П		T	NG LO			l #: MW-42S		n Street, 6th Floor	SITE MA	AP		
							ERM Boston, MA				Ν	
Projec Client			Raytheon - W Raytheon	ayıanu		Project Number: Logged by:	143.45 Ryan Bagley		╢───			
Drillir			Geosearch, Ir	nc.	<u> </u>	Driller:	Mike D'Amico		11			
	Started:	-	2-Nov-98			Date Finished:	2-Nov-98		11			
Locati			Wayland, Ma	ssachusetts	<u> </u>	Drilling Method:	4.25 ID HSA		Cou	rtyard	Loading	
	n Diam:		2"		Length:	5'	Slot Size:	0.01	11 1	-	Dock	
	g Diam:		2"		Length:	15'	Туре:	PVC]	MW-42		
	g Depth:		20'		Well Dep		Boring Diam.:	8"		7	\oplus	
Surfac	e Elev.:		134.83'		MP:	PVC	Depth to GW:	14.41'	Notes: Depth to GW measured on 11/17/98			
		,			MP Elev.	: 134.44'	-			measured o	n 11/17/98	
Depth	Well L	.og	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon	Description/Soil Cla	ssification	Sample # & Depth	HS Conc. (ppm)	Lab Sample # & Analyses	
- 0 -												
						_						
- 1 -						-					-	
2						-					_	
- 3 -												
- 4 -						-					-	
- 5 -												
			SAND &	3,3	4"	Brown medium to c	coarse SAND and FI	LL,	S-1	0.5		
- 6 -			FILL	3,3		some Gravel, dry to			5'-7'		-	
- 7 -			TILL	5,5		some Graver, dry lu	amp		5-1			
- 8 -						_						
9						-					-	
10												
1 1			SAND	5,21	5"	Brown fine SAND	to Silt, damp to wet		S-2	0.5		
				21,22					10'-12'			
12				,							-	
13						-					_	
- 14 -												
- 15 -			CAND	0 1 1	15"	Drown firs CAND	troop 0:14	uratad	G 2	07	-	
16			SAND	8,11	15"	brown line SAND,	trace Silt, wet to sat	urated	S-3	0.7	-	
- 17 -				14,14					15'-17'			
1 7			SAND &	14,17	24"	Brown fine SAND	and SILT, interbedde	ed, saturated	S-4	0.7		
			SILT	20,21					17'-19'			
1 9		ŀ	~	_~,_1					., .,		-	
20						-					_	
21											_	
- 22 -			SAND &	9,8	24"	Brown fine SAND	and SILT, trace Clay	I	S-5	0.8		
			SILT	7,7		interbedded, well so	orted, saturated [iron	staining]	21'-23'			
-23 -		ŀ		2 -			,					
_24												
	otes for l				Key to W	Vell Construction						
	40 lb. Ha 00 lb. Ha					Sandpack	Well Screen	Drill Cuttings				
· · /	00 Ib. Ha lide Han					Bentonite Seal	Cement					

DF	RILLI	NG LO)G foi	· Wel	I #: MW-42S ERM Boston, MA 021 l6	Page	2 of	2
Depth	Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon Description/Soil Classification	Sample # & Depth	PID Conc. (ppm) spoon/HS	Lab Sample # & Analyses
25					-			_
26 -					Well Construction Details:			-
27 -					Protective Flushmount Roadbox			_
- 28 -					0'-1' Concrete surface seal			-
29					1'-11' Native backfill			_
30					11'-13' Bentonite chip seal			_
31					13'-20' #1 silica sand filter pack			_
32				.	15'-20' 0.010 slotted PVC well screen			-
33					20' Bottom of boring			-
34 -					23' Bottom of Spoon Sampling			-
35					_			_
36 -					_			_
37					_			_
- 38 -					_			_
- 39 -					_			-
40					_			-
41					_			_
42					_			_
43					_			_
44					_			_
45					_			-
- 46 -				,	_			_
- 47 -					=			-
- 48 -					=			-
- 49 -					_			_
50								_
- 51 -								
- 52 -								
- 53 -								_
- 54 -								-

DR	RILI	11	NG LO)G for	·Wel	l #: MW-43S	ERM 399 Boylst ERM Boston, M	on Street, 6th Floor IA 02116	SITE MA	ĄР	↑ N
Projec	t:]	Raytheon - W	'ayland		Project Number:	143.45				
Client		i	Raytheon			Logged by:	Ryan Bagley		1		
Drillin	ig Co:		Geosearch, In	IC.		Driller:	Mike D'Amico				
Date S	Started:		2-Nov-98			Date Finished:	2-Nov-98		1		
Locati			Wayland, Ma	ssachusetts		Drilling Method:	4.25 ID HSA		Cou	rtyard	Loading
	n Diam:		2"		Length:	5'	Slot Size:	0.01	11_		Dock
-	g Diam:		2"		Length:	15'	Туре:	PVC	MW-43S		MW-42
	g Depth:		20'		Well Dep		Boring Diam.:	8"	\oplus	D 1	™ ⊕
Surfac	e Elev.:		134.37'		MP:	PVC	Depth to GW:	14.62'		Depth to G	
ļ					MP Elev	.: 133.82'	_		<u> </u>	measured o	n 11/1//98
Depth	Well L	.og	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon	Description/Soil Cl	assification	Sample # & Depth	HS Conc. (ppm)	Lab Sample # & Analyses
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14			FILL	10,13 15,17	10"	1'-11' Native bac 11'-13' Bentonite 13'-20' #1 silica si 15'-20' 0.010 slott 20' Bottom of	ount Roadbox surface seal ckfill chip seal and filter pack ted PVC well screen f boring f Spoon Sampling		S-1 10'-12'	0.8	
- 15 - 16 -			SAND &	10,12	18"	Brown fine SAND	and SILT, well sort	ed, damp	S-2	3.1	
			SILT	14,14					15'-17'		
17 - 18 -			SAND	14,17	17"	Brown fine SAND,	trace Silt, well sort	ted, saturated	S-3	2.1	
				21,25					17'-19'		
- 19 -		l l		, . <u> </u>		 					┟────┥
20						 					-
21		-	SAND &	12,12	21"	Brown fine SAND	and SILT, trace Cla	ıy, well	S-4	2.2	-
- 22 -			SILT	12,14		sorted, saturated [ir			21'-23'	I	
-23 -		ŀ	SILI	12,14		soricu, saturated [lf	on stanning]		21-23	l	╞──────
_24 _						-					
(1) 14 (2) 30	<u>otes for l</u> 40 lb. Ha 00 lb. Ha lide Han	amme amme	er		Key to W	Vell Construction Sandpack Bentonite Seal	Well Screen	Drill Cuttings			

DF	RILLI	NG LO)G for	: Wel	I #: MW-43S ERM 399 Boylston Street, 6th Floor Boston, MA 021 16	Page	2 of	2
Depth	Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon Description/Soil Classification	Sample # & Depth	PID Conc. (ppm) spoon/HS	Lab Sample # & Analyses
	WeilLog				Well Construction Details: Protective Flushmount Roadbox 0'-1' Concrete surface seal 1'-11' Native backfill 11'-13' Bentonite chip seal 13'-20' #1 silica sand filter pack 15'-20' 0.010 slotted PVC well screen 20' Bottom of boring			

DR	ILL	ING LO) <u>G for</u>	·Well	#: MW-43D	ERM Boston, MA	n Street, 6th Floor 02116			N
Project	:	Raytheon - W	'ayland		Project Number:	143.50				
Client:		Raytheon			Logged by:	Ryan Bagley				
Drillin	-	Geosearch, In	nc.		Driller:	Tom Belsky				
Date S		24-Mar-00			Date Finished:	24-Mar-00				
Locatio	-	Wayland, Ma	ssachusetts		Drilling Method:	4.25" ID HSA		Cou	ırtyard	Loading
Screen		2"		Length:	5'	Slot Size:	0.01	_11		Dock
Casing		2"		Length:	50'	Туре:	PVC	MW-43S		MW-42
-	Depth:	55'		Well Dep		Boring Diam.:	8"		MW-43D	A
Surface	e Elev.:	134.55'		MP:	PVC	Depth to GW:	15.71'		Depth to G	
				MP Elev.	.: 134.55'				measured o	on 4/5/00
Depth	Well Lo	og Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoor	n Description/Soil Cla	assification	Sample # & Depth	HS Conc. (ppm)	Lab Sample # & Analyses
0 1 2 3 4 5 6 7 8 9 10 11 12 13		FILL	10,13 15,17	10"				S-1 10'-12'	0.8	- - - - - - - - - - - - - - - - - - -
14 15										
- 16 -	∰∥∥	SAND &	10,12	18"	Brown fine SANL	D and SILT, well sorte	ed, damp	S-2	3.1	_
10	▦	SILT	14,14					15'-17'	I	
17	▦▮▮		-	1.7") trace 0.12 11			0.1	
18	▦▮▮	SAND	14,17	17"	Brown fine SANL	D, trace Silt, well sorte	ed, saturated	S-3	2.1	-
	▦▮▮		21,25					17'-19'	I	
-19	▦▮▮		,	├ ────┤	 					
20	▦▮▮								I	-
	▦			l i					I	
21	∰∎₿			1.57	D					
-22 -	∰∎∎	SILT	7,7	15"	Brown tine SANI	D and SILT, trace Cla	y, well	S-4	2.2	-
	▦▮▮	SAND	8,7		sorted, saturated [iron staining], bedded	ł, loose, wet	21'-23'	I	
-23 - 24						-coarse sand at about				
(1) 14 (2) 30	otes for Blo 10 lb. Ham 10 lb. Ham 10 lb. Ham	nmer			Jell Construction Sandpack Bentonite Seal		Drill Cuttings			. –

(3) Slide Hammer

Portland cement-bentonite slurry grout

		NG LO	G for \	Well	#: MW-43D ERM Boylston Street, 6th Floor Boston, MA 02116	Page	2 of	2
Depth	Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon Description/Soil Classification	Sample # & Depth	PID Conc. (ppm) spoon/HS	Lab Sample # & Analyses
26		SAND	9,9,11,11	18"	Brown, fine to v.fine SAND, some med. Sand, well sorted, loose, bedded, wet; 1/2" layer of orange & black staining at 25'	S-5/25'-26'	33.2	
20		SAND &	10,11	24"	Brown, interbedded layers of fine SAND and SILT, well	S-6	2.2	
28		SILT	11,10		sorted, loose, wet; orange staining ~26.5' (2" thick) and 27.5' (1" thick)	26'-28'	1.0	
29		SAND	10,10	24"	Brown, interbedded fine SAND, v.fine SAND and med.	S-7	0.0	
30			12,13		SAND, well sorted, loose, wet; orange staining ~29.5' (two 1/2" thick layers)	28'-30'		
31		SAND	6,6	24"	Brown, medium SAND, well sorted, homogenous, loose,	S-8	0.0	
32			7,7		wet; orange staining from 31.5'-32.0'	30'-32'		
33		SAND	8,9	24"	Brown, fine SAND, well sorted, homogeneous, loose, wet;	S-9	0.0	
34			12,11		orange staining from 33.0'-33.2' and from 33.7'-34.0'	32'-34'		
35		SAND	weight	24"	Grey, fine SAND, well sorted, homogenous, loose, wet	S-10	0.0	
36			of rods			34'-36'		
37		SAND	weight	18"	Grey, fine SAND, well sorted, homogeneous, loose, wet	S-11	0.0	
37			of rods			36'-38'		
39		SAND	weight	24"	Grey, fine to v.fine SAND, well sorted, homogeneous,	S-12	0.0	
40			of rods		loose, wet	38'-40'		
40		SAND	weight	24"	Grey, fine to v.fine SAND, well sorted, homogeneous,	S-13	0.0	
41			of rods		loose, wet; orange staining (two 1"thick layers) between 41.5'-42.0'	40'-42'		
42		SAND	12,15	24"	Grey, fine to v.fine SAND, well sorted, homogeneous,	S-14	0.0	
43			12,11		loose, wet; bottom 3" of spoon contains broken rock clasts	42'-44'		
44		SILT &	41,46	12"	Grey SILT and fine SAND, some medium coarse Sand,	S-15	0.0	
45		SAND	43,39		trace fine to med gravel, poorly sorted, compact, wet; TILL	44'-46'		
40		SILT &	38,34	24"	Grey SILT and fine SAND, some medium coarse Sand,	S-14	0.0	
47		SAND	29,31		trace fine to med gravel, poorly sorted, compact, wet; TILL	46'-48'		
48		Note: Adv	anced auge	ers to 55	feet; top of bedrock noted at 54 feet.			
50					Well Construction Details			
51					Flush-mount Roadbox			
52					2-43' Portland cement-bentonite slurry grout			
- 52 - 53					43-45' Bentonite chip seal 45-55' #1 Silica sand filter pack			
					50-55' 0.010" slotted PVC well screen			_
5 4 5 5					55' Bottom of borehole			_

		ERM	SITE M.	AP	
DRILLING LOG fo		399 Bo ylst on Street, 6th Floor ERM Boston, MA 02116			Ń
Project: Raytheon - Wayland	Project Number:	143.45	_	Building	
Client: Raytheon	Logged by:	Ryan Bagley			MW-44M
Drilling Co: Geosearch, Inc. Date Started: 5-Nov-98	Driller: Date Finished:	Tom Belsky 5-Nov-98	Courtyard	μυν 446 Φ	⊕ ⊕⊕MW-44D
Location: Wayland, Massachusetts	Drilling Method:	4.25 ID HSA		MW-445 U	\oplus WI W-44D
Screen Diam: 2"	Length: 5'	Slot Size: 0.01	-11	Building	
Casing Diam: 2"	Length: 27'	Type: PVC		e	
Boring Depth: 32'	Well Depth 32'	Boring Diam.: 8"		Courtyard	
Surface Elev.: 135.02'	MP: PVC	Depth to GW: 16.17'	Notes:	Depth to G	
	MP Elev.: 134.71'	_		measured o	n 11/17/98
Depth Well Log Stratigraphy Blowcounts per 6 inches	Recovery Split Spoon	Description/Soil Classification	Sample # & Depth	HS Conc. (ppm)	Lab Sample # & Analyses
0	1'-5' Native ba 5'-22' Grout 22'-25' Bentonite 25'-32' #1 silica si	Details: ount Roadbox surface seal ackfill e chip seal sand filter pack tted PVC well screen			

БТ					1 //		ERM 399 Boyl	lston Street, 6th Floor	SITE MA	AP	≜
		NG LO		r Wel			ERM Boston,	MA 02116			Ν
Projec		Raytheon - W	Vayland		Project Nu		143.45			Building	
Client		Raytheon			Logged by	y:	Ryan Bagley				MW-44M
	ng Co:	Geosearch, In	10.		Driller: Mike D'Amico Date Finished: 5-Nov-98			Courtyard		⊕ ⊕ ⊕ MW-44D	
Locat	Started:	5-Nov-98 Wayland, Ma	acachusatta		Date Finis Drilling M		4.25 ID HSA			MW-445 🕁	⊕MW-44D
	n Diam:	2"	issaciiusetts	Length:	5'	ietilou.	Slot Size:	0.01	Building		
	g Diam:	2"		Length:	43'		Туре:	PVC	11	Dunung	
	g Depth:	48'		Well Dep			Boring Diam.:	8"		Courtyard	
Surfa	ce Elev.:	134.84'		MP:	PVC		Depth to GW:	16.15'	Notes:	Depth to G	W
				MP Elev.	.: 134.58'		_			measured o	n 11/17/98
Depth	Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	S	Split Spoon	Description/Soil (Classification	Sample # & Depth	HS Conc. (ppm)	Lab Sample # & Analyses
- 0 -											
-											
- 5 -					No Split	t Spoon Sar	mples Collected				_
10					No Spin	t-Spoon Sai	inples Conected				_
15											_
					Well Co	onstruction 1	Details:				
20					Protectio	ve Flushmo	ount Roadbox				_
2 -											_
					0'-1'	Concrete s	surface seal				_
25					1'-12'	Native bac	ckfill				
3 5 -					12'-39'	Grout					
- 40 -											-
45					39'-41'	Bentonite	chip seal				_
- 50 -					41'-48'	#1 silica s	and filter pack				
					43'-48'	0.010 slot	ted PVC well scre	en			
- 55 -					48'	Dottom of	fhoring				-
60 -					40	Bottom of	looning				-
65											_
- 70 -											
- 75 -					—						
- 80 -					_						_
- 85 -					_						_
- 90 -					-						_
- 95 -					—						_
- 100 -					—						_
105					-						_
110											-
115					-						-
120											
	otes for Blo			Key to W	ell Construct	tion					
	40 lb. Hamr 00 lb. Hamr				Sandpack		Well Screen	Drill Cuttings			
	lide Hamme				Bentonite Se	eal	Cement	Grout			

Depth Well Log Statignedy per transm Recovery Split Spoon Description/Soil Classification & Depth (pm) Analyses 0 1 2 2 1 2 1	DR	RILL	ING LO	OG fo	r Wel	l #: MW-44D	ERM 399 Bo ylst or Bos ton, MA	n Street, 6th Floor 021 16	SITE MA	AP	↑ N
billing Core Consequence here to here to be the set of	Project	t:	Raytheon - V	Wayland			143.45			Building	
Dask Startistic: $3 \times No = 81$ Location: $MW - 448$ Construct: $Weyland, Massachuretts Structure Livez. Dask Finished. \frac{3 \times No = 81}{4 \times 5} MW - 440 Casing Depth. 2^{-1} Length: \frac{3 \times No = 81}{5} NO \times Sc. 0.01 Surface Livez. 134 Mathematic Method \frac{4 \times 5}{4 \times 5} Depth to GW: 16.33^{\circ} Notes: Depth to GW: Depth Well Log Statignely generating here Lines Split Spoon Description/Soil Classification Sample # 11 \times 5^{\circ} Depth Well Log Statignely generating here Lines Split Spoon Description/Soil Classification Sample # 11 \times 5^{\circ} 0 Sample # Light brown fine SAND, trace Gravel, S-1 1.7 Analyses 0 SAND 7,9 23" Light brown fine SAND, trace Gravel, S-1 1.7 10 SAND & 4,4 20.5" Top 12": Light brown fine SAND, moist S-2 2.0 11 SAND & 4,4 20.5" Bottom 9": Brown SILT, some fine Sand, wet 10'-12' S-1 1.7 10 SAND & 4,4 2.0 S'''''''''''''''''''''''''$			2								MW-44M
Location Wayland, Massachuserts Donling, Method, 4.25 D; HSA Screen Dum: 2' Length: 5' Slote State: 0.01 Borne Depth: 68'' Well Depth 68'' Borne Dim: 2'' Borne Depth: 68'' Well Depth 68'' Borne Dim: 8'' Countyard Surface Edec. 124.94'' MP: PVC Borne Depth of OW Tes.3'' Depth Soutigraphy Iterace in the second Record Split Spoon Description/Soil Classification Sample # HS Conc Lab Sample # // Analyses 0 Iterace in the second Record Split Spoon Description/Soil Classification Sample # HS Conc Lab Sample # // Analyses 1 Iterace in the second Iterace in the second Soutigraphy Iterace in the second Iterac		-		nc.					-		
Screen Dum: 2^* Length: 5^* Soft Size: 0.01 Bailding Coing Dum: 6^* Well Depth 6^* Type: PVC Courtyard Courtyard Surface Flev: 134.54* MP PVC Depth to GW: 16.33* Notes: Depth to GW: measured on 11/17/98 Depth Well Log Statigntly #*** Split Spoon Description/Soil Classification Sample # HS Conc. Lab Sample # Analyses 0										MW-44S 🕀	⊕MW-44D
Casing Dam. 2* Lagin: 63' Type: PVC Contryard Surface Liv: 134.94 Mit PVC Depth to GW: 16.37 Note: Depth to GW Surface Liv: 134.94 Mit PVC Depth to GW: 16.37 Note: Depth to GW Depth Well Log surgepty Biorecamb koover Split Spoon Description/Soil Classification Sample # HS Conc. Lab Sample # Analyses 0 -<			-	assachusetts					-		
Boring Dept: 68' Well Depti 68' Boring Dam: 8'' Courtyard Surface Live: 114.94' MP: PVC Depti to GW: 16.33' Notes: Depti to GW: Uppi Well Log surfare by Notes: 111/17/98 Sample # HS Conc Lab Sample # Analyses 0					·				Building		
Surface Elev: 134.94" MP: PVC MP Elev: Depth to GW: 16.33" Notes: Depth to GW measured on 11/17/98 Depth Well Log Stategraphy Biorcourts pre/states Resource Split Spoon Description/Soil Classification Sample # 4 Depth HS Conc. 4 Depth Lab Sample # 4 Depth Sample # 4 Depth	-				-	51			Countral		
MP Elev: 134.66' measured on 1/17/98 Depth Well Log samplery thermath kenney Split Spoon Description/Soil Classification Sampler HS Conc Lab Sampler Analyses 0 1	-							-		-	117
Depth Well Log Stargenety Horceans per 6 index Revery Split Spoon Description/Soil Classification Sample # & Depth HS Conc. (ppm) Lab Sample # Analyses 0 1	Surface	e Elev.:	134.94				Depth to GW:	16.33		•	
Depth Well Log Statignedy per transm Recovery Split Spoon Description/Soil Classification & Depth (pm) Analyses 0 1 2 2 1 2 1					MP Elev	134.00				measured o	11 1 1/1 //98
1 2 3 4 5 6 5 6 5 6 7 9 23" Light brown fine SAND, trace Gravel, S-1 1.7 7 11,8 loose, damp 5'-7' 1.7 8 9 11,8 loose, damp 5'-7' 10 SAND & 4,4 20.5" Top 12": Light brown fine SAND, moist S-2 2.0 11 SAND & 4,4 20.5" Top 12": Light brown fine SAND, moist S-2 2.0 10 SILT 4,5 Bottom 9": Brown SILT, some fine Sand, wet 10'-12' 13 14 10 10'-12' 15'-17' 15'-17' 14 10 10'-12' 15'-17' 15'-17' 15'-17' 14 10 10'-12' 15'-17' 15'-17' 15'-17' 15 SAND & 4,2 22" Brown SILT, some fine Sand S-3 2.4 17'-19 12.1 2.3 17'-19' 17'-19' 20 SAND & 7,8 20.5" <td< td=""><td>Depth</td><td>Well Log</td><td>g</td><td></td><td>Recovery</td><td>Split Spoc</td><td>on Description/Soil Clas</td><td>ssification</td><td>*</td><td></td><td>Lab Sample # & Analyses</td></td<>	Depth	Well Log	g		Recovery	Split Spoc	on Description/Soil Clas	ssification	*		Lab Sample # & Analyses
Image: Sand Problem Sand Problem Light brown fine SAND, trace Gravel, S-1 1.7 Sand Problem Image: Sand Problem Image: Sand Problem Image: Sand Problem Silut Problem											
6 11,8 loose, damp 5'-7' 8 9 11 10 9 10 SAND & 4,4 20.5" Top 12": Light brown fine SAND, moist S-2 2.0 11 SILT 4,5 Bottom 9": Brown SILT, some fine Sand, wet 10'-12' 10'-12' 12 13 14 15 SAND & 4,2 22" Brown SAND and SILT, wet to saturated S-3 2.4 15 SILT 2,2 15'-17' 15'-17' 15'-17' 16 SILT 2,2 Brown SILT, some fine Sand S-3 2.4 17 SILT 4,3 23" Brown SILT, some fine Sand S-4 2.1 18 2,3 Top 10": Brown SILT S-5 1.4 19 SAND & 7,8 20.5" Top 10": Brown SILT S-5 1.4 19 SAND & 7,8 20.5" Top 10": Brown SILT S-5 1.4 21 SAND & 9,11 14" Top 8": Brown SAND and SILT S-6 1.8 22 SILT 9,14 Bottom 6": Brown coarse SAND some fine Gravel 21'-23' <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td>						-					
6 11,8 loose, damp 5'-7' 8 9 11 10 9 10 SAND & 4,4 20.5" Top 12": Light brown fine SAND, moist S-2 2.0 11 SILT 4,5 Bottom 9": Brown SILT, some fine Sand, wet 10'-12' 10'-12' 12 13 14 15 SAND & 4,2 22" Brown SAND and SILT, wet to saturated S-3 2.4 15 SILT 2,2 15'-17' 15'-17' 15'-17' 16 SILT 2,2 Brown SILT, some fine Sand S-3 2.4 17 SILT 4,3 23" Brown SILT, some fine Sand S-4 2.1 18 2,3 Top 10": Brown SILT S-5 1.4 19 SAND & 7,8 20.5" Top 10": Brown SILT S-5 1.4 19 SAND & 7,8 20.5" Top 10": Brown SILT S-5 1.4 21 SAND & 9,11 14" Top 8": Brown SAND and SILT S-6 1.8 22 SILT 9,14 Bottom 6": Brown coarse SAND some fine Gravel 21'-23' <td>- 1 -</td> <td></td> <td></td> <td></td> <td></td> <td>—</td> <td></td> <td></td> <td></td> <td></td> <td> _</td>	- 1 -					—					_
6 11,8 loose, damp 5'-7' 7											
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17 SILT 4,3 23" Brown SILT, some fine Sand S-4 2.1 18 2,3 17'-19' 17'-19' 17'-19' 20 20 SAND & 7,8 20.5" Top 10": Brown SILT S-5 1.4 21 SILT 10,13 Bottom 9.5": Brown fine SAND, some Silt 19'-21' 19'-21' 22 SAND & 9,11 14" Top 8": Brown SAND and SILT S-6 1.8 21 SILT 9,14 Bottom 6": Brown coarse SAND, some fine Gravel 21'-23'	10		SILT	2.2					15'-17'		
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20 21 SAND & 7,8 20.5" Top 10": Brown SILT S-5 1.4 21 3ILT 10,13 Bottom 9.5": Brown fine SAND, some Silt 19'-21' 22 SAND & 9,11 14" Top 8": Brown SAND and SILT S-6 1.8 3ILT 9,14 Bottom 6": Brown coarse SAND, some fine Gravel 21'-23' 21'-23'				2,3					17'-19'		
21 SILT 10,13 Bottom 9.5": Brown fine SAND, some Silt 19'-21' 22 SAND & 9,11 14" Top 8": Brown SAND and SILT S-6 1.8 21 SILT 9,14 Bottom 6": Brown coarse SAND, some fine Gravel 21'-23'			SAND &		20.5"	Top 10": Brown	SILT		S-5	1.4	
21 SAND & 9,11 14" Top 8": Brown SAND and SILT S-6 1.8 22 SILT 9,14 Bottom 6": Brown coarse SAND, some fine Gravel 21'-23'			SILT	10,13		Bottom 9.5": Bro	own fine SAND, some S	Silt	19'-21'		
SILT 9.14 Bottom 6": Brown coarse SAND, some fine Gravel 21'-23'					14"					1.8	
	22		SILT	9,14		Bottom 6": Brow	n coarse SAND, some	fine Gravel	21'-23'		
SAND 17,21,27,34 18" Brown fine SAND, some Gravel, loose S-7 23'-25 2.6			SAND	17,21,27,34	18"	Brown fine SAN	D, some Gravel, loose		S-7 23'-25'	2.6	

Footnotes for Blowcounts

(1) 140 lb. Hammer

(2) 300 lb. Hammer (3) Slide Hammer

Key to Well Construction

Sandpack

Bentonite Seal

Well Screen Cement

DRILLI	ING LC)G for	Well	#: MW-44D ERM System Street, 6th Floor Boston, MA 02116	Page	2 of	3
Depth Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon Description/Soil Classification	Sample # & Depth	PID Conc. (ppm) spoon/HS	Lab Sample # & Analyses
26				_			_
- 27 -				-			-
- 28 -	SAND	7,15	13"	Brown coarse SAND, some fine Gravel, poorly	S-8	0.7	
- 29 -		19,11		sorted, loose	28'-30'		-
- 30 -	SAND	17,14	18"	Brown coarse SAND, some fine Gravel, poorly	S-9	0.8	-
- 31 - 32 -		23,60(4")		sorted, loose	30'-32'		-
33	SAND &	29,41	14"	Top 7": Brown SAND, some Gravel, trace Silt	S-10	1.0	
- 34 -	SILT	44,17		Bottom 7": Brown SILT, some fine Sand, dense	32'-34'		
3 5 -	SAND &	29,34	18"	Brown SAND and SILT, some Gravel	S-11	0.8	
3 6	SILT	31,27			34'-36'		
- 37 -	SAND &	27,32	19"	Brown SAND and SILT	S-12	1.0	_
- 38 -	SILT	38,31			36'-38'		_
- 39 -	SAND	17,19	12"	Brown coarse SAND, trace Silt, odor, loose	S-13	0.8	_
40		21,33			38'-40'		
41	SAND	11,14	10"	Brown medium to coarse SAND, little Gravel,	S-14	1.8	_
42		12,13		loose, wet	40'-42'		
43	SAND	12,12	16"	Brown medium to coarse SAND, little Gravel,	S-15	2.0	-
- 44 -		13,16		trace Silt, loose	42'-44'		
45		12,17	0"	No Recovery			-
- 46 -		31,34					-
- 47 -	SAND &	31,27	12"	Brown medium coarse SAND and GRAVEL,	S-16	1.6	-
- 48 -	GRAVEL	17,12		rock fragments	46'-48'		-
- 49 -		15,17	0"	No Recovery			-
- 50 -		17,23	105		0.17	07	
- 51 -	SAND &	5,6	10"	Brown coarse SAND and GRAVEL,	S-17	0.7	
- 52 -	GRAVEL	6,8	10"		50'-52'	0.4	
- 53 -	SAND &	5,7	12"	Dark grey SAND and SILT, some Gravel,	S-18	0.4	-
- 54 -	SILT	15,24	1.6.1	poorly sorted, dense	52'-54'	0.6	
- 55 -	SAND	54,44,48,39	16"	Dk.Grey med to fine SAND, some Silt, lt. Gravel, stiff	S-19 54-56'	0.6	_

DRILLI	NG LO	OG fo	or We	II #: MW-44D ERM 399 Bo ylston Stræt, 6th Floor Boston, MA 021 l6	Page	3 of	3
Depth Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon Description/Soil Classification	Sample # & Depth	PID Conc. (ppm) spoon/HS	Lab Sample # & Analyses
- 56 -							
- 57 -	SAND	51,53	10"	Dark grey medium to fine SAND, some	S-20	0.8	_
- 58 -		49,58		Silt, little Gravel, stiff	56'-58'		
- 59 -	SAND	58,40	16"	Dark grey medium to fine SAND, some	S-21	0.7	_
- 60 -		89,65		Silt, little Gravel, stiff	58'-60'		
	GRAVEL	28,54	10"	Coarse GRAVEL, little to trace fine Sand and	S-22	0.6	_
= 62 =		100		Silt	60'-62'		_
- 63 -							_
= 64 =	TILL	75,100	7"	Grey TILL, very stiff	S-23	0.7	
- 65 -		(4")			64'-66'		_
- 66 -							
- 67 -							_
- 68 -				Well Construction Details:			_
6 9				Protective Flushmount Roadbox			_
- 70 -				0'-1' Concrete surface seal			_
71				1'-12' Native backfill			_
- 72 -				12'-59' Grout			_
- 73 -				59'-61' Bentonite chip seal			_
- 74 -				61-68' #1 silica sand filter pack			
- 75 -				63'-68' 0.010 slotted PVC well screen			
- 76 -				68' Bottom of boring			
-77 -							
- 78 -							
- 79 -							
- 80 -							-
- 81 -				–			-
- 82 -				–			
- 83 -				–			-
- 84 -				F			-
85							_

DRILLI Project: Client: Drilling Co: Date Started: Location: Screen Diam: Casing Diam: Boring Depth: Surface Elev.:	NG LOG fo Raytheon - Wayland Raytheon Geosearch, Inc. 3-Nov-98 Wayland, Massachusetts 2" 2" 37' 132.51'	Length: Length: Length: Well Dep MP: MP Elev.	Project Number: 143.45 Logged by: Ryan Bagley Driller: Mike D'Amico Date Finished: 3-Nov-98 Drilling Method: 4.25 ID HSA h: 5' Slot Size: 0.01 h: 32' Type: PVC Depth 37' Boring Diam.: 8'' PVC Depth to GW:				SITE MAP N Building Parking Lot (Front) Islands MW-45S MW-45M Notes: Depth to GW measured on 11/17/98		
Depth Well Log 0 - 2 - 4 - 4 - 6 - 10 - 12 - 14 - 16 - 22 - 24 - 26 - 28 - 24 - 26 - 30 - 32 - 34 - 36 - 38 - 40 - 42 - 44 - 46 - 2300 lb. Hamm - 301 Jt. Hammed (3) Slide Hammed (3	ner		No Split-Spoon Sat Well Construction Protective Flushmo 0'-1' Concrete 1'-17' Native bas 17'-28' Grout 28'-30' Bentonite 30'-37 #1 silica s	Details: ount Roadbox surface seal ckfill chip seal and filter pack ted PVC well screen	Drill Cuttings	Sample # & Depth	HS Conc. (ppm)	Lab Sample # & Analyses	

Projec Client: Drillin Date S Locati Screen Casing Boring	g Co: tarted:	NG LC Raytheon - W Raytheon Geosearch, Irr 3-Nov-98 Wayland, Ma 2" 2" 48' 132.56'	Vayland	Length: Length: Well Dep MP: MP Elev.	PVC	ERM 399 Boylsto Boston, Ma 143.45 Ryan Bagley Mike D'Amico 3-Nov-98 4.25 ID HSA Slot Size: Type: Boring Diam.: Depth to GW:	0.01 0.01 PVC 8" 18.33'	Notes:	AP Parking Lot Islands MW-45S MW-45M Depth to G [*] measured o	
Depth	Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon	Description/Soil Cla	ssification	Sample # & Depth	HS Conc. (ppm)	Lab Sample # & Analyses
 0 1 2 3 4 5 6 7 8 9 		SAND & FILL	12,10 7,7	21"	Light brown media	um SAND and FILL,	dry	S-1 5'-7'	1.9	
 10 11 12 		SAND	11,14 12,9	14"	Light brown medie poorly sorted, dry	um to fine SAND, so	me Gravel,	S-2 10'-12'	1.4	
- 13 - - 14 - - 15 - - 16 -		SAND	7,9	12"		AND, some Gravel, p	oorly	S-3	3.0	
- 17 - - 18 - - 19 - - 20 -			5,8		sorted, dry to dam			15'-17'		
21 -		SAND	5,8 8,6	16"	Brown medium to poorly sorted, satu	fine SAND, trace Gr	avel,	S-4 20'-22'	0.0	_
22 23 24		SAND	10,11 10,10	20"		fine SAND, trace Gr	avel,	S-5 22'-24'	0.0	

(1) 140 lb. Hammer (2) 300 lb. Hammer

(3) Slide Hammer

Sandpack ____

Bentonite Seal

Well Screen Cement

RILLI	NG LC)G for	· Wel	I #: MW-45M ERM Boylston Street, 6th Floor Boston, MA 021 16	Page	2 of	3
oth Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon Description/Soil Classification	Sample # & Depth	PID Conc. (ppm) spoon/HS	Lab Sample # & Analyses
_	SAND	8,9	24"	Brown medium SAND, some fine Sand,	S-6	0.0	_
		11,11		trace Gravel, saturated	24'-26'		
	SAND	10,10	24"	Brown medium SAND, some fine Sand, well	S-7	0.0	
		12,11		sorted, saturated	26'-28'		
	SAND	18,20	24"	Brown medium SAND, some fine Sand, well	S-8	0.0	_
		22,20		sorted, saturated	28-30'		
	SAND	18,20	24"	Brown medium SAND, some fine Sand	S-9	0.0	
		15,12		saturated	30'-32'		_
	SAND	18,15	24"	Brown medium to fine SAND, well sorted,	S-10	0.0	_
		15,13		saturated	32'-34'		
	SAND	9,10	24"	Brown fine SAND, trace Silt, well sorted,	S-11	0.0	
		12,10		saturated	34'-36'		
	SAND &	17,15	24"	Top 16": Brown medium SAND, well sorted, sat.	S-12	0.0	
	SILT	13,13		Bottom 8": Brown fine SAND and SILT, sat.	36'-38'		
	SAND &	16,12	24"	Brown fine SAND and SILT, well sorted,	S-13	0.0	
	SILT	11,14		saturated	38'-40'		_
	SAND	3,5	24"	Brown fine SAND, trace Silt, well sorted,	S-14	0.0	
		7,7		saturated	40'-42'		
1	SAND	10,10	24"	Brown fine SAND, trace Silt, well sorted,	S-15	0.0	
		11,14		saturated	42'-44'		
	SAND	5,7	24"	Brown fine SAND, trace Silt, well sorted,	S-16	0.0	
		9,12		saturated [iron staining]	44'-46'		
	SAND	12,12	24"	Brown fine SAND, trace Silt, well sorted,	S-17	0.0	
		14,22		saturated	46'-48'		
	SAND	14,10	24"	Brown fine SAND, trace Silt, well sorted,	S-18	0.0	_
		10,10		saturated	48'-50'		
	SAND	12,12	24"	Brown fine SAND, trace Silt, well sorted,	S-19	0.0	
		9,9		saturated	50'-52'		
				Well Construction Details on Following Page			-

DF	RILLI	NG L	OG fo	or We	II #: MW-45M ERM 399 Bo ylston Street, 6th Floor Boston, MA 02116	Page	3 of	3
Depth	Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon Description/Soil Classification	Sample # & Depth	PID Conc. (ppm) spoon/HS	Lab Sample # & Analyses
- 56 -								
- 57 -					Well Construction Details:			
- 58 -					Protective Flushmount Roadbox			
- 59 -					0'-1' Concrete surface seal			
- 60 -					1'-17' Native backfill			
					17'-39' Grout			
- 61 - 62 -					39'-41' Bentonite chip seal			
- 63 -					41'-48' #1 silica sand filter pack			-
– 64 –					43'-48' 0.010 slotted PVC well screen			
65					48' Bottom of boring			
- 66 -					Γ			
- 67 -					Γ			
					Γ			
- 68 -					Γ			
- 69 -	I							_
- 70 -	I							_
- 71 -								_
- 72 -	1							_
- 73 -	l							_
- 74 -	I							_
- 75 -					F			-
- 76 -					–			-
- 77 -	i				F			-
- 78 -	I				F			-
- 79 -					F			-
- 80 -	I				F			-
- 81 -	I				F			-
- 82 -					H			-
- 83 -	1				–			-
- 84 -					F			-
85	I				<u> </u>			_

DR	RILLI	NG LC)G for	· Wel	l #:	MW-45D	ERM ER	RM 9 Boylston Street, s ton, MA 021 16	, 6th Floor	Page	2 of	3
Depth	Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery		Split Spoon D	escription/S	Soil Classifica	ation	Sample # & Depth	PID Conc. (ppm) spoon/HS	Lab Sample # & Analyses
- 26 -												_
2 7 2 8												-
29					F							
- 30 -					_							_
- 31 - 32												
- 33 -					_							_
3 4 3 5												
- 36 -					_							-
- 37 - - 38 -												-
39					F							
- 40 -					-							-
41 42												
- 43 -												-
4 4 4 5												
- 46 -					F							-
4 7 4 8												
40]
- 50 -					┢╸							-
5 1 5 2 5 2					[
- 53 -		SAND	8,9 9,10	14"		12": Br. Med. SA 2": Grey fine SA				S-1 52'-54'	0.0	-
5 4 5 5	000000 0000000	SAND &SILT		24"	<u> </u>	fine SAND and				S-2 54'-56'	0.0	

DRILLI	NG LO)G fo	r Wel	I #: MW-45D ERM Boston, MA 02116	Page	3 of	3
epth Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon Description/Soil Classification	Sample # & Depth	PID Conc. (ppm) spoon/HS	Lab Sample & Analyses
6 -							
7	SAND &	5,7	24"	Grey fine SAND & SILT, compact, well sorted,	S-3	0.0	
8	SILT	10,9		saturated	56'-58'		
° -	SAND &	10,9	17"	Grey fine SAND & SILT, compact, well sorted,	S-4	0.0	
	SILT	10,12		-	58'-60'		
	SAND &	7,7	21"	Grey fine SAND & SILT, well sorted, compact,	S-5	0.0	
	SILT	6,8		saturated	60'-62'		
	SAND &	9,11	24"	Grey fine SAND & SILT, trace Clay, well sorted,	S-6	0.0	
	SILT	11,14		compact, saturated	62'-64'		
	SAND &	6,6	24"	Grey fine SAND & SILT, trace Clay, well sorted,	S-7	0.0	
	SILT	8,11		compact, saturated	64'-66'		
	SAND &	7,9	20"	Top 6": Grey-dk.br. Fine SAND & SILT, sat. Mid4": Grey fine	S-8	0.0	
	SILT	11,10		SAND & SILT, some Clay Btm 10": Br fine SAND, trace. Silt	66'-68'		
		10,10	0"	No Recovery	S-9		
		9,10			69'-70'		
	SAND	9,10	22"	Top 10": Grey med to fine SAND, trace Silt, w.s., sat	S-10	2.6	
		7,7		Btm 12": Br to grey fine SAND, trace Silt, w.s., sat	70'-72'		
	SAND	11,13	24"	Brown to lt. Grey fine SAND, trace Silt,	S-11	0.0	
		10,10		well sorted, saturated	72'-74'		
	SAND	10,11	14"	Brown to lt. Grey fine SAND, trace Silt and Gravel	S-12	0.0	
		13,13		(interbedded), saturated	74'-76'		
	TILL	12,11	20"	Top 4": Br med to fine SAND, little Gravel, sat. Mid 6":	S-13	0.0	
		14,60(2")		Grey fine SAND & SILT Bottom 10": Grey TILL, tight, sat	76'-78'		
		,()		Top of bedrock at 78' bgs			
				-			
				-			
				-			
				-			
				-			

DRILLING LOG for Project: Raytheon - Wayland Client: Raytheon Drilling Co: Geosearch, Inc. Date Started: 9-Aug-99 Location: Wayland, Massachusetts Screen Diam: 2" Casing Diam: 2" Boring Depth: 78' Surface Elev.: 132.59'	r Well #: MW-45D Project Number: Logged by: Driller: Date Finished: Drilling Method: Length: 5' Length: 73' Well Depth 78' MP: PVC MP Elev.: 132.59'	ERM 399 Bo ylston Street, 6th Floor 399 Bo ylston Street, 6th Floor Boston, MA 021 16 143.48 Ryan Bagley Tom Belsky 10-Aug-99 4.25 ID HSA/Drive and Wash Slot Size: Slot Size: 0.01 Type: PVC Boring Diam.: 8" Depth to GW: 18.80'	Notes: Dep	
Depth Well Log Stratigraphy Blowcounts 0	Augered using 4.25 Advanced 5" casing Telescoped 4" casin Well Construction I Protective Flushmo 0'-1' Concrete s 1'-10' Native bac 10'-70' Grout 70'-72' Bentonite 72'-78' #1 silica sa	ng from 40'-78' Details: unt Roadbox surface seal ckfill chip seal and filter pack ted PVC well screen	& Depth (S Conc. Lab Sample # & Analyses

							ERM		SITE M	AP	
DI	RILLI	NG LO	DG fo	r Wel	l #: MW		ERM Boston,	ylston Street, 6th Floor , MA 02116			Ň
Proje		Raytheon - W	Vayland		Project Numb	er:	143.50			-	
Clien		Raytheon			Logged by:		Ryan Bagley		-		Building
	ng Co: Started:	Geosearch, In 24-Mar-00	nc.		Driller: Date Finished		M. Bovenzi 27-Mar-00		- ⊮	Parking Lot Islands	(Front)
Locat		Wayland, Ma	assachusetts		Drilling Meth			e and Wash/HV Rk Core		/MW-45S	
Scree	n Diam:	2"		Length:	5'		Slot Size:	0.01		`⊕ ◀──	- MW-45B
	g Diam:	2"		Length:	92'		Type:	PVC		MW-45M	
	g Depth:	97'		Well Dep			Boring Diam.:	8"	Nataai	MW-45	
Surfa	ce Elev.:	132.25'		MP: MP Elev	PVC .: 132.25'		Depth to GW:	15.31'	Notes:	Depth to G measured o	
		1	-	NH Elev			•			incustrieu o	H 1/2/00
Depth	Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Spli	t Spoon l	Description/Soil	Classification	Sample # & Depth	HS Conc. (ppm)	Lab Sample # & Analyses
- 0 -											
_ 0 _											_
2					No Split sr	oon sam	ples collected				-
- 4 -							-				-
6 -					Augered us	sing 4.25	" flights from 0'-	40'			_
- 8 -					Advanced	using 5"	casing to 40'				_
_ 0 _					Telescoped	1 4" casin	g from 40'-76'				_
- 1 -					HV Rock of	ore from	76'-97'				-
12							10-71				-
1 4					_						-
- 16 -					Well Cons	truction I	Details:				_
					Protective	Flushmo	unt Roadbox				
- 18 -					0'-1'	Concr	ete surface seal				-
- 20 -											-
22					1'-5'	Native	e backfill				-
24					5'-75'	Grout					_
26					75'-91'	Bento	nite chip seal				
- 26 -					91'-97'	#1 sili	ca sand filter pac	ck			-
- 28 -					92'-97'		slotted PVC wel				-
- 30 -					-			i screen			-
- 32 -					97'	Bottor	n of boring				_
											_
- 34 -											_
- 36 -					 						
38					 						-
- 40 -					_						_
- 42 -											
- 42 -					_						-
- 44 -					-						-
- 46 -					 						-
48											
	otes for Blo			Key to W	ell Construction						
	40 lb. Hamr 00 lb. Hamr				Sandpack		Well Screen	Drill Cuttings			
	lide Hamme				Bentonite Seal		Cement	Grout			

DF	RILL	ING LO	G for V	Well #:	MW-45B KERM ERM 399 Boylston Street, 6th Floor Boston, MA 021 16	Page	2 of	2	
Depth	Well L	.og Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon Description/Soil Classification	Sample # & Depth	PID Conc. (ppm) spoon/HS	Lab Sample # & Analyses	
- 50					76'-77.5' Hard to moderately hard, very slight				
- 52					weathering, sound, unfractured, light grey,				
					DIORITE (fine grained).				
- 56 - 58					77.5'-80.0' Moderately hard, medium to severe				
					weathering reduced to mainly (>90%) Gravel				
- 60					size fragments, extremely fractured GABBRO/				
- 62					DIORITE (fine grained).				
- 64					81' - 84' Moderately hard, severe weathering,				
- 66					reduced to mainly (>90%) Gravel size				
- 68					frags, extremely fractured GABBRO/ DIORITE				
- 70					Oxidation apparent on >50% of joint surfaces.			_	
- 72					85' Same as above. GABBRO with some			_	
- 74					Feldspar.				
- 76		DIORITE	Rec = 32"	RQD = 51%	86' - 88' Moderately hard, moderately weathered,	76'-80'		CORE RUN C-1	
- 80		GABBRO	Rec =	RQD =	moderate to slightly fractured, medium grained,	81' -		CORE RUN	
- 82		DIORITE	16"	0%	green/ grey GABBRO.	84'		C-2	
- 84		GABBRO	Rec = 9"	RQD = 0%	88.0' - 88.2' Fracture 40 degrees, evidence of	85'		CORE RUN C-3	
- 86		GABBRO	Rec =	RQD =	healed fracturing (chlorite).	86' -		CORE RUN	
- 92			86"	95%	93' - 93.7' Moderately hard, moderately weathered,	92'		C-4	
		GABBRO	Rec =	RQD =	moderately fractured, medium grained, green/ gray	93' -		CORE RUN	
= 94 ·			41"	92%	GABBRO. Evidence of silt/ clay caps and jointing.	97'		C-5	
- 98					93.7' - 93.1' Fracture, highly weathered,				
- 100					evidence of clay coatings.				
100					96.1' - 97.0' Fracture, highly weathered, reduced				
					to mainly Gravel size fragments.				
_									
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[]								

						ERM		SITE MA	AP	
DF	RILLI	NG LO	DG fo	r Wel	#: MW-46S	ERM Boston, MA	on Street, 6th Floor A 02116			N
Proje		Raytheon - W	Vayland		Project Number:	143.45		_		
Clien		Raytheon Geosearch, In			Logged by:	Ryan Bagley			Parking Lot	
	ng Co: Started:	4-Nov-98	nc.		Driller: Date Finished:	Mike D'Amico 4-Nov-98			MW-46M	
Locat		Wayland, Ma	assachusetts		Drilling Method:	4.25 ID HSA			▶	
Scree	n Diam:	2"		Length:	5'	Slot Size:	0.01		₽⊕⊕∢	HA-103
	g Diam:	2"		Length:	20'	Type:	PVC		MW-46S	
	g Depth:	25'		Well Dep		Boring Diam.:	8"	Notes:	Danth to C	N 7
Surfa	ce Elev.:	132.81'		MP: MP Elev.	PVC : 132.45'	Depth to GW:	14.74'		Depth to G measured o	
L		1	1			_				
Depth	Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon	Description/Soil Cla	ssification	Sample # & Depth	HS Conc. (ppm)	Lab Sample # & Analyses
0										
- 0 -										
- 1 -					No Split-Spoon Sa	mplas Callastad				-
2 -						inples Collected				-
- 3 -					_					_
_ 1 _										
- 5 -					Well Construction	Details:				
6					-					-
- 7 -					Protective Flushmo	ount Roadbox				_
- 8 -					0'-1' Concrete	surface seal				_
0					1'-14' Native ba	ckfill				
- 9 -										
10					- 16'-18' Bentonite	ahin agal				-
- 11 -						-				_
12					18'-25' #1 silica s	and filter pack				_
- 13 -					20'-25' 0.010 slot	ted PVC well screen	l			_
					25' Bottom o	f boring				
- 14 -										
- 15 -					-					-
16					-					-
- 17 -					-					_
- 18 -										
- 19 -										
- 20 -					_					-
21					-					-
-22 -					-					_
-23 -					_					_
= 25 Footn	otes for Blov	wcounts	I	Kev to W	ell Construction					
(1) 1	40 lb. Hamn	ner			Sandpack	Well Screen	Drill Cuttings			
	00 lb. Hamn lide Hamme				Bentonite Seal		Grout			

DR	RILI				r Wel	l #: MW-46M	ERM Boston, MA	on Street, 6th Floor A 02116	SITE MA	AP	↑ N	
Project			Raytheon - W	ayland		Project Number:	143.45		41			
Client:		_	Raytheon	-		Logged by: Driller:	Ryan Bagley		41	Parking Lot		
Drillin Date S	-		Geosearch, In 4-Nov-98	с.	Date Finished:		Mike D'Amico 4-Nov-98		-11	MW-46M		
Locati			Wayland, Ma	ssachusetts	Drilling Method: 4.25 ID HSA							
	Diam:		2"		Length: 5'		Slot Size:	0.01		₽⊕⊕∢	HA-103	
Casing	g Diam:		2"		Length:	45'	Type:	PVC	11	MW-46S		
-	g Depth:		50'		Well Dep		Boring Diam.:	8"				
Surfac	e Elev.:		132.84'		MP:	PVC	Depth to GW:	16.98'		Depth to G		
					MP Elev	.: 132.54'				measured o	n 11/1//98	
Depth	Well I	Jog	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoor	n Description/Soil Cla	assification	Sample # & Depth	HS Conc. (ppm)	Lab Sample # & Analyses	
- 0 -						-					_	
- 1 -						-					_	
- 3 -											_	
- 4 -						-					_	
5												
			SAND	7,9	9"	Brown medium SA	AND [FILL], some G	ravel, loose	S-1	1.3		
- 6 -				13,20		poorly sorted, dry			5'-7'		_	
┝╶┥				15,20					5-7			
- 8 -						_					_	
ΓΊ												
- 10 -			SAND &	11,14	11"	Brown medium S	AND and GRAVEL,	loose [FILL]	S-2	1.5		
11					11	_	and one vel,	ioose [I ILL],		1.5		
12			GRAVEL	12,9		poorly sorted, dry			10'-12'			
13						_					_	
14												
						_						
- 15 -			SAND	6,8	7"	Brown medium S	AND, some fine Sand	trace Silt	S-3	1.4	=	
- 16 -			STILLE	9,7	,	saturated	in (D, some mie suite	, u uee 511,	15'-17'	1.1	_	
17			(4) T									
18			SAND	11,14	24"	_	fine SAND, trace Sil	lt,	S-4	1.7	-	
- 19 -				10,11		well sorted, satura	ted		17'-19'			
20			SAND	7,9	18"	Brown medium to	coarse SAND, some	Gravel,	S-5	1.5	_	
21				6,9		poorly sorted, loos	se, saturated		19'-21'			
			SAND &	11,13	20"	Top 15": Brown n	ned to coarse SAND,	some Gravel	S-6	1.2		
- 22 -			SILT	12,12		Bottom 5": Brown	n SILT, well sorted, sa	aturated	21'-23'		-	
- 23 -			SAND	20,23	24"	Top 22": Brown n	ned to coarse SAND,	some Gravel	S-7	1.0		
24												

Footnotes for Blowcounts

(1) 140 lb. Hammer

(2) 300 lb. Hammer(3) Slide Hammer

Key to Well Construction

Sandpack Bentonite Seal

Well Screen Cement

DRILLI	NG LC)G for	· Wel	I #: MW-46M Boylston Street, 6th Floor Boston, MA 021 16	Page	2 of	3
Depth Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon Description/Soil Classification	Sample # & Depth	PID Conc. (ppm) spoon/HS	Lab Sample # & Analyses
- 25 -	SILT	27,30	24"	Bottom 2": Brown fine SILT, well sorted, sat.	23'-25'		
- 26 -	SILT	16,21	14"	Brown SILT, trace Clay, well sorted, compact	S-8	1.2	
- 27 -		22,18		saturated	25'-27'		
- 28 -	SILT	19,24	24"	Brown SILT, trace Clay, compact, saturated	S-9	1.2	
- 29 -		28,20			27'-29'		
- 30 -	SILT	8,11	18"	Brown SILT, some Clay, saturated [iron staining]	S-10	1.3	
- 31 -		10,11			29'-31'		
- 32 -	SILT	15,17	22"	Brown SILT, trace Clay, saturated	S-11	0.5	
- 33 -		12,12			31'-33'		
- 34 -	SILT	11,9	20"	Brown SILT, trace Clay, saturated [iron staining]	S-12	1.5	
3 5		13,11			33'-35'		
- 36 -	SILT	7,7	12"	Brown SILT, trace Clay, saturated	S-13	1.3	
- 37 -		7,7			35'-37'		
- 38 -	SILT	10,12	24"	Brown SILT, trace Clay, trace fine Sand,	S-14	1.4	
- 39 -		12,10		saturated	37'-39'		
4 0	SILT	6,8	20"	Brown SILT, trace Clay, saturated	S-15	1.1	
4 1		10,10			39'-41'		
4 2	SILT	7,11	24"	Brown SILT, trace Clay, saturated [iron staining]	S-16	1.3	
- 43 - - - - - - - - - -		13,12			41'-43'		
– 44 –	SILT	14,16	24"	Brown to grey SILT, trace Clay, saturated	S-17	1.4	
4 5		15,13			43'-45'		
4 6	SILT	0,0	24"	Grey SILT, trace Clay, trace fine Sand, saturated	S-18	1.1	
4 7		3,3			45'-47'		
4 8 -	SILT	7,8	24"	Grey SILT, trace Clay, saturated	S-19	1.1	_
4 9		9,7			47'-49'		
50							
51							
5 2							
5 3				Well Construction Details on Following Page			
- 54 -							

DF	RILLI	NG L	OG fo	or We	II #: MW-46M ERM Bos visition Street, 6th Floor Bos ton, MA 021 16	Page	3 of	3
Depth	Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon Description/Soil Classification	Sample # & Depth	PID Conc. (ppm) spoon/HS	Lab Sample # & Analyses
- 56 -								
- 57 -					Well Construction Details:			
- 58 -					Protective Flushmount Roadbox			
- 59 -					0'-1' Concrete surface seal			
- 60 -					1'-15' Native backfill			
					15'-41' Grout			
- 61 - 62 -					41'-43' Bentonite chip seal			
- 63 -					43'-50' #1 silica sand filter pack			
– 64 –					45'-50' 0.010 slotted PVC well screen			
- 65 -					50' Bottom of boring			
- 66 -								
- 67 -	I							_
- 68 -								
- 69 -	I							_
- 70 -	I							_
- 71 -	I							_
- 72 -	I							_
- 73 -	I							_
- 74 -	I							_
- 75 -	I				-			-
- 76 -	I				–			-
- 77 -	I				–			-
- 78 -	I				–			-
- 79 -	I				F			-
- 80 -	I				F			-
81	I				–			-
- 82 -	I				–			-
- 83 -	I				H			-
84	I				–			-
85	I				<u> </u>			_

		ERM		SITE MA	AP	
DRILLING LOG fo	or Well #: MW-47S	399 Bo ylst on Stro ERM Bos ton, MA 021				N
Project: Raytheon - Wayland	Project Number:	143.45			MW-471)
Client: Raytheon	Logged by:	Ryan Bagley			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	·MW-47M
Drilling Co: Geosearch, Inc.	Driller:	Tom Belsky		Parking	⊕_⊽	
Date Started: 6-Nov-98	Date Finished:	6-Nov-98		Lot	\bigoplus	MW-5
Location: Wayland, Massachusett Screen Diam: 2"	s Drilling Method: Length: 5'	4.25 ID HSA Slot Size:	0.01		MW-47S	
Casing Diam: 2"	Length: 31'	Туре:	PVC			
Boring Depth: 37'	Well Depth 36'	Boring Diam.:	8"	⊕ на-104	l I	
Surface Elev.: 132.58'	MP: PVC	Depth to GW:	17.73'	Notes:	Depth to G	W
	MP Elev.: 131.99'	_		1	measured o	n 11/17/98
Depth Well Log Stratigraphy Blowcounts per 6 inches	Recovery Split Spoor	n Description/Soil Classifi	cation	Sample # & Depth	HS Conc. (ppm)	Lab Sample # & Analyses
0 - 2 - 4 - 6 - 8 - 10 - 12 - - 16 - 18 - 20 - 22 - 24 - 26 - 30 - 32 - 34 - 36 - 38 - 40 - 42 - 44 - 46 - 48 -	1'-10' Native by 10'-26' Grout 26'-29' Bentonit 29'-37' #1 silica	a Details: oount Roadbox e surface seal ackfill e chip seal sand filter pack otted PVC well screen of boring	Drill Cuttings			

DR	RILLI	NG LO)G fo	r Wel	l #: MW-47M	ERM 399 Boylstor ERM Boston, MA	n Stræt, 6th Floor 02116	SITE MA	AP	↑ N
Project:Raytheon - WaylandClient:RaytheonDrilling Co:Geosearch, Inc.Date Started:5-Nov-98Location:Wayland, MassachusettsScreen Diam:2"Casing Diam:2"Boring Depth:50'Surface Elev.:132.58'			Length: Length: Well Dep MP: MP Elev	PVC	143.45 Ryan Bagley Mike D'Amico 5-Nov-98 4.25 ID HSA Slot Size: Type: Boring Diam.: Depth to GW:	0.01 PVC 8" 17.20'	⊕ HA-104 Notes:	₩W-47S	- MW-47M MW-5 W	
Depth	Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoor	n Description/Soil Clas	ssification	Sample # & Depth	HS Conc. (ppm)	Lab Sample # & Analyses
0 - 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10		SAND	5,7 6,6	16"	Brown medium to dry	fine SAND, well sort	ed,	S-1 5'-7'	0.8	
- 10 - - 11 -		SAND	5,7 6,5	14"	Brown medium to dry to damp	fine SAND, well sort	ed,	S-2 10'-12'	1.0	-
- 12 - 13 - 14 - 15			- ,-							-
- 16 - - 17 -		SAND	5,5 7,8	15"	Brown fine SAND	D, well sorted, damp		S-3 15'-17'	2.6	
= 18 = = 19 =					-					-
20 21		SAND &	3,3	22"	Top 20": Brown fr	ine SAND and SILT, v	w.sorted, sat.	S-4	2.1	
22		SILT	3,3		Bottom 2": Brown	medium to fine SAN	D, sat.	20'-22'		
-23 -		SAND &	4,4	24"	Top 8": Brown fin	ne SAND and SILT, sa	t.	S-5	5.0	_
_24		SILT	5,4		Bottom 16": Brow	n med to fine SAND,	sat.	22'-24'		

Footnotes for Blowcounts

(1) 140 lb. Hammer

(2) 300 lb. Hammer

(3) Slide Hammer

Key to Well Construction

Sandpack Bentonite Seal

Well Screen Cement

DRILLI	NG LC)G for	· Wel	I #: MW-47M ERM Boylston Street, 6th Floor Boston, MA 021 l6	Page	2 of	3
Depth Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon Description/Soil Classification	Sample # & Depth	PID Conc. (ppm) spoon/HS	Lab Sample # & Analyses
- 25 -	SAND	7,8	24"	Brown medium to fine SAND, well sorted,	S-6	2.4	
- 26 -		5,5		saturated	24'-26'		
27	SAND	7,7	24"	Brown medium to fine SAND, well sorted,	S-7	3.0	
		7,7		saturated	26'-28'		
29	SAND	7,9	24"	Brown medium to fine SAND, well sorted,	S-8	3.0	
3 0		10,10		saturated	28'-30'		
31	SAND	8,8	24"	Brown medium to fine SAND, well sorted,	S-9	1.7	
- 32 -		11,14		saturated	30'-32'		
33	SAND	10,10	24"	Brown medium to fine SAND, well sorted,	S-10	2.1	
- 34 -		10,10		saturated	32'-34'		
- 35 -	SAND	7,11	20"	Brown medium to fine SAND, well sorted,	S-11	2.3	
- 36 -		12,14		saturated	34'-36'		
- 37 -	SAND &	11,15	24"	Top 18": Brown med to fine SAND, saturated	S-12	2.1	
	SILT	13,16		Bottom 6": Brown SILT, well sorted, sat.	36'-38'		
39	SAND &	7,10	18"	Grey fine SAND and SILT, well sorted,	S-13	2.7	
40	SILT	5,5		saturated	38'-40'		
41	SAND &	11,9	24"	Top 16": Grey fine SAND and SILT	S-14	2.0	
4 2	SILT	9,9		Bottom 8": Grey SILT, saturated	40'-42'		
- 43 -	SILT	5,8	16"	Grey SILT, well sorted, saturated	S-15	1.2	
4 4 -		7,5			42'-44'		
45	SAND &	8,13	24"	Top 12": Grey fine SAND, saturated	S-16	2.0	
4 6	SILT	10,14		Bottom 12": Grey SILT, saturated	44'-46'		
47	SILT	9,7	24"	Grey SILT, well sorted, saturated	S-17	1.1	
4 8 -		7,7			46'-48'		
	SILT	10,9	24"	Grey SILT, well sorted, saturated	S-18	1.1	
50		9,11			48'-50'		
51							
52							
5 3				Well Construction Details on Following Page			
- 54 -							

DR	RILLI	NG L	Page 3 of 3					
Depth	Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon Description/Soil Classification	Sample # & Depth	PID Conc. (ppm) spoon/HS	Lab Sample # & Analyses
- 56 -								_
57					Well Construction Details:			
- 58 -					Protective Flushmount Roadbox			
- 59 -					0'-1' Concrete surface seal			
- 60 -					1'-15' Native backfill			
					15'-41' Grout			
- 61 - 62 -					41'-43' Bentonite chip seal			
63					43'-50' #1 silica sand filter pack			
- 64 -					45'-50' 0.010 slotted PVC well screen			
65					50' Bottom of boring			_
66								_
								_
- 67 -								_
- 68 -								_
- 69 -								_
- 70 -								_
- 71 -								-
- 72 -								_
- 73 -								_
- 74 -								-
- 75 -					–			-
- 76 -					–			-
-77 -					F			-
- 78 -					–			-
- 79 -					F			
- 80 -					–			-
- 81 -					H			-
- 82 -					H			-
- 83 -					–			-
- 84 -					–			-
85					<u> </u>			_

DR	ILLI	NG LO)G fo	· Wel	I #: MW-47D	ERM 399 Bo yls Bos ton, M	t on Street, 6th Floor	SITE MA	AP	N N
Project: Client: Drilling Co: Date Started: Location: Screen Diam: Casing Diam: Boring Depth: Surface Elev.:		Raytheon - Wayland Raytheon Geosearch, Inc. 5-Nov-98 Wayland, Massachusetts 2" Length: 72' Well Dept 132.57' MP Elev.:			Project Number:143.45Logged by:Ryan BagleyDriller:Mike D'AmicoDate Finished:6-Nov-98Drilling Method:4.25 ID HSA5'Slot Size:0.0166'Type:PVCoth71'Boring Diam.:8"PVCDepth to GW:17.21'				D >MW-47M MW-5 GW on 11/17/98	
Depth	Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoo	on Description/Soil C	lassification	Sample # & Depth	HS Conc. (ppm)	Lab Sample # & Analyses
 1 2 3 4 5 6 7 8 9 10 7 8 9 10 11 12 13 14 15 16 17 16 17 16 17 18 19 20 21 20 21 20 21 22 23 Footnots 	es for Blo	wcounts		Key to W	Advanced 5" cas	" flights from 0'-23' ing to 40' using from 40'-70'				
 (1) 140 (2) 300 	lb. Hamn lb. Hamn le Hamme	ner ner			Sandpack Bentonite Seal	Well Screen Cement	Drill Cuttings			

DF	RILLI	NG LO)G for	: Wel	H: MW-47D ERM Bos ton, MA 021 16	loor Page	2 of	3
Depth	Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon Description/Soil Classification	Sample # & Depth	PID Conc. (ppm) spoon/HS	Lab Sample # & Analyses
26					-			_
- 27 -					-			-
- 28 - - 29 -								
- 30 -					-			-
- 31 - 32 -								
- 33 -					-			-
- 34 -					-			-
- 35 - - 36 -					-			
37 -					-			-
- 38 - - 39 -					-			
- 40 -					-			-
41 42 42					-			-
42					_			
- 44 -					-			_
4 5 4 6 4 6					-			
- 47 -					-			-
4 8 - 49 -								
5 0					-			
5 1		SILT	5,6 5,7	18"	Grey SILT, well sorted, compact, saturated	S-1 50'-52'	0.8	-
5 2 5 3 5 3		SAND	9,8	10"	Grey fine SAND, well sorted, saturated	S-2	0.8	
- 54 -		SAND &SILT	8,11 8 8 7 10	10"	Grey fine SAND and SILT, well sorted, sat.	52'-54' 8-3 54'-56'	0.9	
55		SAND & SILI	5,5,7,10	10	Sicy fine 57112 and 5121, wen solited, sat.	5-5 54-50	0.7	

DRILLI	NG LO)G fo	r Wel	ERM 399 Bo ylst on Street, 6th Floor Bos ton, MA 021 16	Page	3 of	3
Depth Well Log	Stratigraphy	Blowcounts per 6 inches	Recovery	Split Spoon Description/Soil Classification	Sample # & Depth	PID Conc. (ppm) spoon/HS	Lab Sample # & Analyses
- 56 -							
5 7 -	SAND &	7,9	17"	Grey to brown fine SAND and SILT, well sorted,	S-4	1.0	_
- 58 -	SILT	13,16		saturated [some iron staining]	56'-58'		
5 9 -	SAND	11,15	2"	Brown fine SAND, saturated	S-5	0.9	_
– 60 –		17,16			58'-60'		
- 61 -	SAND	9,14	19"	Brown medium to fine SAND, well sorted,	S-6	0.8	
62		16,17		saturated	60'-62'		
– 63 –	SAND &	12,15	15"	Brown fine SAND and SILT, well sorted,	S-7	0.2	
- 64 -	SILT	19,23		saturated	62'-64'		
- 65 -	SAND	17,12	7"	Light grey medium to fine SAND, some Silt,	S-8	0.4	
		15,9		saturated	64'-66'		
- 67	SAND	9,9	24"	Brown medium to fine SAND, trace Silt,	S-9	0.5	
		11,14		saturated	66'-68'		
- 69 -	TILL	32,44	15"	Grey fine SAND and SILT, trace coarse Sand,	S-10	2.2	
- 70 -		51,45		and fine Gravel, poorly sorted, compact	68'-70'		
_71			0"	Refusal			
-72 -				Top of bedrock at 70'			
- 73 -							
- 74 -				Well Construction Details:			
-75 -				Protective Flushmount Roadbox			
-76 -				0'-1' Concrete surface seal			
77				1'-10' Native backfill			
- 78 -				10'-62' Grout			
78				62'-64' Bentonite chip seal			
80				64'-72' #1 silica sand filter pack			
- 81				66'-71' 0.010 slotted PVC well screen			
82				72' Bottom of boring			
- 83 -				Г			
• 84 •				Г			
85				-			-