February 11, 2021

U.S. Environmental Protection Agency
Office of Ecosystem Protection
EPA/OEP RGP Applications Coordinator
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912

Re: NPDES RGP Application for Dredge-Related Dewatering Activities
Project Title: Spy Pond Dredging and Stormwater Improvements along a Section of Route 2 (Concord Turnpike)
Project Location: Arlington, MA 02474
MassDOT Project No.: 609222 – 111309

Dear Sir/Madam:

On behalf of MacKay Construction (MacKay) and MassDOT District 4 (MassDOT), SAK Environmental (SAK) is submitting this application as part of permit coverage request under the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) for dredge-related dewatering activities to be performed at Spy Pond in Arlington, MA (Project). A copy of the Notice of Intent (NOI) is included as **Attachment 1**.

1. Project Description

The Project consists of work to remove approximately 800 cubic yards of sediment in Spy Pond at the MassDOT Route 2 (Concord Turnpike) outfall and construct stormwater drainage improvements related to the drainage system. Work will include, but not be limited to, dredging and disposal of sediment, improvement of scour protection at the outfall, replacement of drainage structures and new drainage structures along Route 2. See **Figure 1** – Site Location Map and **Figure 2** – Aerial Site Map for more details of the Project location. The Project will also improve scour protection at the pond outfall. Dredging activities are expected to start in March and continue to April 2021.

In 2018, waste characterization of the sediment was completed by MassDOT's engineer to fulfill the requirements of the MassDEP 401 Water Quality Certification permit. Based on the analytical data, the dredge area contains sediment with levels of arsenic and lead above the RCS-1. Additionally, small portion of the dredge area is a RCRA characteristic hazardous waste for lead. The site will be listed on MassDEP ePLACE. A 401 Water Quality Certification was issued by MassDEP on February 5, 2020 and is included as **Attachment 2**.

2. Source Water and Receiving Water Information

Spy Pond is considered both the source and receiving water. Water collected during the proposed dredging activities at Spy Pond will be returned back to the pond after filtration. Spy Pond (segment ID: MA71040) is listed within the Massachusetts Year 2016 Integrated List of Waters as impaired due to chlordane in fish tissue, Dichlorodiphenyltrichloroethane (DDT) in fish tissue, dissolved oxygen, algal blooms, and total phosphorus. Total Maximum Daily Load (TMDL) has not been developed for this waterbody.

On January 20, 2021, SAK collected a receiving water sample (designated as RE-01) and the source water sample (designed as IN-01) from the pond pursuant to testing requirements by the RGP. Receiving water sample RE-01 was collected from surface water within the Pond just outside the limit of dredging activities. Whereas, source water sample IN-01 was collected within the area subject to dredging activities. Water sample IN-01 was collected from a temporary well installed within the sediment. The temporary 4-inch PVC well was advanced to 2-feet below the top of the sediment using a hand auger. Pond water was then purged from the well using a bailer. Once the well recovered, a water sample was collected using a bailer. The water sample locations are provided in **Figure 2**.

The water samples were submitted to New England Testing Laboratory Inc. of West Warwick, RI. Water sample IN-01 was analyzed for the parameters required under the NPDES RGP for a source water. Water sample RE-01 was analyzed for the parameters required under the NPDES RGP for a receiving water. Results for the two water samples are summarized in **Table 1**. Laboratory reports are included in **Attachment 3**. In Sample IN-01, the following metals were detected: antimony, arsenic, cadmium, chromium, chromium III, copper, iron, lead, nickel, zinc, and mercury. Other parameters such as total suspended solids, chloride, total residual chlorine, cyanide, and ammonia were also present. In Sample RE-01, iron, calcium, and magnesium are the only metals detected.

3. Water Treatment System

The proposed sediment dredging activities will result in accumulation of source water after the dredged sediment has been dewatered. A sediment bag filter (Ultra-Dewatering Bags®) will be utilized to dewater the dredged sediment prior to disposal and discharge the accumulated water back into the pond. Schematic of the bag filter system is included as **Figure 3**. Sediment will be pumped into the bag filter treatment system with a design flow of up to 1100 gallons per minute (gmp); the average effluent flow of the system is estimated to be 1100 gpm, and the maximum flow is estimated to be 1500 gmp. A total of 15 dewatering bags will be utilized. These bags are to be set up on crushed stone within reinforced polyethylene liner along the shared-use path. Effluent water will be routed to a single point (Outfall 001) prior to discharge back into the pond.

4. Consultation with Federal Services

SAK utilized the U.S. Fish & Wildlife Service (USFWS) Information, Planning, and Conservation (IPaC) System and determined that the Northern Long-eared Bat, which is an endangered species, is potentially within the Project's action area. However, according to the Natural Heritage and Endangered Species Program (NHESP) online map[1], the Massachusetts Northern Long-eared Bat (with ¼ miles buffer) is not located on or nearby the Project area. Therefore, FWS Criterion A of Section G within the NOI is applied to discharge under this Project.

SAK utilized Massachusetts Cultural Resource Information System (MACRIS) online tool as administered by the Massachusetts Historic Commission (MHC) and determined that no historic properties (listed or eligible for listing in the National Registry of Historic Places under the National Historic Preservation Act of 1966) will be impacted by the discharges to be performed under the Project. Therefore, Criterion A of Section H within the NOI is appropriate.

See **Attachment 4** for supporting documentation regarding consultation with the federal services.

5. Coverage under NPDES RGP

It is in our opinion that the information provided within this letter report is sufficient for eligibility determination of the proposed discharge to be covered under the NPDES RGP program.

The completed NOI form is included in **Attachment 1** and contain further information regarding the Project, discharge, treatment system, receiving water, and consultation with state and federal agencies. For this Project, MacKay is considered the Operator with control over day-to-day construction activities, and MassDOT is considered the Owner with operational control over the construction plans and specifications.

Do not hesitate to contact us with any questions.

SAK Environmental LLC

Prepared by:

Chhavan Nuon
Project Engineer

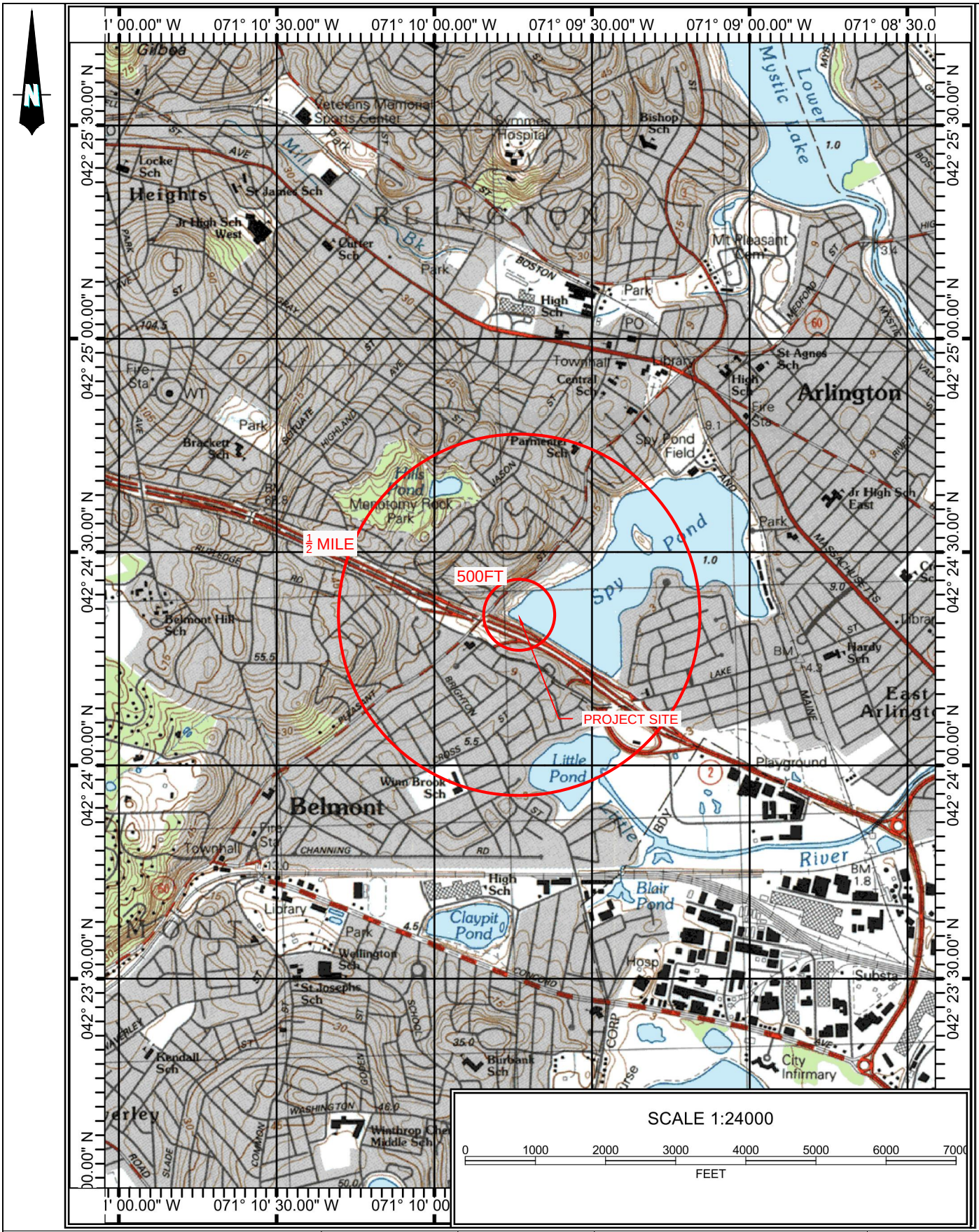
Reviewed by:

Meghan Emmert
Project Manager

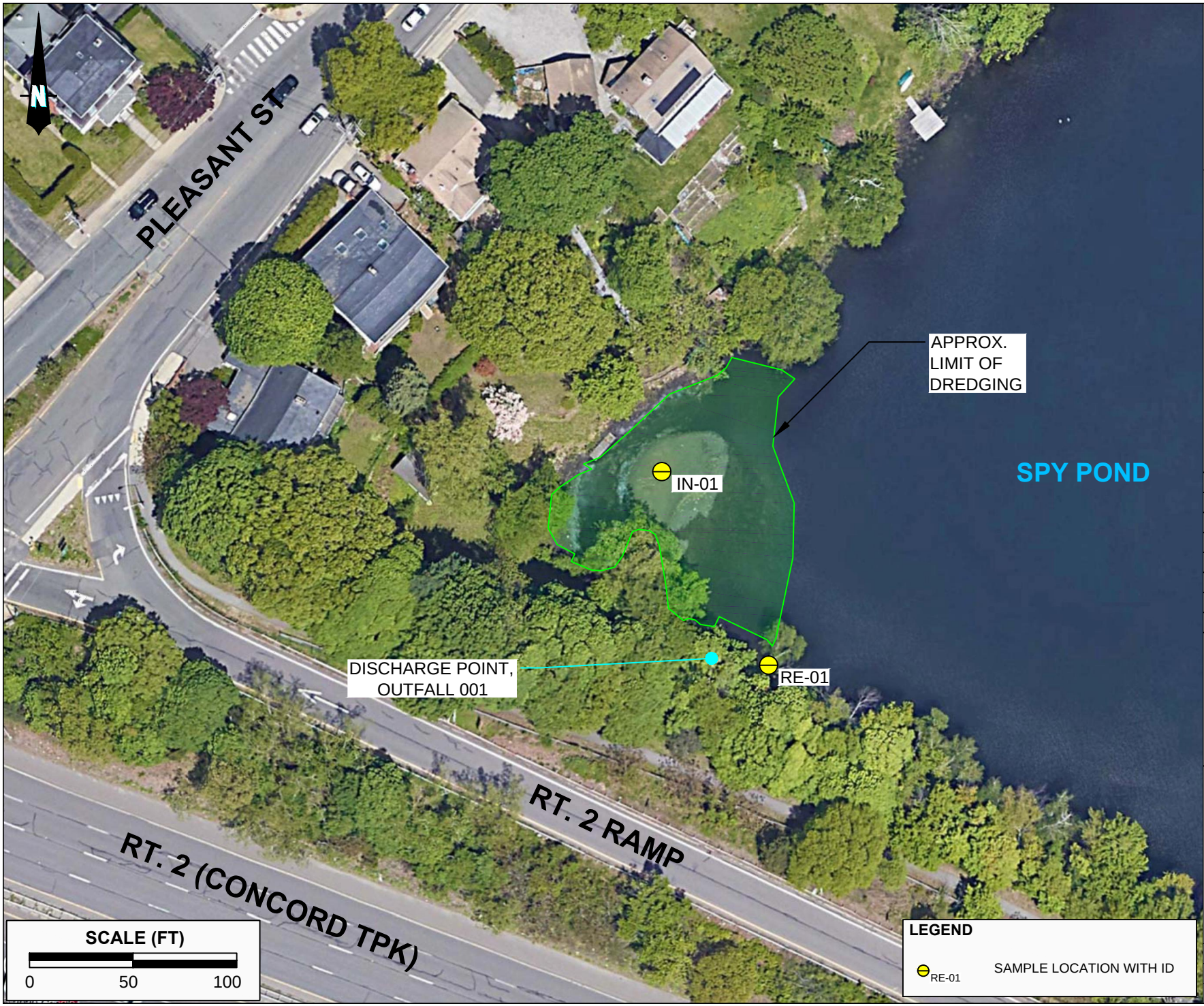
[1] NHESP No. Long-eared Bat Location:
<https://www.arcgis.com/apps/Viewer/index.html?appid=de59364ebbb348a9b0de55f6febdfd52>

ENCLOSURES

Figure 1	Site Location Map
Figure 2	Aerial Site Map
Figure 3	Process Flow Diagram
Table 1	Water Sample Analytical Results
Attachment 1	RGP NOI Form
Attachment 2	401 Water Quality Certification
Attachment 3	Laboratory Report
Attachment 4	Supporting Documentation with Federal and State Service/Agencies
Attachment 5	Ultra-Dewatering Bags® Specification
Attachment 6	MassDEP Dilution Factor Confirmation Email



sak Environmental, LLC	SCALE: SEE FIGURE	DATE: 10/30/2020	PROJECT NAME & LOCATION	SHEET NAME / NO.
231 SUTTON ST. SUITE 2G NORTH ANDOVER, MA 01845	PAPER SIZE: ANSI A	PROJ. NO.: 19.00.20	MASSDOT PROJECT NO. 609222 SPY POND DREDGING ROUTE 2 (CONCORD TPK) IN ARLINGTON	FIGURE 1
TELEPHONE: (978) 688-7804 FAX: (978) 688-7801 www.SAKenvironmental.com	DESIGNED BY: ---			SITE LOCATION MAP
	DRAWN BY: CN		CLIENT NAME	
	CHECKED BY: DD		MACKAY CONSTRUCTION	
	APPROVED BY: MEE	REV. / DATE / BY		



SHEET NAME / NO.

FIGURE 2

AERIAL SITE MAP

SAK Environmental, LLC

231 SUTTON ST. SUITE 2G
NORTH ANDOVER, MA 01845

TELEPHONE: (978) 688-7804
FAX: (978) 688-7801
www.SAKenvironmental.com

SCALE	SEE FIGURE
PAPER SIZE	ANSI A
DATE	02/03/2021
DESIGNED BY	---
DRAWN BY	CN
CHECKED BY	MEE
APPROVED BY	SAS
PROJ. NO.	19.00.20

CLIENT NAME

MACKAY CONSTRUCTION

PROJECT NAME & LOCATION

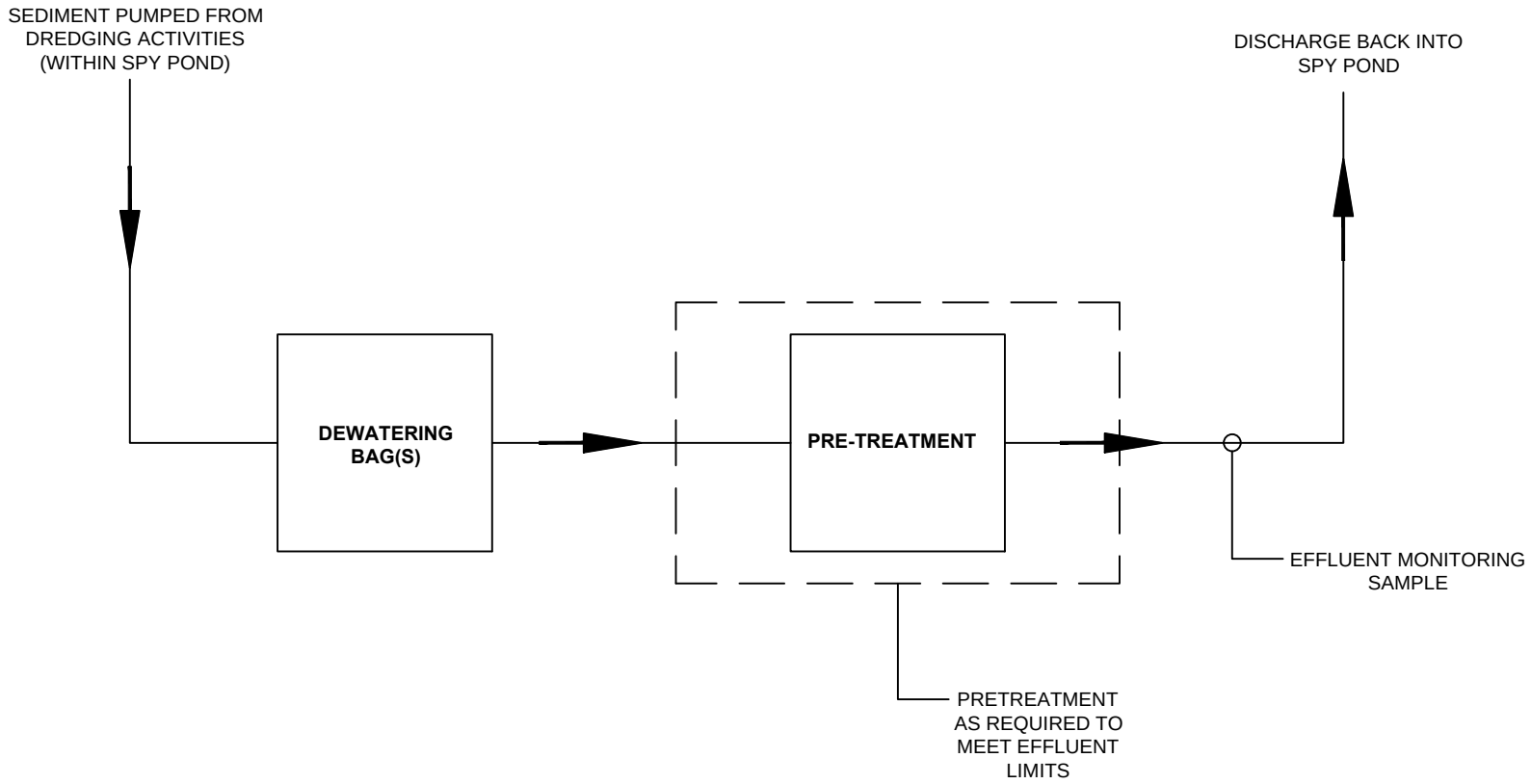
MASSDOT PROJECT FILE NO. 609222
SPY POND DREDGING
ROUTE 2 (CONCORD TURNPIKE) IN ARLINGTON, MA

REV.	DATE	BY

SHEET NAME / NO.

FIGURE 3

PROCESS FLOW DIAGRAM



SAK Environmental, LLC
231 SUTTON ST. SUITE 2G
NORTH ANDOVER, MA 01845
TELEPHONE: (978) 688-7804
FAX: (978) 688-7801
www.SAKenvironmental.com

SCALE	NOT TO SCALE
PAPER SIZE	ANSI A
DATE	02/03/2021
DESIGNED BY	---
DRAWN BY	CN
CHECKED BY	MEE
APPROVED BY	SAS
PROJ. NO.	19.00.20

CLIENT NAME

MACKAY CONSTRUCTION

PROJECT NAME & LOCATION

MASSDOT PROJECT FILE NO. 609222
SPY POND DREDGING
ROUTE 2 (CONCORD TURNPIKE) IN ARLINGTON, MA

REV.	DATE	BY

Table 1
Water Sample Analytical Results
Spy Pond Dredging
Arlington, MA

Parameter	Unit	Sample Location ID	
		RE-01	IN-01
Sampling Date		01/20/2021	01/20/2021
Sample Type		Receiving Water	Source Water
Collection Method (Grab/Composite)		Grab	Grab
Polychlorinated Biphenyl			
Aroclor-1016	ug/l	NT	< 0.2
Aroclor-1221	ug/l	NT	< 0.4
Aroclor-1232	ug/l	NT	< 0.2
Aroclor-1242	ug/l	NT	< 0.2
Aroclor-1248	ug/l	NT	< 0.2
Aroclor-1254	ug/l	NT	< 0.2
Aroclor-1260	ug/l	NT	< 0.2
Aroclor-1262	ug/l	NT	< 0.2
Aroclor-1268	ug/l	NT	< 0.2
PCBs (Total)	ug/l	NT	< 0.2
Total Petroleum Hydrocarbons			
TPH	ug/l	NT	< 200
Volatile Organic Compounds (VOCs)			
Acetone	ug/l	NT	< 20
Benzene	ug/l	NT	< 1
Bromobenzene	ug/l	NT	< 1
Bromochloromethane	ug/l	NT	< 1
Bromodichloromethane	ug/l	NT	< 1
Bromoform	ug/l	NT	< 1
Bromomethane	ug/l	NT	< 1
2-Butanone	ug/l	NT	< 10
tert-Butyl alcohol	ug/l	NT	< 5
sec-Butylbenzene	ug/l	NT	< 1
n-Butylbenzene	ug/l	NT	< 1
tert-Butylbenzene	ug/l	NT	< 1
Methyl t-butyl ether (MTBE)	ug/l	NT	< 1
Carbon Disulfide	ug/l	NT	< 1
Carbon Tetrachloride	ug/l	NT	< 1
Chlorobenzene	ug/l	NT	< 1
Chloroethane	ug/l	NT	< 1
Chloroform	ug/l	NT	< 1
Chloromethane	ug/l	NT	< 1
4-Chlorotoluene	ug/l	NT	< 1
2-Chlorotoluene	ug/l	NT	< 1
1,2-Dibromo-3-chloropropane (DBCP)	ug/l	NT	< 1
Dibromochloromethane	ug/l	NT	< 1
1,2-Dibromoethane (EDB)	ug/l	NT	< 1
Dibromomethane	ug/l	NT	< 1
1,2-Dichlorobenzene	ug/l	NT	< 1
1,3-Dichlorobenzene	ug/l	NT	< 1
1,4-Dichlorobenzene	ug/l	NT	< 1
1,1-Dichloroethane	ug/l	NT	< 1
1,2-Dichloroethane	ug/l	NT	< 1
trans-1,2-Dichloroethene	ug/l	NT	< 1
cis-1,2-Dichloroethene	ug/l	NT	< 1
1,1-Dichloroethene	ug/l	NT	< 1
1,2-Dichloropropane	ug/l	NT	< 1
2,2-Dichloropropane	ug/l	NT	< 1
cis-1,3-Dichloropropene	ug/l	NT	< 1
trans-1,3-Dichloropropene	ug/l	NT	< 1
1,1-Dichloropropene	ug/l	NT	< 1
1,3-Dichloropropene (cis + trans)	ug/l	NT	< 2
Diethyl ether	ug/l	NT	< 5
1,4-Dioxane	ug/l	NT	< 500
Ethylbenzene	ug/l	NT	< 1
Hexachlorobutadiene	ug/l	NT	< 1
2-Hexanone	ug/l	NT	< 5
Isopropylbenzene	ug/l	NT	< 1
p-Isopropyltoluene	ug/l	NT	< 1
Methylene Chloride	ug/l	NT	< 1
4-Methyl-2-pentanone	ug/l	NT	< 5
Naphthalene	ug/l	NT	< 1
n-Propylbenzene	ug/l	NT	< 1
Styrene	ug/l	NT	< 1
1,1,1,2-Tetrachloroethane	ug/l	NT	< 1
Tetrachloroethene	ug/l	NT	< 1
Tetrahydrofuran	ug/l	NT	< 5
Toluene	ug/l	NT	< 1
1,2,4-Trichlorobenzene	ug/l	NT	< 1
1,2,3-Trichlorobenzene	ug/l	NT	< 1
1,1,2-Trichloroethane	ug/l	NT	< 1
1,1,1-Trichloroethane	ug/l	NT	< 1
Trichloroethene	ug/l	NT	< 1
1,2,3-Trichloropropane	ug/l	NT	< 1
1,3,5-Trimethylbenzene	ug/l	NT	< 1
1,2,4-Trimethylbenzene	ug/l	NT	< 1
Vinyl Chloride	ug/l	NT	< 1
o-Xylene	ug/l	NT	< 1
m&p-Xylene	ug/l	NT	< 2
Total xylenes	ug/l	NT	< 1
1,1,2,2-Tetrachloroethane	ug/l	NT	< 1
tert-Amyl methyl ether	ug/l	NT	< 1
1,3-Dichloropropane	ug/l	NT	< 1
Ethyl tert-butyl ether	ug/l	NT	< 1
Diisopropyl ether	ug/l	NT	< 1
Trichlorofluoromethane	ug/l	NT	< 1
Dichlorodifluoromethane	ug/l	NT	< 1
Semi-Volatile Organic Compounds (SVOCs)			
1,2,4-Trichlorobenzene	ug/l	NT	< 2
1,2-Dichlorobenzene	ug/l	NT	< 2
1,3-Dichlorobenzene	ug/l	NT	< 2
1,4-Dichlorobenzene	ug/l	NT	< 2
Phenol	ug/l	NT	< 2
2,4,5-Trichlorophenol	ug/l	NT	< 2

Table 1
Water Sample Analytical Results
Spy Pond Dredging
Arlington, MA

Parameter	Unit	Sample Location ID	
		RE-01	IN-01
2,4,6-Trichlorophenol	ug/l	NT	< 2
2,4-Dichlorophenol	ug/l	NT	< 2
2,4-Dimethylphenol	ug/l	NT	< 10
2,4-Dinitrophenol	ug/l	NT	< 5
2,4-Dinitrotoluene	ug/l	NT	< 2
2,6-Dinitrotoluene	ug/l	NT	< 2
2-Chloronaphthalene	ug/l	NT	< 2
2-Chlorophenol	ug/l	NT	< 2
2-Methylnaphthalene	ug/l	NT	< 2
Nitrobenzene	ug/l	NT	< 2
2-Methylphenol	ug/l	NT	< 2
2-Nitroaniline	ug/l	NT	< 2
2-Nitrophenol	ug/l	NT	< 5
3,3'-Dichlorobenzidine	ug/l	NT	< 5
3-Nitroaniline	ug/l	NT	< 2
4,6-Dinitro-2-methylphenol	ug/l	NT	< 5
4-Bromophenyl phenyl ether	ug/l	NT	< 2
4-Chloro-3-methylphenol	ug/l	NT	< 2
4-Chloroaniline	ug/l	NT	< 5
4-Chlorophenyl phenyl ether	ug/l	NT	< 2
4-Nitroaniline	ug/l	NT	< 2
4-Nitrophenol	ug/l	NT	< 5
Acenaphthene	ug/l	NT	< 2
Acenaphthylene	ug/l	NT	< 2
Aniline	ug/l	NT	< 2
Anthracene	ug/l	NT	< 2
Benzo(a)anthracene	ug/l	NT	< 2
Benzo(a)pyrene	ug/l	NT	< 2
Benzo(b)fluoranthene	ug/l	NT	< 2
Benzo(g,h,i)perylene	ug/l	NT	< 2
Benzo(k)fluoranthene	ug/l	NT	< 2
Benzoic acid	ug/l	NT	< 15
Bis(2-chloroethoxy)methane	ug/l	NT	< 2
Bis(2-chloroethyl)ether	ug/l	NT	< 2
Bis(2-chloroisopropyl)ether	ug/l	NT	< 2
Bis(2-ethylhexyl)phthalate	ug/l	NT	< 6
Butyl benzyl phthalate	ug/l	NT	< 3
Chrysene	ug/l	NT	< 2
Di(n)octyl phthalate	ug/l	NT	< 3
Dibenz(a,h)anthracene	ug/l	NT	< 2
Dibenzofuran	ug/l	NT	< 2
Diethyl phthalate	ug/l	NT	< 2
Dimethyl phthalate	ug/l	NT	< 5
Di-n-butylphthalate	ug/l	NT	< 2
Fluoranthene	ug/l	NT	< 2
Fluorene	ug/l	NT	< 2
Hexachlorobenzene	ug/l	NT	< 2
Hexachlorobutadiene	ug/l	NT	< 2
Hexachlorocyclopentadiene	ug/l	NT	< 5
Hexachloroethane	ug/l	NT	< 2
Indeno(1,2,3-cd)pyrene	ug/l	NT	< 2
Isophorone	ug/l	NT	< 2
Naphthalene	ug/l	NT	< 2
N-Nitrosodimethylamine	ug/l	NT	< 2
N-Nitrosodi-n-propylamine	ug/l	NT	< 2
N-Nitrosodiphenylamine	ug/l	NT	< 2
Pentachlorophenol	ug/l	NT	< 5
Phenanthrene	ug/l	NT	< 2
Pyrene	ug/l	NT	< 2
m&p-Cresol	ug/l	NT	< 4
Pyridine	ug/l	NT	< 2
Ethanol	mg/L	NT	< 10
General Chemistry			
Total Suspended Solids	mg/L	NT	1490
Chloride	mg/L	NT	295
Total Residual Chlorine	mg/L	NT	0.5
Cyanide	mg/L	NT	0.013
Ammonia	mg/L	0.2	1.7
Temperature	oF	60.2	NT
pH		7.19	NT
Total Metals			
Total Hardness	mg/L	70.5	NT
Antimony	mg/L	< 0.005	0.016
Arsenic	mg/L	< 0.01	0.06
Cadmium	mg/L	< 0.005	0.033
Chromium	mg/L	< 0.005	0.343
Trivalent Chromium	mg/L	< 0.015	0.343
Hexavalent chromium	mg/L	< 0.01	< 0.01
Copper	mg/L	< 0.02	1.53
Iron	mg/L	0.2	161
Lead	mg/L	< 0.005	5.96
Nickel	mg/L	< 0.005	0.173
Selenium	mg/L	< 0.01	< 0.01
Silver	mg/L	< 0.005	< 0.005
Zinc	mg/L	< 0.02	4.12
Mercury	mg/L	< 0.0002	0.0006
Calcium	mg/L	21.2	NT
Magnesium	mg/L	4.26	NT

Notes:
<: result with "<" sign indicates non-detected result and is instead shown reporting limit.
NT: Not tested

ATTACHMENT 1

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

A. General site information:

<table>
<tr><td rowspan="3">1. Name of site:
Spy Pond</td><td colspan="3">Site address: Spy Pond, Arlington, MA 02474
Street:</td></tr>
<tr><td>City: Arlington</td><td>State: MA</td><td>Zip: 02474</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td rowspan="4">2. Site owner
MassDOT District 4

Owner is (check one): ☐ Federal ■ State/Tribal ☐ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Martin McGowan (MassDOT Resident Engineer)</td></tr>
<tr><td colspan="2">Telephone: 617-224-2166</td><td>Email: Martin.McGowan@state.ma.us</td></tr>
<tr><td colspan="3">Mailing address: 519 Appleton Street
Street:</td></tr>
<tr><td>City: Arlington</td><td>State: MA</td><td>Zip: 02476</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
MacKay Construction</td><td colspan="3">Contact Person: Kyle Annutto</td></tr>
<tr><td colspan="2">Telephone: 781-760-1885</td><td>Email: KAnnutto@mackaycompanies.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 197 Ballardvale Street</td></tr>
<tr><td>City: Wilmington</td><td>State: MA</td><td>Zip: 01887</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:
MAR10030B

NPDES permit is (check all that apply: ☐ RGP ☐ DGP ■ CGP
☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:</td><td colspan="3">5. Other regulatory program(s) that apply to the site (check all that apply):
☐ MA Chapter 21e; list RTN(s):

☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:

☐ CERCLA
☐ UIC Program
☐ POTW Pretreatment
■ CWA Section 404</td></tr>
</table>

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Spy Pond	MA71040	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. Spy Pond is listed in CWA 303(d). Impairments: chlordane and DDT in fish tissue, dissolved oxygen, algal blooms, and total phosphorus. No TMDL.

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.	0.0685 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.	DF= 1.00

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: 02/03/2021

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:

2. Source water contaminants: Chlordane in fish tissue, DDT in fish tissue, dissolved oxygen, algal blooms, and total phosphorus.	
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): 001	Outfall location(s): (Latitude, Longitude) (42.4058 N, 71.1622 W)
Discharges enter the receiving water(s) via (check any that apply): ■ Direct discharge to the receiving water ☐ Indirect discharge, if so, specify: ☐ 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: 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): 03/2021 (start) to 04/2021 (end) 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="5">☐ 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</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	SM4500-NH3-D	100	1700	1700	Report mg/L	---
Chloride		✔	1	SM4500CI-B	295000	25000	25000	Report µg/l	---
Total Residual Chlorine		✔	1	SM4500-CI-G	10	500	500	0.2 mg/L	11.0 µg/l
Total Suspended Solids		✔	1	SM2540-D	11000	1490000	1490000	30 mg/L	---
Antimony		✔	1	EPA6010C	5	16	16	206 µg/L	640 µg/l
Arsenic		✔	1	EPA6010C	10	60	60	104 µg/L	10 µg/l
Cadmium		✔	1	EPA6010C	5	33	33	10.2 µg/L	0.2089 µg/l
Chromium III		✔	1	EPA6010C	15	343	343	323 µg/L	64.7 µg/l
Chromium VI	✔		1	SM3500-Cr-B	10	<10	<10	323 µg/L	
Copper		✔	1	EPA6010C	20	1530	1530	242 µg/L	6.9 µg/l
Iron		✔	1	EPA6010C	50	161000	161000	5,000 µg/L	1000 µg/l
Lead		✔	1	EPA6010C	5	5960	5960	160 µg/L	2.04 µg/l
Mercury		✔	1	EPA7470A	0.2	0.6	0.6	0.739 µg/L	0.91 µg/l
Nickel		✔	1	EPA6010C	5	173	173	1,450 µg/L	38.8 µg/l
Selenium	✔		1	EPA6010C	10	<10	<10	235.8 µg/L	
Silver	✔		1	EPA6010C	5	<5	<5	35.1 µg/L	
Zinc		✔	1	EPA6010C	20	4120	4120	420 µg/L	89.1 µg/l
Cyanide		✔	1	SM4500-CN-E	10	13	13	178 mg/L	5.2 µg/l
B. Non-Halogenated VOCs									
Total BTEX	✔		1	8260C	6.0	<6		100 µg/L	---
Benzene	✔		1	8260C	1.0	<1.0		5.0 µg/L	---
1,4 Dioxane	✔		1	8260C	500	<500		200 µg/L	---
Acetone	✔		1	8260C	20	<20		7.97 mg/L	---
Phenol	✔		1	8270D	2.0	<2.0		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	8260C	1.0	<1.0	<1.0	4.4 µg/L	
1,2 Dichlorobenzene	✔		1	8260C	1.0	<1.0	<1.0	600 µg/L	---
1,3 Dichlorobenzene	✔		1	8260C	1.0	<1.0	<1.0	320 µg/L	---
1,4 Dichlorobenzene	✔		1	8260C	1.0	<1.0	<1.0	5.0 µg/L	---
Total dichlorobenzene	✔		1	8260C	3.0	<3.0	<3.0	763 µg/L in NH	---
1,1 Dichloroethane	✔		1	8260C	1.0	<1.0	<1.0	70 µg/L	---
1,2 Dichloroethane	✔		1	8260C	1.0	<1.0	<1.0	5.0 µg/L	---
1,1 Dichloroethylene	✔		1	8260C	1.0	<1.0	<1.0	3.2 µg/L	---
Ethylene Dibromide	✔		1	8260C	1.0	<1.0	<1.0	0.05 µg/L	---
Methylene Chloride	✔		1	8260C	1.0	<1.0	<1.0	4.6 µg/L	---
1,1,1 Trichloroethane	✔		1	8260C	1.0	<1.0	<1.0	200 µg/L	---
1,1,2 Trichloroethane	✔		1	8260C	1.0	<1.0	<1.0	5.0 µg/L	---
Trichloroethylene	✔		1	8260C	1.0	<1.0	<1.0	5.0 µg/L	---
Tetrachloroethylene	✔		1	8260C	1.0	<1.0	<1.0	5.0 µg/L	
cis-1,2 Dichloroethylene	✔		1	8260C	1.0	<1.0	<1.0	70 µg/L	---
Vinyl Chloride	✔		1	8260C	1.0	<1.0	<1.0	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✔		1	8270D	21	<21	<21	190 µg/L	
Diethylhexyl phthalate	✔		1	8270D	6	<6.0	<6.0	101 µg/L	
Total Group I PAHs	✔		1	8270D	14	<14	<14	1.0 µg/L	---
Benzo(a)anthracene	✔		1	8270D	2.0	<2.0	<2.0	As Total PAHs	
Benzo(a)pyrene	✔		1	8270D	2.0	<2.0	<2.0		
Benzo(b)fluoranthene	✔		1	8270D	2.0	<2.0	<2.0		
Benzo(k)fluoranthene	✔		1	8270D	2.0	<2.0	<2.0		
Chrysene	✔		1	8270D	2.0	<2.0	<2.0		
Dibenzo(a,h)anthracene	✔		1	8270D	2.0	<2.0	<2.0		
Indeno(1,2,3-cd)pyrene	✔		1	8270D	2.0	<2.0	<2.0		

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	18	<18	<18	100 µg/L	---
Naphthalene	✔		1	8270D	2.0	<2.0	<2.0	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		1	8082A	0.2	<0.2	<0.2	0.000064 µg/L	---
Pentachlorophenol	✔		1	8270D	5.0	<5.0	<5.0	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✔		1	8100	200	<200	<200	5.0 mg/L	---
Ethanol	✔		1	8270D	10	<10	<10	Report mg/L	---
Methyl-tert-Butyl Ether	✔		1	8260C	1	<1.0	<1.0	70 µg/L	
tert-Butyl Alcohol	✔		1	8260C	5	<5.0	<5.0	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		1	8260C	1	<1.0	<1.0	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:									

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.
A sediment bag filter (Ultra-Dewatering Bags®) will be utilized to dewater the dredged sediment prior to disposal and discharge the accumulated water back into the pond.

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:

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: 6" Hydraulic Pump Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	1100 GPM
Provide the proposed maximum effluent flow in gpm.	1500 GPM
Provide the average effluent flow in gpm.	1100 GPM
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	n/a

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:
None

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.

Supplemental information is provided in the main letter report.

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:	BMPP meeting the requirements of this general permit will be developed and implemented upon initiation of discharge.
Notification provided to the appropriate State, including a copy of this NOI, if required.	Check one: Yes ☐ No ■
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: 2/11/21
Print Name and Title:	Kyle Annutto - Project Manager

ATTACHMENT 2

MassDEP
Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Kathleen A. Theoharides
Secretary

Martin Suuberg
Commissioner

Susan McArthur
MassDOT-Highway Division
Ten Park Plaza, Room 4260
Boston, MA 02116

February 5, 2020

RE: **401 WATER QUALITY CERTIFICATION**

Application for: BRP WW 08
MINOR DREDGE CERTIFICATION

Application for BRP WW11
MINOR FILL AND EXCAVATION PROJECTS

AT: Spy Pond
Arlington
Mystic River & Coastal Drainage Area

401 WQC Transmittal No: X284180 (Fill) & X284214 (Dredge)
Wetlands File No: NE 91-310
AcoE Application No: NAE-2019-00082
Project No. 609222

Dear Ms. McArthur:

The Department of Environmental Protection ("MassDEP") has reviewed your application for a Water Quality Certification (WQC), as referenced above. In accordance with the provisions of MGL Ch. 21, §§26-53 and Section 401 of the Federal Clean Water Act as amended (33 U.S.C. §1251 et seq.), it has been determined there is reasonable assurance the proposed project will be conducted in a manner which will not violate applicable water quality standards (314 CMR 4.00) and other applicable requirements of state law.

The proposed project entails the dredging of approximately 800 yd^3 of sediment from the southwest corner of Spy Pond. Stormwater runoff from Route 2 and neighboring towns of Arlington and Belmont discharges through a 54-inch outfall to Spy Pond. Sediment from sand used for winter roadway maintenance has accumulated over time in the southwestern corner of the Pond and hindered recreational access for the public and ecological integrity. The purpose of the Project is to remove accumulated sediment downstream of the outfall to restore recreational access and aquatic habitat to the corner of the Pond. In addition to dredging, the existing riprap erosion control at the outfall will be modified including placing grout to stabilize the existing riprap.

As required by the Order of Conditions issued by the Arlington Conservation Commission (File No. SE91-310) the dredging shall be performed by hydraulic dredging. The dredge spoils will be pumped to geo-tubes to be located on the multi-use path for dewatering. This work will be performed in accordance with the "Construction Sequence" and Hydraulic Dredging Alternative outlined in the Water Quality Certification Application.

In addition, the proposed scour improvements at the 54-inch outfall will consist of modifying the existing stone stabilization at the headwall. The existing stabilization is comprised of a layer of stone on the pond bottom and vertical stone slabs, installed to disperse the discharge velocity or divert the flow. Improvements will consist of drilling holes into the stone slabs at the pond bottom and breaking off the top 2-feet of the slabs with an excavator, laying them down at an elevation below the outfall culvert invert, and place underwater grout to stabilize the existing stones (in between the existing rock and slabs).

The proposed improvements will direct stormwater flow from the outfall toward the center of the Pond. The proposed drilling and grouting will occur in wet conditions, and the excavator will be placed on a spud barge, which will be "secured" in-place while the slabs are cut and removed. A turbidity curtain will be installed around the barge as a primary containment measure prior to construction activities.

The access/egress location into the Pond to perform the work is proposed to be through the MassDOT right-of-way (ROW) along the southeastern edge of the Pond adjacent to Route 2. Vegetative clearing will be necessary to allow for adequate access. A change in access location may require approval of both the Arlington Conservation Commission and MassDEP.

The cumulative impacts to wetlands will be 10,350 ft^2 of impacts to Land Under Water (LUW) with 10,000 ft^2 associated with the dredging operation and 350 ft^2 associated with the scour protection.

Based on a review of information provided by the applicant, MassDEP finds that this project complies with the standards described under 314 CMR 9.06. Public notice was provided in The Arlington Advocate on September 5, 2019. The Department did not receive any public comments during the 21-day public comment periods which ended on September 26, 2019.

Therefore, based on information currently in the record, the Department grants a 401 Water Quality Certification for this project subject to the following conditions to maintain water quality, to minimize impact on waters and wetlands, and to ensure compliance with appropriate state law. The Department further certifies in accordance with 314 CMR 9.00 that there is reasonable assurance the project or activity will be conducted in a manner which will not violate applicable water quality standards (314 CMR 4.00) and other applicable requirements of state law. Finally, the Department has determined that upon satisfying the conditions and mitigation requirements of this approval, the project provides a level of water quality necessary to protect existing uses and accordingly finds that the project to be implemented satisfies the Surface Water Quality Standards at 314 CMR 4.00.

Those special conditions that require direct submittals to MassDEP for either review or review and approval are denoted by the following notation (Submittal) at the end of the condition. In addition, those conditions with the (Submittal) designation shall be included in the Special Provisions and reviewed at the District Pre-Construction Conference.

1. This project could result in a violation of the water quality standards adopted by MassDEP's Division of Water Pollution Control. Therefore, reasonable care and diligence shall be taken by the applicant to ensure that the proposed activity will not violate Inland Water Class B criteria [314 CMR 4.05 (4) (a) and (5)].

2. Prior to the start of work, MassDOT shall provide MassDEP with an electronic copy the 100% Design Plans. **(Submittal)**

3. Prior to the start of work, the applicant shall provide MassDEP with the name, address and phone number(s) of the person responsible for ensuring that all work complies with the conditions of this Water Quality Certification. **(Submittal)**

4. MassDEP shall be copied on the Army Corps of Engineers (Corps) Work Start Notification Form which is due at least two weeks before the anticipated starting date and the Corps Compliance Certification Form within one month following the completion of the authorized work. **(Submittal)**

5. Any proposed changes, alterations or amendment request as well as any required submittals shall be sent by email to christopher.ross@mass.gov. **(Submittal)**

6. A minimum of twenty-one (21) days prior to commencement of construction MassDOT shall contact MassDEP, (with notice provided to the Arlington Conservation Agent) to schedule a pre-construction on-site inspection to review the plans and terms and conditions of this Water Quality Certificate (WQC). It would be preferable for the dewatering system to be installed prior to the pre-construction on-site. **(Submittal)**

7. Any change to the approved dewatering system requires the prior written approval of MassDEP. **(Submittal)**

8. Vegetative cutting and clearing of the slope necessary to allow for access shall be minimized.

9. All work shall be performed in accordance with the following documents and plans:

   - Application(s) for Water Quality Certificate received on September 18, 2019, Transmittal Forms #X284180 (Fill) & X28214 (Dredge).

   - Plan entitled: "At: Spy Pond, In: Arlington Middlesex County" USGS Locus Map; Sheet 1 of 8; Prepared by VHB; Dated: November, 2019.

   - Plan entitled: "At: Spy Pond, In: Arlington Middlesex County" Overall Proposed Conditions; Sheet 2 of 8; Prepared by VHB; Dated: November, 2019.

   - Plan entitled: "At: Spy Pond, In: Arlington Middlesex County" Proposed Conditions; Sheet 3 of 8; Prepared by VHB; Dated: November, 2019.

   - Plan entitled: "At: Spy Pond, In: Arlington Middlesex County" Proposed Conditions; Sheet 4 of 8; Prepared by VHB; Dated: November, 2019.

   - Plan entitled: "At: Spy Pond, In: Arlington Middlesex County" Cross Section A-A; Sheet 5 of 8; Prepared by VHB; Dated: November, 2019.

- Plan entitled: "At: Spy Pond, In: Arlington Middlesex County" Cross Section B-B; Sheet 6 of 8; Prepared by VHB; Dated: November, 2019.

- Plan entitled: "At: Spy Pond, In: Arlington Middlesex County" Cross Section C-C; Sheet 7 of 8; Prepared by VHB; Dated: November, 2019.

- Plan entitled: "At: Spy Pond, In: Arlington Middlesex County" Cross Section D-D; Sheet 8 of 8; Prepared by VHB; Dated: November, 2019.

10. Prior to commencement of construction adequate erosion control measures shall be installed to protect all wetland resource areas. Erosion control measures may consist of, but are not limited to silt fence, staked hay bales, silt curtains/booms, silt bags, compost filter tubes, etc.

11. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify MassDEP, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by MassDEP pursuant to this Certification.

12. A stockpile of erosion control materials shall be kept on-site at all times for emergency and routine replacement. The materials may include but are not limited to silt fence, hay bales, stone riprap, filter dikes, compost filter tubes or any other devices planned for use during construction.

13. It is the responsibility of the contractor to assure that all wetland resource areas are adequately protected with erosion and sedimentation controls. Additional erosion and sedimentation control barriers beyond that which is shown on the plan may be required.

14. The proposed project will result in cumulative impacts to wetlands of 10,350 ft^2 of permanent impact Land Under Water (LUW) with 10,000 ft^2 of impacts associated with the dredging operation and 350 ft^2 with the scour protection.

15. Dredging, as proposed and hereby permitted is limited to a total volume of 800+/- yd^3.

16. As required by special condition #32 of the Arlington Conservation Commission's Order of Conditions (File No. NE 91-310) dredging shall be performed by hydraulic dredge.

17. The dredge spoils will be pumped to geo-tubes to be located on the multi-use path for dewatering. This work will be performed in accordance with the "Construction Sequence" and Hydraulic Dredging Alternative outlined in the Water Quality Certification Application.

18. Dredging in accord with this Certification may begin following the 21-day appeal period and once all other permits have been received.

19. No later than four (4) weeks after Awarding of the Contract, the applicant shall submit a notification procedure outlining the reporting process to the Department for incidents, relating to the dredging activities, impacting surrounding resource areas and habitats such as, but not limited to, observed dead or distressed fish, or other aquatic organisms, observed oily sheen on surface water, sediment spill, turbidity plume beyond deployed BMP's and barging or equipment accident/spill. If at any time during implementation of the project, all site related activities impacting the water shall cease until the source of the problem is identified and adequate mitigating measures employed to the satisfaction of the Department. **(Submittal)**

20. The Water Quality Certification (WQC) Dredge Permit Notification procedure for Incidents Related to Dredging Activities developed by the MADOT in 2010 shall be implemented in executing this project. Dredging activity shall not commence until the Dredge Permit Notification procedure is in place.

21. The Department shall be notified, one week prior to the start of in-water work so that Department staff may inspect the work for compliance with the terms and conditions of this Certification. **(Submittal)**

22. The contractor will be required to provide the dredge material disposal location to the Department prior to disposal. The estimated volume to be stored, prior to transport to the disposal location, shall be reported to the Department. **(Submittal)**

23. The Certification remains in effect for the same duration as the federal permit that requires it or five years from the date of issuance of this Certification whichever comes first.

24. Future maintenance dredging is not authorized under this Certification.

25. A Dredged Material Tracking Form (DMTF) or Material Shipping Record (MSR) shall be used to track the dredged material to the approved licensed upland facility. A fully executed copy of the DMTF or MSR shall be provided to the Department within 30 days of final shipment to the reused location or facility. **(Submittal)**

26. Best Management Practices (BMPs) shall be implemented during transportation of the dredged material to the licensed receiving facility. At a minimum, when transported upon public roadways, all dredged material shall have no free liquid as determined by the Paint Filter Test or other suitably analogous methodology acceptable to the Department, and a tarpaulin or other means shall be used to cover the dredged material during transport.

27. Upon completion of construction and once areas have been stabilized all non-biodegradable erosion control barriers shall be removed.

28. Compost filter that are encased in non-biodegradable material(s) shall be sliced and the non-biodegradable material(s) removed.

29. No Special Condition set forth herein shall be constructed or operate to prohibit the Department from taking enforcement against the DOT or its contractors for any failure to comply with the terms and requirements of this 401 Water Quality Certification.

30. No activity authorized by this Water Quality Certification may begin prior to expiration of the 21-day appeal period or until a final decision is issued by MassDEP if an appeal is filed.

Failure to comply with this Certification is grounds for enforcement, including civil and criminal penalties, under MGL Ch. 21 §42, MGL Ch. 21A §16, or other possible actions/penalties as authorized by the General Laws of the Commonwealth.

This Certification does not relieve the applicant of the obligation to comply with other appropriate state or federal statutes or regulations.

NOTICE OF APPEAL RIGHTS

A) Appeal Rights and Time Limits

Certain persons shall have a right to request an adjudicatory hearing concerning certifications by MassDEP when an application is required: (a) the applicant or property owner; (b) any person aggrieved by the decision who has submitted written comments during the public comment period; any ten (10) persons of the Commonwealth pursuant to M.G.L. c.30A where a group member has submitted written comments during the public comment period; or (d) any governmental body or private organization with a mandate to protect the environment which has submitted written comments during the public comment period. Any person aggrieved, any ten (10) persons of the Commonwealth, or a governmental body or private organization with a mandate to protect the environment may appeal without having submitted written comments during the public comment period only when the claim is based on new substantive issues arising from material changes to the scope or impact of the activity and not apparent at the time of public notice. To request an adjudicatory hearing pursuant to M.G.L. c.30A, § 10, a Notice of Claim must be made in writing, provided that the request is made by certified mail or hand delivery to MassDEP, with the appropriate filing fee specified within 310 CMR 4.10 along with a DEP Fee Transmittal Form within twenty-one (21) days from the date of issuance of this Certificate, and addressed to:

Case Administrator
Department of Environmental Protection
One Winter Street, 2nd Floor
Boston, MA 02108

A copy of the request shall at the same time be sent by certified mail or hand delivery to the Department of Environmental Protection at:

Department of Environmental Protection
Commissioner's Office
One Winter Street, 2nd Floor
Boston, MA 02108

B) Contents of Hearing Request

A Notice of Claim for Adjudicatory Hearing shall comply with MassDEP's Rules for Adjudicatory Proceedings, 310 CMR 1.01(6), and shall contain the following information pursuant to 314 CMR 9.10(3):

(a) the 401 Certification Transmittal Number;
(b) the complete name of the applicant and address of the project;
(c) the complete name, address, and fax and telephone numbers of the party filing the request, and, if represented by counsel or other representative, the name, fax and telephone numbers, and address of the attorney;
(d) if claiming to be a party aggrieved, the specific facts that demonstrate that the party satisfies the definition of "aggrieved person" found at 314 CMR 9.02;
(e) a clear and concise statement that an adjudicatory hearing is being requested;

(f) a clear and concise statement of (1) the facts which are grounds for the proceedings, (2) the objections to this Certificate, including specifically the manner in which it is alleged to be inconsistent with the MassDEP's Water Quality Regulations, 314 CMR 9.00, and (3) the relief sought through the adjudicatory hearing, including specifically the changes desired in the final written Certification; and

(g) a statement that a copy of the request has been sent by certified mail or hand delivery to the applicant, the owner (if different from the applicant), the conservation commission of the city or town where the activity will occur, the Department of Environmental Management (when the certificate concerns projects in Areas of Critical Environmental Concern), the public or private water supplier where the project is located (when the certificate concerns projects in Outstanding Resource Waters), and any other entity with responsibility for the resource where the project is located.

C) Filing Fee and Address

The hearing request along with a DEP Fee Transmittal Form and a valid check or money order payable to the Commonwealth of Massachusetts in the amount of one hundred dollars ($100) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
Commonwealth Master Lockbox
PO Box 4062
Boston, MA 02211

The request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority. MassDEP may waive the adjudicatory hearing filing fee pursuant to 310 CMR 4.06(2) for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file an affidavit setting forth the facts believed to support the claim of undue financial hardship together with the hearing request as provided above.

Should you have any questions relative to this permit, please contact me at (508) 946-2813.

Very truly yours,

CHRIS ROSS

Christopher Ross
MassDOT Project Manager

Enc: Material Shipping Record

cc: Arlington Conservation Commission
730 Mass Avenue
Arlington, MA 02474

Ecc: DEP-NERO-Rachel Freed
DEP-Boston- Susan You
Arlington Conservation Commission-Emily Sullivan
MassDOT-Melissa Lenker
ACOE-Dan Vasconcelos
VHB- Jay Quattrocchi

ATTACHMENT 3

New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 1A20046
Client Project: 19.00.20 - Spy Pond Dredging

Report Date: 25-January-2021

Prepared for:

Chhavan Nuon
SAK Environmental, LLC
231 Sutton Street, Suite 2G
North Andover, MA 01845

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 01/20/21. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 1A20046. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
1A20046-01	RE-01	Water	01/20/2021	01/20/2021
1A20046-02	IN-01	Water	01/20/2021	01/20/2021

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

IN-01 (Lab Number: 1A20046-02)

Analysis	Method
Ammonia	SM4500-NH3-D (11)
Antimony	EPA 6010C
Arsenic	EPA 6010C
Cadmium	EPA 6010C
Chloride	SM4500CI-B (11)
Chromium	EPA 6010C
Copper	EPA 6010C
Cyanide	SM4500-CN-E (11)
Hexavalent Chromium	SM3500-Cr-B (11)
Iron	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Methanol and Ethanol	EPA-8100-mod
Nickel	EPA 6010C
PCBs	EPA 8082A
Selenium	EPA 6010C
Semivolatile Organic Compounds	EPA 8270D
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Total Residual Chlorine	SM4500-CI-G (11)
Total Suspended Solids	SM2540-D (11)
Trivalent Chromium	Calculation
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

RE-01 (Lab Number: 1A20046-01)

Analysis	Method
Ammonia	SM4500-NH3-D (11)
Antimony	EPA 6010C
Arsenic	EPA 6010C
Cadmium	EPA 6010C
Calcium	SM3120-B (11)
Chromium	EPA 6010C
Copper	EPA 6010C
Hexavalent Chromium	SM3500-Cr-B (11)
Iron	EPA 6010C
Lead	EPA 6010C
Magnesium	SM3120-B (11)
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Total Hardness	Calculation
Trivalent Chromium	Calculation
Zinc	EPA 6010C

Method References

Methods for the Determination of Metals in Environmental Samples EPA-600/R-94/111, USEPA, 1994

Standard Methods for the Examination of Water and Wastewater, 20th Edition, APHA/ AWWA-WPCF, 1998

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt:

The samples associated with this work order were received in appropriately cooled and preserved containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Exceptions: None

Analysis:

All samples were prepared and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances. Results for all soil samples, unless otherwise indicated, are reported on a dry weight basis.

Exceptions:

Ammonia: Due to a matrix interference, the 'RE-01' sample had a matrix spike recovery outside of the recommended QC parameters.

Chloride: Due to a matrix interference, the 'IN-01' sample had a matrix spike recovery outside of the recommended QC parameters. The sample was recieved and analyzed outside of the method recommended holding time.

Total Residual Chlorine: Due to a matrix interference, the 'IN-01' sample had a matrix spike recovery outside of the recommended QC parameters.

Results: Calculation

Sample: RE-01

Lab Number: 1A20046-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Trivalent Chromium	ND		0.0150	mg/L	01/21/21 12:34	01/22/21 14:29

Results: Calculation

Sample: IN-01

Lab Number: 1A20046-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Trivalent Chromium	**0.343**		0.0150	mg/L	01/21/21 12:34	01/22/21 14:32

Results: General Chemistry

Sample: RE-01

Lab Number: 1A20046-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Ammonia	**0.2**		0.1	mg/L	01/25/21	01/25/21
Hexavalent chromium	ND		0.01	mg/L	01/21/21 9:00	01/21/21 9:00

Results: General Chemistry

Sample: IN-01

Lab Number: 1A20046-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Ammonia	**1.7**		0.1	mg/L	01/25/21	01/25/21
Chloride	**295**		25	mg/L	01/25/21	01/25/21
Cyanide	**0.013**		0.010	mg/L	01/25/21	01/25/21
Hexavalent chromium	ND		0.01	mg/L	01/21/21 9:00	01/21/21 9:00
Total Residual Chlorine	**0.50**		0.01	mg/L	01/21/21 16:45	01/21/21 16:45
Total Suspended Solids	**1490**		11	mg/L	01/22/21	01/22/21

Results: Total Metals

Sample: RE-01

Lab Number: 1A20046-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Hardness	**70.5**		0.125	mg/L	01/21/21	01/22/21
Antimony	ND		0.005	mg/L	01/21/21	01/22/21
Arsenic	ND		0.01	mg/L	01/21/21	01/22/21
Cadmium	ND		0.005	mg/L	01/21/21	01/22/21
Calcium	**21.2**		0.05	mg/L	01/21/21	01/22/21
Chromium	ND		0.005	mg/L	01/21/21	01/22/21
Copper	ND		0.02	mg/L	01/21/21	01/22/21
Iron	**0.20**		0.05	mg/L	01/21/21	01/22/21
Lead	ND		0.005	mg/L	01/21/21	01/22/21
Magnesium	**4.26**		0.05	mg/L	01/21/21	01/22/21
Mercury	ND		0.0002	mg/L	01/22/21	01/22/21
Nickel	ND		0.005	mg/L	01/21/21	01/22/21
Selenium	ND		0.01	mg/L	01/21/21	01/22/21
Silver	ND		0.005	mg/L	01/21/21	01/22/21
Zinc	ND		0.020	mg/L	01/21/21	01/22/21

Results: Total Metals

Sample: IN-01

Lab Number: 1A20046-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Antimony	**0.016**		0.005	mg/L	01/21/21	01/22/21
Arsenic	**0.06**		0.01	mg/L	01/21/21	01/22/21
Cadmium	**0.033**		0.005	mg/L	01/21/21	01/22/21
Chromium	**0.343**		0.005	mg/L	01/21/21	01/22/21
Copper	**1.53**		0.02	mg/L	01/21/21	01/22/21
Iron	**161**		0.05	mg/L	01/21/21	01/22/21
Lead	**5.96**		0.005	mg/L	01/21/21	01/22/21
Mercury	**0.0006**		0.0002	mg/L	01/22/21	01/22/21
Nickel	**0.173**		0.005	mg/L	01/21/21	01/22/21
Selenium	ND		0.01	mg/L	01/21/21	01/22/21
Silver	ND		0.005	mg/L	01/21/21	01/22/21
Zinc	**4.12**		0.020	mg/L	01/21/21	01/22/21

Results: Volatile Organic Compounds

Sample: IN-01

Lab Number: 1A20046-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		20	ug/l	01/21/21	01/21/21
Benzene	ND		1	ug/l	01/21/21	01/21/21
Bromobenzene	ND		1	ug/l	01/21/21	01/21/21
Bromochloromethane	ND		1	ug/l	01/21/21	01/21/21
Bromodichloromethane	ND		1	ug/l	01/21/21	01/21/21
Bromoform	ND		1	ug/l	01/21/21	01/21/21
Bromomethane	ND		1	ug/l	01/21/21	01/21/21
2-Butanone	ND		10	ug/l	01/21/21	01/21/21
tert-Butyl alcohol	ND		5	ug/l	01/21/21	01/21/21
sec-Butylbenzene	ND		1	ug/l	01/21/21	01/21/21
n-Butylbenzene	ND		1	ug/l	01/21/21	01/21/21
tert-Butylbenzene	ND		1	ug/l	01/21/21	01/21/21
Methyl t-butyl ether (MTBE)	ND		1	ug/l	01/21/21	01/21/21
Carbon Disulfide	ND		1	ug/l	01/21/21	01/21/21
Carbon Tetrachloride	ND		1	ug/l	01/21/21	01/21/21
Chlorobenzene	ND		1	ug/l	01/21/21	01/21/21
Chloroethane	ND		1	ug/l	01/21/21	01/21/21
Chloroform	ND		1	ug/l	01/21/21	01/21/21
Chloromethane	ND		1	ug/l	01/21/21	01/21/21
4-Chlorotoluene	ND		1	ug/l	01/21/21	01/21/21
2-Chlorotoluene	ND		1	ug/l	01/21/21	01/21/21
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/l	01/21/21	01/21/21
Dibromochloromethane	ND		1	ug/l	01/21/21	01/21/21
1,2-Dibromoethane (EDB)	ND		1	ug/l	01/21/21	01/21/21
Dibromomethane	ND		1	ug/l	01/21/21	01/21/21
1,2-Dichlorobenzene	ND		1	ug/l	01/21/21	01/21/21
1,3-Dichlorobenzene	ND		1	ug/l	01/21/21	01/21/21
1,4-Dichlorobenzene	ND		1	ug/l	01/21/21	01/21/21
1,1-Dichloroethane	ND		1	ug/l	01/21/21	01/21/21
1,2-Dichloroethane	ND		1	ug/l	01/21/21	01/21/21
trans-1,2-Dichloroethene	ND		1	ug/l	01/21/21	01/21/21
cis-1,2-Dichloroethene	ND		1	ug/l	01/21/21	01/21/21
1,1-Dichloroethene	ND		1	ug/l	01/21/21	01/21/21
1,2-Dichloropropane	ND		1	ug/l	01/21/21	01/21/21
2,2-Dichloropropane	ND		1	ug/l	01/21/21	01/21/21
cis-1,3-Dichloropropene	ND		1	ug/l	01/21/21	01/21/21
trans-1,3-Dichloropropene	ND		1	ug/l	01/21/21	01/21/21
1,1-Dichloropropene	ND		1	ug/l	01/21/21	01/21/21
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	01/21/21	01/21/21
Diethyl ether	ND		5	ug/l	01/21/21	01/21/21
1,4-Dioxane	ND		500	ug/l	01/21/21	01/21/21
Ethylbenzene	ND		1	ug/l	01/21/21	01/21/21
Hexachlorobutadiene	ND		1	ug/l	01/21/21	01/21/21
2-Hexanone	ND		5	ug/l	01/21/21	01/21/21
Isopropylbenzene	ND		1	ug/l	01/21/21	01/21/21
p-Isopropyltoluene	ND		1	ug/l	01/21/21	01/21/21
Methylene Chloride	ND		1	ug/l	01/21/21	01/21/21
4-Methyl-2-pentanone	ND		5	ug/l	01/21/21	01/21/21

Sample: IN-01 (Continued)

Lab Number: 1A20046-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		1	ug/l	01/21/21	01/21/21
n-Propylbenzene	ND		1	ug/l	01/21/21	01/21/21
Styrene	ND		1	ug/l	01/21/21	01/21/21
1,1,1,2-Tetrachloroethane	ND		1	ug/l	01/21/21	01/21/21
Tetrachloroethene	ND		1	ug/l	01/21/21	01/21/21
Tetrahydrofuran	ND		5	ug/l	01/21/21	01/21/21
Toluene	ND		1	ug/l	01/21/21	01/21/21
1,2,4-Trichlorobenzene	ND		1	ug/l	01/21/21	01/21/21
1,2,3-Trichlorobenzene	ND		1	ug/l	01/21/21	01/21/21
1,1,2-Trichloroethane	ND		1	ug/l	01/21/21	01/21/21
1,1,1-Trichloroethane	ND		1	ug/l	01/21/21	01/21/21
Trichloroethene	ND		1	ug/l	01/21/21	01/21/21
1,2,3-Trichloropropane	ND		1	ug/l	01/21/21	01/21/21
1,3,5-Trimethylbenzene	ND		1	ug/l	01/21/21	01/21/21
1,2,4-Trimethylbenzene	ND		1	ug/l	01/21/21	01/21/21
Vinyl Chloride	ND		1	ug/l	01/21/21	01/21/21
o-Xylene	ND		1	ug/l	01/21/21	01/21/21
m&p-Xylene	ND		2	ug/l	01/21/21	01/21/21
Total xylenes	ND		1	ug/l	01/21/21	01/21/21
1,1,2,2-Tetrachloroethane	ND		1	ug/l	01/21/21	01/21/21
tert-Amyl methyl ether	ND		1	ug/l	01/21/21	01/21/21
1,3-Dichloropropane	ND		1	ug/l	01/21/21	01/21/21
Ethyl tert-butyl ether	ND		1	ug/l	01/21/21	01/21/21
Diisopropyl ether	ND		1	ug/l	01/21/21	01/21/21
Trichlorofluoromethane	ND		1	ug/l	01/21/21	01/21/21
Dichlorodifluoromethane	ND		1	ug/l	01/21/21	01/21/21

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*99.0%*	*70-130*	01/21/21	01/21/21
1,2-Dichloroethane-d4	*102%*	*70-130*	01/21/21	01/21/21
Toluene-d8	*99.9%*	*70-130*	01/21/21	01/21/21

Results: Semivolatile organic compounds

Sample: IN-01

Lab Number: 1A20046-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Ethanol	ND		10	mg/L	01/25/21	01/25/21
1,2,4-Trichlorobenzene	ND		2	ug/l	01/22/21	01/25/21
1,2-Dichlorobenzene	ND		2	ug/l	01/22/21	01/25/21
1,3-Dichlorobenzene	ND		2	ug/l	01/22/21	01/25/21
1,4-Dichlorobenzene	ND		2	ug/l	01/22/21	01/25/21
Phenol	ND		2	ug/l	01/22/21	01/25/21
2,4,5-Trichlorophenol	ND		2	ug/l	01/22/21	01/25/21
2,4,6-Trichlorophenol	ND		2	ug/l	01/22/21	01/25/21
2,4-Dichlorophenol	ND		2	ug/l	01/22/21	01/25/21
2,4-Dimethylphenol	ND		10	ug/l	01/22/21	01/25/21
2,4-Dinitrophenol	ND		5	ug/l	01/22/21	01/25/21
2,4-Dinitrotoluene	ND		2	ug/l	01/22/21	01/25/21
2,6-Dinitrotoluene	ND		2	ug/l	01/22/21	01/25/21
2-Chloronaphthalene	ND		2	ug/l	01/22/21	01/25/21
2-Chlorophenol	ND		2	ug/l	01/22/21	01/25/21
2-Methylnaphthalene	ND		2	ug/l	01/22/21	01/25/21
Nitrobenzene	ND		2	ug/l	01/22/21	01/25/21
2-Methylphenol	ND		2	ug/l	01/22/21	01/25/21
2-Nitroaniline	ND		2	ug/l	01/22/21	01/25/21
2-Nitrophenol	ND		5	ug/l	01/22/21	01/25/21
3,3'-Dichlorobenzidine	ND		5	ug/l	01/22/21	01/25/21
3-Nitroaniline	ND		2	ug/l	01/22/21	01/25/21
4,6-Dinitro-2-methylphenol	ND		5	ug/l	01/22/21	01/25/21
4-Bromophenyl phenyl ether	ND		2	ug/l	01/22/21	01/25/21
4-Chloro-3-methylphenol	ND		2	ug/l	01/22/21	01/25/21
4-Chloroaniline	ND		5	ug/l	01/22/21	01/25/21
4-Chlorophenyl phenyl ether	ND		2	ug/l	01/22/21	01/25/21
4-Nitroaniline	ND		2	ug/l	01/22/21	01/25/21
4-Nitrophenol	ND		5	ug/l	01/22/21	01/25/21
Acenaphthene	ND		2	ug/l	01/22/21	01/25/21
Acenaphthylene	ND		2	ug/l	01/22/21	01/25/21
Aniline	ND		2	ug/l	01/22/21	01/25/21
Anthracene	ND		2	ug/l	01/22/21	01/25/21
Benzo(a)anthracene	ND		2	ug/l	01/22/21	01/25/21
Benzo(a)pyrene	ND		2	ug/l	01/22/21	01/25/21
Benzo(b)fluoranthene	ND		2	ug/l	01/22/21	01/25/21
Benzo(g,h,i)perylene	ND		2	ug/l	01/22/21	01/25/21
Benzo(k)fluoranthene	ND		2	ug/l	01/22/21	01/25/21
Benzoic acid	ND		15	ug/l	01/22/21	01/25/21
Bis(2-chloroethoxy)methane	ND		2	ug/l	01/22/21	01/25/21
Bis(2-chloroethyl)ether	ND		2	ug/l	01/22/21	01/25/21
Bis(2-chloroisopropyl)ether	ND		2	ug/l	01/22/21	01/25/21
Bis(2-ethylhexyl)phthalate	ND		6	ug/l	01/22/21	01/25/21
Butyl benzyl phthalate	ND		3	ug/l	01/22/21	01/25/21
Chrysene	ND		2	ug/l	01/22/21	01/25/21
Di(n)octyl phthalate	ND		3	ug/l	01/22/21	01/25/21
Dibenz(a,h)anthracene	ND		2	ug/l	01/22/21	01/25/21
Dibenzofuran	ND		2	ug/l	01/22/21	01/25/21

Results: Semivolatile organic compounds (Continued)

Sample: IN-01 (Continued)

Lab Number: 1A20046-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Diethyl phthalate	ND		2	ug/l	01/22/21	01/25/21
Dimethyl phthalate	ND		5	ug/l	01/22/21	01/25/21
Di-n-butylphthalate	ND		2	ug/l	01/22/21	01/25/21
Fluoranthene	ND		2	ug/l	01/22/21	01/25/21
Fluorene	ND		2	ug/l	01/22/21	01/25/21
Hexachlorobenzene	ND		2	ug/l	01/22/21	01/25/21
Hexachlorobutadiene	ND		2	ug/l	01/22/21	01/25/21
Hexachlorocyclopentadiene	ND		5	ug/l	01/22/21	01/25/21
Hexachloroethane	ND		2	ug/l	01/22/21	01/25/21
Indeno(1,2,3-cd)pyrene	ND		2	ug/l	01/22/21	01/25/21
Isophorone	ND		2	ug/l	01/22/21	01/25/21
Naphthalene	ND		2	ug/l	01/22/21	01/25/21
N-Nitrosodimethylamine	ND		2	ug/l	01/22/21	01/25/21
N-Nitrosodi-n-propylamine	ND		2	ug/l	01/22/21	01/25/21
N-Nitrosodiphenylamine	ND		2	ug/l	01/22/21	01/25/21
Pentachlorophenol	ND		5	ug/l	01/22/21	01/25/21
Phenanthrene	ND		2	ug/l	01/22/21	01/25/21
Pyrene	ND		2	ug/l	01/22/21	01/25/21
m&p-Cresol	ND		4	ug/l	01/22/21	01/25/21
Pyridine	ND		2	ug/l	01/22/21	01/25/21

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*90.7%*	*30-118*	01/22/21	01/25/21
p-Terphenyl-d14	*97.4%*	*38-130*	01/22/21	01/25/21
2-Fluorobiphenyl	*88.5%*	*30-119*	01/22/21	01/25/21
Phenol-d6	*19.2%*	*10-115*	01/22/21	01/25/21
2,4,6-Tribromophenol	*108%*	*15-130*	01/22/21	01/25/21
2-Fluorophenol	*27.4%*	*10-115*	01/22/21	01/25/21

Results: Polychlorinated Biphenyls (PCBs)

Sample: IN-01

Lab Number: 1A20046-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		0.2	ug/l	01/22/21	01/25/21
Aroclor-1221	ND		0.4	ug/l	01/22/21	01/25/21
Aroclor-1232	ND		0.2	ug/l	01/22/21	01/25/21
Aroclor-1242	ND		0.2	ug/l	01/22/21	01/25/21
Aroclor-1248	ND		0.2	ug/l	01/22/21	01/25/21
Aroclor-1254	ND		0.2	ug/l	01/22/21	01/25/21
Aroclor-1260	ND		0.2	ug/l	01/22/21	01/25/21
Aroclor-1262	ND		0.2	ug/l	01/22/21	01/25/21
Aroclor-1268	ND		0.2	ug/l	01/22/21	01/25/21
PCBs (Total)	ND		0.2	ug/l	01/22/21	01/25/21

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*58.5%*	*30-107*	01/22/21	01/25/21
Decachlorobiphenyl (DCBP)	*73.8%*	*30-140*	01/22/21	01/25/21

Results: Total Petroleum Hydrocarbons

Sample: IN-01

Lab Number: 1A20046-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		200	ug/l	01/22/21	01/22/21
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*71.1%*		*47-115*		01/22/21	01/22/21

Quality Control

General Chemistry

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0832 - Hexavalent Chrome										
Blank (B1A0832-BLK1)					Prepared & Analyzed: 01/21/21					
Hexavalent chromium	ND		0.01	mg/L						
Blank (B1A0832-BLK2)					Prepared & Analyzed: 01/21/21					
Hexavalent chromium	ND		0.01	mg/L						
LCS (B1A0832-BS1)					Prepared & Analyzed: 01/21/21					
Hexavalent chromium	0.54		0.01	mg/L	0.500		108	90-110		
LCS (B1A0832-BS2)					Prepared & Analyzed: 01/21/21					
Hexavalent chromium	0.10		0.01	mg/L	0.100		105	90-110		
LCS (B1A0832-BS3)					Prepared & Analyzed: 01/21/21					
Hexavalent chromium	0.54		0.01	mg/L	0.500		108	90-110		
Duplicate (B1A0832-DUP1)		**Source: 1A20046-01**			Prepared & Analyzed: 01/21/21					
Hexavalent chromium	ND		0.01	mg/L		ND				20
Matrix Spike (B1A0832-MS1)		**Source: 1A20046-01**			Prepared & Analyzed: 01/21/21					
Hexavalent chromium	0.51		0.01	mg/L	0.500	ND	102	80-120		
Batch: B1A0902 - TSS										
Blank (B1A0902-BLK1)					Prepared & Analyzed: 01/22/21					
Total Suspended Solids	ND		2	mg/L						
LCS (B1A0902-BS1)					Prepared & Analyzed: 01/22/21					
Total Suspended Solids	934		10	mg/L	1000		93.4	90-110		

Quality Control
(Continued)

General Chemistry (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0902 - TSS (Continued)										
Duplicate (B1A0902-DUP1)		**Source: 1A20050-01**			Prepared & Analyzed: 01/22/21					
Total Suspended Solids	112		5	mg/L		116			3.51	20
Batch: B1A0964 - Residual chlorine										
Blank (B1A0964-BLK1)					Prepared & Analyzed: 01/21/21					
Total Residual Chlorine	ND		0.01	mg/L						
Blank (B1A0964-BLK2)					Prepared & Analyzed: 01/21/21					
Total Residual Chlorine	ND		0.01	mg/L						
LCS (B1A0964-BS1)					Prepared & Analyzed: 01/21/21					
Total Residual Chlorine	0.49		0.01	mg/L	0.500		98.6	90-110		
LCS (B1A0964-BS2)					Prepared & Analyzed: 01/21/21					
Total Residual Chlorine	0.50		0.01	mg/L	0.500		100	90-110		
Duplicate (B1A0964-DUP1)		**Source: 1A20046-02**			Prepared & Analyzed: 01/21/21					
Total Residual Chlorine	0.46		0.01	mg/L		0.50			8.52	20
Matrix Spike (B1A0964-MS1)		**Source: 1A20046-02**			Prepared & Analyzed: 01/21/21					
Total Residual Chlorine	0.57		0.01	mg/L	0.500	0.50	13.0	80-120		
Batch: B1A0969 - Chloride										
Blank (B1A0969-BLK1)					Prepared & Analyzed: 01/25/21					
Chloride	ND		1	mg/L						

Quality Control
(Continued)

General Chemistry (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0969 - Chloride (Continued)										
LCS (B1A0969-BS1)					Prepared & Analyzed: 01/25/21					
Chloride	62		1	mg/L	60.6		102	90-110		
Duplicate (B1A0969-DUP1)		**Source: 1A20046-02**			Prepared & Analyzed: 01/25/21					
Chloride	271		25	mg/L		295			8.33	20
Matrix Spike (B1A0969-MS1)		**Source: 1A20046-02**			Prepared & Analyzed: 01/25/21					
Chloride	377		25	mg/L	60.6	295	136	80-120		
Batch: B1A0973 - Ammonia										
Blank (B1A0973-BLK1)					Prepared & Analyzed: 01/25/21					
Ammonia	ND		0.1	mg/L						
Blank (B1A0973-BLK2)					Prepared & Analyzed: 01/25/21					
Ammonia	ND		0.1	mg/L						
LCS (B1A0973-BS1)					Prepared & Analyzed: 01/25/21					
Ammonia	0.9		0.1	mg/L	1.00		92.7	90-110		
LCS (B1A0973-BS2)					Prepared & Analyzed: 01/25/21					
Ammonia	1.0		0.1	mg/L	1.00		95.4	90-110		
Duplicate (B1A0973-DUP1)		**Source: 1A20046-01**			Prepared & Analyzed: 01/25/21					
Ammonia	0.2		0.1	mg/L		0.2			6.10	20
Matrix Spike (B1A0973-MS1)		**Source: 1A20046-01**			Prepared & Analyzed: 01/25/21					
Ammonia	0.9		0.1	mg/L	1.00	0.2	77.0	80-120		

Quality Control
(Continued)

General Chemistry (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0977 - Cyanide										
Blank (B1A0977-BLK1)					Prepared & Analyzed: 01/25/21					
Cyanide	ND		0.010	mg/L						
Blank (B1A0977-BLK2)					Prepared & Analyzed: 01/25/21					
Cyanide	ND		0.010	mg/L						
LCS (B1A0977-BS1)					Prepared & Analyzed: 01/25/21					
Cyanide	0.098		0.010	mg/L	0.100		98.0	90-110		
LCS (B1A0977-BS2)					Prepared & Analyzed: 01/25/21					
Cyanide	0.108		0.010	mg/L	0.100		108	90-110		
LCS (B1A0977-BS3)					Prepared & Analyzed: 01/25/21					
Cyanide	0.098		0.010	mg/L	0.100		98.0	90-110		
Duplicate (B1A0977-DUP1)		**Source: 1A19003-01**			Prepared & Analyzed: 01/25/21					
Cyanide	ND		0.010	mg/L		ND				200
Matrix Spike (B1A0977-MS1)		**Source: 1A19003-01**			Prepared & Analyzed: 01/25/21					
Cyanide	0.089		0.010	mg/L	0.100	ND	89.0	80-120		

Quality Control
(Continued)

Total Metals

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0793 - Metals Digestion Waters										
Blank (B1A0793-BLK1)					Prepared: 01/21/21 Analyzed: 01/22/21					
Arsenic	ND		0.01	mg/L						
Chromium	ND		0.005	mg/L						
Zinc	ND		0.020	mg/L						
Calcium	ND		0.05	mg/L						
Magnesium	ND		0.05	mg/L						
Silver	ND		0.005	mg/L						
Antimony	ND		0.005	mg/L						
Selenium	ND		0.01	mg/L						
Cadmium	ND		0.005	mg/L						
Copper	ND		0.02	mg/L						
Lead	ND		0.005	mg/L						
Nickel	ND		0.005	mg/L						
Iron	ND		0.05	mg/L						
LCS (B1A0793-BS1)					Prepared: 01/21/21 Analyzed: 01/22/21					
Selenium	0.18		0.01	mg/L	0.200		90.5	85-115		
Cadmium	0.957		0.005	mg/L	1.00		95.7	85-114		
Zinc	0.993		0.020	mg/L	1.00		99.3	85-115		
Lead	0.937		0.005	mg/L	1.00		93.7	85-115		
Nickel	0.954		0.005	mg/L	1.00		95.4	85-112		
Iron	9.87		0.05	mg/L	10.0		98.7	85-115		
Arsenic	0.20		0.01	mg/L	0.200		99.1	85-115		
Calcium	10.1		0.05	mg/L	10.0		101	85-115		
Magnesium	10.0		0.05	mg/L	10.0		100	85-115		
Chromium	0.954		0.005	mg/L	1.00		95.4	85-115		
Silver	0.384		0.005	mg/L	0.400		96.1	85-115		
Antimony	0.980		0.005	mg/L	1.00		98.0	85-115		
Copper	0.96		0.02	mg/L	1.00		95.7	85-115		

Quality Control
(Continued)

Total Metals (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0891 - Metals Cold-Vapor Mercury										
Blank (B1A0891-BLK1)					Prepared & Analyzed: 01/22/21					
Mercury	ND		0.0002	mg/L						
LCS (B1A0891-BS1)					Prepared & Analyzed: 01/22/21					
Mercury	0.0010		0.0002	mg/L	0.00100		104	85-115		

Volatile Organic Compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0846 - Purge-Trap										
Blank (B1A0846-BLK1)					Prepared & Analyzed: 01/21/21					
Acetone	ND		20	ug/l						
Benzene	ND		1	ug/l						
Bromobenzene	ND		1	ug/l						
Bromochloromethane	ND		1	ug/l						
Bromodichloromethane	ND		1	ug/l						
Bromoform	ND		1	ug/l						
Bromomethane	ND		1	ug/l						
2-Butanone	ND		10	ug/l						
tert-Butyl alcohol	ND		5	ug/l						
sec-Butylbenzene	ND		1	ug/l						
n-Butylbenzene	ND		1	ug/l						
tert-Butylbenzene	ND		1	ug/l						
Methyl t-butyl ether (MTBE)	ND		1	ug/l						
Carbon Disulfide	ND		1	ug/l						
Carbon Tetrachloride	ND		1	ug/l						
Chlorobenzene	ND		1	ug/l						
Chloroethane	ND		1	ug/l						
Chloroform	ND		1	ug/l						
Chloromethane	ND		1	ug/l						
4-Chlorotoluene	ND		1	ug/l						
2-Chlorotoluene	ND		1	ug/l						
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/l						
Dibromochloromethane	ND		1	ug/l						
1,2-Dibromoethane (EDB)	ND		1	ug/l						
Dibromomethane	ND		1	ug/l						
1,2-Dichlorobenzene	ND		1	ug/l						
1,3-Dichlorobenzene	ND		1	ug/l						
1,4-Dichlorobenzene	ND		1	ug/l						
1,1-Dichloroethane	ND		1	ug/l						
1,2-Dichloroethane	ND		1	ug/l						
trans-1,2-Dichloroethene	ND		1	ug/l						
cis-1,2-Dichloroethene	ND		1	ug/l						
1,1-Dichloroethene	ND		1	ug/l						
1,2-Dichloropropane	ND		1	ug/l						
2,2-Dichloropropane	ND		1	ug/l						
cis-1,3-Dichloropropene	ND		1	ug/l						
trans-1,3-Dichloropropene	ND		1	ug/l						
1,1-Dichloropropene	ND		1	ug/l						
1,3-Dichloropropene (cis + trans)	ND		2	ug/l						
Diethyl ether	ND		5	ug/l						
1,4-Dioxane	ND		500	ug/l						
Ethylbenzene	ND		1	ug/l						
Hexachlorobutadiene	ND		1	ug/l						
2-Hexanone	ND		5	ug/l						
Isopropylbenzene	ND		1	ug/l						
p-Isopropyltoluene	ND		1	ug/l						
Methylene Chloride	ND		1	ug/l						
4-Methyl-2-pentanone	ND		5	ug/l						
Naphthalene	ND		1	ug/l						
n-Propylbenzene	ND		1	ug/l						
Styrene	ND		1	ug/l						
1,1,1,2-Tetrachloroethane	ND		1	ug/l						
Tetrachloroethene	ND		1	ug/l						
Tetrahydrofuran	ND		5	ug/l						
Toluene	ND		1	ug/l						
1,2,4-Trichlorobenzene	ND		1	ug/l						
1,2,3-Trichlorobenzene	ND		1	ug/l						

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0846 - Purge-Trap (Continued)										
Blank (B1A0846-BLK1)					Prepared & Analyzed: 01/21/21					
1,1,2-Trichloroethane	ND		1	ug/l						
1,1,1-Trichloroethane	ND		1	ug/l						
Trichloroethene	ND		1	ug/l						
1,2,3-Trichloropropane	ND		1	ug/l						
1,3,5-Trimethylbenzene	ND		1	ug/l						
1,2,4-Trimethylbenzene	ND		1	ug/l						
Vinyl Chloride	ND		1	ug/l						
o-Xylene	ND		1	ug/l						
m&p-Xylene	ND		2	ug/l						
Total xylenes	ND		1	ug/l						
1,1,2,2-Tetrachloroethane	ND		1	ug/l						
tert-Amyl methyl ether	ND		1	ug/l						
1,3-Dichloropropane	ND		1	ug/l						
Ethyl tert-butyl ether	ND		1	ug/l						
Diisopropyl ether	ND		1	ug/l						
Trichlorofluoromethane	ND		1	ug/l						
Dichlorodifluoromethane	ND		1	ug/l						
Surrogate: 4-Bromofluorobenzene			*49.5*	ug/l	*50.0*		*99.0*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*50.7*	ug/l	*50.0*		*101*	*70-130*		
Surrogate: Toluene-d8			*49.4*	ug/l	*50.0*		*98.8*	*70-130*		
LCS (B1A0846-BS1)					Prepared & Analyzed: 01/21/21					
Acetone	50			ug/l	50.0		99.0	60-140		
Benzene	49			ug/l	50.0		98.7	70-130		
Bromobenzene	50			ug/l	50.0		100	70-130		
Bromochloromethane	48			ug/l	50.0		95.5	70-130		
Bromodichloromethane	53			ug/l	50.0		105	70-130		
Bromoform	46			ug/l	50.0		92.7	70-130		
Bromomethane	82			ug/l	50.0		165	70-130		
2-Butanone	48			ug/l	50.0		96.3	60-140		
tert-Butyl alcohol	54			ug/l	50.0		109	70-130		
sec-Butylbenzene	55			ug/l	50.0		111	70-130		
n-Butylbenzene	55			ug/l	50.0		111	70-130		
tert-Butylbenzene	52			ug/l	50.0		104	70-130		
Methyl t-butyl ether (MTBE)	52			ug/l	50.0		103	70-130		
Carbon Disulfide	53			ug/l	50.0		105	50-150		
Carbon Tetrachloride	51			ug/l	50.0		101	70-130		
Chlorobenzene	50			ug/l	50.0		99.7	70-130		
Chloroethane	50			ug/l	50.0		101	70-130		
Chloroform	50			ug/l	50.0		101	70-130		
Chloromethane	39			ug/l	50.0		78.5	70-130		
4-Chlorotoluene	52			ug/l	50.0		104	70-130		
2-Chlorotoluene	52			ug/l	50.0		104	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	44			ug/l	50.0		88.0	70-130		
Dibromochloromethane	52			ug/l	50.0		104	70-130		
1,2-Dibromoethane (EDB)	51			ug/l	50.0		102	70-130		
Dibromomethane	51			ug/l	50.0		102	70-130		
1,2-Dichlorobenzene	50			ug/l	50.0		99.1	70-130		
1,3-Dichlorobenzene	50			ug/l	50.0		101	70-130		
1,4-Dichlorobenzene	49			ug/l	50.0		98.9	70-130		
1,1-Dichloroethane	50			ug/l	50.0		99.6	70-130		
1,2-Dichloroethane	50			ug/l	50.0		101	70-130		
trans-1,2-Dichloroethene	48			ug/l	50.0		96.0	70-130		
cis-1,2-Dichloroethene	48			ug/l	50.0		96.7	70-130		
1,1-Dichloroethene	47			ug/l	50.0		93.9	70-130		
1,2-Dichloropropane	51			ug/l	50.0		102	70-130		
2,2-Dichloropropane	53			ug/l	50.0		106	70-130		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0846 - Purge-Trap (Continued)										
LCS (B1A0846-BS1)					Prepared & Analyzed: 01/21/21					
cis-1,3-Dichloropropene	51			ug/l	50.0		102	70-130		
trans-1,3-Dichloropropene	53			ug/l	50.0		107	70-130		
1,1-Dichloropropene	50			ug/l	50.0		100	70-130		
Diethyl ether	53			ug/l	50.0		105	70-130		
1,4-Dioxane	254			ug/l	250		101	50-150		
Ethylbenzene	50			ug/l	50.0		100	70-130		
Hexachlorobutadiene	49			ug/l	50.0		97.9	70-130		
2-Hexanone	48			ug/l	50.0		96.1	70-130		
Isopropylbenzene	53			ug/l	50.0		105	70-130		
p-Isopropyltoluene	56			ug/l	50.0		112	70-130		
Methylene Chloride	48			ug/l	50.0		95.7	70-130		
4-Methyl-2-pentanone	51			ug/l	50.0		101	70-130		
Naphthalene	50			ug/l	50.0		99.6	70-130		
n-Propylbenzene	56			ug/l	50.0		111	70-130		
Styrene	51			ug/l	50.0		102	70-130		
1,1,1,2-Tetrachloroethane	51			ug/l	50.0		102	70-130		
Tetrachloroethene	49			ug/l	50.0		97.2	70-130		
Tetrahydrofuran	48			ug/l	50.0		96.4	50-150		
Toluene	49			ug/l	50.0		98.4	70-130		
1,2,4-Trichlorobenzene	49			ug/l	50.0		97.8	70-130		
1,2,3-Trichlorobenzene	47			ug/l	50.0		94.9	70-130		
1,1,2-Trichloroethane	52			ug/l	50.0		104	70-130		
1,1,1-Trichloroethane	51			ug/l	50.0		101	70-130		
Trichloroethene	42			ug/l	50.0		84.4	70-130		
1,2,3-Trichloropropane	51			ug/l	50.0		102	70-130		
1,3,5-Trimethylbenzene	53			ug/l	50.0		106	70-130		
1,2,4-Trimethylbenzene	53			ug/l	50.0		107	70-130		
Vinyl Chloride	48			ug/l	50.0		96.3	70-130		
o-Xylene	51			ug/l	50.0		101	70-130		
m&p-Xylene	101			ug/l	100		101	70-130		
1,1,2,2-Tetrachloroethane	54			ug/l	50.0		107	70-130		
tert-Amyl methyl ether	51			ug/l	50.0		103	70-130		
1,3-Dichloropropane	52			ug/l	50.0		104	70-130		
Ethyl tert-butyl ether	53			ug/l	50.0		106	70-130		
Trichlorofluoromethane	52			ug/l	50.0		103	70-130		
Dichlorodifluoromethane	46			ug/l	50.0		91.2	70-130		
Surrogate: 4-Bromofluorobenzene			*50.6*	ug/l	*50.0*		*101*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*54.8*	ug/l	*50.0*		*110*	*70-130*		
Surrogate: Toluene-d8			*50.0*	ug/l	*50.0*		*100*	*70-130*		

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0846 - Purge-Trap (Continued)										
LCS Dup (B1A0846-BSD1)					Prepared & Analyzed: 01/21/21					
Acetone	46			ug/l	50.0		92.7	60-140	6.61	20
Benzene	48			ug/l	50.0		96.5	70-130	2.19	20
Bromobenzene	49			ug/l	50.0		97.7	70-130	2.51	20
Bromochloromethane	49			ug/l	50.0		97.9	70-130	2.48	20
Bromodichloromethane	51			ug/l	50.0		102	70-130	3.50	20
Bromoform	46			ug/l	50.0		92.3	70-130	0.411	20
Bromomethane	79			ug/l	50.0		159	70-130	3.86	20
2-Butanone	48			ug/l	50.0		95.0	60-140	1.34	20
tert-Butyl alcohol	55			ug/l	50.0		111	70-130	2.13	20
sec-Butylbenzene	53			ug/l	50.0		107	70-130	3.55	20
n-Butylbenzene	54			ug/l	50.0		107	70-130	3.12	20
tert-Butylbenzene	51			ug/l	50.0		102	70-130	2.49	20
Methyl t-butyl ether (MTBE)	51			ug/l	50.0		103	70-130	0.407	20
Carbon Disulfide	51			ug/l	50.0		102	50-150	2.72	20
Carbon Tetrachloride	49			ug/l	50.0		98.3	70-130	2.75	20
Chlorobenzene	48			ug/l	50.0		96.7	70-130	3.06	20
Chloroethane	49			ug/l	50.0		98.4	70-130	2.47	20
Chloroform	50			ug/l	50.0		99.5	70-130	1.10	20
Chloromethane	38			ug/l	50.0		76.6	70-130	2.53	20
4-Chlorotoluene	51			ug/l	50.0		101	70-130	2.42	20
2-Chlorotoluene	50			ug/l	50.0		101	70-130	2.90	20
1,2-Dibromo-3-chloropropane (DBCP)	45			ug/l	50.0		89.4	70-130	1.67	20
Dibromochloromethane	51			ug/l	50.0		103	70-130	0.931	20
1,2-Dibromoethane (EDB)	51			ug/l	50.0		101	70-130	1.32	20
Dibromomethane	49			ug/l	50.0		98.7	70-130	3.03	20
1,2-Dichlorobenzene	48			ug/l	50.0		96.5	70-130	2.64	20
1,3-Dichlorobenzene	49			ug/l	50.0		97.8	70-130	2.82	20
1,4-Dichlorobenzene	49			ug/l	50.0		97.7	70-130	1.16	20
1,1-Dichloroethane	49			ug/l	50.0		97.0	70-130	2.64	20
1,2-Dichloroethane	49			ug/l	50.0		98.6	70-130	1.95	20
trans-1,2-Dichloroethene	47			ug/l	50.0		93.4	70-130	2.73	20
cis-1,2-Dichloroethene	47			ug/l	50.0		93.9	70-130	2.94	20
1,1-Dichloroethene	46			ug/l	50.0		91.7	70-130	2.37	20
1,2-Dichloropropane	50			ug/l	50.0		99.0	70-130	3.36	20
2,2-Dichloropropane	50			ug/l	50.0		101	70-130	5.03	20
cis-1,3-Dichloropropene	50			ug/l	50.0		99.5	70-130	2.79	20
trans-1,3-Dichloropropene	52			ug/l	50.0		104	70-130	2.51	20
1,1-Dichloropropene	48			ug/l	50.0		96.9	70-130	3.51	20
Diethyl ether	52			ug/l	50.0		103	70-130	1.82	20
1,4-Dioxane	259			ug/l	250		104	50-150	2.20	20
Ethylbenzene	49			ug/l	50.0		98.2	70-130	2.21	20
Hexachlorobutadiene	49			ug/l	50.0		98.5	70-130	0.631	20
2-Hexanone	47			ug/l	50.0		94.9	70-130	1.24	20
Isopropylbenzene	51			ug/l	50.0		102	70-130	2.56	20
p-Isopropyltoluene	55			ug/l	50.0		109	70-130	2.23	20
Methylene Chloride	48			ug/l	50.0		95.8	70-130	0.146	20
4-Methyl-2-pentanone	51			ug/l	50.0		102	70-130	0.138	20
Naphthalene	52			ug/l	50.0		103	70-130	3.61	20
n-Propylbenzene	54			ug/l	50.0		108	70-130	2.50	20
Styrene	50			ug/l	50.0		100	70-130	1.33	20
1,1,1,2-Tetrachloroethane	50			ug/l	50.0		99.5	70-130	2.58	20
Tetrachloroethene	48			ug/l	50.0		95.1	70-130	2.12	20
Tetrahydrofuran	48			ug/l	50.0		96.3	50-150	0.0623	20
Toluene	48			ug/l	50.0		95.3	70-130	3.26	20
1,2,4-Trichlorobenzene	48			ug/l	50.0		96.5	70-130	1.28	20
1,2,3-Trichlorobenzene	48			ug/l	50.0		95.4	70-130	0.546	20
1,1,2-Trichloroethane	51			ug/l	50.0		101	70-130	3.21	20

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0846 - Purge-Trap (Continued)										
LCS Dup (B1A0846-BSD1)					Prepared & Analyzed: 01/21/21					
1,1,1-Trichloroethane	49			ug/l	50.0		97.6	70-130	3.62	20
Trichloroethene	41			ug/l	50.0		81.4	70-130	3.62	20
1,2,3-Trichloropropane	51			ug/l	50.0		102	70-130	0.254	20
1,3,5-Trimethylbenzene	52			ug/l	50.0		104	70-130	1.77	20
1,2,4-Trimethylbenzene	52			ug/l	50.0		105	70-130	2.08	20
Vinyl Chloride	47			ug/l	50.0		94.7	70-130	1.65	20
o-Xylene	49			ug/l	50.0		98.8	70-130	2.30	20
m&p-Xylene	99			ug/l	100		99.1	70-130	1.97	20
1,1,2,2-Tetrachloroethane	53			ug/l	50.0		106	70-130	0.693	20
tert-Amyl methyl ether	51			ug/l	50.0		102	70-130	0.292	20
1,3-Dichloropropane	51			ug/l	50.0		102	70-130	2.11	20
Ethyl tert-butyl ether	50			ug/l	50.0		99.6	70-130	6.13	20
Trichlorofluoromethane	50			ug/l	50.0		100	70-130	2.95	20
Dichlorodifluoromethane	44			ug/l	50.0		87.2	70-130	4.53	20
Surrogate: 4-Bromofluorobenzene			*51.2*	ug/l	*50.0*		*102*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*56.0*	ug/l	*50.0*		*112*	*70-130*		
Surrogate: Toluene-d8			*50.1*	ug/l	*50.0*		*100*	*70-130*		

Semivolatile organic compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0850 - Sep-Funnel-extraction										
Blank (B1A0850-BLK1)					Prepared: 01/22/21 Analyzed: 01/25/21					
1,2,4-Trichlorobenzene	ND		2	ug/l						
1,2-Dichlorobenzene	ND		2	ug/l						
1,3-Dichlorobenzene	ND		2	ug/l						
1,4-Dichlorobenzene	ND		2	ug/l						
Phenol	ND		2	ug/l						
2,4,5-Trichlorophenol	ND		2	ug/l						
2,4,6-Trichlorophenol	ND		2	ug/l						
2,4-Dichlorophenol	ND		2	ug/l						
2,4-Dimethylphenol	ND		10	ug/l						
2,4-Dinitrophenol	ND		5	ug/l						
2,4-Dinitrotoluene	ND		2	ug/l						
2,6-Dinitrotoluene	ND		2	ug/l						
2-Chloronaphthalene	ND		2	ug/l						
2-Chlorophenol	ND		2	ug/l						
2-Methylnaphthalene	ND		2	ug/l						
Nitrobenzene	ND		2	ug/l						
2-Methylphenol	ND		2	ug/l						
2-Nitroaniline	ND		2	ug/l						
2-Nitrophenol	ND		5	ug/l						
3,3'-Dichlorobenzidine	ND		5	ug/l						
3-Nitroaniline	ND		2	ug/l						
4,6-Dinitro-2-methylphenol	ND		5	ug/l						
4-Bromophenyl phenyl ether	ND		2	ug/l						
4-Chloro-3-methylphenol	ND		2	ug/l						
4-Chloroaniline	ND		5	ug/l						
4-Chlorophenyl phenyl ether	ND		2	ug/l						
4-Nitroaniline	ND		2	ug/l						
4-Nitrophenol	ND		5	ug/l						
Acenaphthene	ND		2	ug/l						
Acenaphthylene	ND		2	ug/l						
Aniline	ND		2	ug/l						
Anthracene	ND		2	ug/l						
Benzo(a)anthracene	ND		2	ug/l						
Benzo(a)pyrene	ND		2	ug/l						
Benzo(b)fluoranthene	ND		2	ug/l						
Benzo(g,h,i)perylene	ND		2	ug/l						
Benzo(k)fluoranthene	ND		2	ug/l						
Benzoic acid	ND		15	ug/l						
Bis(2-chloroethoxy)methane	ND		2	ug/l						
Bis(2-chloroethyl)ether	ND		2	ug/l						
Bis(2-chloroisopropyl)ether	ND		2	ug/l						
Bis(2-ethylhexyl)phthalate	ND		6	ug/l						
Butyl benzyl phthalate	ND		3	ug/l						
Chrysene	ND		2	ug/l						
Di(n)octyl phthalate	ND		3	ug/l						
Dibenz(a,h)anthracene	ND		2	ug/l						
Dibenzofuran	ND		2	ug/l						
Diethyl phthalate	ND		2	ug/l						
Dimethyl phthalate	ND		5	ug/l						
Di-n-butylphthalate	ND		2	ug/l						
Fluoranthene	ND		2	ug/l						
Fluorene	ND		2	ug/l						
Hexachlorobenzene	ND		2	ug/l						
Hexachlorobutadiene	ND		2	ug/l						
Hexachlorocyclopentadiene	ND		5	ug/l						
Hexachloroethane	ND		2	ug/l						
Indeno(1,2,3-cd)pyrene	ND		2	ug/l						

Semivolatile organic compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0850 - Sep-Funnel-extraction (Continued)										
Blank (B1A0850-BLK1)					Prepared: 01/22/21 Analyzed: 01/25/21					
Isophorone	ND		2	ug/l						
Naphthalene	ND		2	ug/l						
N-Nitrosodimethylamine	ND		2	ug/l						
N-Nitrosodi-n-propylamine	ND		2	ug/l						
N-Nitrosodiphenylamine	ND		2	ug/l						
Pentachlorophenol	ND		5	ug/l						
Phenanthrene	ND		2	ug/l						
Pyrene	ND		2	ug/l						
m&p-Cresol	ND		4	ug/l						
Pyridine	ND		2	ug/l						
Surrogate: Nitrobenzene-d5			*32.9*	ug/l	*50.0*		*65.8*	*30-118*		
Surrogate: p-Terphenyl-d14			*38.8*	ug/l	*50.0*		*77.6*	*38-130*		
Surrogate: 2-Fluorobiphenyl			*34.0*	ug/l	*50.0*		*68.0*	*30-119*		
Surrogate: Phenol-d6			*8.35*	ug/l	*50.0*		*16.7*	*10-115*		
Surrogate: 2,4,6-Tribromophenol			*39.2*	ug/l	*50.0*		*78.3*	*15-130*		
Surrogate: 2-Fluorophenol			*11.3*	ug/l	*50.0*		*22.7*	*10-115*		
LCS (B1A0850-BS1)					Prepared: 01/22/21 Analyzed: 01/25/21					
1,2,4-Trichlorobenzene	38		2	ug/l	50.0		76.3	26-98		
1,2-Dichlorobenzene	38		2	ug/l	50.0		75.8	27-92		
1,3-Dichlorobenzene	37		2	ug/l	50.0		74.7	26-87		
1,4-Dichlorobenzene	38		2	ug/l	50.0		75.6	26-89		
Phenol	16		2	ug/l	50.0		32.0	10-67		
2,4,5-Trichlorophenol	42		2	ug/l	50.0		83.2	34-123		
2,4,6-Trichlorophenol	43		2	ug/l	50.0		86.1	35-114		
2,4-Dichlorophenol	39		2	ug/l	50.0		77.5	28-105		
2,4-Dimethylphenol	38		10	ug/l	50.0		75.6	28-114		
2,4-Dinitrophenol	61		5	ug/l	50.0		121	15-130		
2,4-Dinitrotoluene	51		2	ug/l	50.0		102	41-129		
2,6-Dinitrotoluene	55		2	ug/l	50.0		111	41-128		
2-Chloronaphthalene	40		2	ug/l	50.0		79.2	33-108		
2-Chlorophenol	35		2	ug/l	50.0		70.1	28-85		
2-Methylnaphthalene	42		2	ug/l	50.0		84.0	27-104		
Nitrobenzene	36		2	ug/l	50.0		72.6	26-100		
2-Methylphenol	33		2	ug/l	50.0		65.4	30-86		
2-Nitroaniline	53		2	ug/l	50.0		106	37-130		
2-Nitrophenol	45		5	ug/l	50.0		90.2	25-115		
3-Nitroaniline	54		2	ug/l	50.0		108	32-130		
4,6-Dinitro-2-methylphenol	61		5	ug/l	50.0		121	10-130		
4-Bromophenyl phenyl ether	45		2	ug/l	50.0		89.4	36-130		
4-Chloro-3-methylphenol	41		2	ug/l	50.0		81.1	29-116		
4-Chlorophenyl phenyl ether	44		2	ug/l	50.0		88.9	38-130		
4-Nitroaniline	52		2	ug/l	50.0		105	15-130		
Acenaphthene	41		2	ug/l	50.0		82.8	34-130		
Acenaphthylene	45		2	ug/l	50.0		89.5	35-113		
Aniline	20		2	ug/l	50.0		39.7	14-92		
Anthracene	46		2	ug/l	50.0		91.3	45-121		
Benzo(a)anthracene	46		2	ug/l	50.0		91.5	52-130		
Benzo(a)pyrene	52		2	ug/l	50.0		104	46-130		
Benzo(b)fluoranthene	51		2	ug/l	50.0		102	45-130		
Benzo(g,h,i)perylene	49		2	ug/l	50.0		97.2	36-130		
Benzo(k)fluoranthene	51		2	ug/l	50.0		103	46-130		
Bis(2-chloroethoxy)methane	38		2	ug/l	50.0		76.6	28-120		
Bis(2-chloroethyl)ether	38		2	ug/l	50.0		75.0	26-120		
Bis(2-ethylhexyl)phthalate	57		6	ug/l	50.0		113	33-130		
Butyl benzyl phthalate	53		3	ug/l	50.0		105	34-130		
Chrysene	47		2	ug/l	50.0		93.3	47-130		

Quality Control
(Continued)

Semivolatile organic compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0850 - Sep-Funnel-extraction (Continued)										
LCS (B1A0850-BS1)					Prepared: 01/22/21 Analyzed: 01/25/21					
Di(n)octyl phthalate	57		3	ug/l	50.0		114	30-130		
Dibenz(a,h)anthracene	50		2	ug/l	50.0		99.7	48-130		
Dibenzofuran	44		2	ug/l	50.0		87.9	36-116		
Diethyl phthalate	44		2	ug/l	50.0		88.8	39-121		
Dimethyl phthalate	43		5	ug/l	50.0		85.4	40-130		
Di-n-butylphthalate	50		2	ug/l	50.0		100	38-130		
Fluoranthene	49		2	ug/l	50.0		97.9	48-122		
Fluorene	45		2	ug/l	50.0		89.5	40-130		
Hexachlorobenzene	44		2	ug/l	50.0		87.5	48-130		
Hexachlorobutadiene	41		2	ug/l	50.0		82.2	26-115		
Hexachlorocyclopentadiene	34		5	ug/l	50.0		67.2	10-115		
Hexachloroethane	37		2	ug/l	50.0		73.5	24-89		
Indeno(1,2,3-cd)pyrene	53		2	ug/l	50.0		106	41-130		
Isophorone	32		2	ug/l	50.0		65.0	26-115		
Naphthalene	40		2	ug/l	50.0		79.9	27-104		
N-Nitrosodimethylamine	19		2	ug/l	50.0		38.9	10-69		
N-Nitrosodi-n-propylamine	39		2	ug/l	50.0		78.1	31-106		
N-Nitrosodiphenylamine	55		2	ug/l	50.0		110	30-130		
Pentachlorophenol	61		5	ug/l	50.0		121	30-130		
Phenanthrene	47		2	ug/l	50.0		93.9	48-115		
Pyrene	49		2	ug/l	50.0		97.0	45-130		
m&p-Cresol	30		4	ug/l	50.0		60.8	15-115		
Surrogate: Nitrobenzene-d5			*44.6*	ug/l	*50.0*		*89.2*	*30-118*		
Surrogate: p-Terphenyl-d14			*50.0*	ug/l	*50.0*		*99.9*	*38-130*		
Surrogate: 2-Fluorobiphenyl			*44.4*	ug/l	*50.0*		*88.7*	*30-119*		
Surrogate: Phenol-d6			*18.2*	ug/l	*50.0*		*36.4*	*10-115*		
Surrogate: 2,4,6-Tribromophenol			*60.6*	ug/l	*50.0*		*121*	*15-130*		
Surrogate: 2-Fluorophenol			*23.4*	ug/l	*50.0*		*46.9*	*10-115*		

Quality Control
(Continued)

Semivolatile organic compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0929 - EPA 3580A										
Blank (B1A0929-BLK1)					Prepared & Analyzed: 01/25/21					
Ethanol	ND		10	mg/L						

Quality Control
(Continued)

Polychlorinated Biphenyls (PCBs)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0851 - Sep-Funnel-extraction										
Blank (B1A0851-BLK1)					Prepared: 01/22/21 Analyzed: 01/25/21					
Aroclor-1016	ND		0.2	ug/l						
Aroclor-1221	ND		0.4	ug/l						
Aroclor-1232	ND		0.2	ug/l						
Aroclor-1242	ND		0.2	ug/l						
Aroclor-1248	ND		0.2	ug/l						
Aroclor-1254	ND		0.2	ug/l						
Aroclor-1260	ND		0.2	ug/l						
Aroclor-1262	ND		0.2	ug/l						
Aroclor-1268	ND		0.2	ug/l						
PCBs (Total)	ND		0.2	ug/l						
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*0.0481*	ug/l	*0.0800*		*60.1*	*30-107*		
Surrogate: Decachlorobiphenyl (DCBP)			*0.0602*	ug/l	*0.0800*		*75.2*	*30-140*		
LCS (B1A0851-BS1)					Prepared: 01/22/21 Analyzed: 01/25/21					
Aroclor-1016	0.8		0.2	ug/l	1.00		84.5	40-124		
Aroclor-1260	0.9		0.2	ug/l	1.00		89.3	48-123		
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*0.0470*	ug/l	*0.0800*		*58.8*	*30-107*		
Surrogate: Decachlorobiphenyl (DCBP)			*0.0588*	ug/l	*0.0800*		*73.5*	*30-140*		

Quality Control
(Continued)

Total Petroleum Hydrocarbons

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1A0849 - Sep-Funnel-extraction										
Blank (B1A0849-BLK1)					Prepared & Analyzed: 01/22/21					
Total Petroleum Hydrocarbons	ND		200	ug/l						
Surrogate: Chlorooctadecane			*93.3*	ug/l	*125*		*74.7*	*47-115*		
LCS (B1A0849-BS1)					Prepared & Analyzed: 01/22/21					
Total Petroleum Hydrocarbons	9780		200	ug/l	10000		97.8	32.6-125		
Surrogate: Chlorooctadecane			*117*	ug/l	*125*		*93.6*	*47-115*		

Notes and Definitions

Item	Definition
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

1 A 2 0046 y

CHAIN OF CUSTODY REC

PROJ. NO.	PROJECT NAME/LOCATION
19.00.20	Spy Pond Dredging / Arlington, MA

CLIENT: SAK Environmental
REPORT TO: cnuon@sakenvironmental.com
INVOICE TO: AP@sakenvironmental.com

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** Hardness	Ammonia, Antimony, Arsenic	Cadmium, Copper, Iron, Lead	Mercury, Nickel, Selenium	Silver, Zinc, Cr 3, Cr 6	Chloride, TSS, TRC	Cyanide, 9260, 8270 PCBs, TPH, Ethanol	REMARKS
01/20/21	11:00		X	RE-01	X			3		X	X	X	X	X			
01/20/21	12:00		X	IN-01	X			13			X	X	X	X	X	X	

Sampled by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature] 01-20-21	01-20-21 1314	[signature]	1/20/21 1314
Relinquished by: (Signature) [signature]	Date/Time 1/20/21 1540	Received by: (Signature) [signature]	Date/Time
Relinquished by: (Signature) [signature]	Date/Time	Received for Laboratory by: (Signature) [signature]	Date/Time 1-20-21 15:40

Laboratory Remarks: 4
Temp. received: _____
Cooled ☐

Special Instructions:
List Specific Detection Limit Requirements:

Turnaround (Business Days) 72 hr

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

MassDEP Analytical Protocol Certification Form

Laboratory Name: New England Testing Laboratory, Inc. Project #: 19.00.20

Project Location: Arlington, MA RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
1A20046

Matrices: ☐ Groundwater/Surface Water ☐ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A ☒	7470/7471 Hg CAM III B ☒	MassDEP VPH (GC/PID/FID) CAM IV A ☐	8082 PCB CAM V A ☒	9014 Total Cyanide/PAC CAM VI A ☐	6860 Perchlorate CAM VIII B ☐
8270 SVOC CAM II B ☒	7010 Metals CAM III C ☐	MassDEP VPH (GC/MS) CAM IV C ☐	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
6010 Metals CAM III A ☒	6020 Metals CAM III D ☐	MassDEP EPH CAM IV B ☐	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☒ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☒ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☒ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☒ Yes ☐ No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☒ Yes ☐ No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☒ Yes ☐ No[1]

***Data User Note:** Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☒ Yes ☐ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☒ Yes ☐ No[1]

[1] *All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: _____ **Position:** Laboratory Director

Printed Name: Richard Warila **Date**: 1/25/2021

ATTACHMENT 4

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: November 02, 2020
Consultation Code: 05E1NE00-2021-SLI-0335
Event Code: 05E1NE00-2021-E-01017
Project Name: Spy Pond Dredging

Subject: List of threatened and endangered species that may occur in your proposed project location, and/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-0335

Event Code: 05E1NE00-2021-E-01017

Project Name: Spy Pond Dredging

Project Type: DREDGE / EXCAVATION

Project Description: Spy Pond Dredging and Stormwater Improvements along a Section of Route 2 (Concord Turnpike) in Arlington, MA
MassDOT Project No. 609222-111309

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.404610473189976N71.15924619721113W

Counties: Middlesex, MA

Endangered Species Act Species

There is a total of 1 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.

---

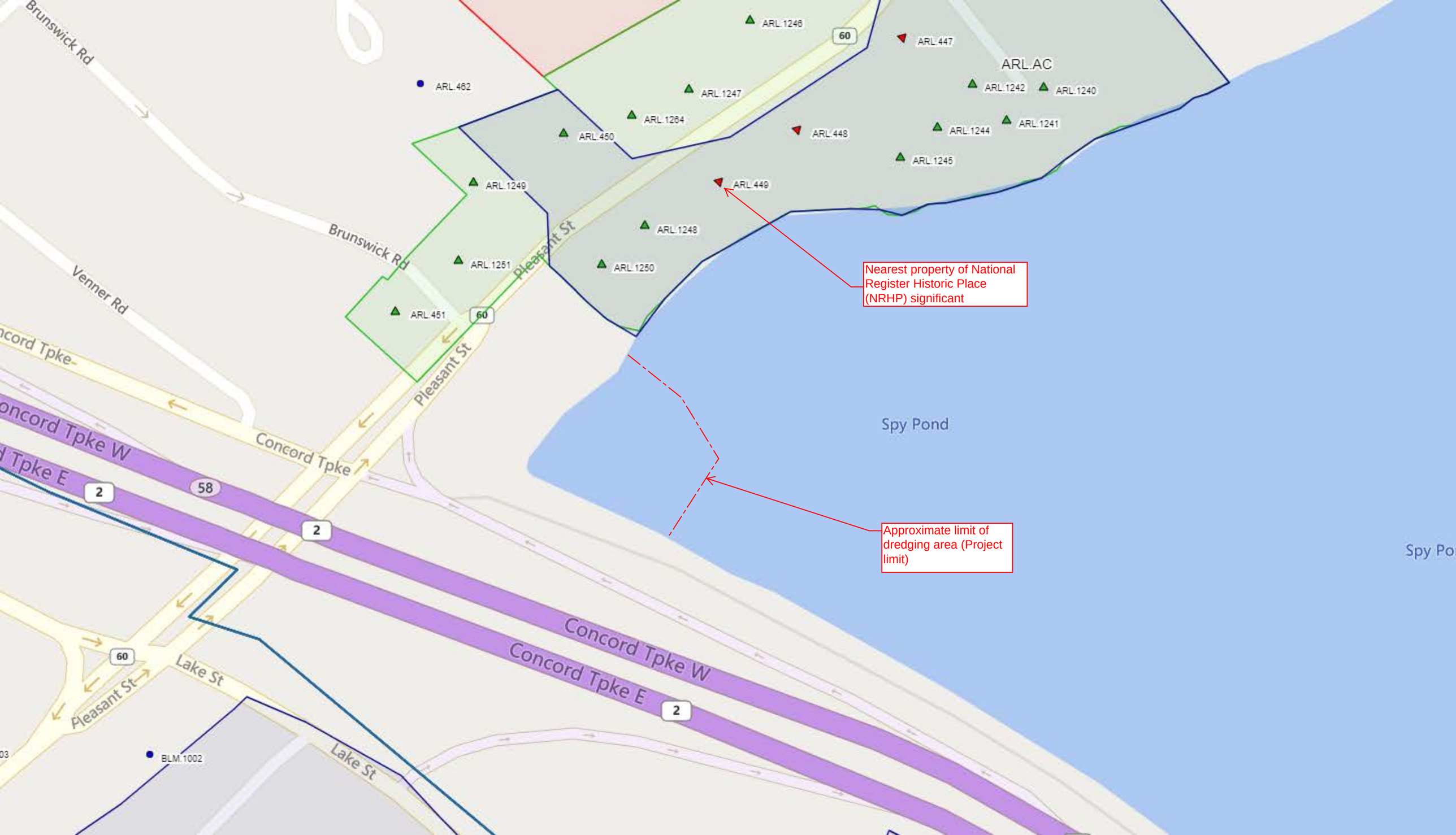
1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

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


Brunswick Rd
Brunswick Rd
Venner Rd
Pleasant St
Pleasant St
Concord Tpke
Concord Tpke W
Concord Tpke E
Lake St
Lake St
Pleasant St
60
60
2
58
2
2
ARL.462
ARL.1246
ARL.447
ARL.AC
ARL.1247
ARL.1242
ARL.1240
ARL.1264
ARL.450
ARL.448
ARL.1244
ARL.1241
ARL.1245
ARL.1249
ARL.449
ARL.1248
ARL.1251
ARL.1250
ARL.451
BLM.1002
Spy Pond
Spy Po
Nearest property of National Register Historic Place (NRHP) significant
Approximate limit of dredging area (Project limit)

ATTACHMENT 5

ULTRATECH INTERNATIONAL, INC.

Ultra-Dewatering Bags®
Specifications

Material Specifications

Properties	ASTM Test	Value
Material: Non-Woven, Polyethylene Geotextile	-	-
Grab Tensile	D 4632	205 lbs
Elongation at break	D 4632	50%
Trapezoid Tear	D 4533	80 lbs
Puncture	D 4833	525 lbs
Mullen Burst	D 3786	420 psi
Permittivity	D 4491	1.5 sec^{-1}
A.O.S. (U.S. sieve no.)/ mm	D 4781	80/0.18
UV Stability (strenth retained %) 500 Hours	D 4355	70%
Fabric Weight (oz./yd^2)(typical)	D 5261	8 oz/yd^2
Flow Rate	D 4491	90 gpm/ft^2

Install the Ultra-Dewatering Bag® on a slope so incoming water flows downhill through the Ultra-Dewatering Bag® without creating more erosion. Strap the neck of the Ultra-Dewatering Bag® tightly to the discharge hose. To increase the efficiency of filtration, place the bag on an aggregate or hay bale bed to maximize water flow through the surface area of the bag.

The Ultra-Dewatering Bag® is full when it no longer can efficiently filter sediment or pass water at a reasonable rate. Flow rates will vary depending on the size of the Ultra-Dewatering Bag®, the type and amount of sediment discharged into the Ultra-Dewatering Bag®, the type of ground, rock or other substance under the bag and the degree of the slope on which the bag lies. Under most circumstances Ultra-Dewatering Bag® will accommodate flow rates of 1500 gallons per minute. Use of excessive flow rates or overfilling Ultra-Dewatering Bag® with sediment will cause ruptures of the bags or failure of the hose att chment straps.

Dispose of the Ultra-Dewatering Bag® as directed by the site engineer. If allowed, the Ultra-Dewatering Bag® may be cut open and the contents seeded after removing visible fabric.

The facts stated and the recommendations made herein are offered free of charge and are accurate to the best of our knowledge. UltraTech International, Inc. assumes no liability for the accuracy or completeness of this information or for the ultimate use by the purchaser. UltraTech disclaims any and all express, implied, or statutory standards, warranties or guarantees, including without limitation any implied warranty as to merchantability or fitness for a particular purpose or arising from a course of dealing o usage of trade as to any equipment, material, or information furnished herewith. Final determination of the use of any information or material, or how it is useful, and whether the use infringes any patents is the sole responsibility of the user.

Unit Specifications

Model	Fabric QTY	Max Flow Rate (GPM)	Sediment Capacity (Cu Ft)	Sediment Capacity (lbs.)	Oil Capacity
Oil & Sediment 3'x4' Part # 9729-O/S	24 sq ft	500	6	720	1.2 gal
Oil & Sediment 6'x6' Part # 9724-O/S	74 sq ft	500	36	4320	3.7 gal
Oil & Sediment 10'x15' Part # 9725-O/S	302 sq ft	500	150	18000	15.1 gal
Oil & Sediment 15'x15' Part # 9727-O/S	452 sq ft	500	225	27000	22.6 gal

UltraTech International, Inc. · 11542 Davis Creek Court, Jacksonville, Florida 32256 USA
(800) 353-1611 · 1-904-292-1611 · stormwaterproducts.com

ATTACHMENT 6

Chhavan Nuon

From: Kathleen Keohane <kkeohane@townisp.com>
Sent: Wednesday, February 3, 2021 5:33 PM
To: Chhavan Nuon
Cc: Vakalopoulos, Catherine (DEP); xiaodan.ruan@mass.gov
Subject: RE: Spy Pond Dredging NPDES RGP - 7Q10 and DF calculation

Hi Chhaven,

We have reviewed the information for the proposed discharge for the Mass DOT Project 609222 for the Spy Pond Dredging Project in Arlington. Since the discharge is to Spy Pond, use a **dilution factor 1.0** instead of the adjusted value. We do not grant dilution factor to ponds unless there is enough inflow and outflow that StreamStats can calculate a 7Q10 on its own without further tweaking.

Here is water quality information to assist you with filling out the NOI (some of which you already have):

Waterbody and ID: Spy Pond (MA71040) within the Mystic River portion of the Boston Harbor Watershed
Classification: B
Outstanding Resource Water?: no

State's most recent Integrated List is located here: https://www.epa.gov/sites/production/files/2020-01/documents/2016-ma-303d-list-report.pdf, search for "MA71040" to see the causes of impairments.
TMDLs: there one approved TMDL (pathogens) for this segment.

As you may know, if this is not a *current* MCP site, then in addition to submitting the NOI to EPA, you need to apply with MassDEP and submit a $500 fee (unless fee exempt, e.g., municipality) using the ePLACE. The instructions are located here: https://www.mass.gov/how-to/wm-15-npdes-general-permit-notice-of-intent. Technical assistant information is available on the front page of the ePLACE application webpage.

Please let me know if you have any questions. My work email is down right now, so reply to kkeohane@townisp.com.

Kathleen Keohane
MassDEP Surface Water Discharge Permit Program
Kathleen.Keohane@mass.gov

Sent from Mail for Windows 10

From: "cnuon@sakenvironmental.com" <cnuon@sakenvironmental.com>
Date: Wednesday, February 3, 2021 at 12:42 PM
To: "Vakalopoulos, Catherine (DEP)" <catherine.vakalopoulos@mass.gov>, "Ruan, Xiaodan (DEP)" <xiaodan.ruan@mass.gov>
Subject: NPDES RGP - 7Q10 and DF calculation

Hello,

Per NPDES RGP application, I'm sending you the attached calculation of the Dilution Factor and the 7-day-10-year (7Q10) low flow value for the below project. Please confirm whether the calculation I've provided is accurate.

Project: MassDOT project 609222 - Spy Pond Dredging in Arlington, MA.
Approximate Location: (42.4061, -71.1621)

Thank you,

Chhavan Nuon
Project Engineer
SAK Environmental, LLC | 231 Sutton St., Suite 2G | North Andover, MA 01845
cnuon@sakenvironmental.com | www.sakenvironmental.com | advise. remediate. sustain.
Office 978-688-7804 x 115 | Fax 978-688-7801
24-hour Emergency Spill No.: 978-688-7804 then press 3

Enter number values in green boxes below

Enter values in the units specified

↓		
0	Q_R = Enter upstream flow in **MGD**	Freshwater: Q_R equal to the 7Q10; enter alternate Q_R if approved by the State; enter 0 if no dilution factor approved
1	Q_P = Enter discharge flow in **MGD**	Saltwater (estuarine and marine): enter Q_R if approved by the State; enter 0 if no entry
0	Downstream 7Q10	Discharge flow is equal to the design flow or 1 MGD, whichever is less
		Downstream 7Q10 an optional entry for Q_R; leave 0 if no entry

Enter a dilution factor, if other than zero

↓	
0	

Saltwater (estuarine and marine): only if approved by the State
Leave 0 if no entry

Enter values in the units specified

↓	
70.5	C_d = Enter influent hardness in **mg/L** $CaCO_3$
70.5	C_s = Enter receiving water hardness in **mg/L** $CaCO_3$

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

pH, temperature, and ammonia required for all discharges
Hardness required for freshwater
Salinity required for saltwater (estuarine and marine)
Metals required for all discharges if present and if dilution factor is > 1
Enter 0 if non-detect or testing not required

↓	
7.19	pH in **Standard Units**
15.66	Temperature in **°C**
0.2	Ammonia in **mg/L**
70.5	Hardness in **mg/L** $CaCO_3$
0	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**
0	Copper in **µg/L**
0.2	Iron in **µg/L**
0	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
0	Zinc in **µg/L**

Enter **influent** concentrations in the units specified

if >1 sample, enter maximum
if >10 samples, may enter 95th percentile
Enter 0 if non-detect or testing not required

↓	
500	TRC in **µg/L**
1.7	Ammonia in **mg/L**
16	Antimony in **µg/L**
60	Arsenic in **µg/L**
33	Cadmium in **µg/L**
343	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
1530	Copper in **µg/L**
161000	Iron in **µg/L**
5960	Lead in **µg/L**
0.6	Mercury in **µg/L**
173	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
4120	Zinc in **µg/L**
13	Cyanide in **µg/L**
0	Phenol in **µg/L**
0	Carbon Tetrachloride in **µg/L**
0	Tetrachloroethylene in **µg/L**
0	Total Phthalates in **µg/L**
0	Diethylhexylphthalate in **µg/L**
0	Benzo(a)anthracene in **µg/L**
0	Benzo(a)pyrene in **µg/L**
0	Benzo(b)fluoranthene in **µg/L**
0	Benzo(k)fluoranthene in **µg/L**
0	Chrysene in **µg/L**
0	Dibenzo(a,h)anthracene in **µg/L**
0	Indeno(1,2,3-cd)pyrene in **µg/L**
0	Methyl-tert butyl ether in **µg/L**

I. Dilution Factor Calculation Method

A. 7Q10

Refer to Appendix V for determining critical low flow; must be approved by State before use in calculations.

B. Dilution Factor

Calculated as follows:

$$Df = \frac{Q_R + Q_P}{Q_P}$$

Q_R = 7Q10 in MGD

Q_P = Discharge flow, in MGD

II. Effluent Limitation Calculation Method

A. Calculate Water Quality Criterion:

Step 1. Downstream hardness, calculated as follows:

$$C_r = \frac{Q_d C_d + Q_s C_s}{Q_r}$$

C_r = Downstream hardness in mg/L

Q_d = Discharge flow in MGD

C_d = Discharge hardness in mg/L

Q_s = Upstream flow (7Q10) in MGD

C_s = Upstream (receiving water) hardness in mg/L

Q_r = Downstream receiving water flow in MGD

Step 2. Total recoverable water quality criteria for hardness-dependent metals, calculated as follows:

Total Recoverable Criteria = $\exp\{m_c [\ln(h)] + b_c\}$

m_c = Pollutant-specific coefficient (m_a for silver)

b_c = Pollutant-specific coefficient (b_a for silver)

ln = Natural logarithm

h = Hardness calculated in Step 1

Step 3. Total recoverable water quality criteria for non-hardness-dependent metals, calculated as follows:

$$\text{WQC in } \mu g/L = \frac{\text{dissolved WQC in } \mu g/L}{\text{dissolved to total recoverable factor}}$$

B. Calculate WQBEL:

Step 1. WQBEL calculated as follows for parameter sampled in and detected in the receiving water:

$$C_d = \frac{Q_r C_r - Q_s C_s}{Q_d}$$

C_r = Water quality criterion in µg/L

Q_d = Discharge flow in MGD

C_d = WQBEL in µg/L

Q_s = Upstream flow (7Q10) in MGD

C_s = Ustream (receiving water) concentration in µg/L

Q_r = Downstream receiving water flow in MGD

Step 2. WQBEL calculated as follows for parameter not sampled in or not detected in receiving water:

$$C_d = (Q_r/Q_d) \times C_r$$

C_r = Water quality criterion in µg/L
Q_d = Discharge flow in MGD
Q_r = Downstream receiving water flow in MGD

C. Determine if a WQBEL applies:

Step 1. For parameter sampled in and detected in receiving water, downstream concentrations calculated as follows:

$$C_r = \frac{Q_d C_d + Q_s C_s}{Q_r}$$

C_r = Downstream concentration in µg/L
Q_d = Discharge flow in MGD
C_d = Influent concentration in µg/L
Q_s = Upstream flow (7Q10) in MGD
C_s = Upstream (receiving water) concentration in µg/L
Q_r = Downstream receiving water flow in MGD

The WQBEL applies if:

1) the projected downstream concentration calculated in accordance with Step 1, above, and the discharge concentration of a parameter are greater than the WQC calculated for that parameter in accordance with II.A, above
AND
2) the WQBEL determined for that parameter in accordance with II.B, above, is less than the TBEL in Part 2.1.1 of the RGP for that parameter. Otherwise, the TBEL in Part 2.1.1

of the RGP for that parameter applies.

Step 2. For a parameter not sampled in or not detected in receiving water, the WQBEL applies if:

1) the discharge concentration of a parameter is greater than the WQBEL determined for that parameter in accordance with II.A or II.B, above;
AND
2) the WQBEL determined for that parameter in accordance with II.A or II.B, above is less than the TBEL in Part 2.1.1 of the RGP for that parameter. Otherwise, the TBEL in

Part 2.1.1 of the RGP for that parameter applies.

Dilution Factor	1.0					
A. Inorganics	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	**0.2089**	µg/L		
Chromium III	323	µg/L	**64.7**	µg/L		
Chromium VI	**323**	µg/L	11.4	µg/L		
Copper	242	µg/L	**6.9**	µg/L		
Iron	5000	µg/L	**1000**	µg/L		
Lead	160	µg/L	**2.04**	µg/L		
Mercury	**0.739**	µg/L	0.91	µg/L		
Nickel	1450	µg/L	**38.8**	µg/L		
Selenium	**235.8**	µg/L	5.0	µg/L		
Silver	**35.1**	µg/L	2.1	µg/L		
Zinc	420	µg/L	**89.1**	µg/L		
Cyanide	178	mg/L	5.2	µg/L	5	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	---	µg/L
Benzo(a)pyrene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Benzo(b)fluoranthene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Benzo(k)fluoranthene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Chrysene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Dibenzo(a,h)anthracene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Indeno(1,2,3-cd)pyrene	**1.0**	µg/L	0.0038	µg/L	---	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	---			

March 17, 2021

U.S. Environmental Protection Agency
Office of Ecosystem Protection
EPA/OEP RGP Applications Coordinator
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912

Re: **ADDENDUM 01** for NPDES RGP Application for Dredge-Related Dewatering Activities
Project Title: Spy Pond Dredging and Stormwater Improvements along a Section of Route 2 (Concord Turnpike)
Project Location: Arlington, MA 02474
MassDOT Project No.: 609222 – 111309

Dear Sir/Madam:

SAK Environmental (SAK) is submitting this addendum to the original RGP application, dated February 11, 2021, for the above referenced project ("Project"). The treatment system design has been revised since the last submittal and a chemical additive (polymer) has been selected by the Project Operator (MacKay Construction) for use in the dewatering process. The polymer was not included in the original RGP application. Per the requirements of the RGP, SAK is submitting this information to the EPA via this addendum.

1. Revisions to the Treatment System

The process flow presented in the original RGP application identified the use of fifteen (15) 10-ft by 15-ft sediment bag filters (Ultra-Dewatering Bags) to dewater dredged sediment, prior to a single discharge point of effluent water. Since the last submittal there have been additions to the treatment system which are described below.

The dredged sediment will be pumped though a flocculation tank, where a polymer is added and monitored by a SmartFeed system (See **Attachment A** for specification sheet). The SmartFeed system is equipped with technology to monitor various dewatering parameters and adjusts polymer dosage based on the particle size of the dredged sediment. Once the polymer is added to the dredged sediment, the material will be routed to GeoTube bags (dewatering bags). A schematic of the SmartFeed system and the dewatering bags included as **Figure 1** and the dewatering bag setup detail is included as **Figure 2**. The design flow of this system is 900 gallons per minute (gpm); the average effluent flow of the system is estimated to be 24.7 gpm, and the maximum flow is estimated to be 30 gpm.

The new design uses a total of six (6) dewatering bags. Each bag (200-ft length X 5.8-ft width X 16-ft circumference) will be staged on a 12-mm woven coated liner along the shared-use path.

Six (6) discharge points will be placed at low points within the staging area (see **Figure 3**) and piped to the bank of the Spy Pond.

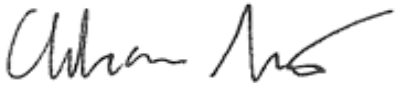
2. Chemical Additive Information

The polymer (Product Identifier: Aries 3196) is a type of flocculent that will be used to treat the dredged sediment. The safety data sheet (SDS) for this chemical is included in **Attachment B**. The polymer will help the sediment to settle out from the dredge water. This polymer will be added as described in Section 1, prior to being pumped to the GeoTube bags. Dosage quantity of this polymer will be determined by the SmartFeed system and dependent on the particle size of the sediment. Mineral Processing Services LLC (subcontractor of MacKay Construction) provided a written rationale which demonstrates that the addition of this polymer will not hinder the water quality of the effluent water. This written rationale is included in **Attachment C**.

Do not hesitate to contact us with any questions.

SAK Environmental LLC

Prepared by:



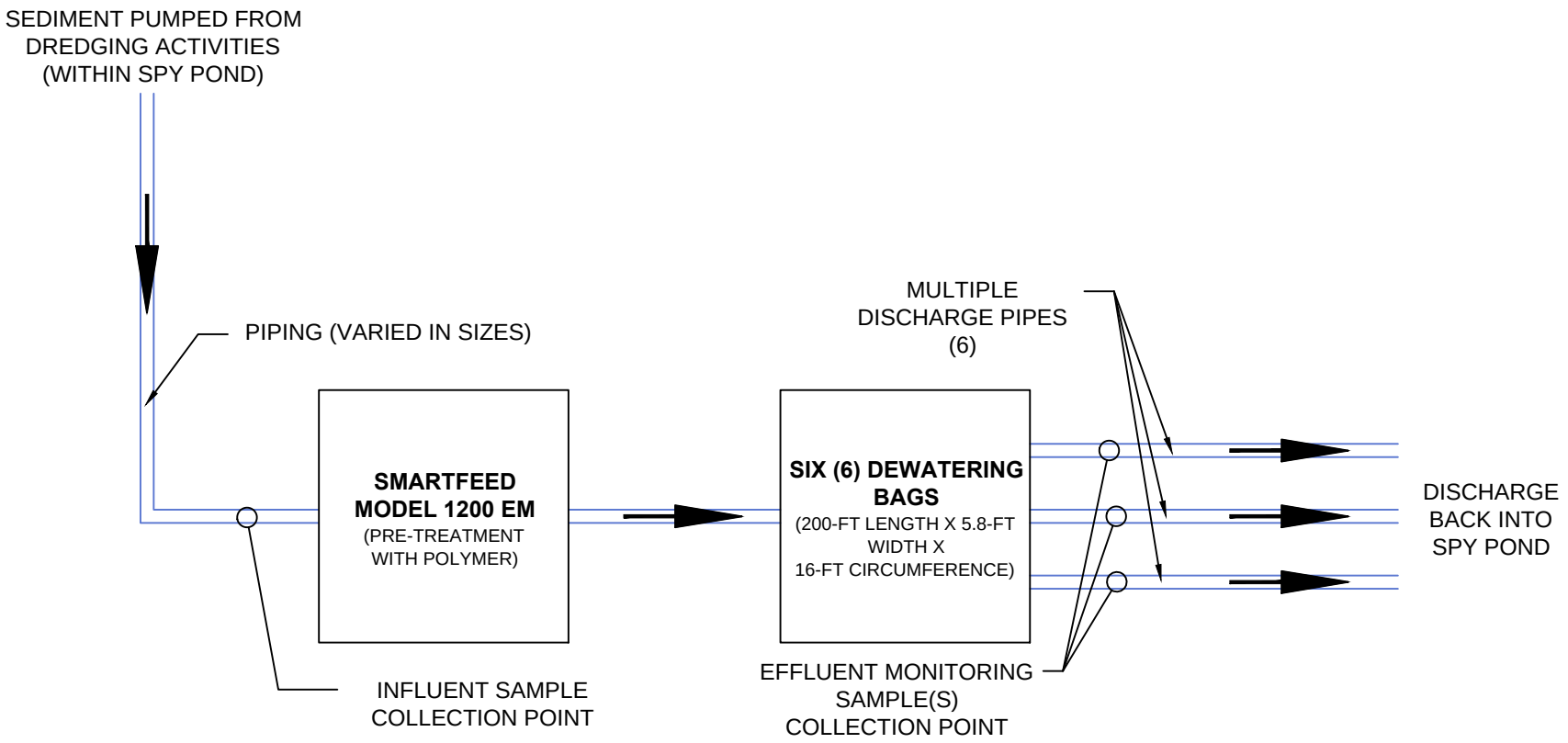
Chhavan Nuon
Project Engineer

Reviewed by:

Meghan Emmert
Project Manager

ENCLOSURES

Figure 1	Process Flow Diagram
Figure 2	Dewatering Bag Setup Detail
Figure 3	Effluent Discharge Locations
Attachment A	SmartFeed Specification
Attachment B	Chemical SDS
Attachment C	Written Rationale of Use



SHEET NAME / NO.

FIGURE 1

PROCESS FLOW DIAGRAM

SAK Environmental, LLC

231 SUTTON ST. SUITE 2G
NORTH ANDOVER, MA 01845

TELEPHONE: (978) 688-7804
FAX: (978) 688-7801
www.SAKenvironmental.com

SCALE	NOT TO SCALE
PAPER SIZE	ANSI A
DATE	03/16/2021
DESIGNED BY	---
DRAWN BY	CN
CHECKED BY	MEE
APPROVED BY	SAS
PROJ. NO.	19.00.20

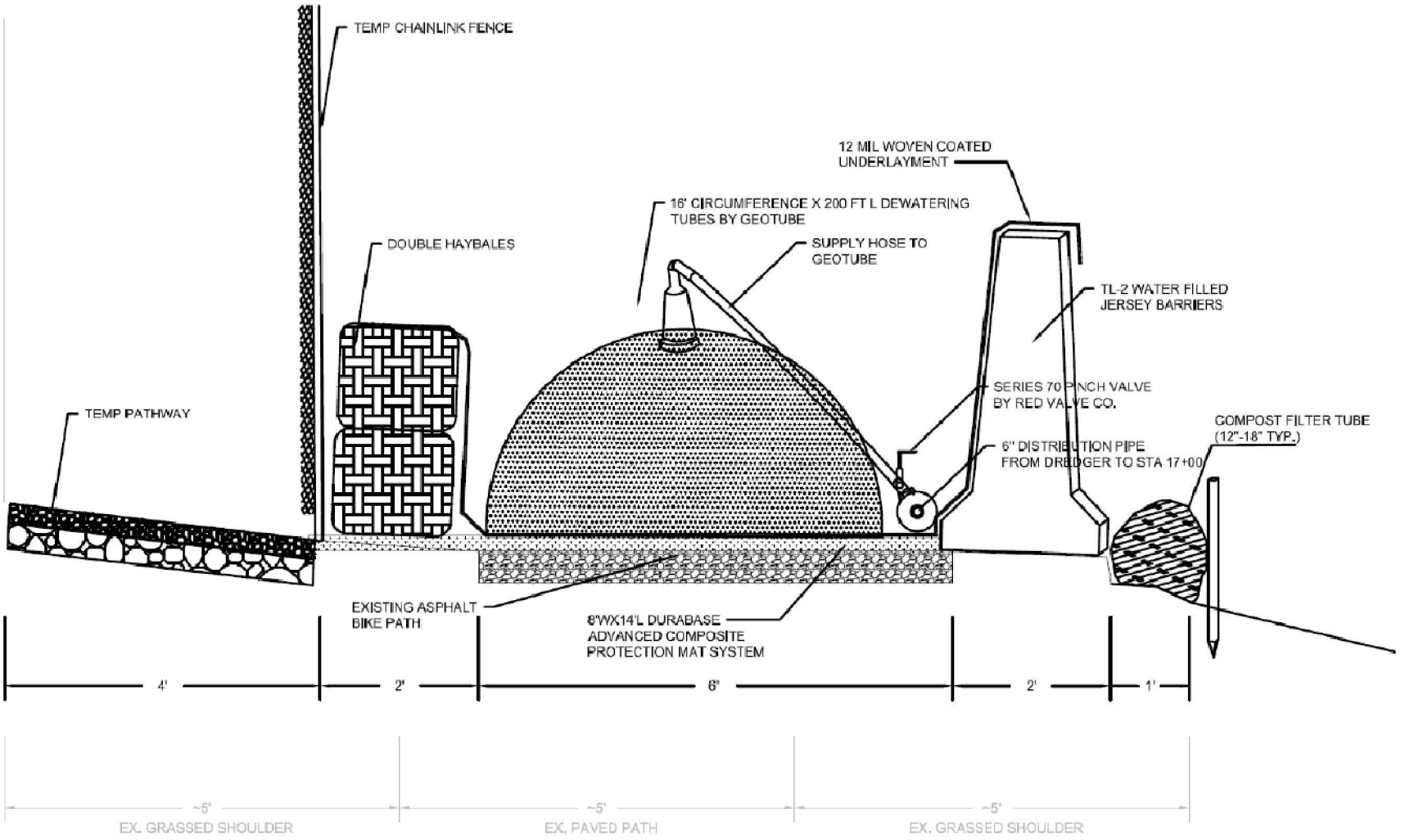
CLIENT NAME

MACKAY CONSTRUCTION

PROJECT NAME & LOCATION

MASSDOT PROJECT FILE NO. 609222
SPY POND DREDGING
ROUTE 2 (CONCORD TURNPIKE) IN ARLINGTON, MA

REV.	DATE	BY
01	03/09/2020	CN



SHEET NAME / NO.

FIGURE 2

DEWATERING BAG SETUP DETAIL

SAK Environmental, LLC
231 SUTTON ST. SUITE 2G
NORTH ANDOVER, MA 01845
TELEPHONE: (978) 688-7804
FAX: (978) 688-7801
www.SAKenvironmental.com

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REV.	DATE	BY
01	03/09/2020	CN

SHEET NAME / NO.

FIGURE 3

EFFLUENT DISCHARGE LOCATIONS

SAK Environmental, LLC

231 SUTTON ST, SUITE 2G
NORTH ANDOVER, MA 01845

TELEPHONE: (978) 688-7804
FAX: (978) 688-7801
www.SAKenvironmental.com

SCALE	SEE FIGURE
PAPER SIZE	ANSI A
DATE	03/16/2021
DESIGNED BY	---
DRAWN BY	CN
CHECKED BY	MEE
APPROVED BY	SAS
PROJ. NO.	19.00.20

CLIENT NAME

MACKAY CONSTRUCTION

PROJECT NAME & LOCATION

MASSDOT PROJECT FILE NO. 609222
SPY POND DREDGING
ROUTE 2 (CONCORD TURNPIKE) IN ARLINGTON, MA

REV.	DATE	BY

ATTACHMENT A

Process Control and Reporting For Geotube®
Chemically Conditioned Slurry Dewatering

— Mineral Processing Services, LLC —
Manufacturer of Supporting Technologies for Geotube® Applications

SMARTFEED™

Dewatering using Geotube® containers is a cost-saving technology for many slurry dewatering projects.

SmartFeed™ process controls contribute to a successful Geotube® application, maintaining benefits throughout the project.

Model 1200 EM

* Process up to 1,200 gpm slurry flow process
* Condition up to 12% d.s. raw feed
* Deliver up to 70 gpm of .5% polymer dilution

Site Requirements

* 6" pipe connection for slurry feed
* 2"pipe connection 100 gpm @ 80 psi
* Power 60 amps 480 volts 3 phase
* Lay-down area 40' x 12'

Model 2500 EM

* Treats up to 2,500 gpm slurry flow
* Process slurry up to 12% d.s
* Can deliver up to 400 gpm of .5% polymer dilution

Site Requirements

* 8" pipe connection for slurry feed
* 4" pipe connection 400 gpm @ 80 psi
* Power 100 amps 480 volts 3 phase
* Lay-down area 40' x 30'

Model 4000 EM

* Treats up to 4,000 gpm slurry flow
* Process slurry up to 25% d.s.
* Can deliver up to 1,200 gpm .5% polymer dilution

Site Requirements

* 12" pipe connection for slurry feed
* 4" pipe connection 600 gpm @ 100 psi "dilution water"
* 4" pipe connection 600 gpm @ 100 psi "post dilution"
* Power 200 amps 480 volts 3 phase
* Lay-down area 80' x 40'

Mineral Processing Services, LLC
PMB 128, 50 Market St., South Portland, ME 04106
Phone: (207) 741-2955 · Fax: (207) 799-3782
Web: http://www.smartfeedsystem.com · E-mail: jmmps@maine.rr.com

ATTACHMENT B

Safety Data Sheet

Aries 3196

Section 1. Identification

Product Identifier	Aries 3196
Synonyms	N/A
Manufacturer Stock Numbers	N/A
Recommended use	Water treatment, flocculant
Uses advised against	N/A

Manufacturer Contact

Address

Aries Chemical Incorporated
PO BOX 519
Beaver Falls, NY, 13305

Phone	Emergency Phone	Fax
(315) 346-1489	(800) 535-5053 INFOTRAC	(315) 346-1658

Email	Website
aries@arieschem.com	www.arieschem.com

Section 2. Hazards Identification

Classification	EYE DAMAGE/IRRITATION - Category 2
Signal Word	Warning
Pictogram	
Hazard Statements	Causes serious eye irritation
Precautionary Statements	

Response	If eye irritation persists: Get medical advice/attention. IF IN EYES: Rinse cautiously with water for several minutes, including under eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. IF INHALED: Remove to fresh air. If difficulty breathing, seek immediate medical attention. IF ON SKIN: Take off contaminated clothing and shoes immediately. Wash off with plenty of water. Consult a physician if necessary. IF SWALLOWED: Do NOT induce vomiting. Rinse mouth with water. Immediately call a physician. IN CASE OF FIRE: Use water spray, carbon dioxide, dry chemical. Cool tanks with water spray. Burning may product toxic and irritant gases. IN CASE OF SPILL: Contain and collect with non-combustible material (ie. sand, earth). Place in waste regulated container. Flush away traces with water. Prevent material from entering water systems. CAUTION: Contaminated surfaces may be extremely slippery.
Prevention	Avoid contact with eyes, skin and clothing. Avoid release to the environment. Wash thoroughly after handling. Wear protective gloves, tightly fitting safety goggles, protective clothing, NIOSH approved respiratory protection.
Storage	Store at room temperature (between 39.2 and 89.6 F). Store away from strong oxidizing agents. Do not use iron, copper or aluminum containers or equipment. Store in well-ventilated place.
Disposal	Dispose of contents in accordance with local, state and federal regulations.

Ingredients of unknown toxicity	0%
Hazards not Otherwise Classified	No Data Available

Section 3. Ingredients

CAS	Ingredient Name	Weight %
64742-47-8	Distillates, petroleum, hydrotreated light	20% - 30%
77-92-9	Citric acid	1% - 5%
68002-97-1	Alcohols, C10-16, ethoxylated	<2 %

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-Aid Measures

Ingestion	IF SWALLOWED: Give 1-2 glasses of water if conscious and alert. Do NOT induce vomiting. Consult a physician if necessary. Never give anything by mouth to an unconscious person.

Skin	IF ON SKIN: Wash off immediately with soap and plenty of water. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Get medical attention if irritation develops and persists.
Eye	IF IN EYES: Immediately hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention if redness or irritation develops.
Inhalation	IF INHALED: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms persist.

Section 5. Fire Fighting Measures

Suitable Extinguishing Media	Water spray, carbon dioxide, dry chemical.
Unsuitable Extinguishing Media	No information available.
Fire fighting instructions	As in any fire, wear self-contained breathing apparatus pressure-demand,MSHA/NIOSH (approved or equivalent) and full protective gear. Stay upwind of fire. Move containers from fire area if possible to do so without risk to personnel. Cool exposed containers with water spray after extinguishing fire. Water runoff can cause environmental damage. Dike and collect water used to fight fire.
Flammable Properties	During a fire, irritating and toxic gases may be generated by thermal decomposition or combustion such as carbon monoxide, carbon dioxide, ammonia and/or oxides of nitrogen.

Section 6. Accidental Release Measures

Personal precautions	Wear self-contained breathing apparatus and protective suit. Where the exposure level is known, wear approved respirator suitable for the level of exposure.
Environmental precautions	Try to prevent leakage or spillage from entering soil, drains or water sources.
Clean-up	Forms slippery surfaces on floors, posing an accident risk. Dike and absorb spill area with inert material (e.g., dry sand or earth), then place in a DOT approved chemical waste container for disposal. Deactivation materials include lime, limestone, sodium carbonate (soda ash) and sodium bicarbonate (baking soda). After removal, flush contaminated area thoroughly with water.

Section 7. Handling and Storage

Handling	Avoid contact with eyes, skin, and clothing. Avoid inhalation of vapor or mist. Avoid breathing aerosols, mists, spray, fumes or vapors. Use with adequate ventilation and employ respiratory protection where mist or spray may be generated. Wash hands before eating, drinking or smoking. Wash thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice.
Storage	Store away from oxidizing agents. Avoid contact with alkaline materials which will degrade the polymer. Avoid anionic polymers. To avoid product degradation and equipment corrosion, do not use iron, copper or aluminum containers or equipment. Store at room temperature (between 39.2 and 89.6 F) in original container. Emergency eye wash and safety shower should be located nearby.

Section 8. Exposure Controls/Personal Protection

Occupational Exposure Limits	Ingredient Name	ACGIH TLV	OSHA PEL	STEL
	Distillates, petroleum, hydrotreated light	1200 mg/m3	1200 mg/m3	N/A
	Citric acid	N/A	N/A	N/A
	Alcohols, C10-16, ethoxylated	N/A	N/A	N/A
Personal Protective Equipment	Goggles, Gloves, Respirator			
Engineering controls	Observe published airborne exposure limits. Use mechanical ventilation such as dilution and local exhaust.			
Respiratory protection	If exposures exceed the PEL or TLV, use NIOSH/MSHA approved respirator in accordance with OSHA Respiratory Protection Requirements unders 29 CFR 1910.134. If there are no applicable or established exposure limit requirements or guidelines, general ventilation should be sufficient.			
Eye protection	Use approved safety goggles or safety glasses, as described in OSHA 29 CFR 1910.133. Splash goggles with a faceshield may be needed if splash hazards exist.			
Hand/skin protection	Wear chemical resistant gloves and impermeable protective clothing.			

Section 9. Physical and Chemical Properties

Physical State	Liquid
Color	Opaque/ greenish to milky white
Odor	Hydrocarbon-like
Odor Threshold	No data available.
Solubility	Limited by viscosity.
Partition coefficient Water/n-octanol	No data available.
VOC%	N/A
Viscosity	>20.5 mm2/s @ 40 C
Specific Gravity	N/A
Density lbs/Gal	N/A
Pounds per Cubic Foot	N/A
Flash Point	>100 C
FP Method	Closed cup
pH	3-6
Melting Point	No data available.
Boiling Point	100 C
Boiling Range	No data available.
LEL	N/A
UEL	N/A
Evaporation Rate	No data available.
Flammability	No data available.
Decomposition Temperature	No data available.
Auto-ignition Temperature	No data available.
Vapor Pressure	Similar to water.
Vapor Density	No data available.

Additional Information	Specific gravity: 1.01-1.03

Section 10. Stability and Reactivity

Chemical stability	Stable under normal conditions of storage and handling.
Hazardous polymerization	Hazardous polymerization will not occur under normal storage and handling.
Additional Information	-Materials to avoid: Strong oxidizing agents. To avoid product degradation and equipment corrosion, do not use iron, copper or aluminum containers or equipment. -Hazardous decomposition products: Oxides of nitrogen, ammonia, hydrogen chloride, sulfur dioxide, carbon dioxide, carbon monoxide.

Section 11. Toxicological Information

Eye contact	May cause eye irritation.
Skin contact	Causes skin irritation.
Inhalation	See data below.
Aspiration hazard	Not classified.
Sensitization	Not sensitizing.
Carcinogenicity	Not classified.
Reproductive toxicity	Not classified.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	No known effects.
Additional Information	Acute Toxicity -Based on similar product LD50/Oral/Rat: >5,000 mg/kg LC50/Inhalation/4hr/Rat: >20 mg/L LD50/Dermal/Rabbit: >2,000 mg/kg

Section 12. Ecological Information

Aquatic toxicity	See information below.
Bioaccumulative potential	Bioaccumulation is unlikely.
Mobility	Water solubility limited by viscosity.
Persistence and degradability	Not readily biodegradable.
Additional Information	Aquatic Toxicity: LC50/96 hr/Branchydanio rerio (zebra fish): >1-10 mg/L (OECD Test Guideline 203) EC50/48 hr/Daphnia magna (water flea): 10-100 mg/L (Similar product) LC50/48 hr/Pimephales promelas (fathead minnow): 8.54 mg/L

Section 13. Disposal

Disposal	Recycling, recovery and reuse of materials is recommended if permitted by regulations. If recycling is not practicable, dispose of in accordance with local, state and federal regulations.

Section 14. Transport Information

UN Number	N/A
UN Proper Shipping Name	Not classified as dangerous in the meaning of transport regulations.
DOT Classification	N/A
Packing Group	N/A

Section 15. Regulatory Information

Additional Information	FEDERAL REGULATIONS -All components of this product are included on the TSCA list. -SARA Title III Section 311/312 Hazard Categories: Immediate-Yes. Delayed-No. Fire-No. Pressure-No. Reactivity-No. -SARA 313: This material does not contain any chemical components that exceed the threshold reporting levels established by SARA Title III, Section 313. -California Proposition 65: This product contains a chemical or chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Acrylamide (79-06-1), <0.1% by wt. INTERNATIONAL REGULATIONS -All components of this product are included in or are not required to be listed on the following countries inventories: Europe (EINECS), Australia (AICS), Canada (DSL), China, Japan (ENCS), Korea (ECL), Philippines (PICCS), Taiwan. -This product's New Zealand Inventory of Chemical Substances (NZIoC) status has NOT been determined.

Section 16. Other Information

Revision Date	7/16/2018
Version number	4
Reason for Revision	Updated Composition (Section 3) to reflect changes in composition and/or associated hazards. Updated Section 11: Toxicological Information.
Disclaimer	While Aries Chemical Inc. believes the data set forth herein is accurate as of the date hereof, Aries Chemical makes no warranty with respect thereto and expressly disclaims all liability for refinance thereon of such data and is offered solely for your consideration, investigation and verification.

ATTACHMENT C

MPS

Mineral Processing Services LLC

March 8, 2021

Kyle Annutto – Chief Operating Officer
MacKay Construction Services, Inc.
197 Ballardvale Street
Wilmington, MA 01887
Office: 617-314-6213
Cell: 781-760-1885 - Kyle

Re: SPY POND Geotube® Polymer Evaluation

Testing Scope:

Chemical program evaluation for sediment dewatering utilizing Geotube® dewatering structures.

Testing Overview:

Mineral Processing Services received freshwater sediment and background water on March 5rh 2021. The sample obtained was sediment black/brown silt clay having a percent dry solid of 34.88% D.S. The second sample was background water having 32 mg/l total suspend solids. The background water was used for dilution to replicate what the hydraulic dredging is expected to yield, being 4.0 % dry solids. Several aliquots were created at 300 mg/l each for the chemical program evaluation.

Testing Method:

Samples were treated with several polymers evaluating water quality as total suspended solids for direct discharge to the watercourse. Samples received a dosage of polymers shown on the dosage log attached as PPM and lbs. of polymer per dry ton of sediment solids. Condition samples were run on a RDT rapid dewatering testing apparatus procedure attached.

Test Results:

The samples treated with Aries Chemical 3196 yield the highest dewatering rates with water quality meeting guidelines of dredge process water return of ≤45 TSS total suspended solids or turbidity lower than the receiving waters of tested background water of 32 mg/l total suspended solids.

MPS

Mineral Processing Services LLC

Photo Jar Testing:

Regards,

James E. Meagher, Principal

50 Market St. PMB 128
So. Portland, Maine 04106

Attachments:

- Chemical Dosage Mass-balance
- RDT Test Method
- TenCate Certification Laboratory