NOTICE OF INTENT FOR DISCHARGE UNDER MASSACHUSETTS REMEDIATION GENERAL PERMIT MAG910000

LANDMARK CENTER TOWER
201 BROOKLINE AVE

BOSTON, MASSACHUSETTS

MAY 19, 2020

Prepared For:
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
5 POST OFFICE SQUARE, SUITE 100
MAIL CODE OEP06-4
BOSTON, MA 02109-3912

On Behalf Of:
Suffolk Construction Company
65 Allerton Street
Boston, MA 02119

PROJECT NO. 5512

2269 Massachusetts Avenue
Cambridge, MA 02140
www.mcphailgeo.com
(617) 868 1420

May 19, 2020

United States Environmental Protection Agency
5 Post Office Square, Suite 100
Mail Code OEP06-4
Boston, MA 02109-3912

Attention: RGP-NOI Processing

Reference: Landmark Center; 201 Brookline Ave, Boston, Massachusetts
Notice of Intent for Construction Dewatering Discharge Under
Massachusetts Remediation General Permit MAG910000

Ladies and Gentlemen:

The purpose of this letter report is to provide a summary of the site and groundwater quality information in support of an application for approval from the U.S. Environmental Protection Agency (EPA) for the temporary discharge of groundwater into the Charles River via a storm drain system during construction at the above referenced 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 Landmark Center Development 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 is included in **Appendix B**.

Applicant/Operator

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

Suffolk Construction Company
65 Allerton Street
Boston, MA 02119

Attention: Mr. Steve Jennings

Tel: 617-603-5450
Fax: 781-729-8456

Existing Conditions

Fronting onto Park Drive to the southwest, the Landmark Center property is bounded by Brookline Avenue to the southeast, Fullerton Street and the Harvard Vanguard building to the northeast and the Massachusetts Bay Transit Authority (MBTA) Green Line right-of-way to the northwest. The subject site occupies a plan area of approximately 383,000 square-feet (8.8 acres) and is currently occupied by the existing Landmark Center buildings, all of which were renovated in the late 1990s for use as office/retail and parking garage space. The limits of the subject site are shown on **Figure 2**, which is based on a plan entitled Subsurface Investigation Plan.

The proposed dewatering activities that are further discussed below will be located at the western portion of the subject site. The western portion of the subject site is occupied by three multi-story buildings referred to herein as Building E, F', and M. Constructed in 1965, Building F consists of a 3-story, concrete framed structure with a single level of below grade space. Building F is presently used as a parking garage, including the garage roof and below grade space. Building E is a 3-story, concrete framed structure with a single level of below grade space used for parking. Building M is a 3-story concrete framed structure with no below grade space.

The existing ground surface surrounding the Phase II site is relatively level, varying from about Elevation +16 to Elevation +17. Ground surface elevations presented herein are referenced to the Boston City Base (BCB) Datum, which is 5.65 feet below the National Geodetic Vertical Datum (NGVD).

Proposed Scope of Site Development

The proposed development includes the complete demolition of Building M and the partial demolition of the Building F parking garage. The proposed new construction will consist of a 17-story office tower (including two mechanical penthouse levels) with no new below grade space. The building will occupy a rectangular footprint of about 31,000 square feet and will partially overlie the footprints of Building F and Building E. Excluding the stair and elevator access to the Building F garage, the lowest level slab of the proposed building will be located at approximate Elevation +16.6. The limits of the proposed common foundation for the new buildings are shown **Figure 2**.

Site Environmental Setting and Surrounding Historical Places

Based on the current Massachusetts Geographic Information Systems (GIS) DEP Priority Resources Map of Boston, the subject site is not located within the boundaries of a Potentially Productive Aquifer or within a Zone II, Interim Wellhead Protection Area as defined by the Massachusetts Department of Environmental Protection. There are no known public or private drinking water supply wells, no Areas of Critical Environmental Concern, no

fish habitats, and no habitats of Species of Special Concern or Threatened or Endangered Species within 500 feet of the subject site. There are no surface water bodies or wetland areas located at the subject site. The nearest surface water body is the Muddy River, classified by the DEP as a Class B Surface Water Body, that is located approximately 230 feet to the south of the subject site. No areas designated as solid waste facilities (landfills) are located within 0.5 miles of the subject site. A copy of the DEP Priority Resources Map depicting the location of the subject site is included in **Appendix C**.

A review of the most recent federal listing of threatened and endangered species published by the U.S. Fish and Wildlife Service identified threatened and/or endangered species at or in the vicinity of the proposed discharge location and/or discharge outfall. In addition, a review of the Massachusetts Division of Fisheries and Wildlife on-line database did not identify the presence of threatened or endangered species at the point of discharge and/or the discharge outfall. Based upon the above, the site is considered criterion A pursuant to Appendix IV of the RGP. A list of threatened and endangered species from the U.S. Fish and Wildlife Services and Massachusetts Division of Fisheries on-line databases is included in **Appendix C**.

The subject site is individually listed on the State and National Register of Historical Places (BOS.7563). The conclusions of their review are documented in a letter that was prepared by the Massachusetts Historical Commission dated February 13, 2019, a copy of which is included in **Appendix C**.

Based on their review, the Massachusetts Historical Commission determined that the plans for redevelopment will have no adverse effect on the listed historical elements of the subject site.

As further discussed below, treated construction dewatering effluent will be discharged into dedicated storm drains that eventually flow into the Charles River. The dewatering of groundwater at the site will be temporary and intermittent. Given the intermittent nature of the 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 subject site and nearby historical listings. In addition, the Massachusetts Historical Commission has determined that the planned redevelopment of the subject site will not adversely affect the historical elements of the subject site. Therefore, as a result of the above, construction dewatering that is proposed at the subject site meets the Permit Eligibility Criteria A under the Remediation General Permit.

Site and Release History

From 1928 to 1988, Sears, Roebuck & Company (Sears) had occupied the subject site as a retail, warehouse and distribution center. Subsequent to 1988, the subject site generally remained vacant for about 10 years and was utilized as an attended parking lot. In 1997,

the subject site was redeveloped as the current Landmark Center and has since been utilized as commercial and retail space.

Since its development in 1928, gasoline and fuel oil were stored and used at the subject site. Historical information indicates that gasoline and No. 6 fuel oil were stored within former underground storage tanks (USTs) which have since been removed from the subject site. According to MCP reports prepared by others, soil and groundwater have been affected by historical releases of petroleum constituents associated with these former USTs. There have been two historic releases of petroleum constituents and/or metals at the subject site documented with the DEP under Release Tracking Numbers (RTNs) 3-2949 and 3-18042 both of which achieved Permanent Solutions pursuant to the provisions of the MCP.

Currently there is one open MCP site at the subject site, which is associated with Release Tracking Number (RTN) 3-32763. Based on the results of soil analysis completed to-date, reportable releases of total arsenic, total lead, TPH and PCBs in fill and organic soils obtained from the RTN 3-32763 MCP site were detected at concentrations exceeding their respective RCS-1 Reportable Concentrations. Based on analytical testing of groundwater samples from the property, groundwater has not been affected by the identified release conditions in site soils at concentrations that require notification of the DEP. The presence of identified contaminants of concern is considered attributable to the presence of historic urban fill material. A Release Abatement Measure (RAM) Plan was filed with the DEP under RTN 3-32763 on October 10, 2017 to manage excavated soil during subsurface construction actions.

Construction Site Dewatering

In general, the depth of excavation for the proposed building foundation walls and pile caps will not extend below the surface of groundwater. However, some foundation elements (such as the elevator core) as well as subsurface utilities may extend below the surface of groundwater. Hence, construction dewatering will be necessary to facilitate construction of foundation elements and subsurface utilities that extend below the surface of groundwater.

Based upon the anticipated depth of excavation, it is likely that only temporary and periodic sumping for dewatering will be required in connection with the construction of the proposed building. Temporary on-site collection and recharge of groundwater will be performed to the maximum extent feasible during construction. However, in the event that on-site recharge is not feasible during construction, off-site discharge of construction dewatering will be necessary into the storm drain system under the Remediation General Permit.

It is anticipated that the maximum rate of construction dewatering to facilitate excavation will be on the order of 50 gallons per minute (gpm). This estimate does not include surface run-off which will be removed from the excavation during periods of precipitation.
A review of available subgrade utility plans provided by the Boston Water and Sewer Commission indicates that a 12-inch diameter storm drain is located beneath Fullerton

Street. In addition, a 10-inch dedicated storm drain is located beneath the southern portion of the subject site adjacent to Park Drive. Stormwater is collected within each of the storm drains and flows southeast into a 116-inch by 120-inch storm drain located beneath Brookline Avenue. The stormwater drain located beneath Brookline Avenue flows northeast where it eventually discharges into the Charles River at outfall SDO042. The locations of the relevant stormwater drains in relation to the subject site are indicated on **Figure 2**. The flow path of the discharge is shown in plans provided by the Boston Water and Sewer Commission which are included in **Figures 3A** through **3C**.

Summary of Groundwater Analysis

In November 11 and 12, 2014, groundwater samples were obtained from the northwestern portion of the subject site and analyzed for the following: total suspended solids (TSS), total residual chlorine, total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs) including total benzene, toluene, ethylbenzene and xylenes (BTEX), poly-aromatic hydrocarbons (PAHs), total phenols, pesticides and PCBs, and total recoverable metals. The results of the laboratory testing did not detect concentrations of the possible contaminants of concern in excess of the applicable RCGW-2 Reportable Concentrations for the compounds analyzed.

More recently on February 18, 2019, McPhail Associates, LLC obtained a sample of groundwater from monitoring well RGP GZ-107(OW) which is located within the area of the proposed building footprint at the eastern portion of the subject site. The sample was submitted for laboratory testing for the presence of Section A Inorganics as detailed in the NPDES RGP which include: total residual chlorine (TRC), hexavalent chromium, total cyanide, ammonia, pH, hardness, total suspended solids (TSS), and total metals (antimony, arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, silver, and zinc), Semi-Volatile Organic Compounds (SVOCs), and Volatile Organic Compounds (VOCs). The Appendix V calculations indicate Technology-Based Effluent Limitations (TBELs) apply for all Inorganics. In conjunction with the updated 2017 NPDES RGP, a sample of water from the Charles River was obtained and analyzed for recoverable metals, ammonia, pH, and hardness. A summary of the laboratory test results is provided in **Tables 1** and **2**, and the associated laboratory data reports are 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 24.7 thus resulting in a DF of 111.9 assuming a design flow rate of 100 GPM.

Utilizing the results of the most recent groundwater testing, Water Quality-Based Effluent Limitations (WQBELs) calculations were performed with the MADEP approved dilution factor of 111.9 and a design flow rate of 50 GPM. The results of the calculations are summarized in the Massachusetts Limits Book summary tables that were provided by the EPA included in **Appendix E**.

In summary, groundwater testing performed at the subject site has detected concentrations of total suspended solids (TSS), ammonia, chloride, copper, chromium, cyanide, iron, bis (2-ethylhexyl)phthalate, fluoranthene, naphthalene, 1,1-dichloroethane, and acetone. Water Quality-Based Effluent Limits (WQBELs) were calculated for each of the detected compounds. Type A, B, C and D compounds do not exceed the applicable Technology Based Effluent Limits (TBELs). For detected compounds, based on calculations performed in accordance with Appendix V of the RGP, WQBEL's did not apply.

The groundwater data presented in this report is greater than one year old. Please note that the use and condition of the site has remained relatively unchanged from the time of our sampling until the commencement of construction activities. Therefore, the data is considered representative of the groundwater at the site.

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 one 10,000-gallon capacity settling tank and bag filters, in series, will be used to settle out and remove particulate matter as well as likely reduce lead concentrations in the effluent to meet limits established by the US EPA prior to discharge. A schematic of the treatment system is shown on **Figure 4**.

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

Summary and Conclusions

The purpose of this report is to assess site environmental conditions and groundwater data to support a Notice of Intent to discharge construction dewatering of the site under a Massachusetts Remediation General Permit during the redevelopment of the Landmark Center located at 201 Brookline Ave in Boston. 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, groundwater treatment is necessary to meet allowable effluent limits established by the US EPA prior to discharge. The proposed construction dewatering effluent treatment system will consist of one 10,000-gallon capacity settling tank and bag filters, in series, which will be used to settle out and remove particulate matter as well as likely reduce lead concentrations in the effluent.

However, should the effluent monitoring results indicate levels of total cyanide or iron in excess of the limits established in the Massachusetts Remediation General Permit, additional mitigative measures will be implemented to meet the allowable discharge limits.

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

Sincerely,

McPHAIL ASSOCIATES, LLC

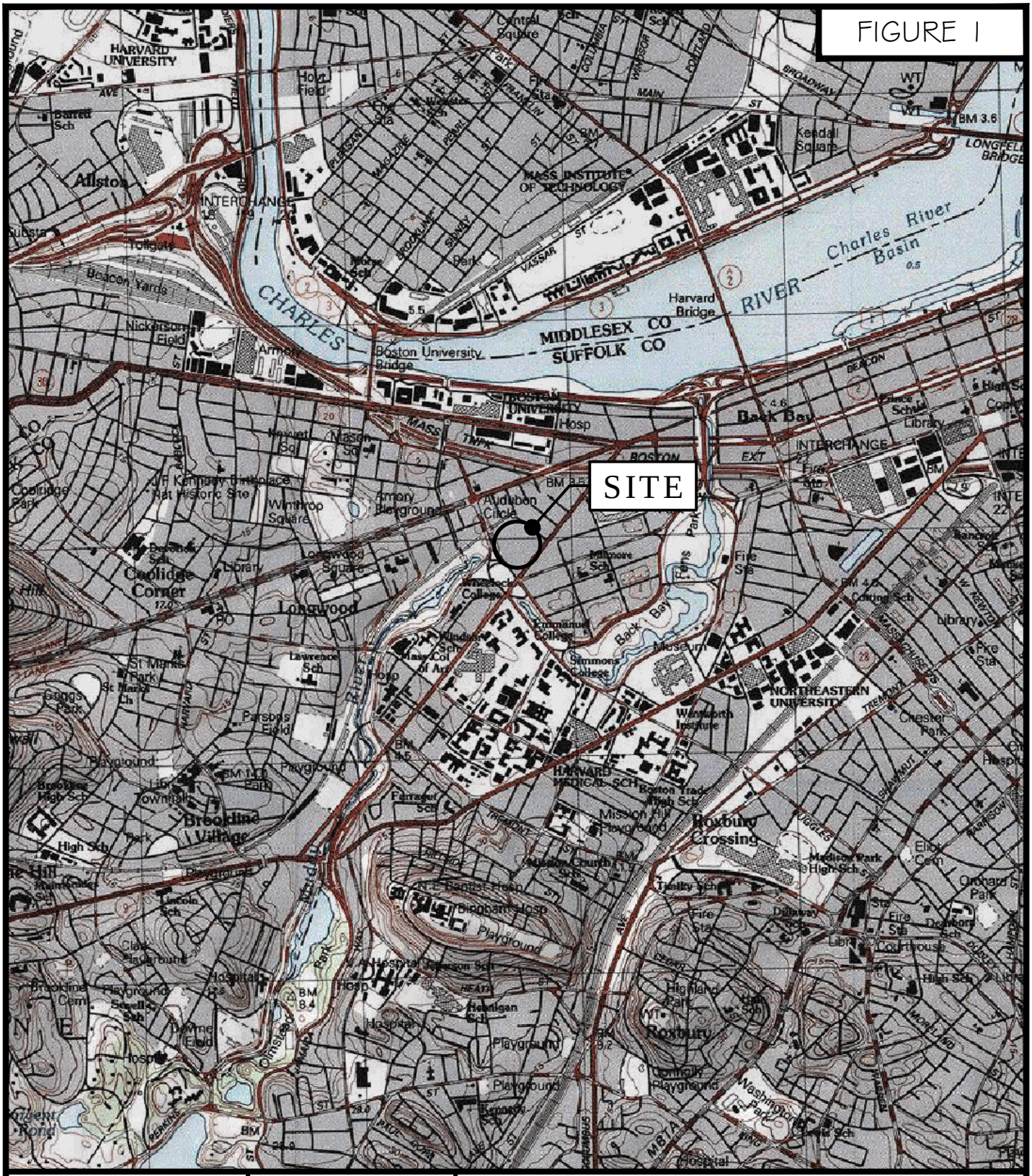
Caitrin R. Foley

William J. Burns, L.S.P.

CRF/wjb

N:\Working Documents\Reports\5512_RGP_092019 rev 1.docx

FIGURE 1



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N

SCALE 1:25,000

PROJECT LOCATION PLAN

LANDMARK CENTER

BOSTON MASSACHUSETTS

LEGEND

(B.1) ▲ — APPROXIMATE LOCATION OF CONE PENETRATION TEST PERFORMED BY CORE TEC ON MARCH 13 AND 14, 2014 FOR McPHAIL ASSOCIATES, LLC

(B.2) — APPROXIMATE LOCATION OF BORING PERFORMED BY CARR-DEE CORP. FROM MARCH 13, 2014 TO APRIL 8, 2014 FOR McPHAIL ASSOCIATES, LLC

(B.3) — APPROXIMATE LOCATION OF GEOENVIRONMENTAL BORING PERFORMED BY CARR-DEE CORP. FROM OCTOBER 1 TO NOVEMBER 10, 2014 FOR McPHAIL ASSOCIATES, LLC

(B.4) — APPROXIMATE LOCATION OF GEOTECHNICAL BORING PERFORMED BY CARR-DEE CORP. FROM OCTOBER 1 TO NOVEMBER 10, 2014 FOR McPHAIL ASSOCIATES, LLC

(B.5) — APPROXIMATE LOCATION OF SPLIT SPOON PROBE PERFORMED BY CARR-DEE CORP. FROM OCTOBER 30 AND 31, 2014 FOR McPHAIL ASSOCIATES, LLC

(B.6) — APPROXIMATE LOCATION OF SLAB CORE AND HAND AUGER BORING PERFORMED BY McPHAIL ASSOCIATES, LLC ON NOVEMBER 10, 2014

(B.7) — APPROXIMATE LOCATION OF BORING PERFORMED BY CARR-DEE CORP. DURING THE PERIODS OF JANUARY 30 THROUGH FEBRUARY 8, 2012 AND MAY 12 TO 16, 2014 FOR McPHAIL ASSOCIATES, LLC

(B.8) — APPROXIMATE LOCATION OF BORING PERFORMED BY NEW ENGLAND BORING CONTRACTORS OF CT., INC. FROM SEPTEMBER 28 TO OCTOBER 5, 2000 FOR McPHAIL ASSOCIATES, INC.

(B.9) — APPROXIMATE LOCATION OF BORING PERFORMED BY GZA DRILLING, INC. FROM SEPTEMBER 7, 1994 TO NOVEMBER 4, 1994 OBSERVED BY GZA ENVIRONMENTAL, INC. PERSONNEL

(B.10) — APPROXIMATE LOCATION OF BORING PERFORMED BY GUILD DRILLING CO., INC. OF EAST PROVIDENCE, RHODE ISLAND FROM MARCH 9 TO MARCH 30, 1994 FOR HALEY AND ALDRICH, INC.

(B.11) — APPROXIMATE LOCATION OF BORING PERFORMED BY GZA DRILLING, INC. FROM SEPTEMBER 5 TO SEPTEMBER 27, 1989 OBSERVED BY GZA ENVIRONMENTAL, INC. PERSONNEL

(B.12) — APPROXIMATE LOCATION OF BORING PERFORMED BY GEI CONSULTANTS, INC. BETWEEN JANUARY 22, 1988 AND JANUARY 6, 1989

(B.13) — APPROXIMATE LOCATION OF BORING PERFORMED BY OTHERS AND PUBLISHED BY BOSTON SOCIETY OF CIVIL ENGINEERS, 1969

(B.14) — APPROXIMATE LOCATION OF BORING PERFORMED BY NEW ENGLAND TEST BORING CORP. IN JANUARY 1965

(B.15) — APPROXIMATE LOCATION OF BORING PERFORMED BY AMERICAN DRILLING CO., INC. IN DECEMBER, 1964

(B.16) — PREVIOUS BORINGS PERFORMED BY OTHERS. INFORMATION TAKEN FROM A PLAN ENTITLED, "FOUNDATION PLAN, ADDITION & ALTERATIONS TO MAIL ORDER STORE, FOR SEARS ROEBUCK & CO., BUILDING No. 845, CARR AND WRIGHT, INC. REV. 3-1-48"

— APPROXIMATE LOCATION OF _____ PERFORMED BY _____ ON _____ FOR _____

(B.1) — INDICATES APPENDIX CONTAINING EXPLORATION LOGS

(OW) — INDICATES OBSERVATION WELL INSTALLED WITHIN COMPLETED BOREHOLE

— STORMWATER FLOW DIRECTION

REFERENCE: THIS PLAN WAS PREPARED FROM A 20-SCALE DRAWING ENTITLED, "EXISTING CONDITIONS PLAN" DATED APRIL 4, 2014 PREPARED BY HARRY R. FELDMAN, INC.

GRAPHIC SCALE

40 0 40 80 160

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LANDMARK CENTER

BOSTON MASSACHUSETTS

SUBSURFACE EXPLORATION PLAN

FOR

LANDMARK CENTER DEVELOPMENT LLC

BY

McPHAIL ASSOCIATES, LLC

Date: DECEMBER 2014	Dwn: M.B.S.	Chkd: B.A.O.	Scale: 1" = 40'
Project No: 5512			FIGURE 2

FILE NAME: N:\Acad\JOBS\5512\PRGPS5512-FO2rev1.dwg

FIGURE 3A

MATCH LINE

APPROXIMATE LOCATION OF CONSTRUCTION DEWATERING DISCHARGE

APPROXIMATE LIMITS OF SUBJECT SITE

NORTH

GRAPHIC SCALE

100 0 100 200

REFERENCE: THIS PLAN WAS PREPARED FROM A 100-SCALE DRAWING ENTITLED "BOSTON WATER AND SEWER" PRINTED ON JULY 19, 2019 BY BOSTON WATER AND SEWER COMMISSION.

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LANDMARK CENTER

BOSTON MASSACHUSETTS

STORM DRAIN DISCHARGE FLOW PATH

FOR

LANDMARK CENTER DEVELOPMENT LLC

BY

McPHAIL ASSOCIATES, LLC

Date: JULY 2019	Dwn: F.G.P.	Chkd: J.S.W.	Scale: 1" = 100'
Project No: 5512			

FILE NAME: N:\Acad\JOBS\5512\RGP\5512-FIG3Rev1.dwg

FIGURE 3B

MATCH LINE

COMMONWEALTH AV

BLANDFORD ST

BEACON ST

MASSACHUSETTS TNPK

BROOKLINE AV

KENMORE SQUARE

CG164

CG166

RE042-1

TG042-2

SC306

PARKING

BULKHEADED

FLOWS IN BOTH DIRECTIONS

NORTH

CONRAIL

MAITLAND ST

SALVATION ARMY ADULT REHABILITATION CENTER

PARKING

OVERLAND ST

BROOKLINE AV

TG188

YAWK

PRIVATE RD

LANSDOWNE ST

MATCH LINE

REFERENCE: THIS PLAN WAS PREPARED FROM A 100-SCALE DRAWING ENTITLED "BOSTON WATER AND SEWER" PRINTED ON JULY 19, 2019 BY BOSTON WATER AND SEWER COMMISSION.

GRAPHIC SCALE

100 0 100 200

FILE NAME: N:\Acad\OBS\5512\RGF\5512-F03Rev1.dwg

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LANDMARK CENTER

BOSTON MASSACHUSETTS

STORM DRAIN DISCHARGE FLOW PATH

FOR

LANDMARK CENTER DEVELOPMENT LLC

BY

McPHAIL ASSOCIATES, LLC

Date: JULY 2019	Dwn: F.G.P.	Chkd: J.S.W.	Scale: 1" = 100'
Project No: 5512			

FIGURE 3C

NORTH

OUTFALL
SDO042
(11.70)

LOCATION OF DISCHARGE
INTO CHARLES RIVER

SDO118
UN

SDO040
UN

STORROW MEMO DR

PUMP STATION
PS2

BACK ST

CG89
(11.70)

CG66

TG042-3
(1.02)

RALEIGH ST

DEERFIELD ST

BEACON ST

BAY STATE RD

PARKING

KENMORE SQUARE

MATCH LINE

REFERENCE: THIS PLAN WAS PREPARED FROM A 100-SCALE DRAWING ENTITLED "BOSTON WATER AND SEWER" PRINTED ON JULY 19, 2019 BY BOSTON WATER AND SEWER COMMISSION.

GRAPHIC SCALE

100 0 100 200

FILE NAME: N:\Acad\JOB\5512\2RGP\5512-FO3Rev1.dwg

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LANDMARK CENTER
BOSTON MASSACHUSETTS

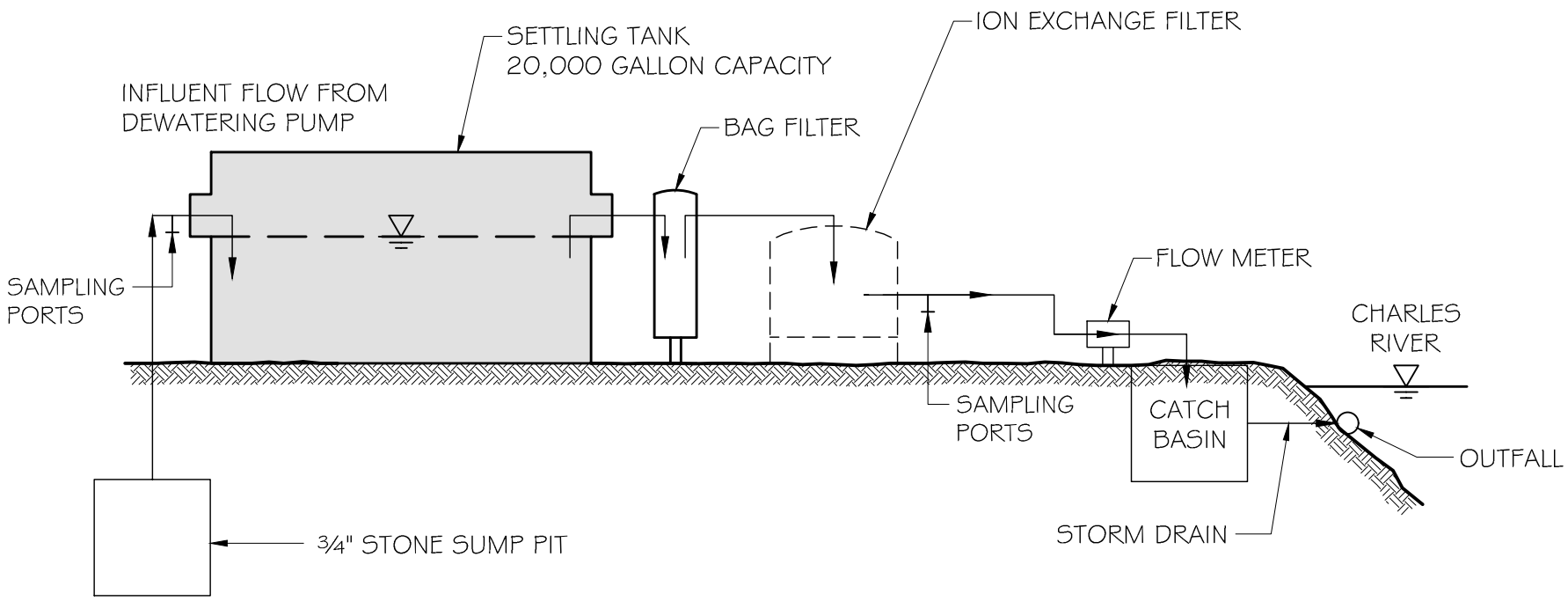
STORM DRAIN DISCHARGE FLOW PATH

FOR
LANDMARK CENTER DEVELOPMENT LLC
BY
McPHAIL ASSOCIATES, LLC

Date: JULY 2019	Dwn: F.G.P.	Chkd: J.S.W.	Scale: 1" = 100'
Project No: 5512			

FILE NAME: N:\Acad\JOBS\5512\RGP\5512-F04Rev1.dwg

FIGURE 4



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LANDMARK CENTER

BOSTON MASSACHUSETTS

SCHEMATIC OF TREATMENT SYSTEM

FOR

LANDMARK CENTER DEVELOPMENT LLC

BY

McPHAIL ASSOCIATES, LLC

CONSULTING GEOTECHNICAL ENGINEERS

Date: JULY 2019	Dwn: F.G.P.	Chkd: J.S.W.	Scale: N.T.S.
Project No: 5512			

Table 1
Labratory Analytical Results - Groundwater
RGP (OW)

Landmark Center Tower
Boston, MA
Project No.5512

LOCATION	EPA - Freshwater Aquatic Life Chronic Criteria	LANDMARK TOWER RGP SAMPLE
SAMPLING DATE		**2/18/2019**
LAB SAMPLE ID		**L1906394-01**
SAMPLE TYPE		**WATER**
General Chemistry (ug/l)		
Chlorine, Total Residual		ND(20)
Chromium, Hexavalent	11	ND(10)
Chromium, Trivalent	74	ND(10)
Cyanide, Total	5.2	**6**
Nitrogen, Ammonia		4010
pH (SU)		7.2
Phenolics, Total		ND(30)
Solids, Total Suspended		9100
TPH, SGT-HEM		ND(4000)
Chloride	230000	**2170000**
Total Metals (ug/l)		
Antimony, Total		ND(4)
Arsenic, Total	150	ND(1)
Cadmium, Total	0.25	ND(0.2)
Chromium, Total		4.27
Copper, Total		1.31
Iron, Total	1000	**1710**
Lead, Total	2.5	ND(1)
Mercury, Total	0.77	ND(0.2)
Nickel, Total	52	ND(2)
Selenium, Total	5	ND(5)
Silver, Total		ND(0.4)
Zinc, Total	120	ND(10)
Microextractables (ug/l)		
SUM		ND
Polychlorinated Biphenyls (ug/l)		
SUM		ND
Semivolatile Organics (ug/l)		
Bis(2-ethylhexyl)phthalate		2.4
Fluoranthene		0.1
Naphthalene		0.37
SUM		2.87
Volatile Organics (ug/l)		
1,1-Dichloroethane		1.9
Acetone		11
SUM		12.9

ND - Not detected in excess of the detection limit
(#) - Detection limit

Table 2
Labratory Analytical Results - Surface Water
Charles River

Landmark Center Tower
Boston, MA
Project No.5512

LOCATION	EPA - Freshwater Aquatic Life Chronic Criteria	SURFACE WATER CHARLES RIVER SAMPLE
SAMPLING DATE		**1/23/2019**
LAB SAMPLE ID		**L1902926-01**
SAMPLE TYPE		**WATER**
General Chemistry (ug/l)		
Cyanide, Total	5.2	ND(5)
Nitrogen, Ammonia		121
pH (SU)		7
Hardness		76900
Total Metals (ug/l)		
Antimony, Total		ND(4)
Arsenic, Total	150	ND(1)
Cadmium, Total	0.25	ND(0.2)
Chromium, Total		ND(1)
Copper, Total		1.77
Iron, Total	1000	410
Lead, Total	2.5	ND(1)
Mercury, Total	0.77	0.2
Nickel, Total	52	ND(2)
Selenium, Total	5	ND(5)
Silver, Total		ND(0.4)
Zinc, Total	120	ND(10)

ND - Not detected in excess of the detection limit
(#) - Detection limit

APPENDIX A:

LIMITATIONS

LIMITATIONS

The purpose of this report is to present the results of testing of groundwater samples obtained from monitoring wells located at the Landmark Center property listed with the address of 401 Park Drive 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 in disposal and other factors.

Laboratory analyses have been performed for specific constituents during the course of this assessment, as described in the text. However, it should be noted that additional constituents not searched for during the current study may be present in soil and/or groundwater at the site.

This report and application have been prepared on behalf of and for the exclusive use of Landmark Center Development LLC and Suffolk Construction Company. 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
BOSTON WATER & SEWER DEWATERING DISCHARGE PERMIT APPLICATION

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:
Landmark Center Tower</td><td colspan="3">Site address: 201 Brookline Ave
Street:</td></tr>
<tr><td>City: Boston</td><td>State: MA</td><td>Zip: 02215</td></tr>
<tr><td rowspan="4">2. Site owner
Landmark Center Development LLC

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Mr. Tom Bloch, Manager</td></tr>
<tr><td colspan="2">Telephone: 617.603.5468</td><td>Email: tom@samuelsre.com</td></tr>
<tr><td colspan="3">Mailing address: 136 Brookline Street
Street:</td></tr>
<tr><td>City: Boston</td><td>State: MA</td><td>Zip: 02215</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
Suffolk Contruction</td><td colspan="3">Contact Person: Steve Jennings</td></tr>
<tr><td colspan="2">Telephone: 617-603-5450</td><td>Email: sjennings@suffolk.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 65 Allerton Street</td></tr>
<tr><td>City: Boston</td><td>State: MA</td><td>Zip: 02119</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 3-32763
RTN 3-2949 and 3-18042
☐ 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	MA72-38	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. Water Code: 7239050 Class: B Category: 5 TMDL Count: 1 TMDL - 301.0

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.	24.7
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.	111.86

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: 2/28/2019

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: Chloride, Ammonia, TSS, Arsenic, Iron, Nickel and SVOCs	
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): SDO042	Outfall location(s): (Latitude, Longitude) (42.351139, -71.097934)
Discharges enter the receiving water(s) via (check any that apply): ■ Direct discharge to the receiving water ☐ Indirect discharge, if so, specify: ☐ A private storm sewer system ■ A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): ☐ Yes ■ No Has the operator has received permission from the owner to use such system for discharges? (check one): ☐ Yes ■ No, if so, explain, with an estimated timeframe for obtaining permission: Upon approval of NPDES 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): 09/2019 - 08/2020 Indicate if the discharge is expected to occur over a duration of: ■ less than 12 months ☐ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No	

<table>
<tr><td>2. Activity Category: (check all that apply)</td><td colspan="2">3. Contamination Type Category: (check all that apply)</td></tr>
<tr><td rowspan="5">☐ I – Petroleum-Related Site Remediation
☐ II – Non-Petroleum-Related Site Remediation
■ III – Contaminated Site Dewatering
☐ IV – Dewatering of Pipelines and Tanks
☐ V – Aquifer Pump Testing
☐ VI – Well Development/Rehabilitation
☐ VII – Collection Structure Dewatering/Remediation
☐ VIII – Dredge-Related Dewatering</td><td colspan="2">a. If Activity Category I or II: (check all that apply)

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

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

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia		✔	1	121,4500N	75	4010	4010	Report mg/L	---
Chloride		✔	1	44,300.0	500	217000	217000	Report µg/l	---
Total Residual Chlorine	✔		1	121,4500C	20	<DL	<DL	0.2 mg/L	
Total Suspended Solids		✔	1	121,2540D	5000	9100	9100	30 mg/L	
Antimony	✔		1	3,200.8	4	<DL	<DL	206 µg/L	
Arsenic		✔	1	3,200.8	1	1.03	1.03	104 µg/L	
Cadmium	✔		1	3,200.8	.2	<DL	<DL	10.2 µg/L	
Chromium III	✔		1	1,7196A	10	<DL	<DL	323 µg/L	
Chromium VI	✔		1	1,7196A	10	<DL	<DL	323 µg/L	
Copper	✔		1	3,200.8	1	<DL	<DL	242 µg/L	
Iron		✔	1	19,200.7	50	1710	1710	5,000 µg/L	
Lead	✔		1	3,200.8	1	<DL	<DL	160 µg/L	
Mercury	✔		1	3,245.1	.2	<DL	<DL	0.739 µg/L	
Nickel		✔	1	3,200.8	2	<DL	<DL	1,450 µg/L	
Selenium	✔		1	3,200.8	5	<DL	<DL	235.8 µg/L	
Silver	✔		1	3,200.8	0.4	<DL	<DL	35.1 µg/L	
Zinc	✔		1	3,200.8	10	<DL	<DL	420 µg/L	
Cyanide	✔		1	121,4500C	5	6	6	178 mg/L	
B. Non-Halogenated VOCs									
Total BTEX	✔		1	128624.1	1	<DL	<DL	100 µg/L	---
Benzene	✔		1	128624.1	1	<DL	<DL	5.0 µg/L	---
1,4 Dioxane	✔		1	128624.1-	50	<DL	<DL	200 µg/L	---
Acetone		✔	1	128624.1	10	11	11	7.97 mg/L	---
Phenol	✔		1	128624.1	30	<DL	<DL	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		✔	1	128,624.1	1.5	1.9	1.9	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	✔		1	129,625.1-	0.1	<DL	<DL	190 µg/L	
Diethylhexyl phthalate	✔		1	129,625.1-	0.1	<DL	<DL	101 µg/L	
Total Group I PAHs		✔	1	129,625.1-	0.1	0.82	0.82	1.0 µg/L	---
Benzo(a)anthracene	✔		1	129,625.1-	0.1	0.2	0.2	As Total PAHs	0.0645 - 0.1
Benzo(a)pyrene			1	129,625.1-	0.1	0.15	0.15		0.0645 - 0.1
Benzo(b)fluoranthene		✔	1	129,625.1-	0.1	0.24	0.24		0.0645 - 0.1
Benzo(k)fluoranthene	✔		1	129,625.1-	0.1	<DL	<DL		
Chrysene		✔	1	129,625.1-	0.1	0.23	0.23		0.0645 - 0.1
Dibenzo(a,h)anthracene	✔		1	129,625.1-	0.1	<DL	<DL		
Indeno(1,2,3-cd)pyrene	✔		1	129,625.1-	0.1	<DL	<DL		

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
Total Group II PAHs		✔	1	1,8270D	0.1	39.76	39.76	100 µg/L	---
Naphthalene		✔	1	1,8270D	0.1	0.82	0.82	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔							0.000064 µg/L	---
Pentachlorophenol	✔							1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✔		1	74,1664A	400	<DL	<DL	5.0 mg/L	---
Ethanol	✔							Report mg/L	---
Methyl-tert-Butyl Ether	✔		1	1,8260C	10	<DL	<DL	70 µg/L	
tert-Butyl Alcohol	✔		1	1,8260C	100	<DL	<DL	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		1	1,8260C	20	<DL	<DL	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	1214500H		7.2	7.2		
Temperature			1	YSI		25 C			
Salinity			1	1212520B	2.0	<DL			
Total Chromium			1	EPA	1	4.27	4.27		
PCBs			1	127,608.3	.250	<DL	<DL		
pH - Surface Water			1	1214500H		7	7		
Temperature			1	YSI		25 C			
Hardness			1	1,6010D		76.9	76.9		

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.
Frac Tank and Bag Filters

Ion Resin Exchange if Necessary

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: Frac Tank Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	50
Provide the proposed maximum effluent flow in gpm.	50
Provide the average effluent flow in gpm.	25
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	n/a

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

F. Chemical and additive information

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

☐ Algaecides/biocides ☐ Antifoams ☐ Coagulants ☐ Corrosion/scale inhibitors ☐ Disinfectants ☐ Flocculants ☐ Neutralizing agents ☐ Oxidants ☐ Oxygen ☐ scavengers ☐ pH conditioners ☐ Bioremedial agents, including microbes ☐ Chlorine or chemicals containing chlorine ☐ Other; if so, specify:

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:	A BMPP Statement has been prepared in accordance with good engineering practices following Part 2.5 of the RGP and shall be implemented upon initiation of discharge.
Notification provided to the appropriate State, including a copy of this NOI, if required.	Check one: Yes ■ No ☐
Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐
Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐ NA ☐ Submission of documentation to and approval from BWSC in tandem with this NOI
Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission.	Check one: Yes ☐ No ☐ NA ☐
Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:	Check one: Yes ☐ No ☐ NA ■
Signature:	* Date: 10/21/19
Print Name and Title:	Mr. Tom Bloch (Manager)*

*: as Manager, Landmark Center Development LLC, and not individually

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

DEWATERING DISCHARGE PERMIT APPLICATION

OWNER / AUTHORIZED APPLICANT PROVIDE INFORMATION HERE:

Company Name: Suffolk Construction Address: 65 Allerton Street, Boston, MA 02119

Phone Number: (617) 603-5450 Fax number: 617-541-2128

Contact person name: Steve Jennings Title: Manager

Cell number: 617-652-9307 Email address: sjennings@suffolk.com

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

Owner's Information (if different from above):

Owner of property being dewatered: Landmark Center Development LLC

Owner's mailing address: 136 Brookline Street, Boston, MA 02118 Phone number: 617-603-5450

Location of Discharge & Proposed Treatment System(s):

Street number and name: 201 Brookline Ave Neighborhood Fenway

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

Describe Proposed Pre-Treatment System(s): 10,000 - gallon capacity settling tank and bag filters

BWSC Outfall No. SDO042 Receiving Waters Charles River

Temporary Discharges (Provide Anticipated Dates of Discharge): From 10/2019 To 09/2020

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

Permanent Discharges

☐ Foundation Drainage	☐ Crawl Space/Footing Drain
☐ Accumulated Surface Water	☐ Non-contact/Uncontaminated Cooling
☐ Non-contact/Uncontaminated Process	☐ 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: Matthew Tuttle, Engineering Customer Service
E-mail: tuttlemp@bwsc.org
Phone: 617-989-7204 Fax: 617-989-7716

Signature of Authorized Representative for Property Owner: _____ Date: _____

APPENDIX C:

DEP PRIORITY RESOURCES MAP

U.S. FISH AND WILDLIFE SERVICES - LIST OF THREATENED AND ENDANGERED SPECIES

MASSACHUSETTS DIVISION OF FISHERIES - LIST OF THREATENED AND ENDANGERED SPECIES

MASSACHUSETTS HISTORICAL COMMISSION REVIEW

MassDEP - Bureau of Waste Site Cleanup

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

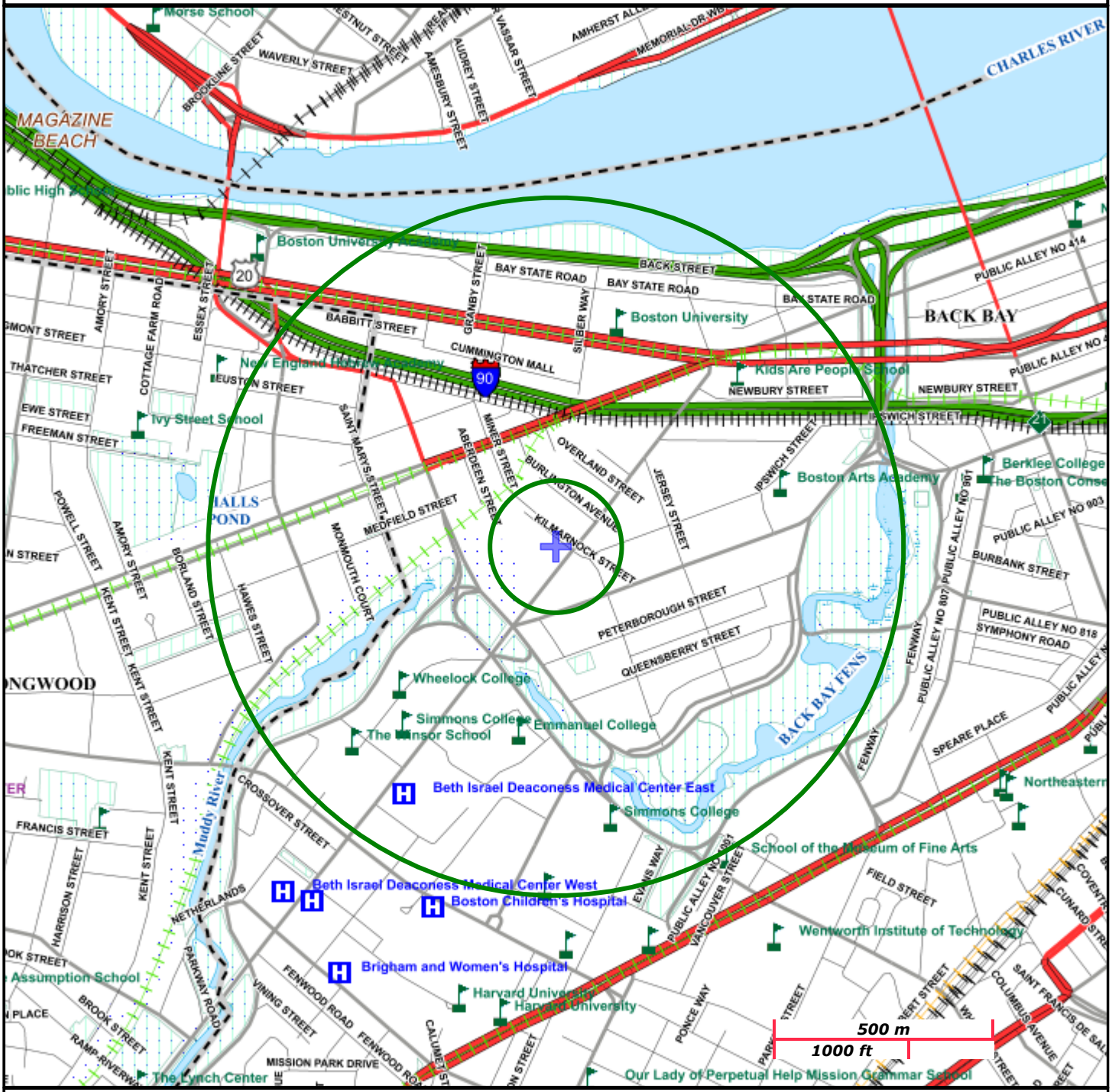
Site Information:

201 BROOKLINE AVE BOSTON, MA

NAD83 UTM Meters:
4690216mN , 326903mE (Zone: 19)
February 13, 2019

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: http://www.mass.gov/mgis/.

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.

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Boston; Place: Fenway; Street No: 201; Street Name: Brookline Ave; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
BOS.7563	Sears Roebuck and Company Mail Order Store	201 Brookline Ave	Boston	1928

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:
Consultation Code: 05E1NE00-2019-SLI-0895
Event Code: 05E1NE00-2019-E-02045
Project Name: Landmark Center

February 13, 2019

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: 05E1NE00-2019-SLI-0895

Event Code: 05E1NE00-2019-E-02045

Project Name: Landmark Center

Project Type: DEVELOPMENT

Project Description: <1 acre

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.344902314700505N71.10140323702842W

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.

APPENDIX D:

LABORATORY ANALYTICAL DATA – GROUNDWATER

ANALYTICAL REPORT

Lab Number:	L1906394
Client:	McPhail Associates 2269 Massachusetts Avenue Cambridge, MA 02140
ATTN:	Ambrose Donovan
Phone:	(617) 868-1420
Project Name:	LANDMARK CENTER TOWER
Project Number:	5512
Report Date:	02/26/19

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: LANDMARK CENTER TOWER
Project Number: 5512

Lab Number: L1906394
Report Date: 02/26/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1906394-01	LANDMARK TOWER RGP SAMPL	WATER	BOSTON, MA	02/18/19 11:30	02/18/19

Project Name:	LANDMARK CENTER TOWER	**Lab Number:**	L1906394
Project Number:	5512	**Report Date:**	02/26/19

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:	LANDMARK CENTER TOWER	**Lab Number:**	L1906394
Project Number:	5512	**Report Date:**	02/26/19

Case Narrative (continued)

Sample Receipt

L1906394-01: The sample was received above the appropriate pH for the TPH analysis. The laboratory added HCl to a pH <2.

L1906394-01: The sample was received above the appropriate pH for the Total Phenolics analysis. The laboratory added H2SO4 to a pH <2.

Total Metals

The WG1208138-3 MS recovery for selenium (0%), performed on L1906394-01, recovered outside the 70-130% acceptance criteria. The result for this analyte is considered suspect due to either the heterogeneous nature of the sample or matrix interference.

Chlorine, Total Residual

The WG1207940-4 MS recovery (0%), performed on L1906394-01, is outside the acceptance criteria; however, the associated LCS recovery is within criteria. No further action was taken.

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: Melissa Cripps Melissa Cripps

Title: Technical Director/Representative Date: 02/26/19

ORGANICS

VOLATILES

Project Name: LANDMARK CENTER TOWER **Lab Number:** L1906394

Project Number: 5512 **Report Date:** 02/26/19

SAMPLE RESULTS

Lab ID: L1906394-01
Client ID: LANDMARK TOWER RGP SAMPL
Sample Location: BOSTON, MA

Date Collected: 02/18/19 11:30
Date Received: 02/18/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 02/19/19 15:27
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethane	1.9		ug/l	1.5	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.5	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethane	ND		ug/l	1.5	--	1
1,1,1-Trichloroethane	ND		ug/l	2.0	--	1
Benzene	ND		ug/l	1.0	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	5.0	--	1
1,3-Dichlorobenzene	ND		ug/l	5.0	--	1
1,4-Dichlorobenzene	ND		ug/l	5.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
Acetone	11		ug/l	10	--	1
Methyl tert butyl ether	ND		ug/l	10	--	1
Tert-Butyl Alcohol	ND		ug/l	100	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--	1

Project Name: LANDMARK CENTER TOWER **Lab Number:** L1906394

Project Number: 5512 **Report Date:** 02/26/19

SAMPLE RESULTS

Lab ID: L1906394-01 Date Collected: 02/18/19 11:30

Client ID: LANDMARK TOWER RGP SAMPL Date Received: 02/18/19

Sample Location: BOSTON, MA Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	107		60-140
Fluorobenzene	98		60-140
4-Bromofluorobenzene	99		60-140

Project Name: LANDMARK CENTER TOWER
Lab Number: L1906394
Project Number: 5512
Report Date: 02/26/19

SAMPLE RESULTS

Lab ID: L1906394-01
Client ID: LANDMARK TOWER RGP SAMPL
Sample Location: BOSTON, MA

Date Collected: 02/18/19 11:30
Date Received: 02/18/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 02/19/19 15:27
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	50	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	85		60-140
4-Bromofluorobenzene	94		60-140

Project Name: LANDMARK CENTER TOWER
Lab Number: L1906394
Project Number: 5512
Report Date: 02/26/19

SAMPLE RESULTS

Lab ID: L1906394-01
Client ID: LANDMARK TOWER RGP SAMPL
Sample Location: BOSTON, MA

Date Collected: 02/18/19 11:30
Date Received: 02/18/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 02/20/19 13:36
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 02/20/19 11:42

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	--	1	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	--	1	A

Project Name: LANDMARK CENTER TOWER
Project Number: 5512
Lab Number: L1906394
Report Date: 02/26/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 02/19/19 11:32
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1208458-4					
Methylene chloride	ND		ug/l	1.0	--
1,1-Dichloroethane	ND		ug/l	1.5	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.5	--
Tetrachloroethene	ND		ug/l	1.0	--
1,2-Dichloroethane	ND		ug/l	1.5	--
1,1,1-Trichloroethane	ND		ug/l	2.0	--
Benzene	ND		ug/l	1.0	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	5.0	--
1,3-Dichlorobenzene	ND		ug/l	5.0	--
1,4-Dichlorobenzene	ND		ug/l	5.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
Acetone	ND		ug/l	10	--
Methyl tert butyl ether	ND		ug/l	10	--
Tert-Butyl Alcohol	ND		ug/l	100	--
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--

Project Name: LANDMARK CENTER TOWER
Project Number: 5512
Lab Number: L1906394
Report Date: 02/26/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 02/19/19 11:32
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1208458-4					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	106		60-140
Fluorobenzene	97		60-140
4-Bromofluorobenzene	99		60-140

Project Name: LANDMARK CENTER TOWER
Project Number: 5512
Lab Number: L1906394
Report Date: 02/26/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
Analytical Date: 02/19/19 11:32
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1208466-4					
1,4-Dioxane	ND		ug/l	50	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	85		60-140
4-Bromofluorobenzene	98		60-140

Project Name: LANDMARK CENTER TOWER
Project Number: 5512
Lab Number: L1906394
Report Date: 02/26/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 02/20/19 12:39
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 02/20/19 11:42

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG1208482-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	--	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: LANDMARK CENTER TOWER

Project Number: 5512

Lab Number: L1906394

Report Date: 02/26/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1208458-3								
Methylene chloride	85		-		60-140	-		28
1,1-Dichloroethane	85		-		50-150	-		49
Carbon tetrachloride	110		-		70-130	-		41
1,1,2-Trichloroethane	95		-		70-130	-		45
Tetrachloroethene	100		-		70-130	-		39
1,2-Dichloroethane	95		-		70-130	-		49
1,1,1-Trichloroethane	100		-		70-130	-		36
Benzene	100		-		65-135	-		61
Toluene	105		-		70-130	-		41
Ethylbenzene	105		-		60-140	-		63
Vinyl chloride	110		-		5-195	-		66
1,1-Dichloroethene	100		-		50-150	-		32
cis-1,2-Dichloroethene	90		-		60-140	-		30
Trichloroethene	105		-		65-135	-		48
1,2-Dichlorobenzene	100		-		65-135	-		57
1,3-Dichlorobenzene	100		-		70-130	-		43
1,4-Dichlorobenzene	100		-		65-135	-		57
p/m-Xylene	95		-		60-140	-		30
o-xylene	95		-		60-140	-		30
Acetone	104		-		40-160	-		30
Methyl tert butyl ether	85		-		60-140	-		30
Tert-Butyl Alcohol	100		-		60-140	-		30
Tertiary-Amyl Methyl Ether	125		-		60-140	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: LANDMARK CENTER TOWER

Project Number: 5512

Lab Number: L1906394

Report Date: 02/26/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1208458-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	107				60-140
Fluorobenzene	104				60-140
4-Bromofluorobenzene	101				60-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: LANDMARK CENTER TOWER
Project Number: 5512

Lab Number: L1906394
Report Date: 02/26/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1208466-3								
1,4-Dioxane	99		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	87				60-140
4-Bromofluorobenzene	99				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: LANDMARK CENTER TOWER

Project Number: 5512

Lab Number: L1906394

Report Date: 02/26/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab	Associated sample(s): 01		Batch: WG1208482-2						
1,2-Dibromoethane	95		-		80-120	-			A
1,2-Dibromo-3-chloropropane	84		-		80-120	-			A

Matrix Spike Analysis

Batch Quality Control

Project Name: LANDMARK CENTER TOWER

Project Number: 5512

Lab Number: L1906394

Report Date: 02/26/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1208482-3 QC Sample: L1905877-04 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.25	0.247	99		-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.25	0.241	96		-	-		80-120	-		20	A

SEMIVOLATILES

Project Name: LANDMARK CENTER TOWER
Lab Number: L1906394
Project Number: 5512
Report Date: 02/26/19

SAMPLE RESULTS

Lab ID: L1906394-01
Client ID: LANDMARK TOWER RGP SAMPL
Sample Location: BOSTON, MA

Date Collected: 02/18/19 11:30
Date Received: 02/18/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 02/23/19 00:15
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 02/22/19 14:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	2.4		ug/l	2.2	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	52		42-122
2-Fluorobiphenyl	56		46-121
4-Terphenyl-d14	58		47-138

Project Name: LANDMARK CENTER TOWER **Lab Number:** L1906394

Project Number: 5512 **Report Date:** 02/26/19

SAMPLE RESULTS

Lab ID: L1906394-01
Client ID: LANDMARK TOWER RGP SAMPL
Sample Location: BOSTON, MA

Date Collected: 02/18/19 11:30
Date Received: 02/18/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 02/25/19 17:00
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 02/22/19 14:36

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	--	1
Fluoranthene	0.10		ug/l	0.10	--	1
Naphthalene	0.37		ug/l	0.10	--	1
Benzo(a)anthracene	ND		ug/l	0.10	--	1
Benzo(a)pyrene	ND		ug/l	0.10	--	1
Benzo(b)fluoranthene	ND		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	ND		ug/l	0.10	--	1
Acenaphthylene	ND		ug/l	0.10	--	1
Anthracene	ND		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	ND		ug/l	0.10	--	1
Phenanthrene	ND		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--	1
Pyrene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	1.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	41		25-87
Phenol-d6	31		16-65
Nitrobenzene-d5	70		42-122
2-Fluorobiphenyl	60		46-121
2,4,6-Tribromophenol	64		45-128
4-Terphenyl-d14	63		47-138

Project Name: LANDMARK CENTER TOWER
Project Number: 5512
Lab Number: L1906394
Report Date: 02/26/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 02/22/19 23:25
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 02/22/19 14:33

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1209359-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		42-122
2-Fluorobiphenyl	59		46-121
4-Terphenyl-d14	61		47-138

Project Name: LANDMARK CENTER TOWER
Project Number: 5512
Lab Number: L1906394
Report Date: 02/26/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 02/25/19 16:34
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 02/22/19 14:36

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1209362-1					
Acenaphthene	ND		ug/l	0.10	--
Fluoranthene	ND		ug/l	0.10	--
Naphthalene	ND		ug/l	0.10	--
Benzo(a)anthracene	ND		ug/l	0.10	--
Benzo(a)pyrene	ND		ug/l	0.10	--
Benzo(b)fluoranthene	ND		ug/l	0.10	--
Benzo(k)fluoranthene	ND		ug/l	0.10	--
Chrysene	ND		ug/l	0.10	--
Acenaphthylene	ND		ug/l	0.10	--
Anthracene	ND		ug/l	0.10	--
Benzo(ghi)perylene	ND		ug/l	0.10	--
Fluorene	ND		ug/l	0.10	--
Phenanthrene	ND		ug/l	0.10	--
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--
Pyrene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	1.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	47		25-87
Phenol-d6	34		16-65
Nitrobenzene-d5	79		42-122
2-Fluorobiphenyl	60		46-121
2,4,6-Tribromophenol	51		45-128
4-Terphenyl-d14	64		47-138

Lab Control Sample Analysis

Batch Quality Control

Project Name: LANDMARK CENTER TOWER

Project Number: 5512

Lab Number: L1906394

Report Date: 02/26/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1209359-2								
Bis(2-ethylhexyl)phthalate	52		-		29-137	-		30
Butyl benzyl phthalate	63		-		1-140	-		30
Di-n-butylphthalate	61		-		8-120	-		30
Di-n-octylphthalate	54		-		19-132	-		30
Diethyl phthalate	52		-		1-120	-		30
Dimethyl phthalate	56		-		1-120	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	56				42-122
2-Fluorobiphenyl	54				46-121
4-Terphenyl-d14	50				47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: LANDMARK CENTER TOWER
Project Number: 5512
Lab Number: L1906394
Report Date: 02/26/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1209362-3								
Acenaphthene	75		-		60-132	-		30
Fluoranthene	70		-		43-121	-		30
Naphthalene	68		-		36-120	-		30
Benzo(a)anthracene	75		-		42-133	-		30
Benzo(a)pyrene	75		-		32-148	-		30
Benzo(b)fluoranthene	71		-		42-140	-		30
Benzo(k)fluoranthene	72		-		25-146	-		30
Chrysene	74		-		44-140	-		30
Acenaphthylene	75		-		54-126	-		30
Anthracene	70		-		43-120	-		30
Benzo(ghi)perylene	71		-		1-195	-		30
Fluorene	78		-		70-120	-		30
Phenanthrene	66		-		65-120	-		30
Dibenzo(a,h)anthracene	76		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	77		-		1-151	-		30
Pyrene	70		-		70-120	-		30
Pentachlorophenol	53		-		38-152	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: LANDMARK CENTER TOWER

Project Number: 5512

Lab Number: L1906394

Report Date: 02/26/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1209362-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	47				25-87
Phenol-d6	34				16-65
Nitrobenzene-d5	78				42-122
2-Fluorobiphenyl	63				46-121
2,4,6-Tribromophenol	57				45-128
4-Terphenyl-d14	63				47-138

PCBS

Project Name: LANDMARK CENTER TOWER
Project Number: 5512
Lab Number: L1906394
Report Date: 02/26/19

SAMPLE RESULTS

Lab ID: L1906394-01
Client ID: LANDMARK TOWER RGP SAMPL
Sample Location: BOSTON, MA

Date Collected: 02/18/19 11:30
Date Received: 02/18/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 02/22/19 10:24
Analyst: JM

Extraction Method: EPA 608.3
Extraction Date: 02/19/19 22:00
Cleanup Method: EPA 3665A
Cleanup Date: 02/20/19
Cleanup Method: EPA 3660B
Cleanup Date: 02/20/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.200	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	99		37-123	B
Decachlorobiphenyl	**117**	Q	38-114	B
2,4,5,6-Tetrachloro-m-xylene	99		37-123	A
Decachlorobiphenyl	112		38-114	A

Project Name: LANDMARK CENTER TOWER
Project Number: 5512
Lab Number: L1906394
Report Date: 02/26/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 02/20/19 09:46
Analyst: JM

Extraction Method: EPA 608.3
Extraction Date: 02/19/19 14:16
Cleanup Method: EPA 3665A
Cleanup Date: 02/20/19
Cleanup Method: EPA 3660B
Cleanup Date: 02/20/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG1208194-1						
Aroclor 1016	ND		ug/l	0.250	--	A
Aroclor 1221	ND		ug/l	0.250	--	A
Aroclor 1232	ND		ug/l	0.250	--	A
Aroclor 1242	ND		ug/l	0.250	--	A
Aroclor 1248	ND		ug/l	0.250	--	A
Aroclor 1254	ND		ug/l	0.250	--	A
Aroclor 1260	ND		ug/l	0.200	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	76		37-123	B
Decachlorobiphenyl	80		38-114	B
2,4,5,6-Tetrachloro-m-xylene	73		37-123	A
Decachlorobiphenyl	74		38-114	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: LANDMARK CENTER TOWER

Project Number: 5512

Lab Number: L1906394

Report Date: 02/26/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 Batch: WG1208194-2									
Aroclor 1016	70		-		50-140	-		36	A
Aroclor 1260	68		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	78				37-123	B
Decachlorobiphenyl	81				38-114	B
2,4,5,6-Tetrachloro-m-xylene	78				37-123	A
Decachlorobiphenyl	72				38-114	A

METALS

Project Name: LANDMARK CENTER TOWER **Lab Number:** L1906394

Project Number: 5512 **Report Date:** 02/26/19

SAMPLE RESULTS

Lab ID: L1906394-01 Date Collected: 02/18/19 11:30

Client ID: LANDMARK TOWER RGP SAMPL Date Received: 02/18/19

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	0.00400	--	1	02/19/19 12:39	02/20/19 11:45	EPA 3005A	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	02/19/19 12:39	02/20/19 11:45	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	02/19/19 12:39	02/20/19 11:45	EPA 3005A	3,200.8	AM
Chromium, Total	0.00427		mg/l	0.00100	--	1	02/19/19 12:39	02/20/19 11:45	EPA 3005A	3,200.8	AM
Copper, Total	0.00131		mg/l	0.00100	--	1	02/19/19 12:39	02/20/19 11:45	EPA 3005A	3,200.8	AM
Iron, Total	1.71		mg/l	0.050	--	1	02/19/19 12:39	02/19/19 23:03	EPA 3005A	19,200.7	LC
Lead, Total	ND		mg/l	0.00100	--	1	02/19/19 12:39	02/20/19 11:45	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	02/19/19 12:01	02/19/19 15:37	EPA 245.1	3,245.1	MG
Nickel, Total	ND		mg/l	0.00200	--	1	02/19/19 12:39	02/20/19 11:45	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	02/19/19 12:39	02/20/19 11:45	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	02/19/19 12:39	02/20/19 11:45	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	02/19/19 12:39	02/20/19 11:45	EPA 3005A	3,200.8	AM
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		02/20/19 11:45	NA	107,-	

Project Name: LANDMARK CENTER TOWER **Lab Number:** L1906394

Project Number: 5512 **Report Date:** 02/26/19

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: WG1208126-1										
Mercury, Total	ND		mg/l	0.00020	--	1	02/19/19 12:01	02/19/19 15:07	3,245.1	MG

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1208138-1										
Antimony, Total	ND		mg/l	0.00400	--	1	02/19/19 12:39	02/20/19 10:29	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	02/19/19 12:39	02/20/19 10:29	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	02/19/19 12:39	02/20/19 10:29	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	02/19/19 12:39	02/20/19 10:29	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	02/19/19 12:39	02/20/19 10:29	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	02/19/19 12:39	02/20/19 10:29	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	02/19/19 12:39	02/20/19 10:29	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	02/19/19 12:39	02/20/19 10:29	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	02/19/19 12:39	02/20/19 10:29	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	02/19/19 12:39	02/20/19 10:29	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: WG1208139-1										
Iron, Total	ND		mg/l	0.050	--	1	02/19/19 12:39	02/19/19 21:56	19,200.7	LC

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: LANDMARK CENTER TOWER

Project Number: 5512

Lab Number: L1906394

Report Date: 02/26/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1208126-2								
Mercury, Total	95		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1208138-2								
Antimony, Total	98		-		85-115	-		
Arsenic, Total	108		-		85-115	-		
Cadmium, Total	110		-		85-115	-		
Chromium, Total	102		-		85-115	-		
Copper, Total	99		-		85-115	-		
Lead, Total	107		-		85-115	-		
Nickel, Total	103		-		85-115	-		
Selenium, Total	106		-		85-115	-		
Silver, Total	108		-		85-115	-		
Zinc, Total	112		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1208139-2								
Iron, Total	102		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: LANDMARK CENTER TOWER
Project Number: 5512
Lab Number: L1906394
Report Date: 02/26/19

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: WG1208126-3 QC Sample: L1905868-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00300	**60**	Q	-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1208138-3 QC Sample: L1906394-01 Client ID: LANDMARK TOWER RGP SAMPL												
Antimony, Total	ND	0.5	0.5800	116		-	-		70-130	-		20
Arsenic, Total	ND	0.12	0.1287	107		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.05251	103		-	-		70-130	-		20
Chromium, Total	0.00427	0.2	0.1907	93		-	-		70-130	-		20
Copper, Total	0.00131	0.25	0.2307	92		-	-		70-130	-		20
Lead, Total	ND	0.51	0.5586	110		-	-		70-130	-		20
Nickel, Total	ND	0.5	0.4685	94		-	-		70-130	-		20
Selenium, Total	ND	0.12	ND	**0**	Q	-	-		70-130	-		20
Silver, Total	ND	0.05	0.05420	108		-	-		70-130	-		20
Zinc, Total	ND	0.5	0.5167	103		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1208139-3 QC Sample: L1906394-01 Client ID: LANDMARK TOWER RGP SAMPL												
Iron, Total	1.71	1	2.67	96		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: LANDMARK CENTER TOWER
Project Number: 5512

Lab Number: L1906394
Report Date: 02/26/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1208126-4 QC Sample: L1905868-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1208138-4 QC Sample: L1906394-01 Client ID: LANDMARK TOWER RGP SAMPL						
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	0.00427	0.00405	mg/l	5		20
Copper, Total	0.00131	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: WG1208139-4 QC Sample: L1906394-01 Client ID: LANDMARK TOWER RGP SAMPL						
Iron, Total	1.71	1.68	mg/l	2		20

INORGANICS
&
MISCELLANEOUS

Project Name: LANDMARK CENTER TOWER
Project Number: 5512
Lab Number: L1906394
Report Date: 02/26/19

SAMPLE RESULTS

Lab ID: L1906394-01
Client ID: LANDMARK TOWER RGP SAMPL
Sample Location: BOSTON, MA
Sample Depth:
Matrix: Water
Date Collected: 02/18/19 11:30
Date Received: 02/18/19
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	9.1		mg/l	5.0	NA	1	-	02/19/19 14:40	121,2540D	DR
Cyanide, Total	0.006		mg/l	0.005	--	1	02/19/19 11:10	02/19/19 14:29	121,4500CN-CE	AG
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	02/18/19 21:35	121,4500CL-D	AS
pH (H)	7.2		SU	-	NA	1	-	02/18/19 23:12	121,4500H+-B	AS
Nitrogen, Ammonia	4.01		mg/l	0.075	--	1	02/19/19 05:00	02/19/19 20:51	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	02/20/19 16:30	02/20/19 21:30	74,1664A	ML
Phenolics, Total	ND		mg/l	0.030	--	1	02/19/19 08:50	02/19/19 13:15	4,420.1	BR
Chromium, Hexavalent	ND		mg/l	0.010	--	1	02/18/19 22:10	02/18/19 22:55	1,7196A	AS
Anions by Ion Chromatography - Westborough Lab										
Chloride	2170		mg/l	50.0	--	100	-	02/19/19 23:06	44,300.0	JR

Project Name: LANDMARK CENTER TOWER **Lab Number:** L1906394

Project Number: 5512 **Report Date:** 02/26/19

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: WG1207940-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	02/18/19 21:35	121,4500CL-D	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1207944-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	02/18/19 22:10	02/18/19 22:54	1,7196A	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1207976-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	02/19/19 05:00	02/19/19 20:43	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1208097-1										
Cyanide, Total	ND		mg/l	0.005	--	1	02/19/19 11:10	02/19/19 14:15	121,4500CN-CE	AG
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1208116-1										
Phenolics, Total	ND		mg/l	0.030	--	1	02/19/19 08:50	02/19/19 13:06	4,420.1	BR
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1208188-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	02/19/19 14:40	121,2540D	DR
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1208642-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	02/20/19 16:30	02/20/19 21:30	74,1664A	ML
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1208648-1										
Chloride	ND		mg/l	0.500	--	1	-	02/19/19 22:18	44,300.0	JR

Lab Control Sample Analysis

Batch Quality Control

Project Name: LANDMARK CENTER TOWER
Project Number: 5512

Lab Number: L1906394
Report Date: 02/26/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1207940-2								
Chlorine, Total Residual	104		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1207944-2								
Chromium, Hexavalent	100		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1207958-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1207976-2								
Nitrogen, Ammonia	85		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1208097-2								
Cyanide, Total	99		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1208116-2								
Phenolics, Total	93		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1208642-2								
TPH	89		-		64-132	-		34

Lab Control Sample Analysis

Batch Quality Control

Project Name: LANDMARK CENTER TOWER

Project Number: 5512

Lab Number: L1906394

Report Date: 02/26/19

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1208648-2					
Chloride	99	-	90-110	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: LANDMARK CENTER TOWER
Project Number: 5512

Lab Number: L1906394
Report Date: 02/26/19

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: WG1207940-4 QC Sample: L1906394-01 Client ID: LANDMARK TOWER RGP SAMPL												
Chlorine, Total Residual	ND	0.25	ND	**0**	Q	-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1207944-4 QC Sample: L1906394-01 Client ID: LANDMARK TOWER RGP SAMPL												
Chromium, Hexavalent	ND	0.1	0.086	86		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1207976-4 QC Sample: L1906340-01 Client ID: MS Sample												
Nitrogen, Ammonia	2.54	4	6.85	108		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1208097-4 QC Sample: L1906361-02 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.192	96		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1208116-4 QC Sample: L1906264-01 Client ID: MS Sample												
Phenolics, Total	ND	0.4	0.34	86		-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1208642-4 QC Sample: L1906495-01 Client ID: MS Sample												
TPH	11.4	20.4	25.7	70		-	-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1208648-3 QC Sample: L1906354-01 Client ID: MS Sample												
Chloride	21.3	4	24.3	**75**	Q	-	-		90-110	-		18

Lab Duplicate Analysis

Batch Quality Control

Project Name: LANDMARK CENTER TOWER
Project Number: 5512

Lab Number: L1906394
Report Date: 02/26/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1207940-3 QC Sample: L1906394-01 Client ID: LANDMARK TOWER RGP SAMPL						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1207944-3 QC Sample: L1906394-01 Client ID: LANDMARK TOWER RGP SAMPL						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1207958-2 QC Sample: L1906394-01 Client ID: LANDMARK TOWER RGP SAMPL						
pH (H)	7.2	7.2	SU	0		5
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1207976-3 QC Sample: L1906340-01 Client ID: DUP Sample						
Nitrogen, Ammonia	2.54	2.92	mg/l	14		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1208097-3 QC Sample: L1906360-02 Client ID: DUP Sample						
Cyanide, Total	0.018	0.016	mg/l	11		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1208116-3 QC Sample: L1906264-01 Client ID: DUP Sample						
Phenolics, Total	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1208188-2 QC Sample: L1906256-02 Client ID: DUP Sample						
Solids, Total Suspended	63	63	mg/l	0		29
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1208642-3 QC Sample: L1906495-01 Client ID: DUP Sample						
TPH	11.4	ND	mg/l	NC		34

Lab Duplicate Analysis

Batch Quality Control

Project Name: LANDMARK CENTER TOWER

Project Number: 5512

Lab Number: L1906394

Report Date: 02/26/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1208648-4 QC Sample: L1906354-01 Client ID: DUP Sample					
Chloride	21.3	21.0	mg/l	1	18

Project Name: LANDMARK CENTER TOWER
Project Number: 5512

Lab Number: L1906394
Report Date: 02/26/19

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(*)
L1906394-01A	Plastic 250ml HNO3 preserved	A	<2	<2	3.3	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1906394-01B	Amber 1000ml Na2S2O3	A	7	7	3.3	Y	Absent		PCB-608.3(7)
L1906394-01C	Amber 1000ml Na2S2O3	A	7	7	3.3	Y	Absent		PCB-608.3(7)
L1906394-01D	Amber 1000ml Na2S2O3	A	7	7	3.3	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1906394-01E	Amber 1000ml Na2S2O3	A	7	7	3.3	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1906394-01F	Vial Na2S2O3 preserved	A	NA		3.3	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1906394-01G	Vial Na2S2O3 preserved	A	NA		3.3	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1906394-01H	Vial Na2S2O3 preserved	A	NA		3.3	Y	Absent		504(14)
L1906394-01I	Plastic 950ml unpreserved	A	7	7	3.3	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1),PH-4500(.01)
L1906394-01J	Plastic 250ml H2SO4 preserved	A	<2	<2	3.3	Y	Absent		NH3-4500(28)
L1906394-01K	Plastic 250ml NaOH preserved	A	>12	>12	3.3	Y	Absent		TCN-4500(14)
L1906394-01L	Amber 1000ml HCl preserved	A	NA	N/A	3.3	N	Absent		TPH-1664(28)
L1906394-01M	Amber 950ml H2SO4 preserved	A	7	<2	3.3	N	Absent		TPHENOL-420(28)
L1906394-01N	Plastic 950ml unpreserved	A	7	7	3.3	Y	Absent		TSS-2540(7)

Container Comments

L1906394-01L	Containers not labeled for specific analysis, used this container for the requested TPH-1664 analysis
L1906394-01M	Containers not labeled for specific analysis, used this container for the requested TPHENOL-420 analysis

*Values in parentheses indicate holding time in days

Project Name:	LANDMARK CENTER TOWER	**Lab Number:**	L1906394
Project Number:	5512	**Report Date:**	02/26/19

GLOSSARY

Acronyms

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.
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.
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.
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.

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.

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.

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.

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 Condensation Product".

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.

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.

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.

Project Name:	LANDMARK CENTER TOWER	**Lab Number:**	L1906394
Project Number:	5512	**Report Date:**	02/26/19

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

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

4 Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.

14 Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.

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.

74 Method 1664,Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-98-002, February 1999.

107 Alpha Analytical - In-house calculation method.

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

127 Method 608.3: Organochlorine Pesticides and PCBs by GC/HSD, EPA 821-R-16-009, December 2016.

128 Method 624.1: Purgeables by GC/MS, EPA 821-R-16-008, December 2016.

129 Method 625.1: Base/Neutrals and Acids by GC/MS, EPA 821-R-16-007, December 2016.

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
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

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.
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**
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

ALPHA ANALYTICAL — World Class Chemistry

PAGE 1 OF 1

Date Rec'd in Lab: 2/18/19

ALPHA Job #: L1906394

Westborough, MA — TEL: 508-898-9220 — FAX: 508-898-9193

Mansfield, MA — TEL: 508-822-9300 — FAX: 508-822-3288

Project Information

Project Name: Landmark Center Tower

Project Location: Boston, MA

Project #: 5512

Project Manager: KWS

ALPHA Quote #:

Client Information

Client: McPhial Associates, LLC

Address: 2269 Massachusetts Avenue

Cambridge, MA 02140

Phone: 617-868-1420

Fax: 617-868-1423

Email: kseaman@mcphailgeo.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☐ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
EPA NPDES RGP	

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS

☒ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☒ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☐ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TPH-1664	Tphenol	625.1-RGP, 625.1 SIM-RGP	HexCr, TRC-4500, CL, pH, Temp	TSS-2540	Total RGP Metals	NH3	TCN		504 624.1-RGP, 624.1SIM-RGP	PCB 608.3		Sample Specific Comments	TOTAL # BOTTLES
06394-01	Landmark Tower RGP Sampl	2/18/19	11:30	GW	PH	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☒	☐		
Container Type						A	A	A	P	P	P	P	P	-	V	A	-		
Preservative						B	D	H	A	A	C	D	E	-	H	H	-		

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

FORM NO: 01-01(I) (rev. 5-JAN-12)

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/18/19 16:00	[signature] AAL	2/18/19 1600
[signature] AAL	2/18/19 1705	[signature]	2/18/19 1705

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

ANALYTICAL REPORT

Lab Number:	L1902926
Client:	McPhail Associates 2269 Massachusetts Avenue Cambridge, MA 02140
ATTN:	Brendan O'Neil
Phone:	(617) 868-1420
Project Name:	LANDMARK CENTER
Project Number:	5512
Report Date:	01/28/19

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: LANDMARK CENTER
Project Number: 5512

Lab Number: L1902926
Report Date: 01/28/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1902926-01	SURFACE WATER CHARLES RIVER SAMPLE	WATER	BOSTON, MA	01/23/19 13:00	01/23/19

Project Name:	LANDMARK CENTER	**Lab Number:**	L1902926
Project Number:	5512	**Report Date:**	01/28/19

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.

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: Cristin Walker

Title: Technical Director/Representative Date: 01/28/19

METALS

Project Name: LANDMARK CENTER
Project Number: 5512
Lab Number: L1902926
Report Date: 01/28/19

SAMPLE RESULTS

Lab ID: L1902926-01
Client ID: SURFACE WATER CHARLES RIVER
Sample Location: SAMPLE
BOSTON, MA
Sample Depth:
Matrix: Water

Date Collected: 01/23/19 13:00
Date Received: 01/23/19
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	0.00400	--	1	01/24/19 07:50	01/24/19 12:25	EPA 3005A	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	01/24/19 07:50	01/24/19 12:25	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	01/24/19 07:50	01/24/19 12:25	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	01/24/19 07:50	01/24/19 12:25	EPA 3005A	3,200.8	AM
Copper, Total	0.00177		mg/l	0.00100	--	1	01/24/19 07:50	01/24/19 12:25	EPA 3005A	3,200.8	AM
Iron, Total	0.410		mg/l	0.050	--	1	01/24/19 07:50	01/24/19 14:09	EPA 3005A	19,200.7	LC
Lead, Total	ND		mg/l	0.00100	--	1	01/24/19 07:50	01/24/19 12:25	EPA 3005A	3,200.8	AM
Mercury, Total	0.00020		mg/l	0.00020	--	1	01/24/19 11:13	01/24/19 17:20	EPA 245.1	3,245.1	MG
Nickel, Total	ND		mg/l	0.00200	--	1	01/24/19 07:50	01/24/19 12:25	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	01/24/19 07:50	01/24/19 12:25	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	01/24/19 07:50	01/24/19 12:25	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	01/24/19 07:50	01/24/19 12:25	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	76.9		mg/l	0.660	NA	1	01/24/19 07:50	01/24/19 14:09	EPA 3005A	1,6010D	LC

Project Name: LANDMARK CENTER
Project Number: 5512
Lab Number: L1902926
Report Date: 01/28/19

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: WG1200436-1										
Iron, Total	ND		mg/l	0.050	--	1	01/24/19 07:50	01/24/19 13:40	19,200.7	LC

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: WG1200438-1										
Antimony, Total	ND		mg/l	0.00400	--	1	01/24/19 07:50	01/24/19 12:08	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	01/24/19 07:50	01/24/19 12:08	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	01/24/19 07:50	01/24/19 12:08	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	01/24/19 07:50	01/24/19 12:08	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	01/24/19 07:50	01/24/19 12:08	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	01/24/19 07:50	01/24/19 12:08	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	01/24/19 07:50	01/24/19 12:08	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	01/24/19 07:50	01/24/19 12:08	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	01/24/19 07:50	01/24/19 12:08	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	01/24/19 07:50	01/24/19 12:08	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: WG1200545-1										
Mercury, Total	ND		mg/l	0.00020	--	1	01/24/19 11:13	01/24/19 16:53	3,245.1	MG

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: LANDMARK CENTER

Project Number: 5512

Lab Number: L1902926

Report Date: 01/28/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1200436-2								
Iron, Total	110		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1200438-2								
Antimony, Total	88		-		85-115	-		
Arsenic, Total	106		-		85-115	-		
Cadmium, Total	105		-		85-115	-		
Chromium, Total	94		-		85-115	-		
Copper, Total	95		-		85-115	-		
Lead, Total	101		-		85-115	-		
Nickel, Total	96		-		85-115	-		
Selenium, Total	110		-		85-115	-		
Silver, Total	97		-		85-115	-		
Zinc, Total	105		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1200545-2								
Mercury, Total	100		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: LANDMARK CENTER
Project Number: 5512
Lab Number: L1902926
Report Date: 01/28/19

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: WG1200436-3 QC Sample: L1902857-02 Client ID: MS Sample												
Iron, Total	ND	1	1.12	112		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1200436-7 QC Sample: L1902926-01 Client ID: SURFACE WATER CHARLES RIVER SAMPLE												
Iron, Total	0.410	1	1.50	109		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1200438-3 QC Sample: L1902926-01 Client ID: SURFACE WATER CHARLES RIVER SAMPLE												
Antimony, Total	ND	0.5	0.5252	105		-	-		70-130	-		20
Arsenic, Total	ND	0.12	0.1287	107		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.05418	106		-	-		70-130	-		20
Chromium, Total	ND	0.2	0.1967	98		-	-		70-130	-		20
Copper, Total	0.00177	0.25	0.2460	98		-	-		70-130	-		20
Lead, Total	ND	0.51	0.5210	102		-	-		70-130	-		20
Nickel, Total	ND	0.5	0.4910	98		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1285	107		-	-		70-130	-		20
Silver, Total	ND	0.05	0.05069	101		-	-		70-130	-		20
Zinc, Total	ND	0.5	0.5398	108		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1200545-3 QC Sample: L1902841-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00494	99		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1200545-5 QC Sample: L1902841-02 Client ID: MS Sample												
Mercury, Total	0.00029	0.005	0.00492	92		-	-		70-130	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: LANDMARK CENTER
Project Number: 5512

Lab Number: L1902926
Report Date: 01/28/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1200436-4 QC Sample: L1902857-02 Client ID: DUP Sample						
Iron, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1200436-8 QC Sample: L1902926-01 Client ID: SURFACE WATER CHARLES RIVER SAMPLE						
Iron, Total	0.410	0.402	mg/l	2		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1200438-4 QC Sample: L1902926-01 Client ID: SURFACE WATER CHARLES RIVER SAMPLE						
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	0.00177	0.00171	mg/l	3		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: WG1200545-4 QC Sample: L1902841-01 Client ID: DUP Sample						
Mercury, Total	ND	0.00033	mg/l	NC		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: LANDMARK CENTER

Project Number: 5512

Lab Number: L1902926

Report Date: 01/28/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1200545-6 QC Sample: L1902841-02 Client ID: DUP Sample					
Mercury, Total	0.00029	0.00024	mg/l	19	20

INORGANICS
&
MISCELLANEOUS

Project Name: LANDMARK CENTER
Project Number: 5512
Lab Number: L1902926
Report Date: 01/28/19

SAMPLE RESULTS

Lab ID: L1902926-01
Client ID: SURFACE WATER CHARLES RIVER SAMPLE
Sample Location: BOSTON, MA
Sample Depth:
Matrix: Water

Date Collected: 01/23/19 13:00
Date Received: 01/23/19
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/l	0.005	--	1	01/24/19 03:35	01/24/19 13:04	121,4500CN-CE	LH
pH (H)	7.0		SU	-	NA	1	-	01/24/19 07:17	121,4500H+-B	MA
Nitrogen, Ammonia	0.121		mg/l	0.075	--	1	01/24/19 02:00	01/24/19 20:58	121,4500NH3-BH	AT

Project Name: LANDMARK CENTER
Project Number: 5512
Lab Number: L1902926
Report Date: 01/28/19

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: WG1200399-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	01/24/19 02:00	01/24/19 20:39	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1200410-1										
Cyanide, Total	ND		mg/l	0.005	--	1	01/24/19 03:35	01/24/19 12:56	121,4500CN-CE	LH

Lab Control Sample Analysis

Batch Quality Control

Project Name: LANDMARK CENTER

Project Number: 5512

Lab Number: L1902926

Report Date: 01/28/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1200399-2								
Nitrogen, Ammonia	94		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1200410-2								
Cyanide, Total	94		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1200452-1								
pH	100		-		99-101	-		5

Matrix Spike Analysis
Batch Quality Control

Project Name: LANDMARK CENTER
Project Number: 5512

Lab Number: L1902926
Report Date: 01/28/19

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: WG1200399-4 QC Sample: L1902835-03 Client ID: MS Sample												
Nitrogen, Ammonia	0.750	4	4.11	84		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1200410-4 QC Sample: L1902875-02 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.179	90		-	-		90-110	-		30

Lab Duplicate Analysis

Batch Quality Control

Project Name: LANDMARK CENTER

Project Number: 5512

Lab Number: L1902926

Report Date: 01/28/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1200399-3 QC Sample: L1902835-03 Client ID: DUP Sample						
Nitrogen, Ammonia	0.750	0.712	mg/l	5		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1200410-3 QC Sample: L1902875-01 Client ID: DUP Sample						
Cyanide, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1200452-2 QC Sample: L1902887-01 Client ID: DUP Sample						
pH	6.9	6.9	SU	0		5

Project Name: LANDMARK CENTER
Project Number: 5512

Lab Number: L1902926
Report Date: 01/28/19

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(*)
L1902926-01A	Plastic 250ml HNO3 preserved	A	<2	<2	5.2	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),HARDT(180),PB-2008T(180),SB-2008T(180)
L1902926-01B	Plastic 250ml H2SO4 preserved	A	<2	<2	5.2	Y	Absent		NH3-4500(28)
L1902926-01C	Plastic 950ml unpreserved	A	7	7	5.2	Y	Absent		PH-4500(.01)
L1902926-01D	Plastic 250ml NaOH preserved	A	>12	>12	5.2	Y	Absent		TCN-4500(14)

*Values in parentheses indicate holding time in days

Project Name:	LANDMARK CENTER	**Lab Number:**	L1902926
Project Number:	5512	**Report Date:**	01/28/19

GLOSSARY

Acronyms

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.
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.
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.
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.

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.

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.

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.

Report Format: Data Usability Report

Project Name:	LANDMARK CENTER	**Lab Number:**	L1902926
Project Number:	5512	**Report Date:**	01/28/19

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

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.

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.

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

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.

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.

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

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

Report Format: Data Usability Report

Project Name: LANDMARK CENTER
Project Number: 5512
Lab Number: L1902926
Report Date: 01/28/19

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

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
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

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.
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**
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

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 1/23/19

ALPHA Job #: L1902926

Project Information

Project Name: Landark Center

Project Location: Boston, MA

Project #: 5512

Project Manager: BAO/KWS

ALPHA Quote #:

Client Information

Client: McPhail Associates, LLC

Address: 2269 Massachusetts Avenue

Cambridge, MA 02140

Phone: 6178681420

Fax: 6178681423

Email: bao/kseaman@mcphailgeo.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☐ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
NPDES RGP	RGP

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☒ No Are MCP Analytical Methods Required?
☐ Yes ☒ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	NH3	TSS, Chloride, Residual Chlorine	RGP Metals	TCN	pH, Hardness Temperture	HexCr, Tri Cr	Sample Specific Comments	TOTAL # BOTTLES
02926-01	Surface Water Charles River Sample	1/23/19	1300	SW	JSW	☒	☐	☒	☒	☒	☐		4

	NH3	TSS, Chloride, Residual Chlorine	RGP Metals	TCN	pH, Hardness Temperture	HexCr, Tri Cr
Container Type	P	-	P	P	P	-
Preservative	E	-	C	D	A	-

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

FORM NO: 01-01(I) (rev. 30-JUL-07)

Relinquished By:	Date/Time	Received By:	Date/Time
J Wild	1/23/19 13:00	Cooler	1/23/19 1300
Cooler	1/23/19 1600	[illegible] AAL	1/23/19 1600
[illegible] 1-23-19	1721	[illegible]	1/23/19 1732

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

APPENDIX E:

MASSACHUSETTS LIMITS BOOK SUMMARY TABLES

Enter number values in green boxes below

Enter values in the units specified

↓

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

Enter a dilution factor, if other than zero

↓

111.9

Enter values in the units specified

↓

0	C_d = Enter influent hardness in **mg/L** $CaCO_3$
76.9	C_s = Enter receiving water hardness in **mg/L** $CaCO_3$

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

↓

7	pH in **Standard Units**
25	Temperature in **°C**
0.121	Ammonia in **mg/L**
76.9	Hardness in **mg/L** $CaCO_3$
0	Salinity in **ppt**
0	Antimony in **µg/L**
0	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
1.77	Copper in **µg/L**
410	Iron in **µg/L**
0	Lead in **µg/L**
0.2	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
0	Zinc in **µg/L**

Enter **influent** concentrations in the units specified

↓

0	TRC in **µg/L**
4.01	Ammonia in **mg/L**
0	Antimony in **µg/L**
0	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
1.31	Copper in **µg/L**
1710	Iron in **µg/L**
0	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
0	Zinc in **µg/L**
6	Cyanide in **µg/L**
0	Phenol in **µg/L**
0	Carbon Tetrachloride in **µg/L**
0	Tetrachloroethylene in **µg/L**
0	Total Phthalates in **µg/L**
0	Diethylhexylphthalate in **µg/L**
0	Benzo(a)anthracene in **µg/L**
0	Benzo(a)pyrene in **µg/L**
0	Benzo(b)fluoranthene in **µg/L**
0	Benzo(k)fluoranthene in **µg/L**
0	Chrysene in **µg/L**
0	Dibenzo(a,h)anthracene in **µg/L**
0	Indeno(1,2,3-cd)pyrene in **µg/L**
0	Methyl-tert butyl ether in **µg/L**

Notes:

Freshwater: critical low flow equal to the 7Q10; enter alternate low flow if approved by the State
Saltwater (estuarine and marine): enter critical low flow if approved by the State; enter 0 if no entry
Discharge flow is equal to the design flow or 1 MGD, whichever is less
Optional entry for Q_t; leave 0 if no entry

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

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

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

I. Dilution Factor Calculation Method

A. 7Q10

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

B. Dilution Factor

Calculated as follows:

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

Q_R = 7Q10 in MGD

Q_P = Discharge flow, in MGD

II. Effluent Limitation Calculation Method

A. Calculate Water Quality Criterion:

Step 1. Downstream hardness, calculated as follows:

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

C_r = Downstream hardness in mg/L

Q_d = Discharge flow in MGD

C_d = Discharge hardness in mg/L

Q_s = Upstream flow (7Q10) in MGD

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

Q_r = Downstream receiving water flow in MGD

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

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

m_c = Pollutant-specific coefficient (m_a for silver)

b_c = Pollutant-specific coefficient (b_a for silver)

ln = Natural logarithm

h = Hardness calculated in Step 1

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

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

B. Calculate WQBEL:

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

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

C_r = Water quality criterion in µg/L

Q_d = Discharge flow in MGD

C_d = WQBEL in µg/L

Q_s = Upstream flow (7Q10) in MGD

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

Q_r = Downstream receiving water flow in MGD

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

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

C_r = Water quality criterion in µg/L

Q_d = Discharge flow in MGD

Q_r = Downstream receiving water flow in MGD

C. Determine if a WQBEL applies:

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

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

C_r = Downstream concentration in µg/L

Q_d = Discharge flow in MGD

C_d = Influent concentration in µg/L

Q_s = Upstream flow (7Q10) in MGD

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

Q_r = Downstream receiving water flow in MGD

The WQBEL applies if:

1) the projected downstream concentration calculated in accordance with Step 1, above, and the discharge concentration of a parameter are greater than the WQC calculated for that parameter in accordance with II.A, above

AND

2) the WQBEL determined for that parameter in accordance with II.B, above, is less than the TBEL in Part 2.1.1 of the RGP for that parameter. Otherwise, the TBEL in Part 2.1.1

of the RGP for that parameter applies.

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

1) the discharge concentration of a parameter is greater than the WQBEL determined for that parameter in accordance with II.A or II.B, above;

AND

2) the WQBEL determined for that parameter in accordance with II.A or II.B, above is less than the TBEL in Part 2.1.1 of the RGP for that parameter. Otherwise, the TBEL in

Part 2.1.1 of the RGP for that parameter applies.

Dilution Factor	111.9					
A. Inorganics	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
Ammonia	**Report**	mg/L	---			
Chloride	**Report**	µg/L	---			
Total Residual Chlorine	**0.2**	mg/L	1230	µg/L	---	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	71591	µg/L		
Arsenic	**104**	µg/L	1119	µg/L		
Cadmium	**10.2**	µg/L	24.7535	µg/L		
Chromium III	**323**	µg/L	7717.3	µg/L		
Chromium VI	**323**	µg/L	1279.1	µg/L		
Copper	**242**	µg/L	631.1	µg/L		
Iron	**5000**	µg/L	66408	µg/L		
Lead	**160**	µg/L	251.85	µg/L		
Mercury	**0.739**	µg/L	79.16	µg/L		
Nickel	**1450**	µg/L	4637.0	µg/L		
Selenium	**235.8**	µg/L	559.3	µg/L		
Silver	**35.1**	µg/L	265.3	µg/L		
Zinc	**420**	µg/L	10647.2	µg/L		
Cyanide	**178**	mg/L	581.7	µg/L	---	µg/L
B. Non-Halogenated VOCs						
Total BTEX	**100**	µg/L	---			
Benzene	**5.0**	µg/L	---			
1,4 Dioxane	**200**	µg/L	---			
Acetone	**7970**	µg/L	---			
Phenol	**1,080**	µg/L	33558	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**	µg/L	179.0	µg/L		
1,2 Dichlorobenzene	**600**	µg/L	---			
1,3 Dichlorobenzene	**320**	µg/L	---			
1,4 Dichlorobenzene	**5.0**	µg/L	---			
Total dichlorobenzene	**---**	µg/L	---			
1,1 Dichloroethane	**70**	µg/L	---			
1,2 Dichloroethane	**5.0**	µg/L	---			
1,1 Dichloroethylene	**3.2**	µg/L	---			
Ethylene Dibromide	**0.05**	µg/L	---			
Methylene Chloride	**4.6**	µg/L	---			
1,1,1 Trichloroethane	**200**	µg/L	---			
1,1,2 Trichloroethane	**5.0**	µg/L	---			
Trichloroethylene	**5.0**	µg/L	---			
Tetrachloroethylene	**5.0**	µg/L	369.1	µg/L		
cis-1,2 Dichloroethylene	**70**	µg/L	---			
Vinyl Chloride	**2.0**	µg/L	---			

D. Non-Halogenated SVOCs						
Total Phthalates	190	µg/L	---	µg/L		
Diethylhexyl phthalate	**101**	µg/L	246.1	µg/L		
Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	**1.0**	µg/L	0.4251	µg/L	---	µg/L
Benzo(a)pyrene	**1.0**	µg/L	0.4251	µg/L	---	µg/L
Benzo(b)fluoranthene	**1.0**	µg/L	0.4251	µg/L	---	µg/L
Benzo(k)fluoranthene	**1.0**	µg/L	0.4251	µg/L	---	µg/L
Chrysene	**1.0**	µg/L	0.4251	µg/L	---	µg/L
Dibenzo(a,h)anthracene	**1.0**	µg/L	0.4251	µg/L	---	µg/L
Indeno(1,2,3-cd)pyrene	**1.0**	µg/L	0.4251	µg/L	---	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	**100**	µg/L	---			
Naphthalene	**20**	µg/L	---			
E. Halogenated SVOCs						
Total Polychlorinated Biphenyls	**0.000064**	µg/L	---		0.5	µg/L
Pentachlorophenol	**1.0**	µg/L	---			
F. Fuels Parameters						
Total Petroleum Hydrocarbons	**5.0**	mg/L	---			
Ethanol	**Report**	mg/L	---			
Methyl-tert-Butyl Ether	**70**	µg/L	2237	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			

I. Dilution Factor Calculation Method

A. 7Q10

No flow assumed at critical low flow for saltwater unless otherwise approved by the State

B. Dilution Factor

No dilution assumed for saltwater, unless otherwise approved by the State

II. Effluent Limitation Calculation Method

A. Calculate Water Quality Criterion:

Step 1. Not applicable to saltwater

Step 2. Not applicable to saltwater

Step 3. Total recoverable water quality criteria for dissolved metals, calculated as follows:

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

B. Calculate WQBEL:

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

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

C_r = Water quality criterion in µg/L

Q_d = Discharge flow in MGD

C_d = WQBEL in µg/L

Q_s = Upstream flow (7Q10) in MGD

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

Q_r = Downstream receiving water flow in MGD

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

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

C_r = Water quality criterion in µg/L

Q_d = Discharge flow in MGD

Q_r = Downstream receiving water flow in MGD

C. Determine if a WQBEL applies:

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

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

C_r = Downstream concentration in µg/L

Q_d = Discharge flow in MGD

C_d = Influent concentration in µg/L

Q_s = Upstream flow (7Q10) in MGD

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

Q_r = Downstream receiving water flow in MGD

The WQBEL applies if:

1) the projected downstream concentration calculated in accordance with Step 1, above, and the discharge concentration of a parameter is greater than the WQC calculated for that parameter in accordance with II.A, above

AND

2) the WQBEL determined for that parameter in accordance with II.B, above, is less than the TBEL in Part 2.1.1 of the RGP for that parameter. Otherwise, the TBEL in Part 2.1.1 of the RGP for that parameter applies.

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

1) the discharge concentration of a parameter is greater than the WQBEL determined for that parameter in accordance with II.A or II.B, above;

AND

2) the WQBEL determined for that parameter in accordance with II.A or II.B, above is less than the TBEL in Part 2.1.1 of the RGP for that parameter. Otherwise, the TBEL in Part 2.1.1 of the RGP for that parameter applies.

Dilution Factor	111.9					
A. Inorganic	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
Ammonia	**Report**	mg/L	---			
Chloride	**Report**	µg/L	---			
Total Residual Chlorine	**0.2**	mg/L	839.0	µg/L	---	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	71591	µg/L		
Arsenic	**104**	µg/L	4027	µg/L		
Cadmium	**10.2**	µg/L	990.3	µg/L		
Chromium III	**323**	µg/L	11186.1	µg/L		
Chromium VI	**323**	µg/L	5632	µg/L		
Copper	**242**	µg/L	221.6	µg/L		
Iron	**5000**	µg/L	---	µg/L		
Lead	**160**	µg/L	952.8	µg/L		
Mercury	**0.739**	µg/L	101.53	µg/L		
Nickel	**1450**	µg/L	926.5	µg/L		
Selenium	**235.8**	µg/L	7958	µg/L		
Silver	**35.1**	µg/L	250.0	µg/L		
Zinc	**420**	µg/L	9578	µg/L		
Cyanide	**178**	mg/L	111.9	µg/L	---	µg/L
B. Non-Halogenated VOCs						
Total BTEX	**100**	µg/L	---			
Benzene	**5.0**	µg/L	---			
1,4 Dioxane	**200**	µg/L	---			
Acetone	**7.97**	mg/L	---			
Phenol	**1,080**	µg/L	33558	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**		179.0	µg/L		
1,2 Dichlorobenzene	**600**	µg/L	---			
1,3 Dichlorobenzene	**320**	µg/L	---			
1,4 Dichlorobenzene	**5.0**	µg/L	---			
Total dichlorobenzene	**---**	µg/L	---			
1,1 Dichloroethane	**70**	µg/L	---			
1,2 Dichloroethane	**5.0**	µg/L	---			
1,1 Dichloroethylene	**3.2**	µg/L	---			
Ethylene Dibromide	**0.05**	µg/L	---			
Methylene Chloride	**4.6**	µg/L	---			
1,1,1 Trichloroethane	**200**	µg/L	---			
1,1,2 Trichloroethane	**5.0**	µg/L	---			
Trichloroethylene	**5.0**	µg/L	---			
Tetrachloroethylene	**5.0**	µg/L	369.1	µg/L		
cis-1,2 Dichloroethylene	**70**	µg/L	---			
Vinyl Chloride	**2.0**	µg/L	---			

D. Non-Halogenated SVOCs						
Total Phthalates	190	µg/L	---	µg/L		
Diethylhexyl phthalate	**101**	µg/L	246.1	µg/L		
Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	**1.0**	µg/L	0.4251	µg/L	---	µg/L
Benzo(a)pyrene	**1.0**	µg/L	0.4251	µg/L	---	µg/L
Benzo(b)fluoranthene	**1.0**	µg/L	0.4251	µg/L	---	µg/L
Benzo(k)fluoranthene	**1.0**	µg/L	0.4251	µg/L	---	µg/L
Chrysene	**1.0**	µg/L	0.4251	µg/L	---	µg/L
Dibenzo(a,h)anthracene	**1.0**	µg/L	0.4251	µg/L	---	µg/L
Indeno(1,2,3-cd)pyrene	**1.0**	µg/L	0.4251	µg/L	---	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	**100**	µg/L	---			
Naphthalene	**20**	µg/L	---			
E. Halogenated SVOCs						
Total Polychlorinated Biphenyls	**0.000064**	µg/L	---		0.5	µg/L
Pentachlorophenol	**1.0**	µg/L	---			
F. Fuels Parameters						
Total Petroleum Hydrocarbons	**5.0**	mg/L	---			
Ethanol	**Report**	mg/L	---			
Methyl-tert-Butyl Ether	**70**	µg/L	2237	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			

APPENDIX F:

BEST MANAGEMENT PRACTICE 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 Landmark Center property located at 201 Brookline Ave 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 common foundation, dewatering effluent is anticipated to be pumped from localized sumps and trenches within the excavation directly into a settling tank. The effluent will then flow through any necessary treatment systems and discharge through hoses or piping connected into the storm water drains located beneath Fullerton Street and the southern portion of the subject site. Based upon a review of the City of Boston stormwater drainage plan, the above referenced stormwater drain ultimately discharges into the Charles River. Dewatering effluent treatment will consist of a 10,000 gallon settling tank and bag filters in series to remove suspended soil particulates, prior to off-site discharge.

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. This includes laboratory testing required within days 1 and 3 of initial discharge and the monthly testing to be conducted through the end of the scheduled discharge.

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 of the treatment system will be conducted to verify proper operation. Regular maintenance will include checking the condition

of the treatment system equipment such as the settling tanks, bag filters, ion exchange filter system, hoses, pumps, and flow meters. Equipment will be monitored daily for potential issues or 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 Muddy River which is located approximately 250 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 and an ion exchange filter in series prior to discharge into the storm drains.

Management of Treatment System Materials

Dewatering effluent will be pumped directly to 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 filters will be disposed of as necessary.