



New Jersey Department of Environmental Protection
Site Remediation Program

Report Certifications for RCRA GPRA 2020, CERCLA, and Federal Facility Sites

These certifications are to be used for reports submitted for RCRA GPRA 2020, CERCLA, and Federal Facility Sites. The Department has developed guidance for report certifications for RCRA GPRA 2020, CERCLA, and Federal Facility Sites under traditional oversight. The "Person Responsible for Conducting the Remediation Information and Certification" is required to be submitted with each report. For those sites that are required or opt to use a Licensed Site Remediation Professional (LSRP) the report must also be certified by the LSRP using the "Licensed Site Remediation Professional Information and Statement". For additional guidance regarding the requirement for LSRPs at RCRA GPRA 2020, CERCLA and Federal Facility Sites see http://www.nj.gov/dep/srp/srra/training/matrix/quick_ref/rcra_cercla_fed_facility_sites.pdf.

Document: "December 2016 Letter Work Plan Addendum for the FTMM-54 Area at FTMM-18"

PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: William R. Colvin

Representative First Name: William Representative Last Name: Colvin

Title: BRAC Environmental Coordinator

Phone Number: (732) 380-7064

Ext: _____

Fax: _____

Mailing Address: P.O. Box 148

City/Town: Oceanport

State: NJ

Zip Code: 07757

Email Address: william.r.colvin18.civ@mail.mil

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: _____

Date: 12/28/2016

Name/Title: William R. Colvin / BRAC Environmental Coordinator



DEPARTMENT OF THE ARMY

OFFICE OF ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
U.S. ARMY FORT MONMOUTH
P.O. 148
OCEANPORT, NEW JERSEY 07757

December 28, 2016

Ms. Linda Range
New Jersey Department of Environmental Protection
Bureau of Case Management
401 East State Street
PO Box 420/Mail Code 401-05F
Trenton, NJ 08625-0028

**SUBJECT: December 2016 Letter Work Plan Addendum for the FTMM-54 Area at
FTMM-18, Fort Monmouth, New Jersey**

Dear Ms. Range:

The purpose of this December 2016 Letter Work Plan Addendum (LWPA) is to address naphthalene exceedances encountered during the August 2016 sampling event at the subject area. This December 2016 LWPA proposes one additional boring to augment previous environmental investigations conducted at the FTMM-54 Area located within FTMM-18. The NJDEP agreed (letter dated May 4, 2016) that the rest of FTMM-54 located south of FTMM-18 required no additional actions and approved unrestricted use. Therefore all further work at FTMM-54 has been focused on the area within FTMM-18.

Work performed under the previous LWPA for the FTMM-54 Area at FTMM-18, submitted to the NJDEP on June 28, 2016, included the collection and analysis of soil samples from five soil borings for volatile organic compounds (VOCs) plus tentatively identified compounds (VOC+TICs), EPH, and lead analyses as shown on **Figure 1**. Soil samples were collected on August 8, 2016 as described in the June 2016 LWPA. Based on the results (see **Table 1**), the only exceedance of the New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Remediation Standard (RDCSRS) was naphthalene at 6-6.5 ft below ground surface (bgs) in M54-SB-02. There were no exceedances of the Non-Residential Direct Contact Soil Remediation Standard (NRDCSRS). Although benzene was detected at concentrations exceeding the impact to groundwater soil remediation standard (IGWSRS) at approximately 6 to 7 ft bgs in M54-SB-02 and M54-SB-03, these samples were collected below the water table, and the IGWSRS does not apply below the water table. As agreed by the NJDEP in their February 4, 2015 letter, groundwater contamination associated with FTMM-54 will be addressed under the FTMM-18 RI/FS and has been monitored and reported through the Annual Groundwater Reports at FTMM-18. The remedy for FTMM-18 is presumed to be monitored natural attenuation (MNA). A Classification Exception Area (CEA) will be filed with the state which will include benzene. Also, benzene was previously delineated in soil around the perimeter of the Former Fuel Distribution Piping Excavation Area in sampling conducted in 1994. Previous sampling did not

include naphthalene as a VOC analyte. Therefore, the only compound of potential concern for additional delineation is naphthalene. Boring logs are provided in **Attachment A**, and sample results are provided in **Table 1**.

Based on the sampling results, further delineation of the naphthalene exceedance is proposed to the east of Boring M54-SB-02. One additional Boring M54-SB-06 will be installed east of M54-SB-02 to determine the horizontal extent of the naphthalene exceedance. An additional contingency boring, M54-SB-07 will be installed to the east of M54-SB-06, with samples collected to be extracted and held by the laboratory for contingency analysis. The proposed sample locations are shown on **Figure 2**, and the quantity of samples are summarized on **Table 2**. The samples will be collected and analyzed for naphthalene based on the same criteria used in the June 28, 2016 LWPA, as follows:

- A soil sample will be collected from the soil interval representative of native soil immediately underlying the blue gravel (estimated at approximately 4.0-6 ft bgs), or from the most contaminated soil interval encountered below the blue gravel based on field evidence (visual, petroleum odor, or PID screening).
- A second soil sample will be collected from a deeper interval that is below the sample described above, and below any field evidence of contamination, to delineate vertical extent; this sample is anticipated to be collected from 7.0 to 7.5 ft bgs.
- If no field evidence of contamination or no blue gravel is present, then samples will be collected from 6.0 to 6.5 ft bgs and 11.0 to 11.5 ft bgs, which corresponds to the sample intervals of previous boring M54-SB-02.

We look forward to your review of this proposed sampling plan, and approval or additional comments. The technical Point of Contact (POC) for this matter is Cris Grill at (617) 449-1583 or by email at cris.grill@parsons.com. Should you have any questions or require additional information, please contact me by phone at (732) 380-7064 or by email at william.r.colvin18.civ@mail.mil.

Sincerely,



William R. Colvin, PMP, CHMM, PG
BRAC Environmental Coordinator

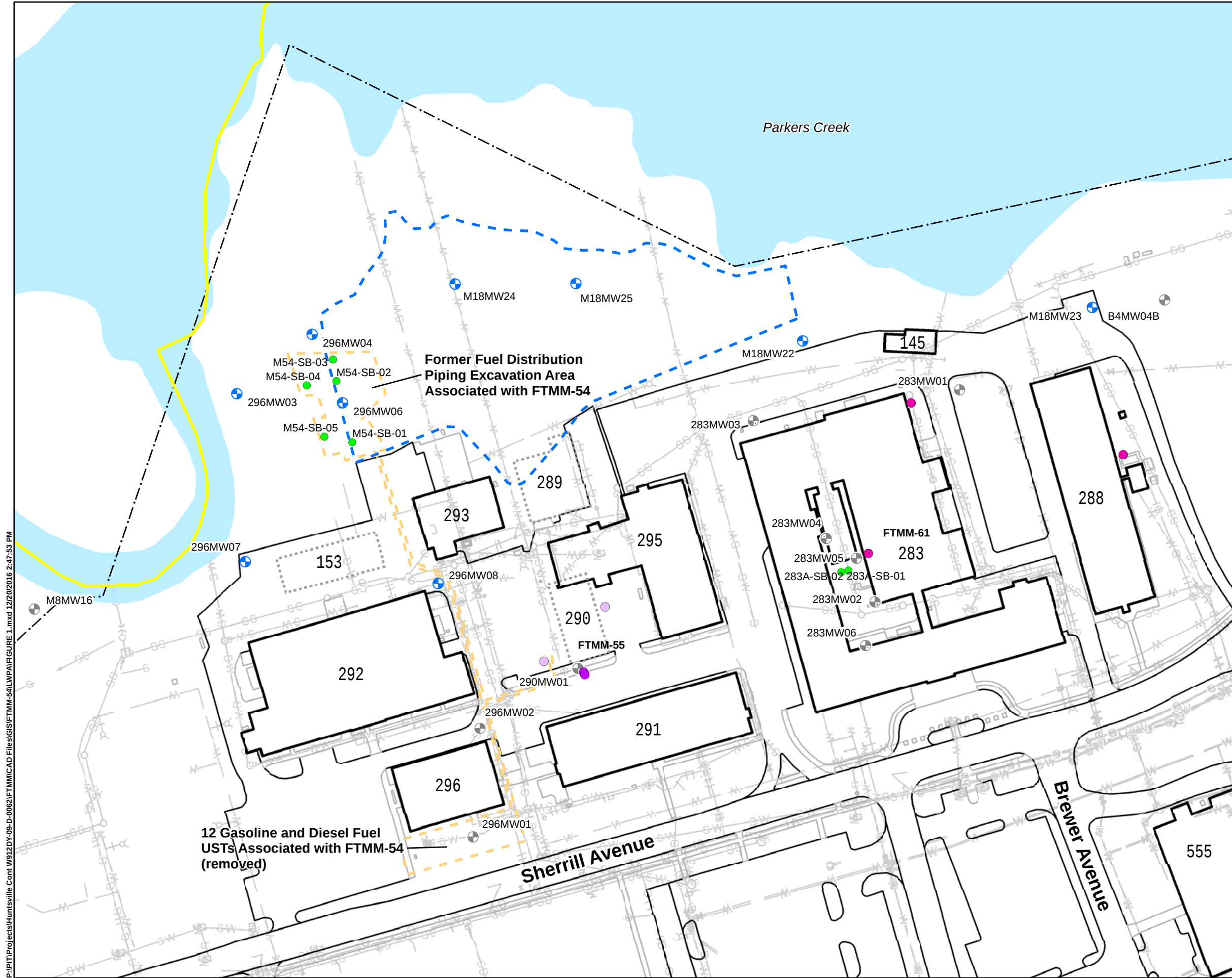
Attachments:

Figure 1 Sample Locations for FTMM-54 within the FTMM-18 Area
Figure 2 Proposed Sample Locations for FTMM-54 within the FTMM-18 Area
Table 1 Detected Soil Sampling Results – Comparison to NJDEP Standards
Table 2 Sampling Summary for FTMM-54 Revised Letter Work Plan Addendum
Attachment A Boring Logs

Linda S. Range, NJDEP
December Letter Work Plan Addendum
FTMM-54 Area at FTMM-18
December 28, 2016
Page 3 of 3

cc: Linda Range, NJDEP (3 hard copies)
Delight Balducci, HQDA ACSIM (e-mail)
Joseph Pearson, Calibre (e-mail)
James Moore, USACE (e-mail)
Jim Kelly, USACE (e-mail)
Cris Grill, Parsons (e-mail)

Figure 1
Sample Locations for FTMM-54 within the FTMM-18 Area



LEGEND:

- Shallow Monitoring Well
- Shallow Monitoring Well Associated with FTMM-54 / FTMM-55 / FTMM-61
- Previous 2016 Boring
- Removed Fiberglass UST associated with FTMM-55 (Building 290)
- Removed Steel UST associated with FTMM-55 (Building 290)
- Removed Steel UST associated with FTMM-61 (Building 283)
- FTMM-18 Landfill Revised Boundary (2015)
- FTMM-08 Boundary
- FTMM-54 Boundary
- Municipal Boundary
- Installation Boundary
- W Water Line
- S Sanitary Sewer Line
- SW Storm Sewer Line
- G Gas Line
- Former Building (Demolished)

DRAFT

N

1 inch = 100 feet

0 50 100 200 Feet

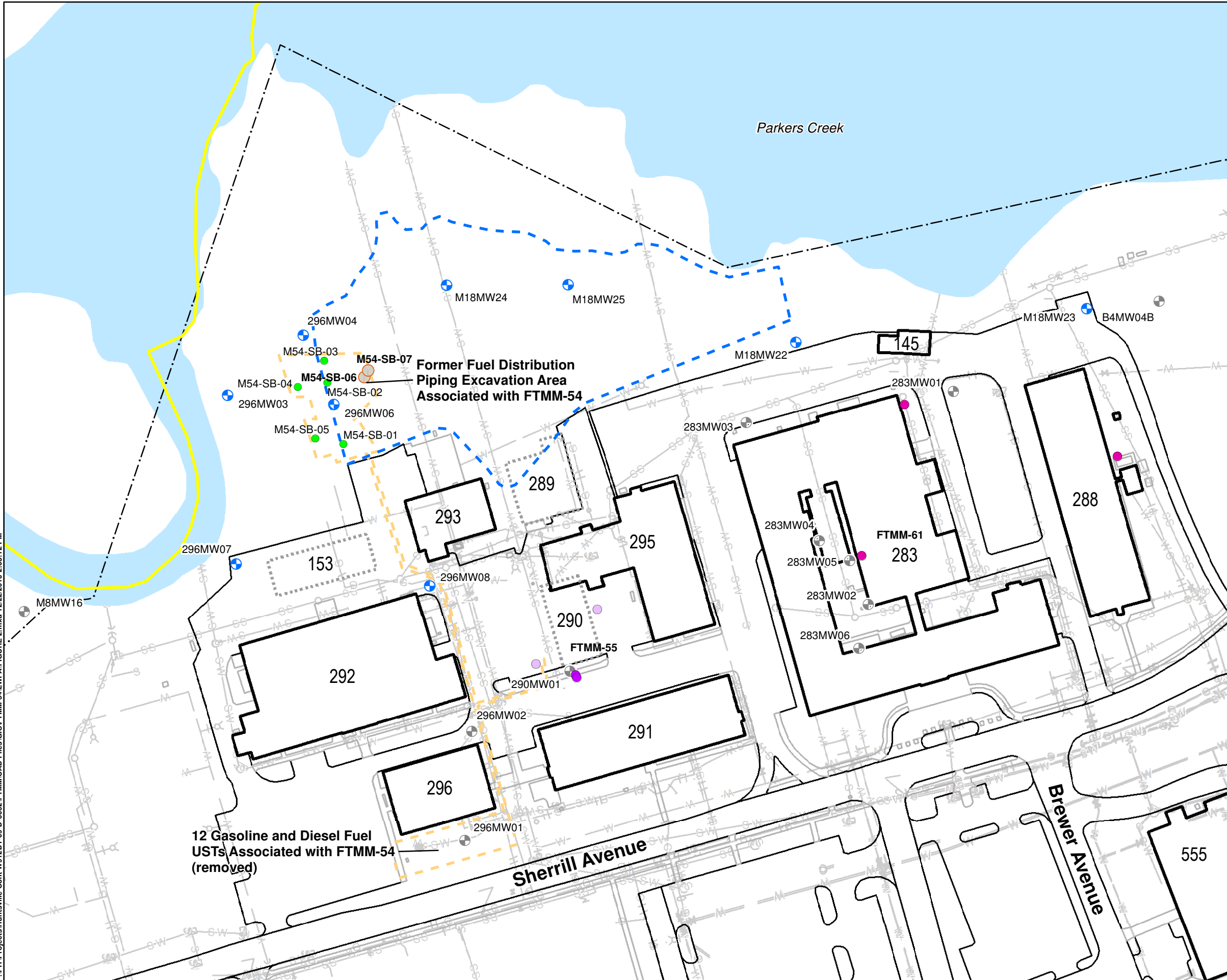
Source: FTMM Supplied CAD, 2013.

PARSONS 401 Diamond Drive NW, Huntsville AL	Fort Monmouth New Jersey
SAMPLE LOCATIONS FOR FTMM-54 WITHIN THE FTMM-18 AREA	
CREATED BY: RR	REVIEWED BY: RF
DATE: DEC. 2016	FIGURE NUMBER: FIGURE 1
PROJECT NUMBER: 748810-02120	FILE: FIGURE 1.mxd

P:\PTT\Projects\Huntsville Cont W912.DY-09.D-0062\FTMMCAD Files\GIS\FTMM-54\WP\FIGURE 1.mxd 12/20/2016 2:47:53 PM

Figure 2
Proposed Sample Locations for FTMM-54 within the FTMM-18 Area

P:\PTT\Projects\Huntsville Cont W912\DY-09-P-0062\FTMM\54\WPA\FIGURE 2.mxd 12/22/2016 2:03:12 PM



LEGEND:

- Proposed Soil Boring
- Previous 2016 Boring
- Shallow Monitoring Well
- Shallow Monitoring Well Associated with FTMM-54 / FTMM-55 / FTMM-61
- Removed Fiberglass UST associated with FTMM-55 (Building 290)
- Removed Steel UST associated with FTMM-55 (Building 290)
- Removed Steel UST associated with FTMM-61 (Building 283)
- FTMM-18 Landfill Boundary
- FTMM-08 Boundary
- FTMM-54 Boundary
- Municipal Boundary
- Installation Boundary
- W Water Line
- S Sanitary Sewer Line
- SW Storm Sewer Line
- G Gas Line
- Former Building (Demolished)

DRAFT

N

1 inch = 100 feet



Source: FTMM Supplied CAD, 2013.

PARSONS
401 Diamond Drive NW,
Huntsville AL

Fort Monmouth
New Jersey

**PROPOSED SAMPLE LOCATIONS FOR
FTMM-54 WITHIN THE FTMM-18 AREA**

CREATED BY: RR	REVIEWED BY: RF
DATE: DEC. 2016	FIGURE NUMBER: FIGURE 2
PROJECT NUMBER: 748810-02120	FILE: FIGURE 2.mxd

Table 1
Detected Soil Sampling Results – Comparison to NJDEP Standards

TABLE 1
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NJDEP STANDARDS
FTMM-54 Bldg. 296
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non- Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	M54-SB-01			M54-SB-02		M54-SB-03		M54-SB-04	
Sample ID				M54-SB-01-3.0-3.5	M54-SB-01-3.5-4.0	M54-SB-101-3.5-4.0	M54-SB-02-11.0-11.5	M54-SB-02-6.0-6.5	M54-SB-03-13-13.5	M54-SB-03-6.5-7	M54-SB-04-2.5-3	M54-SB-04-4.5-5
Sample Date				8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016	8/8/2016
Volatile Organic Compounds (mg/kg)												
1,2,4-Trimethylbenzene	NLE	NLE	NLE	< 0.0005	< 0.0005	< 0.0006	< 0.0005	0.076 J	< 0.0005	0.023	< 0.0005	< 0.0005
1,3,5-Trimethylbenzene	NLE	NLE	NLE	< 0.0005	< 0.0005	< 0.0006	< 0.0005	0.021 J	< 0.0005	0.0073	< 0.0005	< 0.0005
4-Bromofluorobenzene	NLE	NLE	NLE	0.024	0.024	0.029	0.028	1.1	0.03	0.045	0.027	0.025
Acetone	70,000	NLE	19	0.091	0.028 J	0.072 J	0.084	0.44 J	0.091	0.26	0.085	0.096
Benzene	2	5	0.005	< 0.0005	< 0.0005	< 0.0006	< 0.0005	0.021 J	< 0.0005	0.022	< 0.0005	< 0.0005
Cymene	NLE	NLE	NLE	< 0.0005	< 0.0005	< 0.0006	< 0.0005	0.0079 J	< 0.0005	0.0019 J	< 0.0005	< 0.0005
Dibromofluoromethane	NLE	NLE	NLE	0.023	0.023	0.025	0.024	1.1	0.024	0.037	0.024	0.021
Ethyl benzene	7,800	110,000	13	< 0.0005	< 0.0005	< 0.0006	< 0.0005	0.026 J	< 0.0005	0.0046	< 0.0005	< 0.0005
Isopropylbenzene	NLE	NLE	NLE	< 0.0005	< 0.0005	< 0.0006	< 0.0005	0.018 J	< 0.0005	0.016	< 0.0005	< 0.0005
Meta/Para Xylene	NLE	170,000	NLE	< 0.0005	< 0.0005	< 0.0006	< 0.0005	0.026 J	< 0.0005	0.0099	< 0.0005	< 0.0005
Methyl ethyl ketone	3,100	44,000	0.9	0.0064 J	< 0.0026	< 0.0029	0.014	0.09 J	0.0056 J	0.058	0.009 J	0.008 J
Methyl Tertbutyl Ether	110	320	0.2	0.002	< 0.0005	< 0.0006	< 0.0005	< 0.0006 UJ	< 0.0005	0.0017 J	< 0.0005	< 0.0005
Methylene chloride	34	97	0.01	0.0089 J	< 0.0006	< 0.0007	< 0.0006	0.0029 J	< 0.0006	0.0028 J	< 0.0006	< 0.0005
Naphthalene	6	17	25	0.0008 J	0.0011 J	0.001 J	0.0014 J	14.1 J	< 0.0005	0.031	0.0007 J	0.0005 J
Ortho Xylene	NLE	170,000	NLE	< 0.0005	< 0.0005	< 0.0006	< 0.0005	0.025 J	< 0.0005	0.007	< 0.0005	< 0.0005
Propylbenzene	NLE	NLE	NLE	< 0.0005	< 0.0005	< 0.0006	< 0.0005	0.0061 J	< 0.0005	0.0078	< 0.0005	< 0.0005
sec-Butylbenzene	NLE	NLE	NLE	< 0.0005	< 0.0005	< 0.0006	< 0.0005	0.0013 J	< 0.0005	0.0021 J	< 0.0005	< 0.0005
Toluene	6,300	91,000	7	0.0049	0.0025	0.0059	0.0018 J	0.0038 J	0.0031	0.0033 J	0.0037	0.0045
Trichlorofluoromethane	23,000	340,000	34	0.0029	< 0.0005	< 0.0006	< 0.0005	< 0.0006 UJ	< 0.0005	< 0.0009	< 0.0005	< 0.0005
TIC VOCs (mg/kg)												
Total TIC VOCs				0.056 JN	ND	0.02 JN	ND	0.327 JN	0.027 JN	0.4946 JN	0.034 JN	0.037 JN
Extractable/Volatile Petroleum Hydrocarbons (mg/kg)												
C10-C12 Aromatics	NLE	NLE	NLE	1.2 J	1 J	0.91 J	< 0.54	52.8	0.81 J	3.3	0.81 J	0.82 J
C12-C16 Aliphatics	NLE	NLE	NLE	< 0.51 UJ	< 0.55	< 0.55	< 0.52 UJ	2.4 J	< 0.49 UJ	2.1 J	1.1 J	< 0.51 UJ
C12-C16 Aromatics	NLE	NLE	NLE	0.45 J	0.33 J	0.26 J	0.31 J	68.2	0.29 J	6.2	0.36 J	0.26 J
C16-C21 Aliphatics	NLE	NLE	NLE	< 0.49 UJ	< 0.54 UJ	< 0.54 UJ	< 0.51 UJ	1.2 J	< 0.48 UJ	1.9 J	1.3 J	< 0.49 UJ
C16-C21 Aromatics	NLE	NLE	NLE	1.2	1.3 J	1.3 J	1.3	227	1.2	20.8	1.7	1.1 J
C21-C36 Aromatics	NLE	NLE	NLE	0.78 J	0.74 J	0.84 J	0.83 J	235	0.55 J	34.7	1.4	0.53 J
C21-C40 Aliphatics	NLE	NLE	NLE	2.1 J	2.4	3.6	2.1 J	14.2 J	2.7 J	8.5 J	2.1 J	1.2 J
C9-C12 Aliphatics	NLE	NLE	NLE	0.38 J	0.4 J	0.44 J	0.38 J	1 J	0.49 J	1.4 J	0.66 J	0.3 J
Total Aliphatics	NLE	NLE	NLE	2.9 J	3.5 J	4.9 J	3 J	18.8 J	3.9 J	13.9 J	5.2 J	2.1 J
Total Aromatics	NLE	NLE	NLE	3.6 J	3.4 J	3.3 J	2.4 J	583	2.8 J	65	4.2 J	2.7 J
Total EPH	5100	54000	NLE	6.5 J	6.9 J	8.2 J	5.3 J	602	6.8 J	78.9	9.4 J	4.9 J
Inorganics (mg/kg)												
Lead	400	800	90	6.7	7.3	7.6	2.7	15.2	3.5	39.7	4.4	3.7

Footnote:
NLE = no limit established.
Chemical detections are bolded.

For EPH, the Protocol For Addressing Extractable Petroleum Hydrocarbons, (Version 5.0, August 9, 2010) was used to determine the applicable standards. Based on the protocol FTMM-54 EPH results are considered category 1, and Category 1 screening criteria are used.
J = estimated detected value due to a concetration below the reporting limit or due to discrepancies in meeting certain analyte-specific quality control.

U = non-detect, i.e. not detected at or above this value.
JN = Tentatively identified compound, estimated concentration.

Cell Shade values represent a result that is above the NJ Residential or Non Residential Direct Contact Soil Remediation Standard.
Cell Shade values represent a result that is above the NJ Impact to GW Soil Screening Level
Cell Shade values represent a result that is above both the NJ Residential Non-Residential, AND NJ Impact to GW Soil Screening Level Direct Contact Soil Remediation Standard.
The NJ Residential and Non-Residential Direct Contact Soil Remediation Standards refer to the NJDEP's May 7, 2012 Remediation Standards, http://www.nj.gov/dep/rules/rules/njac7_26d.pdf

TABLE 1
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NJDEP STANDARDS
FTMM-54 Bldg. 296
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non- Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	M54-SB-05	
Sample ID				M54-SB-05-3-3.5	M54-SB-05-5.0-5.5
Sample Date				8/8/2016	8/8/2016
Volatile Organic Compounds (mg/kg)					
1,2,4-Trimethylbenzene	NLE	NLE	NLE	< 0.0006	0.0007 J
1,3,5-Trimethylbenzene	NLE	NLE	NLE	< 0.0006	< 0.0005
4-Bromofluorobenzene	NLE	NLE	NLE	0.032	0.027
Acetone	70,000	NLE	19	0.087	0.038
Benzene	2	5	0.005	< 0.0006	< 0.0005
Cymene	NLE	NLE	NLE	< 0.0006	< 0.0005
Dibromofluoromethane	NLE	NLE	NLE	0.029	0.022
Ethyl benzene	7,800	110,000	13	< 0.0006	< 0.0005
Isopropylbenzene	NLE	NLE	NLE	< 0.0006	< 0.0005
Meta/Para Xylene	NLE	170,000	NLE	< 0.0006	< 0.0005
Methyl ethyl ketone	3,100	44,000	0.9	< 0.0028	0.0032 J
Methyl Tertbutyl Ether	110	320	0.2	< 0.0006	< 0.0005
Methylene chloride	34	97	0.01	0.0011 J	7.5 J
Naphthalene	6	17	25	< 0.0006	0.0038
Ortho Xylene	NLE	170,000	NLE	< 0.0006	< 0.0005
Propylbenzene	NLE	NLE	NLE	< 0.0006	< 0.0005
sec-Butylbenzene	NLE	NLE	NLE	< 0.0006	< 0.0005
Toluene	6,300	91,000	7	0.0082	0.0073
Trichlorofluoromethane	23,000	340,000	34	< 0.0006	< 0.0005
TIC VOCs (mg/kg)					
Total TIC VOCs				0.0274 JN	0.0164 JN
Extractable/Volatile Petroleum Hydrocarbons (mg/kg)					
C10-C12 Aromatics	NLE	NLE	NLE	0.71 J	1.1 J
C12-C16 Aliphatics	NLE	NLE	NLE	< 0.45 UJ	< 0.52 UJ
C12-C16 Aromatics	NLE	NLE	NLE	0.22 J	0.36 J
C16-C21 Aliphatics	NLE	NLE	NLE	< 0.44 UJ	< 0.51 UJ
C16-C21 Aromatics	NLE	NLE	NLE	0.99 J	1.1 J
C21-C36 Aromatics	NLE	NLE	NLE	0.35 J	0.37 J
C21-C40 Aliphatics	NLE	NLE	NLE	0.62 J	0.79 J
C9-C12 Aliphatics	NLE	NLE	NLE	0.41 J	0.46 J
Total Aliphatics	NLE	NLE	NLE	1.6 J	1.8 J
Total Aromatics	NLE	NLE	NLE	2.3 J	3 J
Total EPH	5100	54000	NLE	3.9 J	4.8 J
Inorganics (mg/kg)					
Lead	400	800	90	3.2	3.3

Footnote:
NLE = no limit established.
Chemical detections are bolded.

For EPH, the Protocol For Addressing Extractable Petroleum Hydrocarbons, (Version 5.0, August 9, 2010) was used to determine the applicable standards. Based on the protocol FTMM-54 EPH results are considered category 1, and Category 1 screening criteria are used.
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The NJ Residential and Non-Residential Direct Contact Soil Remediation Standards refer to the NJDEP's May 7, 2012 Remediation Standards, http://www.nj.gov/dep/rules/rules/njac7_26d.pdf

Table 2
Sampling Summary for FTMM-54 Revised Letter Work Plan Addendum

TABLE 2
SAMPLING SUMMARY FOR FTMM-54 AT FTMM-18
DECEMBER LETTER WORK PLAN ADDENDUM
FORT MONMOUTH, NEW JERSEY

Site	Location and Rationale	Field Meter Readings ^{a/}	Naphthalene by Method 8260C
Soil			
FTMM-54	Primary Boring M54-SB-06 (Figure 2): 1 soil borings, 2 samples. Collected just inside the boundary of FTMM-54, east of M54-SB-02.	1 boring	2
FTMM-54	Contingency Boring M54-SB-07 (Figure 2): 1 soil boring, 2 samples. Collected just outside the boundary of FTMM-54, approximately 5-10 feet east of M54-SB-06. To be held pending results at M54-SB-06.	1 boring	2
QA/QC samples (see SAP for additional details) ^{b/}			
Field Duplicates (5% Sampling Frequency per media)		NA	1
Matrix Spike (5% Sampling Frequency per media)		NA	1
Matrix Spike Duplicate (5% Sampling Frequency per media)		NA	1
Trip Blank (1 per cooler of VOCs per media)		NA	1
QA Split (5% per media)		NA	1
Equipment Blank (5% Sampling Frequency per media)		NA	1
TOTAL		NA	8

Notes:

NA = not applicable.

^{a/} Field meter readings include, in soil samples: photoionization detector (PID) readings along entire soil column; and in groundwater: PID headspace, pH, temperature, electrical conductivity, dissolved oxygen (DO), oxidation-reduction potential (ORP), and turbidity.

^{b/} QA/QC = quality assurance/quality control; SAP = Sampling and Analysis Plan. The requirement for QA/QC samples may be fulfilled with samples from other parcels.

Attachment A
Boring Logs

Soil Boring Log

CLIENT: USACE	INSPECTOR: C. Watson	BORING/WELL ID: M54-SB-01
PROJECT NAME: FTMM - ECP	DRILLER: J. BARNIK	LOCATION DESCRIPTION
PROJECT LOCATION: FTMM Parcel	WEATHER: 80°F O.C.	M54
PROJECT NUMBER: 748810-	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe® 7822DT	LOCATION PLAN
WATER LEVEL: ~1.5	DATE/TIME START: 8/8/16 1215	Oceanport, New Jersey
DATE: 8/8/16	DATE/TIME FINISH: 8/8/16 1225	
TIME:	WEIGHT OF HAMMER: N/A	
MEAS. FROM:	DROP OF HAMMER: N/A	
	TYPE OF HAMMER: N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0			6/48	0	0-20" moist, brown, loose, mt SAND, trace silt, trace f gravel		
1				0			
2				0	20"-26" saturated, brown, loose mt, SAND, trace silt		
3	3.6-4 3-3.5			3.7	26"-36" saturated, blue gravel, trace C SAND		
4	3.5-4			0	36"-42" wet, dark gray/green/ orange mt mottled SAND, little silt		
5			60/60	0	0-60" SAA		
6							
7							
8							
9							
10							

Remarks:

Sample Types

S - Split-Spoon
 U - Undisturbed Tube
 C - Rock Core
 A - Auger Cuttings

Consistency vs. Blowcount / Foot

Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: >30

and - 35-50%
 some - 20-35%
 little - 10-20%
 trace - <10%
 moisture, density, color, gradation

Soil Boring Log

CLIENT: <u>USAGE</u> PROJECT NAME: <u>FTMM - ECP</u> PROJECT LOCATION: <u>FTMM Parcel</u> PROJECT NUMBER: <u>748810-</u>					INSPECTOR: <u>C. Watson</u> DRILLER: <u>J. BARNAK</u> WEATHER: <u>80°F O.C</u> CONTRACTOR: <u>East Coast Drilling, Inc. (ECDI)</u>		BORING/WELL ID: <u>154-SB-02</u> LOCATION DESCRIPTION: <u>Parcel 54 FTMM</u>	
GROUNDWATER OBSERVATIONS WATER LEVEL: <u>~ 1</u> DATE: <u>8/8/16</u> TIME: _____ MEAS. FROM: _____					RIG TYPE: <u>Geoprobe(R) 7822DT</u> DATE/TIME START: <u>1120</u> DATE/TIME FINISH: <u>1135</u> WEIGHT OF HAMMER: <u>N/A</u> DROP OF HAMMER: <u>N/A</u> TYPE OF HAMMER: <u>N/A</u>		LOCATION PLAN <u>Oceanport, New Jersey</u>	
DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADVI REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS	
0			60/46	0	0-13" Moist, Brown, M. Dense, mf SAND, little silt, trace f gravel			
1				0				
2				1.1	13"-23" Saturated, Brown, M. Dense, mf SAND trace f gravel			
3				12.2				
4				54.8	23"-29" saturated, Brown, MC, SAND, some f gravel			
5				59.7				
6				NR	29"-46" saturated blue gravel			
7				NR				
8				48/42	6-12" SAA			
9				27.3	12"-26" Wet, blue ^{Dark Brown} gravel f SAND and organics (wood fibers, roots), trace blue gravel			
10	6-6.5			42.7	20"-42" Wet organic material (wood fibers/roots), some silt, some f SAND			
11				6.8				
12				15.4				
13				2.1				
14				8.7				
15				NR				
16								
17								
18								
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Remarks:

Sample Types	Consistency vs. Blowcount / Foot			
S -- Split-Spoon U -- Undisturbed Tube C -- Rock Core A -- Auger Cuttings	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
	Loose: 4-10	V. Dense: >50	Soft: 2-4	V. Stiff: 15-30
	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30
and - 35-50% some - 20-35% little - 10-20% trace - <10% moisture, density, color, gradation				

Soil Boring Log

CLIENT: USACE PROJECT NAME: FTMM - ECP PROJECT LOCATION: FTMM Parcel PROJECT NUMBER: 748810-					INSPECTOR: <u>C. Witsen</u> DRILLER: <u>J. BARNIX</u> WEATHER: <u>78°F O.C.</u> CONTRACTOR: <u>East Coast Drilling, Inc. (ECDI)</u> RIG TYPE: <u>Geoprobe(R) 7822DT</u> DATE/TIME START: _____ DATE/TIME FINISH: _____ WEIGHT OF HAMMER: <u>N/A</u> DROP OF HAMMER: <u>N/A</u> TYPE OF HAMMER: <u>N/A</u>		BORING/WELL ID: <u>M54-58-02</u> LOCATION DESCRIPTION: LOCATION PLAN: Oceanport, New Jersey	
GROUNDWATER OBSERVATIONS WATER LEVEL: _____ DATE: _____ TIME: _____ MEAS. FROM: _____								
DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV. REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS	
<u>08</u>			<u>69/50</u>	<u>6.8</u>	<u>0-32" SAA</u>			
				<u>14.2</u>				
<u>09</u>				<u>6.1</u>	<u>32"-46" Wet, green, mf, soft</u>			
				<u>5.4</u>	<u>SAND, some silt</u>			
<u>10</u>				<u>10.2</u>	<u>46"-52" Wet, green and orange</u>			
				<u>0.4</u>	<u>mf, m. dense SAND,</u>			
<u>11</u>	<u>11-11.5</u>			<u>0</u>	<u>little silt</u>			
				<u>0</u>				
<u>12</u>				<u>NR</u>				
				<u>NR</u>				
<u>13</u>								
<u>6</u>								
<u>7</u>								
<u>8</u>								
<u>9</u>								
<u>0</u>								
Remarks:								
Sample Types		Consistency vs. Blowcount / Foot						
S - Split-Spoon		Granular (Sand & Gravel)				and - 35-50%		
U - Undisturbed Tube		Fine Grained (Silt & Clay)				some - 20-35%		
C - Rock Core		V. Loose: 0-4 Dense: 30-50 V. Soft <2 Stiff: 8-15				silt - 10-20%		
A - Auger Cuttings		Loose: 4-10 V. Dense: >50 Soft 2-4 V. Stiff: 15-30				trace - <10%		
		M. Dense: 10-30 M. Stiff: 4-8 Hard: >30				moisture, density, color, gradation		

Soil Boring Log

CLIENT: USACE					INSPECTOR: C. WATSON		BORING/WELL ID: MS4-SB-04	
PROJECT NAME: FTMM - ECP					DRILLER: J. BARNALIC		LOCATION DESCRIPTION	
PROJECT LOCATION: FTMM Parcel					WEATHER: 20°F		Parcel 54	
PROJECT NUMBER: 748810-					CONTRACTOR: East Coast Drilling, Inc. (ECDI)			
GROUNDWATER OBSERVATIONS					R/G TYPE: Geoprobe(R) 7822DT		LOCATION PLAN	
WATER LEVEL: ~1.5					DATE/TIME START: 1330 8/8		Oceanport, New Jersey	
DATE:					DATE/TIME FINISH: 1345 8/8			
TIME:					WEIGHT OF HAMMER: N/A			
MEAS. FROM:					DROP OF HAMMER: N/A			
					TYPE OF HAMMER: N/A			
DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS	
0			69/52	0	0-18" moist, brown, m. dense mf SAND, trace silt, trace organics, trace f gravel			
1					18"-22" saturated, SAA			
2	2.5-3				22"-28" saturated blue gravel			
3					28"-40" saturated, dark brown/ gray mc SAND, little silt			
4	4.5-5				40-52" wet, green/brown/gray mf mottled SANDs, little silt			
5		69/60		0	0-11" SAA			
6					11"-60" wet, dark gray, m. dense mf SAND, trace silt, trace f organics @ 51"			
7								
8								
9								
10								
Remarks:								
Sample Types					Consistency vs. Blowcount / Foot			
S - Split Spoon					Granular (Sand & Gravel)			
U - Undisturbed Tube					Fine Grained (Silt & Clay)			
C - Rock Core					V. Loose: 0-4 Dense: 30-50 V. Soft: <2 Stiff: 8-15			
A - Auger Cuttings					Loose: 4-10 V. Dense: >50 Soft: 2-4 V. Stiff: 15-30			
					M. Dense: 10-30 M. Stiff: 4-6 Hard: >30			
					and - 35-50% some - 20-35% little - 10-20% trace - <10% moisture, density, color, gradation			

Soil Boring Log

CLIENT: USACE					INSPECTOR: C. Watson		BORING/WELL ID: M54-SB-05	
PROJECT NAME: FTMM - ECP					DRILLER: J. Burnak		LOCATION DESCRIPTION	
PROJECT LOCATION: FTMM Parcel					WEATHER: 80°F O.C.		M54	
PROJECT NUMBER: 748810-					CONTRACTOR: East Coast Drilling, Inc. (ECDI)			
GROUNDWATER OBSERVATIONS					RIG TYPE: Geoprobe(R) 7822DT		LOCATION PLAN	
WATER LEVEL: ~3.5					DATE/TIME START: 8/8/16 1445		Oceanport, New Jersey	
DATE:					DATE/TIME FINISH: 8/8/16 1500			
TIME:					WEIGHT OF HAMMER: N/A			
MEAS. FROM:					DROP OF HAMMER: N/A			
					TYPE OF HAMMER: N/A			
DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS	
0			60/41	0	0-16" moist, loose, Brown, mf SAND, trace silt			
1					16"-49" moist, m. dense, orange/Brown, mf SAND, trace silt			
2					Saturated @ 40"			
3	3-3.5							
4								
5	5-5.5		60/60	0	0-25" SAA			
6					25-60" moist, gray/green, mf SAND, little silt trace f gravel			
7								
8								
9								
10								
Remarks:								
Sample Types					Consistency vs. Blowcount / Foot			
S -- Split-Spoon					Granular (Sand & Gravel)			
U -- Undisturbed Tube					Fine Grained (Silt & Clay)			
C -- Rock Core					V. Loose: 0-4 Dense: 30-50 V. Soft: <2 Stiff: 8-15			
A -- Auger Cuttings					Loose: 4-10 V. Dense: >50 Soft: 2-4 V. Stiff: 15-30			
					M. Dense: 10-30 M. Stiff: 4-8 Hard: >30			
					and - 35-50% some - 20-35% little - 10-20% trace - <10%			
					moisture, density, color, gradation			

Soil Boring Log

CLIENT: USACE		INSPECTOR: C. Watson	BORING/WELL ID: M54-SB-03
PROJECT NAME: FTMM - ECP		DRILLER: J. BARNAK	LOCATION DESCRIPTION
PROJECT LOCATION: FTMM Parcel		WEATHER: 80°F O.C.	M54
PROJECT NUMBER: 748810-		CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS		RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
WATER LEVEL: <u>in surface</u>		DATE/TIME START: 1420	Oceanport, New Jersey
DATE:		DATE/TIME FINISH: 1430	
TIME:		WEIGHT OF HAMMER: N/A	
MEAS. FROM:		DROP OF HAMMER: N/A	
		TYPE OF HAMMER: N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0			60/54	0	0-14" saturated, light brown, mf SAND, trace silt, trace f gravel		
1				0	14"-30" saturated, f blue gravel		
2				1.2	30"-54" wet, organic material (wood fiber/roots), some silt, brown, soft		
3				4.6			
4				6.8			
5				1.3			
6				0.7			
7				1.8			
8				0.3			
9				60/60	0-28" saturated, f gravel and coarse sand, dark grey		
10				4.5	28"-55" wet, organics and silt, brown, soft		
11				60.6	55"-60" wet, dark grey, mf m. fine SAND, little silt		
12				23.8			
13				11.0			
14				13.8			
15				0.3			
16				4.7			
17				0			
18				0			
19							
20							

Remarks:

Sample Types	Consistency vs. Blowcount / Foot	
S - Split-Spoon	Granular (Sand & Gravel)	Fine Grained (Silt & Clay)
U - Undisturbed Tube	V. Loose: 0-4 Dense: 30-50	V. Soft: <2 Stiff: 8-15
C - Rock Core	Loose: 4-10 V. Dense: >50	Soft: 2-4 V. Stiff: 15-30
A - Auger Cuttings	M. Dense: 10-30	M. Stiff: 4-8 Hard: >30
		and - 35-50% some - 20-35% little - 10-20% trace - <10% moisture, density, color, gradation

Soil Boring Log

CLIENT: USACE		INSPECTOR: <i>LEE P. J.</i>		BORING/WELL ID: <i>M54-SB-03</i>
PROJECT NAME: FTMM - ECP		DRILLER: <i>LEE P. J.</i>		LOCATION DESCRIPTION
PROJECT LOCATION: FTMM Parcel		WEATHER: <i>LEE P. J.</i>		
PROJECT NUMBER: 748810-		CONTRACTOR: East Coast Drilling, Inc. (ECDI)		
GROUNDWATER OBSERVATIONS		RIG TYPE: Geoprobe(R) 7622DT		LOCATION PLAN
WATER LEVEL: _____		DATE/TIME START: _____		Oceanport, New Jersey
DATE: _____		DATE/TIME FINISH: _____		
TIME: _____		WEIGHT OF HAMMER: N/A		
MEAS. FROM: _____		DROP OF HAMMER: N/A		
		TYPE OF HAMMER: N/A		

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
<i>1.0</i>			<i>60/60</i>	<i>10.6</i>	<i>0-8" SAA</i>		
				<i>4.5</i>			
<i>1.1</i>				<i>0</i>	<i>8"-18" Wet, Brown, soft organics and silt</i>		
				<i>1.1</i>			
<i>1.2</i>				<i>0</i>	<i>18"-30" Wet, Dark grey, f</i>		
				<i>0.8</i>	<i>sand and silt, little</i>		
<i>1.3</i>				<i>0</i>	<i>f organics, trace</i>		
				<i>0</i>	<i>f gravel</i>		
<i>1.4</i>				<i>0</i>	<i>30-66" Wet, gray/green, soft</i>		
				<i>0</i>	<i>nf SAND, little silt,</i>		
<i>1.5</i>				<i>0</i>	<i>trace f gravel</i>		
<i>1.6</i>							
<i>1.7</i>							
<i>1.8</i>							
<i>1.9</i>							
<i>1.0</i>							

Remarks:

Sample Types

S - Split-Spoon
 U - Undisturbed Tube
 C - Rock Core
 A - Auger Cuttings

Consistency vs. Blowcount / Foot

Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: >30

and - 35-50%
 some - 20-35%
 little - 10-20%
 trace - <10%

moisture, density, color, gradation