CDM Smith
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September 3, 2021

Ms. Shauna Little
U.S. Environmental Protection Agency, Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3962

Subject: Notice of Intent
Remedial General Permit
Tobin Montessori & Vassal Lane Upper School Project
197 Vassal Lane
Cambridge, Massachusetts 02138

Dear Ms. Shauna Little:

On behalf of the City of Cambridge, CDM Smith is submitting this Notice of Intent for a Remediation General Permit for the Tobin Montessori & Vassal Lane Upper School Project located at 197 Vassal Lane in Cambridge, MA. Remediation General Permit authorization is sought for discharge related to the operation of a temporary groundwater treatment system to treat water associated with excavation dewatering for construction of a new school, excavation dewatering for an underground stormwater tank and for geothermal well installation activities. Please do not hesitate to contact me at (617) 452-6721 if you have any questions or require anything further.

Very truly yours,

Nicholas Castonguay, P.G.
CDM Smith Inc.

Enclosures:

cc: Brendon Roy (City of Cambridge)
Brian Santos (W.T. Rich)
Jill Greene (CDM Smith)
Kate Murphy (CDM Smith)
Mark Salvetti (CDM Smith)

II. Suggested Format for the Remediation General Permit Notice of Intent (NOI)

A. General site information:

1. Name of site: Tobin Montessori & Vassal Lane Upper Schools Project	Site address: 197 Vassal Lane Street:		
	City: Cambridge, MA	State: MA	Zip: 02138
2. Site owner City of Cambridge	Contact Person: Brendon Roy		
	Telephone: 857-998-7312	Email: broy@cambridgema.gov	
	Mailing address: 795 Massachusetts Avenue Street:		
Owner is (check one): ☐ Federal ☐ State/Tribal ☐ Private ■ Other; if so, specify: Municipality	City: Cambridge	State: MA	Zip: 02139
3. Site operator, if different than owner WT Rich	Contact Person: Brian Santos		
	Telephone: 617-594-5149	Email: bsantos@wtrich.com	
	Mailing address: Street: 29 Crafts St #300		
	City: Newton	State: MA	Zip: 02458
4. NPDES permit number assigned by EPA: CGP: MAR1003C9 NPDES permit is (check all that apply: ☐ RGP ☐ DGP ■ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:	5. Other regulatory program(s) that apply to the site (check all that apply): ■ MA Chapter 21e; list RTN(s): 3-0001658 ☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:	☐ CERCLA ☐ UIC Program ☐ POTW Pretreatment ☐ CWA Section 404	

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Alewife Brook/Little River	MA71-04	B

Receiving water is (check any that apply): ☐ Outstanding Resource Water ☐ Ocean Sanctuary ☐ territorial sea ☐ Wild and Scenic River

2. Has the operator attached a location map in accordance with the instructions in B, above? (check one): ■ Yes ☐ No

Are sensitive receptors present near the site? (check one): ☐ Yes ■ No
If yes, specify:

3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP. TMDL-(Debris/Floatables/Trash*not required) Cu, DO, E.Coli, Floc Masses, Pb, Odor, O&G, PCBs-Fish, P, Foam, Sed Bioassay (Chronic), Clarity

4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.	0.532 ft3/s or 0.344 MGD
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.	2.19

6. Has the operator received confirmation from the appropriate State for the 7Q10and dilution factor indicated? (check one): ☐ Yes ■ No
If yes, indicate date confirmation received:

7. Has the operator attached a summary of receiving water sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No

C. Source water information:

1. Source water(s) is (check any that apply):

■ Contaminated groundwater Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No	■ Contaminated surface water Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ☐ Yes ■ No	☐ The receiving water ☐ A surface water other than the receiving water; if so, indicate waterbody:	☐ Potable water; if so, indicate municipality or origin: ☐ Other; if so, specify:

Precipitation and stormwater run-off that enters active excavation area

2. Source water contaminants: Total metals including arsenic, copper, iron, lead, zinc.	
a. For source waters that are contaminated groundwater or contaminated surface water, indicate are any contaminants present that are not included in the RGP? (check one): ☐ Yes ■ No If yes, indicate the contaminant(s) and the maximum concentration present in accordance with the instructions in Appendix VIII.	b. For a source water that is a surface water other than the receiving water, potable water or other, indicate any contaminants present at the maximum concentration in accordance with the instructions in Appendix VIII? (check one): ☐ Yes ☐ No
3. Has the source water been previously chlorinated or otherwise contains residual chlorine? (check one): ☐ Yes ■ No	

D. Discharge information

1.The discharge(s) is a(n) (check any that apply): ☐ Existing discharge ■ New discharge ☐ New source	
Outfall(s): D36OF0080 D45OF0000	Outfall location(s): (Latitude, Longitude) 42.396071, - 71.146054 42.395720, -71.143975
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ■ Indirect discharge, if so, specify: Discharge to catch basin on-site and travel through municipal stormwater system prior to discharge in Alewife Brook/Little River ☐ A private storm sewer system ■ A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): ■ Yes ☐ No Has the operator has received permission from the owner to use such system for discharges? (check one): ■ Yes ☐ No, if so, explain, with an estimated timeframe for obtaining permission: Yes, City of Cambridge Dewatering Permit has been received, see attached. Has the operator attached a summary of any additional requirements the owner of this system has specified? (check one): ■ Yes ☐ No	
Provide the expected start and end dates of discharge(s) (month/year): July 2021-July 2025 Indicate if the discharge is expected to occur over a duration of: ☐ less than 12 months ■ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No	

<table>
<tr><td>2. Activity Category: (check all that apply)</td><td colspan="2">3. Contamination Type Category: (check all that apply)</td></tr>
<tr><td rowspan="4">☐ I – Petroleum-Related Site Remediation
☐ II – Non-Petroleum-Related Site Remediation
■ III – Contaminated Site Dewatering
☐ IV – Dewatering of Pipelines and Tanks
☐ V – Aquifer Pump Testing
■ VI – Well Development/Rehabilitation
☐ VII – Collection Structure Dewatering/Remediation
☐ VIII – Dredge-Related Dewatering

Activity Category VI = Excess drilling water may be generated during installation of geothermal well field, water will be treated and discharged but expecting excess drilling water to not be contaminated</td><td colspan="2">a. If Activity Category I or II: (check all that apply)

☐ A. Inorganics
☐ B. Non-Halogenated Volatile Organic Compounds
☐ C. Halogenated Volatile Organic Compounds
☐ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
☐ F. Fuels Parameters</td></tr>
<tr><td colspan="2">b. If Activity Category III, IV, V, VI, VII or VIII: (check either G or H)</td></tr>
<tr><td>■ G. Sites with Known Contamination</td><td>☐ H. Sites with Unknown Contamination</td></tr>
<tr><td>c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply)

■ A. Inorganics
☐ B. Non-Halogenated Volatile Organic Compounds
☐ C. Halogenated Volatile Organic Compounds
■ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
■ F. Fuels Parameters</td><td>d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply</td></tr>
</table>

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia		✔	1	3, 200.8	0.750	31.4	31.4	Report mg/L	---
Chloride		✔	1	44, 300.0	12,500	183,000	183,000	Report µg/l	---
Total Residual Chlorine	✔		1	121,4500	0.02	ND	ND	0.2 mg/L	50
Total Suspended Solids		✔	1	121,2540D	5	40	40	30 mg/L	---
Antimony	✔		1	3, 200.8	4	ND	ND	206 µg/L	
Arsenic		✔	1	3, 200.8		55.32	55.32	104 µg/L	10
Cadmium	✔		1	3, 200.8	0.2	ND	ND	10.2 µg/L	0.7120
Chromium III	✔		1	1,7196A	10	ND	ND	323 µg/L	
Chromium VI	✔		1	1, 7196A	10	ND	ND	323 µg/L	
Copper		✔	1	3005A		18.5	18.5	242 µg/L	
Iron		✔	1	3005A		25,400	25,400	5,000 µg/L	1,000
Lead		✔	1	3, 200.8		172	172	160 µg/L	16.77
Mercury	✔		1	3, 200.8	0.2	ND	ND	0.739 µg/L	
Nickel	✔		1	3, 200.8	2	ND	ND	1,450 µg/L	
Selenium	✔		1	3, 200.8	5	ND	ND	235.8 µg/L	
Silver	✔		1	3, 200.8	0.4	ND	ND	35.1 µg/L	
Zinc		✔	1	3005A		234	234	420 µg/L	
Cyanide	✔		1	121,4500	0.005	ND	ND	178 mg/L	
B. Non-Halogenated VOCs									
Total BTEX	✔		1	128, 624.1	NA	ND	ND	100 µg/L	---
Benzene	✔		1	128, 624.1	2.5	ND	ND	5.0 µg/L	---
1,4 Dioxane	✔		1	128, 624.	5.0	ND	ND	200 µg/L	---
Acetone	✔		1	128, 624.1	25.0	ND	ND	7.97 mg/L	---
Phenol	✔		1	4, 420.1	30	ND	ND	1,080 µg/L	

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride	✔		1	128, 624.1	2.5	ND	ND	4.4 µg/L	
1,2 Dichlorobenzene	✔		1	128, 624.1	12	ND	ND	600 µg/L	---
1,3 Dichlorobenzene	✔		1	128, 624.1	12	ND	ND	320 µg/L	---
1,4 Dichlorobenzene	✔		1	128, 624.1	12	ND	ND	5.0 µg/L	---
Total dichlorobenzene	✔		1	128, 624.1		ND	ND	763 µg/L in NH	---
1,1 Dichloroethane	✔		1	128, 624.1	3.8	ND	ND	70 µg/L	---
1,2 Dichloroethane	✔		1	128, 624.1	3.8	ND	ND	5.0 µg/L	---
1,1 Dichloroethylene	✔		1	128, 624.1	2.5	ND	ND	3.2 µg/L	---
Ethylene Dibromide	✔		1	128, 624.1	0.01	ND	ND	0.05 µg/L	---
Methylene Chloride	✔		1	128, 624.1	2.5	ND	ND	4.6 µg/L	---
1,1,1 Trichloroethane	✔		1	128, 624.1	5	ND	ND	200 µg/L	---
1,1,2 Trichloroethane	✔		1	128, 624.1	3.8	ND	ND	5.0 µg/L	---
Trichloroethylene	✔		1	128, 624.1	2.5	ND	ND	5.0 µg/L	---
Tetrachloroethylene	✔		1	8260C	2.5	4.4	4.4	5.0 µg/L	3.3
cis-1,2 Dichloroethylene	✔		1	128, 624.1	2.5	ND	ND	70 µg/L	---
Vinyl Chloride	✔		1	128, 624.1	2.5	ND	ND	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✔		1	129, 625.1		ND	ND	190 µg/L	
Diethylhexyl phthalate	✔		1	129, 625.1	2.2	ND	ND	101 µg/L	
Total Group I PAHs		✔	1	8270D		11.76	11.76	1.0 µg/L	---
Benzo(a)anthracene		✔	1	8270D	0.1	0.97	0.97	As Total PAHs	0.1
Benzo(a)pyrene		✔	1	8270D	0.1	0.97	0.97		0.1
Benzo(b)fluoranthene		✔	1	8270D	0.1	1.3	1.3		0.1
Benzo(k)fluoranthene		✔	1	8270D	0.1	0.45	0.45		0.1
Chrysene		✔	1	8270D	0.1	0.96	0.96		0.1
Dibenzo(a,h)anthracene		✔	1	8270D	0.1	0.17	0.17		0.1
Indeno(1,2,3-cd)pyrene		✔	1	8270D	0.1	0.68	0.68		0.1

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
Total Group II PAHs		✔	1	8270D		34.80	34.80	100 µg/L	---
Naphthalene	✔		1	8270D	0.1	10	10	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		1	127, 608.3		ND	ND	0.000064 µg/L	---
Pentachlorophenol	✔			129, 625.1	1.0	ND	ND	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✔		1	74, 1664A	4.0	ND	ND	5.0 mg/L	---
Ethanol	✔		1	EPA 600	20 mg/L	ND	ND	Report mg/L	---
Methyl-tert-Butyl Ether		✔	1	8260C	25	400	400	70 µg/L	20
tert-Butyl Alcohol	✔		1	128, 624.1	250	ND	ND	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		1	128, 624.1	50	ND	ND	90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									
pH		✔	1	YSI	SU	6.93	6.93		
Temperature		✔	1	YSI	deg C	14.3	14.3		
Hardness		✔	1	EPA	mg/L	369	369		
Salinity		✔	1	YSI	PPT	0.67	0.67		

E. Treatment system information

1. Indicate the type(s) of treatment that will be applied to effluent prior to discharge: (check all that apply)

☐ Adsorption/Absorption ☐ Advanced Oxidation Processes ☐ Air Stripping ■ Granulated Activated Carbon ("GAC")/Liquid Phase Carbon Adsorption

☐ Ion Exchange ☐ Precipitation/Coagulation/Flocculation ■ Separation/Filtration ☐ Other; if so, specify:

2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge.

Oil/water separator - recommended model with 200 gpm design flow
Fractionation tank (21,000 gallon)
Particulate filters - two filters in parallel with combined design flow of 200 gpm
Granular activated carbon (GAC) filters (two GAC beds) in parallel with combined design flow of 200 gpm

Identify each major treatment component (check any that apply):

■ Fractionation tanks☐ Equalization tank ■ Oil/water separator ☐ Mechanical filter ☐ Media filter

☐ Chemical feed tank ☐ Air stripping unit ■ Bag filter ■ Other; if so, specify: Two 3000 pound (117 cubic feet) Granular Activated Carbon Filters, Also See Attached Treatment Process Diagram.

Indicate if either of the following will occur (check any that apply):

☐ Chlorination ☐ De-chlorination

3. Provide the **design flow capacity** in gallons per minute (gpm) of the most limiting component.

Indicate the most limiting component: 200 gpm with maximum total dynamic head at 60 feet through bag filters and GAC filters.

Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:

Provide the proposed maximum effluent flow in gpm.	200
Provide the average effluent flow in gpm.	200
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	NA

4. Has the operator attached a schematic of flow in accordance with the instructions in E, above? (check one): ■ Yes ☐ No

F. Chemical and additive information

1. Indicate the type(s) of chemical or additive that will be applied to effluent prior to discharge or that may otherwise be present in the discharge(s): (check all that apply)

☐ Algaecides/biocides ☐ Antifoams ☐ Coagulants ☐ Corrosion/scale inhibitors ☐ Disinfectants ☐ Flocculants ☐ Neutralizing agents ☐ Oxidants ☐ Oxygen ☐ scavengers ☐ pH conditioners ☐ Bioremedial agents, including microbes ☐ Chlorine or chemicals containing chlorine ☐ Other; if so, specify:
Not planning on chemical additives

2. Provide the following information for each chemical/additive, using attachments, if necessary:

a. Product name, chemical formula, and manufacturer of the chemical/additive;
b. Purpose or use of the chemical/additive or remedial agent;
c. Material Safety Data Sheet (MSDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive;
d. The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the chemical/additive;
e. Any material compatibility risks for storage and/or use including the control measures used to minimize such risks; and
f. If available, the vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)).

3. Has the operator attached an explanation which demonstrates that the addition of such chemicals/additives may be authorized under this general permit in accordance with the instructions in F, above? (check one): ☐ Yes ☐ No; if no, has the operator attached data that demonstrates each of the 126 priority pollutants in CWA Section 307(a) and 40 CFR Part 423.15(j)(1) are non-detect in discharges with the addition of the proposed chemical/additive?
(check one): ☐ Yes ☐ No

G. Endangered Species Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

■ **FWS Criterion A**: No endangered or threatened species or critical habitat are in proximity to the discharges or related activities or come in contact with the "action area".

☐ **FWS Criterion B**: Formal or informal consultation with the FWS under section 7 of the ESA resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by FWS on a finding that the discharges and related activities are "not likely to adversely affect" listed species or critical habitat (informal consultation). Has the operator completed consultation with FWS? (check one): ☐ Yes ☐ No; if no, is consultation underway? (check one): ☐ Yes ☐ No

☐ **FWS Criterion C**: Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the operator and affirmed by EPA, that the discharges and related activities will have "no effect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the FWS. This determination was made by: (check one) ☐ the operator ☐ EPA ☐ Other; if so, specify:

☐ **NMFS Criterion**: A determination made by EPA is affirmed by the operator that the discharges and related activities will have "no effect" or are "not likely to adversely affect" any federally threatened or endangered listed species or critical habitat under the jurisdiction of NMFS and will not result in any take of listed species. Has the operator previously completed consultation with NMFS? (check one): ☐ Yes ☐ No

2. Has the operator attached supporting documentation of ESA eligibility in accordance with the instructions in Appendix I, and G, above? (check one): ■ Yes ☐ No

Does the supporting documentation include any written concurrence or finding provided by the Services? (check one): ☐ Yes ■ No; if yes, attach.

H. National Historic Preservation Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

■ **Criterion A**: No historic properties are present. The discharges and discharge-related activities (e.g., BMPs) do not have the potential to cause effects on historic properties.

☐ **Criterion B**: Historic properties are present. Discharges and discharge related activities do not have the potential to cause effects on historic properties.

☐ **Criterion C**: Historic properties are present. The discharges and discharge-related activities have the potential to have an effect or will have an adverse effect on historic properties.

2. Has the operator attached supporting documentation of NHPA eligibility in accordance with the instructions in H, above? (check one): ■ Yes ☐ No

Does the supporting documentation include any written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the operator will carry out to mitigate or prevent any adverse effects on historic properties? (check one): ☐ Yes ■ No

I. Supplemental information

Describe any supplemental information being provided with the NOI. Include attachments if required or otherwise necessary.

Attachments Including the Following:
Attachment 1: General Dewatering Plan, Treatment Process Plan, Dewatering Well Construction, Stormwater Discharge Layout, Dewatering Memo, City of Cambridge Dewatering Permit
Attachment 2: Groundwater Analytical Results and Effluent Documentation
Attachment 3: Endangered Species Act Documentation
Attachment 4: National Historic Preservation Act Review

Has the operator attached data, including any laboratory case narrative and chain of custody used to support the application? (check one): ■ Yes ☐ No

Has the operator attached the certification requirement for the Best Management Practices Plan (BMPP)? (check one): ■ Yes ☐ No

J. Certification requirement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	
BMPP certification statement: A BMPP will be developed and maintained in accordance with the requirements of the RGP and will be implemented prior to initial discharge.	
Notification provided to the appropriate State, including a copy of this NOI, if required.	Check one: Yes ☐ No ☐ NA
Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐
Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐ NA ☐
Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission.	Check one: Yes ■ No ☐ NA ☐
Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:	Check one: Yes ☐ No ☐ NA ■
Signature: Brendon Roy Digitally signed by Brendon Roy DN: C=US, E=broy@cambridgema.gov, OU=City of Cambridge, CN=Brendon Roy Date: 2021.09.02 10:25:14-04'00'	Date: 9/2/21
Print Name and Title: Brendon Roy Construction Program Manager	

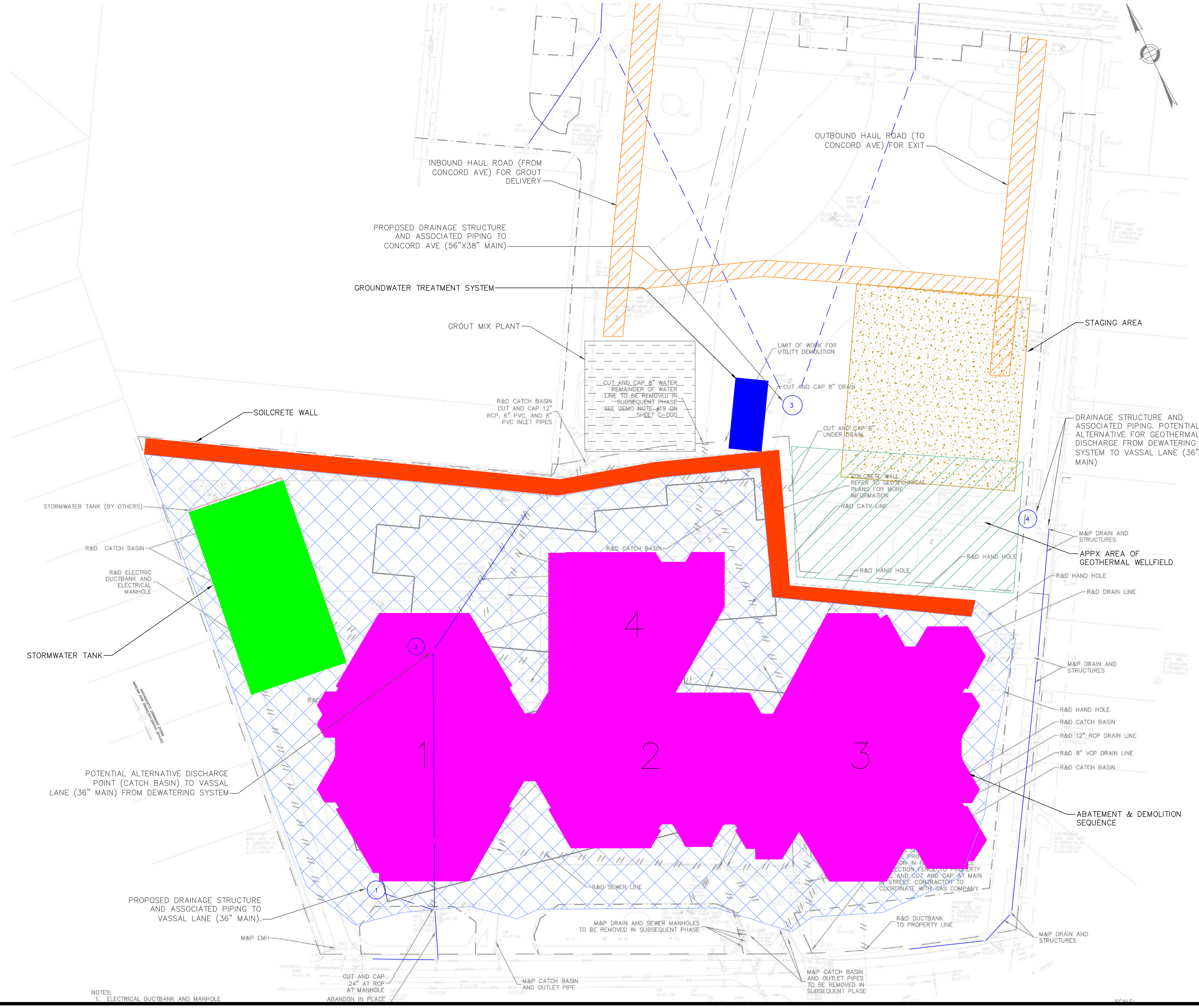
J. Certification requirement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	
BMPP certification statement: A BMPP will be developed and maintained in accordance with the requirements of the RGP and will be implemented prior to initial discharge.	
Notification provided to the appropriate State, including a copy of this NOI, if required.	Check one: Yes ☐ No ☐ NA
Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐
Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐ NA ☐
Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission.	Check one: Yes ■ No ☐ NA ☐
Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:	Check one: Yes ☐ No ☐ NA ■
Signature:	Date: 9/1/21
Print Name and Title: Brian Santos, W.T. Rich Project Executive	

Attachment No.1

General Dewatering Plan, Treatment Process Diagram, Dewatering Well Construction, Stormwater Discharge Layout, Dewatering Plan Memo, City of Cambridge Dewatering Permit

CDM Smith



NOTES:

BUILDING DEMOLITION SEQUENCE WILL BE GENERALLY WEST TO EAST AND PHASING IS APPROXIMATE.

STAGING AREA AS DEPICTED ASSUMES MAXIMUM OF 20,000 CUBIC YARDS (APPX. 30,000 TONS) OF SOIL STOCKPILED AT ANY ONE TIME.

TEMPORARY DEWATERING AREAS WILL BE DETERMINED IN THE FIELD DURING UTILITY DEMOLITION, BASED ON EXISTING SITE CONDITIONS AT THE TIME OF WORK.

REFER TO EARLY BID PACKAGE #1 FOR FURTHER INFORMATION REGARDING SOIL CONDITIONS.

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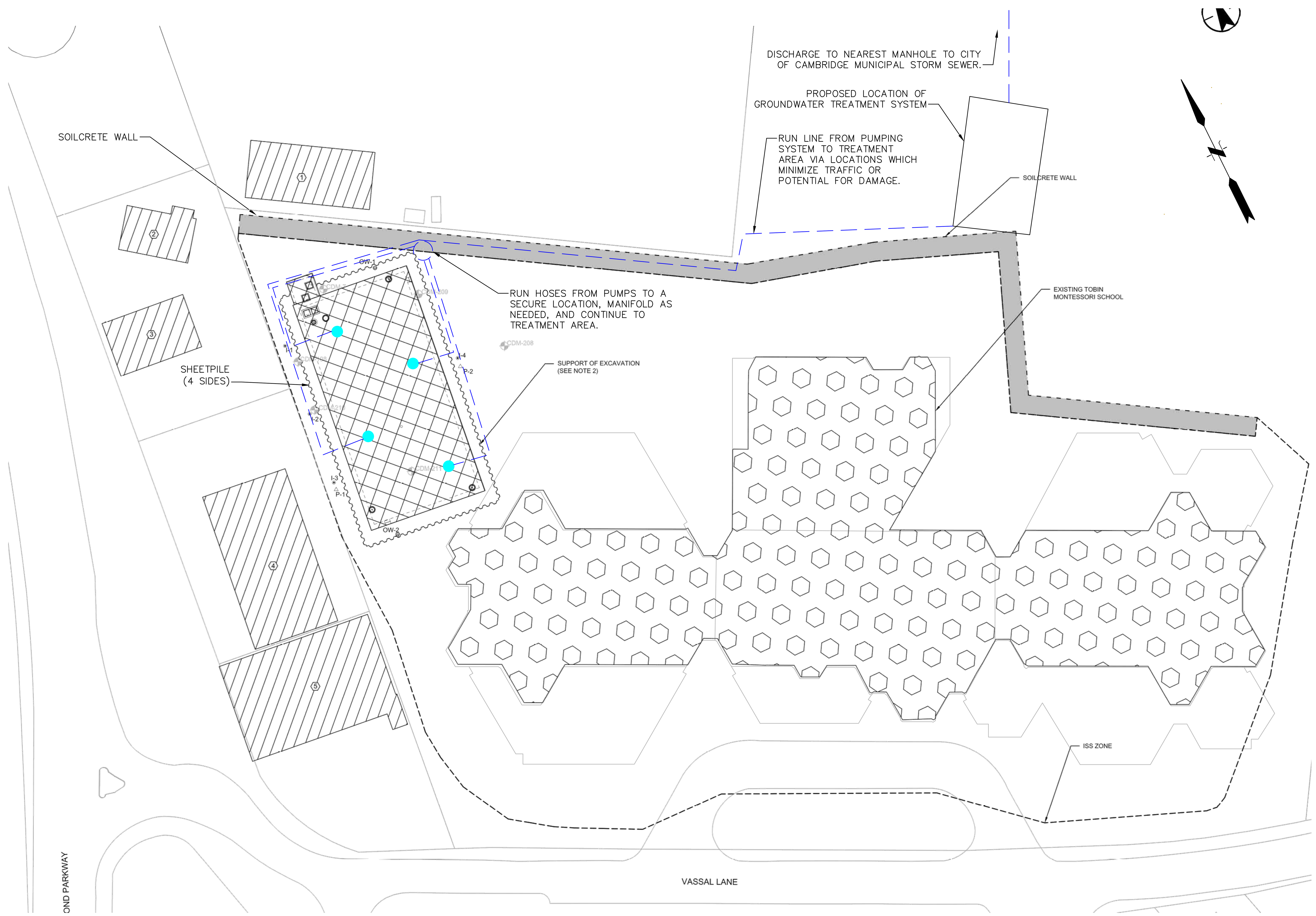
TOBIN MONTESSORI / VASSAL LANE SCHOOL
CAMBRIDGE



LEGEND

- PROPOSED LOCATION OF DEWATERING WELLPOINT FOR INITIAL DRAWDOWN.
- WATER PIPING

NOTES:

1. MULTIPLE DEWATERING PUMPS SET WITHIN THE EXCAVATION FOOTPRINT MAY BE MANIFOLD TOGETHER IN THE FIELD PRIOR TO PUMPING TO THE DEWATERING SYSTEM.
2. FOLLOWING DRAWDOWN AND INITIAL TANK SLAB CONSTRUCTION, WELLPOINTS SHALL BE PLACED BETWEEN THE TANK AND SHEET PILING AS NEEDED TO SUSTAIN DRAWDOWN DURING TANK CONSTRUCTION.
3. DUE TO LOW PERMEABILITY OF CLAY AND TREATED SOIL, SITE CONTRACTOR MAY ELECT TO CUT TRENCHES OR SUMPS AROUND THE WELLS TO ACCELERATE WATER GENERATION AND DRAWDOWN. SITE CONTRACTOR SHALL VERIFY ANY SUCH PLANS WITH THE CONSTRUCTION MANAGER.
4. BACKGROUND IMAGE WAS TAKEN FROM A DRAWING TITLED "SST – GEOTECHNICAL CONSTRUCTION MONITORING PLAN, XB–101", PART OF THE EARLY BID PACKAGE #1 DATED MARCH 5, 2021. REFER TO THE EARLY BID PACKAGE FOR INFORMATION REGARDING SOIL CONDITIONS.
5. THE TEMPORARY DEWATERING SETUP WILL BE DETERMINED IN THE FIELD AND THE AREAS DEPICTED HEREIN ARE FOR REFERENCE.
6. REFER TO THE DEWATERING PROCESS DIAGRAM FOR EQUIPMENT PROPOSED FOR USE. EQUIPMENT AREA AS DEPICTED IS 50' BY 80'. ACTUAL REQUIRED SPACING IS A FUNCTION OF EQUIPMENT SELECTION AND SHALL BE DETERMINED ONCE EQUIPMENT IS SELECTED.

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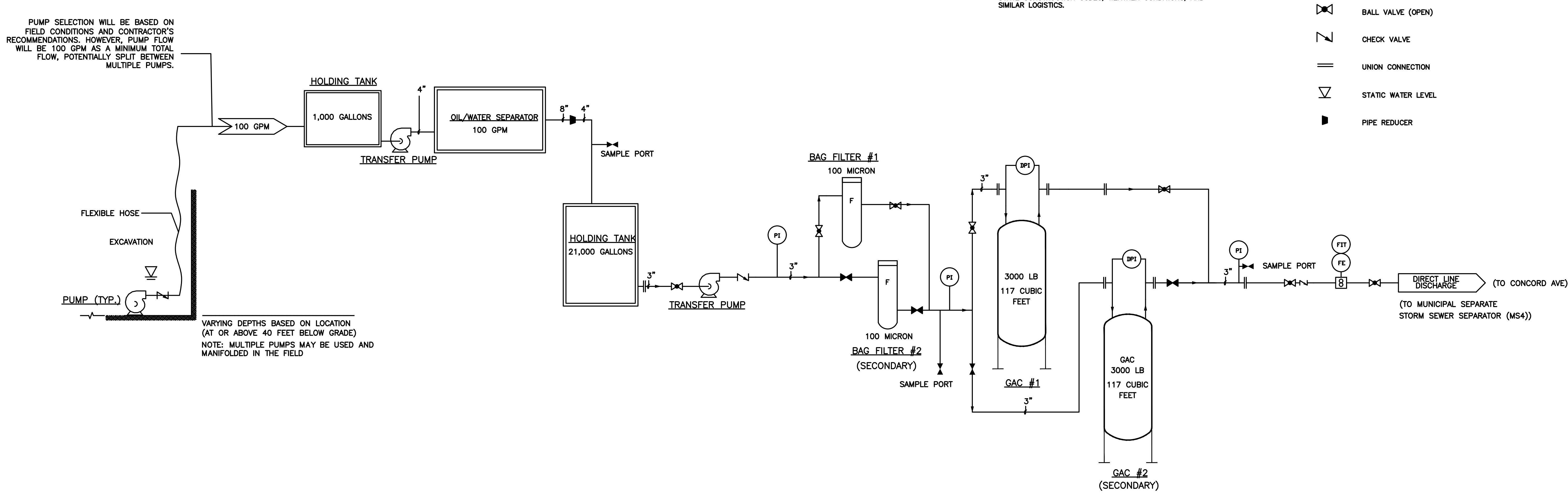
GENERAL NOTES

1. CONSULT WITH EQUIPMENT SUPPLIER TO CONFIRM PIPING DIMENSIONS. ADDITIONAL FITTINGS AND ADAPTERS MAY BE REQUIRED.
2. VALVES DEPICTED AS OPEN/CLOSED REPRESENTS 100 GALLONS PER MINUTE FLOW WITH STANDBY EQUIPMENT. FILTERS AND CARBON BEDS SHOULD BE CYCLED FOR MAINTENANCE.
3. EXCAVATIONS MAY RELY ON MULTIPLE SUMP PUMPS DISCHARGING TO THE INITIAL HOLDING TANK.
4. REFER TO DETAIL DRAWING FOR EXCAVATION AREA WELLPOINT DETAILS. REFER TO SITE PLAN FOR GENERAL EQUIPMENT LOCATIONS.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR SELECTION OF APPROPRIATE PIPING MATERIALS CONSIDERING LOCAL AND STATE CONSTRUCTION CODES, WEATHER CONDITIONS, AND SIMILAR LOGISTICS.

LEGEND

- FIT — FLOW INDICATING TRANSMITTER
- FE — FLOW ELEMENT
- (D)PI — (DIFFERENTIAL) PRESSURE INDICATOR
- 8 — FLOW METER
- BALL VALVE (CLOSED)
- BALL VALVE (OPEN)
- CHECK VALVE
- UNION CONNECTION
- STATIC WATER LEVEL
- PIPE REDUCER



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W.T. RICH COMPANY, INC.

TREATMENT PROCESS DIAGRAM

TOBIN MONTESSORI & VASSAL LANE UPPER SCHOOLS PROJECT

CAMBRIDGE MASSACHUSETTS

PROJ. No.: 20160717.A20
DATE: JULY 2021

FIGURE 3

File Path: J:\DWG\P2016\0717\A20\Environmental\Plan\20160717.A20_dewater schem.dwg Layout: 11X17-L TREAT SYSTEM Plotted: Tue, July 06, 2021 - 4:00 PM User: dlafrance
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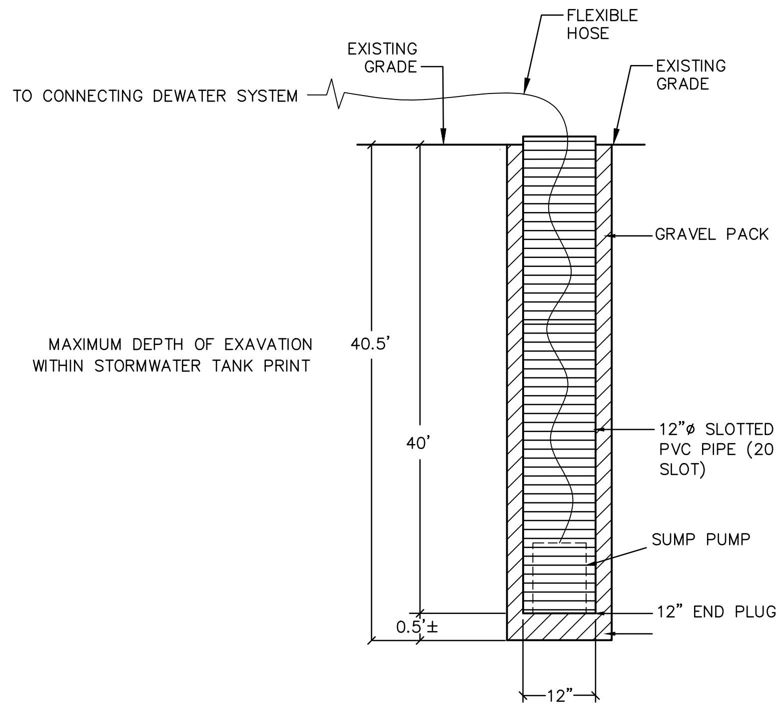

DEWATERING WELL (TYP.)

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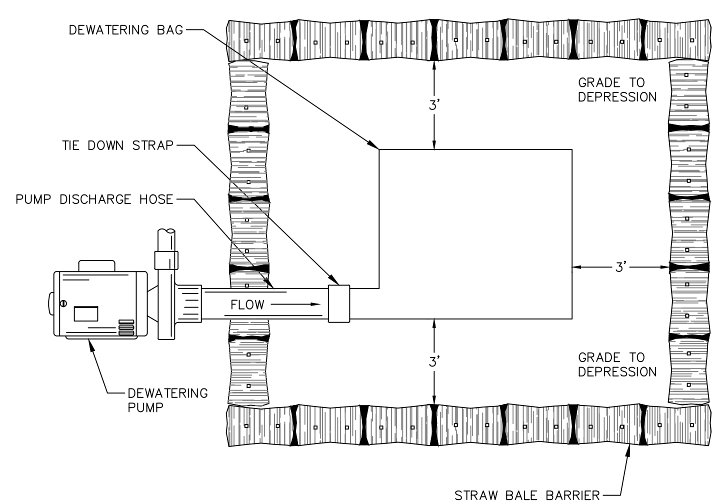
WELL CONSTRUCTION NOTES:

1. PIPING DIAMETER MAY BE REDUCED AT THE DISCRETION OF THE CONTRACTOR AND ENGINEER PROVIDING THAT A SUITABLY POWERFUL PUMP CAN BE INSTALLED WITHIN THE WELL BORE.
2. MONITORING POINT WELLS SHALL HAVE A MINIMUM 2" ANNULAR SPACE MAINTAINED DURING THE COMPLETION OF THE FILTER PACK. THE PROCEDURE MUST ALLOW PROPER VERTICAL ALIGNMENT OF THE WELL AND EFFICIENT DEVELOPMENT. ACCEPTABLE DRILLING PRACTICES SHALL INCLUDE HOLLOW STEM AUGER METHODS.
3. THE EQUIPMENT UTILIZED SHALL BE CAPABLE OF PENETRATING TO A DEPTH OF AT LEAST 45' IN UNCONSOLIDATED DEPOSITS. IF OBSTACLES ARE ENCOUNTERED, THE CONTRACTOR SHALL MAKE ALL REASONABLE EFFORTS TO CARRY THE WORK PAST SUCH OBSTACLES. IF SUCH EFFORTS FAIL AND THE HOLE MUST BE ABANDONED WITHOUT COMPLETING THE INSTALLATION, ANOTHER ATTEMPT MAY BE MADE NEARBY WHERE DIRECTED BY THE ENGINEER.
4. EQUIPMENT SHALL ARRIVE ON THE JOB SITE ALREADY DECONTAMINATED AND BE DECONTAMINATED FOLLOWING COMPLETION OF WORK.
5. MATERIAL SPECIFICATIONS:
   A. WELL SCREEN SHALL SPAN THE VERTICAL COLUMN IN ITS ENTIRETY AND SHALL BE CONSTRUCTED OF NOMINAL 12-INCH (1") INSIDE DIAMETER (MINIMUM) AND MADE OF TYPE I, SCHEDULE 40, POLYVINYL CHLORIDE (PVC) AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM-D 1785 OR LATEST REVISION. SCREEN LENGTHS AND SLOT SIZE SHALL BE AS SHOWN. SCREEN SHALL BE (20 SLOT) SLOTTED PVC SCREEN.
   B. PLUG END – THE BOTTOM OF EACH WELL SHALL BE SEALED WITH AN END PLUG.
   C. THE ANNULUS OUTSIDE OF THE WELL SCREEN SHALL BE FILLED WITH GRAVEL TO MAXIMIZE WATER GENERATION FROM THE SURROUNDING FORMATION.

5. DRILL CUTTINGS SHALL BE MANAGED IN ACCORDANCE WITH THE CONSTRUCTION MANAGER'S DIRECTION AND ARE ASSUMED TO INCLUDE REMEDIATION WASTE.



DEWATERING BAG (PLAN VIEW)

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GENERAL NOTES FOR ALL CONTRACTORS

1. SCHEDULE AND COORDINATE ALL ACTIVITIES WITH OTHER TRADES AND SUBCONTRACTORS WORKING AT THE SITE TO MAXIMIZE EFFICIENCY AND PREVENT NEED FOR REWORK. ENGINEER SHALL OBSERVE AND DOCUMENT CONFORMANCE OF WORK WITH PROJECT/MANUFACTURER REQUIREMENTS; NOTIFY ENGINEER OF ACTIVITIES TO ENSURE THAT COMPLETED ITEMS ARE OBSERVED PRIOR TO BEING COVERED AND THAT COMPLIANT TEST RESULTS ARE VERIFIED.
2. SUBMIT PRODUCT DATA FOR ALL MATERIALS, PRODUCTS AND EQUIPMENT PRIOR TO INCORPORATING SUCH ITEMS INTO THE WORK. PRODUCT DATA SHALL DEMONSTRATE CONFORMANCE TO PROJECT/MANUFACTURER'S REQUIREMENTS.
3. COMPLY WITH CONSTRUCTION MANAGER'S INSTRUCTIONS REGARDING WASTE MANAGEMENT AND DISPOSAL, AND HANDLING OF CONTAMINATED SOIL.
4. WHERE DEWATERING IS NECESSARY, THERE SHALL NOT BE A DISCHARGE DIRECTLY INTO WETLANDS OR WATERCOURSES. PROPER METHODS AND DEVICES SHALL BE UTILIZED TO THE EXTENT PERMITTED BY LAW, SUCH AS PUMPING WATER INTO A TEMPORARY SEDIMENTATION BASIN, PROVIDING SURGE PROTECTION AT THE INLET AND THE OUTLET OF PUMPS, FLOATING THE INTAKE OF THE PUMP, OR OTHER METHODS TO MINIMIZE AND RETAIN THE SUSPENDED SOLIDS. IF A PUMPING OPERATION IS CAUSING TURBIDITY PROBLEMS, SAID OPERATION SHALL CEASE UNTIL SUCH TIME AS FEASIBLE MEANS OF CONTROLLING TURBIDITY ARE DETERMINED AND IMPLEMENTED. THE CONTRACTOR MUST SUBMIT HIS DESIGN ALONG WITH THE LOCATIONS OF THE BASIN TO THE TOWN PRIOR TO CONSTRUCTION.

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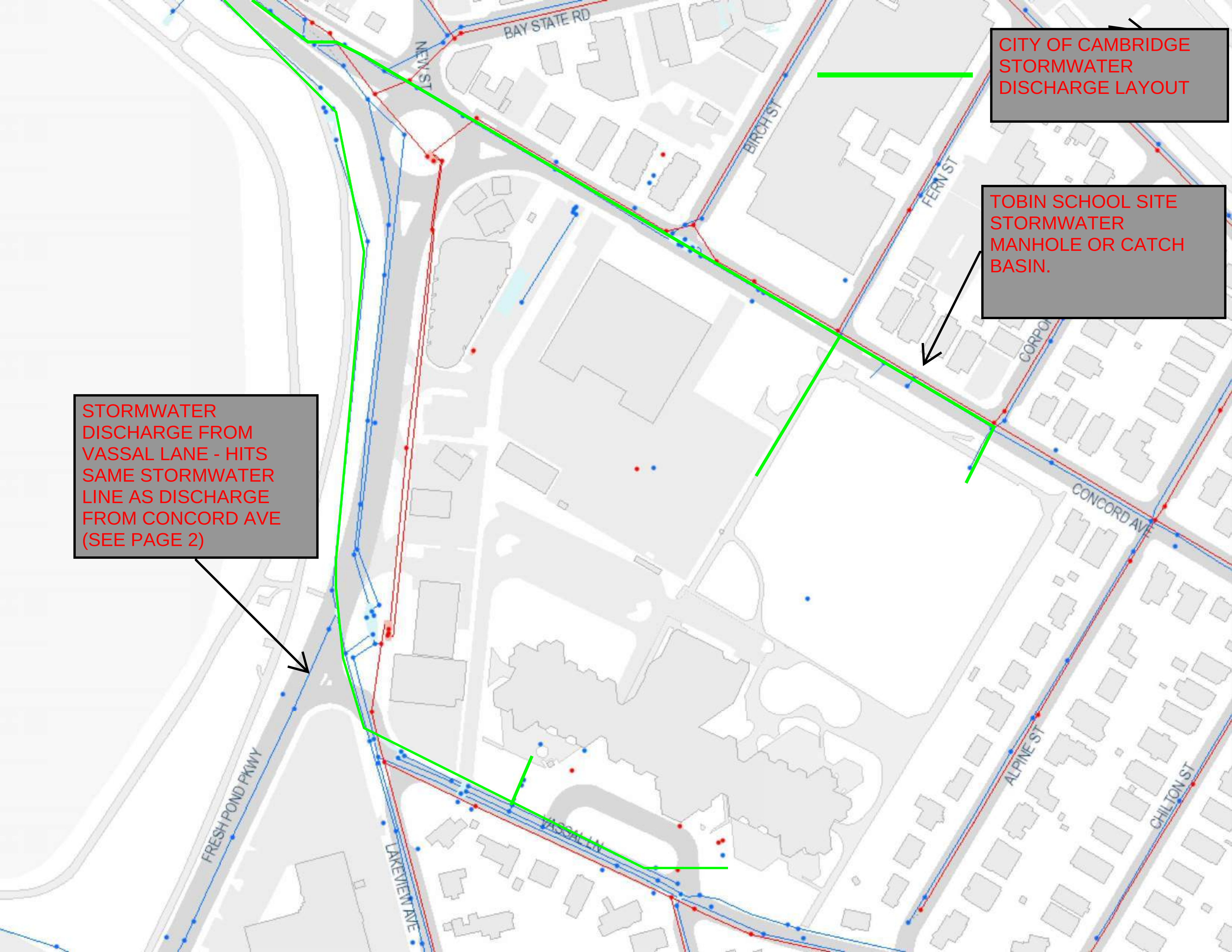
DEWATERING WELL CONSTRUCTION DETAIL

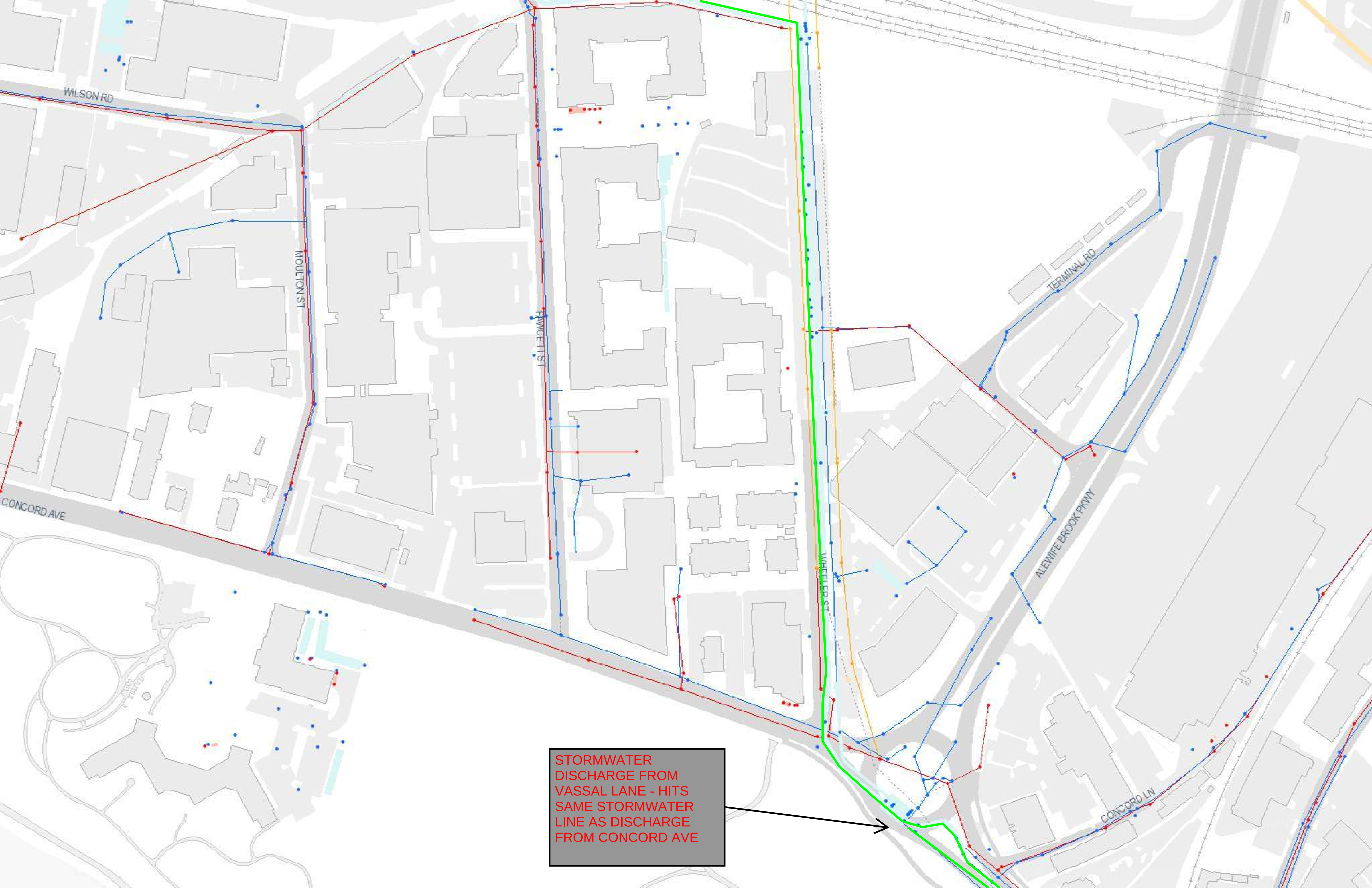
TOBIN MONTESSORI & VASSAL LANE UPPER SCHOOLS PROJECT

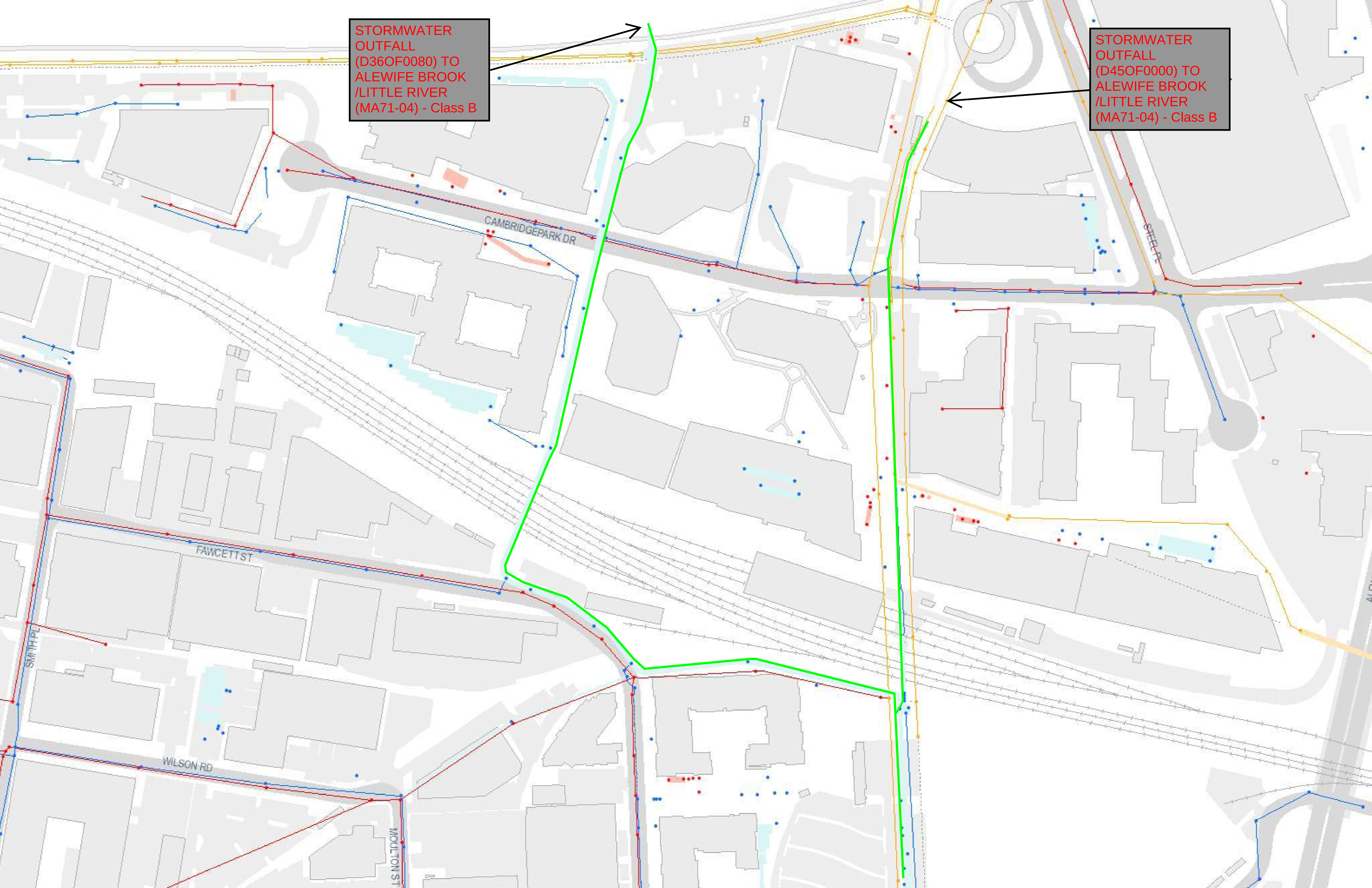
CAMBRIDGE MASSACHUSETTS

PROJ. No.: 20160717.A20
DATE: JULY 2021

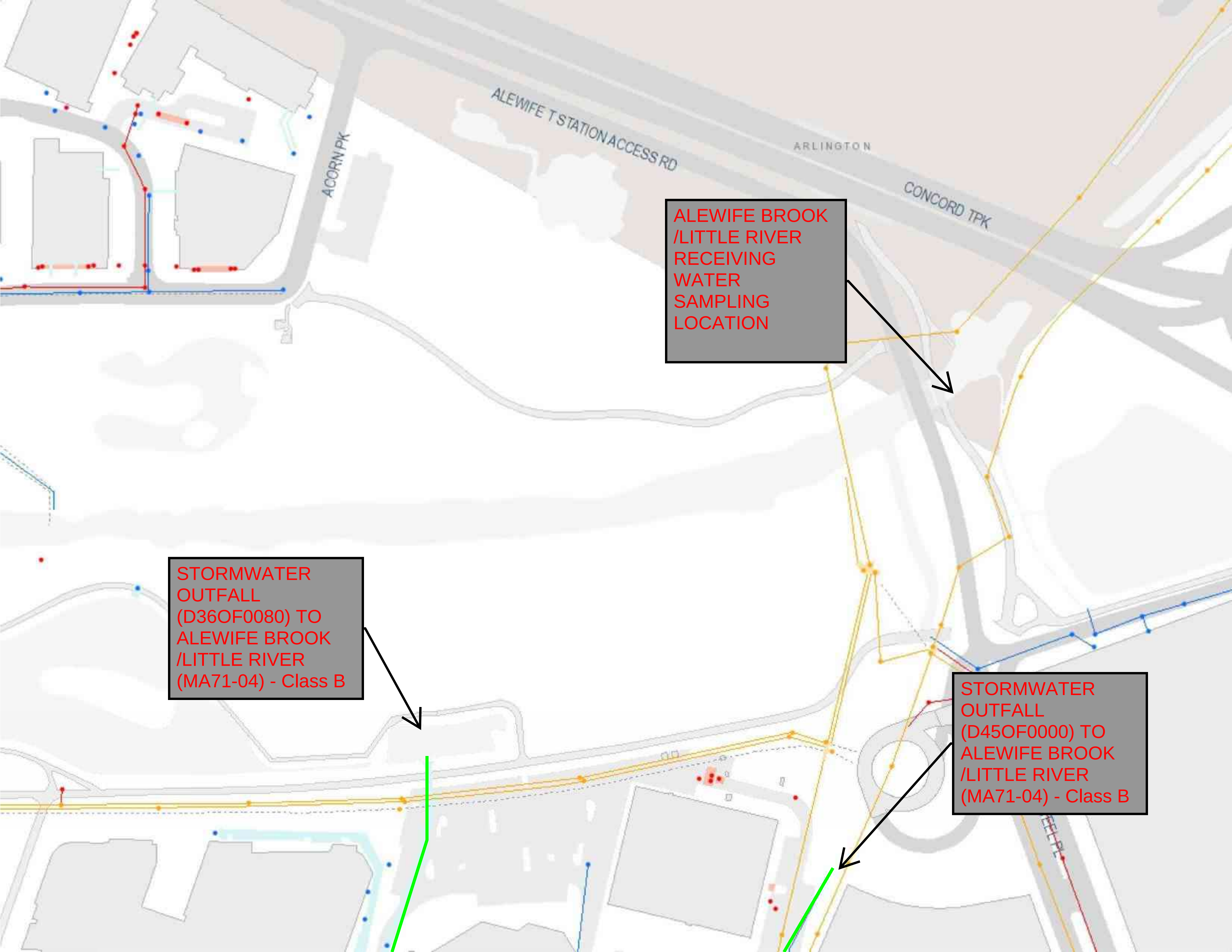
FIGURE 4


CITY OF CAMBRIDGE STORMWATER DISCHARGE LAYOUT
TOBIN SCHOOL SITE STORMWATER MANHOLE OR CATCH BASIN.
STORMWATER DISCHARGE FROM VASSAL LANE - HITS SAME STORMWATER LINE AS DISCHARGE FROM CONCORD AVE (SEE PAGE 2)
BAY STATE RD
NEW ST
BIRCH ST
FERN ST
CORPO
CONCORD AVE
ALPINE ST
CHILTON ST
FRESH POND PKWY
LAKEVIEW AVE
VASSAL LN


WILSON RD
MOULTON ST
FAWCETT ST
WHEELER ST
TERMINAL RD
ALEWIFE BROOK PKWY
CONCORD AVE
CONCORD LN
STORMWATER DISCHARGE FROM VASSAL LANE - HITS SAME STORMWATER LINE AS DISCHARGE FROM CONCORD AVE



STORMWATER OUTFALL (D36OF0080) TO ALEWIFE BROOK /LITTLE RIVER (MA71-04) - Class B
STORMWATER OUTFALL (D45OF0000) TO ALEWIFE BROOK /LITTLE RIVER (MA71-04) - Class B
CAMBRIDGEPARK DR
STEEL PL
FAWCETT ST
SMITH PL
WILSON RD
MOULTON ST


ALEWIFE T STATION ACCESS RD
ARLINGTON
CONCORD TPK
ACORN PK
ALEWIFE BROOK /LITTLE RIVER RECEIVING WATER SAMPLING LOCATION
STORMWATER OUTFALL (D36OF0080) TO ALEWIFE BROOK /LITTLE RIVER (MA71-04) - Class B
STORMWATER OUTFALL (D45OF0000) TO ALEWIFE BROOK /LITTLE RIVER (MA71-04) - Class B

W.T. Rich Company | KBE Building Corporation

Rich-KBE Tobin School Joint Venture

Tobin Montessori and Vassal Lane Upper Schools
Cambridge, MA

SUBMITTAL COVER SHEET

Architect: PERKINS EASTMAN
20 Ashburton Place, Floor 8
Boston, Massachusetts 02110

Construction Manager: Rich-KBE King School Joint Venture
29 Crafts Street, Suite 300
Newton, MA. 02458

Submission By: CDM Smith

Date: July 8, 2021

Specification Section: 312319

312319	01	1	**Dewatering Plan (revised)**

WTR Notes/Comments:

MEMORANDUM

TO: WT Rich Company

FROM: Daniel LaFrance, PE, LSP

DATE: July 6, 2021

RE: Dewatering Plan, Tobin Vassal School

Fuss & O'Neill prepared this memorandum to summarize planned activities related to dewatering at the Tobin Montessori and Vassal Lane (TMVL) School project. These activities include short-term on-site relocation of water as part of initial work (e.g. utility demolition) and longer-term dewatering operations, including the use of a fixed-base dewatering treatment system.

Short-term dewatering for demolition can be performed on an as-needed basis with the water pumped to temporary settling basins for return to the ground surface. The short-term activities are necessary to remove obstructions and facilitate the in-situ stabilization (ISS) treatment process. Groundwater managed after the ISS treatment will be treated and discharged to the City of Cambridge (the City) collection system.

Generally, WT Rich plans to install a fixed-based groundwater treatment system on the northern portion of the site, discharging treated groundwater to the City's collection system in Concord Avenue. The water treatment system will be operated subject to City of Cambridge and National Pollutant Discharge Elimination (NPDES) Remediation General Permit (RGP) requirements. A site layout plan is attached as *Figure 1* and depicts the planned location of the treatment system, and its discharge point. Additional utility lines are depicted to be preserved and protected during construction, and if appropriate and approved by the City and project stakeholders, the system may be modified to discharge to Vassal Lane. An inset detail of the dewatering location and a typical configuration is included as *Figure 2*. A process diagram depicting the dewatering treatment unit operations is included as *Figure 3*.

This document outlines the expected influent sources, volumes, and flow rates, and includes recommendations for process equipment to achieve the desired discharge water quantity and quality.

Work Sequence

A separate logistics plan has been prepared and provides details regarding the planned timeline of construction activities which include dewatering. Generally, the following project activities are anticipated to require dewatering, and will be performed in this sequence:

- Excavation for structure demolition, utility removal, and other site preparation, which will use the "short-term dewatering" methods described herein.

- In-situ stabilization treatment and installation of the soilcrete wall will follow initial demolition and will not require dewatering.
- Excavation for the stormwater tank on the west side of the project site, which will use the fixed-base dewatering system.
- Excavation for building foundations and intermediate grading, which will use the fixed-base dewatering system.
- Excavation to intermediate grade for geothermal drilling, wellheads, piping and infrastructure, which will use the fixed-base dewatering system.
- Installation of new utilities, which may make use of the fixed-base system if flow rates and site constraints warrant off-site disposal of the water.

Short-Term Dewatering

Site / utility demolition will commence in July 2021. Short-term dewatering will be required for areas where utilities will be removed. The objective of short-term dewatering is to dry and expose areas which must be temporarily exposed for safe disconnection, in order to facilitate the ISS treatment. Typically, "short-term" dewatering will be performed on a scale of hours to a maximum of one to two days in a single location.

Short-term dewatering will generate relatively small volumes of effluent which will be retained within the project boundary. Generally, groundwater will be pumped from the excavation to a secondary depression near the original point of generation, and discharged into the depression. The depression will generally be lined with stone or gravel as a filter medium, and surrounded by erosion controls, to retain silt. The groundwater will be allowed to re-infiltrate into the surrounding soil at a distance which does not lead to immediate flow back to the extraction point. A dewatering basin detail is included on *Figure 4*.

Fixed-Base Dewatering Rates

Dewatering will generally be required in three general areas on a sustained basis during site construction activities, and will make use of the treatment system and off-site discharge:

- Installation of the stormwater tank on the western side of the property.
- Installation of the building foundations within the footprint of the new school.
- Miscellaneous excavations for utility trenches, stormwater infiltration systems, the geothermal wellfield, and related activities.

Fuss & O'Neill evaluated these instances relative to both initial drawdown (i.e. removal of the standing groundwater within the work area) and sustained drawdown (i.e. counteracting upwelling action to prevent infiltration into the work area).

Fuss & O'Neill's calculations are attached as *Attachment A*. The sustained drawdown calculations were based on a Darcy's Law calculation for the school foundation and water tank areas, assuming the treated soil meets a permeability specification of 1.0×10^{-6} cm/s specified by others. Flows for smaller-scale open excavations for utility installation and related activities used the Dupuit equation to evaluate groundwater flux into open trenches on a unit basis per foot of excavation perimeter. This evaluation was intended as a consistency review which defers to a more detailed and nuanced evaluation performed by CDM Smith. CDM Smith previously provided the following estimates of water generation from the project[1]:

- Seepage beneath soilcrete wall – up to 400 gallons per day (GPD)
- Upwelling in the excavations – up to 1,000 GPD
- Foundation drainage – up to 500 GPD
- Stormwater volume per inch of rain – 82,000 gallons

Fuss & O'Neill's calculations aligned within the same order of magnitude as CDM Smith's, and in both cases, were substantially less than the required drawdown rate to lower the water table within the work area ahead of excavation progress or manage stormwater ponding in the work area, which are used as the governing flow rates.

Using a starting assumption of 40% porosity in the waste fill material and a 10% residual moisture content once drained (representative of the unsaturated soil samples collected on site), we have estimated that approximately 0.87 and 4.95 million gallons of recoverable water are entrained within the proposed tank volume and school foundation volume, respectively, prior to treatment. Note that this analysis does not specifically account for moisture fixation occurring in connection with cement from the in-situ stabilization (ISS) treatment, and may therefore be conservative with regard to residual moisture in the system.

The site contractor indicated that the excavation within the stormwater tank could be performed in approximately one week. The flow rate to drain 870,000 gallons of water in one week to maintain a dry and workable excavation would be approximately 100 gallons per minute. At a flow rate of 100 gallons per minute, the building foundation area can be drained in approximately 35 working days.

With regard to the trench and utility installation activities, Fuss & O'Neill calculated a typical flow rate of approximately five gallons per day per linear foot of exposed wall, assuming that the excavation is performed entirely within the ISS treatment area with a minimum separation of approximately two feet from the outside of the treatment zone. Therefore, the exposure of large areas (long trenches for utility installation) can be feasible without exceeding the design flows from other parts of the system.

---

[1] CDM Smith, April 7, 2021. Technical Memorandum entitled *Preliminary Seepage Analysis and Water Volume Estimates, Tobin Montessori and Vassal Lane Upper Schools.*

Dewatering Methods

As noted above, initial drawdown within the stormwater tank and school foundation must be completed to facilitate dry excavation work. The low hydraulic conductivity of the material (both clay and ISS-treated waste) limits groundwater flow and will limit the ability to remove water during the construction activity. Therefore, the following general approach to drawdown is recommended:

- Installation of multiple wellpoints or sumps within the dewatering area, into which one or more sump pumps can be installed and operated on a rotating basis as water levels are lowered and the excavation proceeds to different areas at the site.
- The site contractor may excavate trenches leading to the wellpoints to create conduits for groundwater to weep from the soil formation and migrate to the wellpoints for collection, and/or sumps surrounding the wellpoints to concentrate water in those areas. Excavation around the wellpoints may facilitate more discharge from the soil surface.
- Temporary sumps can be excavated ahead of full excavation in the work areas.
- Water can be pumped from the wellpoints and sumps to a holding tank, then conveyed to the water treatment system described below.
- Wells will be installed between the tank foundation and the sheet pile support structure to maintain the drawdown during tank installation. The wells will be abandoned once the tank is complete to the extent that the groundwater levels can re-equilibrate

A conceptual plan of the dewatering features is depicted on *Figure 2*. Generally, four dewatering wellpoints (or locations for field-excavated sumps) are proposed, and hoses will be routed out of the reinforced excavation area, and joined at the north side. The water piping will carry that water to the treatment area, for treatment and discharge to the municipal system (via Concord Avenue, north of the site). Upon achievement of bottom grade for the water tank, wellpoints will be installed on the inside of the sheet pile system, outside of the tank footprint. The tank construction will require suppression of the water table until the structure is adequately complete. A sketch plan of the conceptual dewatering layout for the water storage tank area is attached.

Because the school foundation will proceed at a shallower depth and on a wider scale, sumps are recommended in that area. The sumps can be relocated as necessary within the work areas to accommodate the work activities.

Treatment Requirements

Fuss & O'Neill has received analytical groundwater data from CDM Smith, collected in April 2021. Copies of the tables are attached hereto in *Attachment B*. CDM Smith identified the following contaminants of concern at the following maximum concentrations in groundwater:

- Total Suspended Solids, 40,000 ug/L [30,000].

- Arsenic, 55.32 ug/L [10].
- Copper, 18.5 ug/L [9].
- Iron, 25,400 ug/L [1,000].
- Lead, 172 ug/L [2.5].
- Zinc, 234 ug/L [120].
- MTBE, 400 ug/L [20].
- Tetrachloroethene, 4.4 ug/L [3.3]
- Group I PAHs, varied [1].

PAHs, and specifically the nonpolar Group I PAHs, are typically entrained in suspended solids and are therefore recoverable with filtration or settling. Lead may be similarly entrained in the suspended solids, but several of CDM Smith's data indicate that dissolved lead may be present. The ISS treatment program is intended to eliminate metals leachability and based on CDM's bench-scale testing, should bind the lead in a manner which reduces dissolved-phase concentrations. Furthermore, lead and copper solubility are strongly correlated to pH, and ISS treatment may increase pH to a level which limits lead solubility.

Arsenic and iron in groundwater are typically related to anaerobic and/or mildly acidic groundwater conditions. The ISS treatment program at the project will result in Portland cement additions, which generally increase pH. Furthermore, the wet soil will be thoroughly agitated, and while aeration is not deliberately proposed, the use of a holding tank with a head space, followed by an oil-water separator in the dewatering scheme will result in aeration. If necessary, aeration may be introduced to the settling tank using compressed air, introduced through a roof hatch, to further that process.

Several organic compounds, specifically including tetrachloroethene (PCE) and methyl tert-butyl ether (MTBE), were detected in selected groundwater samples. Activated carbon shall be used as a polishing step to remove organic compounds at the conclusion of the treatment run, prior to discharge.

Process Flow Treatment

A conceptual treatment system schematic is attached as *Figure 3*. The recommended dewatering treatment process includes the following system components:

- Oil/water separator- recommended model with 200 GPM maximum design flow.
- Fractionation tank (21,000-gallon).
- Particulate filters- two filters in parallel with design flow of 100 GPM each.
- Granular activated carbon (GAC) filters (two GAC beds) in parallel with design flow of 100 GPM each.

The estimated flow for the dewatering system will be 100 GPM at a maximum total dynamic head of 60 feet, with the highest head change involved in dewatering for the stormwater tank (to a maximum depth of approximately 35 feet below grade).

As noted above, the stormwater tank can be dewatered using wellpoints, or sumps and trenches to initially lower the water table. Wellpoints will be installed around the stormwater tank to suppress groundwater levels during tank construction. A conceptual wellpoint detail is depicted on *Figure 4*. The school building foundation may be dewatered sumps due to the generally larger area and more limited depth of proposed dewatering.

The fractionation tank and oil/water separator system are anticipated to remove total suspended solids, as well as metals which respond to oxygen and precipitate (e.g. iron). Separate-phase oil has not generally been identified as a contaminant of concern, but can be managed within the separator system to the extent necessary, if it is subsequently identified. Additionally, removal of organic matter and solids at that stage will decrease solids loading to the filters and organic loading to the activated carbon, prolonging system life.

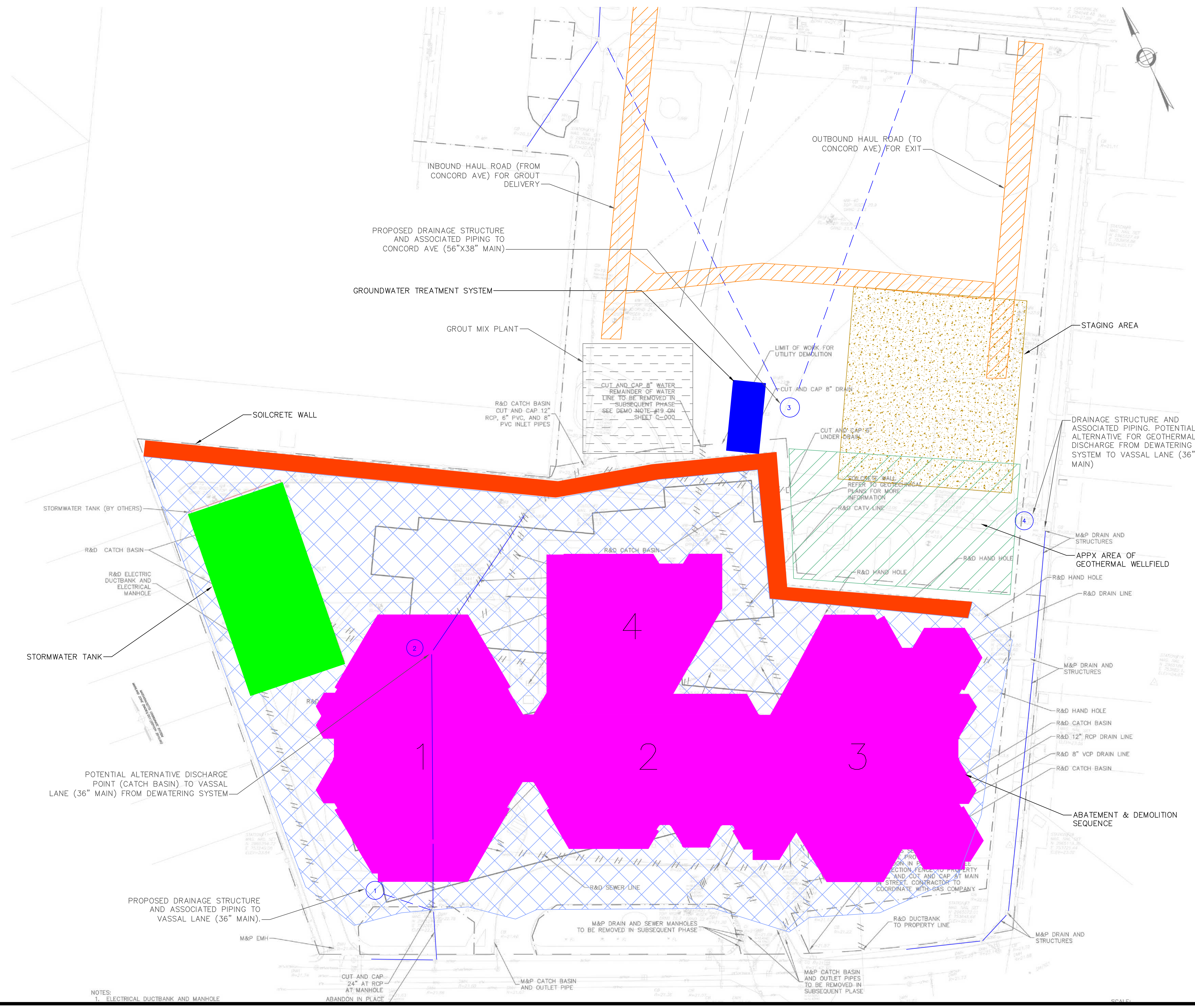
Cut sheets of representative equipment, available from local or regional vendors, are attached hereto as *Attachment C*. Equivalent equipment may be substituted at the contractor's preference.

The process diagram in *Figure 3* depicts a configuration with the filters and carbon beds capable of operating in parallel, with a redundant system for each, enabling the system to be transferred over and remaining operable during maintenance. The piping design further allows the system to operate with both units in parallel to increase flow to 200 GPM if necessary on a short-term basis. Pump and oil/water separator capacity are sized to facilitate up to 200 GPM for short durations if necessary. This capability may be used during high flow, low-pollutant operations, i.e. removal of stormwater following significant storm events, to allow site construction to resume after a major event.

Attachments:

Figure 1: General Site Layout Plan
Figure 2: General Dewatering Plan
Figure 3: Treatment Process Diagram
Figure 4: Dewatering Well Construction Detail
Attachment A: Fuss & O'Neill Flow Estimate Calculations
Attachment B: CDM Smith Groundwater Analytical Data
Attachment C: Process Equipment Cut Sheets

Figures



NOTES:

BUILDING DEMOLITION SEQUENCE WILL BE GENERALLY WEST TO EAST AND PHASING IS APPROXIMATE.

STAGING AREA AS DEPICTED ASSUMES MAXIMUM OF 20,000 CUBIC YARDS (APPX. 30,000 TONS) OF SOIL STOCKPILED AT ANY ONE TIME.

TEMPORARY DEWATERING AREAS WILL BE DETERMINED IN THE FIELD DURING UTILITY DEMOLITION, BASED ON EXISTING SITE CONDITIONS AT THE TIME OF WORK.

REFER TO EARLY BID PACKAGE #1 FOR FURTHER INFORMATION REGARDING SOIL CONDITIONS.

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GRAPHIC SCALE

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TOBIN MONTESSORI / VASSAL LANE SCHOOL
CAMBRIDGE

MS VIEW:
LAYER STATE:

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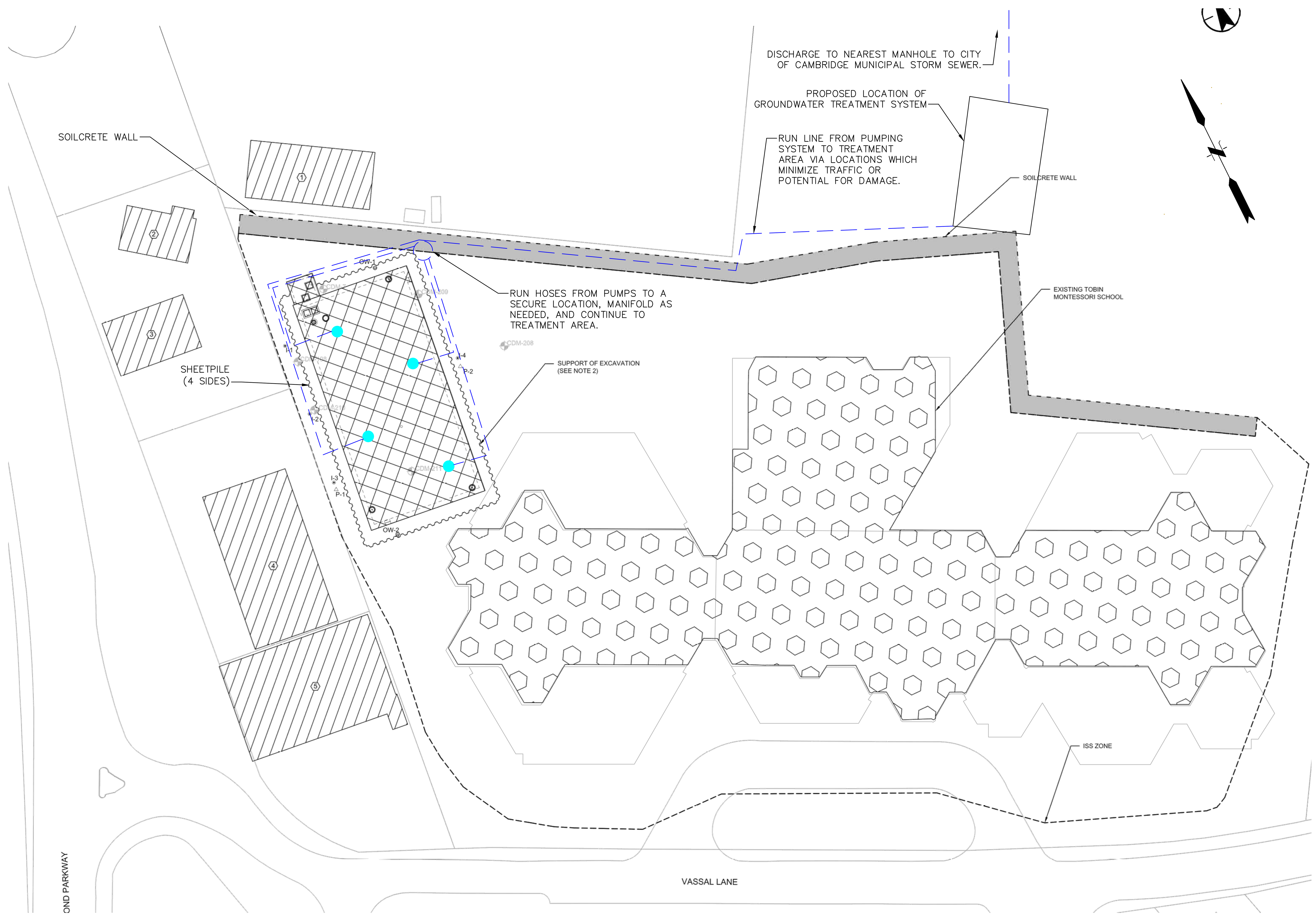
Plotter: AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 CTB File: FO.STB



LEGEND

PROPOSED LOCATION OF DEWATERING WELLPOINT FOR INITIAL DRAWDOWN.

WATER PIPING

NOTES:

1. MULTIPLE DEWATERING PUMPS SET WITHIN THE EXCAVATION FOOTPRINT MAY BE MANIFOLD TOGETHER IN THE FIELD PRIOR TO PUMPING TO THE DEWATERING SYSTEM.
2. FOLLOWING DRAWDOWN AND INITIAL TANK SLAB CONSTRUCTION, WELLPOINTS SHALL BE PLACED BETWEEN THE TANK AND SHEET PILING AS NEEDED TO SUSTAIN DRAWDOWN DURING TANK CONSTRUCTION.
3. DUE TO LOW PERMEABILITY OF CLAY AND TREATED SOIL, SITE CONTRACTOR MAY ELECT TO CUT TRENCHES OR SUMPS AROUND THE WELLS TO ACCELERATE WATER GENERATION AND DRAWDOWN. SITE CONTRACTOR SHALL VERIFY ANY SUCH PLANS WITH THE CONSTRUCTION MANAGER.
4. BACKGROUND IMAGE WAS TAKEN FROM A DRAWING TITLED "SST – GEOTECHNICAL CONSTRUCTION MONITORING PLAN, XB–101", PART OF THE EARLY BID PACKAGE #1 DATED MARCH 5, 2021. REFER TO THE EARLY BID PACKAGE FOR INFORMATION REGARDING SOIL CONDITIONS.
5. THE TEMPORARY DEWATERING SETUP WILL BE DETERMINED IN THE FIELD AND THE AREAS DEPICTED HEREIN ARE FOR REFERENCE.
6. REFER TO THE DEWATERING PROCESS DIAGRAM FOR EQUIPMENT PROPOSED FOR USE. EQUIPMENT AREA AS DEPICTED IS 50' BY 80'. ACTUAL REQUIRED SPACING IS A FUNCTION OF EQUIPMENT SELECTION AND SHALL BE DETERMINED ONCE EQUIPMENT IS SELECTED.

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SEAL

SEAL

SCALE:
HORZ.: 1" = 40'
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40 20 0 40
GRAPHIC SCALE

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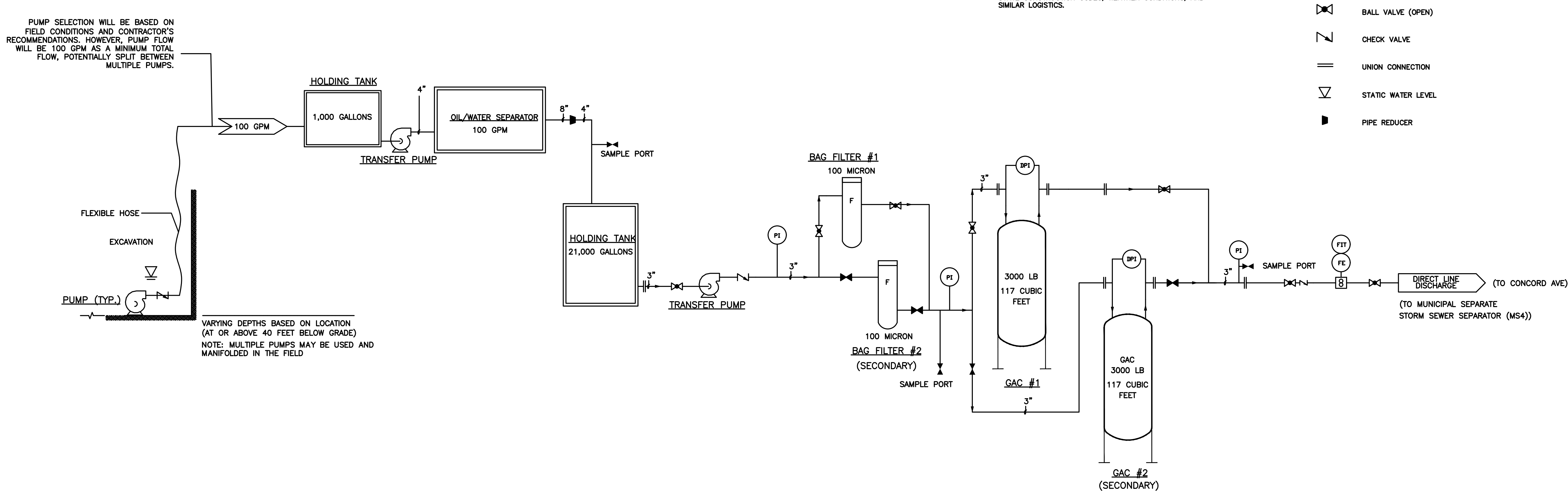
CAMBRIDGE

GENERAL NOTES

1. CONSULT WITH EQUIPMENT SUPPLIER TO CONFIRM PIPING DIMENSIONS. ADDITIONAL FITTINGS AND ADAPTERS MAY BE REQUIRED.
2. VALVES DEPICTED AS OPEN/CLOSED REPRESENTS 100 GALLONS PER MINUTE FLOW WITH STANDBY EQUIPMENT. FILTERS AND CARBON BEDS SHOULD BE CYCLED FOR MAINTENANCE.
3. EXCAVATIONS MAY RELY ON MULTIPLE SUMP PUMPS DISCHARGING TO THE INITIAL HOLDING TANK.
4. REFER TO DETAIL DRAWING FOR EXCAVATION AREA WELLPOINT DETAILS. REFER TO SITE PLAN FOR GENERAL EQUIPMENT LOCATIONS.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR SELECTION OF APPROPRIATE PIPING MATERIALS CONSIDERING LOCAL AND STATE CONSTRUCTION CODES, WEATHER CONDITIONS, AND SIMILAR LOGISTICS.

LEGEND

- FIT — FLOW INDICATING TRANSMITTER
- FE — FLOW ELEMENT
- (D)PI — (DIFFERENTIAL) PRESSURE INDICATOR
- 8 — FLOW METER
- BALL VALVE (CLOSED)
- BALL VALVE (OPEN)
- CHECK VALVE
- UNION CONNECTION
- STATIC WATER LEVEL
- PIPE REDUCER



DRAWING NOT TO SCALE

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Plotter: AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 CTB File: MONOCHROME.CTB

MS VIEW:
LAYER STATE:

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SCALE:
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DATUM:
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W.T. RICH COMPANY, INC.

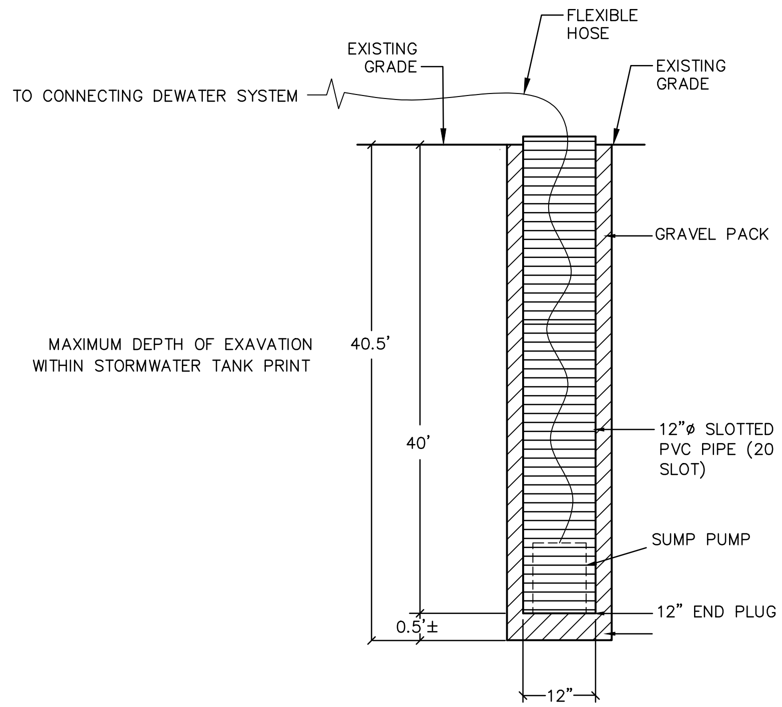
TREATMENT PROCESS DIAGRAM

TOBIN MONTESSORI & VASSAL LANE UPPER SCHOOLS PROJECT

CAMBRIDGE MASSACHUSETTS

PROJ. No.: 20160717.A20
DATE: JULY 2021

FIGURE 3



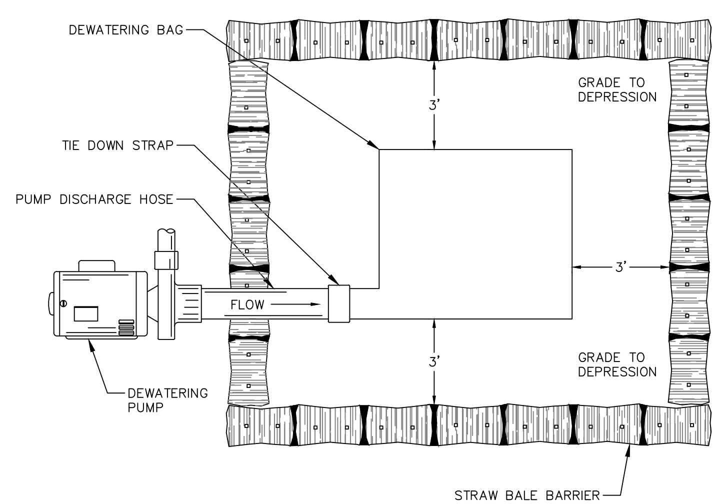
DEWATERING WELL (TYP.)

SCALE: NOT TO SCALE

WELL CONSTRUCTION NOTES:

1. PIPING DIAMETER MAY BE REDUCED AT THE DISCRETION OF THE CONTRACTOR AND ENGINEER PROVIDING THAT A SUITABLY POWERFUL PUMP CAN BE INSTALLED WITHIN THE WELL BORE.
2. MONITORING POINT WELLS SHALL HAVE A MINIMUM 2" ANNULAR SPACE MAINTAINED DURING THE COMPLETION OF THE FILTER PACK. THE PROCEDURE MUST ALLOW PROPER VERTICAL ALIGNMENT OF THE WELL AND EFFICIENT DEVELOPMENT. ACCEPTABLE DRILLING PRACTICES SHALL INCLUDE HOLLOW STEM AUGER METHODS.
3. THE EQUIPMENT UTILIZED SHALL BE CAPABLE OF PENETRATING TO A DEPTH OF AT LEAST 45' IN UNCONSOLIDATED DEPOSITS. IF OBSTACLES ARE ENCOUNTERED, THE CONTRACTOR SHALL MAKE ALL REASONABLE EFFORTS TO CARRY THE WORK PAST SUCH OBSTACLES. IF SUCH EFFORTS FAIL AND THE HOLE MUST BE ABANDONED WITHOUT COMPLETING THE INSTALLATION, ANOTHER ATTEMPT MAY BE MADE NEARBY WHERE DIRECTED BY THE ENGINEER.
4. EQUIPMENT SHALL ARRIVE ON THE JOB SITE ALREADY DECONTAMINATED AND BE DECONTAMINATED FOLLOWING COMPLETION OF WORK.
5. MATERIAL SPECIFICATIONS:
   A. WELL SCREEN SHALL SPAN THE VERTICAL COLUMN IN ITS ENTIRETY AND SHALL BE CONSTRUCTED OF NOMINAL 12-INCH (1") INSIDE DIAMETER (MINIMUM) AND MADE OF TYPE I, SCHEDULE 40, POLYVINYL CHLORIDE (PVC) AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM-D 1785 OR LATEST REVISION. SCREEN LENGTHS AND SLOT SIZE SHALL BE AS SHOWN. SCREEN SHALL BE (20 SLOT) SLOTTED PVC SCREEN.
   B. PLUG END – THE BOTTOM OF EACH WELL SHALL BE SEALED WITH AN END PLUG.
   C. THE ANNULUS OUTSIDE OF THE WELL SCREEN SHALL BE FILLED WITH GRAVEL TO MAXIMIZE WATER GENERATION FROM THE SURROUNDING FORMATION.

5. DRILL CUTTINGS SHALL BE MANAGED IN ACCORDANCE WITH THE CONSTRUCTION MANAGER'S DIRECTION AND ARE ASSUMED TO INCLUDE REMEDIATION WASTE.



DEWATERING BAG (PLAN VIEW)

SCALE:NOT TO SCALE

GENERAL NOTES FOR ALL CONTRACTORS

1. SCHEDULE AND COORDINATE ALL ACTIVITIES WITH OTHER TRADES AND SUBCONTRACTORS WORKING AT THE SITE TO MAXIMIZE EFFICIENCY AND PREVENT NEED FOR REWORK. ENGINEER SHALL OBSERVE AND DOCUMENT CONFORMANCE OF WORK WITH PROJECT/MANUFACTURER REQUIREMENTS; NOTIFY ENGINEER OF ACTIVITIES TO ENSURE THAT COMPLETED ITEMS ARE OBSERVED PRIOR TO BEING COVERED AND THAT COMPLIANT TEST RESULTS ARE VERIFIED.
2. SUBMIT PRODUCT DATA FOR ALL MATERIALS, PRODUCTS AND EQUIPMENT PRIOR TO INCORPORATING SUCH ITEMS INTO THE WORK. PRODUCT DATA SHALL DEMONSTRATE CONFORMANCE TO PROJECT/MANUFACTURER'S REQUIREMENTS.
3. COMPLY WITH CONSTRUCTION MANAGER'S INSTRUCTIONS REGARDING WASTE MANAGEMENT AND DISPOSAL, AND HANDLING OF CONTAMINATED SOIL.
4. WHERE DEWATERING IS NECESSARY, THERE SHALL NOT BE A DISCHARGE DIRECTLY INTO WETLANDS OR WATERCOURSES. PROPER METHODS AND DEVICES SHALL BE UTILIZED TO THE EXTENT PERMITTED BY LAW, SUCH AS PUMPING WATER INTO A TEMPORARY SEDIMENTATION BASIN, PROVIDING SURGE PROTECTION AT THE INLET AND THE OUTLET OF PUMPS, FLOATING THE INTAKE OF THE PUMP, OR OTHER METHODS TO MINIMIZE AND RETAIN THE SUSPENDED SOLIDS. IF A PUMPING OPERATION IS CAUSING TURBIDITY PROBLEMS, SAID OPERATION SHALL CEASE UNTIL SUCH TIME AS FEASIBLE MEANS OF CONTROLLING TURBIDITY ARE DETERMINED AND IMPLEMENTED. THE CONTRACTOR MUST SUBMIT HIS DESIGN ALONG WITH THE LOCATIONS OF THE BASIN TO THE TOWN PRIOR TO CONSTRUCTION.

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

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DEWATERING WELL CONSTRUCTION DETAIL

TOBIN MONTESSORI & VASSAL LANE UPPER SCHOOLS PROJECT

CAMBRIDGE MASSACHUSETTS

PROJ. No.: 20160717.A20
DATE: JULY 2021

FIGURE 4

Attachment A

Flow Calculations

Introduction:

The following calculations demonstrate the expected maximum system flow rates for the proposed dewatering system at the Tobin Montessori & Vassal Lane School site.

Assumptions:

- Soils which underlie pavement or topsoil at the site, but overlaying weathered rock and bedrock, comprise of the following layers in succession: granular fill; waste fill; clay and silt, silty sand, and gravel (possible glacial till). Coarse-grained soils will have higher hydraulic conductivity than fine-grained soils.
- Waste fill density is assumed to be approximately 100 pounds per cubic foot.
- Groundwater was estimated to be at depths greater than five (5) fbg. The top of the aquifer lies within the waste fill layer. The clay/silt horizon will be partially dewatered, specifically in the area of the stormwater holding tank. Bedrock was encountered at a maximum depth of 82 feet below grade (fbg). It is assumed that that an unconfined aquifer is present. The aquifer's thickness was approximated to be (82-5) = 77 feet.
- The support of excavation (SOE) designs are assumed to be impervious and flow is assumed to travel around the bottom of the SOE rather than leaking through the sidewalls.
- Soil moistures were assumed to be approximately 40% in the waste fill and 30% in the fine-grained soils, and water will be removed from the soil by dewatering. Moisture content in the unsaturated soil, used as a representation of residual moisture content post-dewatering, was approximately 10%. Moisture assumptions are based on data provided by CDM Smith.
- Residual moisture may be bound to the soil by the In-Situ Stabilization (ISS) process, but no attempt was made to quantify reduction in free liquids.

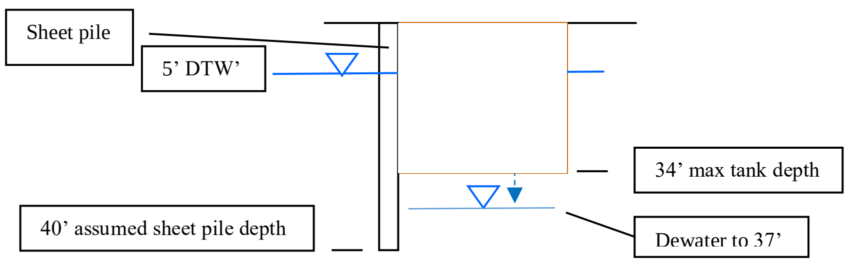
1. Hydraulic conductivity:

This value will determine the ease with which water flows into the excavation. A higher hydraulic conductivity will allow a larger volume of water to enter the excavation area.

The clay layer and the stabilized soil will be dewatered. The ISS performance testing provided by CDM and included in the project specification provides a hydraulic conductivity of 1.0E-6 cm/s (2.84E-3 ft/d). This conductivity is on the upper end of literature values for clay, and has been assumed for the entire soil thickness following treatment (Values Reference: FetterPage 85, *Section 3.4 Hydraulic Conductivity of Earth Metals*, attached).

2. Inflow, using Darcy's Law; and Drawdown Rate

A) <u>Scenario #1: Storm Water Tank Excavation:</u>



Inflow (storm water tank):

Darcy's Law states that the discharge rate Q is proportional to the area of dewatering, gradient in hydraulic head (change in head over length of travel), and the hydraulic conductivity, or

$$Q = -K*A*dh/dl,$$

: Where K = hydraulic conductivity
= 10^{-6} cm/s = 0.002835 feet per day (as above)
: Where A = cross-sectional area of flow
= (165' X 90'), i.e. area of excavation = 15,000 square feet
: Where dh = change in hydraulic head
= 37-5 = 32 feet
: Where dl = distance of travel
= (40-5)+(40-37) = 38 feet

Q = 0.002835*15,000*(32/38) = 35.8 ft3/day
= 268 GPD inflow through storm water tank excavation

Consistent with CDM Smith estimate- up to 1,000 gallons per day upwelling in foundations

Drawdown rate (storm water tank):

CDM borings which were advanced within the storm water tank footprint indicated the following:

- CDM-9 (2017): granular fill (1-6'), waste fill (6-16'), clay & silt (16-76'), glacial till (76'-82'), then bedrock; 7' DTW
- CDM-211 (2020): granular fill (1-2'), waste fill (2-8'), clay (8-68'), glacial till (68-71'), then bedrock, 5.7' DTW

Calculation of the total volume of pore space in the saturated zone by layer (within excavation limits):

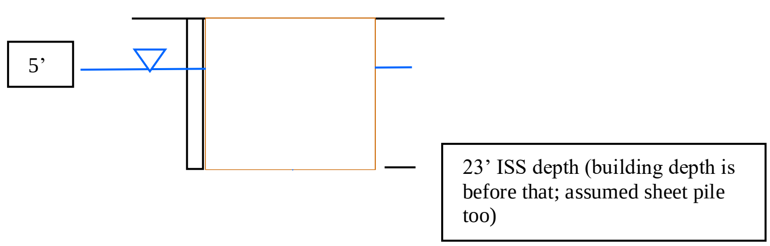
- Waste fill layer:

- Depth to water is 5'
- Conservatively, assumed waste fill to be between 2' and 16'. Therefore, the thickness of the saturated layer in waste fill is 16-5' = 11' thick.
- Assuming 40% porosity in coarse grained soils, the volume of pore space in fill is 0.4*(165 X 90' X 11') = 65,340 ft3

* Clay and silt layer:
  - Conservatively, assumed clay and silt layer between 16' and 37' (buffer past depth of excavation). Therefore, the thickness of the saturated layer in clay layer = 37-16 = 21' thick.
  - Assuming 29% porosity in clayey soils, the volume of pore space in the clay and silt layer is 0.29*(165' X 90' X 21') = 90,440 ft3
* Therefore, the total volume of pore space in the saturated zone = 65,340 ft3 + 90,440 ft3 = 155,780ft3 = 1.165 million gallons
* Assuming 75% reduction in moisture content = 0.75 x 1.165 MG = **~0.87 MG total volume of pore space within storm water tank excavation**

Assuming a design system flow rate of 100 gallons per minute, the system would need to operate continuously for approximately six days uninterrupted to fully dewater the excavation area, subject to these assumptions.

B) Scenario #2: Building Footprint Excavation



Inflow (building footprint):

Darcy's Law states that the discharge rate q is proportional to the gradient in hydraulic head and the hydraulic conductivity, or q = Q/A = -K*dh/dl,

Rearranging the terms,
Q = -KA(dh/dl)

: Where K = hydraulic conductivity
= 10^{-6} cm/s = 0.002835 feet per day (**for clay, conservative**)
: Where A = cross-sectional area of flow
= 140,000 square feet
: Where dh = change in hydraulic head
= 23-5 = 18 feet
: Where dl = distance of travel
= 23-5 = 18 feet
Q = 0.002835*140,000*(18/18) = 397 ft3/day

= **2,300 GPD inflow through building footprint excavation**

Drawdown rate (building footprint):

Using in-house boring-tracker spreadsheet (refer to tab: elev & depths)

- Waste layer within building print is between 3 and 15' on average
- Clay layer within building print starts at around 15', terminating around 23'

Calculation of the total volume of pore space in the saturated zone by layer (within excavation limits):

- Waste fill layer:
  - Depth to water is 5'
  - Conservatively, assumed waste fill to be between 3 and 15'. Therefore, the thickness of the saturated layer in waste fill is 15-5' = 10' thick on average. Assuming 40% porosity in coarse grained soils, the volume of pore space in waste fill is 0.4*(140,000ft2 X 10') = 560,000 ft3
- Clay and silt layer:
  - Conservatively, assumed the clay and silt layer to begin around 15', terminating at 23'. Therefore, the thickness of the saturated layer in clay layer = 23-15 = 8' thick.
  - Assuming 29% porosity in clayey soils, the volume of pore space in clay and silt layer is 0.29*(140,000ft2 X 8') = 324,800 ft3
- Total volume of pore space in saturated zone = 560,000 ft3 + 324,800 ft3 = 884,800ft3 = 6,618,767gallons
- Assuming 75% reduction in moisture content = 0.75 x 6.6 MG
  = **~4.95 MG total volume of pore space within storm water tank excavation**

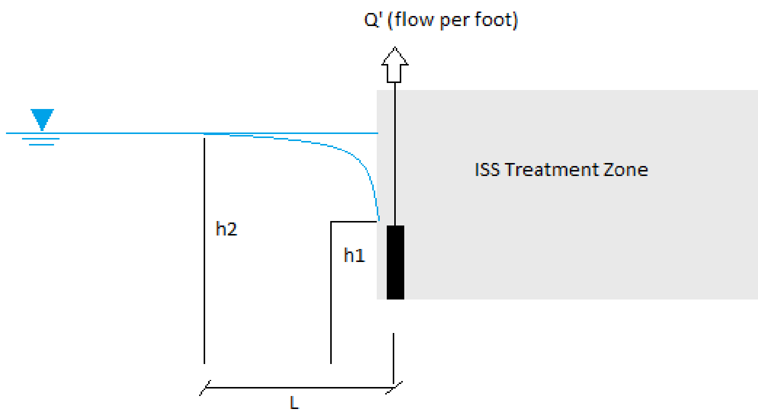
Assuming a design system flow rate of 100 gallons per minute, the system would need to operate continuously for 34 days uninterrupted to fully dewater the excavation area, subject to these assumptions.

B) Scenario #3: Utility and Geothermal Wellfield Excavation

ISS-treated corridors will be excavated for geothermal wellheads, utility lines, water storage systems and similar activities. The excavation will be contained fully within ISS-treated zones, which will not extend to the waste / clay interface. Dewatering will be performed in a scenario of a shallow, unconfined aquifer. The Dupuit Equation governs the relationship between head / drawdown, distance from pumping source, and flow rate (ref. Fetter, 4th Ed, 2001, Eqn 4.59):

$$Q' = \frac{k * (h_2^2 - h_1^2)}{2L}$$

For the following scenario:



Assuming a drawdown from 5' bgs to 12' bgs (h_2 and h_1 of 77' total head to 70' total head based on an aquifer thickness of 82' as above) and a length of 2' between the edge of excavation and the outside edge of the ISS-treated material, with hydraulic conductivity as specified (10^{-6} cm/s), substitution yields:

$$Q' = \frac{k * (h_2^2 - h_1^2)}{2L} = \frac{0.002835\frac{ft}{day} * (77^2 - 70^2)(ft^2)}{2 * 2(ft)} = \frac{2.917\frac{ft^3}{d}}{4ft} = 0.721\frac{ft^2}{d}$$

The flow will occur through the perimeter of the excavation area. For a 50'x50' open excavation, the perimeter is 200 linear feet, which will generate approximately 144 cubic feet per day, approximately 1,080 gallons per day, or less than one gallon per minute of total flow.

FUSS & O'NEILL

Attachment B

CDM Smith Groundwater
Analytical Data

Table 1

Groundwater and Receiving Water Results Compared to Full RGP Parameter List

TMVL School - Cambridge, MA

CLIENT SAMPLE ID					MW-9D		AB-1 (Alewife Brook)	
SAMPLING DATE					21-APR-21		21-APR-21	
LAB SAMPLE ID					L2120325-02		L2120325-01	
	CAS Number	RGP TBEL	RGP WQBEL	Units		Qual		Qual
Anions by Ion Chromatography								
Chloride	16887-00-6	Report ug/L		ug/l	183,000		--	
General Chemistry								
Chromium, Trivalent	16065-83-1	323	74	ug/l	10	U	--	
Solids, Total Suspended	---	30,000		ug/l	23,000		--	
Cyanide, Total	57-12-5	178,000	5.2	ug/l	5	U	--	
Chlorine, Total Residual	---	200	11	ug/l	20	U	--	
Nitrogen, Ammonia	7664-41-7	Report mg/L		ug/l	31,400		988	
TPH, SGT-HEM	---	5,000		ug/l	*4000*	*U*	--	
Phenolics, Total	---	1,080	300	ug/l	30	U	--	
Chromium, Hexavalent	18540-29-9	323	11	ug/l	10	U	10	U
Total Hardness by SM 2340B								
Hardness	---			ug/l	--		149,000	
Total Metals								
Antimony, Total	7440-36-0	206	640	ug/l	4	U	4	U
Arsenic, Total	7440-38-2	104	10	ug/l	55.32		1	U
Cadmium, Total	7440-43-9	10.2	0.25	ug/l	0.2	U	0.2	U
Chromium, Total	7440-47-3			ug/l	1	U	1	U
Copper, Total	7440-50-8	242	9	ug/l	1.18		2.85	
Iron, Total	7439-89-6	5,000	1,000	ug/l	6,380		880	
Lead, Total	7439-92-1	160	2.5	ug/l	2.41		2.45	
Mercury, Total	7439-97-6	0.739	0.77	ug/l	0.2	U	0.2	U
Nickel, Total	7440-02-0	1450	52	ug/l	2	U	2	U
Selenium, Total	7782-49-2	235.8	5	ug/l	5	U	5	U
Silver, Total	7440-22-4	35.1	3.2	ug/l	0.4	U	0.4	U
Zinc, Total	7440-66-6	420	120	ug/l	12.16		19.58	
Microextractables by GC								
1,2,3-Trichloropropane	96-18-4			ug/l	0.03	U	--	
1,2-Dibromo-3-chloropropane	96-12-8			ug/l	0.01	U	--	
1,2-Dibromoethane	106-93-4	0.05		ug/l	0.01	U	--	
Volatile Organics by GC/MS								
1,1,1-Trichloroethane	71-55-6	200		ug/l	5	U	--	
1,1,2-Trichloroethane	79-00-5	5.0		ug/l	3.8	U	--	
1,1-Dichloroethane	75-34-3	70		ug/l	3.8	U	--	
1,1-Dichloroethene	75-35-4	3.2		ug/l	2.5	U	--	
1,2-Dichlorobenzene	95-50-1	600		ug/l	12	U	--	
1,2-Dichloroethane	107-06-2	5.0		ug/l	3.8	U	--	
1,3-Dichlorobenzene	541-73-1	320		ug/l	12	U	--	
1,4-Dichlorobenzene	106-46-7	5.0		ug/l	*12*	*U*	--	
Acetone	67-64-1	7970		ug/l	25	U	--	
Benzene	71-43-2	5.0		ug/l	2.5	U	--	
Carbon tetrachloride	56-23-5	4.4	1.6	ug/l	2.5	U	--	
cis-1,2-Dichloroethene	156-59-2	70		ug/l	2.5	U	--	
Ethylbenzene	100-41-4	Note 1		ug/l	2.5	U	--	
Methyl tert butyl ether	1634-04-4	70	20	ug/l	280		--	
Methylene chloride	75-09-2	4.6		ug/l	2.5	U	--	
o-xylene	95-47-6	N/A		ug/l	2.5	U	--	
p/m-Xylene	179601-23-1	N/A		ug/l	5	U	--	
Tert-Butyl Alcohol	75-65-0	120		ug/l	250	U	--	
Tertiary-Amyl Methyl Ether	994-05-8	90		ug/l	50	U	--	
Tetrachloroethene	127-18-4	5	3.3	ug/l	2.5	U	--	
Toluene	108-88-3	Note 1		ug/l	2.5	U	--	
Trichloroethene	79-01-6	5.0		ug/l	2.5	U	--	
Vinyl chloride	75-01-4	2.0		ug/l	*2.5*	*U*	--	
Xylenes, Total	1330-20-7	Note 1		ug/l	2.5	U	--	
Total BTEX		100, Note 1		ug/l	ND		--	
Volatile Organics by GC/MS-SIM								
1,4-Dioxane	123-91-1	200		ug/l	5	*U*	--	
Semivolatile Organics by GC/MS								
Bis(2-ethylhexyl)phthalate	117-81-7	101, Note 2	2.2, Note 2	ug/l	2.2	U	--	
Butyl benzyl phthalate	85-68-7	Note 2	Note 2	ug/l	5	U	--	
Di-n-butylphthalate	84-74-2	Note 2	Note 2	ug/l	5	U	--	
Di-n-octylphthalate	117-84-0	Note 2	Note 2	ug/l	5	U	--	
Diethyl phthalate	84-66-2	Note 2	Note 2	ug/l	5	U	--	
Dimethyl phthalate	131-11-3	Note 2	Note 2	ug/l	5	U	--	
Total Phthalates		190		ug/l	ND		--	

Semivolatile Organics by GC/MS-SIM								
Acenaphthene	83-32-9	Group II (Note 4)	Group II (Note 4)	ug/l	0.588		--	
Acenaphthylene	208-96-8	Group II (Note 4)	Group II (Note 4)	ug/l	0.1	U	--	
Anthracene	120-12-7	Group II (Note 4)	Group II (Note 4)	ug/l	0.1	U	--	
Benzo(a)anthracene	56-55-3	0.1, (Group I, Note 3)	0.0038	ug/l	0.1	U	--	
Benzo(a)pyrene	50-32-8	0.1, (Group I, Note 3)	0.0038	ug/l	0.1	U	--	
Benzo(b)fluoranthene	205-99-2	0.1, (Group I, Note 3)	0.0038	ug/l	0.1	U	--	
Benzo(ghi)perylene	191-24-2	Group II (Note 4)	Group II (Note 4)	ug/l	0.1	U	--	
Benzo(k)fluoranthene	207-08-9	0.1, (Group I, Note 3)	0.0038	ug/l	0.1	U	--	
Chrysene	218-01-9	0.1, (Group I, Note 3)	0.0038	ug/l	0.1	U	--	
Dibenzo(a,h)anthracene	53-70-3	0.1, (Group I, Note 3)	0.0038	ug/l	0.1	U	--	
Fluoranthene	206-44-0	Group II (Note 4)	Group II (Note 4)	ug/l	0.1	U	--	
Fluorene	86-73-7	Group II (Note 4)	Group II (Note 4)	ug/l	0.1	U	--	
Indeno(1,2,3-cd)pyrene	193-39-5	0.1, (Group I, Note 3)	0.0038	ug/l	0.1	U	--	
Naphthalene	91-20-3	20, Group II (Note 4)		ug/l	0.1	U	--	
Pentachlorophenol	87-86-5	1.0		ug/l	*1*	*U*	--	
Phenanthrene	85-01-8	Group II (Note 4)	Group II (Note 4)	ug/l	0.1	U	--	
Pyrene	129-00-0	Group II (Note 4)	Group II (Note 4)	ug/l	0.1	U	--	
Total Group I PAHs	--	1.0	As individual PAHs	ug/l	ND		--	
Total Group II PAHs	--	100		ug/l	0.588		--	
Polychlorinated Biphenyls by GC								
Aroclor 1016	12674-11-2	(as Total PCBs)		ug/l	0.25	U	--	
Aroclor 1221	11104-28-2	(as Total PCBs)		ug/l	0.25	U	--	
Aroclor 1232	11141-16-5	(as Total PCBs)		ug/l	0.25	U	--	
Aroclor 1242	53469-21-9	(as Total PCBs)		ug/l	0.25	U	--	
Aroclor 1248	12672-29-6	(as Total PCBs)		ug/l	0.25	U	--	
Aroclor 1254	11097-69-1	(as Total PCBs)		ug/l	0.25	U	--	
Aroclor 1260	11096-82-5	(as Total PCBs)		ug/l	0.2	U	--	
Total PCBs		0.000064		ug/l	ND		--	

Notes:

AB-1 = Alewife Brook Receiving Water Sample Location

Bold Value: Detected above laboratory reporting limit

Italicized Value : Reporting limits greater than applicable MassDEP standards

--: Not analyzed

Outlined Values: Exceeds RGP TBEL

Yelow shaded values: Exceedes RGP WQBEL

N/A: Not Applicable

ND: Non-detect

ug/l - micrograms/liter

RGP TBEL: National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) Technology Based Effluent Limit (TBEL), 2017

RGP WQBEL: National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) Water Quality Based Effluent Limit (WQBEL), 2017

1) Total BTEX effluent limit of 100 µg/L

2) Total Phthalates is the sum of: diethylhexyl phthalate (CAS No. 117-81-7); butyl benzyl phthalate (CAS No. 85-68-7); di-n-butyl phthalate (CAS No. 84-74-2); diethyl phthalate (CAS No. 84-66-2); dimethyl phthalate (CAS No. 131-11-3); di-n-octyl phthalate (CAS No. 117-84-0). The effluent limitations for total phthalates and the individual phthalate, diethylhexyl phthalate, only apply if these parameters are present.

3) Total Group I Polycyclic Aromatic Hydrocarbons, sum of Group I < 1.0 ug/L (individual < 0.1 ug/L)

4) Total Group II Polycyclic Aromatic Hydrocarbons: Acenaphthene; acenaphthylene; anthracene; benzo(g,h,i)perylene;fluoranthene; fluorene; naphthalene; phenanthrene; pyrene

Table 2

Groundwater Sample Results Compared to Reduced RGP Parameter List

TMVL School - Cambridge, MA

CLIENT SAMPLE ID					MW-3D		MW-7D		MW-14S		TRIP BLANK	
SAMPLING DATE					21-APR-21		21-APR-21		21-APR-21		21-APR-21	
LAB SAMPLE ID					L2121136-01		L2121136-02		L2121136-03		L2121136-04	
					L2120325-03		L2120325-04		L2120325-05			
	CAS Number	RGP TBEL	RGP WQBEL	Units		Qual		Qual		Qual		Qual
General Chemistry												
Chromium, Trivalent	16065-83-1	323	11	ug/l	--		--		--		--	
Solids, Total Suspended	---	30,000		ug/l	--		40,000		--		--	
Anions by Ion Chromatography												
Chloride	16887-00-6	Report ug/L		ug/l	--		2,660,000		--		--	
General Chemistry												
Chlorine, Total Residual	---	200	11	ug/l	--		20	U	--		--	
Nitrogen, Ammonia	7664-41-7	Report mg/L		ug/l	--		--		--		--	
TPH, SGT-HEM	---	5,000		ug/l	--		*4000*	*U*	--		--	
Phenolics, Total	---	1,080	300	ug/l	--		--		--		--	
Chromium, Hexavalent	18540-29-9	323	74	ug/l	10	U	10	U	10	U	--	
MCP General Chemistry												
Cyanide, Total	57-12-5	178,000	5.2	ug/l	--		5	U	--		--	
MCP Total Metals												
Antimony, Total	7440-36-0	206	640	ug/l	4	U	4	U	4	U	--	
Arsenic, Total	7440-38-2	104	10	ug/l	8		6.5		1.6		--	
Cadmium, Total	7440-43-9	10.2	0.25	ug/l	0.5	U	0.5	U	0.5	U	--	
Chromium, Total	7440-47-3			ug/l	5		1	U	1.3		--	
Copper, Total	7440-50-8	242	9	ug/l	18.5		2.1		2.1		--	
Iron, Total	7439-89-6	5,000	1,000	ug/l	25,400		12,500		21,600		--	
Lead, Total	7439-92-1	160	2.5	ug/l	171.8		24		5.8		--	
Mercury, Total	7439-97-6	0.739	0.77	ug/l	0.2	U	0.2	U	0.2	U	--	
Nickel, Total	7440-02-0	1450	52	ug/l	2.1		2	U	2	U	--	
Selenium, Total	7782-49-2	235.8	5	ug/l	5	U	5	U	5	U	--	
Silver, Total	7440-22-4	35.1	3.2	ug/l	0.5	U	0.5	U	0.5	U	--	
Zinc, Total	7440-66-6	420	120	ug/l	187.2		40.8		54.7		--	
MCP Volatile Organics												
1,1,1,2-Tetrachloroethane	630-20-6			ug/l	--		1	U	--		1	U
1,1,1-Trichloroethane	71-55-6	200		ug/l	--		1	U	--		1	U
1,1,2,2-Tetrachloroethane	79-34-5			ug/l	--		1	U	--		1	U
1,1,2-Trichloroethane	79-00-5	5.0		ug/l	--		1	U	--		1	U
1,1-Dichloroethane	75-34-3	70		ug/l	--		1	U	--		1	U
1,1-Dichloroethene	75-35-4	3.2		ug/l	--		1	U	--		1	U
1,1-Dichloropropene	563-58-6			ug/l	--		2	U	--		2	U
1,2,3-Trichlorobenzene	87-61-6			ug/l	--		2	U	--		2	U
1,2,3-Trichloropropane	96-18-4			ug/l	--		2	U	--		2	U
1,2,4-Trichlorobenzene	120-82-1			ug/l	--		2	U	--		2	U
1,2,4-Trimethylbenzene	95-63-6			ug/l	--		2	U	--		2	U
1,2-Dibromo-3-chloropropane	96-12-8			ug/l	--		2	U	--		2	U
1,2-Dibromoethane	106-93-4	0.05		ug/l	--		*2*	*U*	--		*2*	*U*
1,2-Dichlorobenzene	95-50-1	600		ug/l	--		1	U	--		1	U
1,2-Dichloroethane	107-06-2	5.0		ug/l	--		1	U	--		1	U
1,2-Dichloroethene, Total	540-59-0			ug/l	--		1	U	--		1	U
1,2-Dichloropropane	78-87-5			ug/l	--		1	U	--		1	U
1,3,5-Trimethylbenzene	108-67-8			ug/l	--		2	U	--		2	U
1,3-Dichlorobenzene	541-73-1	320		ug/l	--		1	U	--		1	U
1,3-Dichloropropane	142-28-9			ug/l	--		2	U	--		2	U
1,3-Dichloropropene, Total	542-75-6			ug/l	--		*0.4*	*U*	--		*0.4*	*U*
1,4-Dichlorobenzene	106-46-7	5.0		ug/l	--		1	U	--		1	U
1,4-Dioxane	123-91-1	200		ug/l	--		*250*	*U*	--		*250*	*U*
2,2-Dichloropropane	594-20-7			ug/l	--		2	U	--		2	U
2-Hexanone	591-78-6			ug/l	--		5	U	--		5	U
Acetone	67-64-1	7970		ug/l	--		5	U	--		5	U
Benzene	71-43-2	5, Note 1		ug/l	--		0.5	U	--		0.5	U
Bromobenzene	108-86-1			ug/l	--		2	U	--		2	U
Bromochloromethane	74-97-5			ug/l	--		2	U	--		2	U
Bromodichloromethane	75-27-4			ug/l	--		1	U	--		1	U
Bromoform	75-25-2			ug/l	--		2	U	--		2	U
Bromomethane	74-83-9			ug/l	--		2	U	--		2	U
Carbon disulfide	75-15-0			ug/l	--		2	U	--		2	U
Carbon tetrachloride	56-23-5	4.4	1.6	ug/l	--		1	U	--		1	U
Chlorobenzene	108-90-7			ug/l	--		1	U	--		1	U
Chloroethane	75-00-3			ug/l	--		2	U	--		2	U
Chloroform	67-66-3			ug/l	--		1	U	--		1	U
Chloromethane	74-87-3			ug/l	--		2	U	--		2	U
cis-1,2-Dichloroethene	156-59-2	70		ug/l	--		1	U	--		1	U
cis-1,3-Dichloropropene	10061-01-5			ug/l	--		*0.4*	*U*	--		*0.4*	*U*
Dibromochloromethane	124-48-1			ug/l	--		1	U	--		1	U
Dibromomethane	74-95-3			ug/l	--		2	U	--		2	U
Dichlorodifluoromethane	75-71-8			ug/l	--		2	U	--		2	U
Diethyl ether	60-29-7			ug/l	--		2	U	--		2	U
Diisopropyl Ether	108-20-3			ug/l	--		2	U	--		2	U
Ethyl-Tert-Butyl-Ether	637-92-3			ug/l	--		2	U	--		2	U
Ethylbenzene	100-41-4	Note 1		ug/l	--		1	U	--		1	U
Hexachlorobutadiene	87-68-3			ug/l	--		*0.6*	*U*	--		*0.6*	*U*
Isopropylbenzene	98-82-8			ug/l	--		2	U	--		2	U
Methyl ethyl ketone	78-93-3			ug/l	--		5	U	--		5	U
Methyl isobutyl ketone	108-10-1			ug/l	--		5	U	--		5	U
Methyl tert butyl ether	1634-04-4	70	20	ug/l	--		6.6		--		2	U
Methylene chloride	75-09-2	4.6		ug/l	--		2	U	--		2	U
n-Butylbenzene	104-51-8			ug/l	--		2	U	--		2	U
n-Propylbenzene	103-65-1			ug/l	--		2	U	--		2	U
Naphthalene	91-20-3			ug/l	--		2	U	--		2	U
o-Chlorotoluene	95-49-8			ug/l	--		2	U	--		2	U
o-Xylene	95-47-6	N/A		ug/l	--		1	U	--		1	U
p-Chlorotoluene	106-43-4			ug/l	--		2	U	--		2	U
p-Isopropyltoluene	99-87-6			ug/l	--		2	U	--		2	U
p/m-Xylene	179601-23-1	N/A		ug/l	--		2	U	--		2	U
sec-Butylbenzene	135-98-8			ug/l	--		2	U	--		2	U
Styrene	100-42-5			ug/l	--		1	U	--		1	U
tert-Butylbenzene	98-06-6			ug/l	--		2	U	--		2	U
Tertiary-Amyl Methyl Ether	994-05-8	90		ug/l	--		2	U	--		2	U
Tetrachloroethene	127-18-4	5	3.3	ug/l	--		1	U	--		1	U
Tetrahydrofuran	109-99-9			ug/l	--		2	U	--		2	U
Toluene	108-88-3	Note 1		ug/l	--		1	U	--		1	U
trans-1,2-Dichloroethene	156-60-5			ug/l	--		1	U	--		1	U
trans-1,3-Dichloropropene	10061-02-6			ug/l	--		*0.4*	*U*	--		*0.4*	*U*
Trichloroethene	79-01-6	5.0		ug/l	--		1	U	--		1	U
Trichlorofluoromethane	75-69-4			ug/l	--		2	U	--		2	U
Vinyl chloride	75-01-4	2.0		ug/l	--		1	U	--		1	U
Xylenes, Total	1330-20-7	Note 1		ug/l	--		1	U	--		1	U
Total BTEX	-	100, Note 1			--		ND		--		ND	

Notes:

Bold Value: Detected above laboratory reporting limit

Italicized Value : Reporting limits greater than applicable MassDEP standards

Outlined Values: Exceeds RGP TBEL

Yelow shaded values: Exceedes RGP WQBEL

ND: Non-detect

ug/l - micrograms/liter

RGP TBEL: National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) Technology Based Effluent Limit (TBEL), 2017

RGP WQBEL: National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) Water Quality Based Effluent Limit (WQBEL), 2017

1) Total BTEX effluent limit of 100 μg/L

2) Total Phthalates is the sum of: diethylhexyl phthalate (CAS No. 117-81-7); butyl benzyl phthalate (CAS No. 85-68-7); di-n-butyl phthalate (CAS No. 84-74-2); diethyl phthalate (CAS No. 84-66-2); dimethyl phthalate (CAS No. 131-11-3); di-n-octyl phthalate (CAS No. 117-84-0). The effluent limitations for total phthalates and the individual phthalate, diethylhexyl phthalate, only apply if these parameters are present.

3) Total Group I Polycyclic Aromatic Hydrocarbons, sum of Group I < 1.0 ug/L (individual < 0.1 ug/L)

4) Total Group II Polycyclic Aromatic Hydrocarbons: Acenaphthene; acenaphthylene; anthracene; benzo(g,h,i)perylene;fluoranthene; fluorene; naphthalene; phenanthrene; pyrene

Table 2 (Continued)

Groundwater Sample Results Compared to Reduced RGP Parameter List

TMVL School - Cambridge, MA

CLIENT SAMPLE ID					MW-3D		MW-7D		MW-14S		TRIP BLANK	
SAMPLING DATE					21-APR-21		21-APR-21		21-APR-21		21-APR-21	
LAB SAMPLE ID					L2121136-01		L2121136-02		L2121136-03		L2121136-04	
					L2120325-03		L2120325-04		L2120325-05			
	CAS Number	RGP TBEL	RGP WQBEL	Units		Qual		Qual		Qual		Qual
MCP Semivolatile Organics												
1,2,4-Trichlorobenzene	120-82-1			ug/l	--		5	U	5	U	--	
1,2-Dichlorobenzene	95-50-1	600		ug/l	--		2	U	2	U	--	
1,3-Dichlorobenzene	541-73-1	320		ug/l	--		2	U	2	U	--	
1,4-Dichlorobenzene	106-46-7	5.0		ug/l	--		2	U	2	U	--	
2,4,5-Trichlorophenol	95-95-4			ug/l	--		5	U	5	U	--	
2,4,6-Trichlorophenol	88-06-2			ug/l	--		5	U	5	U	--	
2,4-Dichlorophenol	120-83-2			ug/l	--		5	U	5	U	--	
2,4-Dimethylphenol	105-67-9			ug/l	--		5	U	5	U	--	
2,4-Dinitrophenol	51-28-5			ug/l	--		20	U	20	U	--	
2,4-Dinitrotoluene	121-14-2			ug/l	--		5	U	5	U	--	
2,6-Dinitrotoluene	606-20-2			ug/l	--		5	U	5	U	--	
2-Chlorophenol	95-57-8			ug/l	--		2	U	2	U	--	
2-Methylphenol	95-48-7			ug/l	--		5	U	5	U	--	
2-Nitrophenol	88-75-5			ug/l	--		10	U	10	U	--	
3,3'-Dichlorobenzidine	91-94-1			ug/l	--		5	U	5	U	--	
3-Methylphenol/4-Methylphenol	08-39-4/106-44-5			ug/l	--		5	U	5	U	--	
4-Bromophenyl phenyl ether	101-55-3			ug/l	--		2	U	2	U	--	
4-Chloroaniline	106-47-8			ug/l	--		5	U	5	U	--	
4-Nitrophenol	100-02-7			ug/l	--		10	U	10	U	--	
Acetophenone	98-86-2			ug/l	--		5	U	5	U	--	
Aniline	62-53-3			ug/l	--		2	U	2	U	--	
Azobenzene	103-33-3			ug/l	--		2	U	2	U	--	
Bis(2-chloroethoxy)methane	111-91-1			ug/l	--		5	U	5	U	--	
Bis(2-chloroethyl)ether	111-44-4			ug/l	--		2	U	2	U	--	
Bis(2-chloroisopropyl)ether	108-60-1			ug/l	--		2	U	2	U	--	
Bis(2-ethylhexyl)phthalate	117-81-7	101, Note 2	2.2, Note 2	ug/l	--		3	U	3	U	--	
Butyl benzyl phthalate	85-68-7	Note 2	Note 2	ug/l	--		5	U	5	U	--	
Di-n-butylphthalate	84-74-2	Note 2	Note 2	ug/l	--		5	U	5	U	--	
Di-n-octylphthalate	117-84-0	Note 2	Note 2	ug/l	--		5	U	5	U	--	
Dibenzofuran	132-64-9			ug/l	--		2	U	2	U	--	
Diethyl phthalate	84-66-2	Note 2	Note 2	ug/l	--		5	U	5	U	--	
Dimethyl phthalate	131-11-3	Note 2	Note 2	ug/l	--		5	U	5	U	--	
Isophorone	78-59-1			ug/l	--		5	U	5	U	--	
Nitrobenzene	98-95-3			ug/l	--		2	U	2	U	--	
Phenol	108-95-2	1,080	300	ug/l	--		5	U	5	U	--	
Total Phthalates		190			--		ND		ND		--	
MCP Semivolatile Organics by SIM												
2-Chloronaphthalene	91-58-7			ug/l	--		0.2	U	0.2	U	--	
2-Methylnaphthalene	91-57-6			ug/l	--		0.1	U	0.1	U	--	
Acenaphthene	83-32-9	Group II (Note 4)	Group II (Note 4)	ug/l	--		0.25		0.13		--	
Acenaphthylene	208-96-8	Group II (Note 4)	Group II (Note 4)	ug/l	--		0.1	U	0.1	U	--	
Anthracene	120-12-7	Group II (Note 4)	Group II (Note 4)	ug/l	--		0.1	U	0.1	U	--	
Benzo(a)anthracene	56-55-3	0.1, (Group I, Note 3)	0.0038	ug/l	--		0.1	U	0.1	U	--	
Benzo(a)pyrene	50-32-8	0.1, (Group I, Note 3)	0.0038	ug/l	--		0.1	U	0.1	U	--	
Benzo(b)fluoranthene	205-99-2	0.1, (Group I, Note 3)	0.0038	ug/l	--		0.1	U	0.1	U	--	
Benzo(ghi)perylene	191-24-2	Group II (Note 4)	Group II (Note 4)	ug/l	--		0.1	U	0.1	U	--	
Benzo(k)fluoranthene	207-08-9	0.1, (Group I, Note 3)	0.0038	ug/l	--		0.1	U	0.1	U	--	
Chrysene	218-01-9	0.1, (Group I, Note 3)	0.0038	ug/l	--		0.1	U	0.1	U	--	
Dibenzo(a,h)anthracene	53-70-3	0.1, (Group I, Note 3)	0.0038	ug/l	--		0.1	U	0.1	U	--	
Fluoranthene	206-44-0	Group II (Note 4)	Group II (Note 4)	ug/l	--		0.1	U	0.21		--	
Fluorene	86-73-7	Group II (Note 4)	Group II (Note 4)	ug/l	--		0.11		0.19		--	
Hexachlorobenzene	118-74-1			ug/l	--		0.8	U	0.8	U	--	
Hexachlorobutadiene	87-68-3			ug/l	--		0.5	U	0.5	U	--	
Hexachloroethane	67-72-1			ug/l	--		0.8	U	0.8	U	--	
Indeno(1,2,3-cd)pyrene	193-39-5	0.1, (Group I, Note 3)	0.0038	ug/l	--		0.1	U	0.1	U	--	
Naphthalene	91-20-3	20, Group II (Note 4)		ug/l	--		0.11		0.1	U	--	
Pentachlorophenol	87-86-5	1.0		ug/l	--		0.8	U	0.8	U	--	
Phenanthrene	85-01-8	Group II (Note 4)	Group II (Note 4)	ug/l	--		0.1	U	0.33		--	
Pyrene	129-00-0	Group II (Note 4)	Group II (Note 4)	ug/l	--		0.1	U	0.16		--	
Total Group I PAHs	--	1.0	As individual PAHs	ug/l	--		ND		ND		--	
Total Group II PAHs	--	100		ug/l	--		0.47		1.02		--	

Notes:

Bold Value: Detected above laboratory reporting limit

Italicized Value : Reporting limits greater than applicable MassDEP standards

Outlined Values: Exceeds RGP TBEL

Yelow shaded values: Exceedes RGP WQBEL

ND: Non-detect

ug/l - micrograms/liter

RGP TBEL: National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) Technology Based Effluent Limit (TBEL), 2017

RGP WQBEL: National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) Water Quality Based Effluent Limit (WQBEL), 2017

1) Total BTEX effluent limit of 100 µg/L

2) Total Phthalates is the sum of: diethylhexyl phthalate (CAS No. 117-81-7); butyl benzyl phthalate (CAS No. 85-68-7); di-n-butyl phthalate (CAS No. 84-74-2); diethyl phthalate (CAS No. 84-66-2); dimethyl phthalate (CAS No. 131-11-3); di-n-octyl phthalate (CAS No. 117-84-0). The effluent limitations for total phthalates and the individual phthalate, diethylhexyl phthalate, only apply if these parameters are present.

3) Total Group I Polycyclic Aromatic Hydrocarbons, sum of Group I < 1.0 ug/L (individual < 0.1 ug/L)

4) Total Group II Polycyclic Aromatic Hydrocarbons: Acenaphthene; acenaphthylene; anthracene; benzo(g,h,i)perylene;fluoranthene; fluorene; naphthalene; phenanthrene; pyrene

Table 3
Tobin Montessori and Vassal Lane Upper School
Cambridge, Massachusetts
August 2017 and March 2018 Groundwater Sampling Results

						Sample ID	MW-3S	MW-3S	MW-3D	MW-3D	MW-4S	MW-4S	MW-4D	DUP-1 (MW-4D)	MW-4D	MW-7S	MW-7S	MW-7D	MW-7D	MW-9S	MW-9S	MW-9D	MW-9D	MW-14S	MW-14S	MW-14D	MW-14D
						Sample Collection Date	16-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	17-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18
						Laboratory Order Number	L1728873-01	L1807193-01	L1728873-04	L1807193-02	L1728873-06	L1807193-03	L1728873-05	L1728873-07	L1807193-04	L1728684-01	L1807193-06	L1728684-02	L1807193-05	L1728873-02	L1807193-08	L1728873-01	L1807193-07	L1728684-03	L1807264-02	L1728684-04	L1807264-01
Parameter	Units	GW-1	GW-2	GW-3	RGP TBEL	RGP WQBEL																					
EPH																											
C11-C22 Aromatics	ug/l	NA	NA	NA	NA	NA	< 100	<100	< 100	<100	173	<100	140	109	<100	127	<100	< 100	<100	< 100	<100	< 100	<100	NA	<100	< 100	<100
C11-C22 Aromatics, Adjusted	ug/l	200	50000	5000	NA	NA	< 100	<100	< 100	<100	149	<100	140	109	<100	105	<100	< 100	<100	< 100	<100	< 100	<100	NA	<100	< 100	<100
C19-C36 Aliphatics	ug/l	14000	NA	50000	NA	NA	< 100	<100	< 100	<100	< 100	<100	< 100	< 100	<100	< 100	<100	< 100	<100	< 100	<100	< 100	<100	NA	<100	< 100	<100
C9-C18 Aliphatics	ug/l	700	5000	50000	NA	NA	< 100	<100	< 100	<100	< 100	<100	< 100	< 100	<100	< 100	<100	< 100	<100	< 100	<100	< 100	<100	NA	<100	< 100	<100
GC Volatiles by MAVPH																											
1,1,1,2-Tetrachloroethane	ug/l	5	10	50000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1	< 1	<1
1,1,1-Trichloroethane	ug/l	200	4000	20000	200	200	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,1,2,2-Tetrachloroethane	ug/l	2	9	50000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,1,2-Trichloroethane	ug/l	5	900	50000	5	5	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,1-Dichloroethane	ug/l	70	2000	20000	70	70	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,1-Dichloroethene	ug/l	7	80	30000	3.2	3.2	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,1-Dichloropropene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
1,2,3-Trichlorobenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
1,2,3-Trichloropropane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
1,2,4-Trichlorobenzene	ug/l	70	200	50000	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
1,2,4-Trimethylbenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
1,2-Dibromo-3-chloropropane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
1,2-Dibromoethane	ug/l	0.02	2	50000	0.05	0.05	*< 2*	<2	*< 2*	<2	*< 2*	<2	*< 2*	*< 2*	<2	*< 2*	<2	*< 2*	<2	*< 2*	<2	*< 4*	<2	*< 2*	<2	*< 2*	<2
1,2-Dichlorobenzene	ug/l	600	8000	2000	600	600	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,2-Dichloroethane	ug/l	5	5	20000	5	5	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,2-Dichloroethene (total)	ug/l	NA	NA	NA	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,2-Dichloropropane	ug/l	5	3	50000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,3,5-Trimethylbenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
1,3-Dichlorobenzene	ug/l	100	6000	50000	320	320	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,3-Dichloropropane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
1,3-Dichloropropene, Total	ug/l	0.4	10	200	NA	NA	*< 0.5*	<0.4	*< 0.5*	<0.4	*< 0.5*	<0.4	*< 0.5*	*< 0.5*	<0.4	*< 0.5*	<0.4	*< 0.5*	<0.4	*< 0.5*	<0.4	*< 1*	<0.4	*< 0.5*	<0.4	*< 0.5*	<0.4
1,4-Dichlorobenzene	ug/l	5	60	8000	5	5	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,4-Dioxane	ug/l	0.3	6000	50000	200	200	*< 250*	<250	*< 250*	<250	*< 250*	<250	*< 250*	*< 250*	<250	*< 250*	<250	*< 250*	<250	*< 250*	<250	*< 500*	<250	*< 250*	<250	*< 250*	<250
2,2-Dichloropropane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
2-Butanone	ug/l	4000	50000	50000	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 10	<5	< 5	<5	< 5	<5
2-Hexanone	ug/l	NA	NA	NA	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 10	<5	< 5	<5	< 5	<5
4-Methyl-2-pentanone	ug/l	350	50000	50000	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 10	<5	< 5	<5	< 5	<5
Acetone	ug/l	6300	50000	50000	7970	7970	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 10	<5	21	<5	< 5	6.7
Benzene	ug/l	5	1000	10000	5 (Note 1)	5 (Note 1)	< 0.5	<0.5	< 0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	<0.5	< 0.5	<0.5	< 0.5	<0.5	< 0.5	<0.5	< 1	<0.5	< 0.5	<0.5	< 0.5	<0.5

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						Sample ID	MW-3S	MW-3S	MW-3D	MW-3D	MW-4S	MW-4S	MW-4D	DUP-1 (MW-4D)	MW-4D	MW-7S	MW-7S	MW-7D	MW-7D	MW-9S	MW-9S	MW-9D	MW-9D	MW-14S	MW-14S	MW-14D	MW-14D
						Sample Collection Date	16-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	17-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18
						Laboratory Order Number	L1728873-01	L1807193-01	L1728873-04	L1807193-02	L1728873-06	L1807193-03	L1728873-05	L1728873-07	L1807193-04	L1728684-01	L1807193-06	L1728684-02	L1807193-05	L1728873-02	L1807193-08	L1728873-01	L1807193-07	L1728684-03	L1807264-02	L1728684-04	L1807264-01
Parameter	Units	GW-1	GW-2	GW-3	RGP TBEL	RGP WQBEL																					
Bromobenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Bromochloromethane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Bromodichloromethane	ug/l	3	6	50000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
Bromoform	ug/l	4	700	50000	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Bromomethane	ug/l	10	7	800	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Carbon disulfide	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Carbon tetrachloride	ug/l	5	2	5000	4.4	1.6	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
Chlorobenzene	ug/l	100	200	1000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
Chloroethane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Chloroform	ug/l	70	50	20000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
Chloromethane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
cis-1,2-Dichloroethene	ug/l	70	20	50000	70	70	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
cis-1,3-Dichloropropene	ug/l	0.4	10	200	NA	NA	< 0.5	<0.4	< 0.5	<0.4	< 0.5	<0.4	< 0.5	< 0.5	<0.4	< 0.5	<0.4	< 0.5	<0.4	< 0.5	<0.4	< 1	<0.4	< 0.5	<0.4	< 0.5	<0.4
Dibromochloromethane	ug/l	2	20	50000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
Dibromomethane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Dichlorodifluoromethane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Ethyl ether	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Ethyl-Tert-Butyl-Ether	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Ethylbenzene	ug/l	700	20000	5000	Note 1	Note 1	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
Hexachlorobutadiene	ug/l	0.6	50	3000	NA	NA	< 0.6	<0.6	< 0.6	<0.6	< 0.6	<0.6	< 0.6	< 0.6	<0.6	< 0.6	<0.6	< 0.6	<0.6	< 0.6	<0.6	< 1.2	<0.6	< 0.6	<0.6	< 0.6	<0.6
Isopropyl Ether	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Isopropylbenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Methyl tert-butyl ether	ug/l	70	50000	50000	70	20	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	2.2	2.7	3.3	< 2	<2	400	400	< 2	<2	< 2	<2
Methylene chloride	ug/l	5	2000	50000	4.6	4.6	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
n-Butylbenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
n-Propylbenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Naphthalene	ug/l	140	700	20000	20	20	< 2	<2	< 2	<2	4.5	<2	9.4	9.9	<2	26	4.7	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
o-Chlorotoluene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
o-Xylene	ug/l	10000	3000	5000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
p-Chlorotoluene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
p-Isopropyltoluene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
p/m-Xylene	ug/l	10000	3000	5000	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
sec-Butylbenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Styrene	ug/l	100	100	6000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
tert-Butylbenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Tertiary-Amyl Methyl Ether	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	25	22	< 2	<2	< 2	<2
Tetrachloroethene	ug/l	5	50	30000	5	3.3	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	4.4	<1	< 1	<1	< 1	<1
Tetrahydrofuran	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Toluene	ug/l	1000	50000	40000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
trans-1,2-Dichloroethene	ug/l	100	80	50000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
trans-1,3-Dichloropropene	ug/l	0.4	10	200	NA	NA	< 0.5	<0.4	< 0.5	<0.4	< 0.5	<0.4	< 0.5	< 0.5	<0.4	< 0.5	<0.4	< 0.5	<0.4	< 0.5	<0.4	< 1	<0.4	< 0.5	<0.4	< 0.5	<0.4
Trichloroethene	ug/l	5	5	5000	5	5	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
Trichlorofluoromethane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Vinyl chloride	ug/l	2	2	50000	2	2	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
Xylene (Total)	ug/l	10000	3000	5000	Note 1	Note 1	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
BTEX (Total)	ug/l	NA	NA	NA	100 (Note 1)	100 (Note 1)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 3
Tobin Montessori and Vassal Lane Upper School
Cambridge, Massachusetts
August 2017 and March 2018 Groundwater Sampling Results

Sample ID							MW-3S	MW-3S	MW-3D	MW-3D	MW-4S	MW-4S	MW-4D	DUP-1 (MW-4D)	MW-4D	MW-7S	MW-7S	MW-7D	MW-7D	MW-9S	MW-9S	MW-9D	MW-9D	MW-14S	MW-14S	MW-14D	MW-14D
Sample Collection Date							16-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	17-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18
Laboratory Order Number							L1728873-01	L1807193-01	L1728873-04	L1807193-02	L1728873-06	L1807193-03	L1728873-05	L1728873-07	L1807193-04	L1728684-01	L1807193-06	L1728684-02	L1807193-05	L1728873-02	L1807193-08	L1728873-01	L1807193-07	L1728684-03	L1807264-02	L1728684-04	L1807264-01
Parameter	Units	GW-1	GW-2	GW-3	RGP TBEL	RGP WQBEL																					
MCP Semivolatile Organics																											
1,2,4-Trichlorobenzene	ug/l	70	200	50000	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
1,2-Dichlorobenzene	ug/l	600	8000	2000	600	600	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
1,3-Dichlorobenzene	ug/l	100	6000	50000	320	320	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
1,4-Dichlorobenzene	ug/l	5	60	8000	5	5	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
2,4,5-Trichlorophenol	ug/l	200	50000	3000	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
2,4,6-Trichlorophenol	ug/l	10	5000	500	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
2,4-Dichlorophenol	ug/l	10	30000	2000	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
2,4-Dimethylphenol	ug/l	60	40000	50000	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
2,4-Dinitrophenol	ug/l	200	50000	20000	NA	NA	< 20	<20	< 20	<20	< 20	<20	< 20	< 20	<20	< 20	<20	< 20	<20	< 20	<20	< 20	<20	< 20	<20	< 20	<20
2,4-Dinitrotoluene	ug/l	30	20000	50000	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
2,6-Dinitrotoluene	ug/l	NA	NA	NA	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
2-Chlorophenol	ug/l	10	20000	7000	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
2-Methylphenol	ug/l	NA	NA	NA	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
2-Nitrophenol	ug/l	NA	NA	NA	NA	NA	< 10	<10	< 10	<10	< 10	<10	< 10	< 10	<10	< 10	<10	< 10	<10	< 10	<10	< 10	<10	< 10	<10	< 10	<10
3,3'-Dichlorobenzidine	ug/l	80	NA	2000	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
3-Methylphenol/4-Methylphenol	ug/l	NA	NA	NA	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	19	<5	< 5	<5
4-Bromophenyl phenyl ether	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
4-Chloroaniline	ug/l	20	30000	300	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
4-Nitrophenol	ug/l	NA	NA	NA	NA	NA	< 10	<10	< 10	<10	< 10	<10	< 10	< 10	<10	< 10	<10	< 10	<10	< 10	<10	< 10	<10	< 10	<10	< 10	<10
Acetophenone	ug/l	NA	NA	NA	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
Aniline	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
Azobenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
Bis(2-chloroethoxy)methane	ug/l	NA	NA	NA	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
Bis(2-chloroethyl)ether	ug/l	30	30	50000	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
Bis(2-chloroisopropyl)ether	ug/l	30	100	50000	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
Bis(2-ethylhexyl)phthalate	ug/l	6	NA	50000	101 (Note 2)	2.2 (Note 2)	< 3	<3	< 3	<3	< 3	<3	< 3	< 3	<3	< 3	<3	< 3	<3	< 3	<3	< 3	<3	< 3	<3	< 3	<3
Butyl benzyl phthalate	ug/l	NA	NA	NA	Note 2	Note 2	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
Di-n-butylphthalate	ug/l	NA	NA	NA	Note 2	Note 2	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
Di-n-octylphthalate	ug/l	NA	NA	NA	Note 2	Note 2	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
Dibenzofuran	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	2.6	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
Diethyl phthalate	ug/l	2000	50000	9000	Note 2	Note 2	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
Dimethyl phthalate	ug/l	300	50000	50000	Note 2	Note 2	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
Isophorone	ug/l	NA	NA	NA	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
Nitrobenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
Phenol	ug/l	1000	50000	2000	1,080	300	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	8.9
Pyridine	ug/l	NA	NA	NA	NA	NA	< 3.5	<3.5	< 3.5	<3.5	< 3.5	<3.5	< 3.5	< 3.5	<3.5	< 3.5	<3.5	< 3.5	<3.5	< 3.5	<3.5	< 3.5	<3.5	< 3.5	<3.5	< 3.5	<3.5
Total Phthalates	ug/l	NA	NA	NA	190 (Note 2)	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MCP Semivolatile Organics by SIM																											
2-Chloronaphthalene	ug/l	NA	NA	NA	NA	NA	< 0.2	<0.2	< 0.2	<0.2	< 0.2	<0.2	< 0.2	< 0.2	<0.2	< 0.2	<0.2	< 0.2	<0.2	< 0.2	<0.2	< 0.2	<0.2	< 0.2	<0.2	< 0.2	<0.2
2-Methylnaphthalene	ug/l	10	2000	20000	NA	NA	0.56	0.11	< 0.1	<0.1	1.2	0.26	2.0	2.1	0.69	2.8	0.4	0.14	<0.1	0.12	<0.1	< 0.1	<0.1	0.29	<0.1	0.14	<0.1
Acenaphthene	ug/l	20	NA	10000	Group II (Note 4)	Group II (Note 4)	3.8	1.3	0.42	0.41	11	5.2	4.5	4.8	2.8	5.7	2.2	1.6	0.38	1.0	<0.1	0.57	0.42	2.0	1.1	3.0	2.2
Acenaphthylene	ug/l	30	10000	40	Group II (Note 4)	Group II (Note 4)	0.10	<0.1	< 0.1	0.1	0.20	0.12	0.34	0.34	0.29	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	0.13	<0.1
Anthracene	ug/l	60	NA	30	Group II (Note 4)	Group II (Note 4)	0.78	0.2	< 0.1	<0.1	1.5	0.63	0.94	1.1	1.1	2	0.49	0.23	<0.1	0.21	<0.1	< 0.1	<0.1	0.78	0.26	0.55	0.36
Benzo[a]anthracene	ug/l	1	NA	1000	0.1 (Group I, Note 3)	0.0038	< 0.1	0.12	< 0.1	<0.1	< 0.1	0.23	0.12	0.18	0.97	0.11	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	0.32	<0.1	0.33	0.18
Benzo[a]pyrene	ug/l	0.2	NA	500	0.1 (Group I, Note 3)	0.0038	< 0.1	0.12	< 0.1	<0.1	< 0.1	0.22	< 0.1	0.12	0.97	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	0.25	<0.1	0.28	0.17
Benzo[b]fluoranthene	ug/l	1	NA	400	0.1 (Group I, Note 3)	0.0038	< 0.1	0.16	< 0.1	<0.1	< 0.1	0.31	0.10	0.16	1.3	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	0.32	<0.1	0.40	0.24
Benzo[g,h,i]perylene	ug/l	50	NA	20	Group II (Note 4)	Group II (Note 4)	< 0.1	<0.1	< 0.1	0.13	< 0.1	0.16	< 0.1	< 0.1	0.76	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	0.16	<0.1	0.27	0.13
Benzo[k]fluoranthene	ug/l	1	NA	100	0.1 (Group I, Note 3)	0.0038	< 0.1	<0.1	< 0.1	<0.1	< 0.1	0.1	< 0.1	< 0.1	0.45	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	0.13	<0.1	0.16	<0.1
Chrysene	ug/l	2	NA	70	0.1 (Group I, Note 3)	0.0038	< 0.1	0.11	< 0.1	<0.1	< 0.1	0.21	0.14	0.21	0.96	0.13	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	0.36	<0.1	0.37	0.18
Dibenz(a,h)anthracene	ug/l	0.5	NA	40	0.1 (Group I, Note 3)	0.0038	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	< 0.1	0.17	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1
Fluoranthene	ug/l	90	NA	200	Group II (Note 4)	Group II (Note 4)	1.0	0.5	< 0.1	0.12	0.84	0.76	0.93	1.1	2.9	1.8	0.54	0.27	<0.1	0.32	<0.1	0.15	<0.1	1.3	0.39	0.91	0.68
Fluorene	ug/l	30	NA	40	Group II (Note 4)	Group II (Note 4)	3.2	0.94	0.15	<0.1	6.6	3.5	3.3	3.4	2.6	4.1	1.7	0.80	0.22	0.64	<0.1	0.17	<0.1	2.6	1.8	1.4	1.2
Hexachlorobenzene	ug/l	1	1	6000	NA	NA	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8
Hexachlorobutadiene	ug/l	0.6	50	3000	NA	NA	< 0.5	<0.6	< 0.5	<0.6	< 0.5	<0.6	< 0.5	< 0.5	<0.6	< 0.5	<0.6	< 0.5	<0.6	< 0.5	<0.6	< 0.5	<0.6	< 0.5	<0.5	< 0.5	<0.5
Hexachloroethane	ug/l	8	100	50000	NA	NA	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8
Indeno[1,2,3-cd]pyrene	ug/l	0.5	NA	100	0.1 (Group I, Note 3)	0.0038	< 0.1	<0.1	< 0.1	<0.1	< 0.1	0.15	< 0.1	< 0.1	0.68	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	0.18	<0.1	0.26	0.12
Naphthalene	ug/l	140	700	20000	20, Group II (Note 4)	20, Group II (Note 4)	1.3	<2	0.14	<2	2.8	<2	5.8	6.1	<2	10	4.7	0.39	<2	0.69	<2	0.13	<2	0.96	0.24	0.26	0.26
Pentachlorophenol	ug/l	1	NA	200	1	1	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8
Phenanthrene	ug/l	40	NA	10000	Group II (Note 4)	Group II (Note 4)	3.4	0.4	0.34	0.16	9.3	3.2	5.4	6.0	5.5	9.9	2.2	1.1	0.24	0.42	<0.1	0.50	0.14	4.2	1.4	1.9	1.1
Pyrene	ug/l	60	NA	20	Group II (Note 4)	Group II (Note 4)	0.75	0.49	< 0.1	0.11	0.56	0.6	0.63	0.75	2.2	1.3	0.46	0.21	<0.1	0.22	<0.1	0.11	<0.1	0.90	0.25	0.66	0.49
Total Group I PAHs	ug/l	NA	NA	NA	1 (Note 4)	NA	ND	0.51	ND	ND	ND	1.22	0.36	0.67	11.76	0.24	ND	ND	ND	ND	ND	ND	ND	1.56	ND	2.07	0.89
Total Group II PAHs	ug/l	NA	NA	NA	100	100	14.3	3.63	1.05	1.03	32.80	13.38	21.84	23.59	17.05	34.80	11.8	4.60	0.84	3.50	ND	1.63	0.56	12.90	5.18	9.08	5.79
MCP 1,4 Dioxane by 8270D SIM																											
1,4-Dioxane	ug/l	0.3	6000	50000	200	200	< 0.142	<0.15	< 0.142	<0.142	< 0.147	<0.142	< 0.142	< 0.144	<0.144	< 0.147	<0.144	< 0.144	<0.15	< 0.147	<0.147	0.198	0.158	< 0.144	<0.147	< 0.144	<0.147
MCP Polychlorinated Biphenyls																											
PCBs, Total	ug/l	0.5	5	10	0.000064	0.000064	< 0.25	<0.25	< 0.25	<0.25	< 0.25	<0.25	< 0.25	< 0.25	<0.25	< 0.25	<0.25	< 0.25	<0.25	< 0.25	<0.25	< 0.25	<0.25	< 0.25	<0.25	< 0.25	<0.25

Table 3
Tobin Montessori and Vassal Lane Upper School
Cambridge, Massachusetts
August 2017 and March 2018 Groundwater Sampling Results

Parameter	Units	GW-1	GW-2	GW-3	RGP TBEL	RGP WQBEL	MW-3S	MW-3S	MW-3D	MW-3D	MW-4S	MW-4S	MW-4D	DUP-1 (MW-4D)	MW-4D	MW-7S	MW-7S	MW-7D	MW-7D	MW-9S	MW-9S	MW-9D	MW-9D	MW-14S	MW-14S	MW-14D	MW-14D
Sample Collection Date							16-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	17-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18
Laboratory Order Number							L1728873-01	L1807193-01	L1728873-04	L1807193-02	L1728873-06	L1807193-03	L1728873-05	L1728873-07	L1807193-04	L1728684-01	L1807193-06	L1728684-02	L1807193-05	L1728873-02	L1807193-08	L1728873-01	L1807193-07	L1728684-03	L1807264-02	L1728684-04	L1807264-01
Metals by 6010 (Total)																											
Antimony	ug/l	6	NA	8000	206	640	< 4	NA	< 4	NA	< 4	NA	< 4	< 4	NA	< 4	NA	< 4	NA	< 4	NA	< 4	NA	< 4	NA	< 4	NA
Arsenic	ug/l	10	NA	900	104	10	< 5	NA	8	NA	9	NA	6	6	NA	< 5	NA	< 5	NA	6	NA	28	NA	11	NA	< 5	NA
Barium	ug/l	2000	NA	50000	NA	NA	170	NA	303	NA	716	NA	608	600	NA	3660	NA	2060	NA	114	NA	70	NA	492	NA	795	NA
Beryllium	ug/l	4	NA	200	NA	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Cadmium	ug/l	5	NA	4	10.2	0.25	< 4	NA	< 4	NA	< 4	NA	< 4	< 4	NA	< 4	NA	< 4	NA	< 4	NA	< 4	NA	< 4	NA	< 4	NA
Chromium	ug/l	100	NA	300	85	85	< 10	NA	< 10	NA	< 10	NA	< 10	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA
Lead	ug/l	15	NA	10	160	2.5	< 10	NA	**67**	NA	< 10	NA	**31**	**29**	NA	< 10	NA	**14**	NA	**26**	NA	**11**	NA	**65**	NA	< 10	NA
Nickel	ug/l	100	NA	200	1,450	52	< 25	NA	< 25	NA	< 25	NA	< 25	< 25	NA	< 25	NA	< 25	NA	< 25	NA	< 25	NA	< 25	NA	< 25	NA
Selenium	ug/l	50	NA	100	235.8	5	< 10	NA	< 10	NA	< 10	NA	< 10	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA
Silver	ug/l	100	NA	7	35.1	3.2	< 7	NA	< 7	NA	< 7	NA	< 7	< 7	NA	< 7	NA	< 7	NA	< 7	NA	< 7	NA	< 7	NA	< 7	NA
Thallium	ug/l	2	NA	3000	NA	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Vanadium	ug/l	30	NA	4000	NA	NA	< 10	NA	< 10	NA	< 10	NA	< 10	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA
Zinc	ug/l	5000	NA	900	420	120	< 50	NA	54	NA	< 50	NA	< 50	< 50	NA	< 50	NA	< 50	NA	< 50	NA	< 50	NA	234	NA	< 50	NA
Metals by 7470A (Total)																											
Mercury	ug/l	2	NA	20	0.739	0.77	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	NA
MCP Dissolved Metals																											
Antimony, Dissolved	ug/l	6	NA	8000	206	640	NA	<4	NA	<4	NA	<4	NA	NA	<4	NA	<4	NA	<4	NA	<4	NA	<4	NA	<4	NA	<4
Arsenic, Dissolved	ug/l	10	NA	900	104	10	NA	<5	NA	6.6	NA	<5	NA	NA	<5	NA	<5	NA	<5	NA	<5	NA	40.2	NA	5.5	NA	<5
Barium, Dissolved	ug/l	2000	NA	50000	NA	NA	NA	49	NA	262	NA	646	NA	NA	729	NA	526	NA	2140	NA	113	NA	134	NA	833	NA	1150
Beryllium, Dissolved	ug/l	4	NA	200	NA	NA	NA	<0.5	NA	<0.5	NA	<0.5	NA	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5
Cadmium, Dissolved	ug/l	5	NA	4	10.2	0.25	NA	<4	NA	<4	NA	<4	NA	NA	<4	NA	<4	NA	<4	NA	<4	NA	<4	NA	<4	NA	<4
Chromium, Dissolved	ug/l	100	NA	300	85	85	NA	<10	NA	<10	NA	<10	NA	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10
Lead, Dissolved	ug/l	15	NA	10	160	2.5	NA	<10	NA	<10	NA	<10	NA	NA	**77**	NA	<10	NA	<10	NA	**54**	NA	<10	NA	<10	NA	<10
Mercury, Dissolved	ug/l	2	NA	20	0.739	0.77	NA	<0.2	NA	<0.2	NA	<0.2	NA	NA	<0.2	NA	<0.2	NA	<0.2	NA	<0.2	NA	<0.2	NA	<0.2	NA	<0.2
Nickel, Dissolved	ug/l	100	NA	200	1450	52	NA	<25	NA	<25	NA	<25	NA	NA	<25	NA	<25	NA	<25	NA	<25	NA	<25	NA	<25	NA	<25
Selenium, Dissolved	ug/l	50	NA	100	235.8	5	NA	<10	NA	<10	NA	<10	NA	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10
Silver, Dissolved	ug/l	100	NA	7	35.1	3.2	NA	<7	NA	<7	NA	<7	NA	NA	<7	NA	<7	NA	<7	NA	<7	NA	<7	NA	<7	NA	<7
Thallium, Dissolved	ug/l	2	NA	3000	NA	NA	NA	<0.5	NA	<0.5	NA	<0.5	NA	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5
Vanadium, Dissolved	ug/l	30	NA	4000	NA	NA	NA	<10	NA	<10	NA	<10	NA	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10
Zinc, Dissolved	ug/l	5000	NA	900	420	120	NA	<50	NA	<50	NA	<50	NA	NA	<50	NA	60	NA	<50	NA	224	NA	<50	NA	<50	NA	<50

Notes:
All wells compared to GW-1 and GW-3
Wells MW-9S/9D and MW-14S/14D are also compared to GW-2
Gray Shaded Values: Exceed GW-1 Standards
<u>Underlined Values</u>: Exceed GW-2 Standards
Bolded Value: Exceeds GW-3 Standards
Yellow shaded values: Exceeds RGP Standards
Red text: Exceeds RGP Standards in addition to GW Standards
< #: Not detected to the limit indicated
Italicized Value : Reporting limits greater than applicable MassDEP standards
ug/l - micrograms/liter
B - Compound was found in the blank and sample.
F1 - MS and/or MSD Recovery is outside acceptance limits.
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
J B - Compound was found in the blank and sample.
NA - Not Applicable
GW1 - Concentrations based on the use of groundwater as drinking water, either currently or in the foreseeable future.
GW2 - Concentrations based on the potential for volatile material to migrate into indoor air.
GW3 - Concentrations based on the potential environmental effects resulting from contaminated groundwater discharging to surface water.
RGP TBEL: National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) Technology Based Effluent Limit (TBEL), 2017
RGP WQBEL: National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) Water Quality Based Effluent Limit (WQBEL), 2017
UCL - Upper Concentration Limits in groundwater and soil are promulgated to minimize potential risks associated with uncontrolled environmental contamination, and the costs associated with cumulative anthropogenic contributions to background.

1.) Total BTEX effluent limit of 100 µg/L
2.) Total Phthalates is the sum of: diethylhexyl phthalate (CAS No. 117-81-7); butyl benzyl phthalate (CAS No. 85-68-7); di-n-butyl phthalate (CAS No. 84-74-2); diethyl phthalate (CAS No. 84-66-2); dimethyl phthalate (CAS No. 131-11-3); di-n-octyl phthalate (CAS No. 117-84-0). The effluent limitations for total phthalates and the individual phthalate, diethylhexyl phthalate, only apply if these parameters are present.
3.) Total Group I Polycyclic Aromatic Hydrocarbons, sum of Group I < 1.0 ug/L (individual < 0.1 ug/L)
4.) Total Group II Polycyclic Aromatic Hydrocarbons: Acenaphthene; acenaphthylene; anthracene; benzo(g,h,i)perylene;fluoranthene; fluorene; naphthalene; phenanthrene; pyrene
5.) For any parameter with a single effluent limitation, that effluent limitation applies to a site if that parameter is applicable to that site. For any parameter with both a TBEL and a WQBEL, the TBEL applies to a site, at a minimum, if that parameter is applicable to that site.

For any parameter with both a TBEL and a WQBEL, the WQBEL applies to a site if:
1) The operator determines that the WQBEL for a parameter calculated in accordance with Appendix V or VI applies; or
2) EPA or the appropriate State determines that a WQBEL is necessary to meet water quality standards.

Table 3
Tobin Montessori and Vassal Lane Upper School
Cambridge, Massachusetts
August 2017 and March 2018 Groundwater Sampling Results

Sample ID							MW-3S	MW-3S	MW-3D	MW-3D	MW-4S	MW-4S	MW-4D	DUP-1 (MW-4D)	MW-4D	MW-7S	MW-7S	MW-7D	MW-7D	MW-9S	MW-9S	MW-9D	MW-9D	MW-14S	MW-14S	MW-14D	MW-14D
Sample Collection Date							16-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	17-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18
Laboratory Order Number							L1728873-01	L1807193-01	L1728873-04	L1807193-02	L1728873-06	L1807193-03	L1728873-05	L1728873-07	L1807193-04	L1728684-01	L1807193-06	L1728684-02	L1807193-05	L1728873-02	L1807193-08	L1728873-01	L1807193-07	L1728684-03	L1807264-02	L1728684-04	L1807264-01
Parameter	Units	GW-1	GW-2	GW-3	RGP TBEL	RGP WQBEL																					

The calculation of WQBELs shall be as follows: 1) A dilution factor may be used to calculate the WQBEL for a parameter, if allowable and approved by the appropriate State prior to the submission of the NOI to EPA; 2) The calculations are completed in accordance with the instructions provided in Appendix V for sites located in Massachusetts or Appendix VI for sites located in New Hampshire; 3) The WQBEL calculations are included in the NOI submitted to EPA; and 4) The calculated WQBEL is confirmed by EPA in writing. In the event of a calculation error, the operator will be informed of any corrected WQBEL when notified of permit coverage by EPA. Operators are encouraged to use the additional resources provided by EPA at https://www.epa.gov/region1/npdes/rgp.html to follow the calculation methodologies for effluent limitations in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.

Attachment C

Process Equipment Cut Sheets

TSURUMI PUMP | NK - SERIES SEMI-VORTEX - DEWATERING PUMP | SPECIFICATIONS

■ FEATURES

1. Double inside mechanical seals with silicon carbide faces, running in an oil filled chamber and further protected by a lip seal running against a replaceable, stainless steel shaft sleeve provides for the most durable seal design available.

2. Highly efficient, continuous duty, air filled, copper wound motor with class B insulation minimizes the cost of operation.

3. Built in thermal & amperage sensing protector prevents motor failure due to overloading or accidental run dry conditions.

4. Double shielded, permanently lubricated, high temperature C3 ball bearings rated for a B-10 life of 60,000 hours extend operational life.

5. Top discharge, flow-thru design enables operation at low water levels for extended periods.

Sand Kit : NK2-15SK / NK2-22SK
The Sand Kit can be added to the NK series to suspend sand and prevent sand lock.

■ APPLICATIONS

1. Residential, commercial, industrial wastewater and construction site drainage.

2. Effluent transfer.

3. Decorative waterfalls and fountains.

4. Raw water supply from rivers or lakes..

c ETL us Intertek

OIL LIFTER EQUIPPED

■ SPECIFICATIONS	■ STANDARD	■ OPTIONS
Discharge Size	3" NPT (80 mm)	
Horsepower Range	2 ~ 3 HP. (1.5 ~ 2.2 kW)	
Performance Range Capacity	55.5 ~ 211.0 GPM. (0.21 ~ 0.80 m^3/min)	
Head	34.4 ~ 85.0 Ft. (10.50 ~ 25.91 m)	
Maximum water temperature	104° F. (40.0° C.)	
Materials of Construction		
Casing	Butadiene Rubber + Natural Rubber , Cast Iron (NK2-22L)	
Impeller	Ductile Cast Iron , High Chrome Cast Iron (NK2-22L , NK2-15SK/22SK)	
Shaft	420 , 403 Stainless Steel	
Motor Frame	Aluminum alloy	
Fasteners	304 Stainless Steel	
Mechanical Seal	Silicon Carbide	
Elastomers	NBR (Nitril Butadiene Rubber)	
Impeller Type	Semi-vortex, solids handling.	
Solids Handling Capability	0.334” (8.5mm)	
Bearings	Prelubricated, Double Shielded	
Motor Nomenclature		
Type, Speed, Hz.	Air Filled, 3600 RPM, 60 Hz.	
Voltage, Phase	110/220 V., 1 Ph (NK2-15 Dual Voltage)	
Insulation	Class B	
Accessories	Submersible Power Cable 32' (10.0 m)	Length as Required
Operational Mode	Manual	TS-301 Float Switch

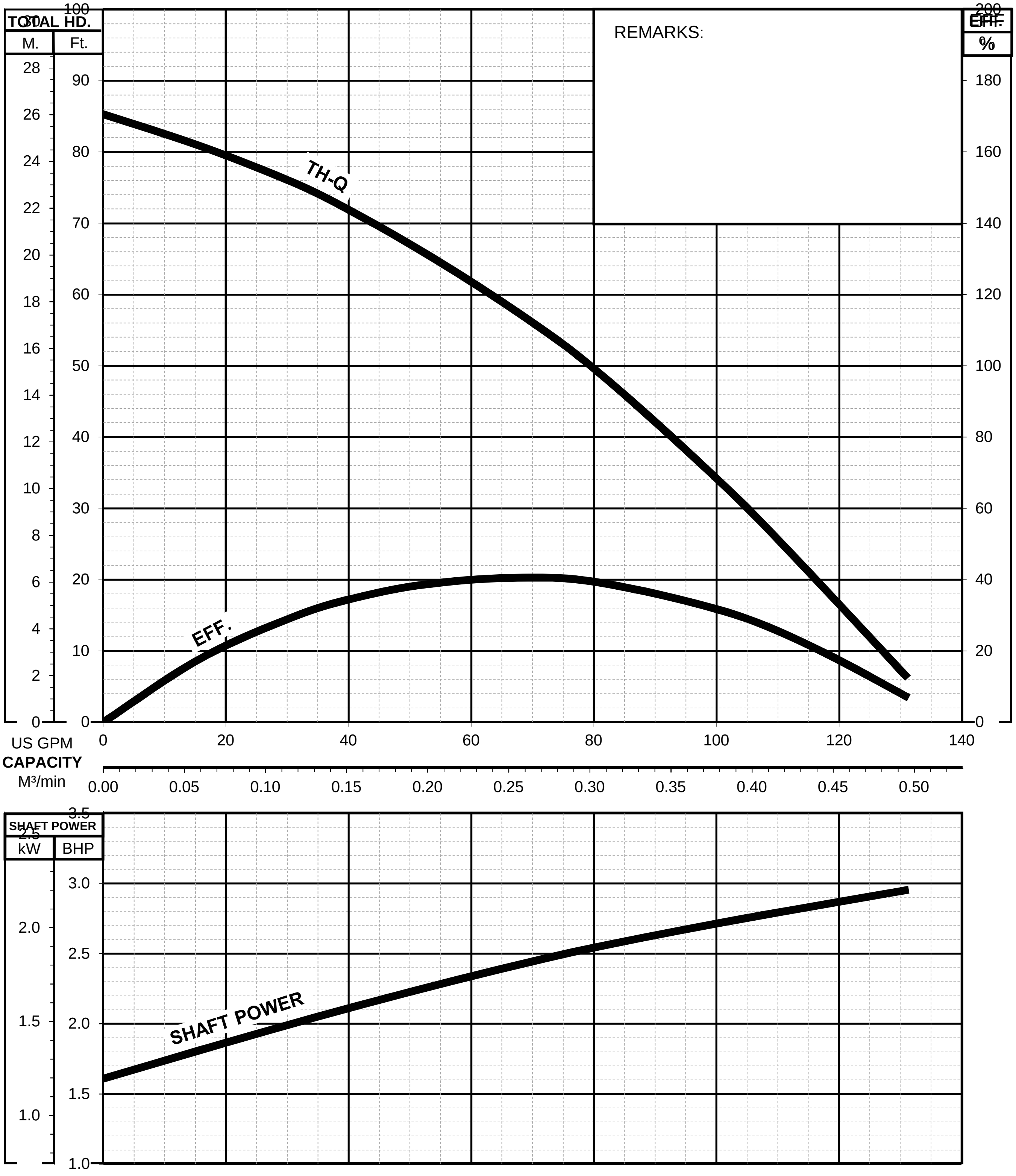
TSURUMI PUMP

NK - SERIES

SEMI-VORTEX - DEWATERING PUMPS

PERFORMANCE CURVE

MODEL		BORE	HP	kW	RPM	SOLIDS DIA.	LIQUID	SG.	VISCOSITY	TEMP.
NK4-22		3"/80mm	3	2.2	3470	0.334"/8.5mm	Water	1.0	1.123cSt.	60°F
PUMP TYPE		**PHASE**	**VOLTAGE**		**AMPERAGE**	**HZ**	**STARTING METHOD**			**INS. CLASS**
Semi-Vortex Dewatering Pump		1	220 - 230		12.2 - 11.7	60	Capacitor Start			F
CURVE No.	**DATE**	**PHASE**	**VOLTAGE**		**AMPERAGE**	**HZ**	**STARTING METHOD**			**INS. CLASS**
-	-	-	-		-	-	-			-



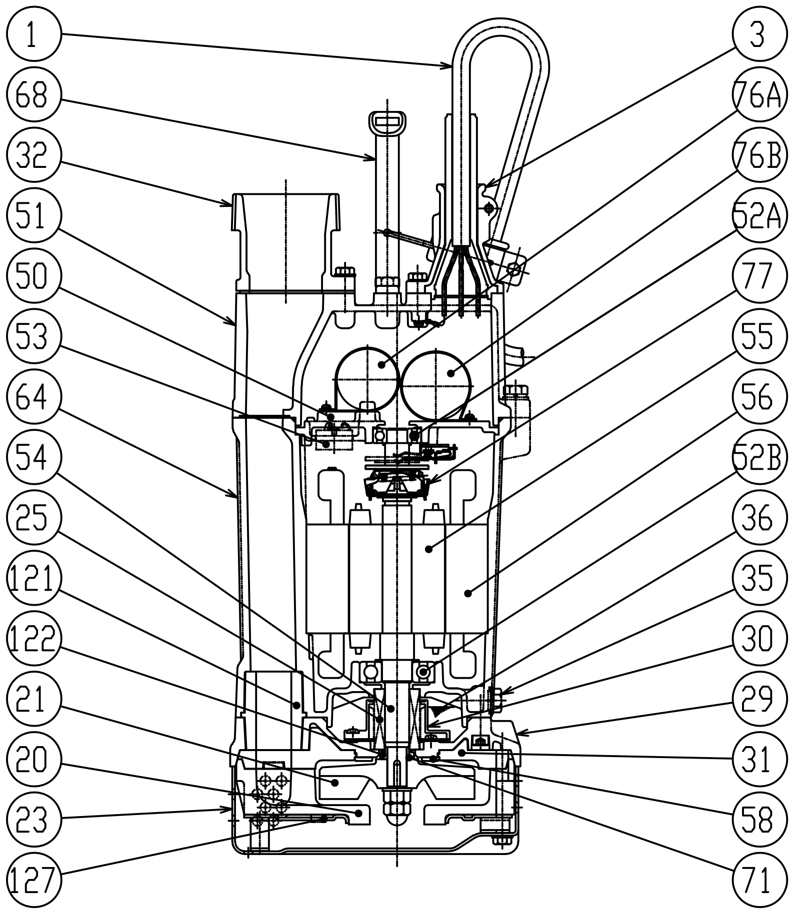
TSURUMI PUMP

NK SERIES

SEMI-VORTEX - DEWATERING PUMPS

SECTIONAL VIEW

NK4-22



ITEM#	DESCRIPTION	MAIN MATERIAL / NOTE	RELATED ASTM, AISI CODE	RELATED EN CODE	Q'TY
1	Power Cable	Chloroprene Sheath AWG14/3-32ft			1
3	Stuffing Box	Aluminium Alloy Die Casting	B85 A360.0	EN 1706 AC-43400	1
20	Pump Casing	Butadiene Rubber + Natural Rubber			1
21	Impeller	Ductile Cast Iron	A536 100-70-03	EN 1563 GJS-700-2	1
23	Suction Strainer	Steel (Cold Rolled)	A109/A1008	EN 10130	1
25	Mechanical Seal	Silicon Carbide / H-20T			1
29	Oil Casing	Aluminium Alloy Die Casting	B85 383.0	EN 1706 AC-46100	1
30	Oil Lifter	PBT Plastic w/(GF+MD)40			1
31	Wear Ring	Butadiene Rubber			1
32	Discharge Connection	Cast Iron / NPT 3"	A48M Class30B	EN 1561 GJL-200	1
35	Oil Plug	Stainless Steel	S 30400	1.4301	1
36	Lubricant	Turbine Oil ISO VG32 or SAE 10W-20			
50	Motor Bracket	Cast Iron	A48M Class30B	EN 1561 GJL-200	1
51	Motor Head Cover	Aluminium Alloy Die Casting	B85 383.0	EN 1706 AC-46100	1
52A	Upper Bearing	#6203ZZC3			1
52B	Lower Bearing	#6305ZZC3			1
53	Motor Protector				1
54	Shaft	Stainless Steel	S 40300	1.4000	1
55	Rotor				1
56	Stator				1
58	Protection Plate	Stainless Steel	S 30400	1.4301	1
64	Motor Housing	Aluminium Alloy Die Casting	B85 383.0	EN 1706 AC-46100	1
68	Handle	Steel (Cold Rolled) + NBR Rubber	A109/A1008	EN 10130	1
71	Shaft Sleeve	Stainless Steel	S 30400	1.4301	1
76A	Capacitor				1
76B	Capacitor				1
77	Centrifugal Switch				1
121	Duct Sleeve	Styrene Butadiene Rubber			1
122	V-Ring	Nitrile Butadiene Rubber			1
127	Fixing Plate	Steel (Cold Rolled)	A109/A1008	EN 10130	1

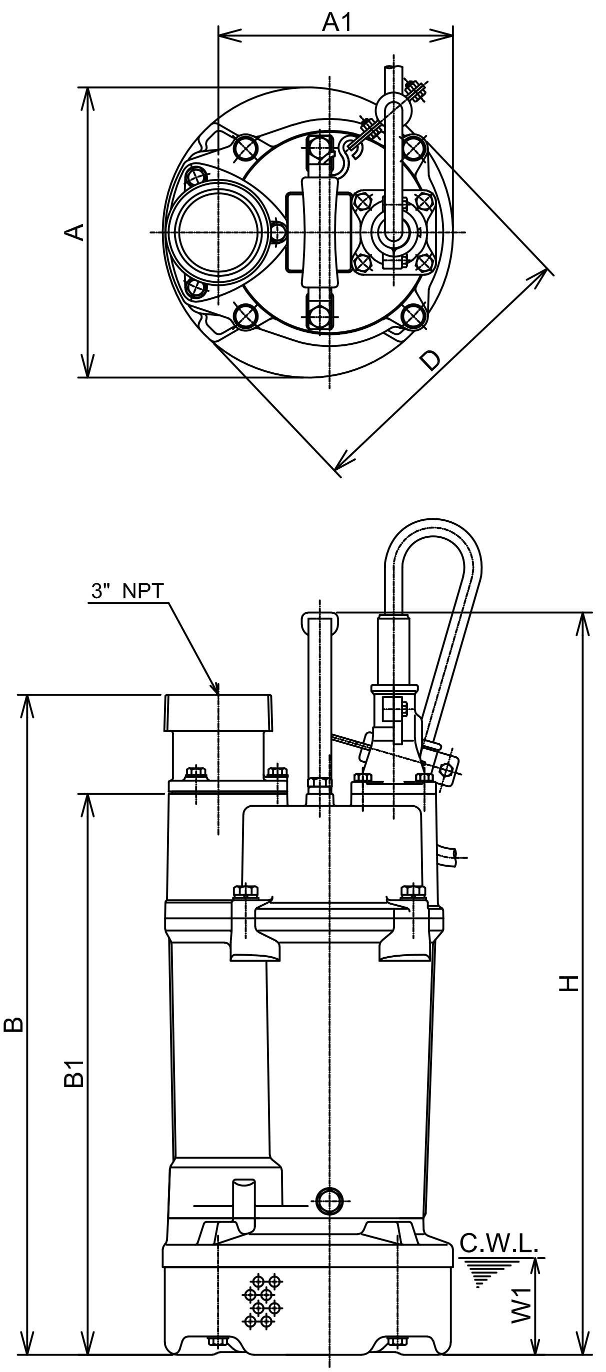
TSURUMI PUMP

NK SERIES

SEMI-VORTEX - DEWATERING PUMPS

DIMENSIONS

NK4-22



DIMENSIONS:USCS (Inch)

Model	HP	NOM.	Pump & Motor						C.W.L.	Wt.*
		SIZE	A	A1	B	B1	D	H	W1	(lbs.)
NK4-22	3	3"	9 7/16	7 5/8	21 1/2	18 1/4	9 9/16	24 3/16	3 1/4	64

DIMENSIONS:METRIC (mm)

* Excluding Cable

Model	kW	NOM.	Pump & Motor						C.W.L.	Wt.*
		SIZE	A	A1	B	B1	D	H	W1	(kg)
NK4-22	2.2	80	240	194	546	464	243	614	80	29

NK Sand Kit Installation

TSURUMI PUMP

COMPONENTS

Parts that are neccesary to install the sand kit into a NK Series

- Stainer (Left)
- Stirrer (Right)

STEP 1:

Remove the pump base by removing the four screws.

STEP 2:

Once removed identify the rubber pump casing and the retainer. These will attach to the new strainer.

- Strainer, not used (left)

- Retainer (middle)

- Rubber pump casing (rigth)

STEP 3:

Remove **ONLY** the head bolt from the impeller.

STEP 4:

-Attach the stirrer where the head bolt was and turn until tigh.

-Impeller rotation will further tighten stirrer.

STEP 5:

Place the retainer and the rubber pump casing into the sand strainer.

STEP 6:

Finally, attach the new sand strainer base to the pump with the existing hardware.

Steel Tank

Flat Top Smooth Wall

Overview:

Store liquids with confidence with Rain for Rent's Flat Top Smooth Wall tank. Permanently attached axles, for maximum maneuverability, allows this tank to be moved with ease on the jobsite. The staircase ensures proper protection for workers on site. The tank also offers optional epoxy coating, which offers chemical resistance and additional cleanliness for sensitive environmental applications.

Features:

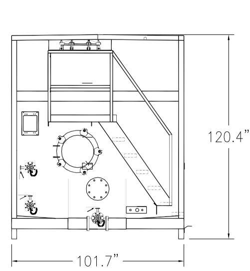
- Vapor Tight Tanks: rated to 16oz/in^2 of pressure and 0.4oz/in^2 of vacuum
- V-drain floor with front and rear 4” 150-lb flanges with valves
- OSHA Compliant Stairway
- 1.5” SCH80 level gauge port
- 8” External manifold or internal manifold
- Rear 3” or 6” SCH40 fill line
- Optional: Epoxy Coating - chemical resistance for a wide variety of chemical compatibility and keeps stored product within the tank cleaner
- Optional: Steam Coils

Accessories:

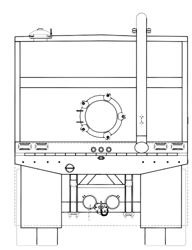
- E-CONTAIN® Spillguards
- SolidGround® Traction Mats
- Radar Level Gauge
- Mechanical Level Gauge
- PipeStax®
- HoseTrax®
- Suction and Discharge Hose

Specs:

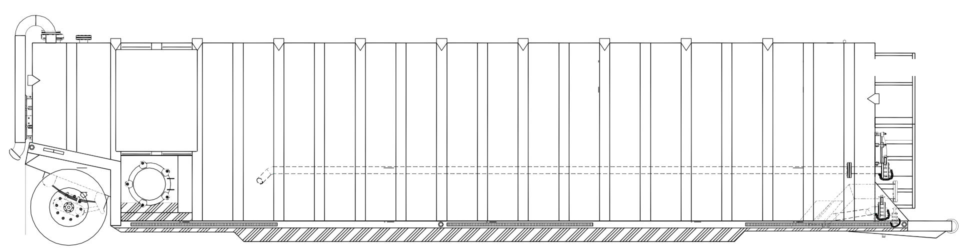
Material	Steel, Epoxy Coated (Option)
Capacity	21,000 gallons
Manways	Four 22” hatches
Dry weight	29,500 lbs.
Footprint (LxWxH):	560” x 102” x 120”



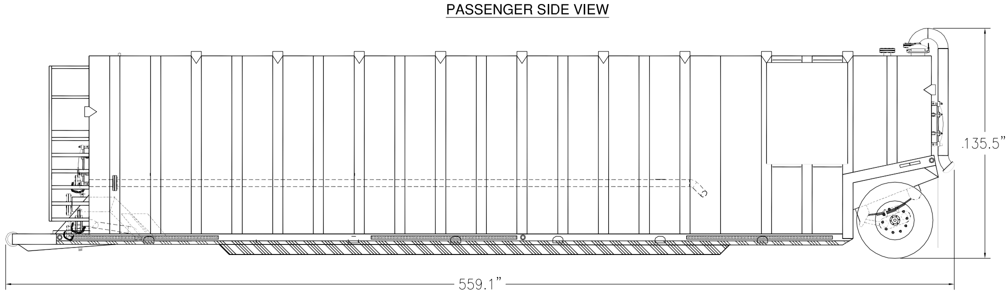
FRONT VIEW



REAR VIEW



PASSENGER SIDE VIEW



DRIVER SIDE VIEW

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count on our products. trust in our people.

oil/water separation

High-performance oil/water separator with influent pump packages

deep sump basin

HT-2034

PRODUCT DETAILS

The Deep Sump Basin (DSB) is a complete packaged system consisting of the DSB with Integral Grit and Pump Lift Chambers, Influent Pump Package, and Model R-HTC Rectangular Aboveground Oil/Water Separator.

The system is designed to remove free-floating oil, grease and settleable oily-coated solids from a vehicle maintenance facility's fuel area, wash area and service bay drains.

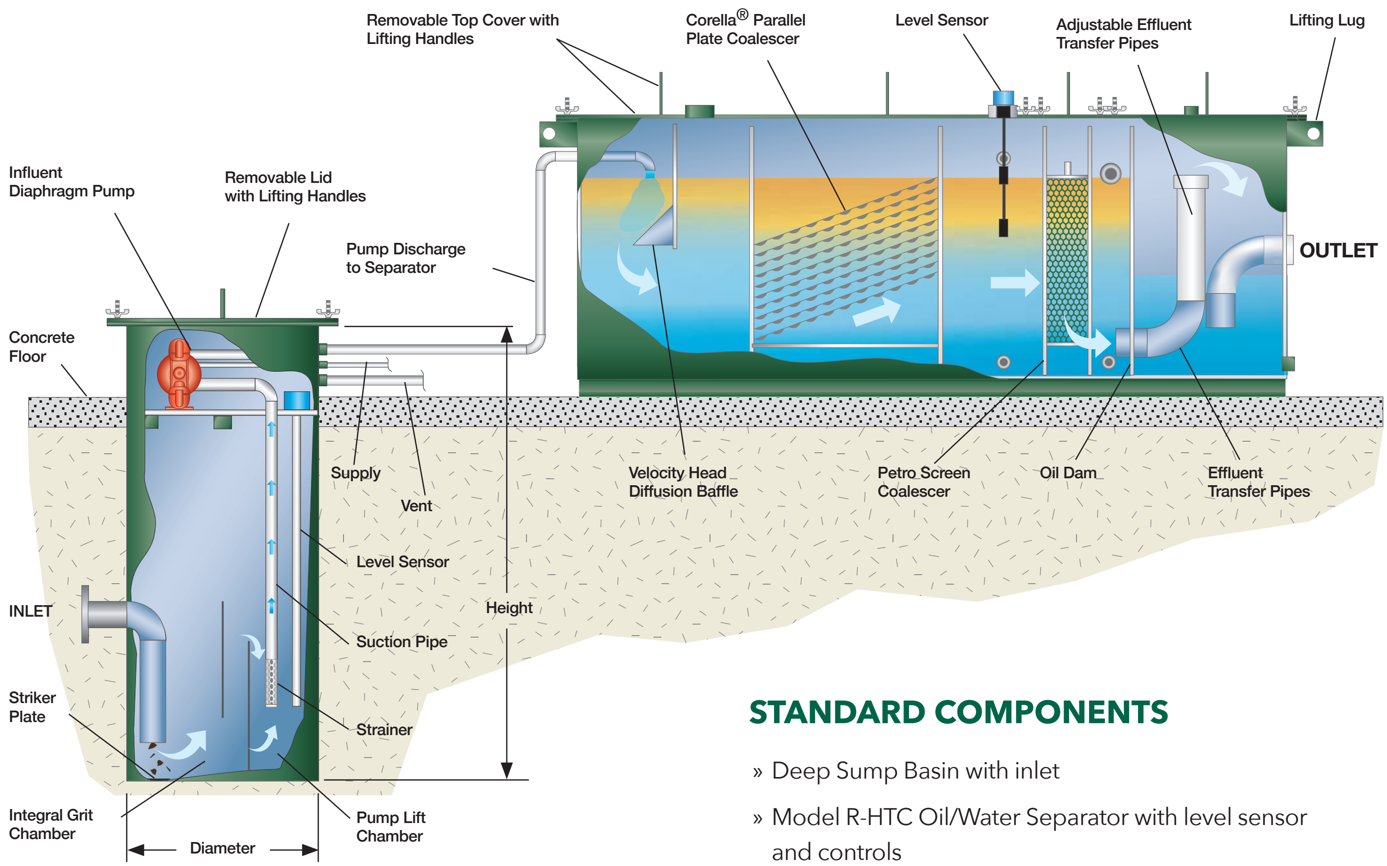
They are installed in vehicle repair and service facilities, car and truck dealerships and fast lube shops to help prevent discharges of harmful pollutants into the storm or sanitary sewer system.

Highland Tank's standard DSB Systems feature flow rates from 25 to 200 gal./min. Custom systems with higher flow rate systems are also available. Pneumatic sensor and influent pump systems are standard, with electronic systems available.

Features

» Automatic for ease of operation
» Utilizes patented Corella® coalescer technology
» Rugged all-steel design & construction
» Easy installation with limited excavation
» Removable vapor-tight top covers for service and maintenance

Model R-HTC Oil/Water Separator



Deep Sump Basin

STANDARD COMPONENTS

- Deep Sump Basin with inlet
- Model R-HTC Oil/Water Separator with level sensor and controls
- Pneumatic influent diaphragm pump with air filter regulator, suction pipe and strainer

Model DSB	Flow Rate Gal/Min	Recommended Oil Pump-out Gallons	Separator Dimensions Length Width Height	Inlet & Outlet Diameter	Sump Dimensions Diameter x Height
300	25	60	7'-4" x 2'-4" x 3'-0"	1" / 3	2'-6" x 6'-0"
600	50	120	9'-4" x 3'-4" x 3'-0"	1.25" / 4"	2'-6" x 6'-0"
900	75	180	10'-0" x 3'-0" x 4'-0"	2" / 6"	4'-0" x 8'-0"
1,000	100	200	11'-0" x 4'-0" x 4'-0"	2" / 6"	4'-0" x 8'-0"
2,000	200	400	12'-0" x 5'-0" x 5'-0"	4" / 8"	5'-4" x 9'-0"

Highland Tank®

Stoystown, PA
One Highland Road
Stoystown, PA 15563-0338
814.893.5701

Manheim, PA
4535 Elizabethtown Road
Manheim, PA 17545-9410
717.664.0600

Watervliet, NY
958 19th Street
Watervliet, NY 12189-1752
518.273.0801

Greensboro, NC
2700 Patterson Street
Greensboro, NC 27407-2317
336.218.0801

Lebanon, PA
2225 Chestnut Street
Lebanon, PA 17042-2504
717.664.0602

Friedens, PA
1510 Stoystown Road
Friedens, PA 15541-7402
814.443.6800

Clarkston, MI
4701 White Lake Road
Clarkston, MI 48346-2554
248.625.8700

Mancelona, MI
9517 Lake Street
Mancelona, MI 49659-7968
248.625.8700

PROUDLY MADE IN AMERICA

Bag Filter

BF200

Overview:

The BF200 bag filter unit features two bag filter tanks and utilizes 7” x 30” bag filters for superior filtration from 100 to 1 micron for flows up to 200 GPM.

Features:

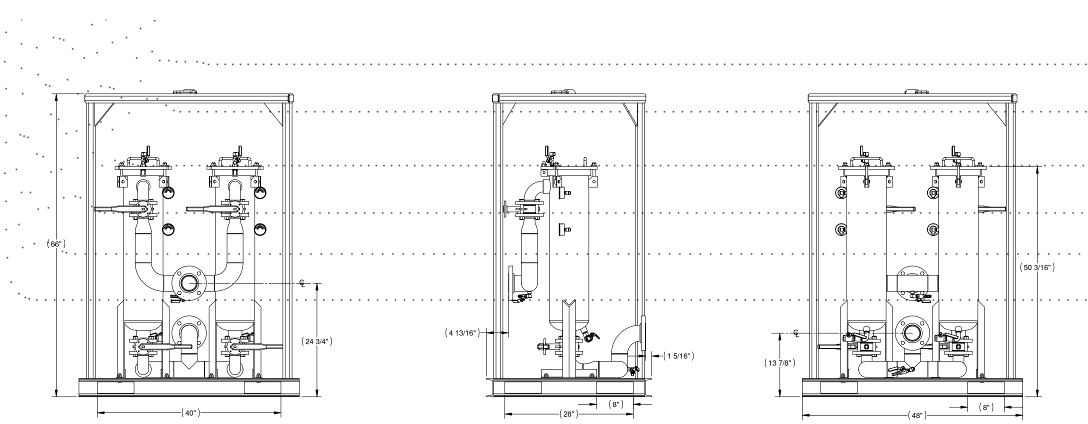
- No moving parts
- Skid mounted
- Fitted with bleed valves and pressure gauges
- Chambers constructed of 304 Stainless Steel
- Piping constructed of 304 stainless steel
- Stainless Steel inlet and outlet manifolds

Specs:

Max Flow	200 GPM
Material	Stainless Steel
Max PSI	125 PSI
Dry weight	800 lbs.
Footprint:	48” x 36”
Inlet x outlet	3” x 3” Flange

Accessories:

- Spillguard
- Suction and Discharge Hoses



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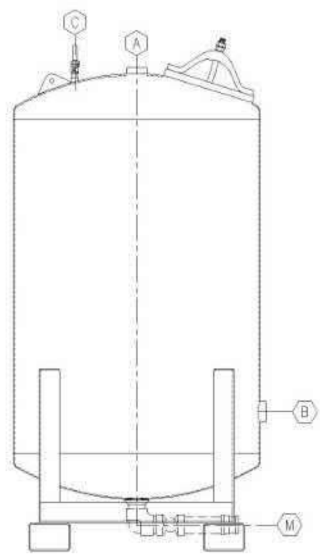
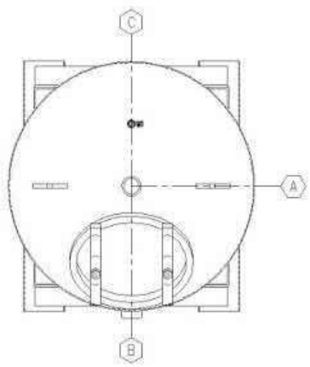
HPAF SERIES FILTERS

HPAF series filters are designed to treat liquid streams in a wide variety of adsorption applications. The modular design enables the units to easily fit into a wide variety of installations. Standard features include steel construction with epoxy internal coating, efficient internal collector array, forklift skid and lifting eyes.

A wide variety of options and contact medias are available, con-





A - Process Inlet
B - Process Outlet
C - Vent
M - Carbon Discharge (Not standard on all mod-

Standard Model Shown - Detailed Submittal Drawings Available

HPAF SERIES STANDARD SPECIFICATIONS

Model Number	HPAF-500	HPAF-1000	HPAF-2000	HPAF-3000	HPAF-5000	HPAF-10,000	L10
Overall Height	5’11”	7’2”	8’6”	8’11”	9’11”	10’9”	15’10”
Diameter	30”	36”	48”	60”	72”	96”	120”
Process Connection	2” FNPT	2” FNPT	3” FNPT	3” FNPT	4” FNPT	6” FLNG	8” FLNG
Typical GAC Fill (28#/FT^3)	500 Lbs	1,000 Lbs	2,000 Lbs	3,000 Lbs	5,000 Lbs	10,000 Lbs	20,000 Lbs
Shipping Weight (empty)	350 Lbs	535 Lbs	1,020 Lbs	1,525 Lbs	2,490 Lbs	3,800 Lbs	7,250 Lbs
Operational Weight	1,700 Lbs	3,300 Lbs	6,800 Lbs	10,700 Lbs	17,900 Lbs	31,200 Lbs	68,400 Lbs
Optimal Water Flows at standard conditions	8-25 GPM	10 to 35 gpm	15 to 70 gpm	25 to 120 gpm	35 to 165 gpm	60 to 300 gpm	100 to 480 gpm
Available Bed Volume	20 FT^3	35 FT^3	75 FT^3	117 FT^3	196 FT^3	400 FT^3	780 FT^3
Maximum Pressure	75 PSIG	75 PSIG	75 PSIG	75 PSIG	75 PSIG	75 PSIG	75 PSIG
Maximum Vacuum	28” Hg	28” Hg	28” Hg	28” Hg	28” Hg	28” Hg	28” Hg

CITY OF CAMBRIDGE
DEPARTMENT OF PUBLIC WORKS

147 Hampshire Street, Cambridge, MA 02139

Phone (617) 349-4800

Permit Number: 138739

DEWATERING PERMIT

Application Date: August 13, 2021

This permit is effective from November 2, 2021 up to and including September 1, 2025

Davida Flynn is hereby authorized to dewater at the following address: 197 Vassal Ln

Dewatering Operation Description: As per the attached Dewatering Plan (as reviewed and approved by CDM Smith (geotechnical engineer for the City of Cambridge)), construction related water management for discharge relating to groundwater and rainwater.

System: Stormwater

Source of Discharge: Commercial

Contractor Information

Applicant: Davida Flynn

Company Name: W.T. Rich Co.

Phone Number: 617-590-4702

Applicant Address:

Specific Conditions:

General Conditions:

1. All groundwater pumped from the work shall be disposed of without damage to pavements, other surfaces or property.
2. Where material or debris has washed or flowed into or has been placed in existing gutters, drains, pipes or structures, such material or debris shall be entirely removed and satisfactorily disposed of by the Contractor during the progress of work as directed by the Public Works Department.

3. Any flooding or damage of property and possessions caused by siltation of existing gutters, pipes or structures shall be the responsibility of the Contractor.
4. Provisions shall be made to insure that no material, water or solid, will freeze on any pavement or in any location which will cause inconvenience or hazard to the general public.
5. Upon completion of the work, existing gutters, drains, pipes and structures shall be (bucket) cleaned and material disposed of satisfactorily prior to release by the Public Works Department.
6. Any permit issued by the City of Cambridge shall be revoked upon transfer of any ownership interest

Attachment No. 2

Well Location Plan, Water Quality Analytical Results and Effluent Limit Documentation

Legend

Geotechnical/Environmental Boring Location

Groundwater Monitoring Well Couplet Installation Location

Approximate Boundary of Former Clay Pit/Edge of Waste (updated September 2017)

Tobin School
197 Vassal Lane
Cambridge, MA

0 40 80
Feet

N E S W

Basemap: Google Earth Pro Imagery (April 2017)
Source: Google, MassGIS and ESRI ArcGIS Online
Coordinate Sys: NAD83 Mass. State Plane Mainland (feet)

FIGURE 2
Boring and Groundwater Monitoring Well Installation Locations
July-August 2017

CDM Smith

F:\Projects\Project_data\Cambridge\TobinSchool\MXD\TobinSchool_Boring_GW_Installation_Locations.mxd billingsmc September-2017

Table 1

Groundwater and Receiving Water Results Compared to Full RGP Parameter List

TMVL School - Cambridge, MA

CLIENT SAMPLE ID					MW-9D		AB-1 (Alewife Brook)	
SAMPLING DATE					21-APR-21		21-APR-21	
LAB SAMPLE ID					L2120325-02		L2120325-01	
	CAS Number	RGP TBEL	RGP WQBEL	Units		Qual		Qual
Anions by Ion Chromatography								
Chloride	16887-00-6	Report ug/L		ug/l	183,000		--	
General Chemistry								
Chromium, Trivalent	16065-83-1	323	74	ug/l	10	U	--	
Solids, Total Suspended	---	30,000		ug/l	23,000		--	
Cyanide, Total	57-12-5	178,000	5.2	ug/l	5	U	--	
Chlorine, Total Residual	---	200	11	ug/l	20	U	--	
Nitrogen, Ammonia	7664-41-7	Report mg/L		ug/l	31,400		988	
TPH, SGT-HEM	---	5,000		ug/l	*4000*	*U*	--	
Phenolics, Total	---	1,080	300	ug/l	30	U	--	
Chromium, Hexavalent	18540-29-9	323	11	ug/l	10	U	10	U
Total Hardness by SM 2340B								
Hardness	---			ug/l	--		149,000	
Total Metals								
Antimony, Total	7440-36-0	206	640	ug/l	4	U	4	U
Arsenic, Total	7440-38-2	104	10	ug/l	55.32		1	U
Cadmium, Total	7440-43-9	10.2	0.25	ug/l	0.2	U	0.2	U
Chromium, Total	7440-47-3			ug/l	1	U	1	U
Copper, Total	7440-50-8	242	9	ug/l	1.18		2.85	
Iron, Total	7439-89-6	5,000	1,000	ug/l	6,380		880	
Lead, Total	7439-92-1	160	2.5	ug/l	2.41		2.45	
Mercury, Total	7439-97-6	0.739	0.77	ug/l	0.2	U	0.2	U
Nickel, Total	7440-02-0	1450	52	ug/l	2	U	2	U
Selenium, Total	7782-49-2	235.8	5	ug/l	5	U	5	U
Silver, Total	7440-22-4	35.1	3.2	ug/l	0.4	U	0.4	U
Zinc, Total	7440-66-6	420	120	ug/l	12.16		19.58	
Microextractables by GC								
1,2,3-Trichloropropane	96-18-4			ug/l	0.03	U	--	
1,2-Dibromo-3-chloropropane	96-12-8			ug/l	0.01	U	--	
1,2-Dibromoethane	106-93-4	0.05		ug/l	0.01	U	--	
Volatile Organics by GC/MS								
1,1,1-Trichloroethane	71-55-6	200		ug/l	5	U	--	
1,1,2-Trichloroethane	79-00-5	5.0		ug/l	3.8	U	--	
1,1-Dichloroethane	75-34-3	70		ug/l	3.8	U	--	
1,1-Dichloroethene	75-35-4	3.2		ug/l	2.5	U	--	
1,2-Dichlorobenzene	95-50-1	600		ug/l	12	U	--	
1,2-Dichloroethane	107-06-2	5.0		ug/l	3.8	U	--	
1,3-Dichlorobenzene	541-73-1	320		ug/l	12	U	--	
1,4-Dichlorobenzene	106-46-7	5.0		ug/l	*12*	*U*	--	
Acetone	67-64-1	7970		ug/l	25	U	--	
Benzene	71-43-2	5.0		ug/l	2.5	U	--	
Carbon tetrachloride	56-23-5	4.4	1.6	ug/l	2.5	U	--	
cis-1,2-Dichloroethene	156-59-2	70		ug/l	2.5	U	--	
Ethylbenzene	100-41-4	Note 1		ug/l	2.5	U	--	
Methyl tert butyl ether	1634-04-4	70	20	ug/l	280		--	
Methylene chloride	75-09-2	4.6		ug/l	2.5	U	--	
o-xylene	95-47-6	N/A		ug/l	2.5	U	--	
p/m-Xylene	179601-23-1	N/A		ug/l	5	U	--	
Tert-Butyl Alcohol	75-65-0	120		ug/l	250	U	--	
Tertiary-Amyl Methyl Ether	994-05-8	90		ug/l	50	U	--	
Tetrachloroethene	127-18-4	5	3.3	ug/l	2.5	U	--	
Toluene	108-88-3	Note 1		ug/l	2.5	U	--	
Trichloroethene	79-01-6	5.0		ug/l	2.5	U	--	
Vinyl chloride	75-01-4	2.0		ug/l	*2.5*	*U*	--	
Xylenes, Total	1330-20-7	Note 1		ug/l	2.5	U	--	
Total BTEX		100, Note 1		ug/l	ND		--	
Volatile Organics by GC/MS-SIM								
1,4-Dioxane	123-91-1	200		ug/l	5	*U*	--	
Semivolatile Organics by GC/MS								
Bis(2-ethylhexyl)phthalate	117-81-7	101, Note 2	2.2, Note 2	ug/l	2.2	U	--	
Butyl benzyl phthalate	85-68-7	Note 2	Note 2	ug/l	5	U	--	
Di-n-butylphthalate	84-74-2	Note 2	Note 2	ug/l	5	U	--	
Di-n-octylphthalate	117-84-0	Note 2	Note 2	ug/l	5	U	--	
Diethyl phthalate	84-66-2	Note 2	Note 2	ug/l	5	U	--	
Dimethyl phthalate	131-11-3	Note 2	Note 2	ug/l	5	U	--	
Total Phthalates		190		ug/l	ND		--	

Semivolatile Organics by GC/MS-SIM								
Acenaphthene	83-32-9	Group II (Note 4)	Group II (Note 4)	ug/l	0.588		--	
Acenaphthylene	208-96-8	Group II (Note 4)	Group II (Note 4)	ug/l	0.1	U	--	
Anthracene	120-12-7	Group II (Note 4)	Group II (Note 4)	ug/l	0.1	U	--	
Benzo(a)anthracene	56-55-3	0.1, (Group I, Note 3)	0.0038	ug/l	0.1	U	--	
Benzo(a)pyrene	50-32-8	0.1, (Group I, Note 3)	0.0038	ug/l	0.1	U	--	
Benzo(b)fluoranthene	205-99-2	0.1, (Group I, Note 3)	0.0038	ug/l	0.1	U	--	
Benzo(ghi)perylene	191-24-2	Group II (Note 4)	Group II (Note 4)	ug/l	0.1	U	--	
Benzo(k)fluoranthene	207-08-9	0.1, (Group I, Note 3)	0.0038	ug/l	0.1	U	--	
Chrysene	218-01-9	0.1, (Group I, Note 3)	0.0038	ug/l	0.1	U	--	
Dibenzo(a,h)anthracene	53-70-3	0.1, (Group I, Note 3)	0.0038	ug/l	0.1	U	--	
Fluoranthene	206-44-0	Group II (Note 4)	Group II (Note 4)	ug/l	0.1	U	--	
Fluorene	86-73-7	Group II (Note 4)	Group II (Note 4)	ug/l	0.1	U	--	
Indeno(1,2,3-cd)pyrene	193-39-5	0.1, (Group I, Note 3)	0.0038	ug/l	0.1	U	--	
Naphthalene	91-20-3	20, Group II (Note 4)		ug/l	0.1	U	--	
Pentachlorophenol	87-86-5	1.0		ug/l	*1*	*U*	--	
Phenanthrene	85-01-8	Group II (Note 4)	Group II (Note 4)	ug/l	0.1	U	--	
Pyrene	129-00-0	Group II (Note 4)	Group II (Note 4)	ug/l	0.1	U	--	
Total Group I PAHs	--	1.0	As individual PAHs	ug/l	ND		--	
Total Group II PAHs	--	100		ug/l	0.588		--	
Polychlorinated Biphenyls by GC								
Aroclor 1016	12674-11-2	(as Total PCBs)		ug/l	0.25	U	--	
Aroclor 1221	11104-28-2	(as Total PCBs)		ug/l	0.25	U	--	
Aroclor 1232	11141-16-5	(as Total PCBs)		ug/l	0.25	U	--	
Aroclor 1242	53469-21-9	(as Total PCBs)		ug/l	0.25	U	--	
Aroclor 1248	12672-29-6	(as Total PCBs)		ug/l	0.25	U	--	
Aroclor 1254	11097-69-1	(as Total PCBs)		ug/l	0.25	U	--	
Aroclor 1260	11096-82-5	(as Total PCBs)		ug/l	0.2	U	--	
Total PCBs		0.000064		ug/l	ND		--	

Notes:

AB-1 = Alewife Brook Receiving Water Sample Location

Bold Value: Detected above laboratory reporting limit

Italicized Value : Reporting limits greater than applicable MassDEP standards

--: Not analyzed

Outlined Values: Exceeds RGP TBEL

Yelow shaded values: Exceedes RGP WQBEL

N/A: Not Applicable

ND: Non-detect

ug/l - micrograms/liter

RGP TBEL: National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) Technology Based Effluent Limit (TBEL), 2017

RGP WQBEL: National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) Water Quality Based Effluent Limit (WQBEL), 2017

1) Total BTEX effluent limit of 100 µg/L

2) Total Phthalates is the sum of: diethylhexyl phthalate (CAS No. 117-81-7); butyl benzyl phthalate (CAS No. 85-68-7); di-n-butyl phthalate (CAS No. 84-74-2); diethyl phthalate (CAS No. 84-66-2); dimethyl phthalate (CAS No. 131-11-3); di-n-octyl phthalate (CAS No. 117-84-0). The effluent limitations for total phthalates and the individual phthalate, diethylhexyl phthalate, only apply if these parameters are present.

3) Total Group I Polycyclic Aromatic Hydrocarbons, sum of Group I < 1.0 ug/L (individual < 0.1 ug/L)

4) Total Group II Polycyclic Aromatic Hydrocarbons: Acenaphthene; acenaphthylene; anthracene; benzo(g,h,i)perylene;fluoranthene; fluorene; naphthalene; phenanthrene; pyrene

Table 2

Groundwater Sample Results Compared to Reduced RGP Parameter List

TMVL School - Cambridge, MA

CLIENT SAMPLE ID					MW-3D		MW-7D		MW-14S		TRIP BLANK	
SAMPLING DATE					21-APR-21		21-APR-21		21-APR-21		21-APR-21	
LAB SAMPLE ID					L2121136-01		L2121136-02		L2121136-03		L2121136-04	
					L2120325-03		L2120325-04		L2120325-05			
	CAS Number	RGP TBEL	RGP WQBEL	Units		Qual		Qual		Qual		Qual
General Chemistry												
Chromium, Trivalent	16065-83-1	323	11	ug/l	--		--		--		--	
Solids, Total Suspended	---	30,000		ug/l	--		40,000		--		--	
Anions by Ion Chromatography												
Chloride	16887-00-6	Report ug/L		ug/l	--		2,660,000		--		--	
General Chemistry												
Chlorine, Total Residual	---	200	11	ug/l	--		20	U	--		--	
Nitrogen, Ammonia	7664-41-7	Report mg/L		ug/l	--		--		--		--	
TPH, SGT-HEM	---	5,000		ug/l	--		*4000*	*U*	--		--	
Phenolics, Total	---	1,080	300	ug/l	--		--		--		--	
Chromium, Hexavalent	18540-29-9	323	74	ug/l	10	U	10	U	10	U	--	
MCP General Chemistry												
Cyanide, Total	57-12-5	178,000	5.2	ug/l	--		5	U	--		--	
MCP Total Metals												
Antimony, Total	7440-36-0	206	640	ug/l	4	U	4	U	4	U	--	
Arsenic, Total	7440-38-2	104	10	ug/l	8		6.5		1.6		--	
Cadmium, Total	7440-43-9	10.2	0.25	ug/l	0.5	U	0.5	U	0.5	U	--	
Chromium, Total	7440-47-3			ug/l	5		1	U	1.3		--	
Copper, Total	7440-50-8	242	9	ug/l	18.5		2.1		2.1		--	
Iron, Total	7439-89-6	5,000	1,000	ug/l	25,400		12,500		21,600		--	
Lead, Total	7439-92-1	160	2.5	ug/l	171.8		24		5.8		--	
Mercury, Total	7439-97-6	0.739	0.77	ug/l	0.2	U	0.2	U	0.2	U	--	
Nickel, Total	7440-02-0	1450	52	ug/l	2.1		2	U	2	U	--	
Selenium, Total	7782-49-2	235.8	5	ug/l	5	U	5	U	5	U	--	
Silver, Total	7440-22-4	35.1	3.2	ug/l	0.5	U	0.5	U	0.5	U	--	
Zinc, Total	7440-66-6	420	120	ug/l	187.2		40.8		54.7		--	
MCP Volatile Organics												
1,1,1,2-Tetrachloroethane	630-20-6			ug/l	--		1	U	--		1	U
1,1,1-Trichloroethane	71-55-6	200		ug/l	--		1	U	--		1	U
1,1,2,2-Tetrachloroethane	79-34-5			ug/l	--		1	U	--		1	U
1,1,2-Trichloroethane	79-00-5	5.0		ug/l	--		1	U	--		1	U
1,1-Dichloroethane	75-34-3	70		ug/l	--		1	U	--		1	U
1,1-Dichloroethene	75-35-4	3.2		ug/l	--		1	U	--		1	U
1,1-Dichloropropene	563-58-6			ug/l	--		2	U	--		2	U
1,2,3-Trichlorobenzene	87-61-6			ug/l	--		2	U	--		2	U
1,2,3-Trichloropropane	96-18-4			ug/l	--		2	U	--		2	U
1,2,4-Trichlorobenzene	120-82-1			ug/l	--		2	U	--		2	U
1,2,4-Trimethylbenzene	95-63-6			ug/l	--		2	U	--		2	U
1,2-Dibromo-3-chloropropane	96-12-8			ug/l	--		2	U	--		2	U
1,2-Dibromoethane	106-93-4	0.05		ug/l	--		*2*	*U*	--		*2*	*U*
1,2-Dichlorobenzene	95-50-1	600		ug/l	--		1	U	--		1	U
1,2-Dichloroethane	107-06-2	5.0		ug/l	--		1	U	--		1	U
1,2-Dichloroethene, Total	540-59-0			ug/l	--		1	U	--		1	U
1,2-Dichloropropane	78-87-5			ug/l	--		1	U	--		1	U
1,3,5-Trimethylbenzene	108-67-8			ug/l	--		2	U	--		2	U
1,3-Dichlorobenzene	541-73-1	320		ug/l	--		1	U	--		1	U
1,3-Dichloropropane	142-28-9			ug/l	--		2	U	--		2	U
1,3-Dichloropropene, Total	542-75-6			ug/l	--		*0.4*	*U*	--		*0.4*	*U*
1,4-Dichlorobenzene	106-46-7	5.0		ug/l	--		1	U	--		1	U
1,4-Dioxane	123-91-1	200		ug/l	--		*250*	*U*	--		*250*	*U*
2,2-Dichloropropane	594-20-7			ug/l	--		2	U	--		2	U
2-Hexanone	591-78-6			ug/l	--		5	U	--		5	U
Acetone	67-64-1	7970		ug/l	--		5	U	--		5	U
Benzene	71-43-2	5, Note 1		ug/l	--		0.5	U	--		0.5	U
Bromobenzene	108-86-1			ug/l	--		2	U	--		2	U
Bromochloromethane	74-97-5			ug/l	--		2	U	--		2	U
Bromodichloromethane	75-27-4			ug/l	--		1	U	--		1	U
Bromoform	75-25-2			ug/l	--		2	U	--		2	U
Bromomethane	74-83-9			ug/l	--		2	U	--		2	U
Carbon disulfide	75-15-0			ug/l	--		2	U	--		2	U
Carbon tetrachloride	56-23-5	4.4	1.6	ug/l	--		1	U	--		1	U
Chlorobenzene	108-90-7			ug/l	--		1	U	--		1	U
Chloroethane	75-00-3			ug/l	--		2	U	--		2	U
Chloroform	67-66-3			ug/l	--		1	U	--		1	U
Chloromethane	74-87-3			ug/l	--		2	U	--		2	U
cis-1,2-Dichloroethene	156-59-2	70		ug/l	--		1	U	--		1	U
cis-1,3-Dichloropropene	10061-01-5			ug/l	--		*0.4*	*U*	--		*0.4*	*U*
Dibromochloromethane	124-48-1			ug/l	--		1	U	--		1	U
Dibromomethane	74-95-3			ug/l	--		2	U	--		2	U
Dichlorodifluoromethane	75-71-8			ug/l	--		2	U	--		2	U
Diethyl ether	60-29-7			ug/l	--		2	U	--		2	U
Diisopropyl Ether	108-20-3			ug/l	--		2	U	--		2	U
Ethyl-Tert-Butyl-Ether	637-92-3			ug/l	--		2	U	--		2	U
Ethylbenzene	100-41-4	Note 1		ug/l	--		1	U	--		1	U
Hexachlorobutadiene	87-68-3			ug/l	--		*0.6*	*U*	--		*0.6*	*U*
Isopropylbenzene	98-82-8			ug/l	--		2	U	--		2	U
Methyl ethyl ketone	78-93-3			ug/l	--		5	U	--		5	U
Methyl isobutyl ketone	108-10-1			ug/l	--		5	U	--		5	U
Methyl tert butyl ether	1634-04-4	70	20	ug/l	--		6.6		--		2	U
Methylene chloride	75-09-2	4.6		ug/l	--		2	U	--		2	U
n-Butylbenzene	104-51-8			ug/l	--		2	U	--		2	U
n-Propylbenzene	103-65-1			ug/l	--		2	U	--		2	U
Naphthalene	91-20-3			ug/l	--		2	U	--		2	U
o-Chlorotoluene	95-49-8			ug/l	--		2	U	--		2	U
o-Xylene	95-47-6	N/A		ug/l	--		1	U	--		1	U
p-Chlorotoluene	106-43-4			ug/l	--		2	U	--		2	U
p-Isopropyltoluene	99-87-6			ug/l	--		2	U	--		2	U
p/m-Xylene	179601-23-1	N/A		ug/l	--		2	U	--		2	U
sec-Butylbenzene	135-98-8			ug/l	--		2	U	--		2	U
Styrene	100-42-5			ug/l	--		1	U	--		1	U
tert-Butylbenzene	98-06-6			ug/l	--		2	U	--		2	U
Tertiary-Amyl Methyl Ether	994-05-8	90		ug/l	--		2	U	--		2	U
Tetrachloroethene	127-18-4	5	3.3	ug/l	--		1	U	--		1	U
Tetrahydrofuran	109-99-9			ug/l	--		2	U	--		2	U
Toluene	108-88-3	Note 1		ug/l	--		1	U	--		1	U
trans-1,2-Dichloroethene	156-60-5			ug/l	--		1	U	--		1	U
trans-1,3-Dichloropropene	10061-02-6			ug/l	--		*0.4*	*U*	--		*0.4*	*U*
Trichloroethene	79-01-6	5.0		ug/l	--		1	U	--		1	U
Trichlorofluoromethane	75-69-4			ug/l	--		2	U	--		2	U
Vinyl chloride	75-01-4	2.0		ug/l	--		1	U	--		1	U
Xylenes, Total	1330-20-7	Note 1		ug/l	--		1	U	--		1	U
Total BTEX	-	100, Note 1			--		ND		--		ND	

Notes:

Bold Value: Detected above laboratory reporting limit

Italicized Value : Reporting limits greater than applicable MassDEP standards

Outlined Values: Exceeds RGP TBEL

Yelow shaded values: Exceedes RGP WQBEL

ND: Non-detect

ug/l - micrograms/liter

RGP TBEL: National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) Technology Based Effluent Limit (TBEL), 2017

RGP WQBEL: National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) Water Quality Based Effluent Limit (WQBEL), 2017

1) Total BTEX effluent limit of 100 µg/L

2) Total Phthalates is the sum of: diethylhexyl phthalate (CAS No. 117-81-7); butyl benzyl phthalate (CAS No. 85-68-7); di-n-butyl phthalate (CAS No. 84-74-2); diethyl phthalate (CAS No. 84-66-2); dimethyl phthalate (CAS No. 131-11-3); di-n-octyl phthalate (CAS No. 117-84-0). The effluent limitations for total phthalates and the individual phthalate, diethylhexyl phthalate, only apply if these parameters are present.

3) Total Group I Polycyclic Aromatic Hydrocarbons, sum of Group I < 1.0 ug/L (individual < 0.1 ug/L)

4) Total Group II Polycyclic Aromatic Hydrocarbons: Acenaphthene; acenaphthylene; anthracene; benzo(g,h,i)perylene;fluoranthene; fluorene; naphthalene; phenanthrene; pyrene

Table 2 (Continued)
Groundwater Sample Results Compared to Reduced RGP Parameter List
TMVL School - Cambridge, MA

CLIENT SAMPLE ID					MW-3D		MW-7D		MW-14S		TRIP BLANK	
SAMPLING DATE					21-APR-21		21-APR-21		21-APR-21		21-APR-21	
LAB SAMPLE ID					L2121136-01		L2121136-02		L2121136-03		L2121136-04	
					L2120325-03		L2120325-04		L2120325-05			
	CAS Number	RGP TBEL	RGP WQBEL	Units		Qual		Qual		Qual		Qual
MCP Semivolatile Organics												
1,2,4-Trichlorobenzene	120-82-1			ug/l	--		5	U	5	U	--	
1,2-Dichlorobenzene	95-50-1	600		ug/l	--		2	U	2	U	--	
1,3-Dichlorobenzene	541-73-1	320		ug/l	--		2	U	2	U	--	
1,4-Dichlorobenzene	106-46-7	5.0		ug/l	--		2	U	2	U	--	
2,4,5-Trichlorophenol	95-95-4			ug/l	--		5	U	5	U	--	
2,4,6-Trichlorophenol	88-06-2			ug/l	--		5	U	5	U	--	
2,4-Dichlorophenol	120-83-2			ug/l	--		5	U	5	U	--	
2,4-Dimethylphenol	105-67-9			ug/l	--		5	U	5	U	--	
2,4-Dinitrophenol	51-28-5			ug/l	--		20	U	20	U	--	
2,4-Dinitrotoluene	121-14-2			ug/l	--		5	U	5	U	--	
2,6-Dinitrotoluene	606-20-2			ug/l	--		5	U	5	U	--	
2-Chlorophenol	95-57-8			ug/l	--		2	U	2	U	--	
2-Methylphenol	95-48-7			ug/l	--		5	U	5	U	--	
2-Nitrophenol	88-75-5			ug/l	--		10	U	10	U	--	
3,3'-Dichlorobenzidine	91-94-1			ug/l	--		5	U	5	U	--	
3-Methylphenol/4-Methylphenol	08-39-4/106-44-5			ug/l	--		5	U	5	U	--	
4-Bromophenyl phenyl ether	101-55-3			ug/l	--		2	U	2	U	--	
4-Chloroaniline	106-47-8			ug/l	--		5	U	5	U	--	
4-Nitrophenol	100-02-7			ug/l	--		10	U	10	U	--	
Acetophenone	98-86-2			ug/l	--		5	U	5	U	--	
Aniline	62-53-3			ug/l	--		2	U	2	U	--	
Azobenzene	103-33-3			ug/l	--		2	U	2	U	--	
Bis(2-chloroethoxy)methane	111-91-1			ug/l	--		5	U	5	U	--	
Bis(2-chloroethyl)ether	111-44-4			ug/l	--		2	U	2	U	--	
Bis(2-chloroisopropyl)ether	108-60-1			ug/l	--		2	U	2	U	--	
Bis(2-ethylhexyl)phthalate	117-81-7	101, Note 2	2.2, Note 2	ug/l	--		3	U	3	U	--	
Butyl benzyl phthalate	85-68-7	Note 2	Note 2	ug/l	--		5	U	5	U	--	
Di-n-butylphthalate	84-74-2	Note 2	Note 2	ug/l	--		5	U	5	U	--	
Di-n-octylphthalate	117-84-0	Note 2	Note 2	ug/l	--		5	U	5	U	--	
Dibenzofuran	132-64-9			ug/l	--		2	U	2	U	--	
Diethyl phthalate	84-66-2	Note 2	Note 2	ug/l	--		5	U	5	U	--	
Dimethyl phthalate	131-11-3	Note 2	Note 2	ug/l	--		5	U	5	U	--	
Isophorone	78-59-1			ug/l	--		5	U	5	U	--	
Nitrobenzene	98-95-3			ug/l	--		2	U	2	U	--	
Phenol	108-95-2	1,080	300	ug/l	--		5	U	5	U	--	
Total Phthalates		190			--		ND		ND		--	
MCP Semivolatile Organics by SIM												
2-Chloronaphthalene	91-58-7			ug/l	--		0.2	U	0.2	U	--	
2-Methylnaphthalene	91-57-6			ug/l	--		0.1	U	0.1	U	--	
Acenaphthene	83-32-9	Group II (Note 4)	Group II (Note 4)	ug/l	--		0.25		0.13		--	
Acenaphthylene	208-96-8	Group II (Note 4)	Group II (Note 4)	ug/l	--		0.1	U	0.1	U	--	
Anthracene	120-12-7	Group II (Note 4)	Group II (Note 4)	ug/l	--		0.1	U	0.1	U	--	
Benzo(a)anthracene	56-55-3	0.1, (Group I, Note 3)	0.0038	ug/l	--		0.1	U	0.1	U	--	
Benzo(a)pyrene	50-32-8	0.1, (Group I, Note 3)	0.0038	ug/l	--		0.1	U	0.1	U	--	
Benzo(b)fluoranthene	205-99-2	0.1, (Group I, Note 3)	0.0038	ug/l	--		0.1	U	0.1	U	--	
Benzo(ghi)perylene	191-24-2	Group II (Note 4)	Group II (Note 4)	ug/l	--		0.1	U	0.1	U	--	
Benzo(k)fluoranthene	207-08-9	0.1, (Group I, Note 3)	0.0038	ug/l	--		0.1	U	0.1	U	--	
Chrysene	218-01-9	0.1, (Group I, Note 3)	0.0038	ug/l	--		0.1	U	0.1	U	--	
Dibenzo(a,h)anthracene	53-70-3	0.1, (Group I, Note 3)	0.0038	ug/l	--		0.1	U	0.1	U	--	
Fluoranthene	206-44-0	Group II (Note 4)	Group II (Note 4)	ug/l	--		0.1	U	0.21		--	
Fluorene	86-73-7	Group II (Note 4)	Group II (Note 4)	ug/l	--		0.11		0.19		--	
Hexachlorobenzene	118-74-1			ug/l	--		0.8	U	0.8	U	--	
Hexachlorobutadiene	87-68-3			ug/l	--		0.5	U	0.5	U	--	
Hexachloroethane	67-72-1			ug/l	--		0.8	U	0.8	U	--	
Indeno(1,2,3-cd)pyrene	193-39-5	0.1, (Group I, Note 3)	0.0038	ug/l	--		0.1	U	0.1	U	--	
Naphthalene	91-20-3	20, Group II (Note 4)		ug/l	--		0.11		0.1	U	--	
Pentachlorophenol	87-86-5	1.0		ug/l	--		0.8	U	0.8	U	--	
Phenanthrene	85-01-8	Group II (Note 4)	Group II (Note 4)	ug/l	--		0.1	U	0.33		--	
Pyrene	129-00-0	Group II (Note 4)	Group II (Note 4)	ug/l	--		0.1	U	0.16		--	
Total Group I PAHs	--	1.0	As individual PAHs	ug/l	--		ND		ND		--	
Total Group II PAHs	--	100		ug/l	--		0.47		1.02		--	

Notes:

Bold Value: Detected above laboratory reporting limit

Italicized Value : Reporting limits greater than applicable MassDEP standards

Outlined Values: Exceeds RGP TBEL

Yelow shaded values: Exceedes RGP WQBEL

ND: Non-detect

ug/l - micrograms/liter

RGP TBEL: National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) Technology Based Effluent Limit (TBEL), 2017

RGP WQBEL: National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) Water Quality Based Effluent Limit (WQBEL), 2017

1) Total BTEX effluent limit of 100 µg/L

2) Total Phthalates is the sum of: diethylhexyl phthalate (CAS No. 117-81-7); butyl benzyl phthalate (CAS No. 85-68-7); di-n-butyl phthalate (CAS No. 84-74-2); diethyl phthalate (CAS No. 84-66-2); dimethyl phthalate (CAS No. 131-11-3); di-n-octyl phthalate (CAS No. 117-84-0). The effluent limitations for total phthalates and the individual phthalate, diethylhexyl phthalate, only apply if these parameters are present.

3) Total Group I Polycyclic Aromatic Hydrocarbons, sum of Group I < 1.0 ug/L (individual < 0.1 ug/L)

4) Total Group II Polycyclic Aromatic Hydrocarbons: Acenaphthene; acenaphthylene; anthracene; benzo(g,h,i)perylene;fluoranthene; fluorene; naphthalene; phenanthrene; pyrene

Table 3
Tobin Montessori and Vassal Lane Upper School
Cambridge, Massachusetts
August 2017 and March 2018 Groundwater Sampling Results

						Sample ID	MW-3S	MW-3S	MW-3D	MW-3D	MW-4S	MW-4S	MW-4D	DUP-1 (MW-4D)	MW-4D	MW-7S	MW-7S	MW-7D	MW-7D	MW-9S	MW-9S	MW-9D	MW-9D	MW-14S	MW-14S	MW-14D	MW-14D
						Sample Collection Date	16-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	17-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18
						Laboratory Order Number	L1728873-01	L1807193-01	L1728873-04	L1807193-02	L1728873-06	L1807193-03	L1728873-05	L1728873-07	L1807193-04	L1728684-01	L1807193-06	L1728684-02	L1807193-05	L1728873-02	L1807193-08	L1728873-01	L1807193-07	L1728684-03	L1807264-02	L1728684-04	L1807264-01
Parameter	Units	GW-1	GW-2	GW-3	RGP TBEL	RGP WQBEL																					
EPH																											
C11-C22 Aromatics	ug/l	NA	NA	NA	NA	NA	< 100	<100	< 100	<100	173	<100	140	109	<100	127	<100	< 100	<100	< 100	<100	< 100	<100	NA	<100	< 100	<100
C11-C22 Aromatics, Adjusted	ug/l	200	50000	5000	NA	NA	< 100	<100	< 100	<100	149	<100	140	109	<100	105	<100	< 100	<100	< 100	<100	< 100	<100	NA	<100	< 100	<100
C19-C36 Aliphatics	ug/l	14000	NA	50000	NA	NA	< 100	<100	< 100	<100	< 100	<100	< 100	< 100	<100	< 100	<100	< 100	<100	< 100	<100	< 100	<100	NA	<100	< 100	<100
C9-C18 Aliphatics	ug/l	700	5000	50000	NA	NA	< 100	<100	< 100	<100	< 100	<100	< 100	< 100	<100	< 100	<100	< 100	<100	< 100	<100	< 100	<100	NA	<100	< 100	<100
GC Volatiles by MAVPH																											
1,1,1,2-Tetrachloroethane	ug/l	5	10	50000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1	< 1	<1
1,1,1-Trichloroethane	ug/l	200	4000	20000	200	200	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,1,2,2-Tetrachloroethane	ug/l	2	9	50000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,1,2-Trichloroethane	ug/l	5	900	50000	5	5	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,1-Dichloroethane	ug/l	70	2000	20000	70	70	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,1-Dichloroethene	ug/l	7	80	30000	3.2	3.2	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,1-Dichloropropene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
1,2,3-Trichlorobenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
1,2,3-Trichloropropane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
1,2,4-Trichlorobenzene	ug/l	70	200	50000	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
1,2,4-Trimethylbenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
1,2-Dibromo-3-chloropropane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
1,2-Dibromoethane	ug/l	0.02	2	50000	0.05	0.05	*< 2*	<2	*< 2*	<2	*< 2*	<2	*< 2*	*< 2*	<2	*< 2*	<2	*< 2*	<2	*< 2*	<2	*< 4*	<2	*< 2*	<2	*< 2*	<2
1,2-Dichlorobenzene	ug/l	600	8000	2000	600	600	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,2-Dichloroethane	ug/l	5	5	20000	5	5	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,2-Dichloroethene (total)	ug/l	NA	NA	NA	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,2-Dichloropropane	ug/l	5	3	50000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,3,5-Trimethylbenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
1,3-Dichlorobenzene	ug/l	100	6000	50000	320	320	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,3-Dichloropropane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
1,3-Dichloropropene, Total	ug/l	0.4	10	200	NA	NA	*< 0.5*	<0.4	*< 0.5*	<0.4	*< 0.5*	<0.4	*< 0.5*	*< 0.5*	<0.4	*< 0.5*	<0.4	*< 0.5*	<0.4	*< 0.5*	<0.4	*< 1*	<0.4	*< 0.5*	<0.4	*< 0.5*	<0.4
1,4-Dichlorobenzene	ug/l	5	60	8000	5	5	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
1,4-Dioxane	ug/l	0.3	6000	50000	200	200	*< 250*	<250	*< 250*	<250	*< 250*	<250	*< 250*	*< 250*	<250	*< 250*	<250	*< 250*	<250	*< 250*	<250	*< 500*	<250	*< 250*	<250	*< 250*	<250
2,2-Dichloropropane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
2-Butanone	ug/l	4000	50000	50000	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 10	<5	< 5	<5	< 5	<5
2-Hexanone	ug/l	NA	NA	NA	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 10	<5	< 5	<5	< 5	<5
4-Methyl-2-pentanone	ug/l	350	50000	50000	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 10	<5	< 5	<5	< 5	<5
Acetone	ug/l	6300	50000	50000	7970	7970	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 10	<5	21	<5	< 5	6.7
Benzene	ug/l	5	1000	10000	5 (Note 1)	5 (Note 1)	< 0.5	<0.5	< 0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	<0.5	< 0.5	<0.5	< 0.5	<0.5	< 0.5	<0.5	< 1	<0.5	< 0.5	<0.5	< 0.5	<0.5

Table 3
Tobin Montessori and Vassal Lane Upper School
Cambridge, Massachusetts
August 2017 and March 2018 Groundwater Sampling Results

Sample ID							MW-3S	MW-3S	MW-3D	MW-3D	MW-4S	MW-4S	MW-4D	DUP-1 (MW-4D)	MW-4D	MW-7S	MW-7S	MW-7D	MW-7D	MW-9S	MW-9S	MW-9D	MW-9D	MW-14S	MW-14S	MW-14D	MW-14D
Sample Collection Date							16-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	17-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18
Laboratory Order Number							L1728873-01	L1807193-01	L1728873-04	L1807193-02	L1728873-06	L1807193-03	L1728873-05	L1728873-07	L1807193-04	L1728684-01	L1807193-06	L1728684-02	L1807193-05	L1728873-02	L1807193-08	L1728873-01	L1807193-07	L1728684-03	L1807264-02	L1728684-04	L1807264-01
Parameter	Units	GW-1	GW-2	GW-3	RGP TBEL	RGP WQBEL																					
Bromobenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Bromochloromethane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Bromodichloromethane	ug/l	3	6	50000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
Bromoform	ug/l	4	700	50000	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Bromomethane	ug/l	10	7	800	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Carbon disulfide	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Carbon tetrachloride	ug/l	5	2	5000	4.4	1.6	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
Chlorobenzene	ug/l	100	200	1000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
Chloroethane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Chloroform	ug/l	70	50	20000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
Chloromethane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
cis-1,2-Dichloroethene	ug/l	70	20	50000	70	70	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
cis-1,3-Dichloropropene	ug/l	0.4	10	200	NA	NA	< 0.5	<0.4	< 0.5	<0.4	< 0.5	<0.4	< 0.5	< 0.5	<0.4	< 0.5	<0.4	< 0.5	<0.4	< 0.5	<0.4	< 1	<0.4	< 0.5	<0.4	< 0.5	<0.4
Dibromochloromethane	ug/l	2	20	50000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
Dibromomethane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Dichlorodifluoromethane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Ethyl ether	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Ethyl-Tert-Butyl-Ether	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Ethylbenzene	ug/l	700	20000	5000	Note 1	Note 1	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
Hexachlorobutadiene	ug/l	0.6	50	3000	NA	NA	< 0.6	<0.6	< 0.6	<0.6	< 0.6	<0.6	< 0.6	< 0.6	<0.6	< 0.6	<0.6	< 0.6	<0.6	< 0.6	<0.6	< 1.2	<0.6	< 0.6	<0.6	< 0.6	<0.6
Isopropyl Ether	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Isopropylbenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Methyl tert-butyl ether	ug/l	70	50000	50000	70	20	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	2.2	2.7	3.3	< 2	<2	400	400	< 2	<2	< 2	<2
Methylene chloride	ug/l	5	2000	50000	4.6	4.6	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
n-Butylbenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
n-Propylbenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Naphthalene	ug/l	140	700	20000	20	20	< 2	<2	< 2	<2	4.5	<2	9.4	9.9	<2	26	4.7	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
o-Chlorotoluene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
o-Xylene	ug/l	10000	3000	5000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
p-Chlorotoluene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
p-Isopropyltoluene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
p/m-Xylene	ug/l	10000	3000	5000	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
sec-Butylbenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Styrene	ug/l	100	100	6000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
tert-Butylbenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Tertiary-Amyl Methyl Ether	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	25	22	< 2	<2	< 2	<2
Tetrachloroethene	ug/l	5	50	30000	5	3.3	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	4.4	<1	< 1	<1	< 1	<1
Tetrahydrofuran	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Toluene	ug/l	1000	50000	40000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
trans-1,2-Dichloroethene	ug/l	100	80	50000	NA	NA	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
trans-1,3-Dichloropropene	ug/l	0.4	10	200	NA	NA	< 0.5	<0.4	< 0.5	<0.4	< 0.5	<0.4	< 0.5	< 0.5	<0.4	< 0.5	<0.4	< 0.5	<0.4	< 0.5	<0.4	< 1	<0.4	< 0.5	<0.4	< 0.5	<0.4
Trichloroethene	ug/l	5	5	5000	5	5	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
Trichlorofluoromethane	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 4	<2	< 2	<2	< 2	<2
Vinyl chloride	ug/l	2	2	50000	2	2	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
Xylene (Total)	ug/l	10000	3000	5000	Note 1	Note 1	< 1	<1	< 1	<1	< 1	<1	< 1	< 1	<1	< 1	<1	< 1	<1	< 1	<1	< 2	<1	< 1	<1	< 1	<1
BTEX (Total)	ug/l	NA	NA	NA	100 (Note 1)	100 (Note 1)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 3
Tobin Montessori and Vassal Lane Upper School
Cambridge, Massachusetts
August 2017 and March 2018 Groundwater Sampling Results

Parameter	Units	GW-1	GW-2	GW-3	RGP TBEL	RGP WQBEL	MW-3S	MW-3S	MW-3D	MW-3D	MW-4S	MW-4S	MW-4D	DUP-1 (MW-4D)	MW-4D	MW-7S	MW-7S	MW-7D	MW-7D	MW-9S	MW-9S	MW-9D	MW-9D	MW-14S	MW-14S	MW-14D	MW-14D
Sample Collection Date							16-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	17-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18
Laboratory Order Number							L1728873-01	L1807193-01	L1728873-04	L1807193-02	L1728873-06	L1807193-03	L1728873-05	L1728873-07	L1807193-04	L1728684-01	L1807193-06	L1728684-02	L1807193-05	L1728873-02	L1807193-08	L1728873-01	L1807193-07	L1728684-03	L1807264-02	L1728684-04	L1807264-01
MCP Semivolatile Organics																											
1,2,4-Trichlorobenzene	ug/l	70	200	50000	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
1,2-Dichlorobenzene	ug/l	600	8000	2000	600	600	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
1,3-Dichlorobenzene	ug/l	100	6000	50000	320	320	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
1,4-Dichlorobenzene	ug/l	5	60	8000	5	5	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
2,4,5-Trichlorophenol	ug/l	200	50000	3000	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
2,4,6-Trichlorophenol	ug/l	10	5000	500	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
2,4-Dichlorophenol	ug/l	10	30000	2000	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
2,4-Dimethylphenol	ug/l	60	40000	50000	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
2,4-Dinitrophenol	ug/l	200	50000	20000	NA	NA	< 20	<20	< 20	<20	< 20	<20	< 20	< 20	<20	< 20	<20	< 20	<20	< 20	<20	< 20	<20	< 20	<20	< 20	<20
2,4-Dinitrotoluene	ug/l	30	20000	50000	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
2,6-Dinitrotoluene	ug/l	NA	NA	NA	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
2-Chlorophenol	ug/l	10	20000	7000	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
2-Methylphenol	ug/l	NA	NA	NA	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
2-Nitrophenol	ug/l	NA	NA	NA	NA	NA	< 10	<10	< 10	<10	< 10	<10	< 10	< 10	<10	< 10	<10	< 10	<10	< 10	<10	< 10	<10	< 10	<10	< 10	<10
3,3'-Dichlorobenzidine	ug/l	80	NA	2000	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
3-Methylphenol/4-Methylphenol	ug/l	NA	NA	NA	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	19	<5	< 5	<5
4-Bromophenyl phenyl ether	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
4-Chloroaniline	ug/l	20	30000	300	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
4-Nitrophenol	ug/l	NA	NA	NA	NA	NA	< 10	<10	< 10	<10	< 10	<10	< 10	< 10	<10	< 10	<10	< 10	<10	< 10	<10	< 10	<10	< 10	<10	< 10	<10
Acetophenone	ug/l	NA	NA	NA	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
Aniline	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
Azobenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
Bis(2-chloroethoxy)methane	ug/l	NA	NA	NA	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
Bis(2-chloroethyl)ether	ug/l	30	30	50000	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
Bis(2-chloroisopropyl)ether	ug/l	30	100	50000	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
Bis(2-ethylhexyl)phthalate	ug/l	6	NA	50000	101 (Note 2)	2.2 (Note 2)	< 3	<3	< 3	<3	< 3	<3	< 3	< 3	<3	< 3	<3	< 3	<3	< 3	<3	< 3	<3	< 3	<3	< 3	<3
Butyl benzyl phthalate	ug/l	NA	NA	NA	Note 2	Note 2	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
Di-n-butylphthalate	ug/l	NA	NA	NA	Note 2	Note 2	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
Di-n-octylphthalate	ug/l	NA	NA	NA	Note 2	Note 2	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
Dibenzofuran	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	2.6	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
Diethyl phthalate	ug/l	2000	50000	9000	Note 2	Note 2	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
Dimethyl phthalate	ug/l	300	50000	50000	Note 2	Note 2	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
Isophorone	ug/l	NA	NA	NA	NA	NA	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5
Nitrobenzene	ug/l	NA	NA	NA	NA	NA	< 2	<2	< 2	<2	< 2	<2	< 2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2	< 2	<2
Phenol	ug/l	1000	50000	2000	1,080	300	< 5	<5	< 5	<5	< 5	<5	< 5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	<5	< 5	8.9
Pyridine	ug/l	NA	NA	NA	NA	NA	< 3.5	<3.5	< 3.5	<3.5	< 3.5	<3.5	< 3.5	< 3.5	<3.5	< 3.5	<3.5	< 3.5	<3.5	< 3.5	<3.5	< 3.5	<3.5	< 3.5	<3.5	< 3.5	<3.5
Total Phthalates	ug/l	NA	NA	NA	190 (Note 2)	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MCP Semivolatile Organics by SIM																											
2-Chloronaphthalene	ug/l	NA	NA	NA	NA	NA	< 0.2	<0.2	< 0.2	<0.2	< 0.2	<0.2	< 0.2	< 0.2	<0.2	< 0.2	<0.2	< 0.2	<0.2	< 0.2	<0.2	< 0.2	<0.2	< 0.2	<0.2	< 0.2	<0.2
2-Methylnaphthalene	ug/l	10	2000	20000	NA	NA	0.56	0.11	< 0.1	<0.1	1.2	0.26	2.0	2.1	0.69	2.8	0.4	0.14	<0.1	0.12	<0.1	< 0.1	<0.1	0.29	<0.1	0.14	<0.1
Acenaphthene	ug/l	20	NA	10000	Group II (Note 4)	Group II (Note 4)	3.8	1.3	0.42	0.41	11	5.2	4.5	4.8	2.8	5.7	2.2	1.6	0.38	1.0	<0.1	0.57	0.42	2.0	1.1	3.0	2.2
Acenaphthylene	ug/l	30	10000	40	Group II (Note 4)	Group II (Note 4)	0.10	<0.1	< 0.1	0.1	0.20	0.12	0.34	0.34	0.29	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	0.13	<0.1
Anthracene	ug/l	60	NA	30	Group II (Note 4)	Group II (Note 4)	0.78	0.2	< 0.1	<0.1	1.5	0.63	0.94	1.1	1.1	2	0.49	0.23	<0.1	0.21	<0.1	< 0.1	<0.1	0.78	0.26	0.55	0.36
Benzo[a]anthracene	ug/l	1	NA	1000	0.1 (Group I, Note 3)	0.0038	< 0.1	0.12	< 0.1	<0.1	< 0.1	0.23	0.12	0.18	0.97	0.11	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	0.32	<0.1	0.33	0.18
Benzo[a]pyrene	ug/l	0.2	NA	500	0.1 (Group I, Note 3)	0.0038	< 0.1	0.12	< 0.1	<0.1	< 0.1	0.22	< 0.1	0.12	0.97	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	0.25	<0.1	0.28	0.17
Benzo[b]fluoranthene	ug/l	1	NA	400	0.1 (Group I, Note 3)	0.0038	< 0.1	0.16	< 0.1	<0.1	< 0.1	0.31	0.10	0.16	1.3	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	0.32	<0.1	0.40	0.24
Benzo(g,h,i)perylene	ug/l	50	NA	20	Group II (Note 4)	Group II (Note 4)	< 0.1	<0.1	< 0.1	0.13	< 0.1	0.16	< 0.1	< 0.1	0.76	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	0.16	<0.1	0.27	0.13
Benzo[k]fluoranthene	ug/l	1	NA	100	0.1 (Group I, Note 3)	0.0038	< 0.1	<0.1	< 0.1	<0.1	< 0.1	0.1	< 0.1	< 0.1	0.45	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	0.13	<0.1	0.16	<0.1
Chrysene	ug/l	2	NA	70	0.1 (Group I, Note 3)	0.0038	< 0.1	0.11	< 0.1	<0.1	< 0.1	0.21	0.14	0.21	0.96	0.13	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	0.36	<0.1	0.37	0.18
Dibenz(a,h)anthracene	ug/l	0.5	NA	40	0.1 (Group I, Note 3)	0.0038	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	< 0.1	0.17	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1
Fluoranthene	ug/l	90	NA	200	Group II (Note 4)	Group II (Note 4)	1.0	0.5	< 0.1	0.12	0.84	0.76	0.93	1.1	2.9	1.8	0.54	0.27	<0.1	0.32	<0.1	0.15	<0.1	1.3	0.39	0.91	0.68
Fluorene	ug/l	30	NA	40	Group II (Note 4)	Group II (Note 4)	3.2	0.94	0.15	<0.1	6.6	3.5	3.3	3.4	2.6	4.1	1.7	0.80	0.22	0.64	<0.1	0.17	<0.1	2.6	1.8	1.4	1.2
Hexachlorobenzene	ug/l	1	1	6000	NA	NA	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8
Hexachlorobutadiene	ug/l	0.6	50	3000	NA	NA	< 0.5	<0.6	< 0.5	<0.6	< 0.5	<0.6	< 0.5	< 0.5	<0.6	< 0.5	<0.6	< 0.5	<0.6	< 0.5	<0.6	< 0.5	<0.6	< 0.5	<0.5	< 0.5	<0.5
Hexachloroethane	ug/l	8	100	50000	NA	NA	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8
Indeno[1,2,3-cd]pyrene	ug/l	0.5	NA	100	0.1 (Group I, Note 3)	0.0038	< 0.1	<0.1	< 0.1	<0.1	< 0.1	0.15	< 0.1	< 0.1	0.68	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	0.18	<0.1	0.26	0.12
Naphthalene	ug/l	140	700	20000	20, Group II (Note 4)	20, Group II (Note 4)	1.3	<2	0.14	<2	2.8	<2	5.8	6.1	<2	10	4.7	0.39	<2	0.69	<2	0.13	<2	0.96	0.24	0.26	0.26
Pentachlorophenol	ug/l	1	NA	200	1	1	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8	< 0.8	<0.8
Phenanthrene	ug/l	40	NA	10000	Group II (Note 4)	Group II (Note 4)	3.4	0.4	0.34	0.16	9.3	3.2	5.4	6.0	5.5	9.9	2.2	1.1	0.24	0.42	<0.1	0.50	0.14	4.2	1.4	1.9	1.1
Pyrene	ug/l	60	NA	20	Group II (Note 4)	Group II (Note 4)	0.75	0.49	< 0.1	0.11	0.56	0.6	0.63	0.75	2.2	1.3	0.46	0.21	<0.1	0.22	<0.1	0.11	<0.1	0.90	0.25	0.66	0.49
Total Group I PAHs	ug/l	NA	NA	NA	1 (Note 4)	NA	ND	0.51	ND	ND	ND	1.22	0.36	0.67	11.76	0.24	ND	ND	ND	ND	ND	ND	ND	1.56	ND	2.07	0.89
Total Group II PAHs	ug/l	NA	NA	NA	100	100	14.3	3.63	1.05	1.03	32.80	13.38	21.84	23.59	17.05	34.80	11.8	4.60	0.84	3.50	ND	1.63	0.56	12.90	5.18	9.08	5.79
MCP 1,4 Dioxane by 8270D SIM																											
1,4-Dioxane	ug/l	0.3	6000	50000	200	200	< 0.142	<0.15	< 0.142	<0.142	< 0.147	<0.142	< 0.142	< 0.144	<0.144	< 0.147	<0.144	< 0.144	<0.15	< 0.147	<0.147	0.198	0.158	< 0.144	<0.147	< 0.144	<0.147
MCP Polychlorinated Biphenyls																											
PCBs, Total	ug/l	0.5	5	10	0.000064	0.000064	< 0.25	<0.25	< 0.25	<0.25	< 0.25	<0.25	< 0.25	< 0.25	<0.25	< 0.25	<0.25	< 0.25	<0.25	< 0.25	<0.25	< 0.25	<0.25	< 0.25	<0.25	< 0.25	<0.25

Table 3
Tobin Montessori and Vassal Lane Upper School
Cambridge, Massachusetts
August 2017 and March 2018 Groundwater Sampling Results

						Sample ID	MW-3S	MW-3S	MW-3D	MW-3D	MW-4S	MW-4S	MW-4D	DUP-1 (MW-4D)	MW-4D	MW-7S	MW-7S	MW-7D	MW-7D	MW-9S	MW-9S	MW-9D	MW-9D	MW-14S	MW-14S	MW-14D	MW-14D
						Sample Collection Date	16-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	01-MAR-18	17-AUG-17	17-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18	16-AUG-17	01-MAR-18
						Laboratory Order Number	L1728873-01	L1807193-01	L1728873-04	L1807193-02	L1728873-06	L1807193-03	L1728873-05	L1728873-07	L1807193-04	L1728684-01	L1807193-06	L1728684-02	L1807193-05	L1728873-02	L1807193-08	L1728873-01	L1807193-07	L1728684-03	L1807264-02	L1728684-04	L1807264-01
Parameter	**Units**	**GW-1**	**GW-2**	**GW-3**	**RGP TBEL**	**RGP WQBEL**																					
Metals by 6010 (Total)																											
Antimony	ug/l	6	NA	8000	206	640	< 4	NA	< 4	NA	< 4	NA	< 4	< 4	NA	< 4	NA	< 4	NA	< 4	NA	< 4	NA	< 4	NA	< 4	NA
Arsenic	ug/l	10	NA	900	104	10	< 5	NA	8	NA	9	NA	6	6	NA	< 5	NA	< 5	NA	6	NA	28	NA	11	NA	< 5	NA
Barium	ug/l	2000	NA	50000	NA	NA	170	NA	303	NA	716	NA	608	600	NA	3660	NA	2060	NA	114	NA	70	NA	492	NA	795	NA
Beryllium	ug/l	4	NA	200	NA	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Cadmium	ug/l	5	NA	4	10.2	0.25	< 4	NA	< 4	NA	< 4	NA	< 4	< 4	NA	< 4	NA	< 4	NA	< 4	NA	< 4	NA	< 4	NA	< 4	NA
Chromium	ug/l	100	NA	300	85	85	< 10	NA	< 10	NA	< 10	NA	< 10	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA
Lead	ug/l	15	NA	10	160	2.5	< 10	NA	**67**	NA	< 10	NA	**31**	**29**	NA	< 10	NA	**14**	NA	**26**	NA	**11**	NA	**65**	NA	< 10	NA
Nickel	ug/l	100	NA	200	1,450	52	< 25	NA	< 25	NA	< 25	NA	< 25	< 25	NA	< 25	NA	< 25	NA	< 25	NA	< 25	NA	< 25	NA	< 25	NA
Selenium	ug/l	50	NA	100	235.8	5	< 10	NA	< 10	NA	< 10	NA	< 10	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA
Silver	ug/l	100	NA	7	35.1	3.2	< 7	NA	< 7	NA	< 7	NA	< 7	< 7	NA	< 7	NA	< 7	NA	< 7	NA	< 7	NA	< 7	NA	< 7	NA
Thallium	ug/l	2	NA	3000	NA	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Vanadium	ug/l	30	NA	4000	NA	NA	< 10	NA	< 10	NA	< 10	NA	< 10	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA
Zinc	ug/l	5000	NA	900	420	120	< 50	NA	54	NA	< 50	NA	< 50	< 50	NA	< 50	NA	< 50	NA	< 50	NA	< 50	NA	234	NA	< 50	NA
Metals by 7470A (Total)																											
Mercury	ug/l	2	NA	20	0.739	0.77	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	NA
MCP Dissolved Metals																											
Antimony, Dissolved	ug/l	6	NA	8000	206	640	NA	<4	NA	<4	NA	<4	NA	NA	<4	NA	<4	NA	<4	NA	<4	NA	<4	NA	<4	NA	<4
Arsenic, Dissolved	ug/l	10	NA	900	104	10	NA	<5	NA	6.6	NA	<5	NA	NA	<5	NA	<5	NA	<5	NA	<5	NA	40.2	NA	5.5	NA	<5
Barium, Dissolved	ug/l	2000	NA	50000	NA	NA	NA	49	NA	262	NA	646	NA	NA	729	NA	526	NA	2140	NA	113	NA	134	NA	833	NA	1150
Beryllium, Dissolved	ug/l	4	NA	200	NA	NA	NA	<0.5	NA	<0.5	NA	<0.5	NA	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5
Cadmium, Dissolved	ug/l	5	NA	4	10.2	0.25	NA	<4	NA	<4	NA	<4	NA	NA	<4	NA	<4	NA	<4	NA	<4	NA	<4	NA	<4	NA	<4
Chromium, Dissolved	ug/l	100	NA	300	85	85	NA	<10	NA	<10	NA	<10	NA	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10
Lead, Dissolved	ug/l	15	NA	10	160	2.5	NA	<10	NA	<10	NA	<10	NA	NA	**77**	NA	<10	NA	<10	NA	**54**	NA	<10	NA	<10	NA	<10
Mercury, Dissolved	ug/l	2	NA	20	0.739	0.77	NA	<0.2	NA	<0.2	NA	<0.2	NA	NA	<0.2	NA	<0.2	NA	<0.2	NA	<0.2	NA	<0.2	NA	<0.2	NA	<0.2
Nickel, Dissolved	ug/l	100	NA	200	1450	52	NA	<25	NA	<25	NA	<25	NA	NA	<25	NA	<25	NA	<25	NA	<25	NA	<25	NA	<25	NA	<25
Selenium, Dissolved	ug/l	50	NA	100	235.8	5	NA	<10	NA	<10	NA	<10	NA	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10
Silver, Dissolved	ug/l	100	NA	7	35.1	3.2	NA	<7	NA	<7	NA	<7	NA	NA	<7	NA	<7	NA	<7	NA	<7	NA	<7	NA	<7	NA	<7
Thallium, Dissolved	ug/l	2	NA	3000	NA	NA	NA	<0.5	NA	<0.5	NA	<0.5	NA	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.5
Vanadium, Dissolved	ug/l	30	NA	4000	NA	NA	NA	<10	NA	<10	NA	<10	NA	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10
Zinc, Dissolved	ug/l	5000	NA	900	420	120	NA	<50	NA	<50	NA	<50	NA	NA	<50	NA	60	NA	<50	NA	224	NA	<50	NA	<50	NA	<50

Notes:
All wells compared to GW-1 and GW-3
Wells MW-9S/9D and MW-14S/14D are also compared to GW-2
Gray Shaded Values: Exceed GW-1 Standards
Underlined Values: Exceed GW-2 Standards
Bolded Value: Exceeds GW-3 Standards
Yellow shaded values: Exceeds RGP Standards
Red text: Exceeds RGP Standards in addition to GW Standards
< #: Not detected to the limit indicated
Italicized Value : Reporting limits greater than applicable MassDEP standards
ug/l - micrograms/liter
B - Compound was found in the blank and sample.
F1 - MS and/or MSD Recovery is outside acceptance limits.
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
J B - Compound was found in the blank and sample.
NA - Not Applicable
GW1 - Concentrations based on the use of groundwater as drinking water, either currently or in the foreseeable future.
GW2 - Concentrations based on the potential for volatile material to migrate into indoor air.
GW3 - Concentrations based on the potential environmental effects resulting from contaminated groundwater discharging to surface water.
RGP TBEL: National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) Technology Based Effluent Limit (TBEL), 2017
RGP WQBEL: National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) Water Quality Based Effluent Limit (WQBEL), 2017
UCL - Upper Concentration Limits in groundwater and soil are promulgated to minimize potential risks associated with uncontrolled environmental contamination, and the costs associated with cumulative anthropogenic contributions to background.

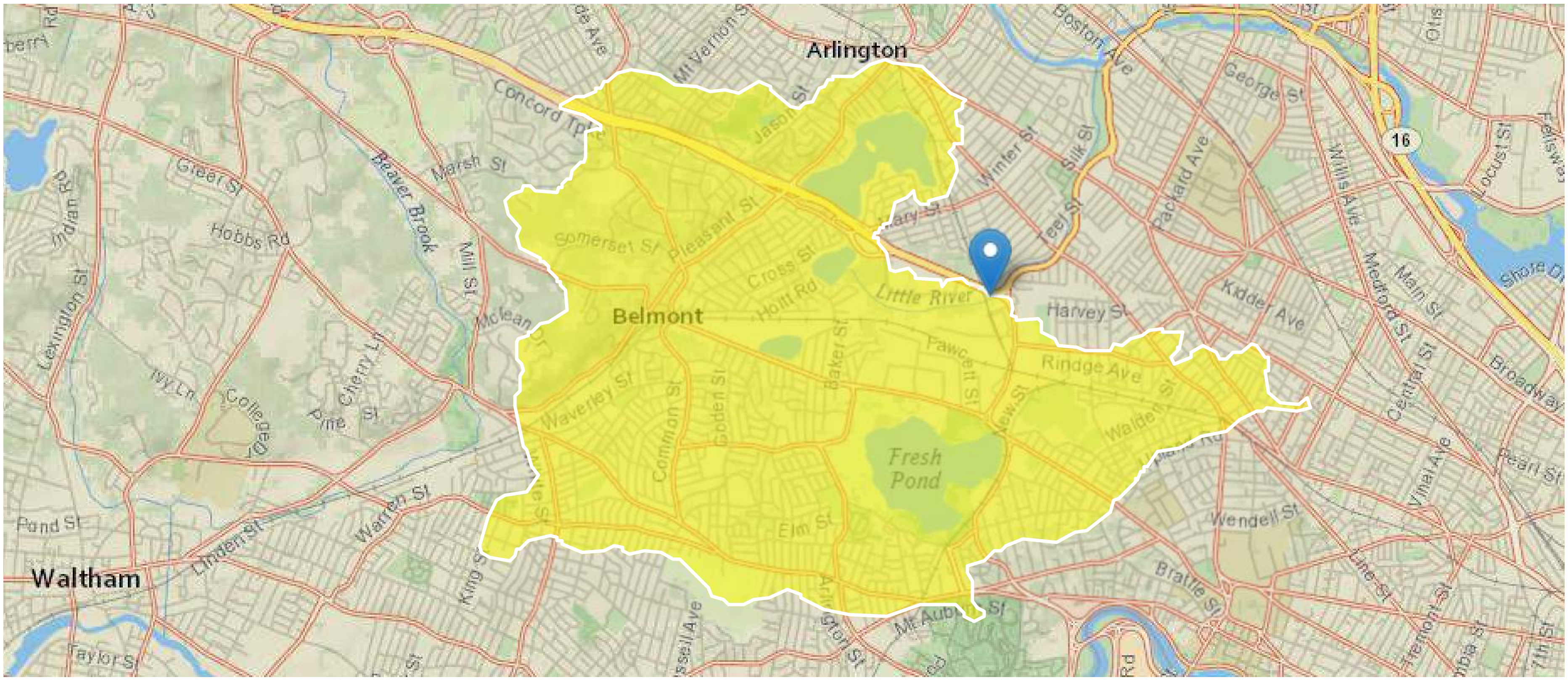
1.) Total BTEX effluent limit of 100 μg/L
2.) Total Phthalates is the sum of: diethylhexyl phthalate (CAS No. 117-81-7); butyl benzyl phthalate (CAS No. 85-68-7); di-n-butyl phthalate (CAS No. 84-74-2); diethyl phthalate (CAS No. 84-66-2); dimethyl phthalate (CAS No. 131-11-3); di-n-octyl phthalate (CAS No. 117-84-0). The effluent limitations for total phthalates and the individual phthalate, diethylhexyl phthalate, only apply if these parameters are present.
3.) Total Group I Polycyclic Aromatic Hydrocarbons, sum of Group I < 1.0 ug/L (individual < 0.1 ug/L)
4.) Total Group II Polycyclic Aromatic Hydrocarbons: Acenaphthene; acenaphthylene; anthracene; benzo(g,h,i)perylene;fluoranthene; fluorene; naphthalene; phenanthrene; pyrene
5.) For any parameter with a single effluent limitation, that effluent limitation applies to a site if that parameter is applicable to that site. For any parameter with both a TBEL and a WQBEL, the TBEL applies to a site, at a minimum, if that parameter is applicable to that site.

For any parameter with both a TBEL and a WQBEL, the WQBEL applies to a site if:
1) The operator determines that the WQBEL for a parameter calculated in accordance with Appendix V or VI applies; or
2) EPA or the appropriate State determines that a WQBEL is necessary to meet water quality standards.

The calculation of WQBELs shall be as follows: 1) A dilution factor may be used to calculate the WQBEL for a parameter, if allowable and approved by the appropriate State prior to the submission of the NOI to EPA; 2) The calculations are completed in accordance with the instructions provided in Appendix V for sites located in Massachusetts or Appendix VI for sites located in New Hampshire; 3) The WQBEL calculations are included in the NOI submitted to EPA; and 4) The calculated WQBEL is confirmed by EPA in writing. In the event of a calculation error, the operator will be informed of any corrected WQBEL when notified of permit coverage by EPA. Operators are encouraged to use the additional resources provided by EPA at https://www.epa.gov/region1/npdes/rgp.html to follow the calculation methodologies for effluent limitations in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.

StreamStats Rep rt 197 Vassal Lane St rmwater Discharge t Alewife Br k/Little River

Regi n ID: MA
W rkspace ID: MA20210527230735001000
Clicked P int (Latitude, L ngitude): 42.39765, -71.14304
Time: 2021-05-27 19:07:52 -0400



Basin Chara teristi s

Parameter C de	Parameter es ripti n	Va ue	Unit
RN RE	rea that drains to a point on a stream	6 99	square miles
BSL EM250	Mean basin slope computed from 1:250K EM	1 883	percent
RFTPERSTR	rea of stratified drift per unit of stream length	0 45	square mile per mile
M REGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters [Statewide Low Flow WRIR00 4135

Parameter C de	Parameter Name	Va ue	Units	in Limit	ax Limit
RN RE	rainage rea	6 99	square miles	1 61	149
BSL EM250	Mean Basin Slope from 250K EM	1 883	percent	0 32	24 6
RFTPERSTR	Stratified rift per Stream Length	0 45	square mile per mile	0	1 29
M REGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Flow Report [Statewide Low Flow WRIR00 4135

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statisti	Va ue	Unit	PI	PIu	SE	SEp
7 ay 2 Year Low Flow	1 11	ft^3/s	0 343	3 46	49 5	49 5
7 ay 10 Year Low Flow	0 532	ft^3/s	0 131	2 02	70 8	70 8

Low-Flow Statistics Citations

Ries, K.G., III,2000, eth ds f r estimating w-f w statisti s f r assa husetts streams: U.S. Ge gi a Sur ey Water Res ur es In estigati ns Rep rt 00-413 , 1 p. (http://pubs.usgs.g /wri/wri00413 /)

USGS Data Disc aimer: Un ess otherwise stated, a data, metadata and re ated materia s are considered to satisfy the qua ity standards re ative to the purpose for which the data were co ected. A though these data and associated metadata have been reviewed for accuracy and comp eteness and approved for re ease by the U.S. Geo ogica Survey (USGS), no warranty expressed or imp ied is made regarding the disp ay or uti ity of the data for other purposes, nor on a computer systems, nor sha the act of distribution constitute any such warranty.

USGS Software Disc aimer: This software has been approved for re ease by the U.S. Geo ogica Survey (USGS). A though the software has been subjected to rigorous review, the USGS reserves the right to update the software as needed pursuant to further ana ysis and review. No warranty, expressed or imp ied, is made by the USGS or the U.S. Government as to the functiona ity of the software and re ated materia nor sha the fact of re ease constitute any such warranty. Furthermore, the software is re eased on condition that neither the USGS nor the U.S. Government sha be he d iab e for any damages resu ting from its authorized or unauthorized use.

USGS Product Names Disc aimer: Any use of trade, firm, or product names is for descriptive purposes on y and does not imp y endorsement by the U.S. Government.

Application Version: 4.5.3
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

Tobin Montessori & Vassal Lane Upper School Project
197 Vassal Lane
Cambridge, MA
Dilution Factor Calculations

Purpose: Calculate Dilution Factor for the project based on 7 Day 10 Year (7Q10) Flow Flow Values

Approach: Calculate Dilution Factor based on EPA Formula (Qs+Qd)/Qd, where Qs is 7Q10 in million gallons per day (MGD) and Qd is discharge flow in MGD.

Assumptions:
1) 7Q10 is 0.532 cfs (StreamStats)
2) A conversion of 7.48 is used to convert cubic feet to gallons
3) A discharge flow rate of 200 gpm is assumed

Calculations:

7Q10 Low Flow Values (Qs)

$$Qs= \frac{0.532 \text{ ft}^3}{\text{sec}} \quad X \quad \frac{7.48 \text{ gallons}}{\text{ft}^3} \quad X \quad \frac{86{,}400 \text{ sec}}{\text{day}} \quad X \quad \frac{1 \text{ MG}}{1{,}000{,}000 \text{ gallons}}$$

Qs= 0.344 MGD

Discharge Flowrate (Qd)

$$Qd= \frac{200 \text{ gallons}}{\text{min}} \quad X \quad \frac{1{,}440 \text{ min}}{\text{day}} \quad X \quad \frac{1 \text{ MG}}{1{,}000{,}000 \text{ gallons}}$$

Qd= 0.288 MGD

Dilution Factor (DF)

$$DF = \frac{Qs + Qd}{Qd} = \frac{0.344 \text{ MGD} + 0.288 \text{ MGD}}{0.288 \text{ MGD}} = \mathbf{2.19}$$

Results: The dilution factor for this project is calculated to be 2.19 based on the provided 7Q10 low flow value and discharge flowrate.

Enter number values in green boxes below

Enter values in the units specified

↓

0	Q_R = Enter upstream flow in **MGD**
0.288	Q_P = Enter discharge flow in **MGD**
0	Downstream 7Q10

Enter a dilution factor, if other than zero

↓

2.19

Enter values in the units specified

↓

369	C_d = Enter influent hardness in **mg/L** $CaCO_3$
149	C_s = Enter receiving water hardness in **mg/L** $CaCO_3$

Enter **receiving water** concentrations in the units specified

↓

7.13	pH in **Standard Units**
12.7	Temperature in **^{o}C**
988	Ammonia in **mg/L**
149	Hardness in **mg/L** $CaCO_3$
1	Salinity in **ppt**
0	Antimony in **µg/L**
0	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
2.85	Copper in **µg/L**
880	Iron in **µg/L**
2.45	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
19.58	Zinc in **µg/L**

Enter **influent** concentrations in the units specified

↓

0	TRC in **µg/L**
31.4	Ammonia in **mg/L**
0	Antimony in **µg/L**
55.32	Arsenic in **µg/L**
0.99	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
18.5	Copper in **µg/L**
25,400	Iron in **µg/L**
172	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
234	Zinc in **µg/L**
0	Cyanide in **µg/L**
0	Phenol in **µg/L**
0	Carbon Tetrachloride in **µg/L**
4.4	Tetrachloroethylene in **µg/L**
0	Total Phthalates in **µg/L**
0	Diethylhexylphthalate in **µg/L**
0.97	Benzo(a)anthracene in **µg/L**
0.97	Benzo(a)pyrene in **µg/L**
1.3	Benzo(b)fluoranthene in **µg/L**
0.45	Benzo(k)fluoranthene in **µg/L**
0.96	Chrysene in **µg/L**
0.17	Dibenzo(a,h)anthracene in **µg/L**
0.68	Indeno(1,2,3-cd)pyrene in **µg/L**
400	Methyl-tert butyl ether in **µg/L**

Dilution Factor	1.0					
A. Inorganic	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
Ammonia	**Report**	mg/L	---			
Chloride	**Report**	µg/L	---			
Total Residual Chlorine	0.2	mg/L	**11**	µg/L	50	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	640	µg/L		
Arsenic	104	µg/L	**10**	µg/L		
Cadmium	10.2	µg/L	**0.7120**	µg/L		
Chromium III	**323**	µg/L	251.1	µg/L		
Chromium VI	**323**	µg/L	11.4	µg/L		
Copper	**242**	µg/L	28.5	µg/L		
Iron	5000	µg/L	**1000**	µg/L		
Lead	160	µg/L	**16.77**	µg/L		
Mercury	**0.739**	µg/L	0.91	µg/L		
Nickel	**1450**	µg/L	157.4	µg/L		
Selenium	**235.8**	µg/L	5.0	µg/L		
Silver	**35.1**	µg/L	35.8	µg/L		
Zinc	**420**	µg/L	362.2	µg/L		
Cyanide	**178**	mg/L	5.2	µg/L	---	µg/L
B. Non-Halogenated VOCs						
Total BTEX	**100**	µg/L	---			
Benzene	**5.0**	µg/L	---			
1,4 Dioxane	**200**	µg/L	---			
Acetone	**7970**	µg/L	---			
Phenol	**1,080**	µg/L	300	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**	µg/L	1.6	µg/L		
1,2 Dichlorobenzene	**600**	µg/L	---			
1,3 Dichlorobenzene	**320**	µg/L	---			
1,4 Dichlorobenzene	**5.0**	µg/L	---			
Total dichlorobenzene	**---**	µg/L	---			
1,1 Dichloroethane	**70**	µg/L	---			
1,2 Dichloroethane	**5.0**	µg/L	---			
1,1 Dichloroethylene	**3.2**	µg/L	---			
Ethylene Dibromide	**0.05**	µg/L	---			
Methylene Chloride	**4.6**	µg/L	---			
1,1,1 Trichloroethane	**200**	µg/L	---			
1,1,2 Trichloroethane	**5.0**	µg/L	---			
Trichloroethylene	**5.0**	µg/L	---			
Tetrachloroethylene	5.0	µg/L	**3.3**	µg/L		
cis-1,2 Dichloroethylene	**70**	µg/L	---			
Vinyl Chloride	**2.0**	µg/L	---			
D. Non-Halogenated SVOCs						
Total Phthalates	**190**	µg/L	---	µg/L		
Diethylhexyl phthalate	**101**	µg/L	2.2	µg/L		
Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Benzo(a)pyrene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Benzo(b)fluoranthene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Benzo(k)fluoranthene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Chrysene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Dibenzo(a,h)anthracene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Indeno(1,2,3-cd)pyrene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	**100**	µg/L	**---**			
Naphthalene	**20**	µg/L	---			
E. Halogenated SVOCs						
Total Polychlorinated Biphenyls	**0.000064**	µg/L	---		0.5	µg/L
Pentachlorophenol	**1.0**	µg/L	---			
F. Fuels Parameters						
Total Petroleum Hydrocarbons	**5.0**	mg/L	---			
Ethanol	**Report**	mg/L	---			
Methyl-tert-Butyl Ether	70	µg/L	**20**	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			

Attachment No.3

Endangered Species Act Documentation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: May 21, 2021
Consultation Code: 05E1NE00-2021-SLI-3411
Event Code: 05E1NE00-2021-E-10283
Project Name: 197 Vassal Lane Excavation and Dewatering

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2021-SLI-3411
Event Code: 05E1NE00-2021-E-10283
Project Name: 197 Vassal Lane Excavation and Dewatering
Project Type: DREDGE / EXCAVATION
Project Description: The project is located at 197 Vassal Lane in Cambridge, MA and is currently the location of the Tobin Montessori School and Vassal Lane Upper School including Tobin Baseball Fields. The property is approximately 9 acres in size and owned by the City of Cambridge. The scope of the project includes excavation and dewatering for demolition of the existing school and building of a new school on the property. The project will start in Summer 2021 with anticipated construction from 2022 through 2025.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.3849152,-71.13936050440225,14z

Counties: Middlesex County, Massachusetts

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

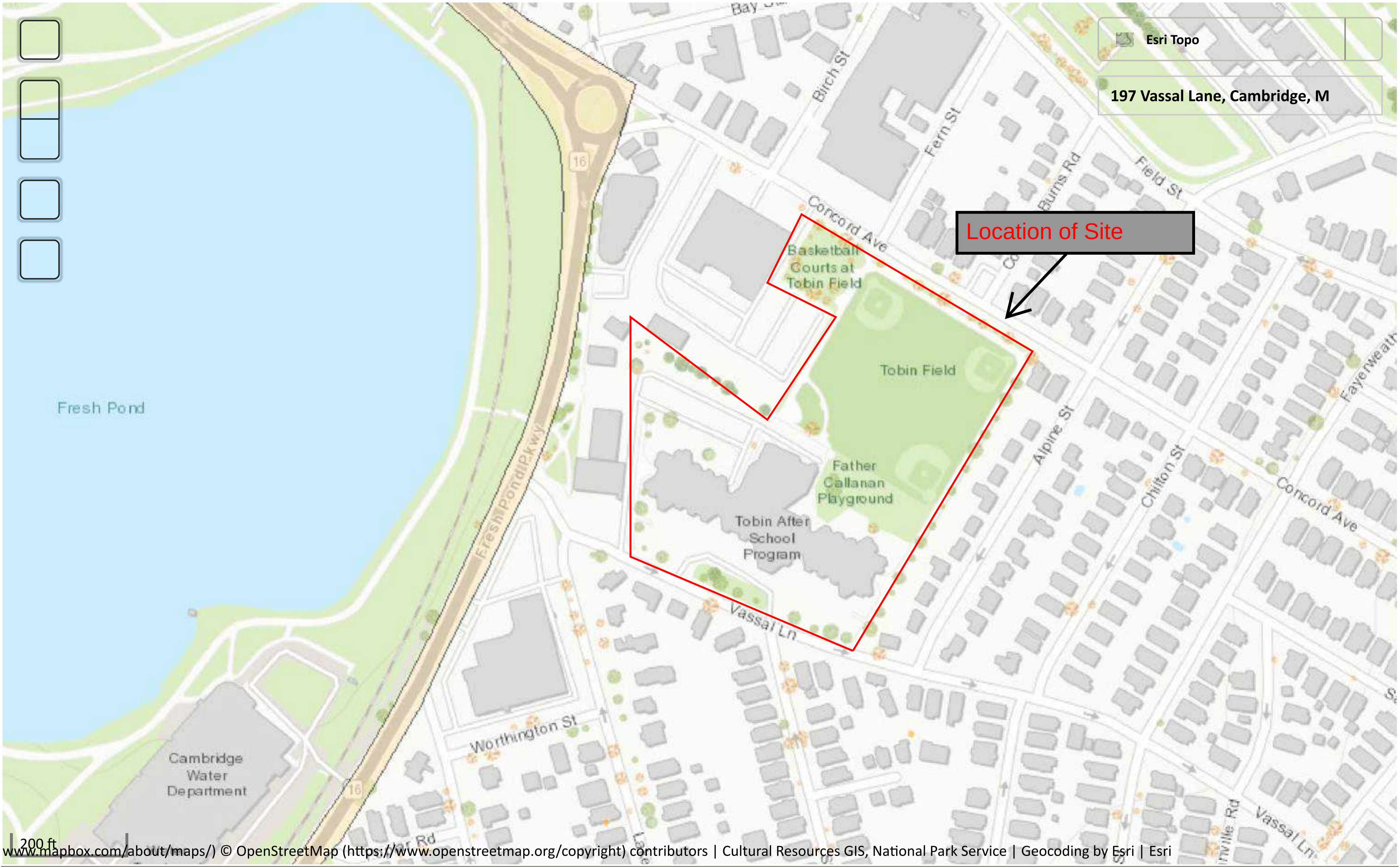
Attachment No.4

National Historic Preservation Act Review

National Register of Historic Places

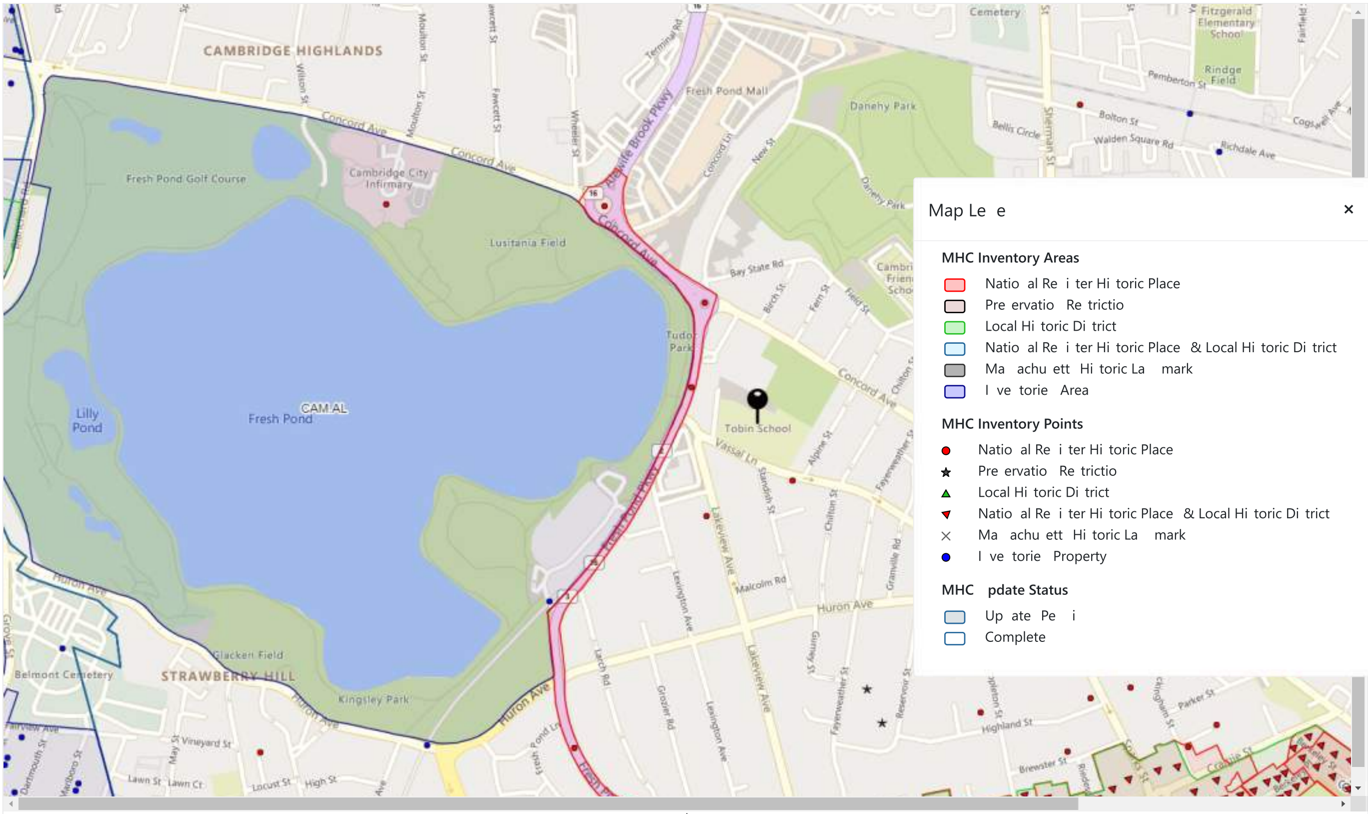
National Park Service
U.S. Department of the Interior

Public, non-restricted data depicting National Register spatial data processed by the Cultural Resources GIS facility. ...



www.mapbox.com/about/maps/) © OpenStreetMap (https://www.openstreetmap.org/copyright) contributors | Cultural Resources GIS, National Park Service | Geocoding by Esri | Esri

Home (https://www.nps.gov) | Frequently Asked Questions (https://www.nps.gov/faqs.htm) | Website Policies (https://www.nps.gov/aboutus/website-policies.htm)


CAMBRIDGE HIGHLANDS
Fresh Pond Golf Course
Cambridge City Infirmary
Lusitania Field
Fresh Pond Mall
Danehy Park
Lilly Pond
Fresh Pond
Tobin School
STRAWBERRY HILL
Glacken Field
Kingsley Park
Belmont Cemetery
Concord Ave
Huron Ave
Alewife Brook Pkwy
Fresh Pond Pkwy
Lakeview Ave
Vassal Ln
Map Le e
MHC Inventory Areas
Natio al Re i ter Hi toric Place
Pre ervatio Re trictio
Local Hi toric Di trict
Natio al Re i ter Hi toric Place & Local Hi toric Di trict
Ma achu ett Hi toric La mark
I ve torie Area
MHC Inventory Points
Natio al Re i ter Hi toric Place
Pre ervatio Re trictio
Local Hi toric Di trict
Natio al Re i ter Hi toric Place & Local Hi toric Di trict
Ma achu ett Hi toric La mark
I ve torie Property
MHC pdate Status
Up ate Pe i
Complete

Massachusetts Cultural Resource Information System
MACRIS

MACRIS Search Results

Search Criteria: Street No: 197; Street Name: Vassal Ln; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year

Massachusetts Cultural Resource Information System
MACRIS

MACRIS Search Results

Search Criteria: Town(s): Cambridge; Place: Northwest Cambridge; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
CAM.G	Cambridge Multiple Resource Area		Cambridge	
CAM.AL	Fresh Pond		Cambridge	
CAM.AS	Metropolitan Park System of Greater Boston		Cambridge	
CAM.AW	Alewife Brook Parkway		Cambridge	
CAM.AX	Fresh Pond Parkway		Cambridge	
CAM.AZ	Immaculate Conception Roman Catholic Church		Cambridge	
CAM.BB	Orchard Street Area		Cambridge	
CAM.1	Wyeth, John House	56 Aberdeen Ave	Cambridge	1841
CAM.902	Alewife Brook Parkway Bridge over B & M Railroad	Alewife Brook Pkwy	Cambridge	1929
CAM.903	Alewife Brook Parkway Bridge over B & M Railroad	Alewife Brook Pkwy	Cambridge	1929
CAM.9012	Alewife Brook Parkway - Northern Segment	Alewife Brook Pkwy	Cambridge	1908
CAM.9013	Alewife Brook Parkway Tree Border	Alewife Brook Pkwy	Cambridge	r 1920
CAM.1372	Immaculate Conception Roman Catholic Church	45 Alewife Brook Pkwy	Cambridge	1929
CAM.1373	Immaculate Conception Catholic Church Rectory	45 Alewife Brook Pkwy	Cambridge	1935
CAM.11	Slowey, Patrick House	73 Bolton St	Cambridge	1852
CAM.101	Kingsley, Chester House	10 Chester St	Cambridge	1866
CAM.1377	Cambridge Almshouse Caretaker's House	36 Churchill Ave	Cambridge	c 1886
CAM.1365	Cambridge Home for the Aged and Infirm	650 Concord Ave	Cambridge	1928
CAM.333	Day, Anna House	139 Cushing St	Cambridge	1856
CAM.910	Fitchburg Railroad Signal Bridge	Fitchburg Railroad	Cambridge	c 1930
CAM.919	Fresh Pond Lane over B & M Railroad	Fresh Pond Ln	Cambridge	1926
CAM.9014	Fresh Pond Parkway	Fresh Pond Pkwy	Cambridge	1899
CAM.9015	Fresh Pond Parkway - Concord Avenue Rotary Islands	Fresh Pond Pkwy	Cambridge	1928
CAM.9016	Fresh Pond Parkway - New Street Rotary	Fresh Pond Pkwy	Cambridge	1928
CAM.164	Taylor Square Firehouse	113 Garden St	Cambridge	1904

Inv. No.	Property Name	Street	Town	Year
CAM.1383	Chadwick, Samuel E. House	10 Hollis St	Cambridge	1853
CAM.904	Huron Avenue Bridge over B & M Railroad	Huron Ave	Cambridge	1892
CAM.214	Fresh Pond Hotel	234 Lakeview Ave	Cambridge	1796
CAM.243	Lovell Block	1853 Massachusetts Ave	Cambridge	1882
CAM.1385	Cambridge Masonic Temple	1950 Massachusetts Ave	Cambridge	1910
CAM.244	Saint James Episcopal Church	1991 Massachusetts Ave	Cambridge	1888
CAM.245	Henderson Carriage Repository	2067-2089 Massachusetts Ave	Cambridge	1892
CAM.246	Cornerstone Baptist Church	2114 Massachusetts Ave	Cambridge	1854
CAM.247	Mead, Alpheus House	2200 Massachusetts Ave	Cambridge	1867
CAM.248	Snow, Daniel House	2210 Massachusetts Ave	Cambridge	1868
CAM.249	McLean, Isaac House	2218 Massachusetts Ave	Cambridge	1894
CAM.250	Farwell, R. H. Double House	2222-2224 Massachusetts Ave	Cambridge	1891
CAM.251	Saint John's Roman Catholic Church	2270 Massachusetts Ave	Cambridge	1904
CAM.1390		2557 Massachusetts Ave	Cambridge	
CAM.1376	Matignon Central Catholic High School	1 Matignon Rd	Cambridge	1946
CAM.1375	Immaculate Conception Catholic Church Convent	33 Matignon Rd	Cambridge	1954
CAM.252	Cambridge Almshouse	45 Matignon Rd	Cambridge	1850
CAM.1374	Cambridge Almshouse Dormitory	45 Matignon Rd	Cambridge	c 1887
CAM.273	Aborn, John House	41 Orchard St	Cambridge	1846
CAM.274	Billings, Frederick House	45 Orchard St	Cambridge	1846
CAM.1382	Brooks Apartments - Winthrop, John Chambers	78-80 Porter Rd	Cambridge	1915
CAM.301		59 Rice St	Cambridge	1847
CAM.327	Hews Pottery Company Carriage House	202 Richdale Ave	Cambridge	1897
CAM.302	Kidder - Sargent - McCrehan House	146 Rindge Ave	Cambridge	1792
CAM.303	Wyeth Brickyard Superintendent's House	336 Rindge Ave	Cambridge	c 1848
CAM.306	Soule, Lawrence Porter House	11 Russell St	Cambridge	1879
CAM.311	Watson, Abraham Jr. House	181-183 Sherman St	Cambridge	c 1750
CAM.317	Wyeth, Jacob - Smith, Ebenezer House	152 Vassal Ln	Cambridge	1820
CAM.989	Walden Street Cattle Pass	Walden St	Cambridge	1857
CAM.909	Yerxa Street Pedestrian Subway	Yerxa St	Cambridge	1904