NOTICE OF INTENT FOR DISCHARGE PURSUANT TO MASSACHUSETTS REMEDIATION GENERAL PERMIT MAG910000

70 LEO BIRMINGHAM PARKWAY

BRIGHTON, MASSACHUSETTS

NOVEMBER 25, 2020

Prepared For:

United States Environmental Protection Agency
Office of Ecosystem Protection
5 Post Office Square, Suite 100
Mail Code OEP06-01
Boston, MA 02109-3912

On Behalf Of:

70 Leo Owner, LLC
1900 Crown Colony Drive, Suite 405
Quincy, MA 02169

PROJECT NO. 6453.9.J7

2269 Massachusetts Avenue
Cambridge, MA 02140
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(617) 868-1420

November 25, 2020

United States Environmental Protection Agency
Office of Ecosystem Protection
5 Post Office Square, Suite 100
Mail Code OEP06-01
Boston, MA 02109-3912

Attention: EPA/OEP RGP Applications Coordinator
Reference: 70 Leo Birmingham Parkway; Brighton, Massachusetts
Notice of Intent for Temporary Construction Dewatering Discharge;
Massachusetts Remediation General Permit MAG910000

Ladies and Gentlemen:

Enclosed herein is our Notice of Intent for Temporary Construction Dewatering Discharge for the proposed 70 Leo Birmingham Parkway project in Brighton, Massachusetts. These services were performed, and this permit application was prepared with the authorization of our client, 70 Leo Owner LLC.

We trust that the above satisfies your present requirements. Should you have any questions or comments concerning the above, please do not hesitate to contact us.

Very truly yours,

McPHAIL ASSOCIATES, LLC

Shakib Ahmed

William J. Burns, L.S.P.

N:\Working Documents\Reports\6453_70_Leo_Birmingham_RGP_112520.docx

SA/wjb

GEOTECHNICAL AND GEOENVIRONMENTAL ENGINEERS
2269 Massachusetts Avenue
Cambridge, Massachusetts 02140
(617) 868-1420

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1.0 - INTRODUCTION

1.1 - GENERAL

In accordance with the provisions of the Remediation General Permit MAG910000 that has been prepared for the Commonwealth of Massachusetts, the following is a summary of the site and groundwater quality information in support of a Notice of Intent for the temporary discharge of groundwater into the Charles River via the City of Boston municipal storm drain system. The temporary discharge of construction dewatering will occur as part of the work associated with the proposed redevelopment of the property located at 70 Leo Birmingham Parkway in Brighton, Massachusetts (subject site). Refer to **Figure 1,** Project Location Plan for the general site locus.

These services were performed and this permit application was prepared with the authorization of our client, 70 Leo Owner, LLC. These services are subject to the limitations contained in **Appendix A**.

The required Notice of Intent Form contained in the RGP permit and Boston Water & Sewer Dewatering Discharge Permit Application are included in **Appendix B**. This project is considered Activity Category III-G as defined in the RGP. Based on the activity category, and in accordance with the RGP, contamination Type A: Inorganics, Type B: Non-Halogenated Volatile Organic Compounds (VOCs), Type D: Non-Halogenated Semi-Volatile Organic Compounds (SVOCs), and Type F: Fuel Parameters as defined in Table 2 of the RGP apply.

1.2 – APPLICANT/OPEATOR

The applicant for the Notice of Intent-Remediation General Permit is:

Surus Development & Construction, LLC
1900 Crown Colony Drive, Suite 405
Quincy, MA 02169

Attention: Mr. Mike Manzella
Tel: (617) 706 - 0357
Email: mmanzella@surusdc.com

1.3 – SITE OWNER

70 Leo Owner LLC
1900 Crown Colony Drive, Suite 405
Quincy, MA 02169

Attention: Mr. Nick Trocki
Tel: (617) 640 - 0080
Email: ntrocki@jumbocapital.com

2.0 – SITE AND PROJECT DESCRIPTION

2.1 – EXISTING SITE CONDITIONS

The approximate 21,752 square foot project site fronts onto Leo Birmingham Parkway to the west and is bounded by Centola and Lincoln Streets to the north and south, respectively. Portsmouth Playground is located to the east of the property. The site was most recently occupied by one and two-story brick buildings with footprints of approximately 1,500 and 4,800 square feet, respectively. These building have recently been demolished as the project is currently in demolition phase.

The remainder of the parcel generally consists of paved parking areas with the exception of an undeveloped, gravel covered courtyard area that abuts the existing two-story building to the east. The existing ground surface across the site is relatively level, ranging from approximately Elevation +40 to Elevation +43.

The limits of the subject site are shown on **Figure 2** which was prepared from a 10-scale drawing entitled "Existing Conditions Plan of Land" dated July 21, 2017 by Feldman Land Surveyors.

2.2 – PROPOSED DEVELOPMENT

The proposed development includes the demolition of the existing buildings and leveling of the site followed by the construction of a two to six-story L-shaped residential structure. The proposed structure is planned to occupy the majority of the parcel with a plan area of approximately 15,800 square feet as indicated on **Figure 2**.

The proposed construction includes two levels of below grade parking. Construction of the foundations for the two-level, below-grade garage will require an excavation that is anticipated to extend up to about 25 feet below the existing ground surface. This excavation will be conducted within an engineered lateral earth support system.

2.3 – SITE ENVIRONMENTAL SETTING AND SURROUNDING HISTORICAL PLACES

Based on an on-line edition of the Massachusetts Geographic Information Systems MassDEP MCP Numerical Ranking System Map, the subject site is not located within the boundaries of a Sole Source Aquifer, Potentially Productive Aquifer or within a Zone II, Interim Wellhead Protection Area as defined by the Massachusetts Department of Environmental Protection. Further, there are no public drinking water supply wells, no Areas of Critical Environmental Concern, no fish habitats, no habitats of Species of Special Concern or Threatened or Endangered Species within specified distances of the subject site. The Resource Map indicates that there are no water bodies or wetland areas at the subject site. The closest body of water is the Charles River located approximately 650 feet to the north of the subject site. No areas designated as solid waste sites (landfills) are noted as being located within 1,000 feet of the site. A copy of the Massachusetts DEP Phase I Site Assessment Map is included in **Appendix C**.

A review of information provided by the U.S. Fish and Wildlife Service in an Information for Planning and Conservation (IPaC) Trust Resource Report for the project site did not identify the presence of threatened or endangered species at or in the vicinity of the discharge location and/or discharge outfall. Further, the Trust Resource Report did not identify the presence of a critical habitat in the vicinity of the discharge outfall and/or discharge location. Based upon the above, the site is considered a Criterion A pursuant to Appendix IV of the RGP. A copy of the IPaC Trust Resource Report and U.S. Fish and Wildlife Service's Nationwide Standard Conservation Measures are included in **Appendix C**.

The subject site is not listed on the State or National Register of Historical Places. The nearest location that is listed on the State Register of Historical Places is Roddy Hall located at 60 Birmingham Parkway, approximately 100 feet north of the site. Copies of the State of Massachusetts MACRIS reports are included in **Appendix C**.

As further discussed below, construction dewatering may not be necessary at the subject site given that excavation for proposed building foundation is unlikely to extend below the surface of groundwater. However, if dewatering is considered necessary, treated construction dewatering effluent will be discharged into the City of Boston dedicated storm drain system that flows into the Charles River. If encountered, the dewatering of groundwater at the subject site will be temporary and intermittent. Groundwater discharged as part of the proposed project will be controlled and monitored. Treatment systems will consist of temporary structures. Therefore, based on the anticipated duration of construction dewatering and the location of its discharge into the Charles River, construction dewatering activities are not considered to affect the historical elements of the nearby historical listings. Hence, the site meets Permit Eligibility Criterion B in accordance with Appendix III of the RGP.

2.4 – SITE AND RELEASE HISTORY

Based on available records, the subject site was developed in the 1800s as residential and commercial buildings including several stores and a synagogue. The site was used as a gasoline filling station by 1964 and an automobile dealership from 1978 to 1988. Available records indicate that an underground fuel oil storage tank was removed from the site in 1988 but no records were provided regarding the storage tank used at the gasoline filling station.

MCP Release History

In May of 2018, results of laboratory analyses identified Reportable Concentrations of naphthalene in soil at the subject site. A Release Notification Form (RNF) was submitted to the DEP on behalf of the site owner on September 7, 2018 and Release tracking Number (RTN) 3-35166 was assigned to the site.

Specifically, a Reportable Concentration of naphthalene was identified in fill material originating from approximately 5-7 feet below ground surface in the southwestern corner of the subject site.

The site is currently classified as a Tier II site with respect to RTN 3-35166 and according to a report titled "MCP Phase I & Phase II Conceptual Scope of Work" dated September 2019 and completed by New Path LLC, comprehensive response actions will be necessary to meet the requirements of a Permanent Solution or Temporary Solution.

According to the same report, a database search conducted by IES, Inc. in 2016 identified the subject site in MassDEP's historical spill database (N93-0851) for the release of an unspecified material in June 1993. The information provided in the report indicated that the release occurred from drums and that the case was listed as "closed." Additionally, the Site was listed in USEPA's Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) database in 2003. The records indicated that this was a "Removal Only Site", and no assessment was needed. The listing stated that the site was cleaned up and archived in 1996.

A subsurface exploration program was completed by Stantec to evaluate disposal options for surplus soils in May of 2019. The exploration involved advancement of 6 soil probes and sampling and analysis of soil between grade and 10 feet below grade. A second stage was involved installation of three groundwater monitoring wells in March of 2020.

Results of laboratory analyses identified multiple metals in the soil with lead and antimony concentration exceeding RCS-1 reportable concentrations in multiple samples at the subject site. The remaining metals were either not detected or detected at concentration below RCS-1. Several semi-VOCs were detected exceeding RCS-1 Reportable Concentrations. VOCs such as tetrachloroethene and naphthalene, and several semi-VOCs were detected below RCS-1 Reportable Concentrations. The exceedances were reported to DEP and were issued RTN 3-36328. Stantec and others identified ash (wood or coal ash) in the fill material that contributed to the exceedance. Groundwater analysis for VPH with target VOCs, EPH with target PAHs, VOCs via EPA Method 8260, and MCP-14 metals indicate that none of the analytes were detected above the RCGW-1 Reportable Concentration.

3.0 – CONSTRUCTION SITE DEWATERING AND TREATMENT

3.1 – SITE DEWATERING DETAILS

Groundwater was observed at the subject site ranging from about Elevation +9.1 to Elevation +10.1, which correspond to a depth of approximately 32 feet below ground surface.

As noted above, Construction of the foundations for the two-level, below-grade garage will require an excavation that is anticipated to extend up to about 25 feet below the existing ground surface corresponding to about Elevation +15.0. As a result, it is unlikely that the excavation to construction the proposed building foundations will encounter groundwater.

However, in the event that groundwater levels are higher than those observed or during heavy precipitation events that require construction dewatering to facilitate excavation, the

maximum rate of dewatering will be on the order of 100 gallons per minute (gpm). Given the extent of excavation, temporary on-site collection and recharge of groundwater is not feasible as part of the proposed construction activities. As a result, construction dewatering will require the discharge of collected groundwater into the municipal storm drain system under the requested Remediation General Permit.

A review of available subgrade utility plans provided by the Boston Water and Sewer Commission indicates that stormwater is collected within a catch basin at the corner of Centola Street and Leo Birmingham Parkway and connects to the stormwater drain system. The stormwater drains beneath Centola Street run west before shifting north beneath the Leo Birmingham Parkway, and then west beneath the intersection of the Leo Birmingham Parkway and Western Avenue. The stormwater drain system eventually discharges into the Charles River at SDO 033. The location of the relevant stormwater catch basin in relation to the subject site is indicated on **Figure 2**. The flow path of the discharge is shown in plans provided by the Boston Water and Sewer Commission which is included in **Figures 3A and 3B**.

3.2 – SUMMARY OF GROUNDWATER ANALYSIS

In October 2020, McPhail Associates, LLC obtained one (1) sample of groundwater at the subject site from monitoring well MW-1. The groundwater sample was submitted to a certified laboratory for analysis for the presence of compounds required to be tested for under the EPA's Remediation General Permit (RGP) application, including total suspended solids (TSS), pH, total residual chlorine, cyanide, nitrogen - ammonia, chloride, and total recoverable metals. Analytical results of the testing of the above referenced groundwater sample that was obtained in October 2020 are summarized on the enclosed **Table 1**, and laboratory data is included in **Appendix D**.

Additionally, previous groundwater testing was completed by others to further evaluate the nature and extent of the above referenced release sites. As summarized in the table contained in **Appendix E**, groundwater samples were submitted for laboratory analysis for the presence of dissolved metals, EPH, VPH, SVOCs and VOCs. In summary, the results of the laboratory testing did not detect concentrations of the tested constituents in excess of the applicable RCGW-2 reporting thresholds. Further, with the exception of pyrene, benzo(ghi) perylene, and chrysene, the results the analysis did not detect concentrations of VOCs, SVOCs or petroleum hydrocarbons in excess of the laboratory reporting limits.

A surface water sample was obtained from the Charles River (42° 21' 42'' N, 71° 8' 50'' W) in October 2020 and analyzed for the presence of pH, total metals, hardness, and ammonia nitrogen. The approximate location of sample collection is indicated on the enclosed **Figure 3B**, analytical test results are included on the enclosed **Table 2**, and laboratory data is included in **Appendix D**.

A Dilution Factor (DF) was calculated for the detected levels of metals pursuant to the procedure contained in RGP MAG910000, Appendix V. The purpose of the DF calculation is to establish Total Recoverable Limits for metals, taking into consideration the anticipated

dilution of the detected analyte upon discharge into the Charles River. The calculated DF was then used to find the appropriate Dilution Range Concentrations (DRCs) contained in MAG910000, Appendix IV. The Minimum Flow Rate calculated by the USGS Streamstats GIS database at the location of discharge into the Charles River for 7 consecutive days with a recurrence interval of 10 years (7Q10 flow) is 24.1 ft^3/sec thus resulting in a DF of 109.125 assuming a design flow rate of 100 GPM.

In summary, groundwater testing performed at the subject site has detected concentrations of total iron, however, the concentration does not exceed the applicable Water Quality Based Effluent Limitations contained in Table 2 of Section 2.1 of the RGP. The detected concentrations of the tested constituents detected in the on-site groundwater and surface water samples are further summarized in the MA Limits book tables that are included in **Appendix C**.

In accordance with the RGP and given that the subject site is a listed DEP release site, the proposed dewatering associated with this permit application is considered Contaminated/Formerly Contaminated Site Dewatering (Category III). Given that the site contamination is considered "Known", this project is considered Activity Category III-G as defined in the RGP. Based on the activity category, and in accordance with the RGP, contamination Type A: Inorganics, Type B: Non-Halogenated VOCs, and Type F: Fuel Parameters as defined in Table 2 of the RGP apply.

3.3 – GROUNDWATER TREATMENT

Based upon the anticipated rates of construction dewatering in conjunction with the results of the above referenced groundwater analyses, it is our opinion that a treatment system consisting of an approximately 10,000-gallon capacity settling tank and bag filters in series is necessary to meet the effluent limitations of the RGP. These treatment components will be used to settle out particulate matter containing inorganic compounds in the effluent to meet the applicable discharge limits established by the US EPA prior to discharge. While not detected during the analysis of groundwater at the site, given the site history it is possible that a localized area of petroleum contamination may be encountered in soil and/or groundwater during the course of construction. If this condition is encountered, a granular activated carbon filter will be included as an additional treatment component to the treatment system. In addition, if increased pH levels are detected in the effluent (such as during the placement of concrete for the foundation system) carbon dioxide gas for pH adjustment will be utilized, if necessary, as construction activities at the subject site transition from excavation to installation of concrete footings. If the addition of concrete requires a pH conditioner to meet permit effluent limitations or applicable water quality standards, a Notice of Change (NOC) will be filed on behalf of the operator with the specific laboratory data sheets and necessary information attached.

A schematic of the treatment system is shown on **Figure 4**.

A Best Management Practices Plan (BMPP) has been prepared as **Appendix G** to the RGP and will be posted at the site during the time period that temporary construction dewatering is occurring at the site.

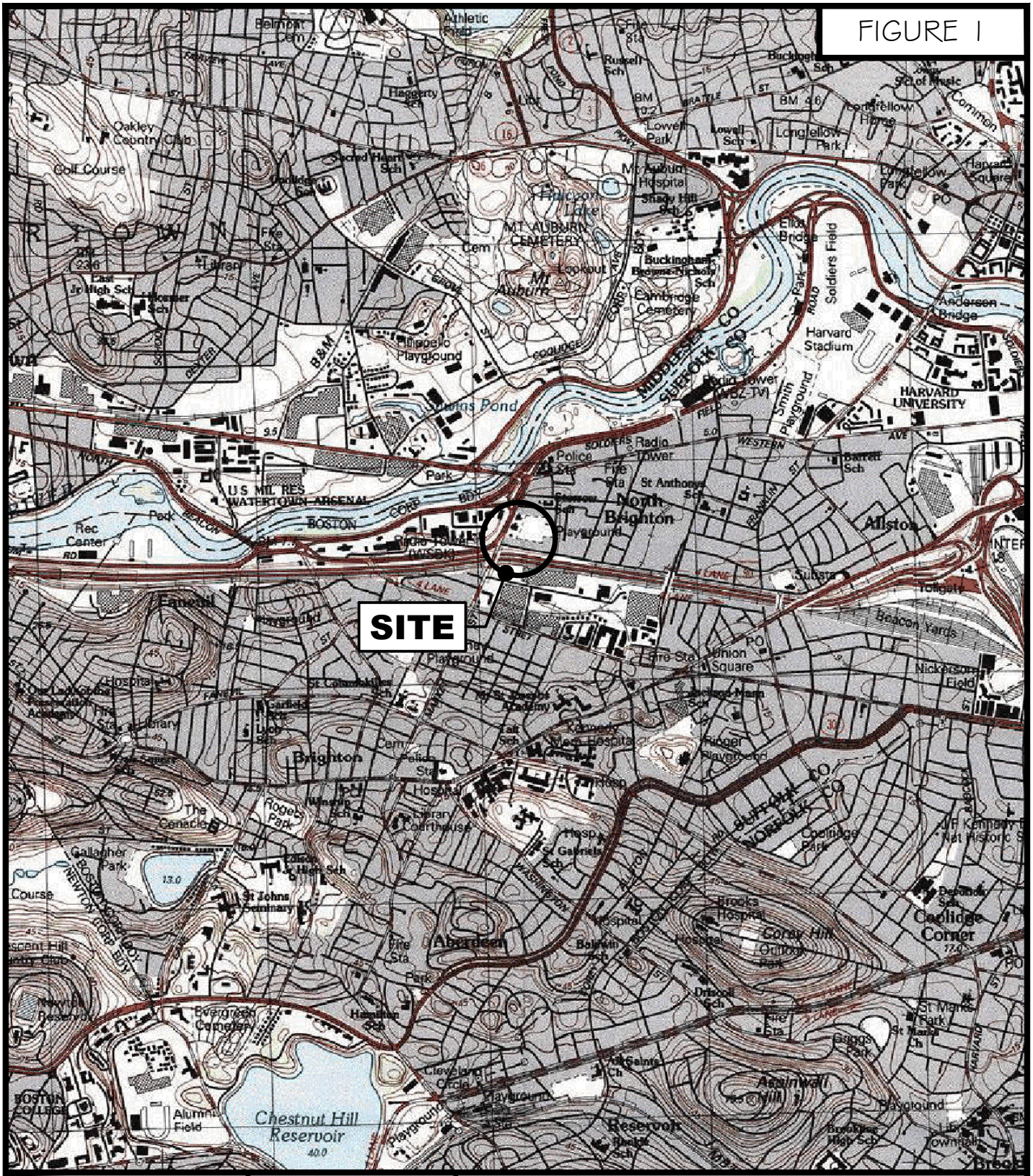
4.0 – SUMMARY AND CONCLUSIONS

The purpose of this report is to summarize site environmental conditions and groundwater data to support a Notice of Intent to discharge under the Remediation General Permit, for the off-site discharge of dewatered groundwater which may be encountered during the redevelopment of the subject site. The groundwater testing results reported in this application have been provided to the site owner.

Based on the results of the above referenced groundwater analyses, treatment of construction dewatering effluent will be necessary to meet the discharge limits for inorganic compounds established by the US EPA prior to off-site discharge. While not detected during the analysis of groundwater at the site, given the site history it is possible that a localized area of petroleum contamination may be encountered in soil and/or groundwater during the course of construction. The proposed construction dewatering effluent treatment system will consist of a 10,000-gallon capacity settling tank, bag filters and, if required, pH adjustment tank and GAC filters in series in order to meet the discharge limits established by the RGP. However, should the effluent monitoring results identify concentrations of contaminants that are in excess of the limits established by the RGP, additional mitigative measures will be implemented to meet the allowable discharge limits.

FIGURES

FIGURE 1



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N

SCALE 1:25,000

PROJECT LOCATION PLAN

70 LEO BIRMINGHAM PARKWAY

BRIGHTON MASSACHUSETTS

FIGURE 2

NORTH

LEO M. BIRMINGHAM PARKWAY (PUBLIC–VARIABLE WIDTH)

CENTOLA (PUBLIC–30 FEET WIDE) STREET

LINCOLN (PUBLIC–40 FEET WIDE) STREET

APPROXIMATE LOCATION OF DISCHARGE

APPROXIMATE LIMITS OF PROPOSED 2 TO 6-STORY BUILDING WITH 2-STORY BELOW-GRADE PARKING GARAGE

APPROXIMATE LIMITS OF SUBJECT SITE

MW1
B-102
MW2
B-101
TP-1
TP-2
B-103
MW3

TOTAL LOT AREA = 21,752± SQ. FT.

Now or Formerly VAHATZKLACHA BERACHA PROPERTIES GROUP, LLC PARCEL 2200679000 AREA = 14,440± SQ. FT.

LOT 44 AREA = 4,707± SQ. FT.

Now or Formerly VAHATZKLACHA BERACHA PARCEL 2200677000

Now or Formerly CITY OF BOSTON PARCEL 2200674000

PORTSMOUTH STREET PLAYGROUND

Now or Formerly EWA BALINSKA PARCEL 2200677001

Now or Formerly SALVATORE BARONE ETAL PARCEL 2200677002

Now or Formerly JOHN BAPTISTE PARCEL 2200678000

Now or Formerly LBG REALTY INC PARCEL 2200678010

TOTAL LOT AREA = 4,900± SQ. FT.
ASSESSORS ID 0304015000
PARCEL 3
AREA = 2,886± SQ. FT.

PARCEL 1
AREA =
794± SQ. FT.

LEGEND

— APPROXIMATE LOCATION OF TEST PIT PERFORMED BY CONNEELY CONTRACTING, INC. ON AUGUST 18, 2020 FOR SURUS DEVELOPMENT AND CONSTRUCTION

— APPROXIMATE LOCATION OF BOREHOLE PERFORMED BY GEOSEARCH ENVIRONMENTAL CONTRACTORS ON APRIL 2, 2018 FOR McPHAIL ASSOCIATES, LLC

— APPROXIMATE LOCATION OF MONITORING WELL INSTALLED BY OTHERS

— INDICATES FLOW DIRECTION

REFERENCE: THIS PLAN WAS PREPARED FROM A 10-SCALE DRAWING ENTITLED "EXISTING CONDITIONS PLAN OF LAND" DATED JULY 21, 2017 BY FELDMAN LAND SURVEYORS

GRAPHIC SCALE

30 0 30 60

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70 LEO BIRMINGHAM PARKWAY
BRIGHTON MASSACHUSETTS

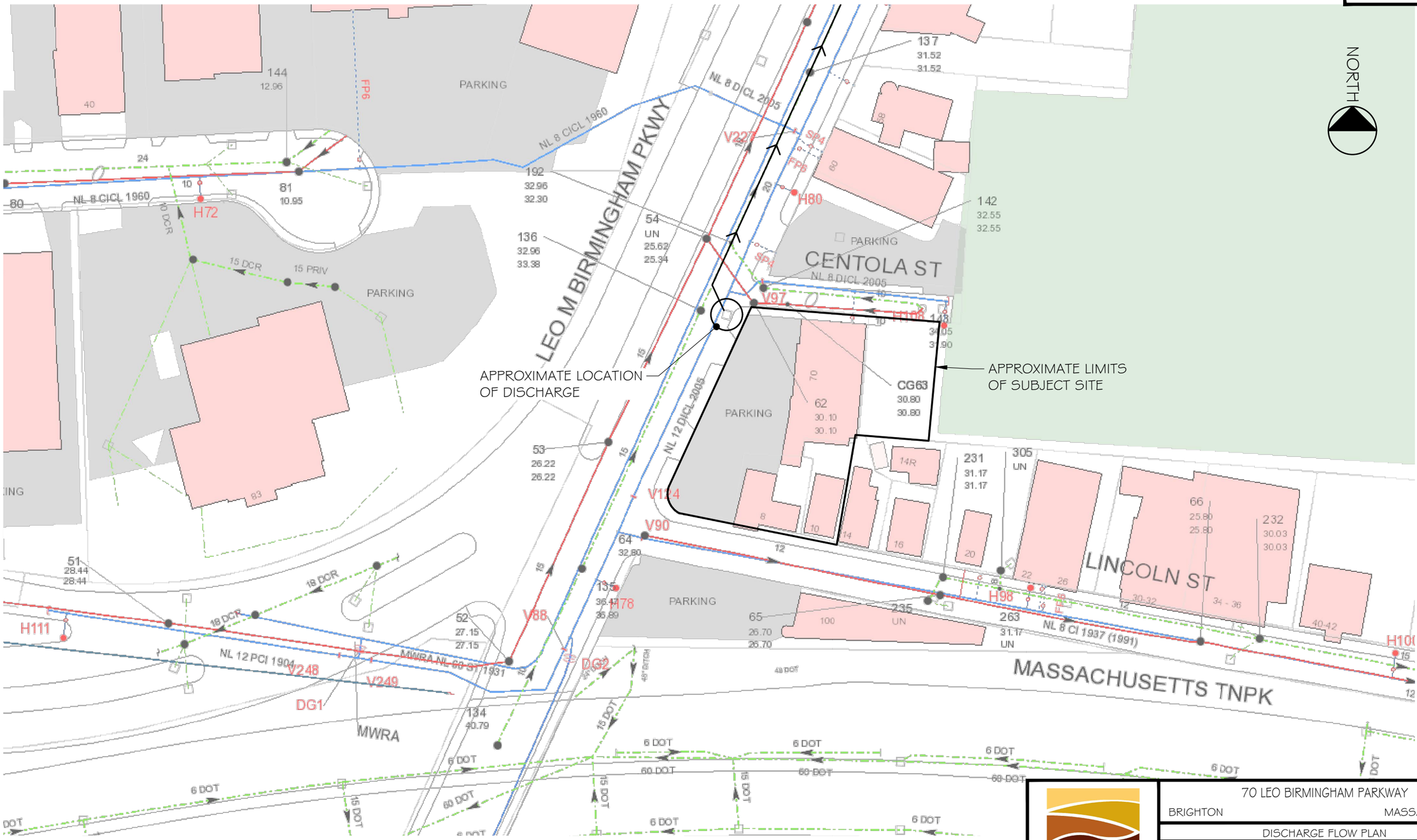
SUBSURFACE EXPLORATION PLAN

FOR
70 LEO OWNER, LLC
BY
McPHAIL ASSOCIATES, LLC

Date: NOVEMBER 2020	Dwn: I.J.M.	Chkd: W.J.B.	Scale: 1" = 30'
Project No: 6453			

FILE NAME: N:\Acad\JOBS\6453\RGP\6453-E02.dwg

FIGURE 3A



REFERENCE: THIS PLAN WAS PREPARED FROM AN 100-SCALE DRAWING ENTITLED "BOSTON WATER AND SEWER" PRINTED ON OCTOBER 22, 2020 FROM THE BOSTON WATER AND SEWER COMMISSION WEBSITE.

GRAPHIC SCALE

100 0 100 200

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70 LEO BIRMINGHAM PARKWAY

BRIGHTON MASSACHUSETTS

DISCHARGE FLOW PLAN

FOR

70 LEO OWNER, LLC

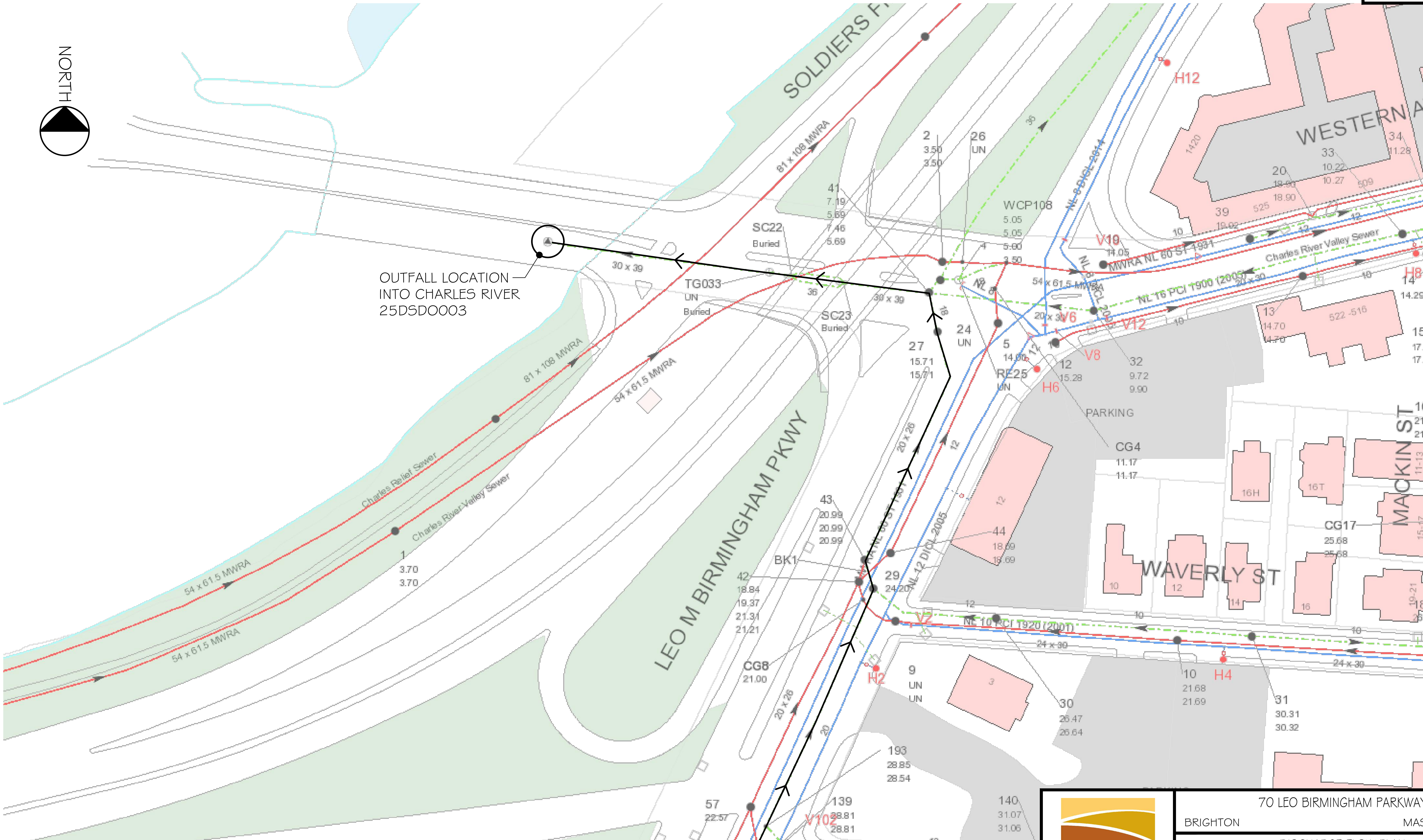
BY

McPHAIL ASSOCIATES, LLC

Date: NOVEMBER 2020	Dwn: I.J.M.	Chkd: W.J.B.	Scale: 1" = 100'
Project No: 6453			

FILE NAME: N:\Cad\JOBS\6453\RGP\6453-E03A.dwg

FIGURE 3B



REFERENCE: THIS PLAN WAS PREPARED FROM AN 100-SCALE DRAWING ENTITLED "BOSTON WATER AND SEWER" PRINTED ON OCTOBER 22, 2020 FROM THE BOSTON WATER AND SEWER COMMISSION WEBSITE.

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100 0 100 200

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70 LEO BIRMINGHAM PARKWAY

BRIGHTON MASSACHUSETTS

DISCHARGE FLOW PLAN

FOR

70 LEO OWNER, LLC

BY

McPHAIL ASSOCIATES, LLC

Date: NOVEMBER 2020	Dwn: I.J.M.	Chkd: W.J.B.	Scale: 1" = 100'
Project No: 6453			

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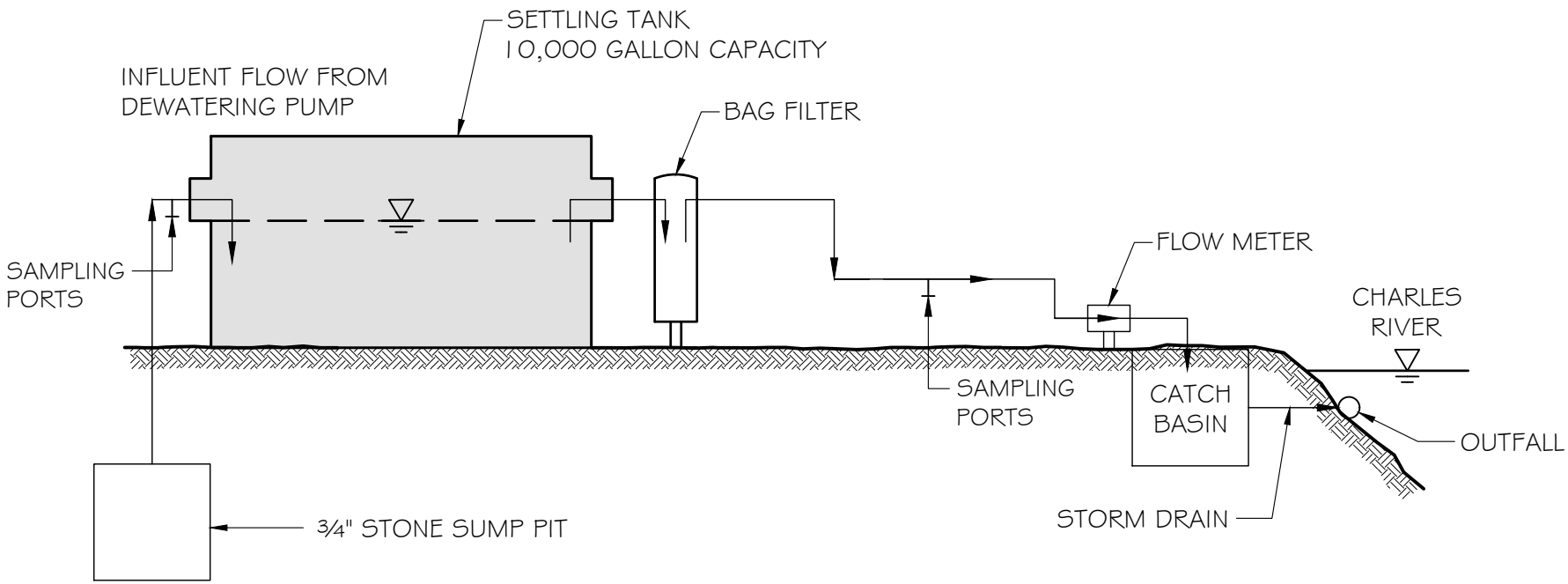
FIGURE 4



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70 LEO BIRMINGHAM PARKWAY
BRIGHTON MASSACHUSETTS

SCHEMATIC OF TREATMENT SYSTEM

FOR
70 LEO OWNER, LLC
BY
McPHAIL ASSOCIATES, LLC
CONSULTING GEOTECHNICAL ENGINEERS

Date: NOVEMBER 2020	Dwn: I.J.M.	Chkd: W.J.B.	Scale: N.T.S.
Project No: 6453			

TABLES

TABLE 1
ANALYTICAL RESULTS - GROUNDWATER

70 Leo Birmingham Parkway
Boston, MA
Project No. 6453

LOCATION	Water Quality Based Effluent Limitations	RGP
SAMPLING DATE		10/22/2020
LAB SAMPLE ID		L2046021-01
SAMPLE TYPE		GROUNDWATER
General Chemistry		
pH (S.U.)		6.2
A. Inorganics (ug/l		
Nitrogen, Ammonia	Monitor Only	99
Chloride	Monitor Only	2110000
Chlorine, Total Residual	11	**ND(20)**
Solids, Total Suspended	30000	24000
Antimony, Total	640	ND(40)
Arsenic, Total	10	ND(10)
Cadmium, Total	0.25	**ND(2)**
Chromium, Total		ND(10)
Chromium, Trivalent	74	ND(10)
Chromium, Hexavalent	11	ND(10)
Copper, Total	9	ND(10)
Iron, Total	1,000	434
Lead, Total	2.5	**ND(10)**
Mercury, Total	0.77	ND(0.2)
Nickel, Total	52	ND(20)
Selenium, Total	5	**ND(50)**
Silver, Total	3.2	ND(4)
Zinc, Total	120	ND(100)
Cyanide, Total	5.2	ND(5)

Table 2
Surface Water Sample Analytical Results

	LOCATION		**CHARLES RIVER DOWNSTREAM**		
	SAMPLING DATE				**10/30/2020**
	LAB SAMPLE ID				**L2047729-01**
	SAMPLE TYPE				**WATER**
	SAMPLE DEPTH (ft.)				
		CasNum	**EPA-ALSCCC**	**Units**	
General Chemistry					
	pH (H)	12408-02-5		SU	7
	Nitrogen, Ammonia	7664-41-7		ug/l	
Total Hardness by SM 2340B					199
	Hardness	NONE		ug/l	71900
Total Metals					
	Antimony, Total	7440-36-0	640	ug/l	ND(40)
	Arsenic, Total	7440-38-2	10	ug/l	ND(10)
	Cadmium, Total	7440-43-9	0.25	ug/l	**ND(2)**
	Chromium, Total	7440-47-3		ug/l	ND(10)
	Copper, Total	7440-50-8	9	ug/l	**ND(10)**
	Iron, Total	7439-89-6	1,000	ug/l	556
	Lead, Total	7439-92-1	2.5	ug/l	**ND(10)**
	Mercury, Total	7439-97-6	0.77	ug/l	ND(0.2)
	Nickel, Total	7440-02-0	52	ug/l	ND(20)
	Selenium, Total	7782-49-2	5	ug/l	**ND(50)**
	Silver, Total	7440-22-4	3.2	ug/l	**ND(4)**
	Zinc, Total	7440-66-6	120	ug/l	ND(100)

* Comparison is not performed on parameters with non-numeric criteria.

EPA-ALSCCC: National Recommended Water Quality Criteria - Freshwater Aquatic CCC (chronic) Criteria per Regulatory Updates through August 22, 2013.

APPENDIX A:

LIMITATIONS

LIMITATIONS

The purpose of this report is to present the results of testing of groundwater samples obtained from on-site monitoring wells in connection with the redevelopment of the 70 Leo Birmingham Parkway property in Boston, Massachusetts, in support of an application for approval of construction site dewatering discharge into surface waters of the Commonwealth of Massachusetts under EPA's Massachusetts Remediation General Permit MAG910000.

The observations were made under the conditions stated in this report. The conclusions presented above were based on these observations. If variations in the nature and extent of subsurface conditions between the spaced subsurface explorations become evident in the future, it will be necessary to re-evaluate the conclusions presented herein after performing on-site observations and noting the characteristics of any variations.

The conclusions submitted in this report are based in part upon laboratory test data obtained from analysis of groundwater samples, and are contingent upon their validity. The data have been reviewed, and interpretations have been made in the text. It should also be noted that fluctuations in the types and levels of contaminants and variations in their flow paths may occur due to changes in seasonal water table, past practices used at the site, and other factors.

Laboratory analyses have been performed for specific constituents during the course of this assessment, as described in the text.

This report and application have been prepared on behalf of and for the exclusive use of Surus Development & Construction, LLC and 70 Leo Owner, LLC. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, other than submission to relevant governmental agencies, nor used in whole or in part by any other party without the prior written consent of McPhail Associates, LLC.

APPENDIX B:

NOTICE OF INTENT TRANSMITTAL FORM

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

A. General site information:

<table>
<tr><td rowspan="2">1. Name of site:
70 Leo Birmingham Parkway</td><td colspan="3">Site address: 70
Street: Leo Birmingham Parkway</td></tr>
<tr><td>City: Boston</td><td>State: MA</td><td>Zip: 02135</td></tr>
<tr><td rowspan="4">2. Site owner
70 Leo Owner LLC

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Nick Trocki</td></tr>
<tr><td colspan="2">Telephone: 617-405-3827</td><td>Email: ntrocki@jumbocapital.com</td></tr>
<tr><td colspan="3">Mailing address: 1900 Crown Colony Drive, Suite 405
Street:</td></tr>
<tr><td>City: Quincy</td><td>State: MA</td><td>Zip: 02169</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
Surus Development & Construction, LLC</td><td colspan="3">Contact Person: Mike Manzella</td></tr>
<tr><td colspan="2">Telephone: 617-706-0357</td><td>Email: mmanzella@surusdc.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 1900 Crown Colony Drive, Suite 405</td></tr>
<tr><td>City: Quincy</td><td>State: MA</td><td>Zip: 02169</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:

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):
RTN 3-0035166
☐ 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):
Charles River	MA72-36	Class 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.

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.	24.1
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.	109.125

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: 11/25/2020

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:	
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): 25DSDO033	Outfall location(s): (Latitude, Longitude) 42.361503, -71.14728

Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ■ Indirect discharge, if so, specify:

Discharge indirectly into the Charles River through BWSC system

☐ 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: Upon approval of this NOI

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): 12/10/2020 to 06/01/2021

Indicate if the discharge is expected to occur over a duration of: ■ less than 12 months ☐ 12 months or more ☐ is an emergency discharge

Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No

<table>
<tr><td>2. Activity Category: (check all that apply)</td><td colspan="2">3. Contamination Type Category: (check all that apply)</td></tr>
<tr><td rowspan="4">☐ I – Petroleum-Related Site Remediation
☐ II – Non-Petroleum-Related Site Remediation
■ III – Contaminated Site Dewatering
☐ IV – Dewatering of Pipelines and Tanks
☐ V – Aquifer Pump Testing
☐ VI – Well Development/Rehabilitation
☐ VII – Collection Structure Dewatering/Remediation
☐ VIII – Dredge-Related Dewatering</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	1214500		99		Report mg/L	---
Chloride		✓	1	44300		2110000		Report µg/l	---
Total Residual Chlorine			1	1214500	0.2	ND		0.2 mg/L	
Total Suspended Solids		✓	1	1212540		24		30 mg/L	
Antimony	✓		1	1,6020A	40	ND		206 µg/L	
Arsenic	✓		1	1,6020A	10	ND		104 µg/L	
Cadmium	✓		1	1,6020A	2	ND		10.2 µg/L	
Chromium III	✓		1	1,6020A	10	ND		323 µg/L	
Chromium VI	✓		1	1,6020A	10	ND		323 µg/L	
Copper	✓		1	1,6020A	10	ND		242 µg/L	
Iron		✓	1	19200.7		434		5,000 µg/L	
Lead	✓		1	1,6020A	10	ND		160 µg/L	
Mercury	✓		1	3,245.1	0.2	ND		0.739 µg/L	
Nickel	✓		1	1,6020A	20	ND		1,450 µg/L	
Selenium	✓		1	1,6020A	50	ND		235.8 µg/L	
Silver	✓		1	1,6020A	4	ND		35.1 µg/L	
Zinc	✓		1	1,6020A	100	ND		420 µg/L	
Cyanide	✓		1	121,4500	5	ND		178 mg/L	
B. Non-Halogenated VOCs									
Total BTEX								100 µg/L	---
Benzene								5.0 µg/L	---
1,4 Dioxane								200 µg/L	---
Acetone								7.97 mg/L	---
Phenol								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	✓							4.4 µg/L	
1,2 Dichlorobenzene	✓							600 µg/L	---
1,3 Dichlorobenzene	✓							320 µg/L	---
1,4 Dichlorobenzene	✓							5.0 µg/L	---
Total dichlorobenzene	✓							763 µg/L in NH	---
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	
cis-1,2 Dichloroethylene	✓							70 µg/L	---
Vinyl Chloride	✓							2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✓							190 µg/L	
Diethylhexyl phthalate	✓							101 µg/L	
Total Group I PAHs								1.0 µg/L	---
Benzo(a)anthracene		✓						As Total PAHs	
Benzo(a)pyrene		✓							
Benzo(b)fluoranthene	✓								
Benzo(k)fluoranthene	✓								
Chrysene		✓							
Dibenzo(a,h)anthracene	✓								
Indeno(1,2,3-cd)pyrene	✓								

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		✓						100 µg/L	---
Naphthalene								20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✓							0.000064 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	
tert-Butyl Alcohol	✓							120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✓							90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									
PH		✓	1			6.1			

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.
Settling Tank and bag filters in series

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: settling tank Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	100
Provide the proposed maximum effluent flow in gpm.	100
Provide the average effluent flow in gpm.	50
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	

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:

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.

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 has been implemented in accordance with good engineering practices following Part 2.5 of the RGP
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: DocuSigned by: Nick Trocki 11E45DB1D855477...	Date: 11/23/2020
Print Name and Title: Nick Trocki	Assistant Vice President

Boston Water and Sewer Commission
980 Harrison Avenue
Boston, MA 02119-2540

DEWATERING DISCHARGE PERMIT APPLICATION

OWNER / AUTHORIZED APPLICANT PROVIDE INFORMATION HERE:

Company Name: Surus Development & Construction, LLC Address: 1900 Crown Colony Drive, Suite 405

Phone Number: (617) 934-2002 Fax number: _____

Contact person name: Michael Manzella Title: Senior Project Superintendent

Cell number: (617) 706-0357 Email address: mmanzella@surusdc.com

Permit Request (check one): ☑ New Application ☐ Permit Extension ☐ Other (Specify): _____

Owner's Information (if different from above):

Owner of property being dewatered: 70 Leo Owner, LLC

Owner's mailing address: 1900 Crown Colony Drive, Suite 405 Phone number: 6174053827

Location of Discharge & Proposed Treatment System(s):

Street number and name: 70 Leo Birmingham Parkway Neighborhood Brighton

Discharge is to a: ☐ Sanitary Sewer ☐ Combined Sewer ☑ Storm Drain ☐ Other (specify): _____

Describe Proposed Pre-Treatment System(s): Settling Tank and Bag filters in series

BWSC Outfall No. SDO 033 Receiving Waters Charles River

Temporary Discharges (Provide Anticipated Dates of Discharge): From 12/10/2020 To 06/01/2020

- ☐ Groundwater Remediation
- ☐ Utility/Manhole Pumping
- ☐ Accumulated Surface Water
- ☐ Tank Removal/Installation
- ☐ Test Pipe
- ☐ Hydrogeologic Testing
- ☑ Foundation Excavation
- ☐ Trench Excavation
- ☐ Other _____

Permanent Discharges

- ☐ Foundation Drainage
- ☐ Accumulated Surface Water
- ☐ Non-contact/Uncontaminated Process
- ☐ Crawl Space/Footing Drain
- ☐ Non-contact/Uncontaminated Cooling
- ☐ Other; _____

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1. Attach a Site Plan showing the source of the discharge and the location of the point of discharge (i.e. the sewer pipe or catch basin). Include meter type, meter number, size, make and start reading. Note. All discharges to the Commission's sewer system will be assessed current sewer charges.
2. If discharging to a sanitary or combined sewer, attach a copy of MWRA's Sewer Use Discharge permit or application.
3. If discharging to a separate storm drain, attach a copy of EPA's NPDES Permit or NOI application, or NPDES Permit exclusion letter for the discharge, as well as other relevant information.
4. Dewatering Drainage Permit will be denied or revoked if applicant fails to obtain the necessary permits from MWRA or EPA.

Submit Completed Application to: Boston Water and Sewer Commission
Engineering Customer Services
980 Harrison Avenue, Boston, MA 02119
Attn: Jodi Dobay, Engineering Customer Service
E-mail: beginj@bwsc.org
Phone: 617-989-7259 Fax: 617-989-7716

Signature of Authorized Representative for Property Owner: DocuSigned by: Nick Tocki 11E45DB1D855477... Date: 11/23/2020

From: Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@state.ma.us>
Sent: Wednesday, November 25, 2020 9:41 AM
To: William Burns
Cc: Shakib Ahmed
Subject: Re: 70 Leo Birmingham Highway - RGP Dilution Factor

Hi Bill,

The 7Q10 of 24.1 cfs (15.57 MGD) and the dilution factor calculation of 109.125 with a design flow of 100 gpm for the proposed discharge at 70 Leo Birmingham Highway in Boston are correct.

Here is water quality information to assist you with filling out the NOI:

Waterbody and ID: Charles River (MA72-36) within Charles River 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 "MA72-36" to see the causes of impairments.
TMDLs: there are two approved TMDL (pathogens and phosphorus) for this segment.

As you 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.

Cathy

Cathy Vakalopoulos, Acting NPDES Chief
Massachusetts Department of Environmental Protection
1 Winter St., Boston, MA 02108, 617-348-4026

From: William Burns <wburns@mcphailgeo.com>
Date: Wednesday, November 18, 2020 at 5:05 PM
To: "Vakalopoulos, Catherine (DEP)" <catherine.vakalopoulos@mass.gov>
Cc: Shakib Ahmed <SAhmed@mcphailgeo.com>
Subject: 70 Leo Birmingham Highway - RGP Dilution Factor

Good Evening Cathy,

I am currently preparing a NOI to discharge under the RGP for the proposed development project at 70 Leo Birmingham Highway. The Contractor would like to discharge treated water off-site into the City of Boston storm drain system which discharges into the Charles River beneath the Western Avenue Bridge. Based upon the StreamStats 7Q10 calculation for the Charles of 24.1 ft^3/sec (15.57 MGD), I have derived a relatively high DF of 109.125 with a 0.144 MGD (100 gpm) discharge flow. Attached is a copy of the StreamStats sheet. Can you please confirm if this DF is correct? Thank you.

-Bill

William J. Burns, L.S.P., L.E.P.

McPHAIL ASSOCIATES, LLC
2269 Massachusetts Avenue
Cambridge, MA 02140
Tel: 617-868-1420 ext. 341
Direct: 617-349-7341

APPENDIX C:

ADDITIONAL NOI SUPPORT INFORMATION

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 18, 2020
Consultation Code: 05E1NE00-2021-SLI-0466
Event Code: 05E1NE00-2021-E-01409
Project Name: 70 Leo Birmingham Parkway

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-0466

Event Code: 05E1NE00-2021-E-01409

Project Name: 70 Leo Birmingham Parkway

Project Type: LAND - DRAINAGE

Project Description: Located on developed land approximately 21,752 square foot.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.3590840096475N71.1468703681654W

Counties: Suffolk, MA

Endangered Species Act Species

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

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

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

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

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

Critical habitats

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

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Boston; Place: Brighton; Street No: 70; Street Name: Leo Birmingham Pkwy; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year

MassDEP - Bureau of Waste Site Cleanup

Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

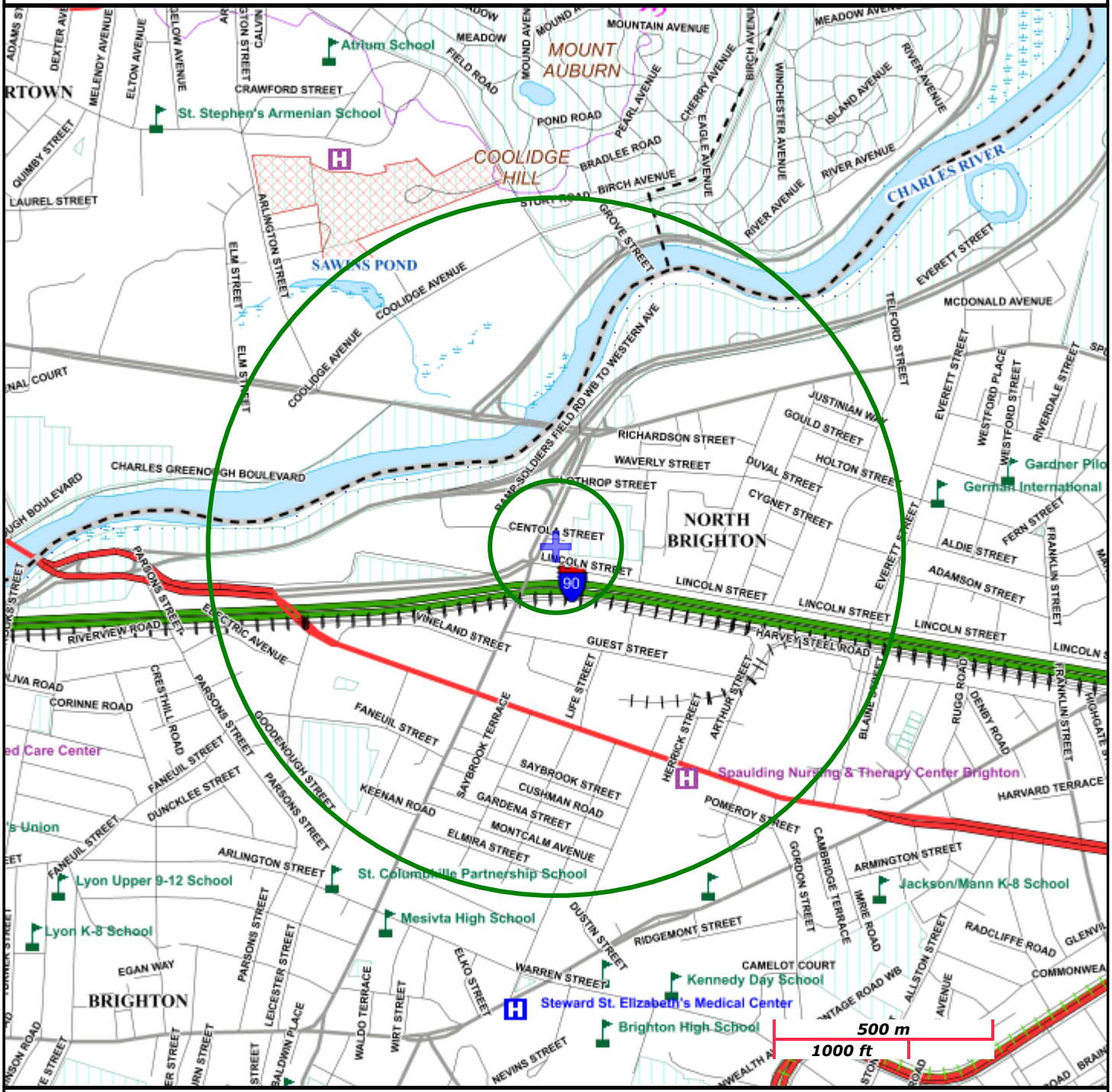
Site Information:

70 LEO BIRMINGHAM PARKWAY BOSTON, MA

NAD83 UTM Meters:
4691889mN , 323203mE (Zone: 19)
November 18, 2020

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at: https://www.mass.gov/orgs/massgis-bureau-of-geographic-information.

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail

Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct

Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam

Aquifers: Medium Yield, High Yield, EPA Sole Source

Non Potential Drinking Water Source Area: Medium, High (Yield)

PWS Protection Areas: Zone II, IWPA, Zone A

Hydrography: Open Water, PWS Reservoir, Tidal Flat

Wetlands: Freshwater, Saltwater, Cranberry Bog

FEMA 100yr Floodplain; Protected Open Space; ACEC

Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential

Solid Waste Landfill; PWS: Com.GW,SW, Emerg., Non-Com.

APPENDIX D:

LABORATORY ANALYTICAL DATA - GROUNDWATER

ANALYTICAL REPORT

Lab Number:	L2046021
Client:	McPhail Associates 2269 Massachusetts Avenue Cambridge, MA 02140
ATTN:	Ambrose Donovan
Phone:	(617) 868-1420
Project Name:	70 LEO BIRMINGHAM
Project Number:	6453
Report Date:	10/28/20

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: 70 LEO BIRMINGHAM
Project Number: 6453

Lab Number: L2046021
Report Date: 10/28/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2046021-01	RGP	WATER	BOSTON, MA	10/22/20 15:00	10/22/20

Project Name:	70 LEO BIRMINGHAM	**Lab Number:**	L2046021
Project Number:	6453	**Report Date:**	10/28/20

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: 70 LEO BIRMINGHAM
Project Number: 6453
Lab Number: L2046021
Report Date: 10/28/20

Case Narrative (continued)

Sample Receipt

L2046021-01: The sample was received below the appropriate pH for the Total Cyanide - SM 4500 analysis. The laboratory added additional NaOH to a pH >12.

Total Metals

L2046021-01: The sample has elevated detection limits for all elements, with the exception of iron and mercury, due to the dilution required by matrix interferences encountered during analysis.

Chlorine, Total Residual

WG1425584: A Matrix Spike and Laboratory Duplicate could not be performed due to insufficient sample volume available for analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Jennifer L Clements

Title: Technical Director/Representative Date: 10/28/20

METALS

Project Name: 70 LEO BIRMINGHAM
Project Number: 6453
Lab Number: L2046021
Report Date: 10/28/20

SAMPLE RESULTS

Lab ID: L2046021-01
Client ID: RGP
Sample Location: BOSTON, MA
Sample Depth:
Matrix: Water

Date Collected: 10/22/20 15:00
Date Received: 10/22/20
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.04000	--	10	10/26/20 15:19	10/26/20 19:01	EPA 3005A	3,200.8	AM
Arsenic, Total	ND		mg/l	0.01000	--	10	10/26/20 15:19	10/26/20 19:01	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00200	--	10	10/26/20 15:19	10/26/20 19:01	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.01000	--	10	10/26/20 15:19	10/26/20 19:01	EPA 3005A	3,200.8	AM
Copper, Total	ND		mg/l	0.01000	--	10	10/26/20 15:19	10/26/20 19:01	EPA 3005A	3,200.8	AM
Iron, Total	0.434		mg/l	0.050	--	1	10/26/20 15:19	10/28/20 14:56	EPA 3005A	19,200.7	GD
Lead, Total	ND		mg/l	0.01000	--	10	10/26/20 15:19	10/26/20 19:01	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	10/26/20 15:24	10/27/20 10:52	EPA 245.1	3,245.1	GD
Nickel, Total	ND		mg/l	0.02000	--	10	10/26/20 15:19	10/26/20 19:01	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.05000	--	10	10/26/20 15:19	10/26/20 19:01	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00400	--	10	10/26/20 15:19	10/26/20 19:01	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.1000	--	10	10/26/20 15:19	10/26/20 19:01	EPA 3005A	3,200.8	AM
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		10/26/20 19:01	NA	107,-	

Project Name: 70 LEO BIRMINGHAM **Lab Number:** L2046021

Project Number: 6453 **Report Date:** 10/28/20

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1426600-1										
Iron, Total	ND		mg/l	0.050	--	1	10/26/20 15:19	10/28/20 14:20	19,200.7	GD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1426601-1										
Antimony, Total	ND		mg/l	0.00400	--	1	10/26/20 15:19	10/26/20 18:44	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	10/26/20 15:19	10/26/20 18:44	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	10/26/20 15:19	10/26/20 18:44	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	10/26/20 15:19	10/26/20 18:44	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	10/26/20 15:19	10/26/20 18:44	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	10/26/20 15:19	10/26/20 18:44	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	10/26/20 15:19	10/26/20 18:44	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	10/26/20 15:19	10/26/20 18:44	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	10/26/20 15:19	10/26/20 18:44	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	10/26/20 15:19	10/26/20 18:44	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1426602-1										
Mercury, Total	ND		mg/l	0.00020	--	1	10/26/20 15:24	10/27/20 09:59	3,245.1	GD

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: 70 LEO BIRMINGHAM

Project Number: 6453

Lab Number: L2046021

Report Date: 10/28/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1426600-2								
Iron, Total	99		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1426601-2								
Antimony, Total	97		-		85-115	-		
Arsenic, Total	99		-		85-115	-		
Cadmium, Total	101		-		85-115	-		
Chromium, Total	94		-		85-115	-		
Copper, Total	98		-		85-115	-		
Lead, Total	100		-		85-115	-		
Nickel, Total	94		-		85-115	-		
Selenium, Total	96		-		85-115	-		
Silver, Total	99		-		85-115	-		
Zinc, Total	101		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1426602-2								
Mercury, Total	99		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: 70 LEO BIRMINGHAM
Project Number: 6453

Lab Number: L2046021
Report Date: 10/28/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1426600-3 QC Sample: L2046021-01 Client ID: RGP												
Iron, Total	0.434	1	1.41	98		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1426601-3 QC Sample: L2046021-01 Client ID: RGP												
Antimony, Total	ND	0.5	0.5128	102		-	-		70-130	-		20
Arsenic, Total	ND	0.12	0.1228	102		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.05224	102		-	-		70-130	-		20
Chromium, Total	ND	0.2	0.1830	92		-	-		70-130	-		20
Copper, Total	ND	0.25	0.2379	95		-	-		70-130	-		20
Lead, Total	ND	0.51	0.5319	104		-	-		70-130	-		20
Nickel, Total	ND	0.5	0.4588	92		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1152	96		-	-		70-130	-		20
Silver, Total	ND	0.05	0.04750	95		-	-		70-130	-		20
Zinc, Total	ND	0.5	0.4895	98		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1426602-3 QC Sample: L2045953-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00117	**23**	Q	-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1426602-5 QC Sample: L2045959-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00509	102		-	-		70-130	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 70 LEO BIRMINGHAM
Project Number: 6453

Lab Number: L2046021
Report Date: 10/28/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1426600-4 QC Sample: L2046021-01 Client ID: RGP						
Iron, Total	0.434	0.526	mg/l	19		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1426601-4 QC Sample: L2046021-01 Client ID: RGP						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	ND	ND	mg/l	NC		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	ND	ND	mg/l	NC		20
Copper, Total	ND	ND	mg/l	NC		20
Lead, Total	ND	ND	mg/l	NC		20
Nickel, Total	ND	ND	mg/l	NC		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1426602-4 QC Sample: L2045953-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1426602-6 QC Sample: L2045959-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name: 70 LEO BIRMINGHAM
Project Number: 6453

Lab Number: L2046021
Report Date: 10/28/20

SAMPLE RESULTS

Lab ID: L2046021-01
Client ID: RGP
Sample Location: BOSTON, MA

Date Collected: 10/22/20 15:00
Date Received: 10/22/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	24.		mg/l	5.0	NA	1	-	10/26/20 13:15	121,2540D	AC
Cyanide, Total	ND		mg/l	0.005	--	1	10/23/20 11:00	10/23/20 16:23	121,4500CN-CE	CR
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	10/23/20 09:34	121,4500CL-D	JA
pH (H)	6.2		SU	-	NA	1	-	10/22/20 23:12	121,4500H+-B	AS
Nitrogen, Ammonia	0.099		mg/l	0.075	--	1	10/23/20 08:35	10/27/20 18:49	121,4500NH3-BH	AT
Chromium, Hexavalent	ND		mg/l	0.010	--	1	10/23/20 07:35	10/23/20 08:11	1,7196A	KP
Anions by Ion Chromatography - Westborough Lab										
Chloride	2110		mg/l	50.0	--	100	-	10/27/20 00:30	44,300.0	SH

Project Name: 70 LEO BIRMINGHAM
Project Number: 6453
Lab Number: L2046021
Report Date: 10/28/20

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1425513-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	10/23/20 08:35	10/27/20 18:19	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1425543-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	10/23/20 07:35	10/23/20 08:10	1,7196A	KP
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1425584-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	10/23/20 09:34	121,4500CL-D	JA
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1425599-1										
Cyanide, Total	ND		mg/l	0.005	--	1	10/23/20 11:00	10/23/20 15:16	121,4500CN-CE	CR
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1426494-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	10/26/20 13:15	121,2540D	AC
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1426796-1										
Chloride	ND		mg/l	0.500	--	1	-	10/26/20 16:22	44,300.0	SH

Lab Control Sample Analysis

Batch Quality Control

Project Name: 70 LEO BIRMINGHAM
Project Number: 6453

Lab Number: L2046021
Report Date: 10/28/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1425403-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1425513-2								
Nitrogen, Ammonia	96		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1425543-2								
Chromium, Hexavalent	94		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1425584-2								
Chlorine, Total Residual	92		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1425599-2								
Cyanide, Total	98		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1426494-2								
Solids, Total Suspended	90		-		80-120	-		
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1426796-2								
Chloride	104		-		90-110	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: 70 LEO BIRMINGHAM
Project Number: 6453

Lab Number: L2046021
Report Date: 10/28/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1425513-4 QC Sample: L2045835-01 Client ID: MS Sample												
Nitrogen, Ammonia	1.29	4	4.49	80		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1425543-4 QC Sample: L2046021-01 Client ID: RGP												
Chromium, Hexavalent	ND	0.1	0.093	93		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1425599-4 QC Sample: L2045835-02 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.169	**84**	Q	-	-		90-110	-		30
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1426796-3 QC Sample: L2045432-01 Client ID: MS Sample												
Chloride	1.90	4	5.66	94		-	-		90-110	-		18

Lab Duplicate Analysis

Batch Quality Control

Project Name: 70 LEO BIRMINGHAM
Project Number: 6453

Lab Number: L2046021
Report Date: 10/28/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1425403-2 QC Sample: L2045865-01 Client ID: DUP Sample						
pH	11.8	11.8	SU	0		5
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1425513-3 QC Sample: L2045835-01 Client ID: DUP Sample						
Nitrogen, Ammonia	1.29	1.26	mg/l	2		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1425543-3 QC Sample: L2046021-01 Client ID: RGP						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1425599-3 QC Sample: L2045835-01 Client ID: DUP Sample						
Cyanide, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1426494-3 QC Sample: L2045927-01 Client ID: DUP Sample						
Solids, Total Suspended	46	43	mg/l	7		29
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1426796-4 QC Sample: L2045432-01 Client ID: DUP Sample						
Chloride	1.90	1.91	mg/l	1		18

Project Name: 70 LEO BIRMINGHAM
Project Number: 6453

Lab Number: L2046021
Report Date: 10/28/20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2046021-01A	Plastic 250ml NaOH preserved	A	7	>12	5.6	N	Absent		TCN-4500(14)
L2046021-01B	Plastic 250ml H2SO4 preserved	A	<2	<2	5.6	Y	Absent		NH3-4500(28)
L2046021-01C	Plastic 500ml unpreserved	A	7	7	5.6	Y	Absent		HEXCR-7196(1),CL-300(28),TRC-4500(1),PH-4500(.01)
L2046021-01D	Plastic 500ml HNO3 preserved	A	<2	<2	5.6	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HG-U(28),AG-2008T(180),AS-2008T(180),SE-2008T(180),CR-2008T(180),SB-2008T(180),PB-2008T(180)
L2046021-01E	Plastic 950ml unpreserved	A	7	7	5.6	Y	Absent		TSS-2540(7)

*Values in parentheses indicate holding time in days

Project Name:	70 LEO BIRMINGHAM	**Lab Number:**	L2046021
Project Number:	6453	**Report Date:**	10/28/20

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	70 LEO BIRMINGHAM	**Lab Number:**	L2046021
Project Number:	6453	**Report Date:**	10/28/20

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Report Format: Data Usability Report

Project Name:	70 LEO BIRMINGHAM	**Lab Number:**	L2046021
Project Number:	6453	**Report Date:**	10/28/20

Data Qualifiers

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: Data Usability Report

Project Name:	70 LEO BIRMINGHAM	**Lab Number:**	L2046021
Project Number:	6453	**Report Date:**	10/28/20

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

107 Alpha Analytical - In-house calculation method.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
EPA TO-12 Non-methane organics
EPA 3C Fixed gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220

320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Date Rec'd in Lab: 10/22/20

ALPHA Job #: L2048021

Client Information	
Client:	McPhail Associates, LLC
Address:	2269 Massachusetts Avenue, Cambridge, MA 02140
Phone:	(617) 868-1420
Email:	dtrussell @McPhailgeo.com

Project Information	
Project Name:	70 Leo Birmingham
Project Location:	Boston, MA
Project #:	6453
Project Manager:	D. Trussell
ALPHA Quote #:	

Report Information - Data Deliverables: ☐ ADEx ☑ EMAIL

Billing Information: ☐ Same as Client info PO #:

Regulatory Requirements & Project Information Requirements

- ☑ Yes ☐ No MA MCP Analytical Methods
- ☐ Yes ☑ No CT RCP Analytical Methods
- ☐ Yes ☑ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
- ☐ Yes ☑ No GW1 Standards (Info Required for Metals & EPH with Targets)
- ☑ Yes ☐ No NPDES RGP
- ☐ Other State /Fed Program ______ Criteria ______

Turn-Around Time

☑ Standard ☐ RUSH *(only confirmed if pre-approved!)*

Date Due: 10/29/20

Additional Project Information:

☐ Run TCLP (if triggered)

Sample "Sample ID" Nomenclature: B-100, S-1

Analysis columns: Soil Assessment Package IV (less VOC); VOC: ☐ 8260; Total Solids; SVOC: ☐ PAH; EPH: ☐ Ranges & Targets ☐ Ranges Only; VPH: ☐ Ranges & Targets ☐ Ranges Only; TOTAL METALS: ☐ RCRA8 ☐ PP13 ☐ MCP 14; DISSOLVED METALS: ☐ RCRA8 ☐ PP13 ☐ MCP 14; METALS: Total Sb,Be,Ni,Tl,V,Zn; ☐ PCBs ☐ Pesticides; RGP Section A Inorganics

SAMPLE INFO — *Filtration:* ☐ Field ☐ Lab to do; *Preservation:* ☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Sample Depth	Material	Collection Date	Collection Time	Sampler Initials	RGP Section A Inorganics	Sample Comments	TOTAL # BOTTLES
48021-01	RGP	—	GW	10/22/20	15:00	DAT	X		5

Container Type / Preservative rows: (blank)

Container Type	Preservative
A=Amber glass	A=None
B=Bacteria cup	B=HCl
C=Cube	C=HNO_3
D=BOD bottle	D=H_2SO_4
E=Encore	E=NaOH
G=Glass	F=MeOH
O=Other	G=$NaHSO_4$
P=Plastic	H=$Na_2S_2O_3$
V=Vial	I=Ascorbic Acid
	J=NH_4Cl
	K=Zn Acetate
	O=Other

Sample Material

F=Fill, S=Sand, O=Organics, C=Clay, N=Natural, T=Till, GM=Glaciomarine, GW=Groundwater

***RGP Section A Inorganics*:** *Ammonia, Chloride, TRC, TSS, CrVI, CrIII, Total Cyanide, Total RGP Metals*

Relinquished By:	Date/Time	Received By:	Date/Time
DAT	10/22/20 16:15	McPhail Associates secure sample storage for laboratory pick-up	10/22/20 1615
McPhail Associates secure sample storage for laboratory pick-up	10/22/20 1615	Mike DICK AAL	10/22/20 1615
Mike DICK	10/22/20 1800	[signature]	10/22/20 18[illegible]

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

DOC ID: 25188 Rev 0 (11/28/2017)

APPENDIX E:

LABORATORY ANALYTICAL DATA – ADDITIONAL GROUNDWATER TESTING PERFORMED BY OTHERS

PHOENIX
Environmental Laboratories, Inc.

Monday, March 16, 2020

Attn: Mr Joseph Salvetti
Stantec
400 Crown Colony Drive
Suite 200
Quincy MA 02169

Project ID: 195601749
SDG ID: GCF44827
Sample ID#s: CF44827 - CF44829

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
UT Lab Registration #CT00007
VT Lab Registration #VT11301

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

SDG Comments

March 16, 2020

SDG I.D.: GCF44827

8260 Analysis:
1,2-Dibromoethane doesn't meet GW-1 criteria, this compound is analyzed by GC/FID to achieve this criteria.

8260 Analysis:
1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

Phoenix reporting levels may exceed those referenced in the CAM protocol. Please refer to criteria sheet for comparisons to requested MCP standards.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Sample Id Cross Reference

March 16, 2020

SDG I.D.: GCF44827

Project ID: 195601749

Client Id	Lab Id	Matrix
MW-1	CF44827	GROUND WATER
MW-2	CF44828	GROUND WATER
MW-3	CF44829	GROUND WATER

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

March 16, 2020

FOR: Attn: Mr Joseph Salvetti
Stantec
400 Crown Colony Drive
Suite 200
Quincy MA 02169

Sample Information		Custody Information		Date	Time
Matrix:	GROUND WATER	Collected by:		03/05/20	13:00
Location Code:	STANTECMA	Received by:	SW	03/05/20	17:03
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCF44827
Phoenix ID: CF44827

Project ID: 195601749
Client ID: MW-1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver (Dissolved)	< 0.001	0.001	mg/L	1	03/06/20	CPP	SW6010D
Arsenic (Dissolved)	< 0.004	0.004	mg/L	1	03/06/20	CPP	SW6010D
Barium (Dissolved)	0.298	0.002	mg/L	1	03/06/20	CPP	SW6010D
Beryllium (Dissolved)	< 0.001	0.001	mg/L	1	03/06/20	CPP	SW6010D
Cadmium (Dissolved)	< 0.001	0.001	mg/L	1	03/06/20	CPP	SW6010D
Chromium (Dissolved)	< 0.001	0.001	mg/L	1	03/06/20	CPP	SW6010D
Mercury (Dissolved)	< 0.0002	0.0002	mg/L	1	03/10/20	RS	SW7470A
Nickel (Dissolved)	0.005	0.001	mg/L	1	03/06/20	CPP	SW6010D
Lead (Dissolved)	< 0.002	0.002	mg/L	1	03/06/20	CPP	SW6010D
Antimony (Dissolved)	< 0.005	0.005	mg/L	1	03/06/20	CPP	SW6010D
Selenium (Dissolved)	< 0.011	0.011	mg/L	1	03/06/20	CPP	SW6010D
Thallium (Dissolved)	< 0.002	0.002	mg/L	1	03/09/20	RS	SW7010
Vanadium (Dissolved)	< 0.002	0.002	mg/L	1	03/06/20	CPP	SW6010D
Zinc (Dissolved)	0.004	0.002	mg/L	1	03/06/20	CPP	SW6010D
Filtration	Completed				03/05/20	AG	0.45um Filter
Dissolved Mercury Digestion	Completed				03/09/20	LS/LS	SW7470A
EPH Extraction	Completed				03/06/20	SB/SB	SW3510C
MA Petroleum Hydrocarbon (EPH)	Completed				03/05/20		MADEP EPH-04
Semi-Volatile Extraction	Completed				03/11/20	P/AK	SW3520C
Dissolved Metals Preparation	Completed				03/05/20	AG	SW3005A
MA Petroleum Hydrocarbon (VPH)	Completed				03/06/20	RM	MADEP VPH04
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	03/06/20	HM	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,1-Dichloroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C

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Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,1-Dichloroethene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2-Dibromoethane	ND	0.50	ug/L	1	03/06/20	HM	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2-Dichloroethane	ND	0.60	ug/L	1	03/06/20	HM	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
2-Chlorotoluene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
2-Hexanone	ND	5.0	ug/L	1	03/06/20	HM	SW8260C
2-Isopropyltoluene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
4-Chlorotoluene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
4-Methyl-2-pentanone	ND	5.0	ug/L	1	03/06/20	HM	SW8260C
Acetone	ND	25	ug/L	1	03/06/20	HM	SW8260C
Acrylonitrile	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Benzene	ND	0.70	ug/L	1	03/06/20	HM	SW8260C
Bromobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Bromochloromethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Bromodichloromethane	ND	0.50	ug/L	1	03/06/20	HM	SW8260C
Bromoform	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Bromomethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Carbon Disulfide	ND	5.0	ug/L	1	03/06/20	HM	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Chloroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Chloroform	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Chloromethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	03/06/20	HM	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	03/06/20	HM	SW8260C
Dibromomethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Ethylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Hexachlorobutadiene	ND	0.40	ug/L	1	03/06/20	HM	SW8260C
Isopropylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
m&p-Xylene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Methyl ethyl ketone	ND	5.0	ug/L	1	03/06/20	HM	SW8260C
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Methylene chloride	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Naphthalene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
n-Butylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C

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Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
n-Propylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
o-Xylene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
p-Isopropyltoluene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
sec-Butylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Styrene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
tert-Butylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Tetrachloroethene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	03/06/20	HM	SW8260C
Toluene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Total Xylenes	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	03/06/20	HM	SW8260C
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	03/06/20	HM	SW8260C
Trichloroethene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	98		%	1	03/06/20	HM	70 - 130 %
% Bromofluorobenzene	96		%	1	03/06/20	HM	70 - 130 %
% Dibromofluoromethane	103		%	1	03/06/20	HM	70 - 130 %
% Toluene-d8	93		%	1	03/06/20	HM	70 - 130 %
Oxygenates & Dioxane							
1,4-Dioxane	ND	50	ug/L	1	03/06/20	HM	SW8260C (OXY)
Diethyl ether	ND	1.0	ug/L	1	03/06/20	HM	SW8260C (OXY)
Di-isopropyl ether	ND	1.0	ug/L	1	03/06/20	HM	SW8260C (OXY)
Ethyl tert-butyl ether	ND	1.0	ug/L	1	03/06/20	HM	SW8260C (OXY)
tert-amyl methyl ether	ND	1.0	ug/L	1	03/06/20	HM	SW8260C (OXY)
Semivolatiles by SIM, PAH							
2-Methylnaphthalene	ND	0.48	ug/L	1	03/12/20	WB	SW8270D (SIM)
Acenaphthene	ND	0.48	ug/L	1	03/12/20	WB	SW8270D (SIM)
Acenaphthylene	ND	0.10	ug/L	1	03/12/20	WB	SW8270D (SIM)
Anthracene	ND	0.09	ug/L	1	03/12/20	WB	SW8270D (SIM)
Benz(a)anthracene	ND	0.10	ug/L	1	03/12/20	WB	SW8270D (SIM)
Benzo(a)pyrene	ND	0.19	ug/L	1	03/12/20	WB	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.10	ug/L	1	03/12/20	WB	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.02	ug/L	1	03/12/20	WB	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.10	ug/L	1	03/12/20	WB	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	03/12/20	WB	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.02	ug/L	1	03/12/20	WB	SW8270D (SIM)
Fluoranthene	ND	0.48	ug/L	1	03/12/20	WB	SW8270D (SIM)
Fluorene	ND	0.10	ug/L	1	03/12/20	WB	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	1	03/12/20	WB	SW8270D (SIM)
Naphthalene	ND	0.48	ug/L	1	03/12/20	WB	SW8270D (SIM)
Phenanthrene	ND	0.48	ug/L	1	03/12/20	WB	SW8270D (SIM)
Pyrene	ND	0.07	ug/L	1	03/12/20	WB	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	55		%	1	03/12/20	WB	40 - 140 %

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Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Nitrobenzene-d5	62		%	1	03/12/20	WB	40 - 140 %
% Terphenyl-d14	44		%	1	03/12/20	WB	40 - 140 %
MA EPH Aliphatic/Aromatic Ranges							
C11-C22 Aromatic Hydrocarbons 1,2*	ND	190	ug/L	1	03/06/20	AW	MAEPH 5/2004
C11-C22 Aromatic Hydrocarbons Unadj	ND	190	ug/L	1	03/06/20	AW	MAEPH 5/2004
C19-C36 Aliphatic Hydrocarbons 1*	ND	190	ug/L	1	03/06/20	AW	MAEPH 5/2004
C9-C18 Aliphatic Hydrocarbons 1*	ND	190	ug/L	1	03/06/20	AW	MAEPH 5/2004
Total TPH 1,2*	ND	190	ug/L	1	03/06/20	AW	MAEPH 5/2004
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	97		%	1	03/06/20	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	110		%	1	03/06/20	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	116		%	1	03/06/20	AW	40 - 140 %
% o-terphenyl (aromatic)	95		%	1	03/06/20	AW	40 - 140 %
MA Volatile Petroleum Hydrocarbons (VPH)							
Unadjusted C5-C8 Aliphatics (*1)	ND	100	ug/L	1	03/06/20	RM	MA VPH 5/2004
Unadjusted C9-C12 Aliphatics (*1)	ND	100	ug/L	1	03/06/20	RM	MA VPH 5/2004
C5-C8 Aliphatic Hydrocarbons *1,2	ND	100	ug/L	1	03/06/20	RM	MA VPH 5/2004
C9-C12 Aliphatic Hydrocarbons *1,3	ND	100	ug/L	1	03/06/20	RM	MA VPH 5/2004
C9-C10 Aromatic Hydrocarbons *1	ND	100	ug/L	1	03/06/20	RM	MA VPH 5/2004
Benzene	ND	1.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
Ethyl Benzene	ND	1.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
MTBE	ND	1.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
Naphthalene	ND	5.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
Toluene	ND	1.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
m,p-Xylenes	ND	2.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
o-Xylene	ND	1.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
QA/QC Surrogates							
% 2,5-Dibromotoluene (FID)	98		%	1	03/06/20	RM	70 - 130 %
% 2,5-Dibromotoluene (PID)	89		%	1	03/06/20	RM	70 - 130 %

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Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

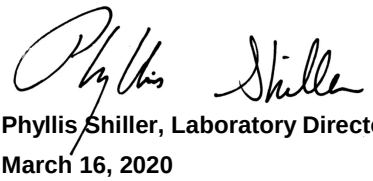
Comments:

8260 Analysis:
1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C12 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

VPH:
*1 Range data exclude conc.s of any surrogate(s) and/or Int. std.s eluting in that range.
*2 C5-C8 and C9-C12 Aliphatic exclude the conc. of Target Analytes in that range.
*3 C9-C12 Aliphatic also exclude C9-C10 Aromatic Hydrocarbon

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.



Phyllis Shiller, Laboratory Director
March 16, 2020
Reviewed and Released by: Rashmi Makol, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

March 16, 2020

FOR: Attn: Mr Joseph Salvetti
Stantec
400 Crown Colony Drive
Suite 200
Quincy MA 02169

Sample Information		Custody Information		Date	Time
Matrix:	GROUND WATER	Collected by:		03/05/20	14:45
Location Code:	STANTECMA	Received by:	SW	03/05/20	17:03
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCF44827
Phoenix ID: CF44828

Project ID: 195601749
Client ID: MW-2

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver (Dissolved)	< 0.001	0.001	mg/L	1	03/06/20	CPP	SW6010D
Arsenic (Dissolved)	< 0.004	0.004	mg/L	1	03/06/20	CPP	SW6010D
Barium (Dissolved)	0.199	0.002	mg/L	1	03/06/20	CPP	SW6010D
Beryllium (Dissolved)	< 0.001	0.001	mg/L	1	03/06/20	CPP	SW6010D
Cadmium (Dissolved)	< 0.001	0.001	mg/L	1	03/06/20	CPP	SW6010D
Chromium (Dissolved)	< 0.001	0.001	mg/L	1	03/06/20	CPP	SW6010D
Mercury (Dissolved)	< 0.0002	0.0002	mg/L	1	03/10/20	RS	SW7470A
Nickel (Dissolved)	0.005	0.001	mg/L	1	03/06/20	CPP	SW6010D
Lead (Dissolved)	< 0.002	0.002	mg/L	1	03/06/20	CPP	SW6010D
Antimony (Dissolved)	< 0.005	0.005	mg/L	1	03/06/20	CPP	SW6010D
Selenium (Dissolved)	< 0.011	0.011	mg/L	1	03/06/20	CPP	SW6010D
Thallium (Dissolved)	< 0.002	0.002	mg/L	1	03/09/20	RS	SW7010
Vanadium (Dissolved)	< 0.002	0.002	mg/L	1	03/06/20	CPP	SW6010D
Zinc (Dissolved)	0.004	0.002	mg/L	1	03/06/20	CPP	SW6010D
Filtration	Completed				03/05/20	AG	0.45um Filter
Dissolved Mercury Digestion	Completed				03/09/20	LS/LS	SW7470A
EPH Extraction	Completed				03/06/20	SB/SB	SW3510C
MA Petroleum Hydrocarbon (EPH)	Completed				03/05/20		MADEP EPH-04
Semi-Volatile Extraction	Completed				03/11/20	P/AK	SW3520C
Dissolved Metals Preparation	Completed				03/05/20	AG	SW3005A
MA Petroleum Hydrocarbon (VPH)	Completed				03/06/20	RM	MADEP VPH04
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	03/06/20	HM	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,1-Dichloroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C

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Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,1-Dichloroethene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2-Dibromoethane	ND	0.50	ug/L	1	03/06/20	HM	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2-Dichloroethane	ND	0.60	ug/L	1	03/06/20	HM	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
2-Chlorotoluene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
2-Hexanone	ND	5.0	ug/L	1	03/06/20	HM	SW8260C
2-Isopropyltoluene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
4-Chlorotoluene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
4-Methyl-2-pentanone	ND	5.0	ug/L	1	03/06/20	HM	SW8260C
Acetone	ND	25	ug/L	1	03/06/20	HM	SW8260C
Acrylonitrile	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Benzene	ND	0.70	ug/L	1	03/06/20	HM	SW8260C
Bromobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Bromochloromethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Bromodichloromethane	ND	0.50	ug/L	1	03/06/20	HM	SW8260C
Bromoform	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Bromomethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Carbon Disulfide	ND	5.0	ug/L	1	03/06/20	HM	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Chloroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Chloroform	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Chloromethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	03/06/20	HM	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	03/06/20	HM	SW8260C
Dibromomethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Ethylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Hexachlorobutadiene	ND	0.40	ug/L	1	03/06/20	HM	SW8260C
Isopropylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
m&p-Xylene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Methyl ethyl ketone	ND	5.0	ug/L	1	03/06/20	HM	SW8260C
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Methylene chloride	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Naphthalene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
n-Butylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C

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Client ID: MW-2

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Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
n-Propylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
o-Xylene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
p-Isopropyltoluene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
sec-Butylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Styrene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
tert-Butylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Tetrachloroethene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	03/06/20	HM	SW8260C
Toluene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Total Xylenes	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	03/06/20	HM	SW8260C
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	03/06/20	HM	SW8260C
Trichloroethene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	95		%	1	03/06/20	HM	70 - 130 %
% Bromofluorobenzene	94		%	1	03/06/20	HM	70 - 130 %
% Dibromofluoromethane	97		%	1	03/06/20	HM	70 - 130 %
% Toluene-d8	93		%	1	03/06/20	HM	70 - 130 %
Oxygenates & Dioxane							
1,4-Dioxane	ND	50	ug/L	1	03/06/20	HM	SW8260C (OXY)
Diethyl ether	ND	1.0	ug/L	1	03/06/20	HM	SW8260C (OXY)
Di-isopropyl ether	ND	1.0	ug/L	1	03/06/20	HM	SW8260C (OXY)
Ethyl tert-butyl ether	ND	1.0	ug/L	1	03/06/20	HM	SW8260C (OXY)
tert-amyl methyl ether	ND	1.0	ug/L	1	03/06/20	HM	SW8260C (OXY)
Semivolatiles by SIM, PAH							
2-Methylnaphthalene	ND	0.49	ug/L	1	03/12/20	AW	SW8270D (SIM)
Acenaphthene	ND	0.49	ug/L	1	03/12/20	AW	SW8270D (SIM)
Acenaphthylene	ND	0.10	ug/L	1	03/12/20	AW	SW8270D (SIM)
Anthracene	ND	0.09	ug/L	1	03/12/20	AW	SW8270D (SIM)
Benz(a)anthracene	ND	0.10	ug/L	1	03/12/20	AW	SW8270D (SIM)
Benzo(a)pyrene	ND	0.19	ug/L	1	03/12/20	AW	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.10	ug/L	1	03/12/20	AW	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.02	ug/L	1	03/12/20	AW	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.10	ug/L	1	03/12/20	AW	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	03/12/20	AW	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.02	ug/L	1	03/12/20	AW	SW8270D (SIM)
Fluoranthene	ND	0.49	ug/L	1	03/12/20	AW	SW8270D (SIM)
Fluorene	ND	0.10	ug/L	1	03/12/20	AW	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	1	03/12/20	AW	SW8270D (SIM)
Naphthalene	ND	0.49	ug/L	1	03/12/20	AW	SW8270D (SIM)
Phenanthrene	ND	0.49	ug/L	1	03/12/20	AW	SW8270D (SIM)
Pyrene	0.08	0.07	ug/L	1	03/12/20	AW	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	65		%	1	03/12/20	AW	40 - 140 %

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Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
% Nitrobenzene-d5	56		%	1	03/12/20	AW	40 - 140 %	
% Terphenyl-d14	28		%	1	03/12/20	AW	40 - 140 %	3

MA EPH Aliphatic/Aromatic Ranges

C11-C22 Aromatic Hydrocarbons 1,2*	ND	190	ug/L	1	03/09/20	AW	MAEPH 5/2004
C11-C22 Aromatic Hydrocarbons Unadj	ND	190	ug/L	1	03/09/20	AW	MAEPH 5/2004
C19-C36 Aliphatic Hydrocarbons 1*	ND	190	ug/L	1	03/09/20	AW	MAEPH 5/2004
C9-C18 Aliphatic Hydrocarbons 1*	ND	190	ug/L	1	03/09/20	AW	MAEPH 5/2004
Total TPH 1,2*	ND	190	ug/L	1	03/09/20	AW	MAEPH 5/2004
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	65		%	1	03/09/20	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	127		%	1	03/09/20	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	122		%	1	03/09/20	AW	40 - 140 %
% o-terphenyl (aromatic)	92		%	1	03/09/20	AW	40 - 140 %

MA Volatile Petroleum Hydrocarbons (VPH)

Unadjusted C5-C8 Aliphatics (*1)	ND	100	ug/L	1	03/06/20	RM	MA VPH 5/2004
Unadjusted C9-C12 Aliphatics (*1)	ND	100	ug/L	1	03/06/20	RM	MA VPH 5/2004
C5-C8 Aliphatic Hydrocarbons *1,2	ND	100	ug/L	1	03/06/20	RM	MA VPH 5/2004
C9-C12 Aliphatic Hydrocarbons *1,3	ND	100	ug/L	1	03/06/20	RM	MA VPH 5/2004
C9-C10 Aromatic Hydrocarbons *1	ND	100	ug/L	1	03/06/20	RM	MA VPH 5/2004
Benzene	ND	1.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
Ethyl Benzene	ND	1.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
MTBE	ND	1.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
Naphthalene	ND	5.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
Toluene	ND	1.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
m,p-Xylenes	ND	2.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
o-Xylene	ND	1.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
QA/QC Surrogates							
% 2,5-Dibromotoluene (FID)	96		%	1	03/06/20	RM	70 - 130 %
% 2,5-Dibromotoluene (PID)	91		%	1	03/06/20	RM	70 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

3 = This parameter exceeds laboratory specified limits.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

8260 Analysis:
1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C12 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

VPH:
*1 Range data exclude conc.s of any surrogate(s) and/or Int. std.s eluting in that range.
*2 C5-C8 and C9-C12 Aliphatic exclude the conc. of Target Analytes in that range.
*3 C9-C12 Aliphatic also exclude C9-C10 Aromatic Hydrocarbon

Semi-Volatile Comment:
Poor surrogate recovery was observed for one acid and/or one base surrogate. The other surrogates associated with this sample were within QA/QC criteria. No significant bias suspected.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director

March 16, 2020

Reviewed and Released by: Rashmi Makol, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

March 16, 2020

FOR: Attn: Mr Joseph Salvetti
Stantec
400 Crown Colony Drive
Suite 200
Quincy MA 02169

Sample Information		Custody Information		Date	Time
Matrix:	GROUND WATER	Collected by:		03/05/20	10:30
Location Code:	STANTECMA	Received by:	SW	03/05/20	17:03
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCF44827
Phoenix ID: CF44829

Project ID: 195601749
Client ID: MW-3

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver (Dissolved)	< 0.001	0.001	mg/L	1	03/06/20	CPP	SW6010D
Arsenic (Dissolved)	< 0.004	0.004	mg/L	1	03/06/20	CPP	SW6010D
Barium (Dissolved)	0.043	0.002	mg/L	1	03/06/20	CPP	SW6010D
Beryllium (Dissolved)	< 0.001	0.001	mg/L	1	03/06/20	CPP	SW6010D
Cadmium (Dissolved)	< 0.001	0.001	mg/L	1	03/06/20	CPP	SW6010D
Chromium (Dissolved)	< 0.001	0.001	mg/L	1	03/06/20	CPP	SW6010D
Mercury (Dissolved)	< 0.0002	0.0002	mg/L	1	03/10/20	RS	SW7470A
Nickel (Dissolved)	0.004	0.001	mg/L	1	03/06/20	CPP	SW6010D
Lead (Dissolved)	< 0.002	0.002	mg/L	1	03/06/20	CPP	SW6010D
Antimony (Dissolved)	< 0.005	0.005	mg/L	1	03/06/20	CPP	SW6010D
Selenium (Dissolved)	< 0.011	0.011	mg/L	1	03/06/20	CPP	SW6010D
Thallium (Dissolved)	< 0.002	0.002	mg/L	1	03/09/20	RS	SW7010
Vanadium (Dissolved)	< 0.002	0.002	mg/L	1	03/06/20	CPP	SW6010D
Zinc (Dissolved)	0.004	0.002	mg/L	1	03/06/20	CPP	SW6010D
Filtration	Completed				03/05/20	AG	0.45um Filter
Dissolved Mercury Digestion	Completed				03/09/20	LS/LS	SW7470A
EPH Extraction	Completed				03/06/20	SB/SB	SW3510C
MA Petroleum Hydrocarbon (EPH)	Completed				03/05/20		MADEP EPH-04
Semi-Volatile Extraction	Completed				03/11/20	P/AK	SW3520C
Dissolved Metals Preparation	Completed				03/05/20	AG	SW3005A
MA Petroleum Hydrocarbon (VPH)	Completed				03/06/20	RM	MADEP VPH04
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	03/06/20	HM	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,1-Dichloroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C

Project ID: 195601749
Client ID: MW-3

Phoenix I.D.: CF44829

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,1-Dichloroethene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2-Dibromoethane	ND	0.50	ug/L	1	03/06/20	HM	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,2-Dichloroethane	ND	0.60	ug/L	1	03/06/20	HM	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
2-Chlorotoluene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
2-Hexanone	ND	5.0	ug/L	1	03/06/20	HM	SW8260C
2-Isopropyltoluene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
4-Chlorotoluene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
4-Methyl-2-pentanone	ND	5.0	ug/L	1	03/06/20	HM	SW8260C
Acetone	ND	25	ug/L	1	03/06/20	HM	SW8260C
Acrylonitrile	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Benzene	ND	0.70	ug/L	1	03/06/20	HM	SW8260C
Bromobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Bromochloromethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Bromodichloromethane	ND	0.50	ug/L	1	03/06/20	HM	SW8260C
Bromoform	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Bromomethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Carbon Disulfide	ND	5.0	ug/L	1	03/06/20	HM	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Chloroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Chloroform	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Chloromethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	03/06/20	HM	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	03/06/20	HM	SW8260C
Dibromomethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Ethylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Hexachlorobutadiene	ND	0.40	ug/L	1	03/06/20	HM	SW8260C
Isopropylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
m&p-Xylene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Methyl ethyl ketone	ND	5.0	ug/L	1	03/06/20	HM	SW8260C
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Methylene chloride	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Naphthalene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
n-Butylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C

Project ID: 195601749
Client ID: MW-3

Phoenix I.D.: CF44829

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
n-Propylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
o-Xylene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
p-Isopropyltoluene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
sec-Butylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Styrene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
tert-Butylbenzene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Tetrachloroethene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	03/06/20	HM	SW8260C
Toluene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Total Xylenes	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	03/06/20	HM	SW8260C
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	03/06/20	HM	SW8260C
Trichloroethene	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	03/06/20	HM	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	95		%	1	03/06/20	HM	70 - 130 %
% Bromofluorobenzene	96		%	1	03/06/20	HM	70 - 130 %
% Dibromofluoromethane	100		%	1	03/06/20	HM	70 - 130 %
% Toluene-d8	93		%	1	03/06/20	HM	70 - 130 %
Oxygenates & Dioxane							
1,4-Dioxane	ND	50	ug/L	1	03/06/20	HM	SW8260C (OXY)
Diethyl ether	ND	1.0	ug/L	1	03/06/20	HM	SW8260C (OXY)
Di-isopropyl ether	ND	1.0	ug/L	1	03/06/20	HM	SW8260C (OXY)
Ethyl tert-butyl ether	ND	1.0	ug/L	1	03/06/20	HM	SW8260C (OXY)
tert-amyl methyl ether	ND	1.0	ug/L	1	03/06/20	HM	SW8260C (OXY)
Semivolatiles by SIM, PAH							
2-Methylnaphthalene	ND	0.47	ug/L	1	03/12/20	AW	SW8270D (SIM)
Acenaphthene	ND	0.47	ug/L	1	03/12/20	AW	SW8270D (SIM)
Acenaphthylene	ND	0.09	ug/L	1	03/12/20	AW	SW8270D (SIM)
Anthracene	ND	0.09	ug/L	1	03/12/20	AW	SW8270D (SIM)
Benz(a)anthracene	ND	0.09	ug/L	1	03/12/20	AW	SW8270D (SIM)
Benzo(a)pyrene	ND	0.19	ug/L	1	03/12/20	AW	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.09	ug/L	1	03/12/20	AW	SW8270D (SIM)
Benzo(ghi)perylene	0.02	0.02	ug/L	1	03/12/20	AW	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.09	ug/L	1	03/12/20	AW	SW8270D (SIM)
Chrysene	0.07	0.05	ug/L	1	03/12/20	AW	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.02	ug/L	1	03/12/20	AW	SW8270D (SIM)
Fluoranthene	ND	0.47	ug/L	1	03/12/20	AW	SW8270D (SIM)
Fluorene	ND	0.09	ug/L	1	03/12/20	AW	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.09	ug/L	1	03/12/20	AW	SW8270D (SIM)
Naphthalene	ND	0.47	ug/L	1	03/12/20	AW	SW8270D (SIM)
Phenanthrene	ND	0.47	ug/L	1	03/12/20	AW	SW8270D (SIM)
Pyrene	0.22	0.07	ug/L	1	03/12/20	AW	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	72		%	1	03/12/20	AW	40 - 140 %

Ver 1

Project ID: 195601749
Client ID: MW-3

Phoenix I.D.: CF44829

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
% Nitrobenzene-d5	57		%	1	03/12/20	AW	40 - 140 %	
% Terphenyl-d14	37		%	1	03/12/20	AW	40 - 140 %	3

MA EPH Aliphatic/Aromatic Ranges

C11-C22 Aromatic Hydrocarbons 1,2*	ND	190	ug/L	1	03/06/20	AW	MAEPH 5/2004
C11-C22 Aromatic Hydrocarbons Unadj	ND	190	ug/L	1	03/06/20	AW	MAEPH 5/2004
C19-C36 Aliphatic Hydrocarbons 1*	ND	190	ug/L	1	03/06/20	AW	MAEPH 5/2004
C9-C18 Aliphatic Hydrocarbons 1*	ND	190	ug/L	1	03/06/20	AW	MAEPH 5/2004
Total TPH 1,2*	ND	190	ug/L	1	03/06/20	AW	MAEPH 5/2004
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	54		%	1	03/06/20	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	135		%	1	03/06/20	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	116		%	1	03/06/20	AW	40 - 140 %
% o-terphenyl (aromatic)	90		%	1	03/06/20	AW	40 - 140 %

MA Volatile Petroleum Hydrocarbons (VPH)

Unadjusted C5-C8 Aliphatics (*1)	ND	100	ug/L	1	03/06/20	RM	MA VPH 5/2004
Unadjusted C9-C12 Aliphatics (*1)	ND	100	ug/L	1	03/06/20	RM	MA VPH 5/2004
C5-C8 Aliphatic Hydrocarbons *1,2	ND	100	ug/L	1	03/06/20	RM	MA VPH 5/2004
C9-C12 Aliphatic Hydrocarbons *1,3	ND	100	ug/L	1	03/06/20	RM	MA VPH 5/2004
C9-C10 Aromatic Hydrocarbons *1	ND	100	ug/L	1	03/06/20	RM	MA VPH 5/2004
Benzene	ND	1.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
Ethyl Benzene	ND	1.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
MTBE	ND	1.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
Naphthalene	ND	5.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
Toluene	ND	1.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
m,p-Xylenes	ND	2.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
o-Xylene	ND	1.0	ug/L	1	03/06/20	RM	MA VPH 5/2004
QA/QC Surrogates							
% 2,5-Dibromotoluene (FID)	94		%	1	03/06/20	RM	70 - 130 %
% 2,5-Dibromotoluene (PID)	87		%	1	03/06/20	RM	70 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

3 = This parameter exceeds laboratory specified limits.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

8260 Analysis:
1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C12 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

VPH:
*1 Range data exclude conc.s of any surrogate(s) and/or Int. std.s eluting in that range.
*2 C5-C8 and C9-C12 Aliphatic exclude the conc. of Target Analytes in that range.
*3 C9-C12 Aliphatic also exclude C9-C10 Aromatic Hydrocarbon

Semi-Volatile Comment:
Poor surrogate recovery was observed for one acid and/or one base surrogate. The other surrogates associated with this sample were within QA/QC criteria. No significant bias suspected.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director

March 16, 2020

Reviewed and Released by: Rashmi Makol, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

March 16, 2020

QA/QC Data

SDG I.D.: GCF44827

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 521447 (mg/L), QC Sample No: CF45697 (CF44827, CF44828, CF44829)													
Thallium (Dissolved)	BRL	0.002	<0.002	<0.002	NC	96.7			88.5			75 - 125	30
QA/QC Batch 521502 (mg/L), QC Sample No: CF44694 (CF44827, CF44828, CF44829)													
Mercury (Dissolved)	BRL	0.0002	<0.0002	<0.0003	NC	89.8			109			75 - 125	30
Comment:													
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%													
QA/QC Batch 521205 (mg/L), QC Sample No: CF42503 (CF44827, CF44828, CF44829)													
ICP Metals - Dissolved													
Antimony	BRL	0.005	<0.010	<0.010	NC	91.4	89.7	1.9	101			80 - 120	20
Arsenic	BRL	0.004	<0.004	<0.004	NC	88.3	86.7	1.8	101			80 - 120	20
Barium	BRL	0.002	0.023	0.023	0	85.9	85.0	1.1	85.3			80 - 120	20
Beryllium	BRL	0.001	<0.001	<0.001	NC	92.3	91.2	1.2	91.0			80 - 120	20
Cadmium	BRL	0.001	<0.001	<0.001	NC	88.9	88.0	1.0	86.7			80 - 120	20
Chromium	BRL	0.001	0.011	0.010	9.50	88.5	87.4	1.3	88.7			80 - 120	20
Lead	BRL	0.002	<0.002	<0.002	NC	86.7	85.5	1.4	82.2			80 - 120	20
Nickel	BRL	0.001	0.003	0.003	NC	87.7	87.1	0.7	83.4			80 - 120	20
Selenium	BRL	0.011	<0.011	<0.011	NC	85.4	84.7	0.8	95.1			80 - 120	20
Silver	BRL	0.001	<0.001	<0.001	NC	88.1	87.1	1.1	107			80 - 120	20
Vanadium	BRL	0.002	0.056	0.053	5.50	88.9	87.8	1.2	90.0			80 - 120	20
Zinc	BRL	0.002	0.011	0.011	0	87.8	86.7	1.3	96.9			80 - 120	20
Comment:													
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.													

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QA/QC Report

March 16, 2020

QA/QC Data

SDG I.D.: GCF44827

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 521290 (ug/L), QC Sample No: CF41141 (CF44827, CF44828, CF44829)											
MAEPH - Ground Water											
C9-C18 Aliphatic Hydrocarbons 1*	ND	100	49	46	6.3				40 - 140	25	
C19-C36 Aliphatic Hydrocarbons 1*	ND	100	104	110	5.6				40 - 140	25	
C11-C22 Aromatic Hydrocarbons 1	ND	100	83	86	3.6				40 - 140	25	
C11-C22 Aromatic Hydrocarbons U	ND	100							40 - 140	25	
Total TPH 1,2*	ND	100	81	83	2.4				40 - 140	25	
C9 - Nonane	ND	10	19	15	23.5				40 - 140	25	I
C-10 Decane	ND	10	28	20	33.3				40 - 140	25	I,r
C12 - Dodecane	ND	10	36	23	44.1				40 - 140	25	I,r
C14 - Tetradecane	ND	10	42	32	27.0				40 - 140	25	I,r
C16 - Hexadecane	ND	10	69	76	9.7				40 - 140	25	
C18 - Octadecane	ND	10	102	107	4.8				40 - 140	25	
C19 - Nonadecane	ND	10	104	108	3.8				40 - 140	25	
C20 - Eicosane	ND	10	106	111	4.6				40 - 140	25	
C22 - Docosane	ND	10	108	112	3.6				40 - 140	25	
C24 - Tetracosane	ND	10	108	113	4.5				40 - 140	25	
C26 - Hexacosane	ND	10	108	113	4.5				40 - 140	25	
C28 - Octacosane	ND	10	108	112	3.6				40 - 140	25	
C30 - Tricotane	ND	10	101	108	6.7				40 - 140	25	
C36 - Hexatriacontane	ND	10	93	105	12.1				40 - 140	25	
% 1-chlorooctadecane (aliphatic)	74	%	74	77	4.0				40 - 140	25	
% o-terphenyl (aromatic)	87	%	86	90	4.5				40 - 140	25	
% 2-Fluorobiphenyl (Fractionation)	108	%	106	107	0.9				40 - 140	25	
% 2-Bromonaphthalene (Fractionati	128	%	115	120	4.3				40 - 140	25	
% 2-Methylnaphthalene BT		%	0	0	NC				0 - 5		
% Naphthalene BT		%	0	0	NC				0 - 5		
Comment:											
Additional EPH fractionation criteria: Breakthrough criteria (BT) is 0 to 5%											
QA/QC Batch 521957 (ug/L), QC Sample No: CF44310 (CF44827)											
Semivolatiles by SIM, PAH - Ground Water											
2-Methylnaphthalene	ND	0.50	45	51	12.5				40 - 140	20	
Acenaphthene	ND	0.50	58	61	5.0				40 - 140	20	
Acenaphthylene	ND	0.10	53	56	5.5				40 - 140	20	
Anthracene	ND	0.10	67	69	2.9				40 - 140	20	
Benz(a)anthracene	ND	0.05	70	81	14.6				40 - 140	20	
Benzo(a)pyrene	ND	0.20	63	81	25.0				40 - 140	20	r
Benzo(b)fluoranthene	ND	0.07	68	85	22.2				40 - 140	20	r
Benzo(ghi)perylene	ND	0.02	56	73	26.4				40 - 140	20	r
Benzo(k)fluoranthene	ND	0.10	67	84	22.5				40 - 140	20	r
Chrysene	ND	0.05	69	78	12.2				40 - 140	20	
Dibenz(a,h)anthracene	ND	0.02	65	87	28.9				40 - 140	20	r

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Fluoranthene	ND	0.50	67	69	2.9				40 - 140	20	
Fluorene	ND	0.10	63	67	6.2				40 - 140	20	
Indeno(1,2,3-cd)pyrene	ND	0.10	59	84	35.0				40 - 140	20	r
Naphthalene	ND	0.50	42	47	11.2				40 - 140	20	
Phenanthrene	ND	0.06	72	74	2.7				40 - 140	20	
Pyrene	ND	0.07	68	70	2.9				40 - 140	20	
% 2-Fluorobiphenyl	53	%	54	57	5.4				40 - 140	20	
% Nitrobenzene-d5	51	%	46	49	6.3				40 - 140	20	
% Terphenyl-d14	63	%	54	62	13.8				40 - 140	20	

Comment:

Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

QA/QC Batch 521958 (ug/L), QC Sample No: CF44828 (CF44828, CF44829)

Semivolatiles by SIM, PAH - Ground Water

2-Methylnaphthalene	ND	0.50	57	59	3.4				40 - 140	20	
Acenaphthene	ND	0.50	81	82	1.2				40 - 140	20	
Acenaphthylene	ND	0.10	80	79	1.3				40 - 140	20	
Anthracene	ND	0.10	75	77	2.6				40 - 140	20	
Benz(a)anthracene	ND	0.02	85	84	1.2				40 - 140	20	
Benzo(a)pyrene	ND	0.02	79	75	5.2				40 - 140	20	
Benzo(b)fluoranthene	ND	0.02	75	75	0.0				40 - 140	20	
Benzo(ghi)perylene	ND	0.02	86	84	2.4				40 - 140	20	
Benzo(k)fluoranthene	ND	0.02	70	66	5.9				40 - 140	20	
Chrysene	ND	0.02	80	78	2.5				40 - 140	20	
Dibenz(a,h)anthracene	ND	0.02	85	83	2.4				40 - 140	20	
Fluoranthene	ND	0.50	74	76	2.7				40 - 140	20	
Fluorene	ND	0.10	85	81	4.8				40 - 140	20	
Indeno(1,2,3-cd)pyrene	ND	0.02	83	80	3.7				40 - 140	20	
Naphthalene	ND	0.50	55	62	12.0				40 - 140	20	
Phenanthrene	ND	0.06	70	72	2.8				40 - 140	20	
Pyrene	ND	0.07	78	80	2.5				40 - 140	20	
% 2-Fluorobiphenyl	68	%	68	71	4.3				40 - 140	20	
% Nitrobenzene-d5	65	%	55	65	16.7				40 - 140	20	
% Terphenyl-d14	50	%	65	67	3.0				40 - 140	20	

Comment:

Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

QA/QC Batch 521605 (ug/L), QC Sample No: CF44745 (CF44827, CF44828, CF44829)

Volatiles - Ground Water

1,1,1,2-Tetrachloroethane	ND	1.0	94	95	1.1				70 - 130	30	
1,1,1-Trichloroethane	ND	1.0	91	92	1.1				70 - 130	30	
1,1,2,2-Tetrachloroethane	ND	0.50	99	102	3.0				70 - 130	30	
1,1,2-Trichloroethane	ND	1.0	92	96	4.3				70 - 130	30	
1,1-Dichloroethane	ND	1.0	98	97	1.0				70 - 130	30	
1,1-Dichloroethene	ND	1.0	93	95	2.1				70 - 130	30	
1,1-Dichloropropene	ND	1.0	86	88	2.3				70 - 130	30	
1,2,3-Trichlorobenzene	ND	1.0	91	95	4.3				70 - 130	30	
1,2,3-Trichloropropane	ND	1.0	86	99	14.1				70 - 130	30	
1,2,4-Trichlorobenzene	ND	1.0	96	98	2.1				70 - 130	30	
1,2,4-Trimethylbenzene	ND	1.0	96	96	0.0				70 - 130	30	
1,2-Dibromo-3-chloropropane	ND	1.0	94	96	2.1				70 - 130	30	
1,2-Dibromoethane	ND	1.0	94	96	2.1				70 - 130	30	

QA/QC Data

SDG I.D.: GCF44827

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
1,2-Dichlorobenzene	ND	1.0	96	96	0.0				70 - 130	30
1,2-Dichloroethane	ND	1.0	93	94	1.1				70 - 130	30
1,2-Dichloropropane	ND	1.0	96	97	1.0				70 - 130	30
1,3,5-Trimethylbenzene	ND	1.0	96	96	0.0				70 - 130	30
1,3-Dichlorobenzene	ND	1.0	95	95	0.0				70 - 130	30
1,3-Dichloropropane	ND	1.0	96	96	0.0				70 - 130	30
1,4-Dichlorobenzene	ND	1.0	93	93	0.0				70 - 130	30
1,4-dioxane	ND	100	91	89	2.2				40 - 160	30
2,2-Dichloropropane	ND	1.0	96	95	1.0				70 - 130	30
2-Chlorotoluene	ND	1.0	96	96	0.0				70 - 130	30
2-Hexanone	ND	5.0	89	90	1.1				40 - 160	30
2-Isopropyltoluene	ND	1.0	95	93	2.1				70 - 130	30
4-Chlorotoluene	ND	1.0	95	94	1.1				70 - 130	30
4-Methyl-2-pentanone	ND	5.0	94	96	2.1				40 - 160	30
Acetone	ND	5.0	94	86	8.9				40 - 160	30
Acrylonitrile	ND	5.0	94	91	3.2				70 - 130	30
Benzene	ND	0.70	96	96	0.0				70 - 130	30
Bromobenzene	ND	1.0	96	96	0.0				70 - 130	30
Bromochloromethane	ND	1.0	95	99	4.1				70 - 130	30
Bromodichloromethane	ND	0.50	94	98	4.2				70 - 130	30
Bromoform	ND	1.0	91	93	2.2				70 - 130	30
Bromomethane	ND	1.0	130	136	4.5				40 - 160	30
Carbon Disulfide	ND	1.0	85	87	2.3				70 - 130	30
Carbon tetrachloride	ND	1.0	92	94	2.2				70 - 130	30
Chlorobenzene	ND	1.0	95	95	0.0				70 - 130	30
Chloroethane	ND	1.0	91	92	1.1				70 - 130	30
Chloroform	ND	1.0	95	95	0.0				70 - 130	30
Chloromethane	ND	1.0	100	101	1.0				40 - 160	30
cis-1,2-Dichloroethene	ND	1.0	98	99	1.0				70 - 130	30
cis-1,3-Dichloropropene	ND	0.40	97	98	1.0				70 - 130	30
Dibromochloromethane	ND	0.50	98	100	2.0				70 - 130	30
Dibromomethane	ND	1.0	92	96	4.3				70 - 130	30
Dichlorodifluoromethane	ND	1.0	81	83	2.4				40 - 160	30
Ethyl ether	ND	1.0	96	99	3.1				70 - 130	30
Ethylbenzene	ND	1.0	98	97	1.0				70 - 130	30
Hexachlorobutadiene	ND	0.40	96	94	2.1				70 - 130	30
Isopropylbenzene	ND	1.0	95	96	1.0				70 - 130	30
m&p-Xylene	ND	1.0	96	97	1.0				70 - 130	30
Methyl ethyl ketone	ND	5.0	96	84	13.3				40 - 160	30
Methyl t-butyl ether (MTBE)	ND	1.0	96	99	3.1				70 - 130	30
Methylene chloride	ND	1.0	87	89	2.3				70 - 130	30
Naphthalene	ND	1.0	98	103	5.0				70 - 130	30
n-Butylbenzene	ND	1.0	100	98	2.0				70 - 130	30
n-Propylbenzene	ND	1.0	95	98	3.1				70 - 130	30
o-Xylene	ND	1.0	99	99	0.0				70 - 130	30
p-Isopropyltoluene	ND	1.0	98	98	0.0				70 - 130	30
sec-Butylbenzene	ND	1.0	99	100	1.0				70 - 130	30
Styrene	ND	1.0	99	99	0.0				70 - 130	30
tert-Butylbenzene	ND	1.0	95	94	1.1				70 - 130	30
Tetrachloroethene	ND	1.0	90	91	1.1				70 - 130	30
Tetrahydrofuran (THF)	ND	2.5	87	87	0.0				70 - 130	30
Toluene	ND	1.0	98	98	0.0				70 - 130	30
trans-1,2-Dichloroethene	ND	1.0	96	97	1.0				70 - 130	30

QA/QC Data

SDG I.D.: GCF44827

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
trans-1,3-Dichloropropene	ND	0.40	94	95	1.1				70 - 130	30
trans-1,4-dichloro-2-butene	ND	5.0	104	103	1.0				70 - 130	30
Trichloroethene	ND	1.0	92	94	2.2				70 - 130	30
Trichlorofluoromethane	ND	1.0	89	89	0.0				70 - 130	30
Trichlorotrifluoroethane	ND	1.0	87	88	1.1				70 - 130	30
Vinyl chloride	ND	1.0	100	101	1.0				70 - 130	30
% 1,2-dichlorobenzene-d4	94	%	98	102	4.0				70 - 130	30
% Bromofluorobenzene	96	%	100	101	1.0				70 - 130	30
% Dibromofluoromethane	98	%	99	98	1.0				70 - 130	30
% Toluene-d8	92	%	100	101	1.0				70 - 130	30

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.

QA/QC Batch 521517 (ug/L), QC Sample No: CF42947 (CF44827, CF44828, CF44829)

Volatile Petroleum Hydrocarbons - Ground Water

Unadjusted C5-C8 Aliphatics (*1)	ND	100	108	110	1.8	109	109	0.0	70 - 130	20
Unadjusted C9-C12 Aliphatics (*1)	ND	100	99	102	3.0	103	102	1.0	70 - 130	20
C5-C8 Aliphatic Hydrocarbons *1,2	ND	100	108	110	1.8	NC	NC	NC	70 - 130	20
C9-C12 Aliphatic Hydrocarbons *1,	ND	100	99	102	3.0	NC	NC	NC	70 - 130	20
C9-C10 Aromatic Hydrocarbons *1	ND	100	91	93	2.2	NC	NC	NC	70 - 130	20
Benzene	ND	1.0	92	93	1.1	91	93	2.2	70 - 130	20
Ethyl Benzene	ND	1.0	90	92	2.2	90	91	1.1	70 - 130	20
MTBE	ND	1.0	91	91	0.0	89	90	1.1	70 - 130	20
Naphthalene	ND	5.0	87	87	0.0	83	87	4.7	70 - 130	20
Toluene	ND	1.0	91	93	2.2	91	92	1.1	70 - 130	20
m,p-Xylenes	ND	2.0	92	94	2.2	91	92	1.1	70 - 130	20
o-Xylene	ND	1.0	89	90	1.1	89	90	1.1	70 - 130	20
% 2,5-Dibromotoluene (PID)	87	%	91	100	9.4	87	100	13.9	70 - 130	20

Comment:

A blank MS/MSD was analyzed with this batch.

l = This parameter is outside laboratory LCS/LCSD specified recovery limits.
r = This parameter is outside laboratory RPD specified recovery limits.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
March 16, 2020

Monday, March 16, 2020

Criteria: MA: CAM, GW1

State: MA

Sample Criteria Exceedances Report

GCF44827 - STANTECMA

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
CF44827	$8260GWR	Acetone	MA / CAM Protocol / VOA AQ RL	ND	25		10	ug/L
CF44827	$8260GWR	Carbon Disulfide	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CF44827	$8260GWR	Tetrahydrofuran (THF)	MA / CAM Protocol / VOA AQ RL	ND	2.5		2	ug/L
CF44827	$8260GWR	trans-1,4-dichloro-2-butene	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CF44827	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.50	0.02	0.02	ug/L
CF44827	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.50	0.02	0.02	ug/L
CF44827	$MCPADD-WM	1,4-Dioxane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	50	3	3	ug/L
CF44827	$MCPADD-WM	1,4-Dioxane	MA / GROUNDWATER STANDARDS / GW-1	ND	50	0.3	0.3	ug/L
CF44828	$8260GWR	Tetrahydrofuran (THF)	MA / CAM Protocol / VOA AQ RL	ND	2.5		2	ug/L
CF44828	$8260GWR	Carbon Disulfide	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CF44828	$8260GWR	trans-1,4-dichloro-2-butene	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CF44828	$8260GWR	Acetone	MA / CAM Protocol / VOA AQ RL	ND	25		10	ug/L
CF44828	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.50	0.02	0.02	ug/L
CF44828	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.50	0.02	0.02	ug/L
CF44828	$MCPADD-WM	1,4-Dioxane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	50	3	3	ug/L
CF44828	$MCPADD-WM	1,4-Dioxane	MA / GROUNDWATER STANDARDS / GW-1	ND	50	0.3	0.3	ug/L
CF44829	$8260GWR	Acetone	MA / CAM Protocol / VOA AQ RL	ND	25		10	ug/L
CF44829	$8260GWR	Carbon Disulfide	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CF44829	$8260GWR	Tetrahydrofuran (THF)	MA / CAM Protocol / VOA AQ RL	ND	2.5		2	ug/L
CF44829	$8260GWR	trans-1,4-dichloro-2-butene	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CF44829	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.50	0.02	0.02	ug/L
CF44829	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.50	0.02	0.02	ug/L
CF44829	$MCPADD-WM	1,4-Dioxane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	50	3	3	ug/L
CF44829	$MCPADD-WM	1,4-Dioxane	MA / GROUNDWATER STANDARDS / GW-1	ND	50	0.3	0.3	ug/L

MassDEP Analytical Protocol Certification Form

Laboratory Name: Phoenix Environmental Laboratories, Inc. **Project #:**

Project Location: 195601749 **RTN:**

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

CF44827, CF44828, CF44829

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 CAM IV A ☑	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☑	MassDEP EPH CAM IV B ☑	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐
6010 Metals CAM III A ☑	6020 Metals CAM III D ☐	8082 PCB CAM V A ☐	9012 Total Cyanide/PAC CAM V1 A ☐	6860 Perchlorate CAM VIII 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 with method holding times? (* see narrative)	☑ 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 speified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes ☐ No
E	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 is 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

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? See Sections: EPH, SVOASIM Narrations .	☐ Yes ☑ No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes ☐ No

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, accurate and complete.

Authorized Signature: Rashmi Makol

Date: Monday, March 16, 2020

Printed Name: Rashmi Makol

Position: Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

March 16, 2020

SDG I.D.: GCF44827

SDG Comments

8260 Analysis:
1,2-Dibromoethane doesn't meet GW-1 criteria, this compound is analyzed by GC/FID to achieve this criteria.

1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

Phoenix reporting levels may exceed those referenced in the CAM protocol. Please refer to criteria sheet for comparisons to requested MCP standards

AA Metals (TL) Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

PE600-2 03/09/20 08:29 Rick Schweitzer, Chemist 03/09/20

CF44827, CF44828, CF44829

The initial calibration met criteria.
The continuing calibration standards met criteria for all the elements reported. The linear range is defined daily by the calibration range.
The continuing calibration blanks were less than the reporting level for the elements reported.
The CRDL met criteria.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following samples did not meet analytical spike criteria: None.

QC (Batch Specific):

Batch 521447 (CF45697)

CF44827, CF44828, CF44829

All LCS recoveries were within 75 - 125 with the following exceptions: None.

EPH Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 521290 (Samples: CF44827, CF44828, CF44829): -----

One or more analytes is below the method criteria. A low bias for these analytes is possible. (C-10 Decane, C12 - Dodecane, C9 - Nonane)

The LCS and/or the LCSD recovery is below the method criteria. All of the other QC is acceptable, therefore no significant bias is suspected. (C14 - Tetradecane)

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (C-10 Decane, C12 - Dodecane, C14 - Tetradecane)

Instrument:

AU-FID3 03/09/20-1 Adam Werner, Chemist 03/09/20

CF44828 (1X), CF44829 (1X)

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NY # 11301

MCP Certification Report

March 16, 2020

SDG I.D.: GCF44827

EPH Narration

No significant modifications were made to the EPH method, as specified in Section 11.3 of the method.

The initial calibration (AR0102BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 25% except for the following compounds:None.

AU-FID4 03/05/20-1 Adam Werner, Chemist 03/05/20

CF44827 (1X), CF44829 (1X)

The initial calibration (AL0219BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 25% except for the following compounds:None.

AU-FID4 03/09/20-1 Adam Werner, Chemist 03/09/20

CF44828 (1X)

The initial calibration (AL0219BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 25% except for the following compounds:None.

QC (Batch Specific):

Batch 521290 (CF41141)

CF44827, CF44828, CF44829

All LCS recoveries were within 40 - 140 with the following exceptions: C-10 Decane(28%), C12 - Dodecane(36%), C9 - Nonane(19%)
All LCSD recoveries were within 40 - 140 with the following exceptions: C-10 Decane(20%), C12 - Dodecane(23%), C14 - Tetradecane(32%), C9 - Nonane(15%)
All LCS/LCSD RPDs were less than 25% with the following exceptions: C-10 Decane(33.3%), C12 - Dodecane(44.1%), C14 - Tetradecane(27.0%)
Additional EPH fractionation criteria: Breakthrough criteria (BT) is 0 to 5%

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

Mercury Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

MERLIN 03/10/20 07:22 Rick Schweitzer, Chemist 03/10/20

CF44827, CF44828, CF44829

The method preparation blank, ICB, and CCBs contain all of the acids and reagents as the samples.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 521502 (CF44694)

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Certification Report

March 16, 2020

SDG I.D.: GCF44827

Mercury Narration

CF44827, CF44828, CF44829

All LCS recoveries were within 75 - 125 with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%

ICP Metals Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

BLUE 03/06/20 08:17 Cindy Pearce, Chemist 03/06/20

CF44827, CF44828, CF44829

The initial calibration met criteria.
The continuing calibration standards met criteria for all the elements reported. The linear range is defined daily by the calibration range.
The continuing calibration blanks were less than the reporting level for the elements reported.
The ICSA and ICSAB were analyzed at the beginning and end of the run and were within criteria.The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 521205 (CF42503)

CF44827, CF44828, CF44829

All LCS recoveries were within 80 - 120 with the following exceptions: None.
All LCSD recoveries were within 80 - 120 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.

SVOASIM Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 521957 (Samples: CF44827): -----

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Dibenz(a,h)anthracene, Indeno(1,2,3-cd)pyrene)

Instrument:

CHEM27 03/12/20-1 Wes Bryon, Chemist 03/12/20

CF44828 (1X), CF44829 (1X)

For 8270 BN list, benzidine peak tailing was evaluated in the DFTPP tune and was found to be in control.

Initial Calibration Evaluation (CHEM27/27_SIM18_0311):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.

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MCP Certification Report

March 16, 2020

SDG I.D.: GCF44827

SVOASIM Narration

The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM27/0312_03-27_SIM18_0311) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM33 03/12/20-1 Wes Bryon, Chemist 03/12/20

CF44827 (1X)

Initial Calibration Evaluation (CHEM33/33_PAHSIM_0114):
95% of target compounds met criteria.
The following compounds had %RSDs >20%: Acenaphthene 21% (20%)
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM33/0312_03-33_PAHSIM_0114) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 521957 (CF44310)

CF44827

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: Benzo(a)pyrene(25.0%), Benzo(b)fluoranthene(22.2%), Benzo(ghi)perylene(26.4%), Benzo(k)fluoranthene(22.5%), Dibenz(a,h)anthracene(28.9%), Indeno(1,2,3-cd)pyrene(35.0%)
Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

Batch 521958 (CF44828)

CF44828, CF44829

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

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

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MCP Certification Report

March 16, 2020

SDG I.D.: GCF44827

VOA Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM17 03/06/20-1 Harry Mullin, Chemist 03/06/20

CF44827 (1X), CF44828 (1X), CF44829 (1X)

Chem 17 is a 25ml purge instrument. The laboratory minimum response factor is set at 0.01 instead of 0.05 for the 25ml purge instruments.
EPA method 8260D Table 4 supports this approach.

Initial Calibration Evaluation (CHEM17/VT-S030320):
96% of target compounds met criteria.
The following compounds had %RSDs >20%: 1,2-Dibromo-3-chloropropane 28% (20%), Bromomethane 30% (20%), trans-1,4-dichloro-2-butene 26% (20%)
The following compounds did not meet Table 4 recommended minimum response factors: 1,2-Dibromo-3-chloropropane 0.046 (0.05), Acetone 0.051 (0.1), Methyl ethyl ketone 0.074 (0.1), Tetrahydrofuran (THF) 0.047 (0.05)
The following compounds did not meet the minimum response factor of 0.05: 1,2-Dibromo-3-chloropropane 0.046 (0.05), Tetrahydrofuran (THF) 0.047 (0.05)

Continuing Calibration Verification (CHEM17/0306_02-VT-S030320) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet Table 4 recommended minimum response factors: 1,2-Dibromo-3-chloropropane 0.045 (0.05), 2-Hexanone 0.089 (0.1), Acetone 0.043 (0.1), Methyl ethyl ketone 0.070 (0.1), Tetrahydrofuran (THF) 0.039 (0.05)
The following compounds did not meet the minimum MCP response factor of 0.05: 1,2-Dibromo-3-chloropropane 0.046 (0.05), Acetone 0.051 (0.05), Tetrahydrofuran (THF) 0.047 (0.05)

QC (Batch Specific):

Batch 521605 (CF44745) CHEM17 3/6/2020-1

CF44827(1X), CF44828(1X), CF44829(1X)

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.
Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.

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

VPH Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

PIDFID 03/06/20-1 Raman Makol, Chemist 03/06/20

CF44827 (1X), CF44828 (1X), CF44829 (1X)

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Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

MCP Certification Report

March 16, 2020

SDG I.D.: GCF44827

VPH Narration

QC (Batch Specific):

Batch 521517 (CF42947)

CF44827(1X), CF44828(1X), CF44829(1X)

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
A blank MS/MSD was analyzed with this batch.

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

Cooler: Yes [X] No [ ]
Coolant: IPK [X] ICE [ ] No [ ]
Temp 3.6 °C Pg of

PHOENIX
Environmental Laboratories, Inc.

CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Data Delivery/Contact Options:
[ ] Fax:
[ ] Phone:
[✓] Email: joseph.salvetti@stantec.com

Customer: STANTEC CONSULTING
Address: 400 CROWN COLONY DRIVE
QUINCY, MA

Project: 195601749
Report to: JOE SALVETTI
Invoice to:
QUOTE #

Project P.O:

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature: Alex Klisiaris Date: 03/05/20

Matrix Code:
DW=Drinking Water **GW**=Ground Water **SW**=Surface Water **WW**=Waste Water
RW=Raw Water **SE**=Sediment **SL**=Sludge **S**=Soil **SD**=Solid **W**=Wipe **OIL**=Oil
B=Bulk **L**=Liquid **X** = _____(Other)

Analysis Request

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	VPH	EPH	DISSOLVED METALS	VOC	GL Amber 8 oz. w/H3PO4	Soil VOA Vials [ ] methanol [ ] H2O	GL Soil container ( ) oz	GL Soil container ( ) oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [ ] H2SO4	PL As is [ ] 250ml [ ] 500ml [ ] 1000ml	PL H2SO4 [ ] 250ml [ ] 500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle w/thio	Bacteria Bottle as is
44827	MW-1	GW	03/05/20	1300	X	X	X	X					5	2	1					
44828	MW-2	GW	↓	1445	X	X	X	X					5	2	1					
44829	MW-3	GW	↓	10300	X	X	X	X					5	2	1					

Relinquished by:	Accepted by:	Date:	Time:
Alex Klisiaris	Brittal Hall	3/5/20	1525
	Brittal Hall	3/5/20	17:03

Comments, Special Requirements or Regulations:

Turnaround Time:
[ ] 1 Day*
[ ] 2 Days*
[ ] 3 Days*
[✓] Standard
[ ] Other
* SURCHARGE APPLIES

RI
[ ] (Residential) Direct Exposure
[ ] (Comm/Industrial) Direct Exposure
[ ] GA Leachability
[ ] GB Leachability
[ ] GA-GW Objectives
[ ] GB-GW Objectives

CT
[ ] RCP Cert
[ ] GW Protection
[ ] SW Protection
[ ] GA Mobility
[ ] GB Mobility
[ ] Residential DEC
[ ] I/C DEC
[ ] Other

MA
[✓] MCP Certification
[✓] GW-1 [ ] MWRA eSMART
[ ] GW-2
[ ] GW-3
[ ] S-1 GW-1 [ ] S-1 GW-2 [ ] S-1 GW-3
[ ] S-2 GW-1 [ ] S-2 GW-2 [ ] S-2 GW-3
[ ] S-3 GW-1 [ ] S-3 GW-2 [ ] S-3 GW-3
[ ] SW Protection

State where samples were collected: MA

Data Format
[✓] Excel
[ ] PDF
[ ] GIS/Key
[ ] EQuIS
[ ] Other

Data Package
[ ] Tier II Checklist
[ ] Full Data Package*
[✓] Phoenix Std Report
[ ] Other
* SURCHARGE APPLIES

GCF 44827

Shannon Wilhelm

From: Salvetti, Joseph <Joseph.Salvetti@stantec.com>
Sent: Friday, March 06, 2020 12:02 PM
To: Learned, Richard; Shannon Wilhelm
Subject: RE: Question on Metals-Brighton Groundwater

Sounds good

Joseph Salvetti LSP
Senior Associate

Direct: 508 591-4327
Mobile: 508 509-7393
Fax: 617 786-7962
Joseph.Salvetti@stantec.com

Stantec
400 Crown Colony Drive Suite 200
Quincy MA 02169-0982

From: Learned, Richard <Richard.Learned@stantec.com>
Sent: Friday, March 06, 2020 12:01 PM
To: Salvetti, Joseph <Joseph.Salvetti@stantec.com>; Shannon Wilhelm <shannon@phoenixlabs.com>
Subject: RE: Question on Metals-Brighton Groundwater

Thanks Joe.

Do we want to limit the VPH reporting to just the fractions since we're running 8260?

The EPH should include the target PAHs.

From: Salvetti, Joseph <Joseph.Salvetti@stantec.com>
Sent: Friday, March 06, 2020 11:55 AM
To: Learned, Richard <Richard.Learned@stantec.com>; Shannon Wilhelm <shannon@phoenixlabs.com>
Subject: RE: Question on Metals-Brighton Groundwater

GCF 44827

Joseph Salvetti LSP
Senior Associate

Direct: 508 591-4327
Mobile: 508 509-7393
Fax: 617 786-7962
Joseph.Salvetti@stantec.com

Stantec
400 Crown Colony Drive Suite 200
Quincy MA 02169-0982

From: Learned, Richard <Richard.Learned@stantec.com>
Sent: Friday, March 06, 2020 11:54 AM
To: Salvetti, Joseph <Joseph.Salvetti@stantec.com>; Shannon Wilhelm <shannon@phoenixlabs.com>
Subject: RE: Question on Metals-Brighton Groundwater

Shannon,

Can you send the Sample Acknowledgement for this CoC?

From: Salvetti, Joseph <Joseph.Salvetti@stantec.com>
Sent: Friday, March 06, 2020 11:48 AM
To: Shannon Wilhelm <shannon@phoenixlabs.com>
Cc: Learned, Richard <Richard.Learned@stantec.com>; Klisiaris, Alex <Alex.Klisiaris@stantec.com>
Subject: RE: Question on Metals-Brighton Groundwater

Good Morning Shannon
We are looking for the 14 MCP Metals.
Thank you very much
Joe

Joseph Salvetti LSP
Senior Associate

Direct: 508 591-4327
Mobile: 508 509-7393
Fax: 617 786-7962
Joseph.Salvetti@stantec.com

GCF 44827

Stantec
400 Crown Colony Drive Suite 200
Quincy MA 02169-0982

From: Shannon Wilhelm <shannon@phoenixlabs.com>
Sent: Friday, March 06, 2020 11:43 AM
To: Salvetti, Joseph <Joseph.Salvetti@stantec.com>
Subject: Question on Metals
Importance: High

Hi Joe,
You are requesting Dissolved Metals on the attached but I'm not sure what list of metals you need. Please let me know. Thank you!

Shannon Wilhelm
Client Services Representative
Phoenix Environmental Laboratories
587 East Middle Turnpike
Manchester CT 06040
860-645-1102

APPENDIX F:

LABORATORY ANALYTICAL DATA – SURFACE WATER

ANALYTICAL REPORT

Lab Number:	L2047729
Client:	McPhail Associates 2269 Massachusetts Avenue Cambridge, MA 02140
ATTN:	Ambrose Donovan
Phone:	(617) 868-1420
Project Name:	LEO BIRMINGHAM PKWY
Project Number:	6543.9.J7
Report Date:	11/06/20

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: LEO BIRMINGHAM PKWY
Project Number: 6543.9.J7

Lab Number: L2047729
Report Date: 11/06/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2047729-01	CHARLES RIVER DOWNSTREAM	WATER	BOSTON, MA	10/30/20 12:00	10/30/20

Project Name:	LEO BIRMINGHAM PKWY	**Lab Number:**	L2047729
Project Number:	6543.9.J7	**Report Date:**	11/06/20

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

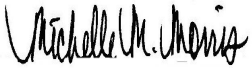
Project Name:	LEO BIRMINGHAM PKWY	**Lab Number:**	L2047729
Project Number:	6543.9.J7	**Report Date:**	11/06/20

Case Narrative (continued)

Total Metals

L2047729-01: The sample has elevated detection limits for all elements, with the exception of iron and mercury, due to the dilution required by the high concentrations of non-target elements.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Michelle M. Morris

Title: Technical Director/Representative Date: 11/06/20

METALS

Project Name: LEO BIRMINGHAM PKWY **Lab Number:** L2047729

Project Number: 6543.9.J7 **Report Date:** 11/06/20

SAMPLE RESULTS

Lab ID: L2047729-01 Date Collected: 10/30/20 12:00

Client ID: CHARLES RIVER DOWNSTREAM Date Received: 10/30/20

Sample Location: BOSTON, MA Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.04000	--	10	11/04/20 13:33	11/04/20 17:46	EPA 3005A	3,200.8	AM
Arsenic, Total	ND		mg/l	0.01000	--	10	11/04/20 13:33	11/04/20 17:46	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00200	--	10	11/04/20 13:33	11/04/20 17:46	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.01000	--	10	11/04/20 13:33	11/04/20 17:46	EPA 3005A	3,200.8	AM
Copper, Total	ND		mg/l	0.01000	--	10	11/04/20 13:33	11/04/20 17:46	EPA 3005A	3,200.8	AM
Iron, Total	0.556		mg/l	0.050	--	1	11/04/20 13:33	11/05/20 22:46	EPA 3005A	19,200.7	BV
Lead, Total	ND		mg/l	0.01000	--	10	11/04/20 13:33	11/04/20 17:46	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	11/04/20 13:41	11/04/20 21:28	EPA 245.1	3,245.1	AL
Nickel, Total	ND		mg/l	0.02000	--	10	11/04/20 13:33	11/04/20 17:46	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.05000	--	10	11/04/20 13:33	11/04/20 17:46	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00400	--	10	11/04/20 13:33	11/04/20 17:46	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.1000	--	10	11/04/20 13:33	11/04/20 17:46	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	71.9		mg/l	0.660	NA	1	11/04/20 13:33	11/05/20 22:46	EPA 3005A	19,200.7	BV

Project Name: LEO BIRMINGHAM PKWY **Lab Number:** L2047729

Project Number: 6543.9.J7 **Report Date:** 11/06/20

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1429899-1										
Iron, Total	ND		mg/l	0.050	--	1	11/04/20 13:33	11/05/20 22:36	19,200.7	BV

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01 Batch: WG1429899-1										
Hardness	ND		mg/l	0.660	NA	1	11/04/20 13:33	11/05/20 22:36	19,200.7	BV

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1429905-1										
Antimony, Total	ND		mg/l	0.00400	--	1	11/04/20 13:33	11/04/20 18:21	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	11/04/20 13:33	11/04/20 18:21	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	11/04/20 13:33	11/04/20 18:21	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	11/04/20 13:33	11/04/20 18:21	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	11/04/20 13:33	11/04/20 18:21	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	11/04/20 13:33	11/04/20 18:21	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	11/04/20 13:33	11/04/20 18:21	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	11/04/20 13:33	11/04/20 18:21	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	11/04/20 13:33	11/04/20 18:21	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	11/04/20 13:33	11/04/20 18:21	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Project Name: LEO BIRMINGHAM PKWY
Project Number: 6543.9.J7
Lab Number: L2047729
Report Date: 11/06/20

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1429912-1										
Mercury, Total	ND		mg/l	0.00020	--	1	11/04/20 13:41	11/04/20 16:45	3,245.1	AL

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: LEO BIRMINGHAM PKWY

Project Number: 6543.9.J7

Lab Number: L2047729

Report Date: 11/06/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1429899-2								
Iron, Total	99		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1429899-2								
Hardness	103		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1429905-2								
Antimony, Total	99		-		85-115	-		
Arsenic, Total	92		-		85-115	-		
Cadmium, Total	109		-		85-115	-		
Chromium, Total	98		-		85-115	-		
Copper, Total	105		-		85-115	-		
Lead, Total	85		-		85-115	-		
Nickel, Total	101		-		85-115	-		
Selenium, Total	92		-		85-115	-		
Silver, Total	102		-		85-115	-		
Zinc, Total	112		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1429912-2								
Mercury, Total	114		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: LEO BIRMINGHAM PKWY
Project Number: 6543.9.J7

Lab Number: L2047729
Report Date: 11/06/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1429899-3 QC Sample: L2047729-01 Client ID: CHARLES RIVER DOWNSTREAM												
Iron, Total	0.556	1	1.54	98		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1429899-3 QC Sample: L2047729-01 Client ID: CHARLES RIVER DOWNSTREAM												
Hardness	71.9	66.2	137	98		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1429899-7 QC Sample: L2047543-01 Client ID: MS Sample												
Iron, Total	0.286	1	1.27	98		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1429899-7 QC Sample: L2047543-01 Client ID: MS Sample												
Hardness	164	66.2	230	100		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1429905-3 QC Sample: L2047729-01 Client ID: CHARLES RIVER DOWNSTREAM												
Antimony, Total	ND	0.5	0.4905	98		-	-		70-130	-		20
Arsenic, Total	ND	0.12	0.1132	94		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.05329	104		-	-		70-130	-		20
Chromium, Total	ND	0.2	0.1933	97		-	-		70-130	-		20
Copper, Total	ND	0.25	0.2568	103		-	-		70-130	-		20
Lead, Total	ND	0.51	0.4393	86		-	-		70-130	-		20
Nickel, Total	ND	0.5	0.4783	96		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1116	93		-	-		70-130	-		20
Silver, Total	ND	0.05	0.05066	101		-	-		70-130	-		20
Zinc, Total	ND	0.5	0.5409	108		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: LEO BIRMINGHAM PKWY
Project Number: 6543.9.J7

Lab Number: L2047729
Report Date: 11/06/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1429912-3 QC Sample: L2047116-01 Client ID: MS Sample									
Mercury, Total	0.00045	0.005	0.00575	106	-	-	70-130	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: LEO BIRMINGHAM PKWY
Project Number: 6543.9.J7

Lab Number: L2047729
Report Date: 11/06/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1429899-4 QC Sample: L2047729-01 Client ID: CHARLES RIVER DOWNSTREAM						
Iron, Total	0.556	0.551	mg/l	1		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1429899-4 QC Sample: L2047729-01 Client ID: CHARLES RIVER DOWNSTREAM						
Hardness	71.9	69.8	mg/l	3		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1429899-8 QC Sample: L2047543-01 Client ID: DUP Sample						
Iron, Total	0.286	0.278	mg/l	3		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1429905-4 QC Sample: L2047729-01 Client ID: CHARLES RIVER DOWNSTREAM						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	ND	ND	mg/l	NC		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	ND	ND	mg/l	NC		20
Copper, Total	ND	ND	mg/l	NC		20
Lead, Total	ND	ND	mg/l	NC		20
Nickel, Total	ND	ND	mg/l	NC		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	ND	ND	mg/l	NC		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: LEO BIRMINGHAM PKWY

Project Number: 6543.9.J7

Lab Number: L2047729

Report Date: 11/06/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1429912-4 QC Sample: L2047116-01 Client ID: DUP Sample					
Mercury, Total	0.00045	0.00043	mg/l	5	20

INORGANICS
&
MISCELLANEOUS

Project Name: LEO BIRMINGHAM PKWY
Project Number: 6543.9.J7
Lab Number: L2047729
Report Date: 11/06/20

SAMPLE RESULTS

Lab ID: L2047729-01
Client ID: CHARLES RIVER DOWNSTREAM
Sample Location: BOSTON, MA
Sample Depth:
Matrix: Water
Date Collected: 10/30/20 12:00
Date Received: 10/30/20
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	7.0		SU	-	NA	1	-	11/02/20 20:18	121,4500H+-B	CM
Nitrogen, Ammonia	0.199		mg/l	0.075	--	1	11/02/20 10:00	11/02/20 17:37	121,4500NH3-BH	AT

Project Name: LEO BIRMINGHAM PKWY **Lab Number:** L2047729

Project Number: 6543.9.J7 **Report Date:** 11/06/20

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1429244-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	11/02/20 10:00	11/02/20 17:27	121,4500NH3-BH	AT

Lab Control Sample Analysis

Batch Quality Control

Project Name: LEO BIRMINGHAM PKWY

Project Number: 6543.9.J7

Lab Number: L2047729

Report Date: 11/06/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1429244-2								
Nitrogen, Ammonia	106		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1429476-1								
pH	100		-		99-101	-		5

Matrix Spike Analysis
Batch Quality Control

Project Name: LEO BIRMINGHAM PKWY
Project Number: 6543.9.J7

Lab Number: L2047729
Report Date: 11/06/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1429244-4 QC Sample: L2047543-02 Client ID: MS Sample												
Nitrogen, Ammonia	4.50	4	8.21	93		-	-		80-120	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: LEO BIRMINGHAM PKWY

Project Number: 6543.9.J7

Lab Number: L2047729

Report Date: 11/06/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1429244-3 QC Sample: L2047543-02 Client ID: DUP Sample						
Nitrogen, Ammonia	4.50	4.56	mg/l	1		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1429476-2 QC Sample: L2047509-01 Client ID: DUP Sample						
pH	6.5	6.5	SU	0		5

Project Name: LEO BIRMINGHAM PKWY
Project Number: 6543.9.J7

Lab Number: L2047729
Report Date: 11/06/20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2047729-01A	Plastic 250ml unpreserved	A	7	7	3.4	Y	Absent		PH-4500(.01)
L2047729-01B	Plastic 250ml H2SO4 preserved	A	<2	<2	3.4	Y	Absent		NH3-4500(28)
L2047729-01C	Plastic 500ml HNO3 preserved	A	<2	<2	3.4	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),FE-UI(180),CU-2008T(180),HARDU(180),HG-U(28),AG-2008T(180),SE-2008T(180),AS-2008T(180),CR-2008T(180),SB-2008T(180),PB-2008T(180)
L2047729-01D	Plastic 500ml HNO3 preserved	A	<2	<2	3.4	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),FE-UI(180),CU-2008T(180),HARDU(180),HG-U(28),AG-2008T(180),SE-2008T(180),AS-2008T(180),CR-2008T(180),SB-2008T(180),PB-2008T(180)
L2047729-01E	Plastic 500ml HNO3 preserved	A	<2	<2	3.4	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),FE-UI(180),CU-2008T(180),HARDU(180),HG-U(28),AG-2008T(180),SE-2008T(180),AS-2008T(180),CR-2008T(180),SB-2008T(180),PB-2008T(180)

*Values in parentheses indicate holding time in days

Project Name:	LEO BIRMINGHAM PKWY	**Lab Number:**	L2047729
Project Number:	6543.9.J7	**Report Date:**	11/06/20

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	LEO BIRMINGHAM PKWY	**Lab Number:**	L2047729
Project Number:	6543.9.J7	**Report Date:**	11/06/20

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Report Format: Data Usability Report

Project Name:	LEO BIRMINGHAM PKWY	**Lab Number:**	L2047729
Project Number:	6543.9.J7	**Report Date:**	11/06/20

Data Qualifiers

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: Data Usability Report

Project Name:	LEO BIRMINGHAM PKWY	**Lab Number:**	L2047729
Project Number:	6543.9.J7	**Report Date:**	11/06/20

REFERENCES

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
EPA TO-12 Non-methane organics
EPA 3C Fixed gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220

320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Date Rec'd in Lab: 10/30/20

ALPHA Job #: L2047729

Project Information

Project Name: Leo Birmingham Pkwy

Project Location: Boston, MA

Project #: 6453.9.J7

Project Manager: D. Trussell

ALPHA Quote #:

Report Information - Data Deliverables

☐ ADEx ☐ EMAIL

Billing Information

☐ Same as Client info PO #:

Client Information

Client: McPhail Associates, LLC

Address: 2269 Massachusetts Avenue, Cambridge, MA 02140

Phone: (617) 868-1420

Email: DTrussell@McPhailgeo.com

Regulatory Requirements & Project Information Requirements

☐ Yes ☒ No MA MCP Analytical Methods

☐ Yes ☒ No CT RCP Analytical Methods

☐ Yes ☒ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)

☐ Yes ☒ No GW1 Standards (Info Required for Metals & EPH with Targets)

☒ Yes ☐ No NPDES RGP

☐ Other State /Fed Program ____ Criteria ____

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due:

Additional Project Information:

☐ Run TCLP (if triggered)

Sample "Sample ID" Nomenclature: B-100, S-1

ALPHA Lab ID (Lab Use Only)	Sample ID	Sample Depth	Material	Collection Date	Collection Time	Sampler Initials	Soil Assessment Package IV (less VOC)	VOC: ☐ 8260	Total Solids	SVOC: ☐ PAH	EPH: ☐ Ranges & Targets ☐ Ranges Only	VPH: ☐ Ranges & Targets ☐ Ranges Only	TOTAL METALS: ☐ RCRA8 ☐ PP13 ☐ MCP 14	DISSOLVED METALS: ☐ RCRA8 ☐ PP13 ☐ MCP 14	METALS: Total Sb,Be,Ni,Tl,V,Zn	☐ PCBs ☐ Pesticides	RGP ~~Section A Inorganics~~ Metals	Ammonia	Hardness	pH	Sample Comments	TOTAL # BOTTLES
47729-01	Charles River Downstream	—	W	10/30	12:00	JSF											X	X	X	X		5
Container Type																	P	P	P	P		
Preservative																	C	D	C	A		

SAMPLE INFO

Filtration: ☐ Field ☐ Lab to do

Preservation: ☐ Lab to do

Container Type: A=Amber glass, B=Bacteria cup, C=Cube, D=BOD bottle, E=Encore, G=Glass, O=Other, P=Plastic, V=Vial

Preservative: A=None, B=HCl, C=HNO_3, D=H_2SO_4, E=NaOH, F=MeOH, G=$NaHSO_4$, H=$Na_2S_2O_3$, I=Ascorbic Acid, J=NH_4Cl, K=Zn Acetate, O=Other

Sample Material: F=Fill, S=Sand, O=Organics, C=Clay, N=Natural, T=Till, GM=Glaciomarine, GW=Groundwater

RGP Section A Inorganics: *Ammonia, Chloride, TRC, TSS, CrVI, CrIII, Total Cyanide, Total RGP Metals*

Relinquished By:	Date/Time	Received By:	Date/Time
Julian Finney [signature]	10/30/20 12:30	McPhail Associates secure sample storage for laboratory pick-up	10/30/20 12:30
McPhail Associates secure sample storage for laboratory pick-up		[signature] Alpha AAL	10/30/20 1605
[signature]	10/30/20 1722	[signature]	10/30/20 1722

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

DOC ID: 25188 Rev 0 (11/28/2017)

APPENDIX G:

BEST MANAGEMENT PRACTICE PLAN

BEST MANAGEMENT PRACTICES PLAN

A Notice of Intent for a Remediation General Permit (RGP) under the National Pollutant Discharge Elimination System (NPDES) has been submitted to the US Environmental Protection Agency (EPA) in anticipation of temporary construction dewatering that will occur during redevelopment of the 70 Leo Birmingham Parkway property in Boston, Massachusetts. This Best Management Practices Plan (BMPP) has been prepared as an Appendix to the RGP and will be posted at the site during the time period that temporary construction dewatering is occurring at the site.

Water Treatment and Management

During construction of the proposed building foundation, dewatering effluent is anticipated to be pumped from localized sumps and trenches within the excavation directly into a settling tank. Dewatering effluent treatment will consist of a settling tank, bag filters to remove suspended soil particulates, granular activated carbon filters and, if required, ion resin media vessels prior to off-site discharge. pH adjustment will be conducted, if necessary, through the addition of hydrochloric acid, caustic soda and carbon dioxide. The effluent will then flow through the necessary treatment systems and discharge through hoses or piping connected into the storm water drains located beneath Leo Birmingham Parkway, Western Avenue and Soldiers Field Road. Based upon a review of the Boston Water and Sewer Commission stormwater drainage plan, the above referenced stormwater drain system ultimately discharges into the Charles River at outfall SDO 033.

Discharge Monitoring and Compliance

Regular sampling and testing will be conducted at the influent to the system and the treated effluent as required by the RGP. During the first week of discharge, the operator must sample the untreated influent and treated effluent two times: one (1) sample of untreated influent and one (1) sample of treated effluent be collected on the first day of discharge, and one (1) sample of untreated influent and one (1) sample of treated effluent must be collected on one additional non-consecutive day within the first week of discharge. Samples must be analyzed in accordance with 40 CFR §136 unless otherwise specified by the RGP, with a maximum 5-day turnaround time and results must be reviewed no more than 48 hours from receipt of the results of each sampling event. After the first week, samples may be analyzed with up to a ten (10)-day turnaround time and results must be reviewed no more than 72 hours from receipt of the results. If the treatment system is operating as designed and achieving the effluent limitations outlined in the RGP, on-going sampling shall

be conducted weekly for three (3) additional weeks beginning no earlier than 24 hours following initial sampling, and monthly as described below. Any adjustments/reductions in monitoring frequency must be approved by EPA in writing.

In accordance with Part 4.1 of the RGP, the operator must perform routine monthly monitoring for both influent and effluent beginning no more than 30 days following the completion of the sampling requirements for new discharges or discharges that have been interrupted. The routine monthly monitoring is to be conducted through the end of the scheduled discharge. The routine monthly monitoring must continue for five (5) consecutive months prior to submission of any request for modification of monitoring frequency.

Dewatering activity for the Site is classified as Category III-G: Sites with Known Contamination. Monitoring shall include analysis of influent and effluent samples for the presence of: pH and inorganics as listed in the RGP including: ammonia, chloride, total residual chlorine, total suspended solids, antimony, arsenic, cadmium, chromium III, chromium VI, copper, lead, mercury, nickel, selenium, silver, zinc and cyanide. Additional monitoring for VOCs and/or fuel parameters will be performed as required by the terms of the RGP authorization.

Monitoring will include checking the condition of the treatment system, assessing the need for treatment system adjustments based on monitoring data, observing and recording daily flow rates and discharge quantities, and verifying the flow path of the discharged effluent.

The total monthly flow will be monitored by checking and documenting the flow through the flow meter to be installed on the system. Flow will be maintained below the "system design flow" by regularly monitoring flow and adjusting the amount of construction dewatering as needed. Monthly monitoring reports will be compiled and maintained at the site.

System Maintenance

A number of methods will be used to minimize the potential for violations during the term of this permit discharge. Scheduled regular maintenance and periodic cleaning of the treatment system will be conducted to verify proper operation and shall be conducted in accordance with Section 1.11 of the project earthwork specifications. Regular maintenance will include checking the condition of the treatment system equipment such as the settling tanks, bag filters, hoses, pumps, and flow meters. Equipment will be monitored daily for potential matters and unscheduled maintenance requirements.

Employees who have direct or indirect responsibility for ensuring compliance with the RGP will be trained by the Contractor.

Miscellaneous Items

It is anticipated that the erosion control measures and the nature of the site will minimize potential runoff to or from the site. The project specifications also include requirements for

erosion control. Site security for the treatment system will be addressed within the overall site security plan.

No adverse effects on designated uses of surrounding surface water bodies is anticipated. The nearest surface water body is the Back Bay Fens which is located approximately 450 feet to the southeast of the subject site. Dewatering effluent will be pumped into a settling tank. Water within the settling tank will pumped through bag filters, GAC filters and, as necessary, ion exchange chambers prior to discharge into the storm drains.

Management of Treatment System Materials

Dewatering effluent will be pumped directly into the treatment system from the excavation with use of hoses and localized sumps to minimize handling. The Contractor will establish staging areas for equipment or materials storage that may be possible sources of pollution away from any dewatering activities, to the extent practicable.

Sediment from the tank used in the treatment system will be characterized and removed from the site to an appropriate receiving facility, in accordance with applicable laws and regulations. Bag and ion filters will be replaced/disposed of as necessary.