U.S. Environmental Protection Agency (EPA) – Region 1
RCRA Corrective Action Program

Statement of Basis for the Proposed Final Remedy Determination
For
Mystic Station
173 Alford Street, Charlestown, MA
EPA ID# MAD000842401
FINAL DRAFT
August 22, 2019

Based upon investigation and remediation activities conducted at the Mystic Station Facility ("Site"), previously known as Sithe New England, located at 173 Alford Street in Charlestown, Massachusetts, EPA is announcing its Proposed Final Remedy Determination under the Hazardous and Solid Waste Amendments (HSWA) of the Resource Conservation and Recovery Act (RCRA). This Statement of Basis identifies the selected remedial actions to address polychlorinated biphenyls (PCBs) and VOCs in soil and groundwater. EPA believes the proposed remedy, if implemented, will be protective of human health and the environment under current and future site use.

Introduction

The U.S. Environmental Protection Agency – Region 1 (hereinafter, "EPA") is announcing its proposed Final Remedy Determination under the Hazardous and Solid Waste Amendments of the Resource Conservation and Recovery Act.[1] EPA believes that the selected remediation approach to be implemented at the site will address releases of hazardous wastes or hazardous constituents from Solid Waste Management Units (SWMUs) or Areas of Concern (AOCs). EPA believes that the current industrial site condition does not pose a threat to human health or the environment from RCRA Regulated Units. The proposed final remedy will be protective of human health and the environment under current and any currently anticipated future land use.

Brief Site Description
The property has been utilized for electricity generation since 1943.

Previously known as Sithe New England and Boston Edison.

The property straddles the city of Everett and Charlestown, Boston

[1] "Final Remedy" is a regulatory phrase that refers to a final disposition of a site subject to Corrective Action obligations under the Resource Conservation and Recovery Act. More information on this category of Final Remedy can be found in the Federal Register notice entitled, Final Guidance on Completion of Corrective Action Activities at RCRA Facilities, 68 Fed. Reg. 8757 (Proposed Rule, February 25, 2003).

This document summarizes the results of various investigation and remediation activities and the reasons that the proposed Final Remedy Determination is appropriate. EPA is publishing this document to provide an opportunity for public review and comment on this proposal and will consider public comments as part of its decision-making process. This document refers the reader to the administrative record, which contains more detailed information on site specific activities.

This Statement of Basis is intended to:

- Explain the opportunity for public participation, including how you may comment on this proposed determination and where the public can find more detailed information;
- Provide a brief description and history of the site;
- Present the principal findings of investigations and activities performed at this site; and
- Present EPA's rationale for why the proposed Final Remedy is protective of human health and the environment.

How Do You Participate

EPA is soliciting public review and comments prior to making a final decision on this proposed Final Remedy. All interested persons are invited to express their views on this proposal. This Statement of Basis provides only a summary of information about the site and additional information, a list of which appears at the end of this Statement of Basis can be found in the Administrative Record at the following locations:

EPA Records Center, 5 Post Office Square, Boston, MA 02109-3912
(617) 918-1420

Monday-Friday, 9:00 A.M. to 5:00 P.M.

Charlestown Public Library

179 Main Street, Charlestown, MA 02129
617-242-1248

Monday	12 p.m.–8 p.m.
Tuesday	10 a.m.–6 p.m.
Wednesday	10 a.m.–6 p.m.
Thursday	12 p.m.–8 p.m.
Friday	9 a.m.–5 p.m.
Saturday	9 a.m.–2 p.m.
Sunday	Closed

Everett Public Library (Parlin Memorial and Shute Memorial Public Libraries)

Parlin Memorial Library
410 Broadway
Everett, MA 02149
617-394-2300
Adult Library Hours
Mon-Thurs.: 9am – 9 pm
Fri. &Sat. 9am – 5pm
Children's Library Hours
Mon.-Thurs. 9am – 6pm
Friday 9am – 5pm
Open Saturday 9am-5pm

Shute Memorial Library
781 Broadway
Everett, MA 02149
617-394-2308
Adult Library Hours
Mon-Fr - 10am – 6 pm
Children's Library Hours
Mon. Wed, & Fri. 10am-5 pm
Tues. & Thurs. 11am-5pm
Closed Weekend

Internet Access: For convenience, this Statement of Basis may also be accessed at the following link, along with all supporting documents in the Administrative Record:

http://semspub.epa.gov/src/collection/01/AR65725

The public review and comment period will begin on August 24, 2019 and end 30 days thereafter on September 23, 2019.

Written comments on this proposal will be accepted throughout the comment period. If, after reviewing the information on the site, you would like to comment in writing or email on this proposal, or any issues related to this proposal, you should send your comments to the following address (postmarked or emailed no later than September 23, 2019) making sure to clearly indicate that you are commenting on this proposal:

Mr. Juan A. Pérez
USEPA Region 1
5 Post Office Square, Suite 100, 07-3

Boston, MA 02109-3912
(617) 918-1354
perez.juan@epa.gov

At the end of the public review and comment period, EPA will review all comments received. EPA will provide a summary and response to all comments. The Response to Comments will be incorporated into the Administrative Record for the site. EPA may modify the proposed final remedy, or select another remedy based on technical or legal issues brought up by the community's comments. If the comments result in significant changes to this proposal, EPA will seek additional public comment on a revised proposal.

EPA/MassDEP Corrective Action Program Coordination and Implementation

EPA has authorized the MassDEP to implement the Corrective Action program in lieu of EPA at licensed hazardous waste Treatment, Storage and Disposal Facilities (TSDFs) in Massachusetts. EPA approved the Massachusetts Contingency Plan (MCP) regulations to be used in implementing the Corrective Action program at these facilities. All non-TSDFs, hazardous waste generators and any other facilities that release hazardous materials to the environment in Massachusetts also use the MCP to assess and remediate these releases. Therefore, the assessment and remedial actions conducted pursuant to the MCP may be determined to address both State and Federal requirements for Corrective Action at the site.

I. Mystic Station Facility Description and History

The Mystic Station Facility (the Facility) is an active electric power generating station operated by Constellation Mystic Power, LLC., located at 173 Alford Street in Charlestown, Massachusetts. Since 1943, the site has operated as an electricity power generating station under several different names such as Sithe New England and Boston Edison. The address of the property is shown in Charlestown, but most of the property, including the areas subject to environmental remediation, are in the City of Everett. The former generating Units 1-6 are adjacent to Mystic Station Unit 7, which is an active 600-megawatt unit fueled by No. 6 fuel oil and/or natural gas. Mystic Station Units 8 and 9 are combined cycle gas turbines which operate on a contiguous parcel of land within the fence line of the facility property.

The Universal Transverse Mercator (UTM) coordinates for the Site are 4,695,191 meters north and Zone 19 at 329,782 meters east. A Site Location Map is attached as Figure 1, and a Site Plan, depicting the approximate location of the transformer areas at the site is attached as Figure 2. The Mystic Station property (including the 26-acre Units 8 and 9 property) consists of approximately 58 acres of land located in a heavily developed commercial/industrial area. The Site is fenced with active security year-round, 24 hours a day, seven days a week.

The site is the location of eight transformer areas (i.e., transformers areas 1, 2, 3, 4, 5, 6 ,11 and 21) located along the outside walls of the decommissioned power generation Units 1 through 6;

the former units are housed in a contiguous complex of buildings. Each transformer area consists of an approximately 25-foot by 25-foot open area, except for the Transformer 1, 2 and 21 area, which is an approximately 25-foot by 80-foot area. The areas are bounded by portions of the buildings on one or more sides and/or chain-link fence on the other sides; however, the southeastern sides of Transformer 4, 5, 6, and 11 areas are only partially enclosed with chain-link fence. A paved alleyway is located to the southeastern side of Transformer areas 4, 5, 6, and 11. The Transformer 1, 2 and 21 area is located along the southern building wall of Mystic Station generating Unit 1 and adjacent to an access roadway. Remnants of the decommissioned transformer concrete pedestals or pads are present in the transformer enclosures; the approximate locations of these transformer areas are shown on Figure 2. The ground surface of each enclosure consists of a layer of trap rock of varying thicknesses ranging from 1 to 7 feet. Material beneath the trap rock consists of granular fill to native soil (silty clay/clay).

This proposed determination for the site is focused on describing the environmental setting and remedial work previously conducted and to be conducted in the immediate vicinity of the transformer areas 1, 2, 3, 4, 5, 6, 11 and 21 located adjacent to the former generating Units 1 through 6 (Figure 2). This grouping of transformer areas is referred to as Area of Concern (AOC) 14 in the Site's RCRA Facility Assessment (RFA) and Table 2 in Section II below. PCBs have been detected in subsurface soil and concrete surfaces within the transformer areas ranging from less than 1 milligram per kilogram (mg/kg) to several thousand mg/kg. The nature and extent of PCB impacts for each area are discussed in subsequent sections below. During one of the more recent PCB characterization events, VOCs were detected (including 1,2,4-trichlorobenzene). This prompted the facility to revise their approach to the PCB remediation originally proposed for the Transformer 1, 2 and 21 areas previously submitted to the EPA. The new plan is part of the proposed remedy determination (refer to Risk Based PCB Cleanup Plan for the Transformer 1, 2 and 21 areas dated April 30, 2019), which can be found in the Administrative Record.

II. Overview of Investigations and Remedial Work Under RCRA Corrective Action Program

EPA completed a RCRA Facility Assessment (RFA) report in August 2009; several SWMUs and AOCs were identified that required further actions (see the RFA and Tables 1 & 2 below). It was recommended that further file review and/or investigation be conducted at one SWMU and seven AOCs (see Response to RCRA Facility Assessment Subsurface Investigation Report dated December 29, 2010 and Table 3 below).

Tables 1 & 2 below provide summary information for the SWMUs and AOCs at the site that were identified in the RFA:

Table 1
Solid Waste Management Units

SWMU #	SWMU Name	Type of Unit	Period of Operation	Waste Managed	Recommendation
SWMU 1	Oil Separator Pit/Former 1,000-gallon Waste Oil UST	Waste Oil UST	Early 1980's to no later than 1997.	Waste oil	No further action. Class A-3 RAO issued August 10, 2005.
SWMU 2	RTN 3-10431 (Waste Treatment Plant Storage Tank Farm)	Corrosive wastewater storage tanks	1983 to 2000	Corrosive wastewater	No further action. Class A-1 RAO issued March 14, 1994.
SWMU 3	Former Wastewater Surface Impoundments	Surface impoundments	1982 to 1988	Corrosive wastewater	No further action. Clean closure issued October 19, 1992.
SWMU 4	Former and Current Wastewater Treatment System	Wastewater Treatment System, excluding tanks	1983 to Present	Corrosive wastewater, hazardous chemicals	No further action.
SWMU 5	Coal ash pile	Coal ash storage	1943 to Unknown	Coal ash	RCRA Facility Investigation.
SWMU 6	Fly ash basin	Fly ash accumulation unit	Unknown to Present	Fly ash	No further action.

Table 2
Areas of Concern

AOC #	AOC Name	Type of Unit	Period of Operation	Waste Managed	Release Potential
AOC 1	Unit 7 Transformer Area	Transformer sump pit	Unknown	Petroleum hydrocarbons	No further action
AOC 2	Unit 4 Building, Stained Areas	Release area	1997	Petroleum hydrocarbons	RCRA Facility Investigation.
AOC 3	Abandoned Sump Outside Unit 3	Acid sump	Unknown	Acids	RCRA Facility Investigation.
AOC 4	RTN 3-12422	No. 6 fuel oil pipeline	Unknown	No. 6 fuel oil	No further action. Class A-2 RAO issued August 28, 1995.
AOC 5	Abandoned Underground Storage Tanks	USTs	1956 through 1994	No. 2 and No. 6 fuel oil	RCRA Facility Investigation.
AOC 6	Spill of Unknown Location	Unknown	1976	Fuel oil	RCRA Facility Investigation.
AOC 7	RTN 3-0923, RTN 3-18553, RTN 3-18717	Bulk No. 6 fuel oil AST (Former Tank 3)	1943 to 2005	No. 6 fuel oil, phthalate	No further action. Class A-3 RAO issues August 10, 2005.
AOC 8	RTN 3-12140, RTN 3-17789	Bulk No. 6 fuel oil AST (Tank Nos. 1 and 2)	Unknown to Present	No. 6 fuel oil	No further action.
AOC 9	Former Fly Ash Storage Basin Pump Room	Release	Unknown up to 1999	Ethylene glycol	No further action.
AOC 10	RTN 3-19849	Unit 4 Building	Unknown	No. 6 fuel oil	No further action. Class A-1 RAO issued July 14, 2001.
AOC 11	RTN 3-22499	Paved road surface	2003	No. 2 fuel oil	No further action. Class A-1 RAO issued March 21, 2003.

Table 2 Areas of Concern					
AOC #	**AOC Name**	**Type of Unit**	**Period of Operation**	**Waste Managed**	**Release Potential**
AOC 12	RTN 3-17387	Containment berm	Unknown to Present	No. 2 fuel oil	No further action. Class A-1 RAO issued December 7, 1998.
AOC 13	Tetrachloroethylene in Groundwater	Groundwater	Unknown	Tetrachloroethylene	RCRA Facility Investigation.
AOC 14	Former Transformers 1, 2, 3, 4, 5, 6 and 11	Transformers	Unknown to 1989 and early 1990's	PCB	RCRA Facility Investigation.
AOC 15	RTN 3-13744	Hydraulic oil release to the Mystic River	Unknown	Hydraulic oil	No further action. Class A-1 RAO issued July 10, 1996.
AOC 16	RTN 3-17445	Sulfuric acid release to soil	1998	93.7% sulfuric acid	No further action. Class A-2 RAO issued December 16, 1998.
AOC 17	RTN 3-22934	Electrical substation	2003	No-PCB MODF	No further action. Class A-2 RAO issued June 23, 2003
AOC 18	RTN 3-22863	Electrical substation	2003	No-PCB MODF	No further action. Class A-2 RAO issued May 28, 2003
AOC 19	RTN 3-20199	Electrical substation	Unknown to Present	PCB and MODF	RCRA Facility Investigation.

TABLE NOTE: After further investigation AOC 14 was expanded to include Transformer 21.

Table 3 summarizes the SWMUs and AOCs that were further investigated as part of RCRA Corrective Action Investigations and in the development of the Risk Based PCB Clean Up Plan (RBPCP), as well as the remediation undertaken.

In February 2010, a GZA GeoEnvironmental, Inc (GZA)Licensed Site Professional (LSP) acting on behalf of Mystic Station, provided an initial response to EPA regarding the 2009 RFA report that recommended subsurface investigations for the AOCs. EPA approved Mystic Station's proposal to conduct additional explorations at the Mystic Station in correspondence dated March 2010. In July 2010, the LSP conducted subsurface investigations for the identified AOCs. The LSP provided a subsurface investigation report to EPA in December 2010, summarizing the findings of the investigation. Except for AOC 14 (Transformers 1, 2, 3, 4, 5, 6 ,11 and 21), the LSP's December 2010 letter addressed EPA's concerns about the SWMU and other AOCs in a satisfactory manner. With the exception of AOC 14, no further action was required for the SWMU and AOCs as part of RCRA Corrective Action Program. Additional information about this work can be found in the document titled, "Response to RCRA Facility Assessment Subsurface Investigation Report" dated December 29, 2010.

More recent investigations (2017-2019) at AOC 14 have confirmed releases of PCBs from electrical power Transformers 1, 2, 3, 4, 5, 6 ,11 and 21 that will require further action under this proposed determination. AOC 14 is adjacent to the Mystic Station former power generating Units 1 through 6. Note that Transformer 21 was not identified in the RFA but was later added to the Transformer 1 and 2 based on the subsurface investigation which indicated that a release from Transformer 21 occurred in the past.

During Mystic Station's investigations to address releases at AOC 14, the LSP completed multiple rounds of sampling from 2010 through 2018 to characterize PCBs and VOCs in soil, groundwater and concrete surfaces within the transformer areas. The facility has proposed to address the PCB and VOC contamination in AOC 14 that will result in a final remedy under RCRA and comply with the Toxic Substances Control Act (TSCA) and its implementing PCB regulations under 40 CFR Part 761.

The LSP completed an initial assessment of decommissioned Transformers 3, 5, and 6 during the July 2010 investigations. Transformers 4 and 11 were in service in 2010 and could not be assessed due to safety concerns. As noted below, supplemental assessment and reporting were completed under the MCP in 2011 through 2016, for the release condition associated with detections of PCBs in soils in the Transformer 3, 4, 5, 6 and 11 areas.

Furthermore, from 2010 to 2018, the LSP attempted to assess decommissioned Transformer 1, 2 and 21 areas, but due to restricted access related to equipment storage in the area and several shallow refusals on obstructions during attempted borings, samples and data were not obtained at that time. In the spring of 2018, the LSP was able to investigate potential contamination in the Transformer 1, 2 and 21 area.

In summary, Mystic Station has submitted a RBPCP under 40 CFR § 761.61(c) to address PCB contamination in transformer areas 1, 2, and 21. A previously plan to address PCB contamination in transformer areas 3, 4, 5,6, and 11 was approved by EPA on March 23, 2018. (refer to Section III).

III. Overview of Investigations and Remedial Work Under the MCP including Nature, Extent, and Remediation of PCBs in Decommissioned Transformer Areas

The facility performed extensive groundwater and soil investigation and remedial work under the oversight of the MassDEP between the mid-1980s and early 2000s (See Appendix 1). The remedial work performed during this period included the excavation and off-site disposal of soils from a former surface impoundment used for wastewater treatment (currently located in the area near Units 8 & 9). A detailed description of the groundwater and soil investigation and remedial activities for the area of the former surface impoundment as well as other areas of the site can be found in Appendix 1 and the following documents, which are part of the Administrative Record: RCRA Facility Assessment (August 2009), Migration of Contaminated Groundwater Under Control Environmental Indicator (November 27, 2013) and Human Exposures Under Control Environmental Indicator (October 21, 2011).

A 2010 subsurface assessment of the Transformer 3, 5, and 6 areas found PCBs in soil above the MassDEP reportable concentration (RCS-2) limit, which triggered a 120-day release notification condition to MassDEP; release tracking number (RTN) number 3-29680 was assigned to the site in November 2010, and response actions were initiated under the MCP.

Since July 2010, the LSP has completed multiple phases of assessment in the transformer areas to characterize the nature and extent of PCB impacted media.

A supplemental assessment was completed in 2011 for transformer areas 3, 5, and 6. Results of the supplemental assessment were incorporated into a Phase I –Initial Site Investigation (ISI) and Tier Classification submitted to MassDEP in November 2011 and the site was classified as a Tier II site under the MCP. The Phase I ISI and Tier Classification report documented the extent of PCB impacts for decommissioned Transformer 3, 5, and 6 areas.

Additional assessment was completed in 2013 to further evaluate the nature and extent of PCBs in soil in Transformer 3, 5, and 6 areas. The LSP filed a Phase II Comprehensive Site Assessment (CSA), a Phase III Remedial Action Plan (RAP), and a Temporary Solution Statement (TSS), which concluded that a condition of No Significant Risk (NSR) of harm to human health, safety, public welfare, and the environment had been achieved at this part of the Site for current uses. The 2013 filing concluded that a condition of No Substantial Hazard (NSH) to human health or the environment exists at the entire Site.

In June 2016, the LSP completed an assessment of decommissioned Transformer 4 and 11 areas following removal from service of the transformers at the end of 2015. Based on detections of PCBs in soil in these areas, the LSP filed a Supplemental Phase II CSA, Revised Phase III RAP, and Revised TSS to include Transformer 4 and 11 areas with the other areas under RTN 3-29680.

The following sections describe the assessment work completed and the characterization data for the eight decommissioned transformer areas (1, 2, 3, 4, 5, 6, 11 and 21) under the MCP, and includes recent remedial work completed under the EPA TSCA PCB regulations.

Reports from the 1980s, indicate prior efforts to clean-up releases in several of the transformer areas (i.e., 1, 2, 3, and 11). Observations made during the subsurface explorations for these areas suggest prior soil removal was completed as reported. The excavations were backfilled with trap rock over a geotextile membrane. No specific information about residual concentrations is available in previous investigation reports.

The Conceptual Site Model (CSM) developed by the LSP in 2013 for the site was based on historic documentation, discussions with facility personnel, field observations and analytical data. The 2013 CSM suggested that releases of mineral oil dielectric fluid (MODF), either through incremental drips or accidental spills, impacted soil and concrete surfaces in and around the transformers.

The soil, brick and concrete characterization samples were collected for PCB analysis. The results of the soil sampling and brick and concrete dust analyses range from 0.05 mg/kg to 17,000 mg/kg (soil at 8 to 9 feet below ground surface (bgs) and 0.5 mg/kg to 5,430 mg/kg (concrete dust and brick collected at depths of 0 to 0.5 inches). Further discussion of the soil and

concrete analytical results and exploration logs are provided in the TSCA PCB remedial plans. The transformer areas and sampling locations are depicted on Figures 3 through 9 below.

The following sections summarize the nature and extent of contamination at each decommissioned transformer area.

Table 3 Summary of Areas Investigated, Recommended Corrective Action, Current Status and Next Steps

SWMU/ AOC	Name	RFA Recommendation	RFI Recommendation	TSCA	Remedial Work Performed	Next Steps
SWMU 5	Coal Ash Pile	Further Investigation	No Further Investigation	N/A	N/A	N/A
AOC 2	Unit 4 Building	Further Investigation	No Further Investigation	N/A	N/A	N/A
AOC 3	Abandoned Sump	Further Investigation	No Further Investigation	N/A	N/A	N/A
AOC 5	Abandoned Underground Storage Tanks (USTs)	Further Investigation	No Further Investigation	N/A	N/A	N/A
AOC 6	Spill of Unknown Location	Further Investigation	No Further Investigation	N/A	N/A	N/A
AOC 13	TCE in Groundwater	Further Investigation	No Further Investigation	N/A	N/A	N/A
AOC 14	**Transformers 1,2,3,4,5,6,11 & 21**	**Further Investigation**	**Further Investigation**	**Yes**	**PCB and VOC Contaminated Soil Removed from 0-2 feet**	**AUL, GW Monitoring**
AOC 19	Electrical Substation	Further Investigation	No Further Investigation	N/A	N/A	N/A

IIIa. TRANSFORMER 1, 2 and 21 AREAS

On April 13, 2017, LSP personnel collected a total of 10 concrete and brick surface (0 to 0.5 inches) samples from the pedestals, pads, and vertical brick and concrete surfaces (e.g. walls) within the Transformer 1, 2 and 21 area. The approximate concrete sampling locations are shown on Figure 8 and on the photo log included as Figure 9A below. As shown on Table 2 of the April 30, 2018 RBPCP, PCBs were detected in all 10 shallow samples collected from the Transformer 1, 2 and 21 areas ranging from 0.5 mg/kg (T1-CS-2; wall) to 5,430 mg/kg (T1-CS-3; Transformer 1 pad).

Based on the results of the surface sampling, LSP personnel returned to the Site on June 7, 2017, with a drilling subcontractor to collect deeper (1 to 2 inches) concrete samples from the locations that exhibited PCB concentrations greater than (>) 25 mg/kg (parts per million). The deeper

concrete sample locations are shown on the photo log included as Figure 9B below. As shown on Table 2 of the RFA, PCBs were not detected above the laboratory detection limit (<0.2 mg/kg) in two of the four deeper concrete sample locations (T2-CS-5D and T2-CS-7D) and were detected at 0.2 mg/kg and 2.9 mg/kg in T1-CS-3D (pad) and T2-CS-6D (wall), respectively.

The LSP performed further characterization and investigation in the Transformer 1, 2 and 21 areas and submitted a RBPCP dated April 30, 2018 to EPA. This investigation revealed the presence of VOCs, including 1,2,4-trichlorobenzene, in soils. EPA indicated to the LSP and the facility that in light of the VOC findings, the RBPCP for the transformer 1, 2, and 21 area needed to be modified to address the additional VOC contaminants. The LSP provided additional information on the proposed RBPCP dated July 24, 2019 and August 9, 2019.

Although EPA was evaluating the proposed RBPCP that addressed both the PCBs and VOCs found at Transformer area 1, 2, and 21, the agency determined that soil removal work within this area could be conducted under the provisions of 40 CFR § 761.61(b) to reduce PCB concentrations in this area. These proposed RBPCP remediation activities described in the April 30, 2018 plan and supplemented on July 24, 2019 and August 9, 2019 (together, "the RBPCP") include the following and will address VOC contamination in addition to the PCB contamination.

- Transformer 1 and 2 Areas
    - Remove *PCB remediation waste* (i.e., PCB-contaminated soil and concrete to a depth of up to 5 ft bgs) and dispose in accordance with 40 CFR § 761.61(a)(5)(i)(B)(*2*)(*iii*)
    - Collect post excavation samples to confirm PCB concentrations in concrete and soil
    - Remove any remaining PCB remediation waste (i.e., concrete and soil with ≥ 25 ppm PCBs) and dispose in accordance with 40 CFR § 761.61(a)(5)(i)(B)(*2*)(*iii*)
    - Backfill excavation with clean soil and gravel
- Transformer 21 Area
    - Install sheet pile wall on south and west sides of proposed excavation to a depth of 30 ft bgs. (Note: Sheet piling will stay as part of the cap construction under this option)
    - Remove *PCB remediation waste* (e.g., soil) to a depth of 10 ft bgs and dispose in accordance with 40 CFR § 761.61(a)(5)(i)(B)(*2*)(*iii*)

- Collect samples to determine PCB concentrations that will remain beneath the low permeability cap to be constructed

- Construct a low permeability cap to meet both federal and state requirements for an engineered cap.

The Transformer 1,2 and 21 areas will be included in the proposed Activity and Use Limitation (AUL) for the site.

IIIb. TRANSFORMER 3, 4, 5, 6 and 11 AREAS

The LSP submitted a PCB remedial plan for these areas on December 7, 2017. EPA evaluated the proposed plan and provided comments to the facility and the LSP. On March 23, 2018, EPA approved the PCB remediation plan for Transformer areas 3, 4, 5, 6, and 11, which included removal of PCB-contaminated soil and concrete to achieve a < 25 ppm PCB cleanup standard (see *PCB Cleanup and Disposal Approval under 40 CFR §§ 761.61(a) and (c*) in Administrative Record). EPA did not approve PCB remediation work for Transformers Area 1, 2, and 21 as additional site assessment was required to define nature/extent of PCB contamination (see EPA approval via internet access: http://semspub.epa.gov/src/collection/01/AR65725

During implementation of the PCB remediation work in Transformer Areas 3, 4, 5, 6, and 11, Mystic discovered that concrete structures which could not be removed without risk of structural damage to adjacent building. EPA approved a modification to its PCB approval to allow Mystic to address the concrete structures in these areas as part of later remediation activities. For Transformer Area 1, 2, and 21 EPA recommended that some limited remediation work (i.e., limited removal of PCB-contaminated soil) be conducted in conjunction with the Transformer Areas 3,4,5,6 & 11 remedial work.

IV. Groundwater Investigations

Groundwater has been observed in monitoring wells advanced within the property boundary at depths ranging from approximately 5 to 14 feet bgs. In the southern portion of the Facility, groundwater flow direction is south toward the Mystic River. In the northern portion of the Facility, where sands and gravel are predominant, groundwater flow is toward a north/northwestern cove of the Mystic River. The influence of tides on groundwater flow direction is inconclusive; however, tidal fluctuations are thought to influence groundwater flow only in the southern portion of the Facility. The tidal influence is moderated by the sheet pile wall bulk head.

Research completed by the LSP indicates that groundwater at the Site is not located in a current or potential drinking water source area and does not meet the MCP criteria (310 CMR 40.0932(4)) for groundwater classification as Category GW-1. It was confirmed that the Site is:

- not within a Zone II[2] or Interim Wellhead Protection Area (IWPA)[3];
- not within the Zone A[4] of a Class A Surface Water Body;
- not above a medium-yield or high-yield potentially productive aquifer which may be used for potable water supply;
- not within 500 feet of a private water supply well; and
- within 500 feet of a public water supply distribution pipeline.
- not located within 400 feet of a Class A Surface Water Body.

Therefore, contact with constituents in groundwater through drinking water supplies is not a potential exposure pathway at the Site. Groundwater at the property is classified as both GW-2 and GW-3. Groundwater located within 30 feet of the buildings at the Mystic Station is classified as GW-2, which indicates that there is potential for volatile constituents in groundwater to migrate into building indoor air. However, due to the contaminant concentrations in groundwater and the size of the building, the LSP has determined that there is low potential for impacts to indoor air based on current site use. According to the MCP (310 CMR 40.0932(2)), groundwater at all sites is considered to be a potential source of discharge to surface water and therefore is classified as GW-3.

Groundwater sampling was conducted for PCBs and VOCs as part of the site investigations in the Transformers 1, 2, and 21 area. PCBs were found in unfiltered groundwater at concentrations ranging between 0.41 and 3.25 µg/L and in a filtered groundwater sample at non-detect @ < 0.09 µg/L. VOCs, including 1,2,4-Trichlorobenzene and 1,4-Dichlorobenzene, were found at concentration above applicable groundwater standards.

As part of the proposed RBPCP activities, long-term groundwater monitoring will be conducted to confirm that the implemented remedial activities are effective in controlling contamination to groundwater onsite and in reducing the potential for off-site migration.

V. Ecological Evaluation

Based on an MCP Stage I Environmental Screening, which was summarized in the 2013 Phase II CSA, Phase III RAP, and TSS, conditions at the site do not represent significant exposures for environmental receptors, and it was determined that a Stage II Environmental Risk characterization was not required. Additionally, the facility completed EPA's Ecological

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[2] Zone II means the area of an aquifer that contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated, as approved by MassDEP's Division of Water Supply, pursuant to 310 CMR 22.00.

[3] IWPA means: (1) with respect to public water supply wells and wellfields whose pumping rate is 100,000 gallons per day or greater and for which MassDEP has not approved a hydrologically delineated Zone II, the 1/2-mile radius surrounding such a well or wellfield; and (2) with respect to public water supply wells and wellfields whose pumping rate is less than 100,000 gallons per day and for which MassDEP has not approved a hydrologically delineated Zone II, the radius calculated by multiplying the maximum pumping rate in gallons per minute for such a well or wellfield by 32 and adding 400 feet thereto.

[4] Zone A means the area within 400 feet laterally from the bank of a Class A surface drinking water source (as identified in 314 CMR 4.00) or within 200 feet of its tributaries.

Receptor Exposure Pathway Screening Checklist on September 28, 2010 and determined that no further ecological assessments or additional actions related to potential ecological risk were warranted for the facility.

VI. Initial Screening of Likely Remedial Action Technologies

In developing a remedial alternative matrix for detailed analysis, an initial screening of available remedial technologies was conducted in 2013 and in 2016 as part of the MCP Phase III Evaluation. In 2017 as part of the Mystic Station initial remediation proposal to EPA, it was determined that further site investigation and additional work would need to be performed due to elevated levels of PCBs and the presence of VOCs. Following completion of the additional investigation, the LSP presented proposed remedial alternatives to address the contamination in Transformer Areas 1, 2, and 21.

As part of the initial screening of potential remedial alternatives, the LSP followed the MCP process as detailed below.

A remedial technology was judged acceptable for further evaluation if (1) it was deemed likely to reduce risks to human health and the environment to acceptable levels, and (2) the technology appeared to be technically and economically feasible at the Site.

The first step in screening potential remedial alternatives was to identify remedial technologies that are reasonably likely to be effective in mitigating identified site contaminants.

Potential remedial technologies were identified based on the type and nature of the Site contaminants present, the geological and hydrogeological conditions at the Site, and other site-specific considerations. This initial list of technologies and process options was developed based on available information from other similar sites, and from technical publications, conference proceedings, EPA publications, and current vendor information. Remedial technologies considered in the initial screening included:

1. No Further Action – Temporary Solution
2. Soil Excavation and Disposal
3. Engineered Cap

The screening analyses for the above-referenced remedial technologies are presented below.

Alternative 1 - No Further Action – Temporary Solution
Under this alternative, remedial actions would not be implemented at the Site and physical measures to otherwise limit exposures to impacted soil would not be required. The risk characterization concluded that a Condition of No Significant Risk (NSR) to human health, safety, or the environment exists for the Site under current Site use and is not contingent upon the filing of an AUL. The MCP describes this condition as No Substantial Hazards are present

under current conditions. However, this alternative would not reduce the UCL exceedance for PCBs, would not result in a Condition of NSR to future receptors and would result in a Temporary Solution under the MCP. The advantages of this approach are that it could be implemented immediately with little comparative costs; and that it would not result in disruption to Site operations. The disadvantages of this approach are that it would not reduce overall contaminant concentrations at the Site, and that future Response Actions would be necessary to achieve a Permanent Solution under the MCP.

EPA Conclusion: This alternative is currently feasible and will therefore be retained for further evaluation.

Alternative 2 - Soil Excavation and Off-Site Disposal
This alternative would include the excavation of contaminated soil and disposal of the soil off-Site. The advantages of this alternative are that it could decrease soil concentrations significantly; would likely eliminate UCL exceedances; and could result in a Permanent Solution under the MCP. Disadvantages associated with this alternative are related to complications associated with excavation adjacent to existing structures including the building components and the concrete transformer pedestals and the associated costs. In the LSP's opinion, the presence of the Site building and depth of PCB impacts makes excavation of all contamination within the Site area infeasible under current conditions.

As previously indicated, EPA approved a PCB remediation plan on March 23, 2018 to address PCB contamination in Transformer 3,4,5,6, and 11 areas and modified the approval on April 29, 2019 due to the presence of underground structures that could not be removed until building demolition.[5] For Transformer areas 1,2, and 21, limited soil removal was performed to reduce PCB concentrations in surficial soil.

EPA Conclusion: This alternative is not currently feasible for all areas of the site, but may become feasible in its entirety after the buildings are demolished and will therefore be retained for further evaluation.

Alternative 3 - Engineered Cap
This alternative would include the design and installation of an engineered surface cap in conjunction with the installation of vertical barriers around the impacted area on-site. This alternative would be effective in limiting potential human health and ecological exposures (if present) to impacted soil by restricting direct access to the contaminants. It would also effectively minimize surface water infiltration through impacted soil zones, which may decrease the migration of contaminants in the subsurface. The disadvantages of this alternative include high costs and difficulty of implementation, and the fact that it does not reduce the mass of PCB contamination.

[5] The Neutral Resistor Building and the Main Building in the Transformer Area 21 are slated to be demolished in 2022.

Since the risk characterization determined that current site conditions do not pose a risk of exposure to current Site receptors, construction of an engineered cap is not required to limit exposures to site contaminants. Most of the facility is already covered by asphalt pavement which results in minimal surface water infiltration and the Site contaminants have limited solubility, so migration of contaminants is expected to be limited. The added benefit of constructing horizontal and vertical barriers to control contaminant migration and prevent direct access at the Site would be marginal. Furthermore, this alternative does not reduce the concentrations of residual contaminants and may not result in a Permanent Solution under the MCP.

EPA Conclusion: This alternative in and of itself would provide some risk reduction at the Site but does not result in mass reduction and may not meet permanent Site closure under the MCP. It would be difficult and costly to implement but was retained for further evaluation.

On April 30, 2018, the LSP submitted a proposed plan to address contamination in the Transformer 1, 2, and 21 areas. Specifically, the proposal sought to address the issue of excavating and disposing of PCB and VOC contaminated soil just in Transformer Area 21, where concrete structures present logistical, environmental, safety and structural challenges. Supplemental information to support the proposed plan was provided dated July 24, 2019 and August 9, 2019.

The following remedial approaches were considered just for Transformer Area 21:

In addition to the No Action alternative for Transformer Area 21 (which was rejected as not protective of human health), the LSP evaluated two additional deep excavation scenarios for the removal of the Transformer 21 area subsurface PCB-impacted soil:

- Excavation of soils containing PCBs to a depth of approximately 10-feet below ground surface (bgs) and construction of a low permeability cap at depth, or

- Excavation of soils containing PCBs to a depth of approximately 22 feet bgs to remove PCB contamination greater than (>) 25 ppm.

In both cases, the western end of the area would be excavated to expose the concrete duct bank. The concrete surfaces would be tested, and the concrete removed as necessary to meet the clean-up goals. The two scenarios were evaluated under the assumption that the building will be demolished to grade prior to subsurface remedial work.

Option 1 – 10 Foot Excavation and Construction of Low Permeability Cap

For the Transformer 21 area, a steel interlocking sheet pile support of excavation (SOE) system will be installed on the western and southern sides of the Transformer 21 area excavation. The sheeting will be advanced to approximately 30 feet bgs and keyed into a cohesive soil stratum. Since the observed groundwater levels range from 8 to 9 feet bgs in this area of the Site and SOE will be

installed on two sides, excavation dewatering volumes should be reduced. The sheet piles will be left in place under this option to provide horizontal containment and support for construction of the cap. Soil will be excavated to a depth of approximately 10 feet bgs. After removal of these soils, samples will be collected to confirm PCB concentrations remaining, a geotextile fabric will be placed at the bottom of the excavation and a low permeability cap will be constructed. The cap will consist of approximately 3-feet of crushed stone, 2-feet of flowable fill, a geotextile marker layer, and approximately 5-feet of clean imported granular fill. (see Figure 4B inset in RBPCP and Figure 10).

This approach, where a low permeability cap or "Engineered Barrier", is constructed to isolate soils containing PCB concentrations above the MCP Upper Concentration Limits (UCLs), should allow attainment of a Permanent Solution under the MCP. The Permanent Solution will require an Activity and Use Limitation (AUL) to ensure the barrier remains in place.

Option 2 – 22 Foot Excavation

An SOE system will be installed encompassing the Transformer 21 area excavation. Due to the depth of the excavation, the sheeting will be driven to approximately 40 feet bgs and require two layers of bracing. Dewatering will be required, but the volume should be reduced by the SOE. The amount of groundwater to be managed will be a function of the groundwater elevation at the time of the work, quality of SOE installation, and soil properties below the groundwater table.

Soil will be excavated to a depth of approximately 22 feet bgs to remove soils containing PCBs concentrations greater than or equal to (≥) 25 mg/kg). Removal of these soils also reduces the possibility for migration of VOCs to groundwater which should allow attainment of a Permanent Solution under the MCP.

With the removal of PCB concentrations ≥ 25 ppm, the area will allow attainment of a Permanent Solution under the MCP but will require recording of a deed restriction under TSCA.

Comparing the Options

The PCB remedial work for Transformer areas 3,4,5,6 & 11 was partially completed in July 2019 with the remainder to occur after the Units 1 through 6 Buildings have been demolished but no later than 2022.

For Transformer 1, 2, and 21 area, it was determined that Option 1 (10-foot excavation and construction of a low permeability cap), has a lower estimated cost than Option 2. Option 1 is more technically feasible to implement and will be protective of human health and the environment. This proposed work will be coupled with an AUL.

VII. Detailed Evaluation and Selection of Alternatives

The LSP completed an evaluation of the remedial alternatives for the Site in accordance with 310 CMR 40.0855. Based on the remedial objectives, current site conditions and the likelihood of future building demolition, a streamlined evaluation/selection process was

considered appropriate. In accordance with 310 CMR 40.0857(2), the appropriate remedial option for the Site was directly selected.

EPA concurs with the selection of Remedial Alternative No. 2, Option 1 (10-foot excavation and construction of a low permeability cap) for just Transformer Area 21. Soil Excavation and Off-Site Disposal has been selected as the appropriate remedial option for the Site in accordance with 310 CMR 40.0857(2) without the detailed evaluation described in 310 CMR 40.0858.

Specifically, this option:

a) has been proven to be effective in remediating PCB impacts to soils, based upon experience gained at other Disposal Sites with similar conditions;
b) results in the reuse, recycling or destruction of the PCB impacted soil;
c) can be implemented in a manner that will not pose significant risks; and
d) is likely to result in the reduction of PCB impacts to a degree such that the requirements of a Permanent Solution will be met.

As discussed previously, soil excavation and off-site disposal of PCB contaminated soils has been selected as the primary remedial technology for the Site. This selection is predicated on the understanding that the building and associated support structures could be demolished within the next 10 years.

Until the building is removed, and further assessment of the feasibility of excavation of the PCB impacted soils can be conducted, Remedial Alternative No. 1, No Further Action – Temporary Solution, will be implemented in the area of the site where the Main Building is located, adjacent to Transformer Area 21. This limited area of inaccessible soils and concrete structures will be environmentally isolated and protected by institutional controls (i.e., AUL) until site operations allow for addressing these areas when the buildings are demolished in 2022.

VIII. Rationale for Proposing this Final Remedy Determination

EPA believes that the selected remedial approach to be implemented at the site will address releases of hazardous wastes or hazardous constituents from Solid Waste Management Units (SWMUs) or Areas of Concern (AOCs). EPA believes that the current operation of the facility does not pose a threat to human health or the environment under current site use. The proposed final remedy will be protective of human health and the environment under current and future land use.

The proposed remedial work will be completed under the oversight of EPA (TSCA and RCRA Corrective programs) and will be protective of human health and the environment.

EPA's rationale for supporting the proposed final remedy is based on our review and concurrence with the findings of comprehensive investigations and interim measures performed at the site as part of state, RCRA Corrective Action, and TSCA program requirements such as:

- Human health and environmental risk characterizations;
- RCRA Facility Investigations (i.e., RCRA Facility Assessment and RCRA Facility Assessment Subsurface Investigation Report);
- Phase I, and Phase II/Phase III/Temporary Solution Statement;

and others as listed and required by MassDEP and EPA (found in the administrative record): http://semspub.epa.gov/src/collection/01/AR65725

EPA believes that a Corrective Action Final Remedy Determination is appropriate for the following reasons:

1. A full set of Corrective measures has been defined and evaluated

The site has undergone a comprehensive investigation and evaluation of the contamination identified at the site. In addition, three (3) remedial alternatives were thoroughly evaluated and compared against MCP's criteria as previously described in the Initial Screening of Likely Remedial Action Technologies section and EPA's Threshold and Balancing Criteria described below. With the consideration of the ongoing implementation of the RBPCP and the controls provided therein, quarterly groundwater monitoring, implementation of an AUL in addition to the one already in place (for the former wastewater surface impoundment) under the MassDEP Waste Site Cleanup Program as required, EPA believes that appropriate corrective measures have been defined and evaluated.

2. The Mystic Station site has completed construction and installation of several remedial/interim actions

Mystic Station has completed several remedial actions to address the identified PCB and hazardous waste contamination and releases to the environment. The remedial actions conducted have both reduced the mass of contamination in the environment and capped residual contaminants. In addition to eliminating exposure to contamination, the remedial actions are preventing inter-media transfer and migration of residual contaminants. The success of these remedial actions is documented in regulatory closure documents submitted to the MassDEP and EPA. The remedial actions completed at the site were detailed in these documents, and are accessible in EPA's administrative record and on MassDEP's website (https://eeaonline.eea.state.ma.us/portal#!/wastesite/3-002968).

3. **Site-specific media cleanup goals and mechanisms have been proposed and will be met.**

Mystic Station has developed cleanup objectives for all areas of the site. Excavation and removal of PCB and VOC impacted soil around former Transformer areas in AOC 14 will meet EPA's TSCA Program requirements.

Specifically for Transformer areas 3, 4, 5, 6, and 11, PCB concentrations at ≥ 25 ppm have been remediated or removed for disposal during the summer of 2019. Remaining subsurface soil and concrete exhibiting PCB concentrations ≥ 25 ppm will be remediated or removed during future building demolition activities or by 2022, whichever comes first. Mystic Station anticipates having a clearer timetable for building demolition, which will allow for unrestricted access for soil remediation in the former transformer areas. Once completed, these former transformer areas will meet federal cleanup requirements and achieve a Permanent Solution under the MCP.

Former Transformers areas 1, 2, and 21, limited soil removal work was completed and additional soil and concrete will be removed to achieve a PCB concentration of < 25 ppm in Transformers area 1 and 2. PCB concentrations ≥ 25 ppm will remain in the transformer 21 area beneath an engineered cap.

A deed notice will be recorded in the form of an AUL for the transformer areas that will at a minimum establish use restrictions and require maintenance of surface caps.

4. The Mystic Station site will secure a Financial Assurance mechanism

The facility will ensure that an adequate amount of funds is set aside in an EPA approved mechanism to guarantee that the pending remedial work is done.

Notwithstanding this Final Remedy Determination, EPA or MassDEP may conclude additional cleanup is needed if, subsequent to the implementation of this Final Remedy, EPA or MassDEP discovers evidence of unreported, misrepresented, or previously unknown releases.

IX. Evaluation of Remedy with respect to Standards and Decision Factors

EPA believes that, in addition to the rationale presented above, evaluation of the Mystic Station site with respect to Remedy Selection Criteria set forth in available EPA guidance provides a framework for measuring the effectiveness of a proposed remedy. These Remedy Selection Criteria are presented below:

<u>Threshold Criteria:</u>

Overall Protection of Human Health and the Environment. The investigation and remedial work conducted and to be conducted by Mystic Station as described in this proposed Final Remedy provides protection of human health and the environment for current and future use consistent with the requirements of the MCP, TSCA and RCRA and meet risk based cleanup standards. In addition, existing and future AULs will provide further protection by restricting use of the areas.

Attainment of Media Cleanup Standards. The remedial actions conducted in the past, as well as, remedial actions to be conducted as a result of this proposed remedy determination will meet the clean-up standards which are based on MCP's Method 1 GW-3 (groundwater) and Method 1 S-3 (soil) standards, RCRA and TSCA requirements.

Controlling Sources of Releases. The available information demonstrates that the historical on-site releases of hazardous materials to various media have been completely remediated in some source areas and will be in other areas. Where residual PCB contamination remains, it will be controlled by engineering or institutional controls. These controls are appropriate for current and future land use scenarios. Releases of contamination are no longer taking place at the facility; past releases that remain will be addressed by the proposed remedy once it is approved and implemented.

Compliance with Waste Management Standards. The proposed remedy complies with all applicable requirements for the management of hazardous waste, hazardous constituents, solid wastes and PCBs, including proper storage, transportation and disposal during proposed remediation.

Balancing Criteria:

Long-term Reliability and Effectiveness. This proposed final remedy determination is effective and reliable with respect to the long-term since several remediation activities will be completed and appropriate controls will be in place which will be monitored regularly. These controls would need to be reevaluated in order to change the designated future use of the site. Therefore, this proposed Final Remedy provides for long-term reliability and effectiveness.

Reduction of Toxicity, Mobility, or Volume of Wastes. The reduction of toxicity, mobility and volume of contamination will be through active remediation to the applicable RCRA, TSCA and MCP Method 1 GW-3 and Method 1 S-3 standards for the current and future use of the site.

Short-term Effectiveness. The removal of PCB impacted soils is effective in the short term because contaminated soil is being removed from AOC 14, thus rendering the area less contaminated immediately upon removal.

Implementability. This remedy is believed to be easily implemented since no major construction operations are required to implement the proposed final remedy. The proposed remedy encompasses the excavation and removal of PCB impacted soils and concrete, which is easily accomplished once the Main Building is demolished. An additional AUL will be added once the groundwater monitoring associated with the PCB Remedial work is complete.

Cost. Mystic Station has spent significant time and money to investigate and remediate the site and has demonstrated compliance with the MCP, RCRA and TSCA and the MassDEP Solid Waste Program. A cost analysis was conducted in the selection of Alternative 2, Option 1.

X. Conclusion

EPA has determined that this proposed Final Remedy once completed will be protective of health and the environment based on currently available information. Specifically, the proposed final remedy is comprehensive in the short-term because there are no immediate risks to human health or the environment. In the long-term, EPA has determined that the majority of historical on-site releases of hazardous substances to the various media have been remediated to levels that are protective under the MCP, TSCA and RCRA. Protections for controlling any remaining risks, have been or will be implemented as described previously in this document. In addition, the toxicity, mobility, and volume of contaminants impacting the environment have been sufficiently reduced in most areas and will be in Transformer Area 1, 2, and 21. The proposed AUL will identify which areas of the property would need to be re-evaluated and possibly further remediated in order to be protective of human health and the environment if any change in use of the site were proposed.

Accordingly, EPA, using all available information, is announcing its proposed Corrective Action Final Remedy Determination for the site. EPA believes that investigations performed at the site have demonstrated that contaminant levels at the facility do not pose a threat to human health or the environment based on the current use of the site. Additionally, the proposed final remedy, for the areas where PCBs and VOCs remain as contaminants of concern, has been thoroughly evaluated against other alternatives and effectively meets both EPA's threshold and balancing criteria. Areas of the site have either attained the Method 1, S-3 or GW-3 standards under the MCP and have met or will meet TSCA requirements. Where the applicable standards have not been attained, the proposed remediation, monitoring and protective controls will achieve the objective of ensuring that contaminant concentrations remaining do not pose an unreasonable risk of injury to health or the environment. The site is currently used for industrial/commercial purposes and will remain so for the foreseeable future.

XI. GLOSSARY

Activity and Use Limitation (AULs) – Easement granted to the Commissioner of the MassDEP by the property owner and is recorded and/or registered with the appropriate registry of deeds and/or land registration office. The purpose of an AUL is to minimize the risk of human exposure to pollutants and hazards to the environment by preventing specific uses or activities at a property. It is also used to provide notice of the existence of residual contamination to future holders of an interest in a piece of property. An AUL is a tool which permits the remedial goals for a property to be dependent on the exposure risk associated with its use.

Administrative Record – Collection of documents (reports, correspondence, etc.) that form the basis for the remedy selection.

Disposal Site – Under the MCP, the term "disposal site" is used to refer to a place or area where an uncontrolled release of oil and/or hazardous material from or at a site or vessel has come to be located.

Institutional Controls - Non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy.

Media Protection Standards (MPS) – Screening values used during the CMS to evaluate the potential effectiveness of a technology or alternative to address site conditions. In this case, the applicable MCP and TSCA standards are used.

MassDEP – Massachusetts Department of Environmental Protection

Massachusetts Contingency Plan (MCP) – MassDEP regulations governing the requirements for remediation of contaminated sites.

RCRA – Resource Conservation and Recovery Act

Release Tracking Number (RTN) – The file number assigned by Mass DEP to a release or threat of a release reported in accordance with 310 CMR 40.0300

Remedial Action Plan – A document prepared in accordance with 310 CMR 40.0861 to justify the selection of a remedial action.

Remedy Implementation Plan - A document prepared in accordance with 310 CMR 40.0874 for implementation of a remedial action.
Response Action Outcome – The classification applied to a disposal site at which there is no significant risk, as defined by 310 CMR 40.1000.
Risk Assessment – Formal process to evaluate the hazards presented by environmental conditions at the site.

Statement of Basis (SB) – Document presenting the proposed remedy for Exelon New Charlestown to the public. The Statement of Basis provides a brief summary of the Exelon New Charlestown conditions, potential risks, and alternatives studied in the detailed analysis phase of the CMS.

TSCA – Toxic Substances Control Act

Upper Concentration Limits (UCLs) – A concentration of oil and/or hazardous material which if exceeded indicates the potential for significant risk of harm to public welfare and the environment under future conditions according to 310 CMR 40.0996(6)

XII. REFERENCES

Commonwealth of Massachusetts. June 20, 2014. *Massachusetts Contingency Plan. 310 CMR 40.0000*. Massachusetts Department of Environmental Protection (MassDEP), Bureau of Waste Site Cleanup.

GZA, Phase I Initial Site Investigation and Tier Classification, Mystic Station Former Transformer Areas 3, 5, and 6, Mystic Power Station, Charlestown, Massachusetts. RTN 3-29680. Prepared by GZA of Norwood, Massachusetts. December 7, 2011.

GZA, Phase II Comprehensive Site Assessment, Phase III Remedial Action Plan, and Class C-1 Response Action Outcome, Mystic Station Former Transformer Areas 3, 5, and 6, Mystic Station, Charlestown, Massachusetts. RTN 3-29680. Prepared by GZA of Norwood, Massachusetts. December 6, 2013.

GZA, Supplemental Phase II Comprehensive Site Assessment (CSA), Revised Phase III Remedial Action Plan (RAP) and Revised Temporary Solution Statement (TSS), Mystic Station Former Transformer Areas 3, 4, 5, 6, and 11 Mystic Station, Charlestown, Massachusetts. RTN 3-29680. Prepared by GZA of Norwood, Massachusetts.

GZA 2017 PCB Remedial Plan Transformer 3, 4, 5, 6 and 11 Area- Mystic Station July 26, 2017

GZA 2018 Risk Based PCB Clean Up Plan Transformer 1,2 and 21 Area- Mystic Station April 30, 2018

GZA 2018 Risk Based PCB Clean Up Plan – TSCA Phase II Response for Transformer Area 1,2 & 21 July 24, 2019 (Modified for VOC Remediation)

EPA Approval, PCB Remedial Plan for 3,4,5,6, and 11 Area, March 23, 2018

Mystic Station office in Charlestown, MA

Mabbett and Associates, Inc., Draft RCRA Facility Assessment, 2009

GZA Mystic Station RCRA SubSurface Investigation (also known as RFI) December 2010

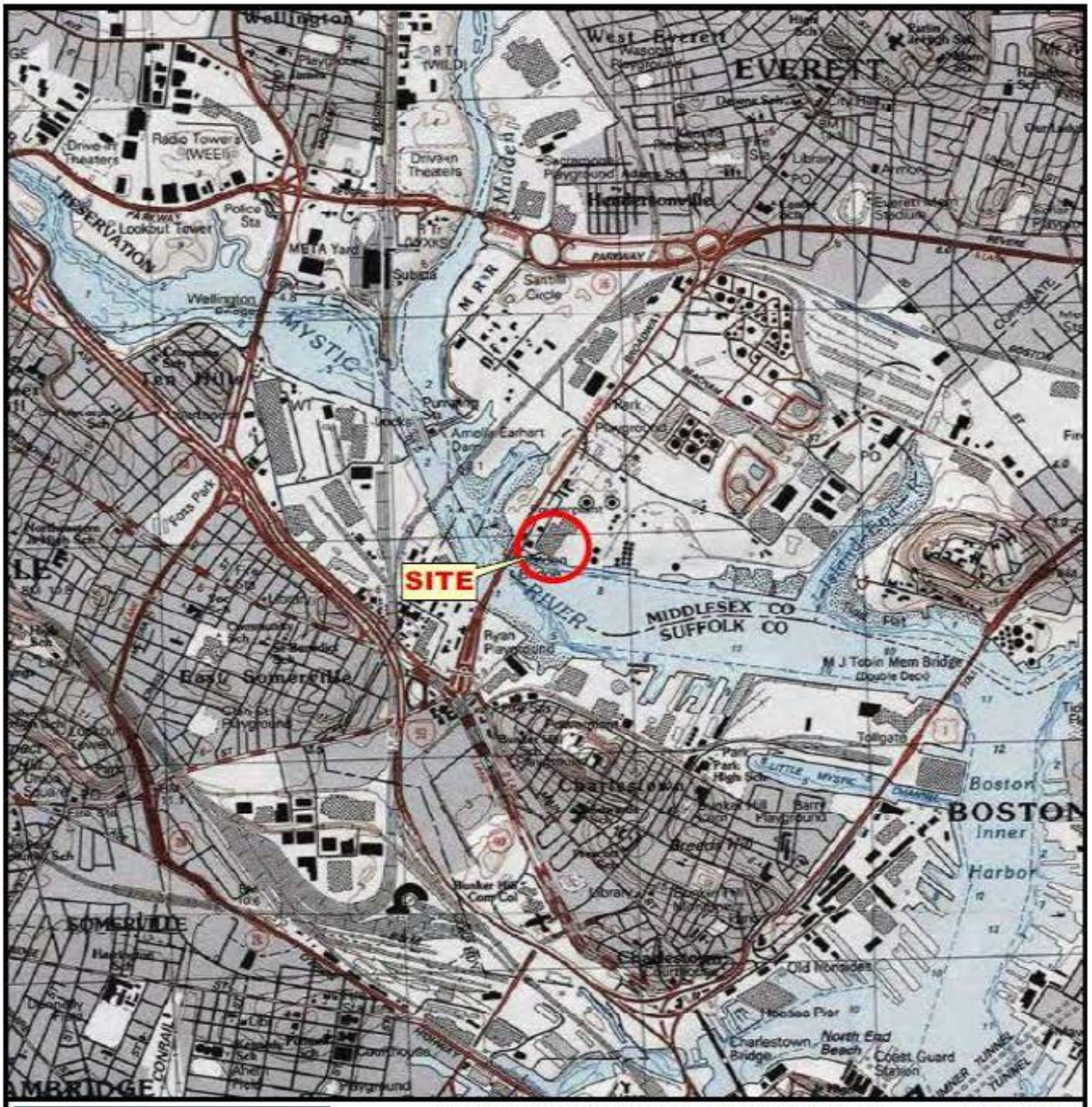
GZA Mystic Station Ecological Receptor Exposure Pathway Scoping Checklist and Narrative, September 2010

XIII. FIGURES

The following figures came from reports submitted to the Mass DEP and EPA, namely Phase II Comprehensive Site Assessment (CSA), Phase III Remedial Action Plan (RAP) and Risk Based PCB Clean Up Plans (RBPCP):

- Figure 1 – Locus Map
- Figure 2 – Site Plan
- Figures 3-9 – Sample Locations
- Figure 10 – Figure 4B Insert
- Figure 11 - AOC MAP

APPENDIX I – Additional Groundwater Monitoring and Remedial Work History



SOURCE : THIS MAP CONTAINS THE ESRI ARCGIS ONLINE USA TOPOGRAPHIC MAP SERVICE, PUBLISHED DECEMBER 12, 2009 BY ESRI ARCIMS SERVICES AND UPDATED AS NEEDED. THIS SERVICE USES UNIFORM NATIONALLY RECOGNIZED DATUM AND CARTOGRAPHY STANDARDS AND A VARIETY OF AVAILABLE SOURCES FROM SEVERAL DATA PROVIDERS.

Data Supplied by : esri

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GZA

PROJ. MGR.: JRC
DESIGNED BY: JRC
REVIEWED BY: GWM
OPERATOR: EMD

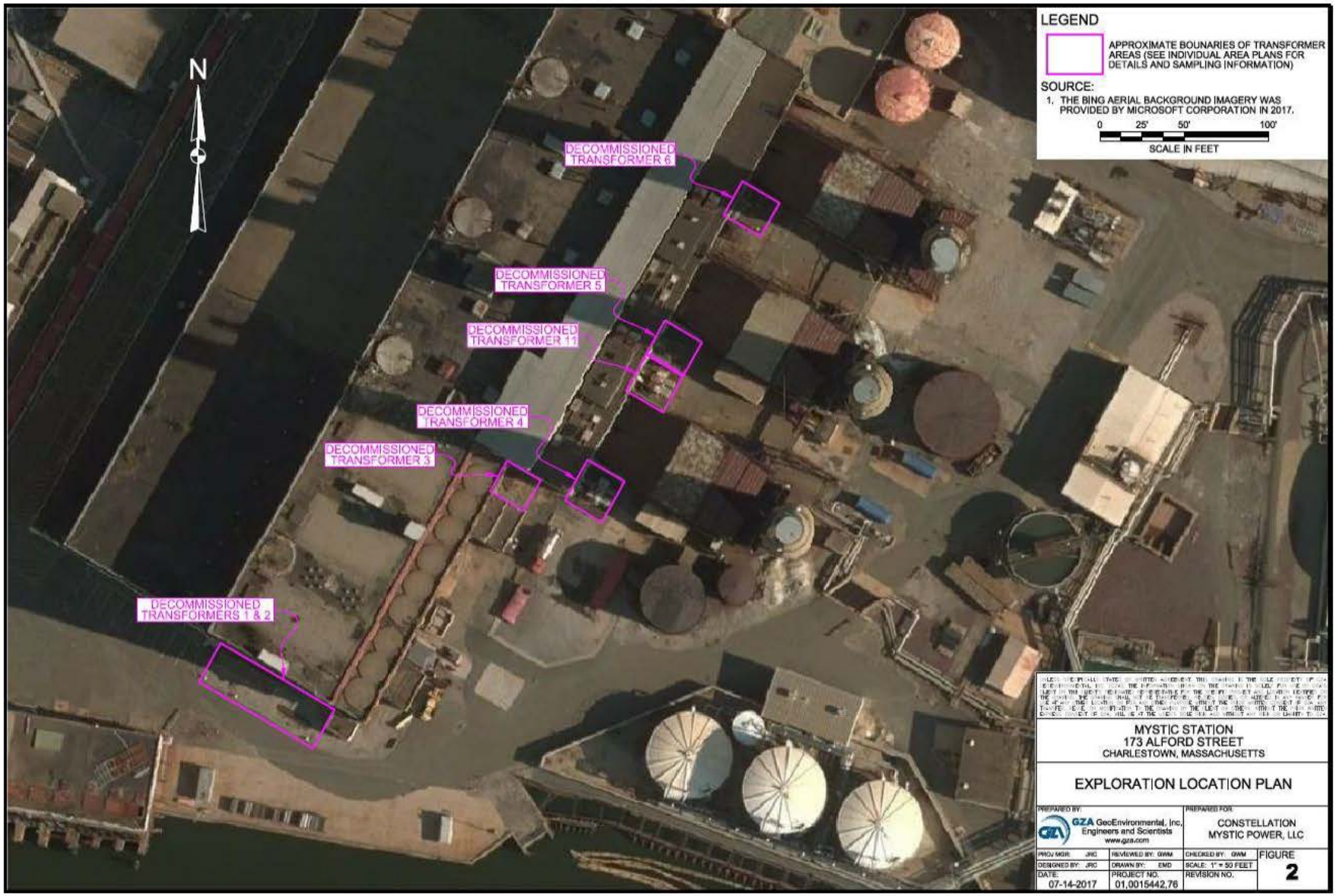
DATE: 06-30-2017

LOCUS PLAN

MYSTIC STATION
173 ALFORD STREET
CHARLESTOWN, MASSACHUSETTS

PROJECT NO.
01.0015442.76

FIGURE NO.
1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DECOMMISSIONED TRANSFORMER 6
DECOMMISSIONED TRANSFORMER 5
DECOMMISSIONED TRANSFORMER 11
DECOMMISSIONED TRANSFORMER 4
DECOMMISSIONED TRANSFORMER 3
DECOMMISSIONED TRANSFORMERS 1 & 2
LEGEND
APPROXIMATE BOUNARIES OF TRANSFORMER AREAS (SEE INDIVIDUAL AREA PLANS FOR DETAILS AND SAMPLING INFORMATION)
SOURCE:
1. THE BING AERIAL BACKGROUND IMAGERY WAS PROVIDED BY MICROSOFT CORPORATION IN 2017.
0 25' 50' 100'
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MYSTIC STATION
173 ALFORD STREET
CHARLESTOWN, MASSACHUSETTS
EXPLORATION LOCATION PLAN
PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com
PREPARED FOR:
CONSTELLATION
MYSTIC POWER, LLC
PROJ MGR: JRC
REVIEWED BY: GWM
CHECKED BY: GWM
FIGURE
2
DESIGNED BY: JRC
DRAWN BY: EMD
SCALE: 1" = 50 FEET
DATE: 07-14-2017
PROJECT NO. 01.0015442.76
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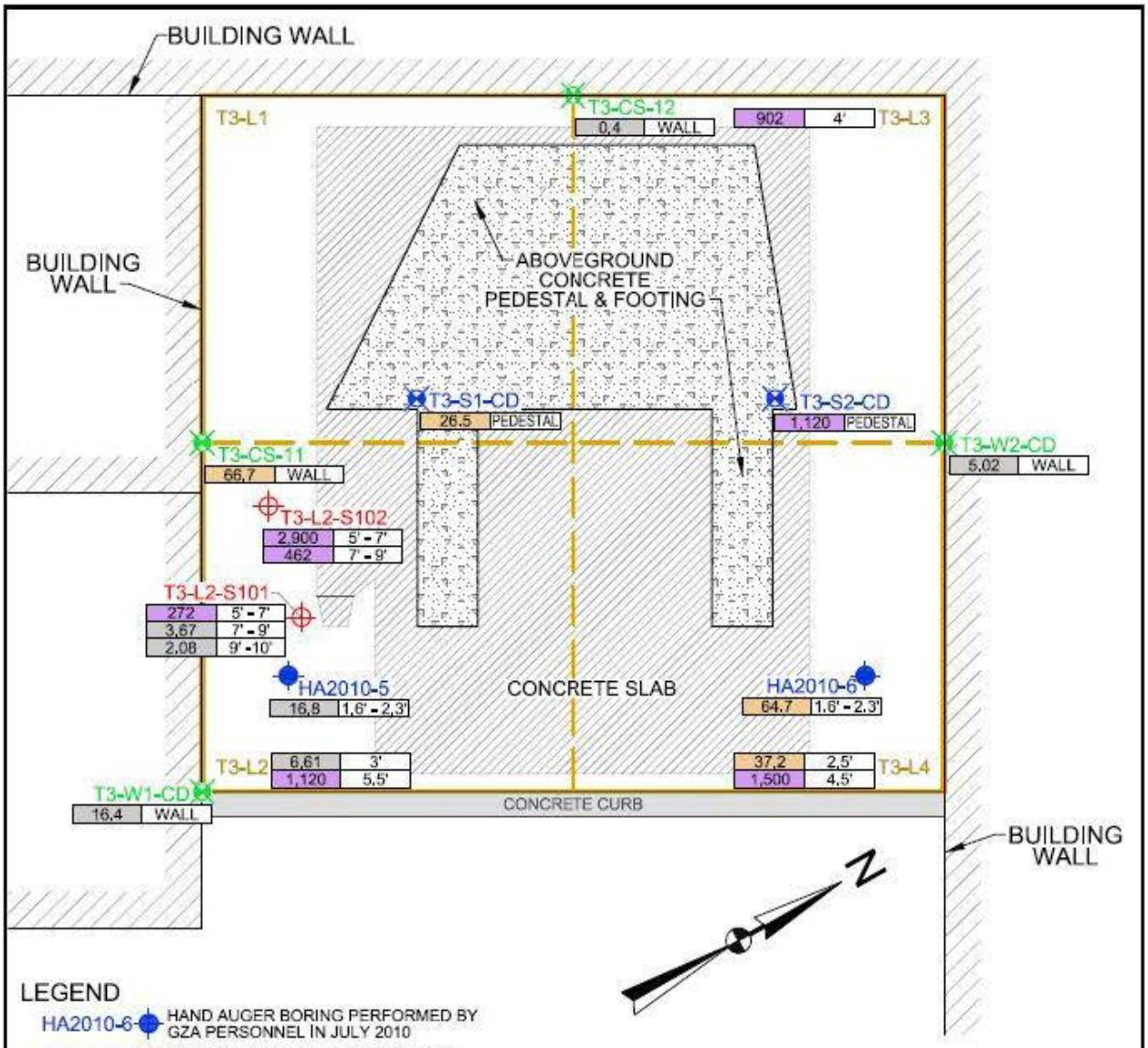

LEGEND

- HA2010-6 — HAND AUGER BORING PERFORMED BY GZA PERSONNEL IN JULY 2010
- T3-S1-CD — APPROXIMATE AREA OF CONCRETE SAMPLE TAKEN FROM PEDESTAL
- T3-W1-CD — APPROXIMATE AREA OF CONCRETE SAMPLE TAKEN FROM WALL
- T3-L2-S101 — SOIL BORING PERFORMED BY GEOSEARCH, INC. ON NOVEMBER 6, 2013
- 272 | 5' - 7' — SOIL SAMPLE DEPTH IN FEET
- AROCLOR 1260 CONCENTRATION (mg/kg)
- AROCLOR 1260 (>100 mg/kg)
- AROCLOR 1260 (25 - 100 mg/kg)
- AROCLOR 1260 (<25 mg/kg)
- T3-L1 | T3-L3 / T3-L2 | T3-L4 — SOIL SAMPLE QUADRANT BOUNDARIES AND SOIL SAMPLE IDENTIFIERS (L1 - L4)

SOURCE:

1. THE SOIL AND CONCRETE SAMPLES WERE COLLECTED BY GZA PERSONNEL ON OCTOBER 28, 2011, NOVEMBER 3, 2011, NOVEMBER 6, 2013 AND APRIL 13, 2017.
2. THE LOCATIONS OF THE HAND AUGER BORINGS, SOIL SAMPLE QUADRANTS, THE CONCRETE SAMPLES AND THE SOIL BORINGS PERFORMED BY GEOSEARCH WERE APPROXIMATELY DETERMINED BY TAPE MEASUREMENTS AND LINE OF SIGHT FROM EXISTING TOPOGRAPHIC AND MAN-MADE FEATURES. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

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PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com

PREPARED FOR: CONSTELLATION MYSTIC POWER, LLC

MYSTIC STATION
173 ALFORD STREET
CHARLESTOWN, MASSACHUSETTS

SAMPLE LOCATION SKETCH
TRANSFORMER #3

FIGURE 3

PROJ. MGR.	REVIEWED BY	CHECKED BY	DATE	PROJECT NO.	REVISION NO.
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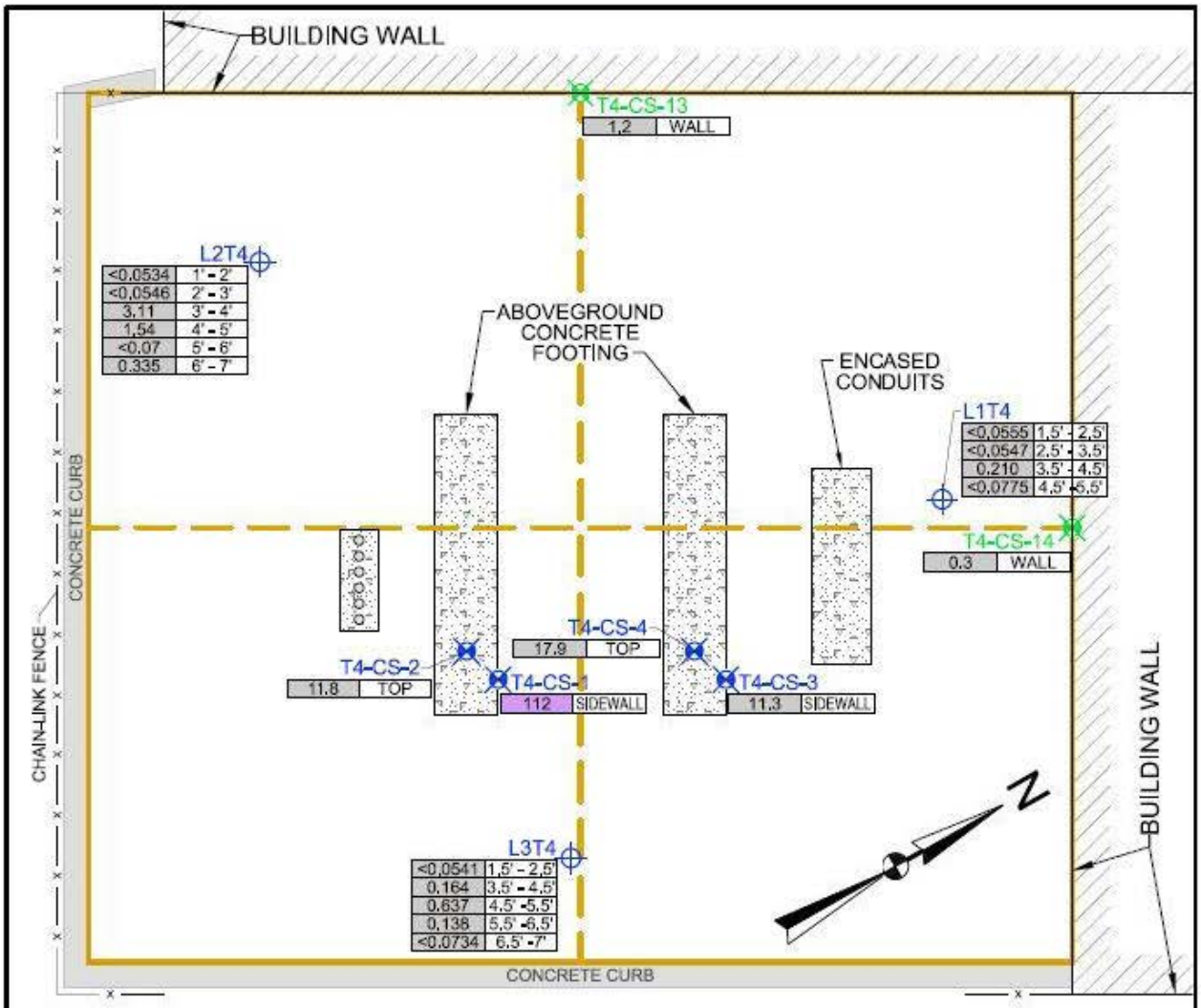
JRC	EMD	1" = 4 FEET



LEGEND

T4-CS-1 APPROXIMATE AREA OF CONCRETE SAMPLE TAKEN FROM PEDESTAL

T4-CS-13 APPROXIMATE AREA OF CONCRETE SAMPLE TAKEN FROM WALL

L1T4 VAC-EX EXCAVATION AND HAND AUGER SAMPLING COMPLETED BY GEOSEARCH, INC. OF FITCHBURG, MA. ON JUNE 21, 2016 AND OBSERVED BY GZA PERSONNEL

<0.0555 | 1.5' - 2.5'

- SOIL SAMPLE DEPTH IN FEET
- AROCLOR 1260 CONCENTRATION (mg/kg)
- AROCLOR 1260 (>100 mg/kg)
- AROCLOR 1260 (25 - 100 mg/kg)
- AROCLOR 1260 (<25 mg/kg)

SOIL SAMPLE QUADRANT BOUNDARIES

SOURCE:

1. THE SOIL AND CONCRETE SAMPLES WERE COLLECTED BY GZA PERSONNEL ON JUNE 21, 2016 AND APRIL 13, 2017.
2. THE LOCATIONS OF THE VAC-EX EXCAVATION AND HAND AUGER SAMPLES COMPLETED BY GEOSEARCH, THE SOIL SAMPLE QUADRANTS AND THE CONCRETE SAMPLES WERE APPROXIMATELY DETERMINED BY TAPE MEASUREMENTS AND LINE OF SIGHT FROM EXISTING TOPOGRAPHIC AND MAN-MADE FEATURES. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

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SCALE IN FEET

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com

PREPARED FOR: CONSTELLATION MYSTIC POWER, LLC

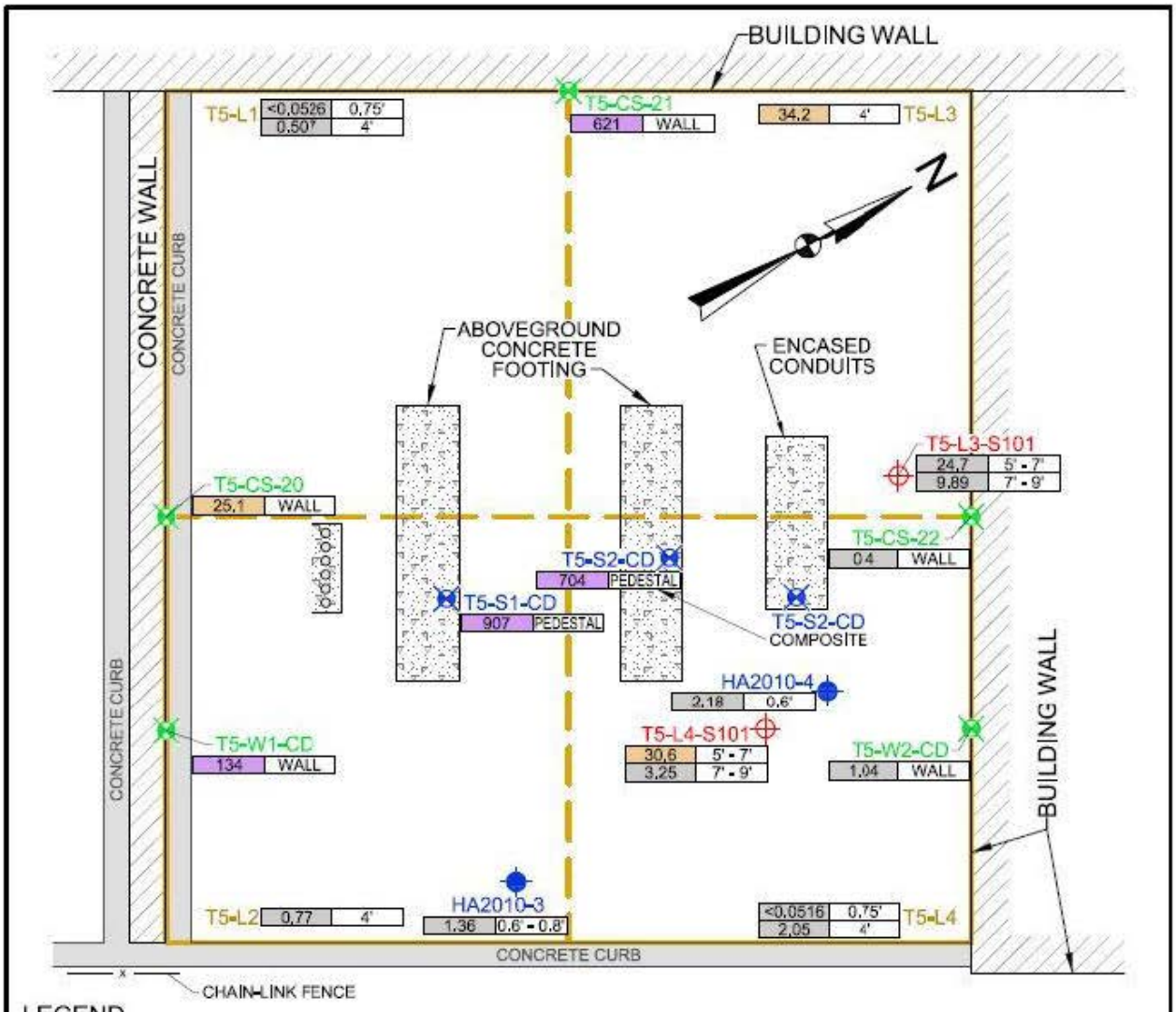
MYSTIC STATION
173 ALFORD STREET
CHARLESTOWN, MASSACHUSETTS

SAMPLE LOCATION SKETCH
TRANSFORMER #4

FIGURE 4

PROJ. MGR.	REVIEWED BY	CHECKED BY	DATE	PROJECT NO.	REVISION NO.
JRC	GWM	GWM	07-14-2017	01.0015442.76	

DESIGNED BY: JRC DRAWN BY: EMD SCALE: 1" = 4 FEET



LEGEND

HA2010-3 — HAND AUGER BORING PERFORMED BY GZA PERSONNEL IN JULY 2010

T5-S1-CD — APPROXIMATE AREA OF CONCRETE SAMPLE TAKEN FROM PEDESTAL

T5-W1-CD — APPROXIMATE AREA OF CONCRETE SAMPLE TAKEN FROM WALL

T5-L3-S101 — SOIL BORING PERFORMED BY GEOSEARCH, INC. ON NOVEMBER 6, 2013

24.7 | 5' - 7' — SOIL SAMPLE DEPTH IN FEET

AROCLOR 1260 CONCENTRATION (mg/kg)

AROCLOR 1260 (>100 mg/kg)

AROCLOR 1260 (25 - 100 mg/kg)

AROCLOR 1260 (<25 mg/kg)

T5-L1 | T5-L3 / T5-L2 | T5-L4 — SOIL SAMPLE QUADRANT BOUNDARIES AND SOIL SAMPLE IDENTIFIERS (L1 - L4)

SOURCE:

1. THE SOIL AND CONCRETE SAMPLES WERE COLLECTED BY GZA PERSONNEL ON OCTOBER 28, 2011, NOVEMBER 3, 2011, NOVEMBER 6, 2013 AND APRIL 13, 2017.
2. THE LOCATIONS OF THE HAND AUGER BORINGS, SOIL SAMPLE QUADRANTS, THE CONCRETE SAMPLES AND THE SOIL BORINGS PERFORMED BY GEOSEARCH WERE APPROXIMATELY DETERMINED BY TAPE MEASUREMENTS AND LINE OF SIGHT FROM EXISTING TOPOGRAPHIC AND MAN-MADE FEATURES. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLED BY THE METHOD USED.

0 2' 4' 8'

SCALE IN FEET

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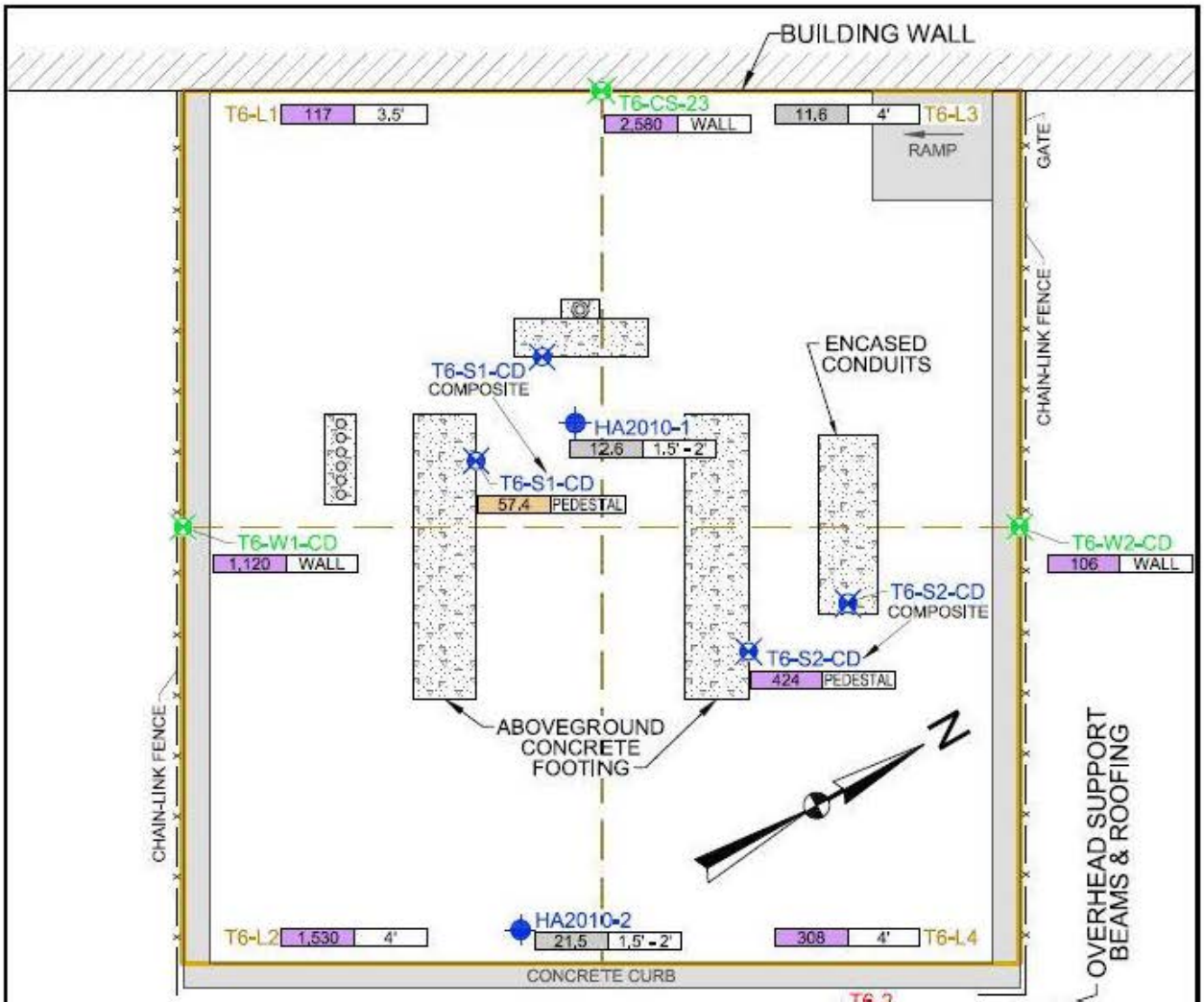
MYSTIC STATION
173 ALFORD STREET
CHARLESTOWN, MASSACHUSETTS

SAMPLE LOCATION SKETCH
TRANSFORMER #5

FIGURE 5

PROJ. MGR.	REVIEWED BY	CHECKED BY	DATE	PROJECT NO.	REVISION NO.
JRC	GWM	GWM	07-14-2017	01.0015442.76	

DESIGNED BY: JRC | DRAWN BY: EMD | SCALE: 1" = 4 FEET



T6-2

6.16	2.5' - 3'
<0.0635	5' - 5.5'
10.5	7' - 9'
2.37	9' -11'
0.126	11' -13'
0.565	13' -15'

LEGEND

- HA2010-1 — HAND AUGER BORING PERFORMED BY GZA PERSONNEL IN JULY 2010
- T6-S1-CD — APPROXIMATE AREA OF CONCRETE SAMPLE TAKEN FROM PEDESTAL
- T6-W1-CD — APPROXIMATE AREA OF CONCRETE SAMPLE TAKEN FROM WALL
- T6-2 — SOIL BORING PERFORMED BY GEOSEARCH, INC. ON NOVEMBER 6, 2013
- 6.16 | 2.5' - 3' — SOIL SAMPLE DEPTH IN FEET / AROCLOR 1260 CONCENTRATION (mg/kg)
- AROCLOR 1260 (>100 mg/kg)
- AROCLOR 1260 (25 - 100 mg/kg)
- AROCLOR 1260 (<25 mg/kg)
- T6-L1 | T6-L3 / T6-L2 | T6-L4 — SOIL SAMPLE QUADRANT BOUNDARIES AND SOIL SAMPLE IDENTIFIERS (L1 - L4)

SOURCE:

1. THE SOIL AND CONCRETE SAMPLES WERE COLLECTED BY GZA PERSONNEL ON OCTOBER 28, 2011, NOVEMBER 3, 2011, NOVEMBER 6, 2013 AND APRIL 13, 2017.
2. THE LOCATIONS OF THE HAND AUGER BORINGS, SOIL SAMPLE QUADRANTS, THE CONCRETE SAMPLES AND THE SOIL BORINGS PERFORMED BY GEOSEARCH WERE APPROXIMATELY DETERMINED BY TAPE MEASUREMENTS AND LINE OF SIGHT FROM EXISTING TOPOGRAPHIC AND MAN-MADE FEATURES. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

0 2' 4' 8'

SCALE IN FEET

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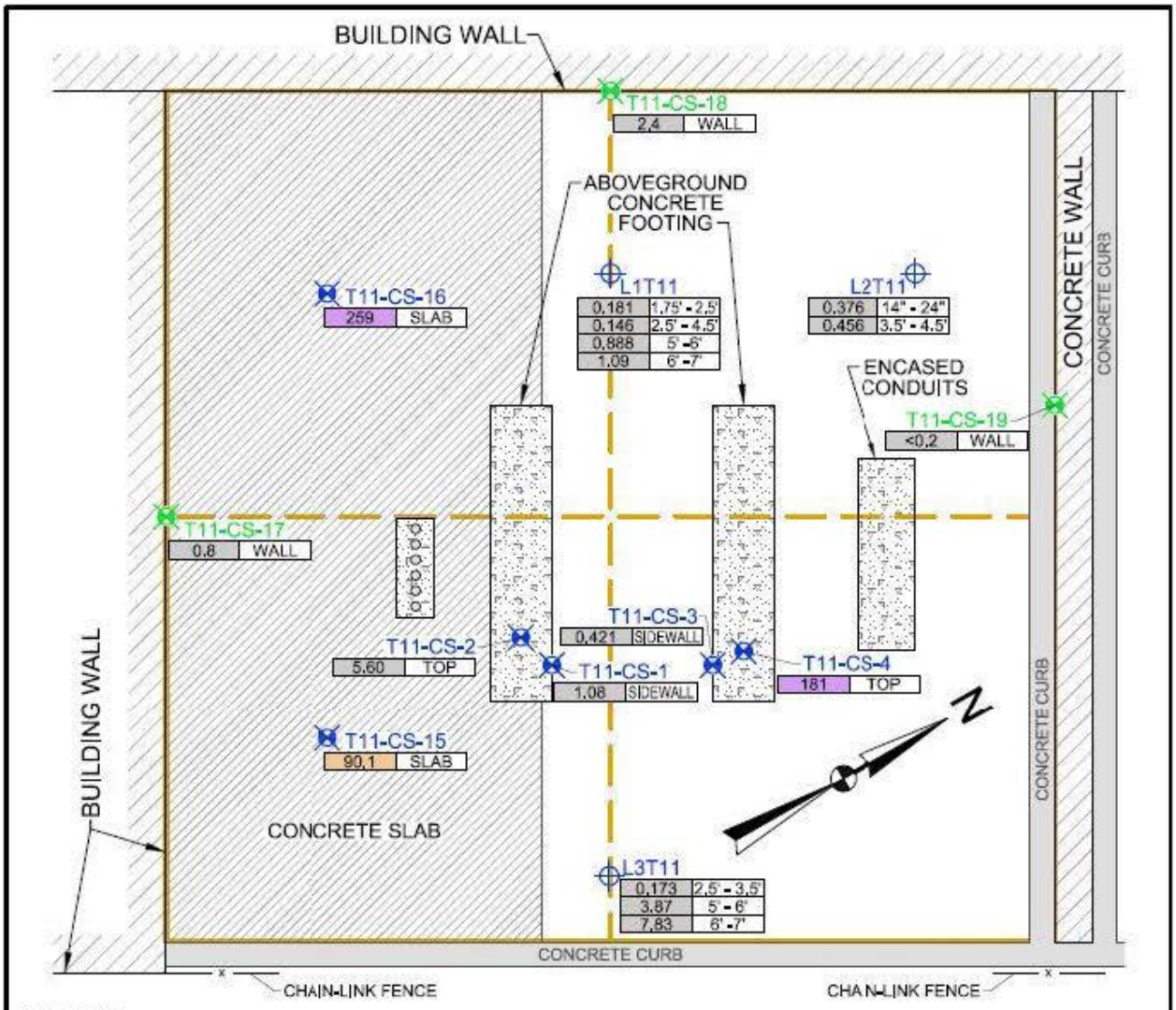
PREPARED FOR: CONSTELLATION MYSTIC POWER, LLC

MYSTIC STATION
173 ALFORD STREET
CHARLESTOWN, MASSACHUSETTS

SAMPLE LOCATION SKETCH
TRANSFORMER #6

FIGURE 6

PROJ. MGR.	REVIEWED BY:	CHECKED BY:	DATE	PROJECT NO.	REVISION NO.
JRC	GWM	GWM	07-14-2017	01.0015442.76	
DESIGNED BY: JRC	DRAWN BY: EMD	SCALE: 1" = 4 FEET			



LEGEND

T11-CS-1 APPROXIMATE AREA OF CONCRETE SAMPLE TAKEN FROM PEDESTAL OR SLAB

T11-CS-17 APPROXIMATE AREA OF CONCRETE SAMPLE TAKEN FROM WALL

L1T11 VAC-EX EXCAVATION AND HAND AUGER SAMPLING COMPLETED BY GEOSEARCH, INC. OF FITCHBURG, MA. ON JUNE 21, 2016 AND OBSERVED BY GZA PERSONNEL

0.181 1.75' - 2.5'

- SOIL SAMPLE DEPTH IN FEET
- AROCLOR 1260 CONCENTRATION (mg/kg)
- AROCLOR 1260 (>100 mg/kg)
- AROCLOR 1260 (25 - 100 mg/kg)
- AROCLOR 1260 (<25 mg/kg)

SOIL SAMPLE QUADRANT BOUNDARIES

SOURCE:

1. THE SOIL AND CONCRETE SAMPLES WERE COLLECTED BY GZA PERSONNEL ON JUNE 21, 2016 AND APRIL 13, 2017.
2. THE LOCATIONS OF THE VAC-EX EXCAVATION AND HAND AUGER SAMPLES COMPLETED BY GEOSEARCH, THE SOIL SAMPLE QUADRANTS AND THE CONCRETE SAMPLES WERE APPROXIMATELY DETERMINED BY TAPE MEASUREMENTS AND LINE OF SIGHT FROM EXISTING TOPOGRAPHIC AND MAN-MADE FEATURES. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLED BY THE METHOD USED.

0 2' 4' 8'

SCALE IN FEET

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com

PREPARED FOR: CONSTELLATION MYSTIC POWER, LLC

MYSTIC STATION
173 ALFORD STREET
CHARLESTOWN, MASSACHUSETTS

SAMPLE LOCATION SKETCH
TRANSFORMER #11

FIGURE 7

PROJ. MGR.	REVIEWED BY	CHECKED BY	DATE	PROJECT NO.	REVISION NO.
JRC	GWM	GWM	07-14-2017	01.0015442.76	

DESIGNED BY: JRC DRAWN BY: EMD SCALE: 1" = 4 FEET


LEGEND
PROPOSED SOIL BORING
T1-CS-3 APPROXIMATE AREA OF CONCRETE SAMPLE TAKEN FROM PEDESTAL OR PAD
T2-CS-6 APPROXIMATE AREA OF CONCRETE SAMPLE TAKEN FROM WALL
45.9 WALL SOIL SAMPLE LOCATION
AROCLOR 1260 CONCENTRATION (mg/kg)
AROCLOR 1260 (>100 mg/kg)
AROCLOR 1260 (25 - 100 mg/kg)
AROCLOR 1260 (<25 mg/kg)
SOURCE:
1. THE BING AERIAL BACKGROUND IMAGERY WAS PROVIDED BY MICROSOFT CORPORATION IN 2017.
2. THE FORMER TRANSFORMER FOUNDATIONS WERE APPROXIMATELY LOCATED FROM AN UNDATED PAPER PLAN ENTITLED "ATTACHMENT 1", AND FROM FIELD MEASUREMENTS AND LINE OF SIGHT FROM EXISTING TOPOGRAPHIC AND MAN-MADE FEATURES. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
3. THE CONCRETE SAMPLES WERE COLLECTED BY GZA PERSONNEL ON APRIL 13, 2017.
4. THE LOCATIONS OF THE CONCRETE SAMPLES WERE APPROXIMATELY DETERMINED BY LINE OF SIGHT AND TAPE MEASUREMENTS FROM EXISTING TOPOGRAPHIC AND MAN-MADE FEATURES. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
0 5' 10' 20'
SCALE IN FEET
MYSTIC UNIT 1
T1-CS-1 0.9 WALL
T1-CS-2 0.5 WALL
T2-CS-4 1.3 WALL
T2-CS-5 78.4 WALL
T2-CS-6 45.9 WALL
T21-CS-8 11.8 WALL
T21-CS-9 0.8 WALL
T21-CS-10 18.6 WALL
N
TRANSFORMER #1 PAD
TRANSFORMER #2 PEDESTALS
T1-CS-3 5,480 PAD
T2-CS-7 COMPOSITE 71.6 PEDESTAL
ASPHALT ROADWAY
ASPHALT OVER CONCRETE
CRUSHED STONE
CONCRETE WHARF
MYSTIC STATION - TRANSFORMERS 1 & 2 AREA
173 ALFORD STREET
CHARLESTOWN, MASSACHUSETTS
SAMPLE LOCATION SKETCH
TRANSFORMERS #1 AND #2
PREPARED BY:
GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com
PREPARED FOR:
CONSTELLATION MYSTIC POWER, LLC
PROJ MGR: JRC
REVIEWED BY: GWM
CHECKED BY: GWM
DESIGNED BY: JRC
DRAWN BY: EMD
SCALE: 1" = 10 FEET
DATE: 07-18-2017
PROJECT NO. 01.0015442.76
REVISION NO.
FIGURE 8

FIGURE 9A
PHOTO LOG OF CONCRETE SURFACE (0-0.5")
SAMPLE LOCATIONS AND DATA

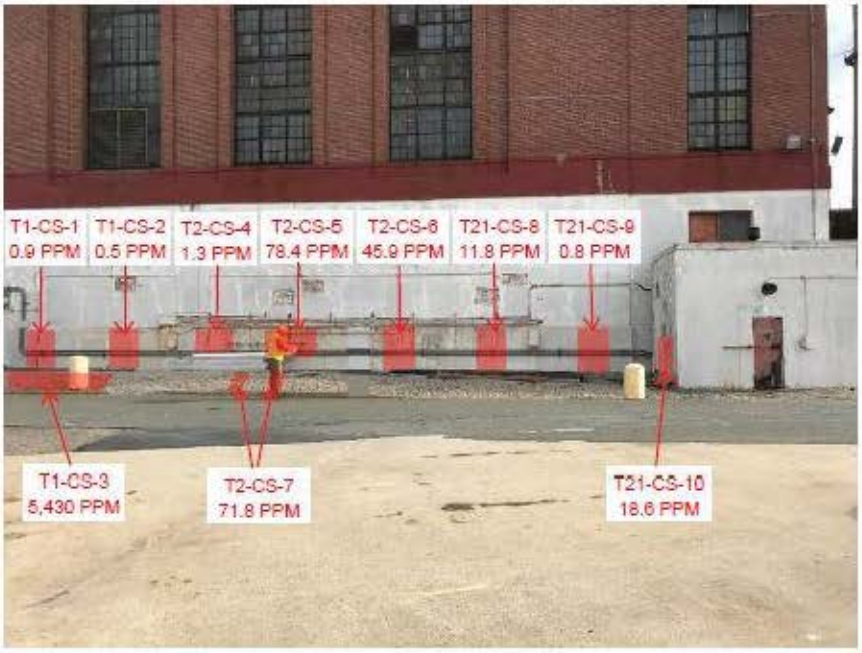


Photo 1- Transformer 1, 2, and 21 Area looking north at Mystic 1 building

Photo 2- Transformer 3 Area

NOT TO SCALE
LOCATIONS APPROXIMATE

FIGURE 9A
PHOTO LOG OF CONCRETE SURFACE (0-0.5") SAMPLE LOCATIONS AND DATA

Photo 3- Transformer 4 area

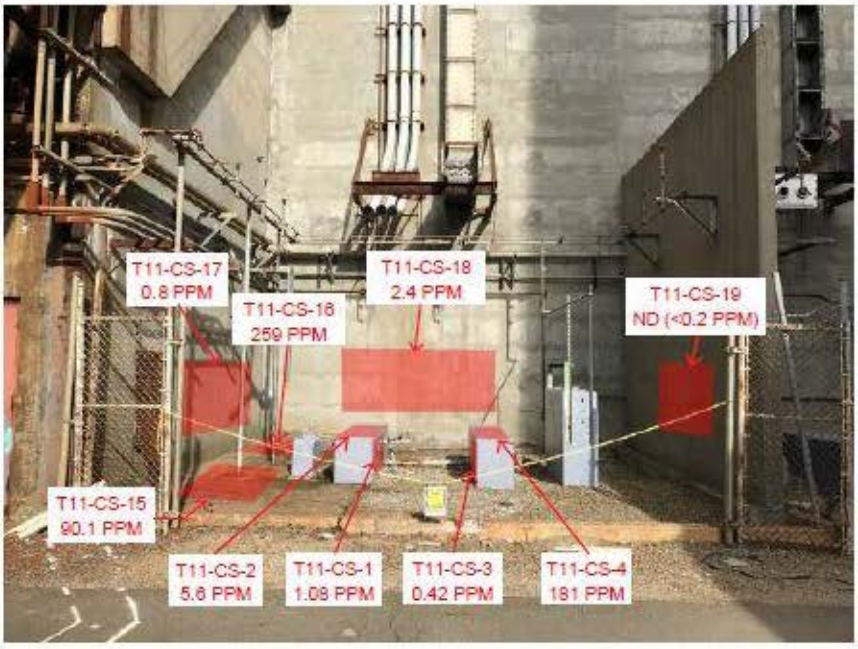


Photo 4- Transformer 11 area

NOT TO SCALE
SAMPLE LOCATIONS APPROXIMATE

FIGURE 9A
PHOTO LOG OF CONCRETE SURFACE (0-0.5") SAMPLE LOCATIONS AND DATA

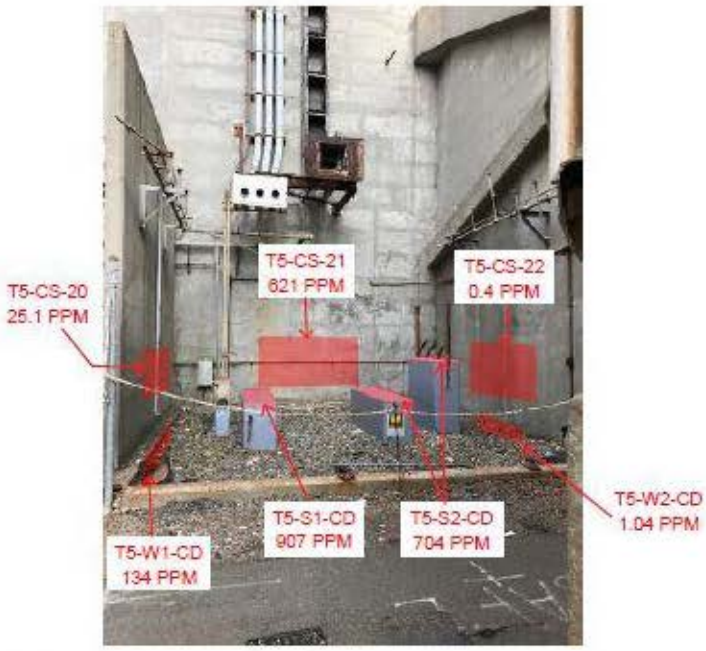


Photo 5- Transformer 5 area

Photo 6- Transformer 6 area

NOT TO SCALE

SAMPLE LOCATIONS APPROXIMATE

FIGURE 9B
PHOTO LOG OF DEEP (1-2") CONCRETE
SAMPLE LOCATIONS AND DATA

Photo 1- Transformer 1, 2, and 21 Area looking north at Mystic 1 building

Photo 2- Transformer 3 Area

NOT TO SCALE
SAMPLE LOCATIONS APPROXIMATE

FIGURE 9B
PHOTO LOG OF DEEP (1-2") CONCRETE
SAMPLE LOCATIONS AND DATA

Photo 3- Transformer 4 area

Photo 4- Transformer 11 area

NOT TO SCALE

SAMPLE LOCATIONS APPROXIMATE

FIGURE 9B
PHOTO LOG OF DEEP (1-2") CONCRETE
SAMPLE LOCATIONS AND DATA

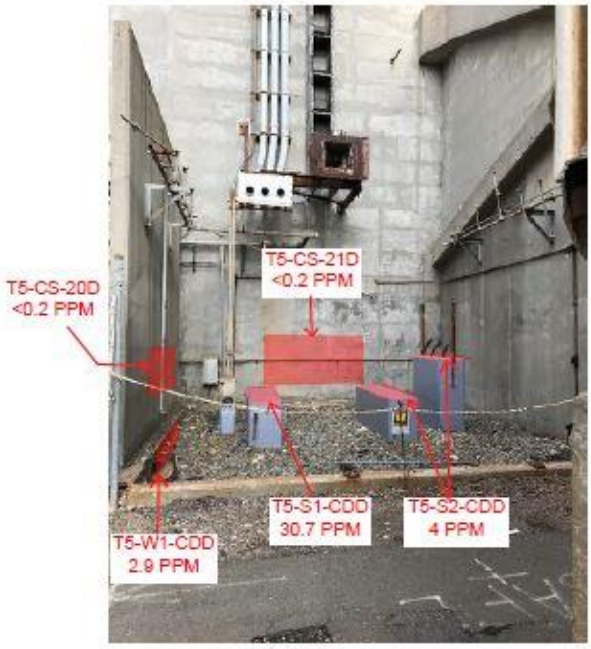


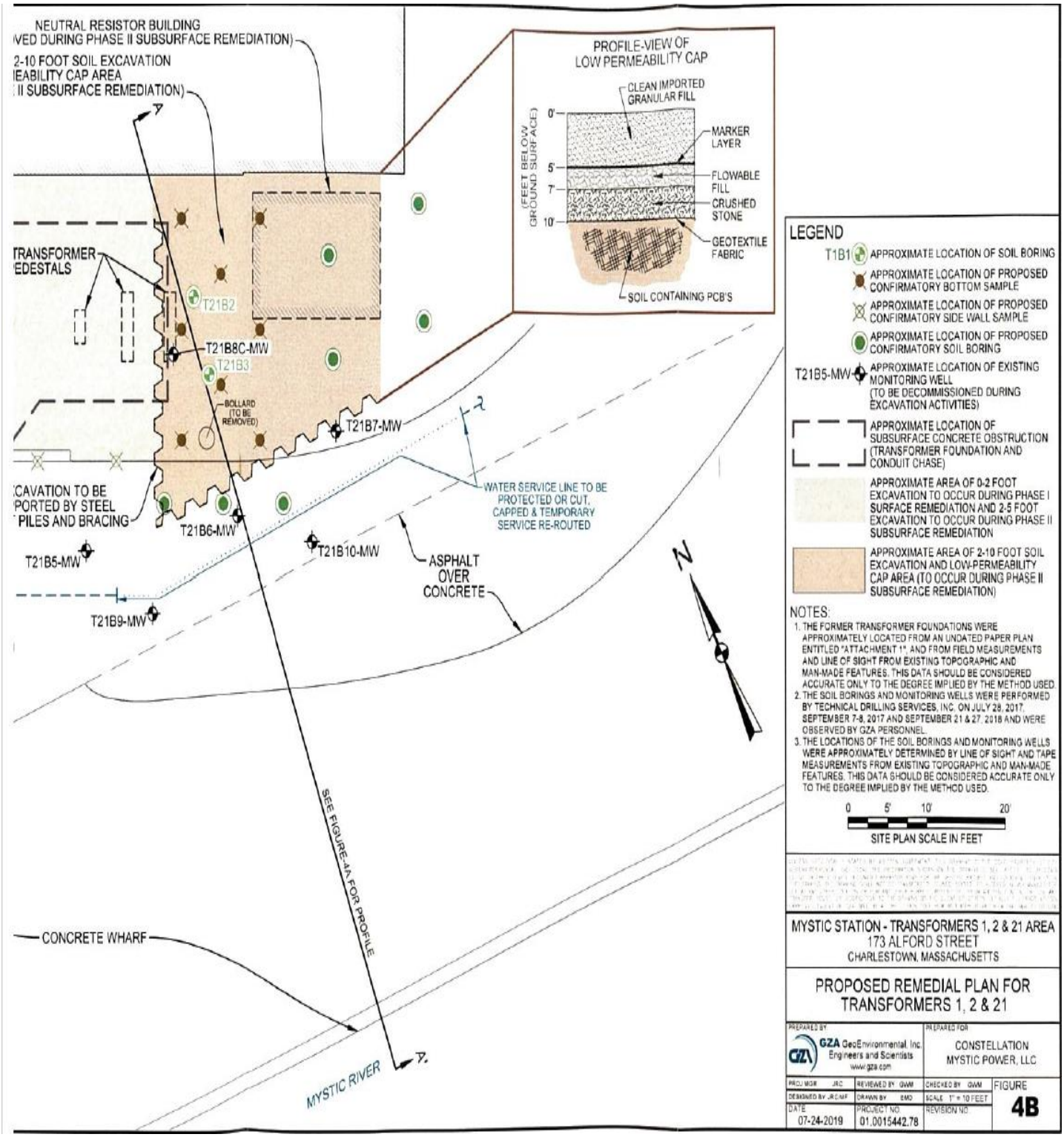
Photo 5- Transformer 5 area

Photo 6- Transformer 6 area

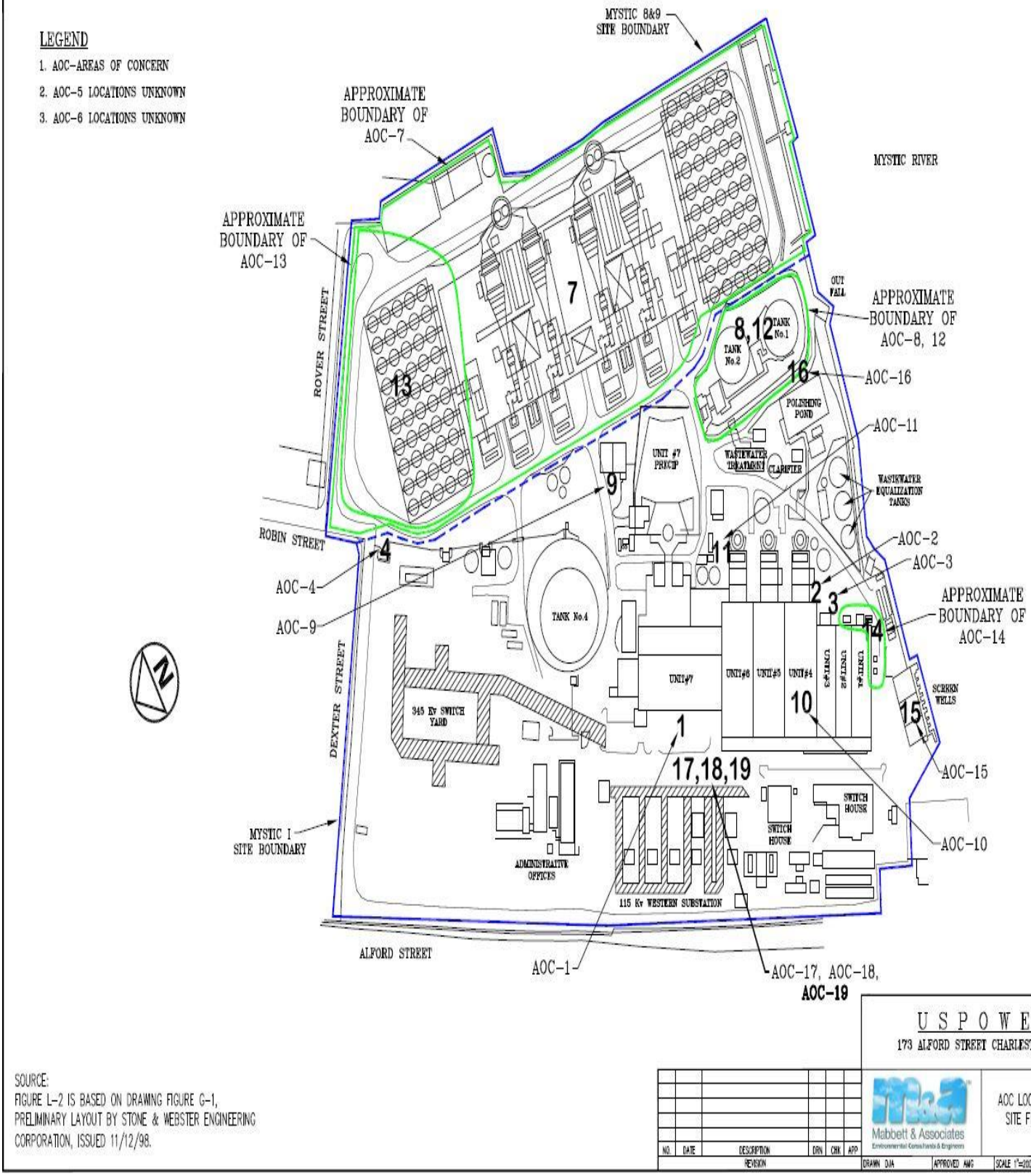
NOT TO SCALE

SAMPLE LOCATIONS APPROXIMATE

Figure 10- Figure 4B Insert



MAP of AOCs


LEGEND
1. AOC-AREAS OF CONCERN
2. AOC-5 LOCATIONS UNKNOWN
3. AOC-6 LOCATIONS UNKNOWN
MYSTIC 8&9 SITE BOUNDARY
APPROXIMATE BOUNDARY OF AOC-7
MYSTIC RIVER
APPROXIMATE BOUNDARY OF AOC-13
ROVER STREET
OUT FALL
APPROXIMATE BOUNDARY OF AOC-8, 12
TANK No.1
TANK No.2
AOC-16
POLISHING POND
AOC-11
UNIT #7 PRECIP
WASTEWATER TREATMENT
CLARIFIER
WASTEWATER EQUALIZATION TANKS
ROBIN STREET
AOC-2
AOC-3
AOC-4
AOC-9
TANK No.4
APPROXIMATE BOUNDARY OF AOC-14
UNIT#7
UNIT#6
UNIT#5
UNIT#4
UNIT#3
UNIT#2
UNIT#1
SCREEN WELLS
DEXTER STREET
345 Kv SWITCH YARD
AOC-15
SWITCH HOUSE
SWITCH HOUSE
MYSTIC I SITE BOUNDARY
AOC-10
ADMINISTRATIVE OFFICES
115 Kv WESTERN SUBSTATION
ALFORD STREET
AOC-1
AOC-17, AOC-18, AOC-19
N
SOURCE:
FIGURE L-2 IS BASED ON DRAWING FIGURE G-1, PRELIMINARY LAYOUT BY STONE & WEBSTER ENGINEERING CORPORATION, ISSUED 11/12/98.
NO. DATE DESCRIPTION DRN CHK APP
REVISION
Mabbett & Associates
Environmental Consultants & Engineers
DRAWN DJA
APPROVED AMG
SCALE 1"=200'-0"

Appendix 1

Past Groundwater Monitoring and Remedial Work History

In addition to the extensive remedial and monitoring work associated with the Final Remedy Selected to address PCB and VOC contamination, remedial work and groundwater monitoring took place at other areas of the site which may not have been part of the Final Remedy focus.

Former Surface Impoundment Area - SWMU 3

Historically, from January 1983 through 1988, corrosive wastewater was treated in three surface impoundments located on the north central portion of the Facility. The wastewater was hazardous because it was corrosive in nature approximately 10% strength acid solution.

Groundwater flow direction in this area is generally to the north, but during reduced infiltration periods (i.e., during the winter) the extent of groundwater mounding on top of the silty clay soils is reduced and the point at which the northerly flow meets the regional southerly flow shifts on the Facility boundary in the area of the former surface impoundments.

The following events summarized the remedial work and associated groundwater investigation:

1980 to 1987 - Nine (9) groundwater monitoring wells (MW-1A and 1B, MW-2A and 2B, MW-3 through -7) were installed as part of the surface impoundment closure process. The well locations were intended to represent down gradient and background conditions.

1988 - Surface impoundments were closed.

1989 – A surface impoundment closure plan was submitted to MassDEP.

1989 - On February 24th MassDEP conditionally approved the closure plan.

1989 - The closure plan was resubmitted in May.

1989 - MassDEP approved the revised closure application on September 14th. The approval letter specified the soil and groundwater criteria needed to achieve "clean closure". In addition, MassDEP indicated that groundwater quality from upgradient locations must be compared to down gradient locations, and that MassDEP groundwater Maximum Contaminant Levels (MCL) would be used to assess groundwater quality.

1991 – Perchloroethylene (PCE) is detected as part of the surface impoundment post closure groundwater monitoring. Three additional wells (MW-8 though MW-10) were installed.

1992 - MassDEP issued a "Clean Closure" letter regarding the surface impoundments on October 19, 1992 (see Table 1 above and 2009 RCRA Facility Assessment). The MassDEP considered that the industrial exposure scenario (rather than residential) was appropriate. The letter indicated that the source of PCE could not be confirmed and concurred with the LSP's conclusion that PCE was not associated with the operation of the former surface impoundments and was more likely related to other activities at the Facility or an off-site source.

2009 – PCE found during surface impoundments removal and post closure monitoring is further assessed as part of the RCRA Facility Assessment (RFA). The RFA concludes that area where PCE was detected (i.e., AOC 13) should be further investigated as part of the RCRA Facility Investigation (RFI).

2010 – Groundwater analysis performed as part of the RCRA Facility Investigation (titled RFA Subsurface Investigation Report) showed no concentrations of chlorinated solvents above laboratory detection limits.

Southwestern Area

Groundwater wells had been advanced in the southwestern area of the Facility to assess impacts from historical releases from an outdoor transformer yard. On August 1, 1997, two groundwater wells (MW-1 and MW-2) were advanced down gradient from the release locations during an ASTM Phase II Assessment. MW-1 was located south of the Unit 4 precipitator and MW-2 was located south of the Unit 1 building. MW-1 was installed in clay and fine sand (slight to very strong petroleum odor noted) at a depth of 14 feet below the ground surface with a screened interval from 4 to 14 feet, while MW-2 was installed in sandy gravel (slight petroleum odor noted) to a depth of 15 feet below the ground surface with a screened interval at 5 to 15 feet. The depth to groundwater in this area was measured at 4.69 feet below the ground surface in MW-1 and 10.16 feet below the ground surface in MW-2, suggesting that groundwater in the southwestern portion of the Facility flows south toward the Mystic River.

In addition, there were two releases (described in greater detail in AOC 16 and 17-see the RFA and Table 1 and 2 in previous sections) in the southwestern part of the site.

AOC 16 involved a 1998 sulphuric acid spill. The impacted gravel and soil were excavated and contained in a roll-off box (approximately 12 tons of material) and in six 30-gallon drums and transported off site for disposal A risk characterization performed according to the MCP concluded that a level of No Significant Risk and a Permanent Solution had been achieved. As such, a Class A-2 RAO had been achieved.

AOC 17 Outdoor Electric Substation - In 2003, approximately 30 gallons of Mineral Oil Dielectric Fluid (MODF)was released to the environment during maintenance work performed on transformers by facility staff. On June 18, 2003, approximately 10 cubic yards of impacted

soil and gravel were transported for off-site disposal. A risk characterization performed according to the MCP concluded that a level of No Significant Risk had been achieved. As such, a Class A-2 RAO was achieved.

Two groundwater monitoring wells were installed on June 23, 2006, and three wells were installed on September 19, 2006, to assess groundwater impacts following the release and subsequent remediation of a release of mineral oil dielectric fluid on May 16, 2006, from AOC 17 (LE-MW-1, LE-MW-2, MW-3, MW-4 and MW-5). After 18.5 inches of NAPL were measured in LE-MW-2, a recovery well (RW-2) was installed. Subsequent groundwater measurement and monitoring events showed that no NAPL was observed in these wells.

Fuel Oil Tanks 1 and 2 – AOC 8

Extensive remedial work as well as groundwater monitoring have been conducted in this area. Historical releases of No. 6 fuel oil in this area have required the installation of groundwater recovery as well as monitoring wells near Tanks 1 and 2. Remedial work has also included the excavation, removal and offsite disposal of contaminated soils. The historical releases are discussed in greater detail in the RFA.