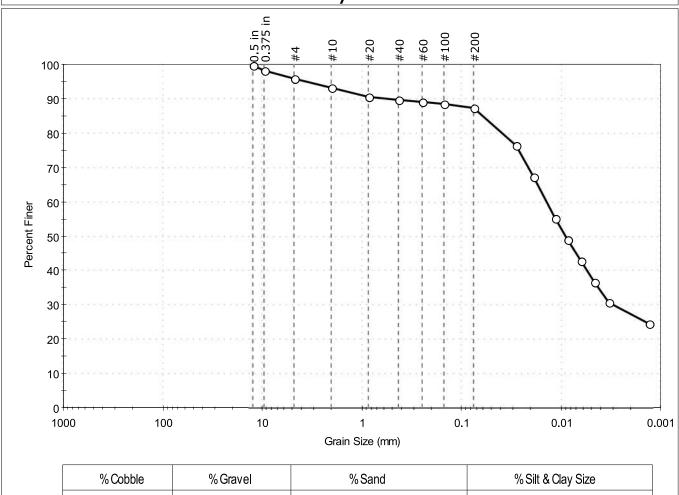
Depth: Test Id: 552960 0-8 ft

Test Comment:

Visual Description: Moist, dark olive brown silt

Sample Comment:

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size	
_	4.0	8.6	87.4	

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	98		
#4	4.75	96		
#10	2.00	93		
#20	0.85	91		
#40	0.42	90		
#60	0.25	89		
#100	0.15	89		
#200	0.075	87		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0286	76		
	0.0187	67		
	0.0114	55		
	0.0085	49		
	0.0063	43		
	0.0046	37		
	0.0033	31		
	0.0013	24		

<u>Coeffic</u>	<u>cients</u>
D ₈₅ =0.0606 mm	$D_{30} = 0.0030 \text{ mm}$
D ₆₀ = 0.0139 mm	$D_{15} = N/A$
D ₅₀ = 0.0089 mm	$D_{10} = N/A$
C _u =N/A	$C_c = N/A$

GTX-311544

Classification <u>ASTM</u> N/A AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ANGULAR

Sand/Gravel Hardness: HARD

Dispersion Device : Apparatus A - Mech Mixer



Client: Haley & Aldrich, Inc. Project: New London State Pier

Location: New London, CT Project No: Boring ID: CHEM-1 Sample Type: bag Tested By:

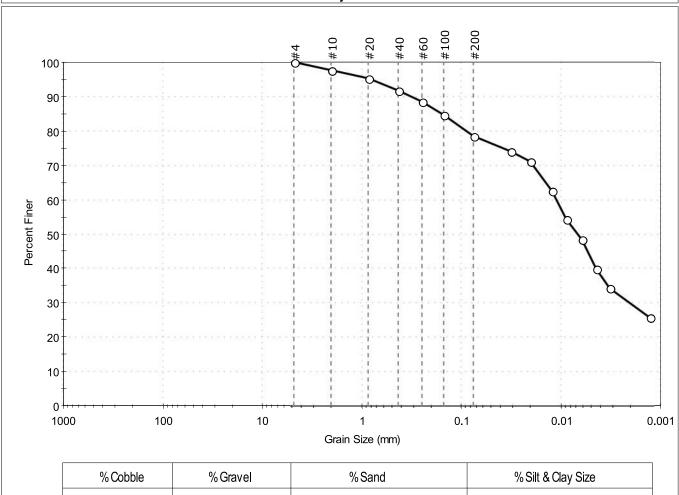
Sample ID: CHEM-1 S2 (8-14.7) Test Date: 04/10/20 Checked By: bfs Depth: 8-14.7 ft Test Id: 552961

Test Comment:

Visual Description: Moist, dark gray silt with sand

Sample Comment:

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
-	0.0	21.5	78.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	98		
#20	0.85	95		
#40	0.42	92		
#60	0.25	88		
#100	0.15	85		
#200	0.075	78		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0317	74		
	0.0201	71		
	0.0121	63		
	0.0087	54		
	0.0062	48		
	0.0044	40		
	0.0032	34		
	0.0013	26		

<u>Coef</u>	<u>ficients</u>
D ₈₅ = 0.1564 mm	$D_{30} = 0.0020 \text{ mm}$
D ₆₀ = 0.0109 mm	$D_{15} = N/A$
D ₅₀ = 0.0068 mm	$D_{10} = N/A$
$C_u = N/A$	$C_c = N/A$

GTX-311544

ckg

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Client: Haley & Aldrich, Inc. Project: New London State Pier Location: New London, CT

GTX-311544 Project No: Boring ID: CHEM-1 Sample Type: bag Tested By: ckg Sample ID: CHEM-1 S3 (14.7-16.7) Test Date: 04/10/20 Checked By: bfs

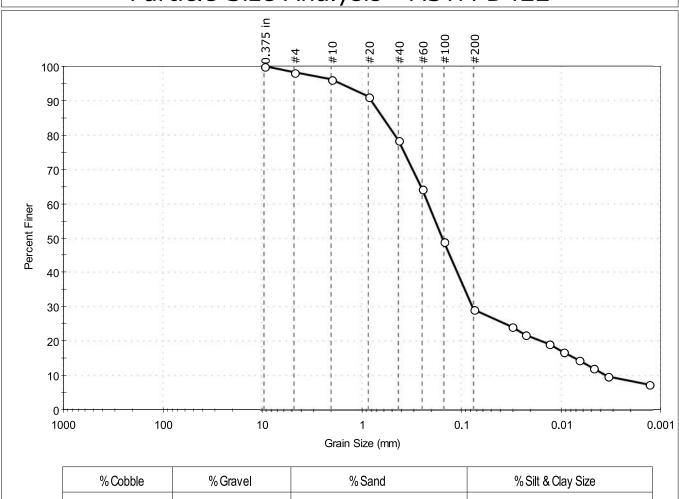
14.7-16.7 ft Test Id: 552962 Depth:

Test Comment:

Visual Description: Moist, very dark gray silty sand

Sample Comment:

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
	1.6	69.2	29.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	98		
#10	2.00	96		
#20	0.85	91		
#40	0.42	79		
#60	0.25	64		
#100	0.15	49		
#200	0.075	29		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0314	24		
	0.0226	22		
	0.0131	19		
	0.0094	17		
	0.0066	14		
	0.0047	12		
	0.0034	10		
	0.0013	7		

<u>Coefficients</u>		
D ₈₅ =0.6044 mm	$D_{30} = 0.0772 \text{ mm}$	
D ₆₀ = 0.2164 mm	D ₁₅ =0.0071 mm	
D ₅₀ = 0.1557 mm	$D_{10} = 0.0035 \text{ mm}$	
Cu =61.829	$C_c = 7.869$	

Classification N/A <u>ASTM</u>

AASHTO Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period: 1 minute Est. Specific Gravity: 2.65

Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc. Project: New London State Pier Location:

New London, CT Project No: Boring ID: CHEM-2 Sample Type: bag Tested By: Sample ID: CHEM-2 S1 (0-8.6) Test Date: 04/10/20 Checked By: bfs

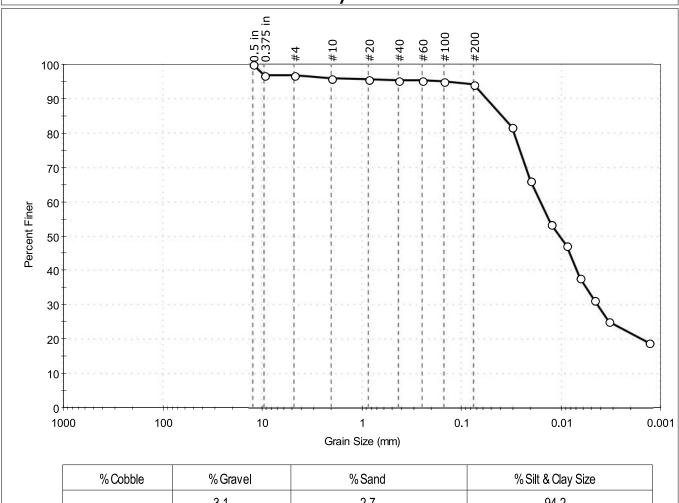
0-8.6 ft Test Id: Depth: 552963

Test Comment:

Visual Description: Moist, dark gray silt

Sample Comment:

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
_	3.1	2.7	94.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	97		
#4	4.75	97		
#10	2.00	96		
#20	0.85	96		
#40	0.42	95		
#60	0.25	95		
#100	0.15	95		
#200	0.075	94		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0311	82		
	0.0200	66		
	0.0125	53		
	0.0087	47		
	0.0064	38		
	0.0046	31		
	0.0033	25		
	0.0013	19		

<u>Coefficients</u>					
D ₈₅ = 0.0394 mm	$D_{30} = 0.0042 \text{ mm}$				
D ₆₀ = 0.0160 mm	$D_{15} = N/A$				
D ₅₀ = 0.0103 mm	$D_{10} = N/A$				
C _u =N/A	$C_C = N/A$				

GTX-311544

ckg

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Client: Haley & Aldrich, Inc. Project: New London State Pier Location: New London, CT

Project No: Boring ID: CHEM-2 Sample Type: bag Tested By: ckg Sample ID: CHEM-2 S2 (8.6-16.6) Test Date: 04/10/20 Checked By: bfs

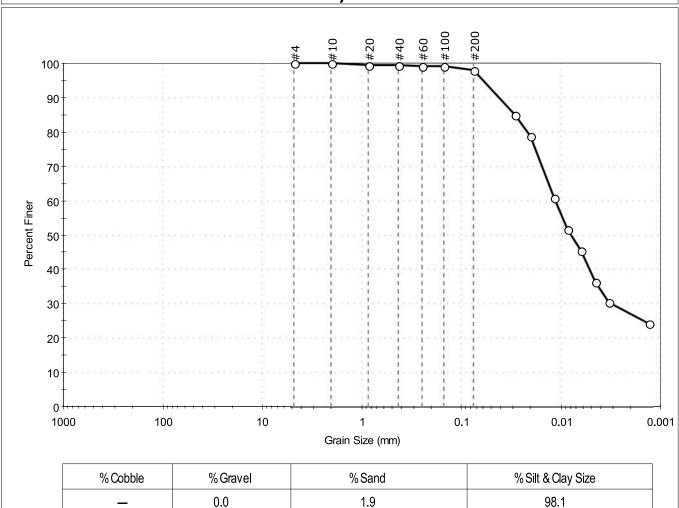
8.6-16.6 ft Test Id: 552964 Depth:

Test Comment:

Visual Description: Moist, very dark gray silt

Sample Comment:

Particle Size Analysis - ASTM D422



Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	99		
#100	0.15	99		
#200	0.075	98		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0286	85		
	0.0202	79		
	0.0118	61		
	0.0086	52		
	0.0062	45		
	0.0045	36		
	0.0033	30		
	0.0013	24		

<u>Coefficients</u>				
D ₈₅ =0.0288 mm	$D_{30} = 0.0031 \text{ mm}$			
D ₆₀ = 0.0115 mm	$D_{15} = N/A$			
D ₅₀ = 0.0079 mm	$D_{10} = N/A$			
C _u =N/A	$C_c = N/A$			

GTX-311544

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Client: Haley & Aldrich, Inc. Project: New London State Pier Location: New London, CT

Project No: Boring ID: CHEM-2 Sample Type: bag Tested By: ckg Sample ID: CHEM-2 S3 (16.6-18.6) Test Date: 04/10/20 Checked By: bfs

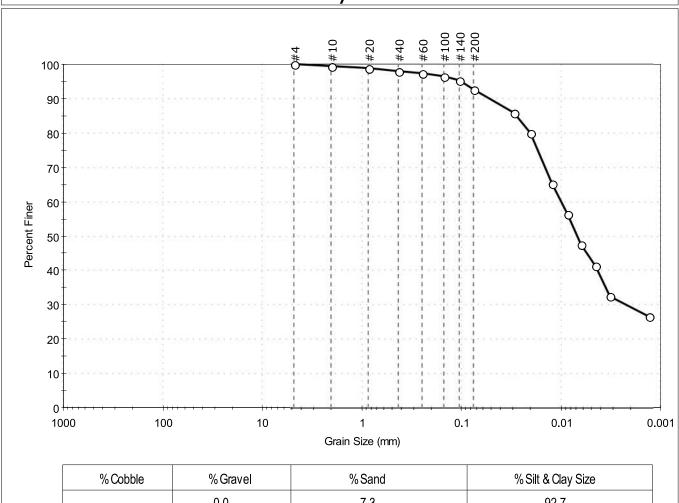
16.6-18.6 ft Test Id: 552965 Depth:

Test Comment:

Visual Description: Moist, dark gray silt

Sample Comment:

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
_	0.0	7.3	92.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	98		
#60	0.25	97		
#100	0.15	97		
#140	0.11	95		
#200	0.075	93		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0295	86		
	0.0202	80		
	0.0121	65		
	0.0086	56		
	0.0063	47		
	0.0045	41		
	0.0032	33		
	0.0013	27		

<u>Coefficients</u>		
	D ₈₅ =0.0280 mm	$D_{30} = 0.0022 \text{ mm}$
	D ₆₀ = 0.0100 mm	$D_{15} = N/A$
	D ₅₀ = 0.0069 mm	$D_{10} = N/A$
	C _u =N/A	$C_c = N/A$

GTX-311544

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period: 1 minute Est. Specific Gravity: 2.65

Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc. Project: New London State Pier Location:

New London, CT Project No: Boring ID: CHEM-3 Sample Type: bag Tested By: ckg Sample ID: CHEM-3 S1 (0-1.5) Test Date: 04/10/20 Checked By: bfs

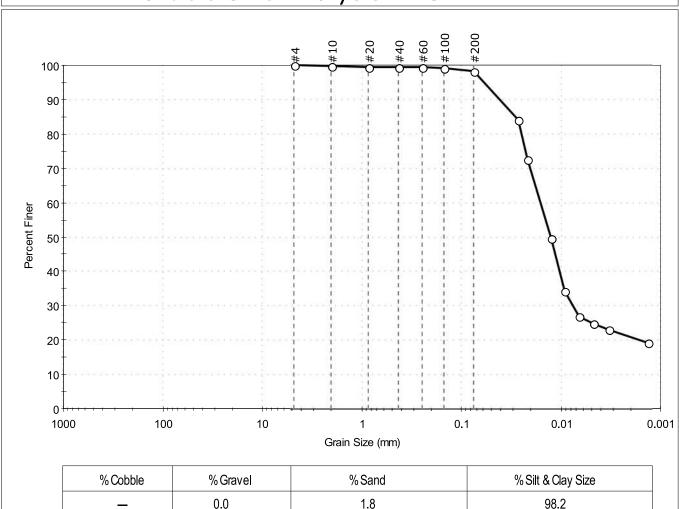
0-1.5 ft Test Id: 552958 Depth:

Test Comment:

Visual Description: Moist, very dark gray silt

Sample Comment:

Particle Size Analysis - ASTM D422



Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	99		
#100	0.15	99		
#200	0.075	98		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0272	84		
	0.0215	73		
	0.0127	50		
	0.0092	34		
	0.0066	27		
	0.0047	25		
	0.0033	23		
	0.0013	19		

<u>Coefficients</u>				
D ₈₅ = 0.0293 mm	$D_{30} = 0.0076 \text{ mm}$			
D ₆₀ = 0.0161 mm	$D_{15} = N/A$			
D ₅₀ = 0.0128 mm	$D_{10} = N/A$			
$C_u = N/A$	$C_c = N/A$			

GTX-311544

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Client: Haley & Aldrich, Inc. Project: New London State Pier Location: New London, CT

Project No: Boring ID: CHEM-3 Sample Type: bag Tested By: ckg Sample ID: CHEM-3 S2 (1.5-3.5) Test Date: 04/10/20 Checked By: bfs

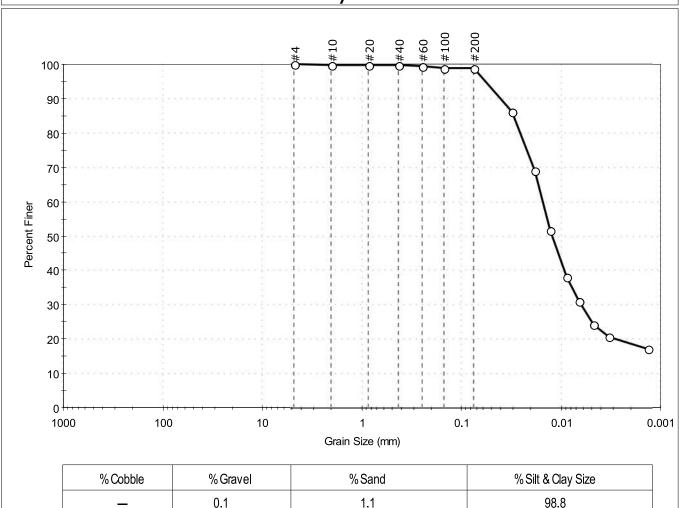
1.5-3.5 ft Test Id: 552959 Depth:

Test Comment:

Visual Description: Moist, dark grayish brown silt

Sample Comment:

Particle Size Analysis - ASTM D422



Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	99		
#200	0.075	99		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0308	86		
	0.0183	69		
	0.0127	52		
	0.0088	38		
	0.0065	31		
	0.0047	24		
	0.0033	21		
	0.0013	17		

<u>Coefficients</u>			
D ₈₅ = 0.0298 mm	$D_{30} = 0.0062 \text{ mm}$		
D ₆₀ = 0.0152 mm	$D_{15} = N/A$		
D ₅₀ = 0.0122 mm	$D_{10} = N/A$		
$C_u = N/A$	$C_c = N/A$		

GTX-311544

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Client: Haley & Aldrich, Inc. Project: New London State Pier Location: New London, CT

Project No: Boring ID: CHEM-4 Sample Type: bag Tested By: ckg Sample ID: CHEM-4 S1 (0-2.5) Test Date: 04/10/20 Checked By: bfs

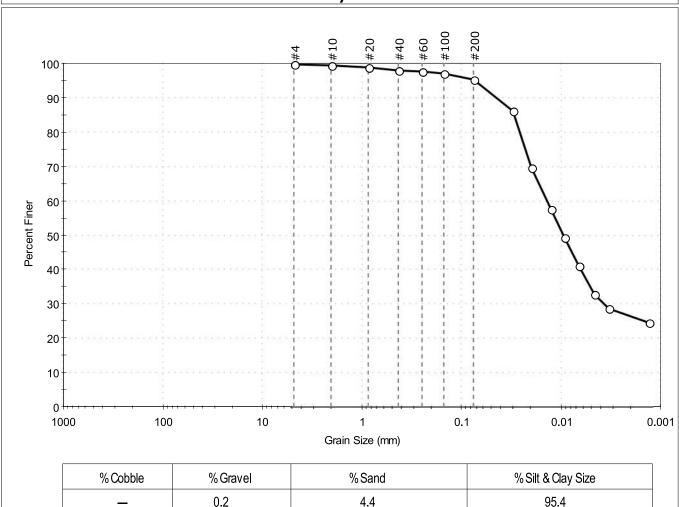
0-2.5 ft Test Id: Depth: 552966

Test Comment:

Visual Description: Moist, dark grayish brown silt

Sample Comment:

Particle Size Analysis - ASTM D422



Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	98		
#60	0.25	98		
#100	0.15	97		
#200	0.075	95		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0305	86		
	0.0197	70		
	0.0126	57		
	0.0091	49		
	0.0065	41		
	0.0046	33		
	0.0033	29		
	0.0013	25		

<u>Coefficients</u>			
D ₈₅ = 0.0296 mm	$D_{30} = 0.0037 \text{ mm}$		
D ₆₀ = 0.0138 mm	$D_{15} = N/A$		
D ₅₀ = 0.0094 mm	$D_{10} = N/A$		
$C_u = N/A$	$C_C = N/A$		

GTX-311544

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Project No: GTX-311544 Boring ID: CHEM-4 Sample Type: bag Tested By: ckg Sample ID: CHEM-4 S2 (2.5-4.5) Test Date: 04/10/20 Checked By:

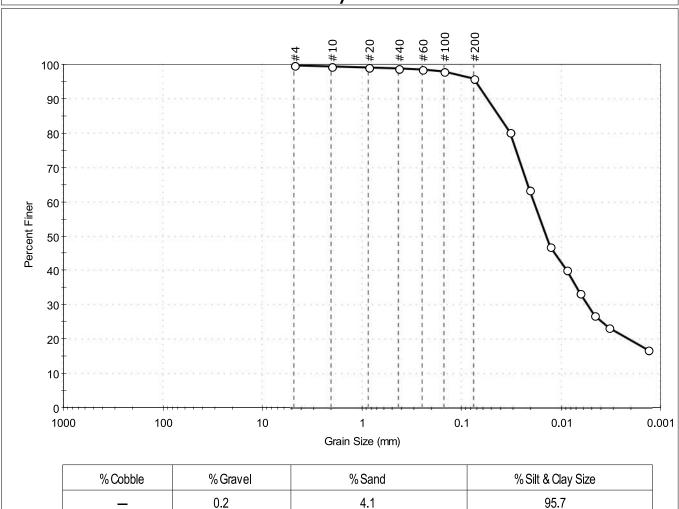
Test Id: Depth: 2.5-4.5 ft 552967

Test Comment:

Visual Description: Moist, very dark gray silt

Sample Comment:

Particle Size Analysis - ASTM D422



Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	99		
#60	0.25	99		
#100	0.15	98		
#200	0.075	96		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0324	80		
	0.0206	63		
	0.0127	47		
	0.0087	40		
	0.0065	33		
	0.0046	27		
	0.0033	23		
	0.0013	17		

	<u>Coefficients</u>			
D ₈₅ = 0.0420 mm		$D_{30} = 0.0054 \text{ mm}$		
	D ₆₀ = 0.0186 mm	$D_{15} = N/A$		
	D ₅₀ = 0.0140 mm	$D_{10} = N/A$		
	C _u =N/A	$C_{c} = N/A$		

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Client: Haley & Aldrich, Inc. Project: New London State Pier

Location: New London, CT Project No: Boring ID: CHEM-5 Sample Type: bag Tested By: ckg 04/10/20 Checked By: bfs

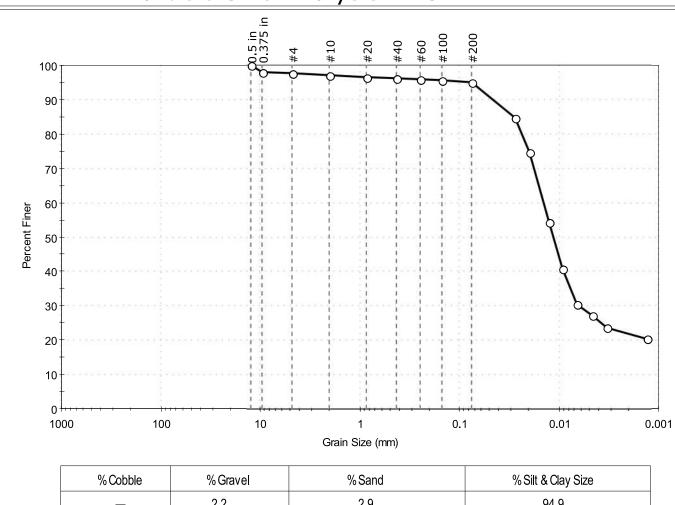
Sample ID: CHEM-5 S1 (0-1.8) Test Date: Test Id: Depth: 552968 0-1.8 ft

Test Comment:

Visual Description: Moist, dark gray silt

Sample Comment:

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
_	2.2	2.9	94.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	98		
#4	4.75	98		
#10	2.00	97		
#20	0.85	96		
#40	0.42	96		
#60	0.25	96		
#100	0.15	96		
#200	0.075	95		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0278	85		
	0.0199	74		
	0.0127	54		
	0.0091	41		
	0.0065	30		
	0.0047	27		
	0.0033	24		
	0.0013	20		

<u>Coefficients</u>				
D ₈₅ = 0.0287 mm	$D_{30} = 0.0062 \text{ mm}$			
D ₆₀ = 0.0144 mm	$D_{15} = N/A$			
D ₅₀ = 0.0114 mm	$D_{10} = N/A$			
C _u =N/A	C _c =N/A			

GTX-311544

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Project No: Boring ID: CHEM-5 Sample Type: bag Tested By: ckg Sample ID: CHEM-5 S2 (1.8-3.8) Test Date: 04/10/20 Checked By: bfs

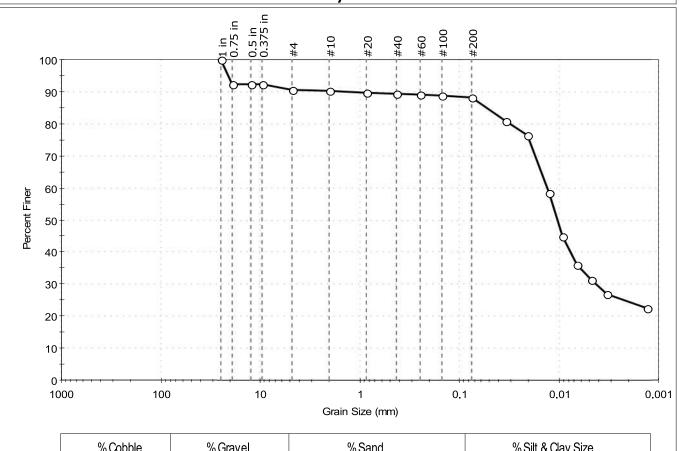
1.8-3.8 ft Test Id: 552969 Depth:

Test Comment:

Moist, dark grayish brown silt Visual Description:

Sample Comment:

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
_	9.4	2.4	88.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	92		
0.5 in	12.50	92		
0.375 in	9.50	92		
#4	4.75	91		
#10	2.00	90		
#20	0.85	90		
#40	0.42	89		
#60	0.25	89		
#100	0.15	89		
#200	0.075	88		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0339	81		
	0.0208	76		
	0.0126	58		
	0.0092	45		
	0.0066	36		
	0.0047	31		
	0.0033	27		
	0.0013	22		

	<u>Coefficients</u>			
D ₈₅ = 0.0532 mm		$D_{30} = 0.0042 \text{ mm}$		
	D ₆₀ = 0.0132 mm	$D_{15} = N/A$		
	$D_{50} = 0.0104 \text{ mm}$	$D_{10} = N/A$		
	$C_u = N/A$	$C_c = N/A$		

GTX-311544

Classification <u>ASTM</u> N/A

AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ANGULAR

Sand/Gravel Hardness: HARD

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period: 1 minute Est. Specific Gravity: 2.65

Separation of Sample: #200 Sieve



Project No: Boring ID: CHEM-6 Sample Type: bag Tested By: ckg Sample ID: CHEM-6 S1 (0-9) Test Date: 04/10/20 Checked By: bfs

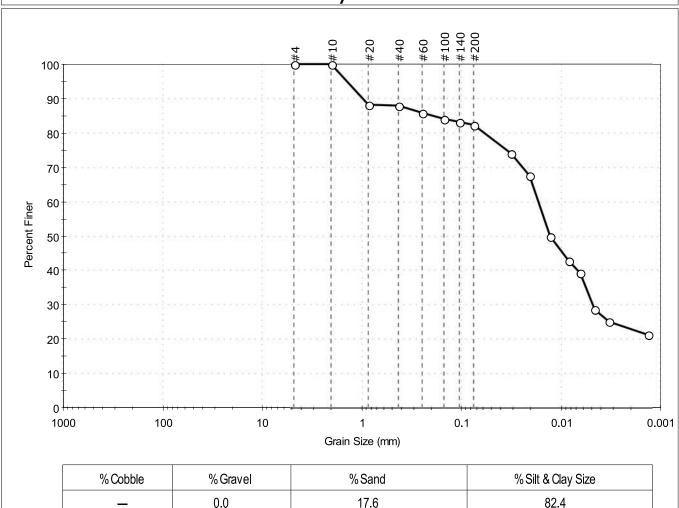
Test Id: Depth: 552970 0-9 ft

Test Comment:

Visual Description: Moist grayish brown silt with sand

Sample Comment:

Particle Size Analysis - ASTM D422



ies

<u>Coefficients</u>				
D ₈₅ = 0.1909 mm	$D_{30} = 0.0048 \text{ mm}$			
D ₆₀ = 0.0167 mm	$D_{15} = N/A$			
D ₅₀ = 0.0128 mm	$D_{10} = N/A$			
C _u =N/A	$C_C = N/A$			

GTX-311544

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period: 1 minute Est. Specific Gravity: 2.65

Separation of Sample: #200 Sieve

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Project No: Boring ID: CHEM-6 Sample Type: bag Tested By: ckg Sample ID: CHEM-6 S2 (9-19) Test Date: 04/10/20 Checked By: bfs

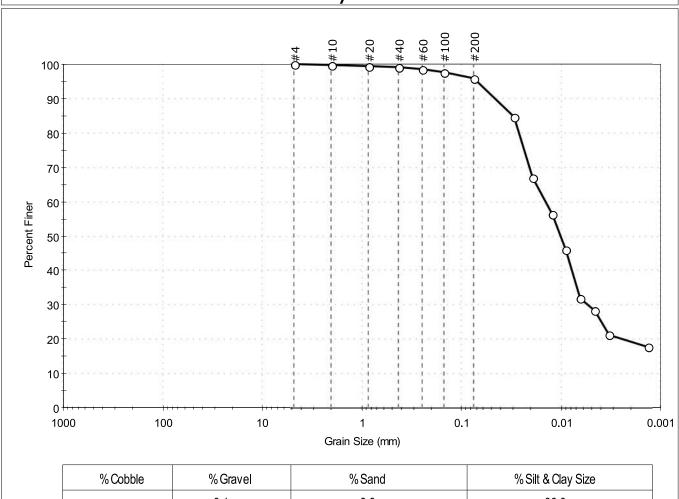
Depth: 9-19 ft Test Id: 552971

Test Comment:

Visual Description: Moist, very dark grayish brown silt

Sample Comment:

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
_	0.1	3.9	96.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	98		
#200	0.075	96		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0297	85		
	0.0191	67		
	0.0123	56		
	0.0090	46		
	0.0065	32		
	0.0046	28		
	0.0033	21		
	0.0013	18		

	<u>Coefficients</u>			
D ₈₅ = 0.0304 mm		$D_{30} = 0.0055 \text{ mm}$		
	D ₆₀ = 0.0142 mm	$D_{15} = N/A$		
	D ₅₀ = 0.0102 mm	$D_{10} = N/A$		
	$C_u = N/A$	$C_c = N/A$		

GTX-311544

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Project No: Boring ID: CHEM-6 Sample Type: bag Tested By: ckg Sample ID: CHEM-6 S3 (19-21) Test Date: 04/10/20 Checked By: bfs

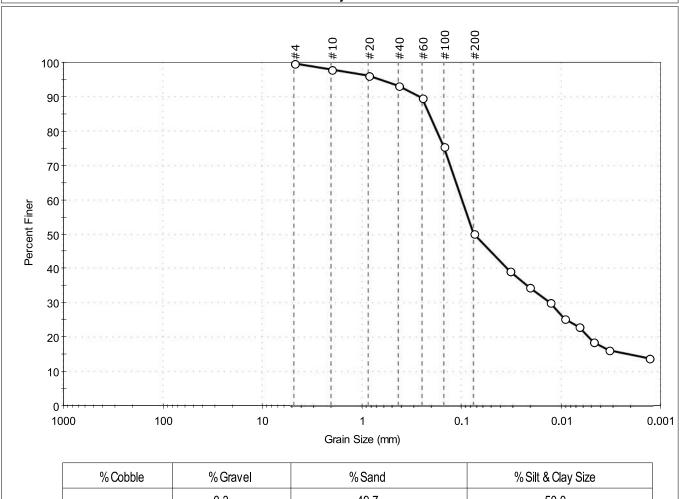
Depth: 19-21 ft Test Id: 552972

Test Comment:

Visual Description: Moist, dark gray sandy silt

Sample Comment:

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
_	0.3	49.7	50.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	98		
#20	0.85	96		
#40	0.42	93		
#60	0.25	90		
#100	0.15	76		
#200	0.075	50		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0326	39		
	0.0207	35		
	0.0128	30		
	0.0091	25		
	0.0065	23		
	0.0047	18		
	0.0033	16		
	0.0013	14		

	<u>Coefficients</u>				
D ₈₅ = 0.2107 mm		$D_{30} = 0.0128 \text{ mm}$			
	D ₆₀ = 0.0983 mm	$D_{15} = 0.0021 \text{ mm}$			
	D ₅₀ = 0.0747 mm	$D_{10} = N/A$			
	$C_{u} = N/A$	$C_c = N/A$			

GTX-311544

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Client: Haley & Aldrich, Inc. Project: New London State Pier

Location: New London, CT Project No: Boring ID: CHEM-7 Sample Type: bag Tested By:

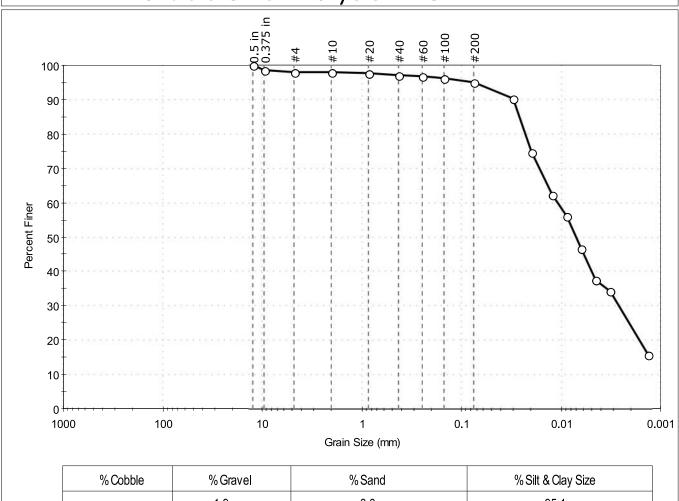
Sample ID: CHEM-7 S1 (0-16) Test Date: 04/10/20 Checked By: bfs Test Id: Depth: 0-16 ft 552973

Test Comment:

Visual Description: Moist, dark gray silt

Sample Comment:

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
-	1.9	3.0	95.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	98		
#4	4.75	98		
#10	2.00	98		
#20	0.85	98		
#40	0.42	97		
#60	0.25	97		
#100	0.15	96		
#200	0.075	95		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0301	90		
	0.0198	75		
	0.0121	62		
	0.0087	56		
	0.0063	47		
	0.0045	37		
	0.0032	34		
	0.0013	16		

<u>Coefficients</u>		
D ₈₅ =0.0261 mm	$D_{30} = 0.0026 \text{ mm}$	
D ₆₀ = 0.0107 mm	$D_{15} = N/A$	
D ₅₀ = 0.0071 mm	$D_{10} = N/A$	
Cu =N/A	$C_c = N/A$	

GTX-311544

ckg

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Location: New London, CT Project No: C
Boring ID: CHEM-7 Sample Type: bag Tested By: ckg
Sample ID: CHEM-7 S2 (16-35) Test Date: 04/10/20 Checked By: bfs

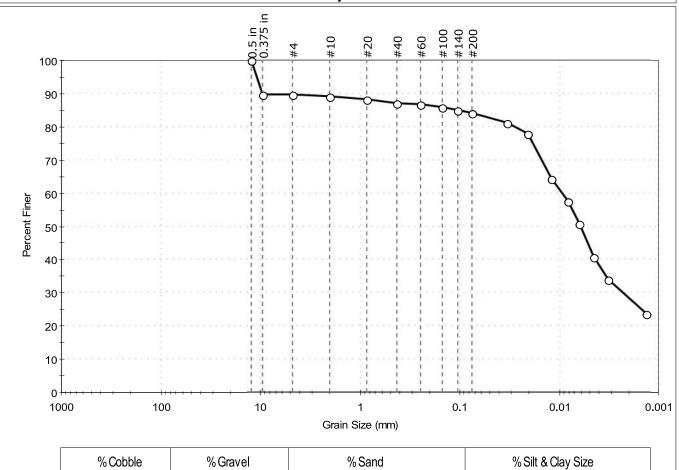
Depth: 16-35 ft Test Id: 552974

Test Comment: ---

Visual Description: Moist, dark olive gray silt with sand

Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	%Silt &Clay Size
_	10.3	5.6	84.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	90		
#4	4.75	90		
#10	2.00	89		
#20	0.85	88		
#40	0.42	87		
#60	0.25	87		
#100	0.15	86		
#140	0.11	85		
#200	0.075	84		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0337	81		
	0.0209	78		
	0.0121	64		
	0.0081	57		
	0.0062	51		
	0.0045	41		
	0.0032	34		
	0.0013	24		

<u>Coefficients</u>					
D ₈₅ = 0.1071 mm	$D_{30} = 0.0023 \text{ mm}$				
D ₆₀ = 0.0094 mm	$D_{15} = N/A$				
D ₅₀ = 0.0061 mm	$D_{10} = N/A$				
$C_u = N/A$	$C_c = N/A$				

GTX-311544

<u>Classification</u> ASTM N/A

AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ANGULAR

Sand/Gravel Hardness : HARD

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period: 1 minute Est. Specific Gravity: 2.65

Separation of Sample: #200 Sieve



Project No: Boring ID: CHEM-7 Sample Type: bag Tested By: ckg Sample ID: CHEM-7 S3 (35-37) Test Date: 04/10/20 Checked By: bfs

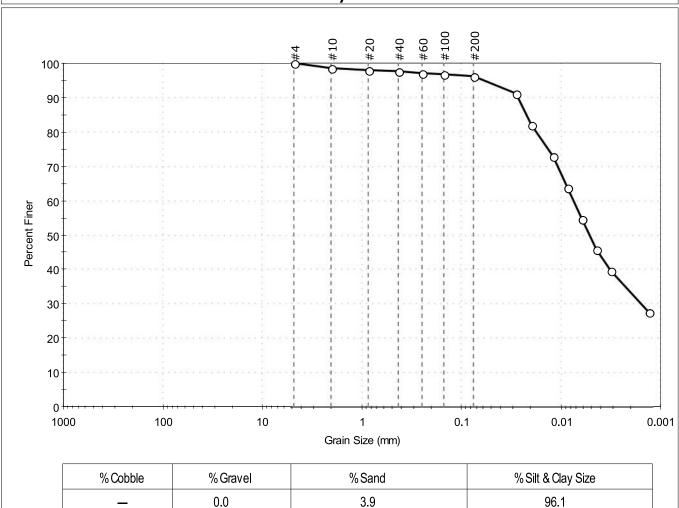
Test Id: Depth: 35-37 ft 552975

Test Comment:

Visual Description: Moist, very dark gray silt

Sample Comment:

Particle Size Analysis - ASTM D422



Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	98		
#40	0.42	98		
#60	0.25	97		
#100	0.15	97		
#200	0.075	96		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0284	91		
	0.0199	82		
	0.0119	73		
	0.0085	64		
	0.0062	55		
	0.0044	46		
	0.0032	40		
	0.0013	27		

	<u>Coefficients</u>			
D ₈₅ = 0.0223 mm		$D_{30} = 0.0016 \text{ mm}$		
	D ₆₀ = 0.0074 mm	$D_{15} = N/A$		
	D ₅₀ = 0.0052 mm	$D_{10} = N/A$		
	C _u =N/A	$C_c = N/A$		

GTX-311544

Classification N/A <u>ASTM</u>

AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



GTX-311544 Project No: Boring ID: CHEM-8 Sample Type: bag Tested By: ckg Sample ID: CHEM-8 S1 (0-3.6) Test Date: 04/10/20 Checked By: bfs

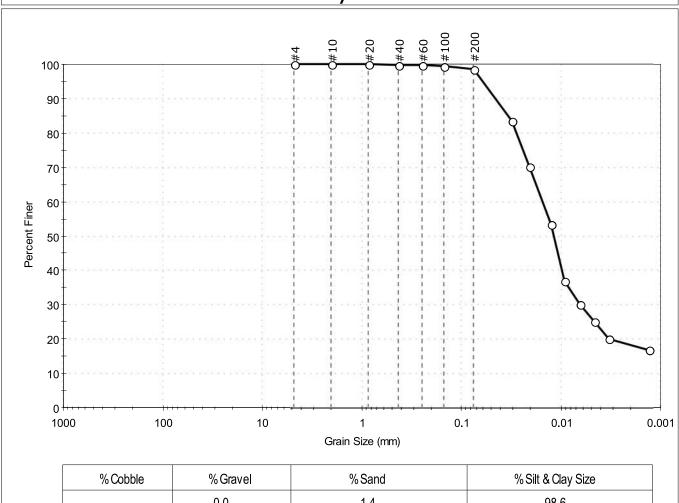
Test Id: Depth: 0-3.6 ft 552976

Test Comment:

Visual Description: Moist, very dark gray silt

Sample Comment:

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
1	0.0	1.4	98.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	99		
#200	0.075	99		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0310	83		
	0.0209	70		
	0.0126	53		
	0.0091	37		
	0.0065	30		
	0.0046	25		
	0.0033	20		
	0.0013	17		

<u>Coefficients</u>				
D ₈₅ = 0.0338 mm	$D_{30} = 0.0065 \text{ mm}$			
D ₆₀ = 0.0154 mm	$D_{15} = N/A$			
D ₅₀ = 0.0118 mm	$D_{10} = N/A$			
$C_u = N/A$	$C_c = N/A$			

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Client: Haley & Aldrich, Inc. Project: New London State Pier

Location: New London, CT

Boring ID: CHEM-8 Sample Type: bag Tested By: ckg Sample ID: CHEM-8 S2 (3.6-5.6) Test Date: 04/10/20 Checked By: bfs

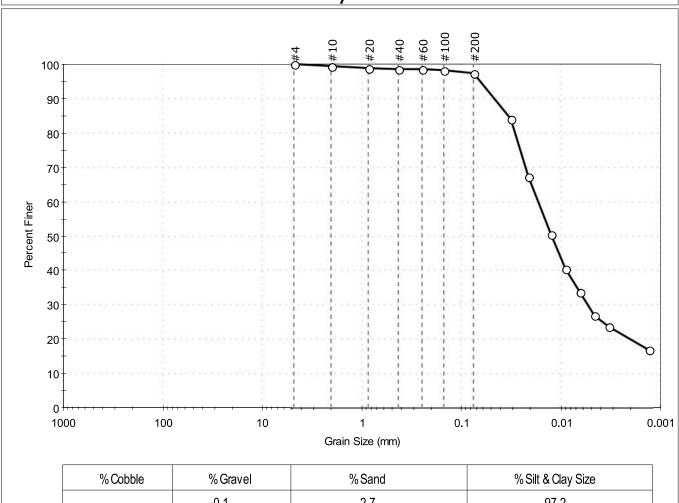
Test Id: Depth: 3.6-5.6 ft 552977

Test Comment:

Visual Description: Moist, olive brown silt

Sample Comment:

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
1	0.1	2.7	97.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	98		
#200	0.075	97		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0315	84		
	0.0212	67		
	0.0125	50		
	0.0090	40		
	0.0065	34		
	0.0046	27		
	0.0033	24		
	0.0013	17		

<u>Coefficients</u>				
D ₈₅ = 0.0334 mm	$D_{30} = 0.0054 \text{ mm}$			
D ₆₀ = 0.0168 mm	$D_{15} = N/A$			
D ₅₀ = 0.0123 mm	$D_{10} = N/A$			
$C_u = N/A$	$C_c = N/A$			

Project No:

GTX-311544

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Project No: Boring ID: CHEM-9 Sample Type: bag Tested By: ckg Sample ID: CHEM-9 S1 (0-9) Test Date: 04/10/20 Checked By: bfs

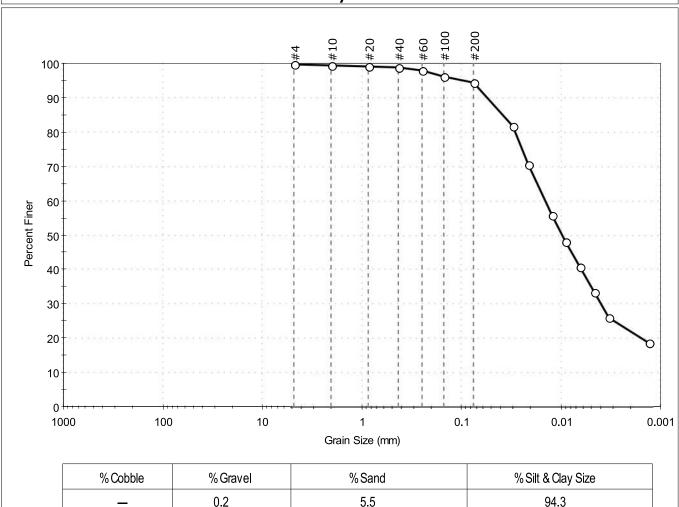
Test Id: Depth: 552978 0-9 ft

Test Comment:

Visual Description: Moist, dark olive gray silt

Sample Comment:

Particle Size Analysis - ASTM D422



Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	96		
#200	0.075	94		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0305	82		
	0.0212	70		
	0.0124	56		
	0.0090	48		
	0.0065	41		
	0.0046	33		
	0.0033	26		
	0.0013	19		

<u>Coefficients</u>				
D ₈₅ = 0.0388 mm	$D_{30} = 0.0040 \text{ mm}$			
D ₆₀ = 0.0145 mm	$D_{15} = N/A$			
D ₅₀ = 0.0097 mm	$D_{10} = N/A$			
$C_u = N/A$	$C_c = N/A$			

GTX-311544

Classification N/A <u>ASTM</u>

AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period: 1 minute Est. Specific Gravity: 2.65

Separation of Sample: #200 Sieve



Project No: Boring ID: CHEM-9 Sample Type: bag Tested By: ckg Sample ID: CHEM-9 S2 (9-19.8) Test Date: 04/10/20 Checked By: bfs

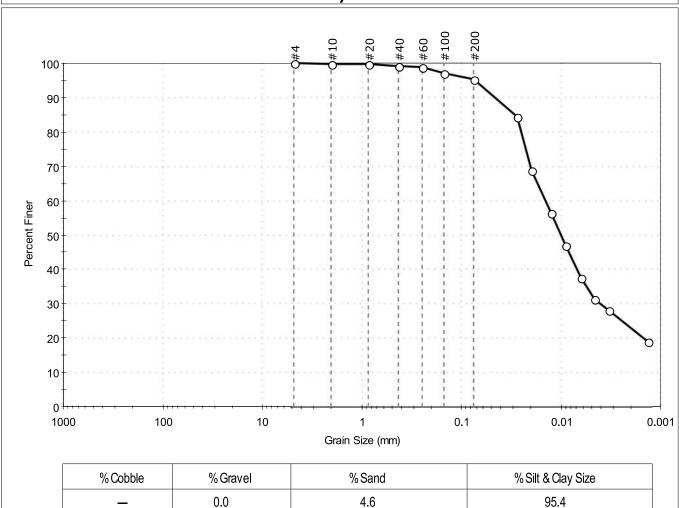
Test Id: Depth: 9-19.8 ft 552979

Test Comment:

Visual Description: Moist, very dark gray silt

Sample Comment:

Particle Size Analysis - ASTM D422



Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	99		
#100	0.15	97		
#200	0.075	95		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0277	84		
	0.0199	69		
	0.0125	56		
	0.0089	47		
	0.0063	38		
	0.0046	31		
	0.0033	28		
	0.0013	19		

	<u>Coefficients</u>				
D ₈₅ = 0.0292 mm		$D_{30} = 0.0040 \text{ mm}$			
	D ₆₀ = 0.0143 mm	$D_{15} = N/A$			
	D ₅₀ = 0.0100 mm	$D_{10} = N/A$			
	C _u =N/A	$C_c = N/A$			

GTX-311544

Classification N/A

AASHTO Silty Soils (A-4 (0))

<u>ASTM</u>

<u>Sample/Test Description</u> Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Project No: Boring ID: CHEM-9 Sample Type: bag Tested By: ckg Sample ID: CHEM-9 S3 (19.8-21.8) Test Date: 04/10/20 Checked By: bfs

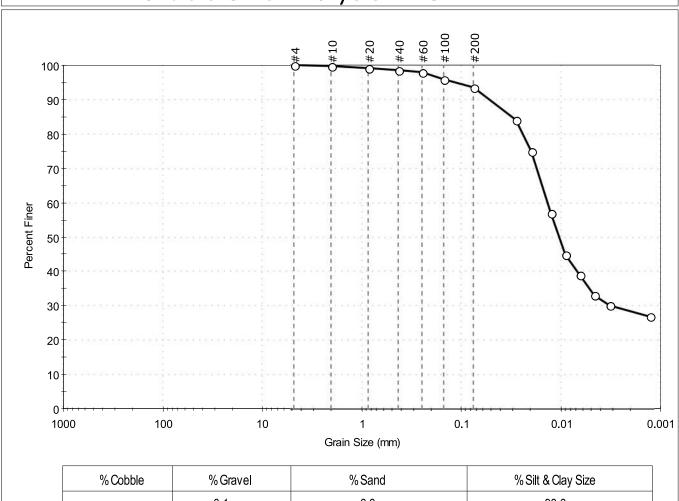
19.8-21.8 ft Test Id: 552980 Depth:

Test Comment:

Visual Description: Moist, dark gray silt

Sample Comment:

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
-	0.1	6.3	93.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	96		
#200	0.075	94		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0281	84		
	0.0199	75		
	0.0124	57		
	0.0090	45		
	0.0064	39		
	0.0046	33		
	0.0032	30		
	0.0013	27		

	<u>Coefficients</u>		
D ₈₅ = 0.0312 mm		$D_{30} = 0.0032 \text{ mm}$	
	D ₆₀ = 0.0134 mm	$D_{15} = N/A$	
	D ₅₀ = 0.0103 mm	$D_{10} = N/A$	
	C _u =N/A	$C_c = N/A$	

GTX-311544

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Project No: Boring ID: CHEM-10 Sample Type: bag Tested By: ckg Sample ID: CHEM-10 S1 (0-1.7) Test Date: 04/10/20 Checked By: bfs

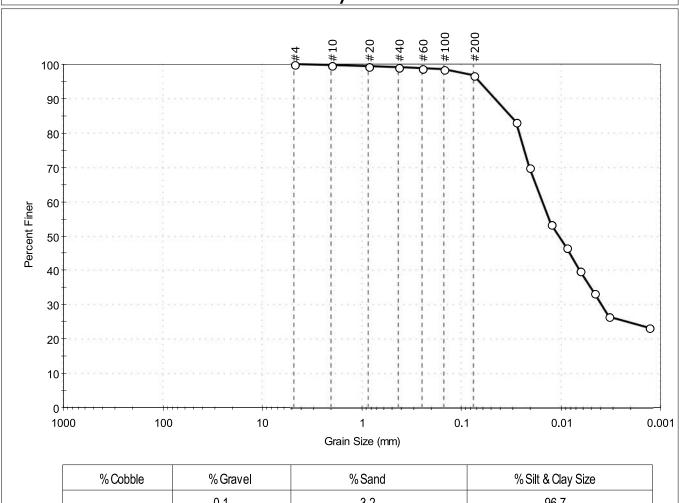
Test Id: 0-1.7 ft 552981 Depth:

Test Comment:

Visual Description: Moist, olive brown silt

Sample Comment:

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
1	0.1	3.2	96.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	99		
#100	0.15	99		
#200	0.075	97		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0284	83		
	0.0207	70		
	0.0126	53		
	0.0088	47		
	0.0065	40		
	0.0046	33		
	0.0033	27		
	0.0013	23		

	<u>Coefficients</u>		
D ₈₅ = 0.0322 mm		$D_{30} = 0.0039 \text{ mm}$	
	D ₆₀ = 0.0154 mm	$D_{15} = N/A$	
	D ₅₀ = 0.0106 mm	$D_{10} = N/A$	
	C _u =N/A	$C_C = N/A$	

GTX-311544

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Location:New London, CTProject No:CBoring ID:CHEM-10Sample Type:bagTested By:ckgSample ID:CHEM-10 S2 (1.7-3.7)Test Date:04/10/20Checked By:bfs

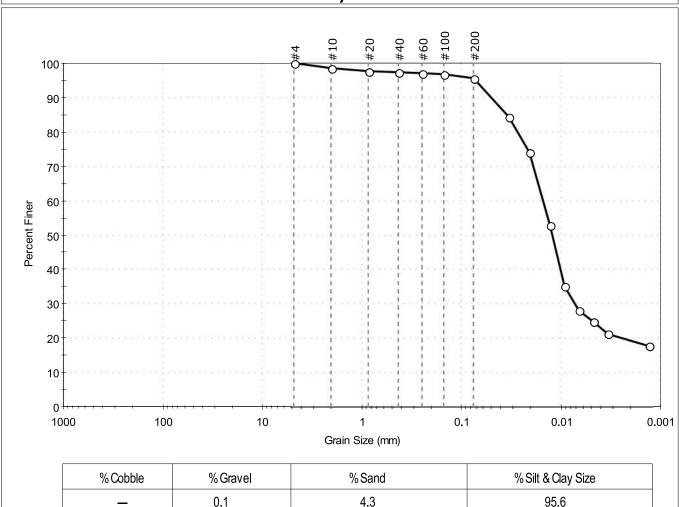
Depth: 1.7-3.7 ft Test Id: 552982

Test Comment: ---

Visual Description: Moist, dark grayish brown silt

Sample Comment: ---

Particle Size Analysis - ASTM D422



Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	98		
#40	0.42	97		
#60	0.25	97		
#100	0.15	97		
#200	0.075	96		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0336	84		
	0.0205	74		
	0.0127	53		
	0.0092	35		
	0.0066	28		
	0.0047	25		
	0.0034	21		

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	<u>Coefficients</u>		
D ₈₅ = 0.0350 mm		$D_{30} = 0.0072 \text{ mm}$	
	D ₆₀ = 0.0150 mm	$D_{15} = N/A$	
	D ₅₀ = 0.0121 mm	$D_{10} = N/A$	
	$C_u = N/A$	$C_c = N/A$	

GTX-311544

ASTM N/A

AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sarra, Graver randicio Sinapo .

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period: 1 minute
Est. Specific Gravity: 2.65
Separation of Sample: #200 Sieve



Project No: Boring ID: CHEM-11 Sample Type: bag Tested By: ckg Sample ID: CHEM-11 S1 (0-7) Test Date: 04/10/20 Checked By: bfs

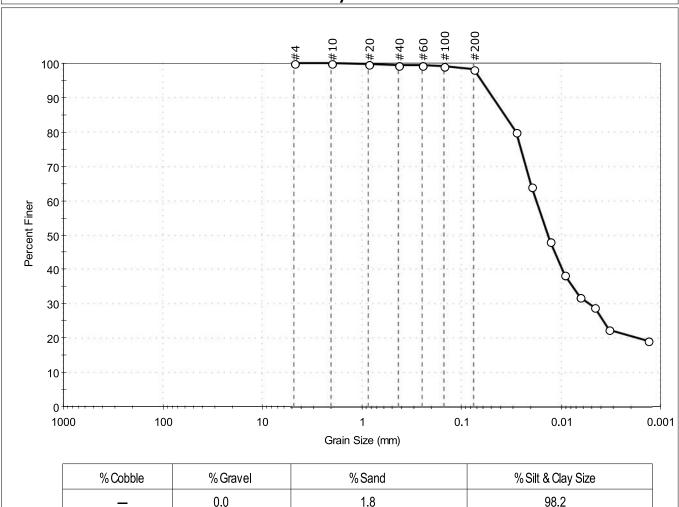
Test Id: Depth: 552983 0-7 ft

Test Comment:

Visual Description: Moist, very dark gray silt

Sample Comment:

Particle Size Analysis - ASTM D422



Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	99		
#100	0.15	99		
#200	0.075	98		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0284	80		
	0.0198	64		
	0.0127	48		
	0.0091	38		
	0.0064	32		
	0.0046	29		
	0.0033	22		
	0.0013	19		

<u>Coefficients</u>		
D ₈₅ =0.0371 mm	$D_{30} = 0.0052 \text{ mm}$	
D ₆₀ = 0.0177 mm	$D_{15} = N/A$	
D ₅₀ = 0.0134 mm	$D_{10} = N/A$	
$C_u = N/A$	$C_c = N/A$	

GTX-311544

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



New London, CT GTX-311544 Project No: Boring ID: CHEM-11 Sample Type: bag Tested By: ckg Sample ID: CHEM-11 S2 (7-12.7) Test Date: 04/10/20 Checked By: bfs

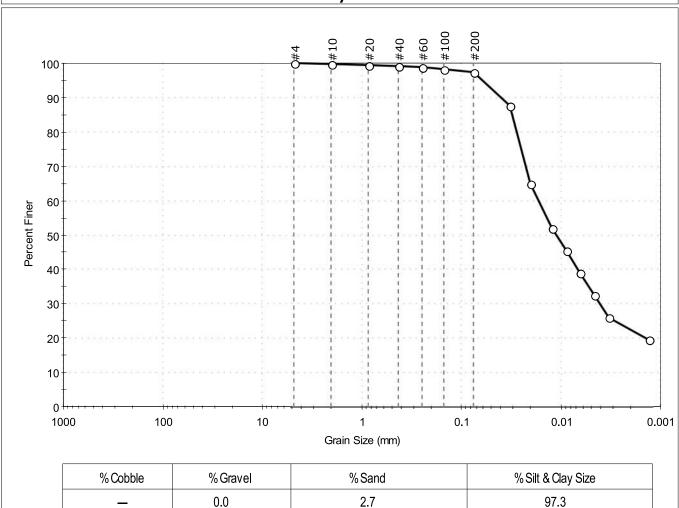
Test Id: Depth: 7-12.7 ft 552984

Test Comment:

Visual Description: Moist, very dark gray silt

Sample Comment:

Particle Size Analysis - ASTM D422



Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	99		
#100	0.15	98		
#200	0.075	97		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0325	88		
	0.0203	65		
	0.0123	52		
	0.0087	45		
	0.0064	39		
	0.0046	32		
	0.0033	26		
	0.0013	19		

<u>Coefficients</u>		
D ₈₅ =0.0308 mm	$D_{30} = 0.0040 \text{ mm}$	
D ₆₀ = 0.0169 mm	$D_{15} = N/A$	
D ₅₀ = 0.0111 mm	$D_{10} = N/A$	
$C_{u} = N/A$	$C_c = N/A$	

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer



Location:New London, CTProject No:CBoring ID:CHEM-11Sample Type:bagTested By:ckgSample ID:CHEM-11 S3 (12.7-14.7)Test Date:04/10/20Checked By:bfs

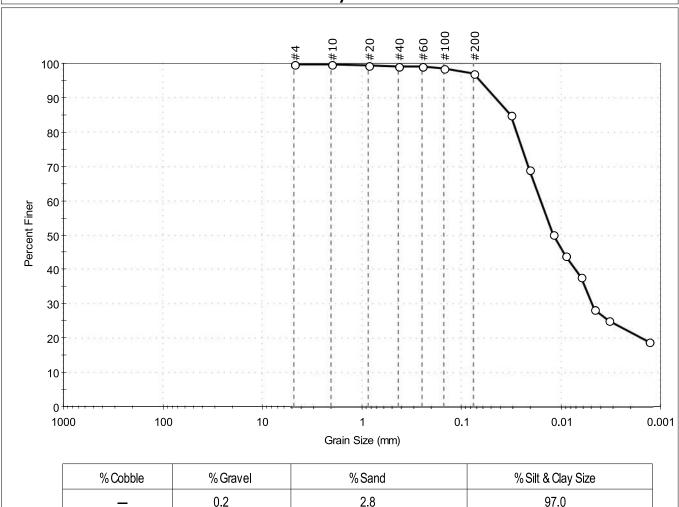
Depth: 12.7-14.7 ft Test Id: 552985

Test Comment: ---

Visual Description: Moist, dark gray silt

Sample Comment: ---

Particle Size Analysis - ASTM D422



Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	99		
#100	0.15	98		
#200	0.075	97		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0317	85		
	0.0208	69		
	0.0120	50		
	0.0090	44		
	0.0064	38		
	0.0046	28		
	0.0033	25		

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	<u>Coefficients</u>		
D ₈₅ = 0.0320 mm		$D_{30} = 0.0049 \text{ mm}$	
	D ₆₀ = 0.0160 mm	$D_{15} = N/A$	
	D ₅₀ = 0.0119 mm	$D_{10} = N/A$	
	$C_u = N/A$	$C_C = N/A$	

GTX-311544

Classification ASTM N/A

AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period: 1 minute Est. Specific Gravity: 2.65

Separation of Sample: #200 Sieve



New London, CT Project No: Boring ID: CHEM-12 Sample Type: bag Tested By: ckg Sample ID: CHEM-12 S1 (0-9) Test Date: 04/10/20 Checked By: bfs

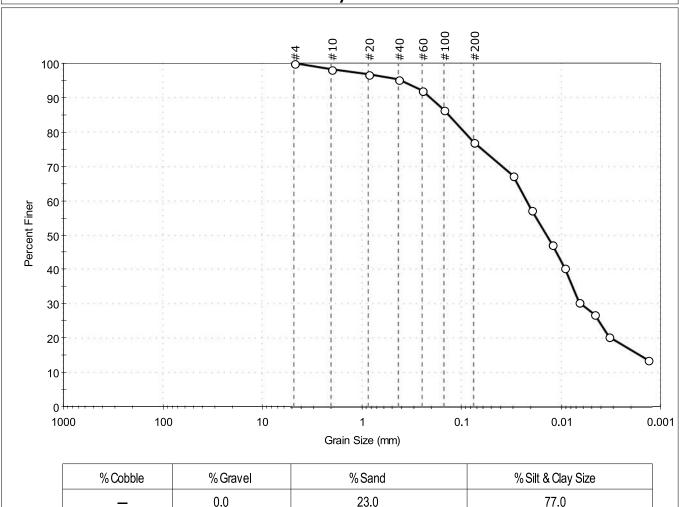
Test Id: 552986 Depth: 0-9 ft

Test Comment:

Visual Description: Moist, very dark grayish brown silt with sand

Sample Comment:

Particle Size Analysis - ASTM D422



0.010.11	p. 51 5 51.25,		- P	COpCO
#4	4.75	100		
#10	2.00	98		
#20	0.85	97		
#40	0.42	95		
#60	0.25	92		
#100	0.15	87		
#200	0.075	77		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0306	67		
	0.0199	57		
	0.0123	47		
	0.0091	40		
	0.0065	30		
	0.0046	27		
	0.0033	20		

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Sieve Name | Sieve Size, mm | Percent Finer | Spec. Percent | Complies

<u>Coefficients</u>		
$D_{85} = 0.1342 \text{ mm}$	$D_{30} = 0.0063 \text{ mm}$	
D ₆₀ = 0.0223 mm	$D_{15} = 0.0016 \text{ mm}$	
D ₅₀ = 0.0141 mm	$D_{10} = N/A$	
$C_u = N/A$	$C_c = N/A$	

GTX-311544

Classification <u>ASTM</u> N/A AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period: 1 minute Est. Specific Gravity: 2.65 Separation of Sample: #200 Sieve



Client: Haley & Aldrich, Inc. Project: New London State Pier

Location: New London, CT Project No: Boring ID: CHEM-12 Sample Type: bag Tested By:

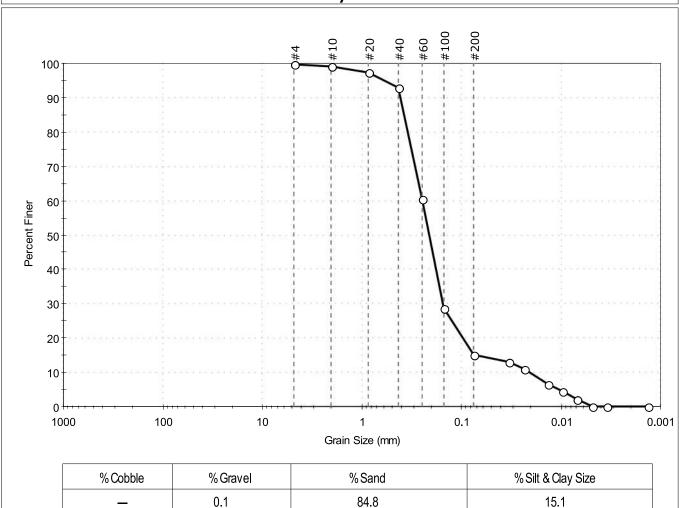
Sample ID: CHEM-12 S2 (9-22.7) Test Date: 04/10/20 9-22.7 ft Test Id: 552987 Depth:

Test Comment:

Visual Description: Moist, grayish brown silty sand

Sample Comment:

Particle Size Analysis - ASTM D422



	,			
#4	4.75	100		
#10	2.00	99		
#20	0.85	97		
#40	0.42	93		
#60	0.25	60		
#100	0.15	29		
#200	0.075	15		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
Hydrometer 	Particle Size (mm) 0.0333	Percent Finer	Spec. Percent	Complies
			Spec. Percent	Complies
	0.0333	13	Spec. Percent	Complies
	0.0333 0.0233	13 11	Spec. Percent	Complies
	0.0333 0.0233 0.0134	13 11 6	Spec. Percent	Complies
	0.0333 0.0233 0.0134 0.0096	13 11 6 4	Spec. Percent	Complies

Sieve Name | Sieve Size, mm | Percent Finer | Spec. Percent | Complies

<u>Coefficients</u>		
D ₈₅ =0.3742 mm	$D_{30} = 0.1536 \text{ mm}$	
D ₆₀ = 0.2485 mm	$D_{15} = 0.0725 \text{ mm}$	
D ₅₀ = 0.2117 mm	$D_{10} = 0.0211 \text{ mm}$	
Cu =11.777	$C_c = 4.500$	

GTX-311544

ckg

Checked By: bfs

Classification N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

<u>ASTM</u>

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period: 1 minute Est. Specific Gravity: 2.65 Separation of Sample: #200 Sieve



New London, CT Project No: Boring ID: CHEM-12 Sample Type: bag

Tested By: Sample ID: CHEM-12 S3 (22.7-24.7) Test Date: 04/10/20 Checked By: bfs

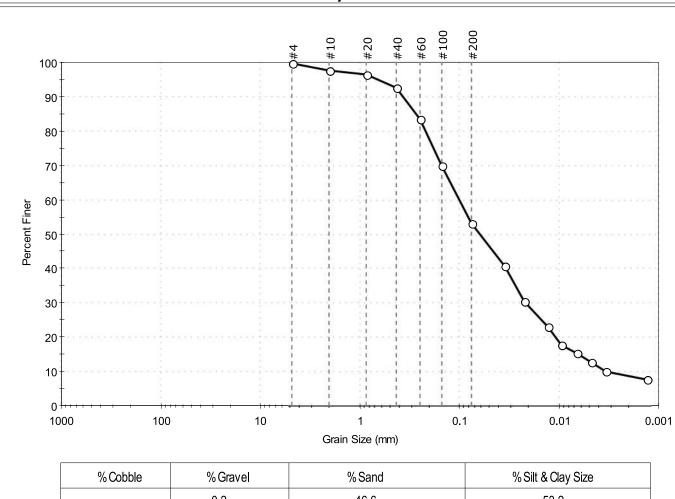
22.7-24.7 ft Test Id: 552988 Depth:

Test Comment:

Visual Description: Moist, very dark gray sandy silt

Sample Comment:

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
_	0.2	46.6	53.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	98		
#20	0.85	97		
#40	0.42	93		
#60	0.25	83		
#100	0.15	70		
#200	0.075	53		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
	0.0348	41		
	0.0220	31		
	0.0129	23		
	0.0094	18		
	0.0066	15		
	0.0047	13		
	0.0034	10		
	0.0013	8		

<u>Coefficients</u>		
D ₈₅ =0.2730 mm	$D_{30} = 0.0213 \text{ mm}$	
D ₆₀ = 0.0994 mm	$D_{15} = 0.0064 \text{ mm}$	
D ₅₀ = 0.0616 mm	$D_{10} = 0.0032 \text{ mm}$	
$C_u = 31.062$	$C_c = 1.426$	

GTX-311544

ckg

Classification N/A <u>ASTM</u> AASHTO Silty Soils (A-4 (0))

<u>Sample/Test Description</u> Sand/Gravel Particle Shape: ---

Sand/Gravel Hardness: ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period: 1 minute Est. Specific Gravity: 2.65

Separation of Sample: #200 Sieve

APPENDIX D

Laboratory Soil Analytical Data Reports

May 2020

JPA Attachment M2C. Appendix D – Laboratory Soil Analytical Data Reports

Haley & Aldrich report entitled *Environmental Data Report: State Pier Infrastructure Improvements; State Pier Complex; New London, Connecticut* (April 2020) has been provided to DEEP and USACE electronically, under separate cover.

To limit document size, Appendix D of this Haley & Aldrich Report (Laboratory Results: ~700 pages) is excluded from this JPA. Report copies are available upon request.

DEEP-OLIS-APP-100 Attachment M2C