©2024 CDM Smith
All Rights Reserved

SECTION 009113.08 – ADDENDUM NO. 08

1.1 PROJECT INFORMATION

A. Project Name: Horn Pond Water Treatment Plant PFAS Upgrade Project.

B. Owner: City of Woburn, MA.

C. Owner Project Number: IFB 24-15.

D. Engineer: CDM Smith.

E. Engineer Project Number: 0230-266219.

F. Date of Addendum: April 22, 2024.

1.2 NOTICE TO BIDDERS

A. This Addendum is issued to all registered plan holders pursuant to the Instructions to Bidders and Conditions of the Contract. This Addendum serves to clarify, revise, and supersede information in the Project Manual, Drawings, and previously issued Addenda. Portions of the Addendum affecting the Contract Documents will be incorporated into the Contract by enumeration of the Addendum in the Owner/Contractor Agreement.

B. The Bidder shall acknowledge receipt of this Addendum in the appropriate space on the Bid Form.

C. The date for receipt of General Bids is **unchanged** by this Addendum, at same time and location. The date of receipt of Sub-Contracts is **unchanged** by this Addendum.

1. Sub-Contract Bid Date: 11:00 AM, Wednesday, April 10, 2024 (no change)

2. General Contract Bid Date: 11:00 AM, Wednesday, May 1, 2024 (no change)

1.3 ATTACHMENTS

A. Figure No. 1 – Sheet E-5 Electric Manhole Details (new).

B. Figure No. 2 – Horn Pond Boring Location Plan

C. Results from Geotechnical Laboratory Analysis of soil samples.

1.4 REVISIONS TO PREVIOUS ADDENDA

A. Clarification for Response to Item 1.9.C of Addendum No. 06: response was in reference to the special soil and concrete testing and inspections required on Sheets SD-S-8 and SD-S-9 of the Drawings.

1.5 REVISIONS TO DIVISION 00 PROCUREMENT REQUIREMENTS AND CONTRACTING REQUIREMENTS

A. Specification Section 003132 “Geotechnical Data”, (not reissued).
1. DELETE: Article 1.1.F.2 in its entirety.
2. INSERT: Figure No. 2 from Article 1.3.C of this Addendum as Attachment C “Boring Location Drawing” to section.

1.6 REVISIONS TO DIVISION 01 GENERAL REQUIREMENTS (NOT USED)

1.7 REVISIONS TO DIVISIONS 02 - 49 SPECIFICATION SECTIONS

A. Specification Section 407143 “Variable Area Flow Meters”, (not reissued).
1. DELETE: Article 2.1.A.1, INSERT: Article 2.1.A.1, below:
a. 1. Manufacturers:
1) a. ABB
2) b. Brooks
3) c. King Instrument Company
4) d. Omega Engineering, Inc.
5) e. Kobold
2. DELETE: Article 2.1.C, INSERT: Article 2.1.C, below:
a. C. Materials:
1) Flow Tubes: Clear Acrylic or glass.
2) Floats: PTFE or stainless steel.
3) Wetted Parts: PTFE or stainless steel.
4) End Fittings: Stainless steel.

B. Specification Section 466121.25 “Granular Activated Carbon (GAC) System”, (not reissued).
1. DELETE: Article 2.8.B.4 in its entirety.

1.8 REVISIONS TO DRAWING SHEETS

A. Drawing Sheet E-5: Insert Electric Manhole Details included in Figure No. 1 attached to this Addendum (Sheet E-5 not reissued).

1.9 QUESTIONS AND ANSWERS

A. **Question:** Specification Section 013233, paragraph 1.6D, please define the number of Concealed work Photographs that will be required.

Response: There is no specific number of photographs required. The Contractor shall use their judgement as to how many photographs are necessary to adequately document condition, location, orientation, etc. of concealed work as installed.

B. **Question:** Section 019113, paragraph 1.9.A.2, must the General Contractor’s commissioning coordinator have one of the certifications listed in the paragraph if they have past experience as a commissioning coordinator on 3 projects of similar size and complexity?

Response: The General Contractor can propose the use of a commissioning coordinator with at least three years of relevant commissioning experience for the Owner and Engineer's review and approval. Certification from the list in Section 019113, paragraph 1.9.A.2 is not required.

C. **Question:** Is there a Geotechnical Engineering Report prepared? If so, could this report be issued?

Response: The Geotechnical Engineering Report will not be provided in this Addendum. Previous and recent boring logs were included as Attachment A and Attachment B, respectively, to Specification Section 003132 "Geotechnical Data." The Boring Location Drawings and results from geotechnical laboratory analysis are provided with this Addendum. Please refer to Article 1.3.B, Article 1.3.C and Article 1.5.A of this Addendum for revisions to the Project Manual.

D. **Question:** Drawing Sheet M-9 indicates 2" DI pipe on the recycle line; however, ductile iron isn't made in 2" diameter. Would Schedule 80 PVC be acceptable?

Response: Schedule 80 PVC is not acceptable. The size of the recycle line magnetic flow meter (FE/FIT-2440) is increased from 2" to 3". Piping associated with the recycle line magnetic flow meter shown on Sheet M-9 (not reissued) and P&ID-24 (not reissued) that was indicated as 2" DI shall be increased to 3" DI and the size of the reducers upstream and downstream shall be adjusted to be 3"x4".

E. **Question:** Please clarify rotameter requirements in Specification Section 407143 "Variable Area Flow Meters", the model numbers for Brooks and ABB are for metal tube flow meters with PTFE liners. The specification requires flow tubes to be clear acrylic, which is not the same as the models specified. Can you clarify material required and what fluid (water or chemical) do you require PTFE lining?

Response: The fluid is water. The flow tubes can be glass or clear acrylic. The PTFE lining is optional but not required for this application. Please refer to Article 1.7.A of this Addendum for modifications to the Project Manual.

F. **Question:** Do the meters specified in Section 407143 "Variable Area Flow Meters" require a 4-20ma output?

Response: No, a 4-20ma output not required.

G. **Question:** Please provide details for the 4" PIV shown on Drawing Sheet C-13.

Response: Requirements for Post Indicator Valves (PIVs) are included in Section 331216 "Water Utility Distribution Valves."

H. **Question:** Please confirm the Owner will provide raw water hydrants for the General Contractor to install.

Response: The Contractor shall furnish and install raw water hydrants in accordance with Specification Section 331219 "Water Utility Distribution Fire Hydrants."

I. **Question:** Please provide a typical detail for the proposed EMH-1.

Response: Please see Figure No. 1, attached to this Addendum, for Electric Manhole Details for Sheet E-5 (sheet not reissued). Please refer to Article 1.3.A and 1.8.A of this Addendum for revisions to the Project Manual.

J. **Question:** Coatings systems on the vessels and the piping refers to a painting Section 099673.13. The coating systems seem to describe internal coatings as they state to be NSF-61 epoxies. Please clarify the external coating requirements for the GAC vessels.

Response: The coatings listed in Article 3.6.B of Specification Section 099673.13 "Water Treatment and Purification System Coatings" should also be used for the exterior of vessels.

K. **Question:** In Section 466121.25 2.8, B.4, embedded in the pressure gauge specifications, bullet point 4 calls for one pressure indicating transmitter (PIT) per vessel. The P&ID-21 / 22 / 23 only show PDIT(s) and associated spec section 2.8.A specifies these DPITs. With pressure differential transmitters (DPIT) being supplied, please verify PIT would be redundant, are not necessary and can remove bullet point 4 from Section 466121.25 2.8 B.

Response: The pressure indicating transmitter (PIT) listed in Article 2.8.B is not required. Please see Article 1.7.B of this Addendum for revisions to the Project Manual.

L. **Question:** Please confirm media should be provided to meet the EBCT at the flow rate specified.

Response: As stated in Article 2.2.B of Specification Section 466121.25 "Granulated Activated Carbon (GAC) System," the Contract Documents depict a generalized view of a GAC System based on the Model M-12-40 system provided by Calgon Carbon Corporation. Sizing of the Model M12-40 vessels and equipment is based on Calgon supplied media. Alternative medias from that required by Section 466113 "Filter Media," must be selected based on their ability to produce effluent water requirements and product requirements listed in Section 466113. Alternative GAC Systems shall be sized appropriately to provide the minimum required EBCT listed in Section 466121.25. Any proposed alternative medias and GAC Systems will be reviewed during the Submittals review process, once the contract is awarded.

M. **Question:** Please confirm that a shorter side shell for the GAC Filter System vessels is acceptable as long as the capacity requirements are met.

Response: As stated in Article 2.2.B of Specification Section 466121.25 "Granular Activated Carbon (GAC) System," the Contract Documents depict a generalized view of a GAC System based on the Model M12-40 system provided by Calgon Carbon Corporation. Alternative GAC vessel configurations that meet capacity and treatment goals will be reviewed during the Submittals review process once the Contract is awarded.

N. **Question:** Please consider changing language to allow 30% expansion to enter top head while maintaining minimum 1' clearance to GAC diffuser.

Response: As stated in Article 2.2.B of Specification Section 466121.25 "Granular Activated Carbon (GAC) System," the Contract Documents depict a generalized view of a GAC System based on the Model M12-40 system provided by Calgon Carbon Corporation. Alternative GAC vessel configurations that meet capacity and treatment goals will be reviewed during the Submittals review process once the Contract is awarded.

O. **Question:** Would it be possible to provide CAD files for the pressure vessel system location for Horn Pond?

Response: Electronic CAD files or the 3D Building Model will not be issued during bidding and will only be issued to the Contractor once the Project is awarded.

END OF DOCUMENT 009113.08

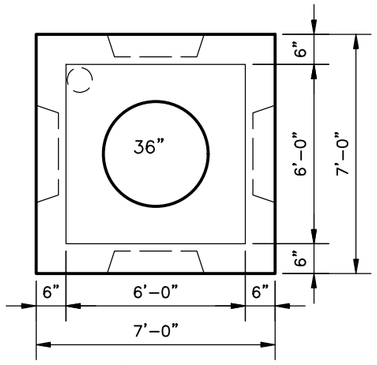
©2024 CDM Smith
All Rights Reserved

THIS PAGE INTENTIONALLY LEFT BLANK

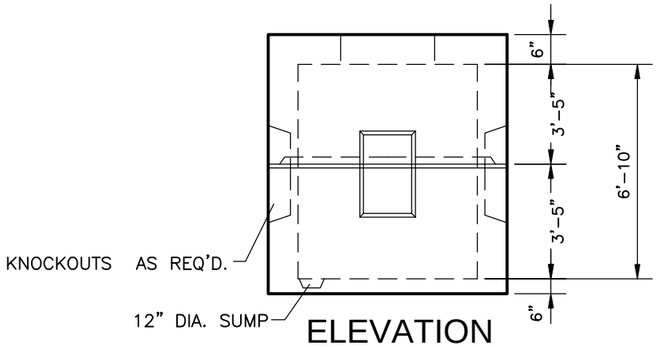
© 2022 CDM SMITH ALL RIGHTS RESERVED. REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

DESIGN DATA & GENERAL NOTES

(1) CONCRETE STRENGTH f'c 5,000 PSI@ 28 DAYS. DENSITY 150 PCF.
(2) CEMENT, PORTLAND TYPE I OR III PER ASTM C150–81.
(3) ADMIXTURES, AIR AND PLASTICIZERS PER ASTM C233–82.
(4) REINFORCING PER ASTM A615 GRADE 60. 60,000 PSI YIELD.
(5) DESIGN LOADING PER AASHTO HS20–44 AND ACI 318–83.
(6) CONSTRUCTION JOINTS SEALED WITH 1" DIA. ASPHALT ROPE TAR WHERE APPLICABLE.
(7) APPROX. WEIGHT: 3'–3" HIGH SECTION IS 10,000 LBS.

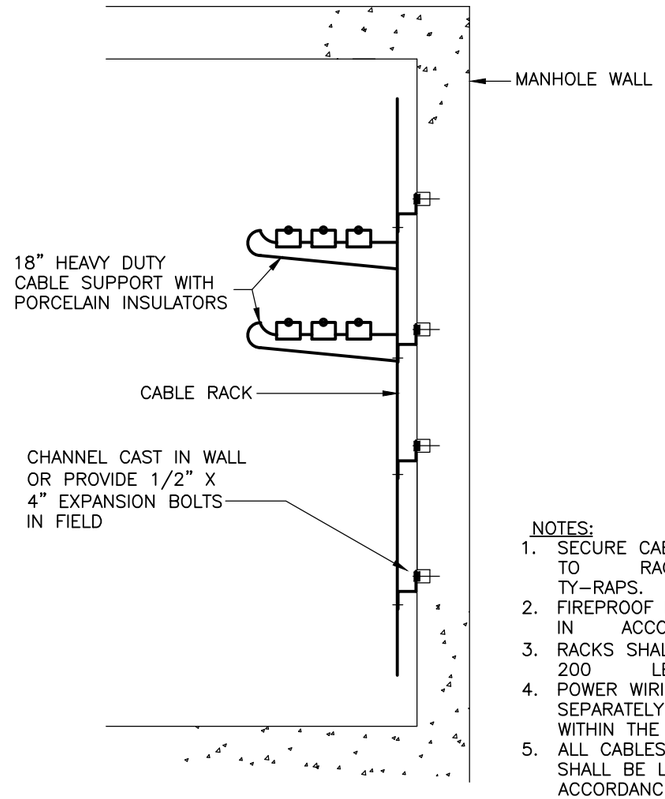


PLAN



ELEVATION

ELECTRIC MANHOLE
DETAIL A
NTS



NOTES:
1. SECURE CABLES AND INSULATORS TO RACK HOOK WITH NYLON TY–RAPS.
2. FIREPROOF HIGH VOLTAGE CABLES IN ACCORDANCE WITH SPECS.
3. RACKS SHALL HAVE ANSI/NEMA 200 LB. MIN.LOAD RATING.
4. POWER WIRING SHALL BE ROUTED SEPARATELY FROM OTHER WIRING WITHIN THE MANHOLE.
5. ALL CABLES AND CONDUCTORS SHALL BE LABELED IN ACCORDANCE WITH THE SPECS.

MANHOLE CABLE RACK
DETAIL B
N.T.S.

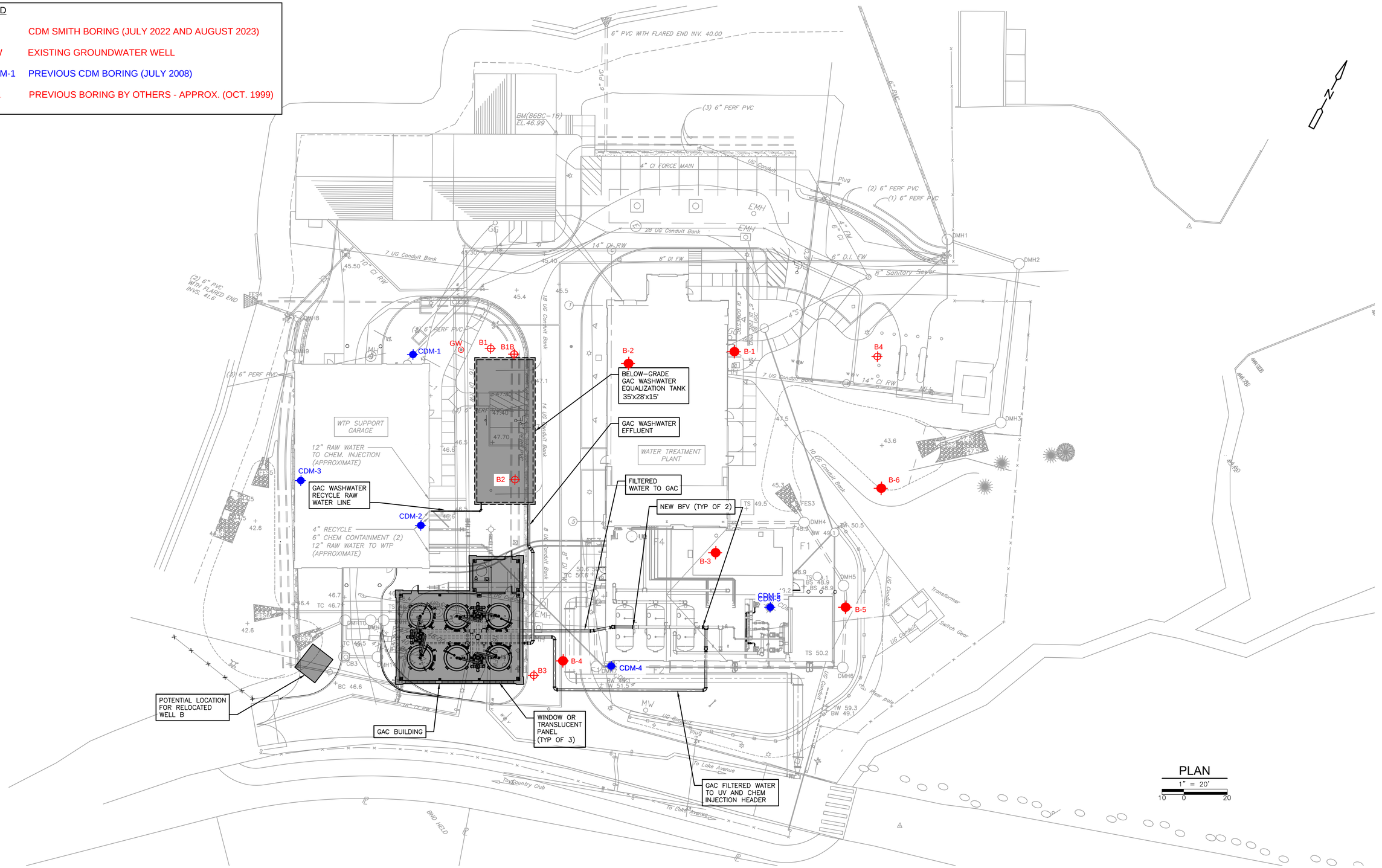
CDM Smith

DATE APRIL 2024

SHEET NO.	LOCATION	ADDENDUM NO.	FIGURE NO.
E-5	-		1

LEGEND

- B1 CDM SMITH BORING (JULY 2022 AND AUGUST 2023)
- GW EXISTING GROUNDWATER WELL
- CDM-1 PREVIOUS CDM BORING (JULY 2008)
- B-1 PREVIOUS BORING BY OTHERS - APPROX. (OCT. 1999)



PLAN
1" = 20'
10 0 20

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: X
DRAWN BY: E. JOHNSON
SHEET CHK'D BY: X
CROSS CHK'D BY: X
APPROVED BY: X
DATE: DECEMBER 2021

CDM Smith
75 State Street, Suite 701
Boston, MA 02109
Tel: (617) 452-6000

CITY OF WOBURN, MASSACHUSETTS
PUBLIC WORKS DEPARTMENT
HORN POND
WATER TREATMENT PLANT - PFAS STUDY

FIGURE 2
BORING LOCATION PLAN

PROJECT NO. 0230-266219
FILE NAME: xxxxxxxx
SHEET NO. X

CONCEPTUAL DESIGN

XREFs: [CBSPL000, CYPWP001, CSTYP000, ZATP0001, ZSTP0001, ZMTP0001, ZATS0001, CDMS_2436] Images: []
Last saved by: JOHNSONEC Time: 12/1/2021 3:49:51 PM
pw:\\cdmsmith-eu02-pw.bentley.com:PW_PL1\0230\266219\03 Reports and Studies\08 CADD Figures and Graphics\WWP001TB.dwg
© 2021 CDM SMITH ALL RIGHTS RESERVED.
REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

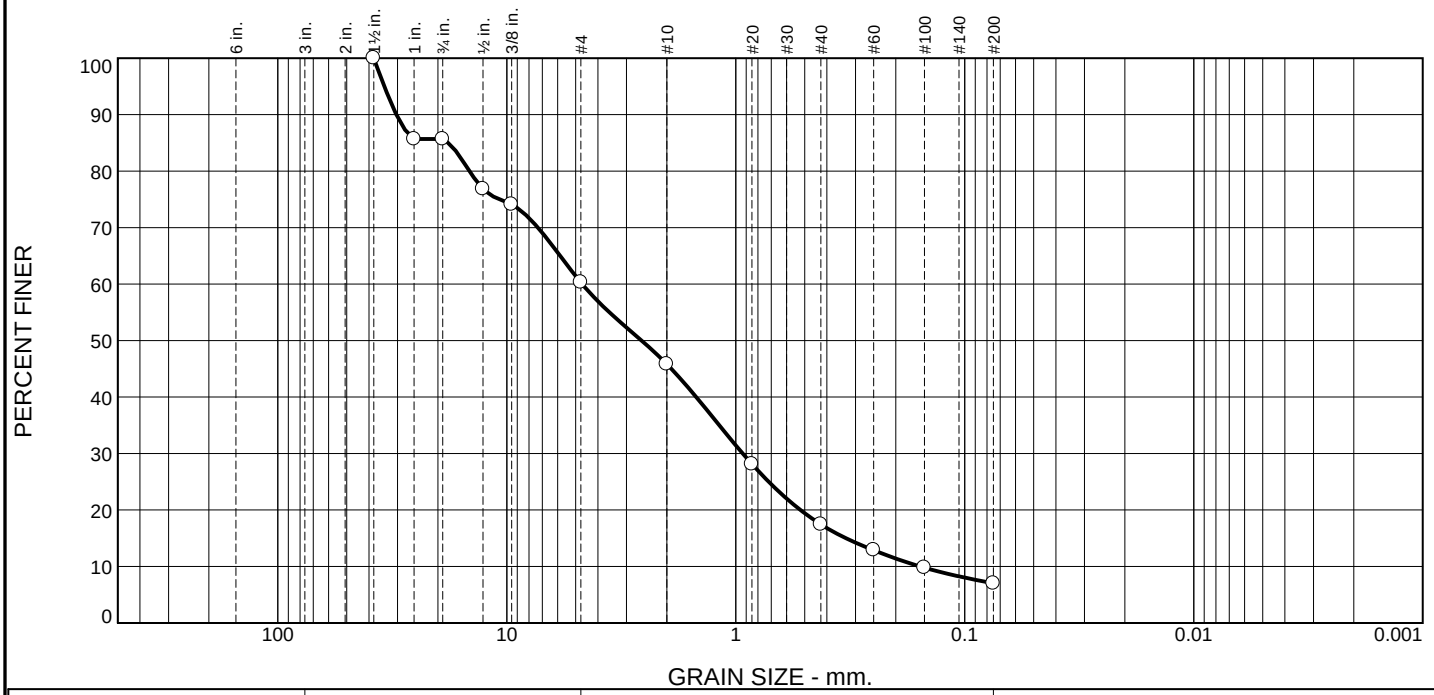
CDM Smith Geotechnical Laboratory Testing Summary Sheet

Client: City of Woburn
Project Number: 0230-266219
Reviewed By: M. Polsky - Lab Manager
Project Name: Horn Pond PFAS
Task: 01-Planning
Project Location: Woburn, MA
Assigned By: A. Richtarek
Date Reviewed: 7/14/2022

Table 1: Geotechnical Laboratory Testing Results

Sample Date	Boring Number	Sample	Depth (ft)	Identification Tests								Strength Tests					Soil Description
				Water Content %	LL %	PL %	Gravel %	Sand %	Fines %	Org. %	Sp. Gr.	Dry unit wt. pcf	$\bar{\sigma}_c$ psi	Failure Criteria (CIU)	$\sigma_1 - \sigma_3$ or τ psi	Strain %	
7/7/22	B1B	S-3	8-10	8.4			39.7	53.3	7.0								Brown well-graded sand with silt and gravel
7/7/22	B1B	S-5	18-20	13.7			22.5	70.8	6.7								Brown well-graded sand with silt and gravel
7/7/22	B2	S-4	6-8	2.8			51.0	42.0	7.0								Light brown well-graded gravel with silt and sand
7/7/22	B2	S-8	24-26	10.2			49.8	47.1	3.1								Brown well-graded gravel with sand
7/8/22	B3	S-2	2-4	11.8			27.7	63.8	8.5								Brown and black well-graded sand with silt and gravel (with asphalt)
7/8/22	B3	S-6	14-16	12.6			27.3	67.3	5.4								Brown poorly graded sand with silt and gravel

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	14.3	25.4	14.5	28.3	10.5	7.0	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1.5"	100.0		
1"	85.7		
0.75"	85.7		
0.5"	76.8		
0.375"	74.1		
#4	60.3		
#10	45.8		
#20	28.1		
#40	17.5		
#60	12.9		
#100	9.8		
#200	7.0		

* (no specification provided)

Material Description

Brown well-graded sand with silt and gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** 0 **PI=**

Classification

USCS (D 2487)= SW-SM **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 30.3565 D_{85}= 17.9606 D_{60}= 4.6847
D_{50}= 2.5789 D_{30}= 0.9333 D_{15}= 0.3301
D_{10}= 0.1567 C_u= 29.90 C_c= 1.19

Remarks

As Received Moisture Content = 8.4%

Date Received: 7/12/22 **Date Tested:** 7/13/22

Tested By: CB

Checked By: MP

Title: Laboratory Manager

Source of Sample: B1B **Depth:** 8-10'
Sample Number: S-3

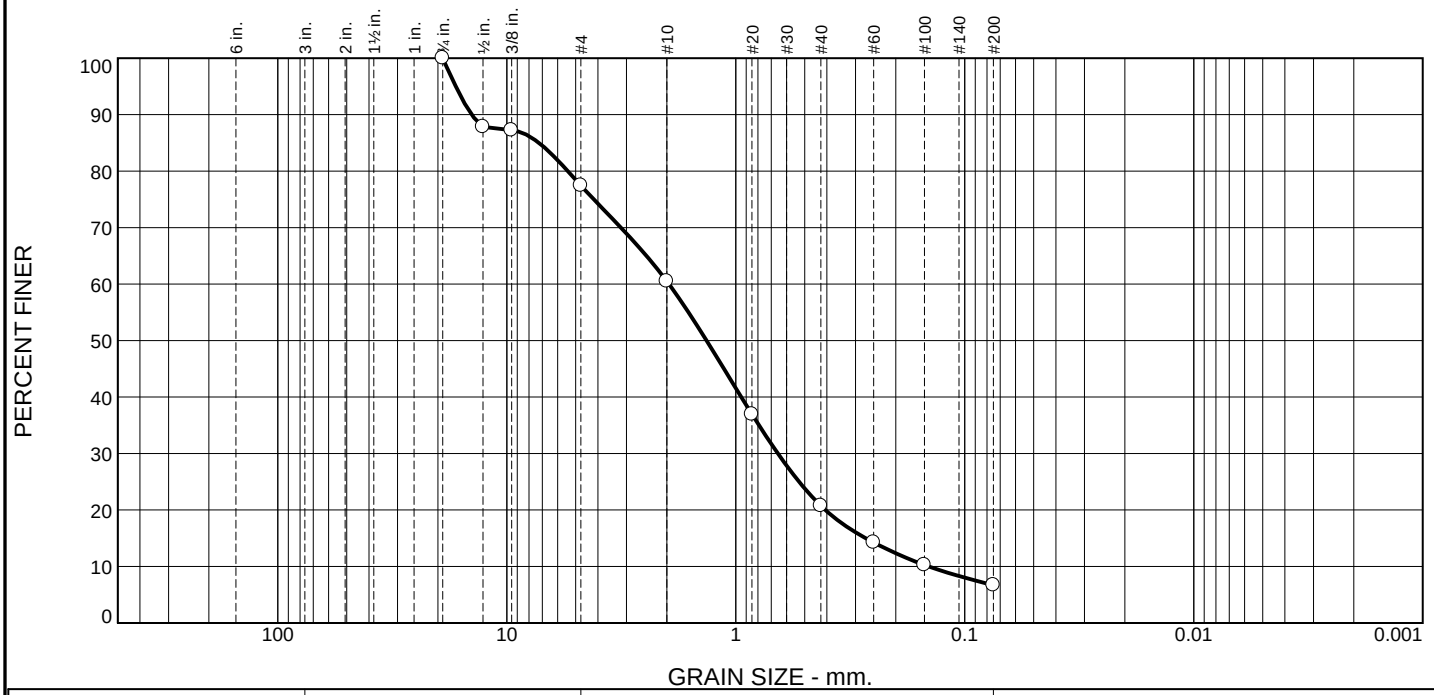
Date Sampled: 7/7/22

CDM Smith

Boston, Massachusetts

Client: City of Woburn
Project: Horn Pond PFAS
Woburn, MA
Project No: 0230-266219

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	22.5	17.0	39.8	14.0	6.7	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
0.5"	87.8		
0.375"	87.2		
#4	77.5		
#10	60.5		
#20	37.0		
#40	20.7		
#60	14.3		
#100	10.3		
#200	6.7		

* (no specification provided)

Material Description

Brown well-graded sand with silt and gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** 0 **PI=**

Classification

USCS (D 2487)= SW-SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 14.2396 D_{85}= 7.2357 D_{60}= 1.9585
D_{50}= 1.3419 D_{30}= 0.6547 D_{15}= 0.2706
D_{10}= 0.1439 C_u= 13.61 C_c= 1.52

Remarks

As Received Moisture Content = 13.7%

Date Received: 7/12/22 **Date Tested:** 7/13/22

Tested By: CB

Checked By: MP

Title: Laboratory Manager

Source of Sample: B1B **Depth:** 18-20'
Sample Number: S-5

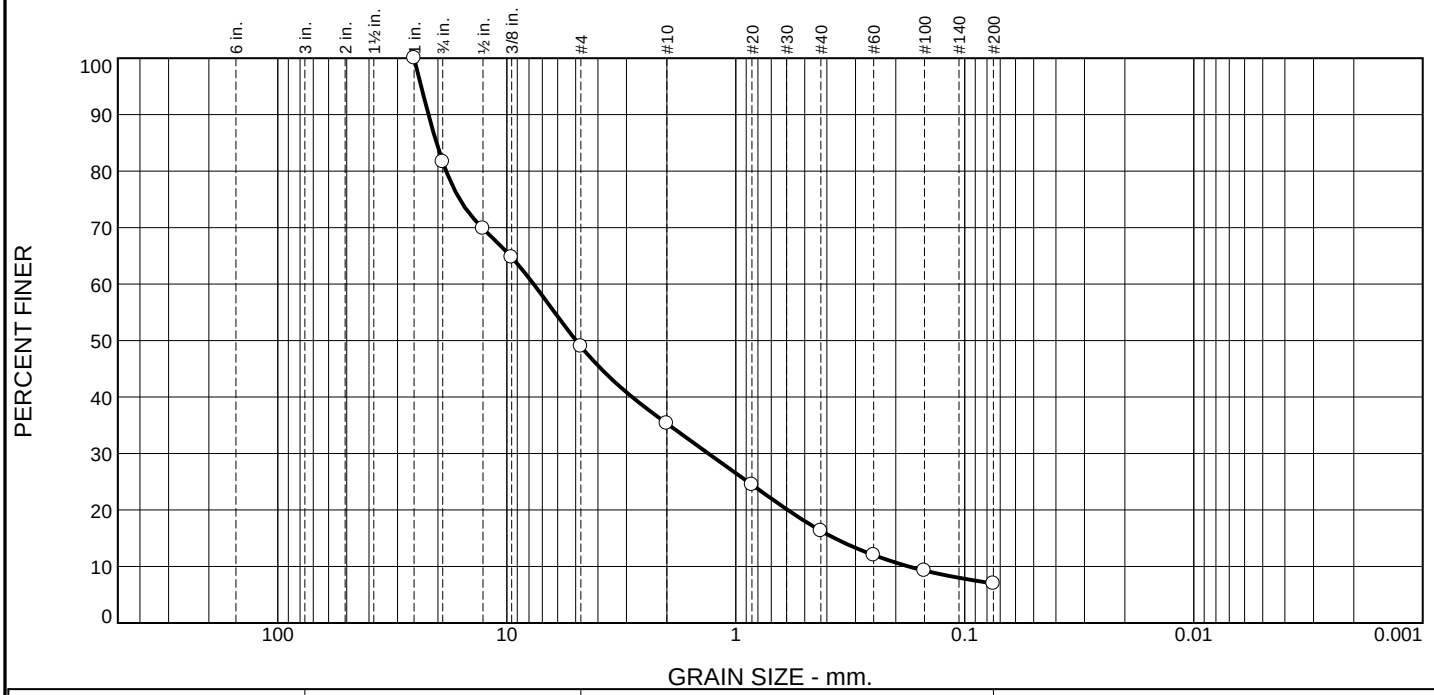
Date Sampled: 7/7/22

CDM Smith

Boston, Massachusetts

Client: City of Woburn
Project: Horn Pond PFAS
Woburn, MA
Project No: 0230-266219

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	18.4	32.6	13.7	19.0	9.3	7.0	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	81.6		
0.5"	69.8		
0.375"	64.7		
#4	49.0		
#10	35.3		
#20	24.5		
#40	16.3		
#60	12.0		
#100	9.3		
#200	7.0		

* (no specification provided)

Material Description

Light brown well-graded gravel with silt and sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** 0 **PI=**

Classification

USCS (D 2487)= GW-GM **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 21.9747 D_{85}= 20.2706 D_{60}= 7.6342
D_{50}= 4.9840 D_{30}= 1.3171 D_{15}= 0.3694
D_{10}= 0.1757 C_u= 43.44 C_c= 1.29

Remarks

As Received Moisture Content = 2.8%

Date Received: 7/12/22 **Date Tested:** 7/13/22

Tested By: CB

Checked By: MP

Title: Laboratory Manager

Source of Sample: B2 **Depth:** 6-8'
Sample Number: S-4

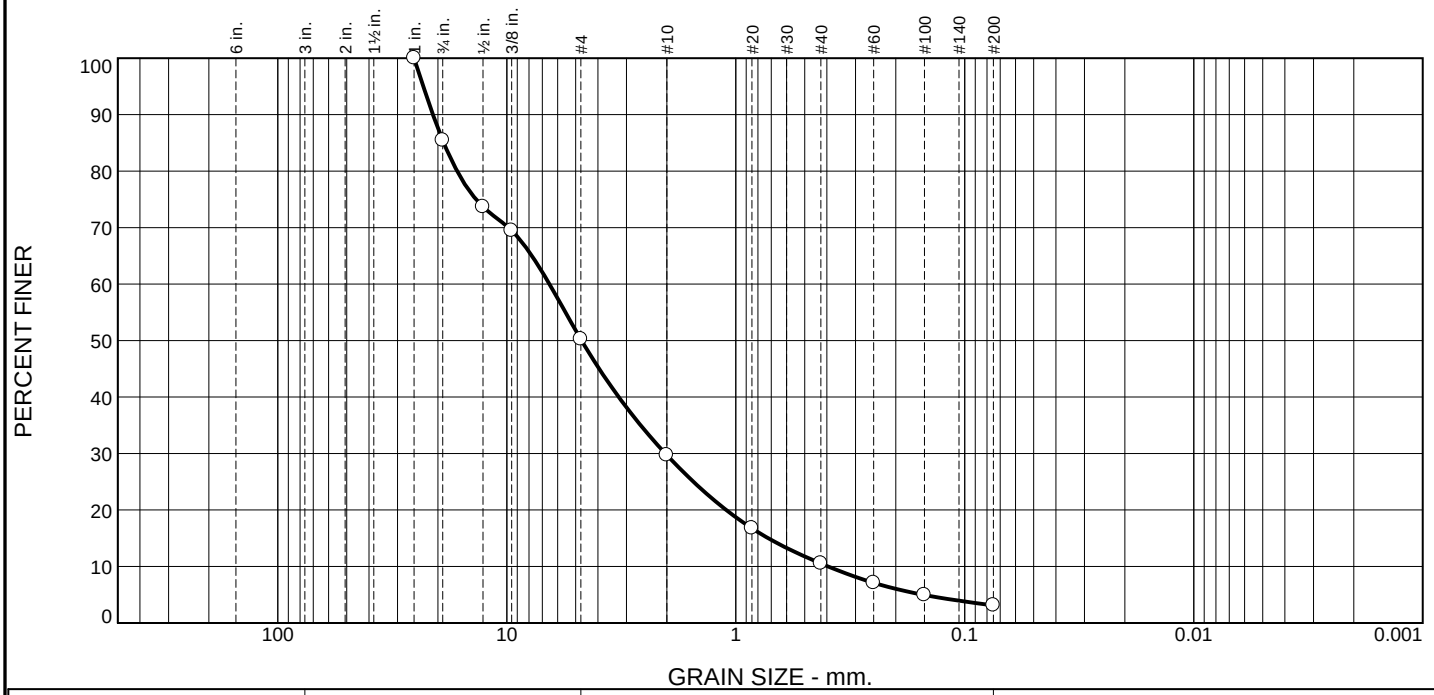
Date Sampled: 7/7/22

CDM Smith

Boston, Massachusetts

Client: City of Woburn
Project: Horn Pond PFAS
Woburn, MA
Project No: 0230-266219

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	14.5	35.3	20.5	19.2	7.4	3.1	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	85.5		
0.5"	73.7		
0.375"	69.5		
#4	50.2		
#10	29.7		
#20	16.8		
#40	10.5		
#60	7.1		
#100	4.9		
#200	3.1		

* (no specification provided)

Material Description

Brown well-graded gravel with sand

Atterberg Limits (ASTM D 4318)

PL= LL= 0 PI=

Classification

USCS (D 2487)= GW AASHTO (M 145)= A-1-a

Coefficients

D_{90}= 21.0083 D_{85}= 18.8488 D_{60}= 6.5145
D_{50}= 4.7125 D_{30}= 2.0293 D_{15}= 0.7209
D_{10}= 0.3950 C_u= 16.49 C_c= 1.60

Remarks

As Received Moisture Content = 10.2%

Date Received: 7/12/22 **Date Tested:** 7/13/22

Tested By: CB

Checked By: MP

Title: Laboratory Manager

Source of Sample: B2 **Depth:** 24-26'
Sample Number: S-8

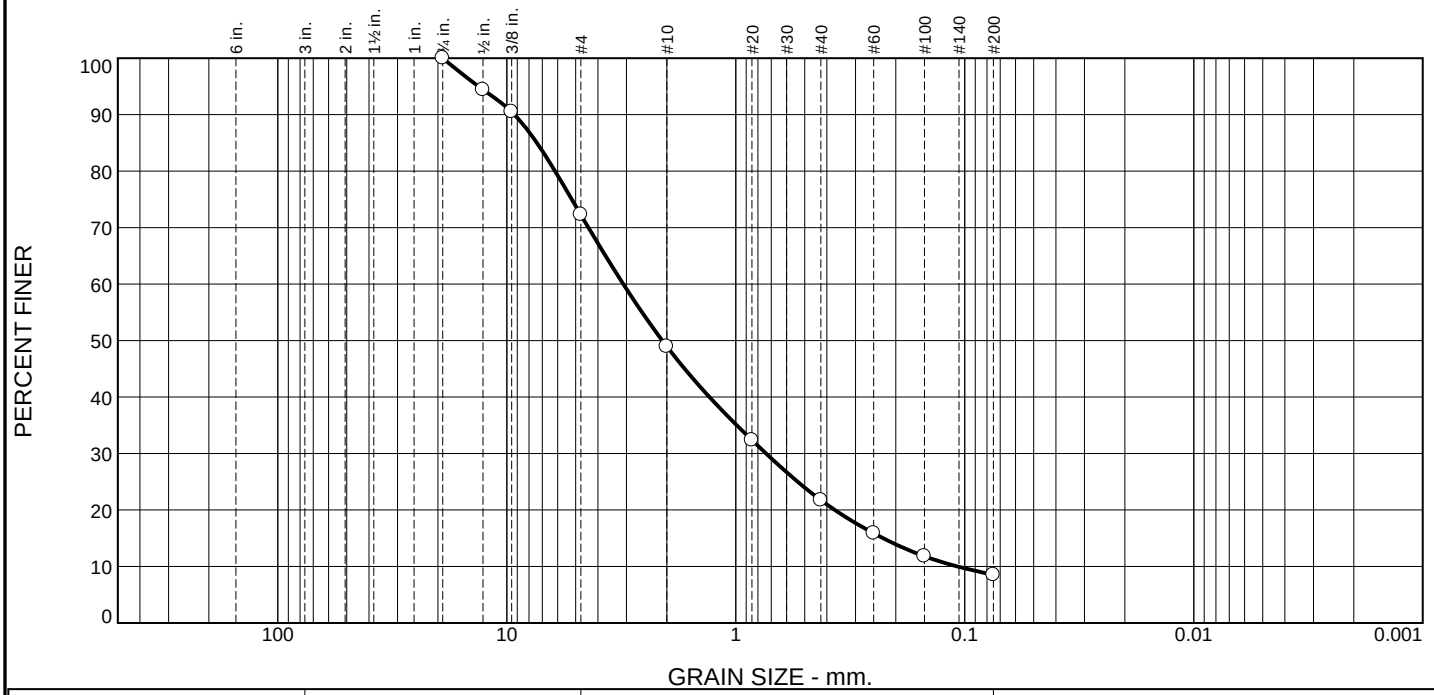
Date Sampled: 7/7/22

CDM Smith

Boston, Massachusetts

Client: City of Woburn
Project: Horn Pond PFAS
Woburn, MA
Project No: 0230-266219

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	27.7	23.4	27.2	13.2	8.5	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
0.5"	94.4		
0.375"	90.5		
#4	72.3		
#10	48.9		
#20	32.4		
#40	21.7		
#60	15.9		
#100	11.8		
#200	8.5		

* (no specification provided)

Material Description

Brown and black well-graded sand with silt and gravel (with asphalt)

Atterberg Limits (ASTM D 4318)

PL= **LL=** 0 **PI=**

Classification

USCS (D 2487)= SW-SM **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 9.2582 D_{85}= 7.3878 D_{60}= 3.0982
D_{50}= 2.0937 D_{30}= 0.7376 D_{15}= 0.2270
D_{10}= 0.1074 C_u= 28.84 C_c= 1.63

Remarks

As Received Moisture Content = 11.8%

Date Received: 7/12/22 **Date Tested:** 7/13/22

Tested By: CB

Checked By: MP

Title: Laboratory Manager

Source of Sample: B3 **Depth:** 2-4'
Sample Number: S-2

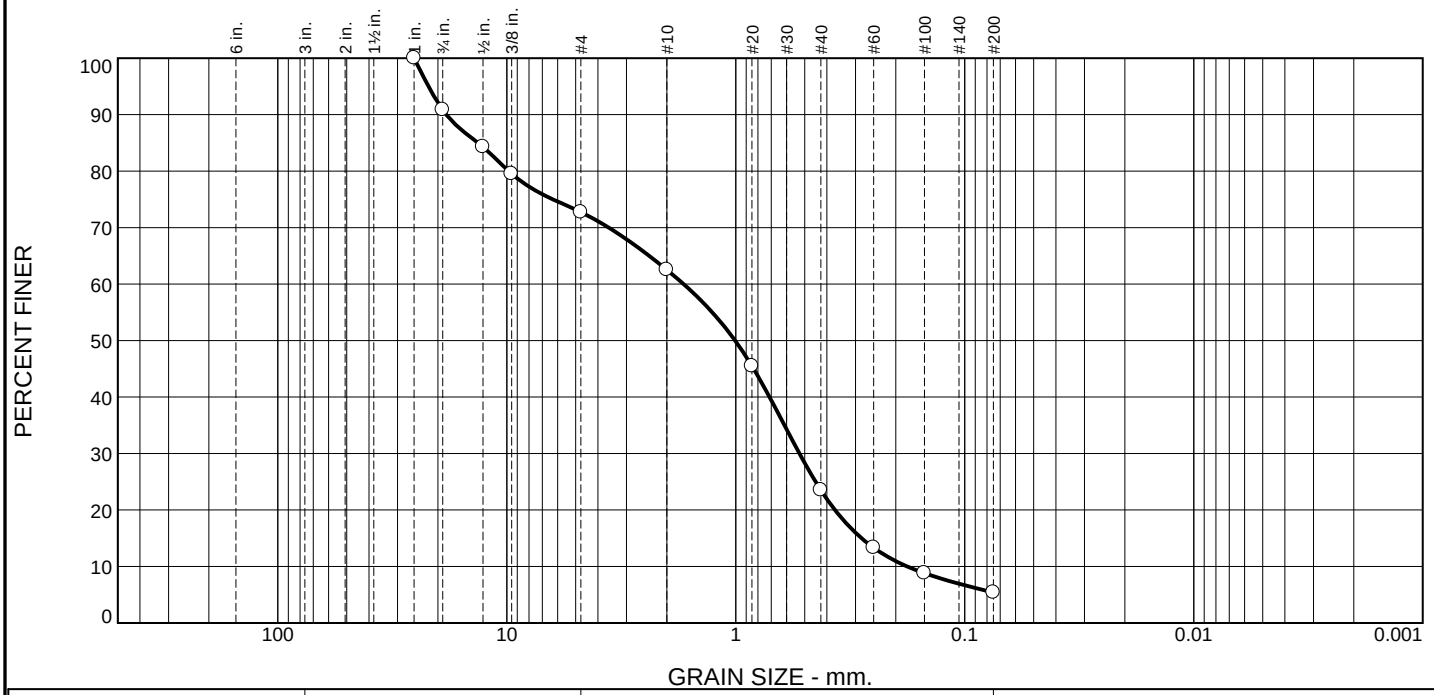
Date Sampled: 7/8/22

CDM Smith

Boston, Massachusetts

Client: City of Woburn
Project: Horn Pond PFAS
Woburn, MA
Project No: 0230-266219

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.2	18.1	10.2	39.0	18.1	5.4	

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	90.8		
0.5"	84.3		
0.375"	79.5		
#4	72.7		
#10	62.5		
#20	45.5		
#40	23.5		
#60	13.3		
#100	8.8		
#200	5.4		

* (no specification provided)

Material Description

Brown poorly graded sand with silt and gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** 0 **PI=**

Classification

USCS (D 2487)= SP-SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 18.3657 D_{85}= 13.3454 D_{60}= 1.6904
D_{50}= 1.0073 D_{30}= 0.5272 D_{15}= 0.2822
D_{10}= 0.1784 C_u= 9.48 C_c= 0.92

Remarks

As Received Moisture Content = 12.6%

Date Received: 7/12/22 **Date Tested:** 7/13/22

Tested By: CB

Checked By: MP

Title: Laboratory Manager

Source of Sample: B3 **Depth:** 14-16'
Sample Number: S-6

Date Sampled: 7/8/22

CDM Smith

Boston, Massachusetts

Client: City of Woburn
Project: Horn Pond PFAS
Woburn, MA
Project No: 0230-266219