PHASE II COMPREHENSIVE SITE ASSESSMENT

WETLAND TO THE WEST OF KEITH MIDDLE SCHOOL
225 HATHAWAY BOULEVARD
NEW BEDFORD, MASSACHUSETTS

Release Tracking Number (RTN) 4-21300

Submitted to:

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EXECUTIVE SUMMARY

TRC Environmental Corporation (TRC) prepared this Phase II Comprehensive Site Assessment (CSA) report on behalf of the City of New Bedford, Massachusetts (City) through the City's Department of Environmental Stewardship, per the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000). This Phase II CSA report was prepared for the wetland to the rear (west) of the Keith Middle School (KMS) located along Hathaway Boulevard in New Bedford, Massachusetts (the Site). The City made the Phase II CSA available for public comment on September 9, 2011. Formal written responses to comments were published on January 10, 2012. Minor editorial changes were implemented by the City during finalization review, which are included in this final document.

This Phase II CSA specifically addresses a wetland area administratively tracked under Release Tracking Number (RTN) 4-21300. Response actions at the Site are presently conducted under a Special Project Designation under RTN-4-15685 due to logistical complexities. The existing Special Project Designation will expire on February 25, 2012.

The Site has been impacted by polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons (PAHs) and/or heavy metals. Environmental site investigation activities described in this Phase II CSA report were conducted between November 2007 and May 2011. Investigations consisted of iterative soil and sediment sampling as well as surface water and groundwater sampling. Site evaluation activities included a Stage I Environmental Screening (ES) and Stage II Environmental Risk Characterization (ERC).

Sediment and soil sampling were primarily conducted using hand tools, though direct push borings advanced using track- or dolly-mounted drill rigs, as well as handheld soil probes, were also utilized to sample sediment and soil and observe subsurface conditions. The following table summarizes sediment and soil samples collected from the Site for laboratory analysis between November 2007 and May 2011. Please refer to the body of the text for the details of each round of sampling.

Summary of Investigation Activities - KMS Wetland: 2007 – 2011						
Sediment and Soil Sampling Summary						
Sample Type	**Number of Samples Submitted for Laboratory Analysis**	**Analyses[1]**				
		PCBs[2]	**PAHs[3]**	**MCP Metals/Hg[4]**	**Pb, Se and/or Zn Only[5]**	**Biological Testing**
Sediment[6]	356	356	46	77	25	7
Soil[7,8]	187	152	90	90	0	0

Notes:
[1]Does not include quality control (QC) samples.
[2]Polychlorinated biphenyls (PCBs) as Aroclors by SW-846 Method 8082; in addition, two sediment samples and two soil samples were submitted for PCB homologue analysis by EPA Method 680 and four sediment samples were submitted for PCB congener analysis by SW-846 Method 1668 [Revision A].
[3]Polyaromatic hydrocarbons (PAHs) by SW-846 Method 8270C.
[4]Massachusetts Contingency Plan (MCP) Metals/Hg - antimony, arsenic, barium, beryllium, cadmium, chromium, lead, nickel, selenium, silver, thallium, vanadium, zinc, and mercury by SW-846 Methods 6010B/7471A.
[6] Four sediment samples were also analyzed for total organic carbon (TOC) by SM 5310C.
[5] Pb: lead, Se: selenium, and/or Zn: zinc by SW-846 6010B.
[7]Includes six samples of material accumulated within storm water drain pipes.
[8] Five surface soil samples from the southern portion of the wetland were also analyzed for pesticides via SW-846 Method 8081A.

Groundwater sampling was performed to evaluate groundwater conditions at and near the Site and confirm the absence of impacts to groundwater, as well as to determine whether a "background" groundwater condition has potentially impacted the wetland surface water. The following table summarizes groundwater and surface water samples collected from the Site for laboratory analysis between May 2008 and May 2011. Please refer to the body of the text for the details of each round of sampling.

Summary of Investigation Activities - KMS Wetland: 2008 – 2011							
Groundwater and Surface Water Sampling Summary							
Sample Type	**Number of Samples Submitted for Laboratory Analysis**	**Analyses[1]**					
		VOCs[2]	**PCBs[3]**	**PAHs[4]**	**MCP Metals/ Hg[5]**	**Calcium and Magnesium[6]**	**Zinc and Hardness[7]**
Groundwater	26	21	23	0	26[8]	0	0
Surface Water	24	0	5	5	5[8]	10	24

Notes:
[1]Does not include quality control (QC) samples.
[2]Volatile organic compounds (VOCs) by SW-846 Method 8260B.
[3] Polychlorinated biphenyls (PCBs) as Aroclors by SW-846 Method 8082; surface water as PCB homologues by EPA Method 680.
[4]Polyaromatic hydrocarbons (PAHs) by SW-846 Method 8270C.
[5]Massachusetts Contingency Plan (MCP) Metals/Hg - antimony, arsenic, barium, beryllium, cadmium, chromium, lead, nickel, selenium, silver, thallium, vanadium, zinc and mercury by SW-846 Methods 6010B/7470A.
[6]Calcium (total) and magnesium (total) by SW-846 Method 6010B.
[7]Zinc (dissolved) by SW-846 Method 6010B; hardness by SM 18-20 2340B.
[8]Groundwater and surface water samples were analyzed for total metals and dissolved (field-filtered) metals, as needed.

A Method 3 risk characterization approach, including a Stage I ES and Stage II ERC, was used to evaluate potential risks to both human and ecological receptors from wetland sediment and surface water.

A Stage II ERC was conducted to assess risk to the environment because an initial Stage I ES identified potential impacts to the habitat at the KMS wetland associated with zinc in surface water; 17 PAHs, 3 pesticides, PCB Aroclors 1254 and 1260, and 7 inorganics in sediment; 3 pesticides and 2 inorganics in surface soil within the southern wetland area; and 15 PAHs, PCB Aroclors 1254 and 1260, and 6 inorganics in surface soil within the northern wetland area. The Stage II ERC was conducted due to the presence of materials with the potential to bioaccumulate (e.g., PCBs and lead) within 2 feet of the ground surface.

Based on the available information, groundwater categories GW-1, GW-2 and GW-3 apply to groundwater beneath the Site, and soil categories S-1, S-2 and S-3 currently apply to Site soil. The S-1 soil category was also used to assess risk in an unrestricted future use scenario.

Based on the results of the Phase II CSA, the following conclusions have been developed:

- The KMS wetland initially became impacted due to fill material associated with the construction of New Bedford High School (NBHS). In 2006, the BETA Group, Incorporated of Norwood, Massachusetts (BETA) oversaw the excavation of 6 inches of PCB impacted sediment by a contractor from areas of the wetland where the Toxic Substances and Control Act (TSCA) 1 milligram per kilogram (mg/kg) sediment cleanup criterion was exceeded. TRC subsequently conducted sampling of sediment, as set forth in the Long-Term Monitoring and Maintenance Implementation Plan (LTMMIP), and discovered:

- An Imminent Hazard (IH) reporting condition based on the detection of PCB impacts in shallow wetland sediment in excess of a concentration that could pose an IH per 310 CMR 40.0321(2)(b) was identified at the Site on June 9, 2008. The City reported the detection to the Massachusetts Department of Environmental Protection (MassDEP) per 310 CMR 40.0321(2) and 310 CMR 40.0311(7) via telephone on June 9, 2008. MassDEP assigned RTN 4-21300 and verbally approved Immediate Response Action (IRA) assessment activities. An IRA Completion report was filed with the MassDEP in October 2010 after completing the installation of a perimeter fence surrounding the northern portion of the KMS wetland on December 14, 2009, which restricts access to the entire northern portion of the wetland.

- Potentially impacted environmental media at the Site following the BETA excavation may include sediment, soil, groundwater and surface water. The potential source(s) of the post-remedy PCB concentrations are not known, but are not thought to be on-going or active conditions.

- A Stage II ERC evaluated potential exposures to six indicator species and two indicator communities to PAHs, pesticides, PCBs and/or inorganics in sediment, potential exposures to five indicator species from PAHs, pesticides, PCBs and/or inorganics in

surface soil, and potential exposures to the amphibian community from zinc in surface water. Assessment and measurement endpoints were selected to represent ecological attributes used to gauge the degree of potential impact. The results of the Stage II ERC indicate the following:

- **Sediment/Northern Wetland –**
  - Potential for adverse effects to benthic macroinvertebrates from PCB and PAH concentrations based on a reduction in midge larvae growth rates when exposed to the highest detected concentrations of those chemicals.
  - Low potential for risk from the pesticide 4,4'-DDT due to its lower ecological screening benchmark criteria, but reduced bioavailability (a function of the high organic carbon content of the sediment).
  - No apparent risk from lead and zinc based on lack of toxicity observed during testing.

- **Surface Soils/Northern Wetland** (0-12 inches deep) **–**
  - A Condition of No Significant Risk exists for foraging carnivorous birds and mammals.
  - Potential impacts to omnivorous birds and mammals and insectivorous mammals from concentrations of PCB congeners, lead and/or zinc.

- **Surface Water/Northern Wetland –**
  - Zinc concentrations detected in 11 of 24 surface water samples collected from the northern wetland are above the acute/chronic national recommended water quality standard, which represents the Massachusetts Surface Water Standard for zinc [314 CMR 4.05(5)(e)].
  - TRC's ecological risk characterization has demonstrated that amphibians are not at risk based on site-specific testing.
  - However, pursuant to 310 CMR 40.0995(3)(b)(1)(b), even though six out of seven surface water samples collected in 2010 were below the Massachusetts standard for zinc, the presence of zinc at concentrations above the Massachusetts surface water standard categorically represents a condition of "readily apparent harm," and, therefore, indicates a Condition of No Significant Risk does not exist for surface water at the Site.

- A Condition of No Significant Risk exists for both human and environmental receptors in the southern portion of the wetland (south of the land bridge).

- Based on the groundwater results obtained to date, a Condition of No Significant Risk exists for Site groundwater.

- A Condition of No Significant Risk exists in the northern portion of the wetland under the current use scenario based on data collected to date.

- A Condition of No Significant Risk exists for human receptors in the northern portion of the wetland under future use scenarios, with the exception of the ERC-SED-11A area.

- The ERC-SED-11A area contains PCB concentrations in sediment greater than one hundred times the corresponding MCP Method 1 S-1 soil standard, and the average PCB concentration in the remainder of the northern wetland. Therefore, the ERC-SED-11A area meets the MCP definition of a "hot spot".

- No individual soil or groundwater concentration, or soil or groundwater exposure point concentration (EPC), exceeds its respective MCP Upper Concentration Limit (UCL) for soil or groundwater.

- No nuisance conditions exist with respect to the Site, there has been no significant loss of active or passive uses of the property, no public resource is known to be impacted by the wetland, and soil and groundwater EPCs are less than their respective MCP UCLs. Therefore, a Condition of No Significant Risk to public welfare exists at the Site.

1.0 INTRODUCTION

TRC Environmental Corporation (TRC) prepared this Phase II Comprehensive Site Assessment (CSA) report on behalf of the City of New Bedford, Massachusetts (City) through the City's Department of Environmental Stewardship, per the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000). This Phase II CSA report was prepared for the wetland to the rear (west) of the Keith Middle School (KMS) located along Hathaway Boulevard in New Bedford, Massachusetts (the Site). The City made the Phase II CSA available for public comment on September 9, 2011. Formal written responses to comments were published on January 10, 2012. Minor editorial changes were implemented by the City during finalization review, which are included in this final document.

This Phase II CSA specifically addresses wetland impacts that are administratively tracked under Release Tracking Number (RTN) 4-21300. Response actions at the Site are presently conducted under a Special Project Designation under RTN 4-15685 due to logistical complexities. The existing Special Project Designation will expire on February 25, 2012.

The Site is an approximate 5-acre area to the rear of the approximate 11.5-acre KMS property, which is identified by the City of New Bedford Assessor as block 167 on map 75. The Site is located between the east side of Summit Street and the west side of the KMS campus, and is bordered to the north by Durfee Street. The location of the Site is shown on Figure 1-1. A Class A-3 Partial Response Action Outcome (RAO) Statement was submitted by the BETA Group, Incorporated of Norwood, Massachusetts (BETA) for the KMS campus portion of the RTN 4-15685 disposal site on December 11, 2006.

The KMS wetland has been impacted by polyaromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and/or heavy metals (including but not limited to cadmium and lead). The fill material is attributable to historical waste disposal activities associated with the RTN 4-15685 disposal site.

This Phase II CSA report focuses on the post-remedial impacts to the KMS wetland tracked under RTN 4-21300. The other properties associated with the RTN 4-15685 disposal site have been, or will be, addressed in separate reports. For the purposes of this Phase II CSA report, analytical results for samples collected through May 2011 have been included and are considered sufficient to characterize the nature and extent of chemical impacts.

PCB impacts were detected in shallow wetland sediment in excess of a concentration that could pose an Imminent Hazard (IH) per 310 CMR 40.0321(2)(b) on June 9, 2008. The Massachusetts Department of Environmental Protection (MassDEP) assigned RTN 4-21300 and approved Immediate Response Action (IRA) assessment activities. The IRA performed to address the potential IH condition is summarized in Section 6.

The investigative work performed evaluated the wetland impacts (RTN 4-21300) detected during required monitoring activities following the remedy implemented at the Site by BETA in 2006. The results of the investigative work were evaluated with respect to regulatory requirements under the MCP, and fulfill the data requirements for a Phase II CSA under the MCP (310 CMR

40.0830). Analytical data generated during the investigations are consistent with the most recent edition of the MassDEP Compendium of Analytical Methods (CAM).

1.1 Special Project Designation

The RTN 4-15685 disposal site has a Special Project Designation, per 310 CMR 40.0060, granted on December 20, 2001. On June 2, 2007 MassDEP granted a five-year extension of the Special Project Designation, which will expire on February 25, 2012.

The RTN 4-15685 disposal site has not yet been Tier Classified, as allowed per 310 CMR 40.0064 of the MCP. Public involvement meetings are held periodically to inform concerned citizens of the project status. The public involvement meetings are broadcast on local public access television and include visual presentations by the Licensed Site Professional (LSP) with as needed interpretive services for Portuguese and/or Spanish speaking attendees.

1.2 Objectives

The objectives of this Phase II CSA report are to evaluate the nature and extent of impacts at the Site, and complete a risk characterization. Work performed at the Site during required monitoring activities following the remedy previously implemented at the Site in 2006 identified additional impacts. Documents summarizing previous work performed at the Site by VHB, BETA and TRC are listed in Section 12.

This report is subject to the Limitations presented in Appendix A. Public notification letters are included in Appendix B. Other appendices provided herein include Appendix C (Field Logs), Appendix D (Sediment and Soil Sample Summary), Appendix E (Monitoring Well Information and Groundwater Elevation Data), Appendix F (Historical Documentation), Appendix G (Laboratory Data Reports), Appendix H (Chemical Characteristics), Appendix I (Stage I ES and Stage II ERC), Appendix J (Method 3 Risk Characterization Supporting Information), and Appendix K (Data Usability Assessment). .

2.0 DISPOSAL SITE BACKGROUND INFORMATION

Per 310 CMR 40.0835(4) subparts (a) through (c) of the MCP, the following provides basic information related to the disposal site, a summary of disposal site maps depicting relevant investigation and sampling points, and an updated disposal site history.

2.1 Disposal Site Information

Per 310 CMR 40.0835(4)(a), the following table summarizes the required disposal site information.

Site/Disposal Site Name	Wetland to the West of Keith Middle School
Address	225 Hathaway Boulevard
City	New Bedford
Release Tracking Number	4-21300 (initially tracked under RTN 4-15685)
Latitude/Longitude	41.645640°/-70.950853°
UTM* Coordinates	Northing: 4,612,273 meters; Easting: 337,538 meters

* - Universal Transverse Mercator

2.1.1 Site Demographics

The northern portion of the Site is completely fenced to prohibit access. There are no people present at the Site on a regular basis. Based on information obtained from Mr. Richard Desrosiers, the Principal of KMS (located adjacent to the Site), there are approximately 157 full and part-time employees at the KMS (Desrosiers, 2011). An estimated 2,500 people reside within a ½-mile radius of the Site. This estimate is based on the proportion of the City of New Bedford found within a ½-mile radius of the Site and community profile population data obtained from the official Commonwealth of Massachusetts website (DHCD, 2007).

2.1.2 Land Uses Surrounding the Site

Land uses at properties surrounding the Site are largely residential with the following exceptions:

- The KMS building/campus located east of the Site;
- The Corner Sports Store located east of the Site (north of the KMS campus); and
- The Hetland Memorial Skating Rink located east of the Site across Hathaway Boulevard from the Corner Sports Store.

2.1.3 Institutions Within 500 Feet of Site

Based on Site reconnaissance and review of topographic maps, there are no institutions within 500 feet of the Site. The MCP defines an institution as, “any publicly or privately owned hospital, health care facility, orphanage, nursing home, convalescent home, educational facility, or correctional facility where such facility in whole or in part provides overnight housing.” The Site lies within the KMS property and within approximately 350 feet of the New Bedford High School (NBHS) property.

2.1.4 Natural Resources Within 500 Feet of Site

Based on review of a MassDEP Priority Resource Map (Figure 2-1), there are no drinking water supply wells or areas of critical environmental concern (ACECs) at the Site. The area surrounding the Site is connected to the municipal water supply, with the exception of one home located on Summit Street that utilizes a private well.

The MassDEP Priority Resource Map depicts the northern portion of the Site as a freshwater wetland and a perennial stream is shown running approximately south to north, beginning just north of Ruggles Street and discharging from the wetland at Durfee Street. However, based on several lines of evidence presented in Section 3.2.2, TRC's investigations indicate the stream is intermittent rather than perennial, and is treated as such in the Ecological Risk Characterization (ERC) and this Phase II CSA. Additional freshwater wetlands are present north of the Site in the vicinity of Potter Street and protected open space is present east of the Site, with both features estimated to be within 500 feet of the Site.

A property located on Summit Street reportedly includes a private water supply well that may be used for household purposes which is located within 500 feet of the Site.

2.2 Disposal Site Maps

Consistent with 310 CMR 40.0835(4)(b), the following table summarizes the disposal site maps and other supporting figures that are provided as part of this Phase II CSA report.

Figure 1-1	Site Location Map
Figure 2-1	MassDEP Priority Resource Map
Figure 2-2	Disposal Site Map and Exposure Point Areas
Figure 3-1	TRC Sample Location Plan
Figure 3-2	Estimated Groundwater Contour Plan – January 20, 2011
Figure 3-3	Surface Water Sample and Staff Gauge Locations
Figure 3-4	Federal Emergency Management Agency (FEMA) Floodplain Map
Figure 4-1	Analytical Results Summary Map – Southern Portion of Wetland TRC Data
Figure 4-2	Analytical Results Summary Map – Northern Portion of Wetland TRC Data
Figure 4-3	Analytical Results Summary Map – Southern Portion of Wetland BETA Data
Figure 4-4	Analytical Results Summary Map – Northern Portion of Wetland BETA Data
Figure 4-5	Analytical Results Summary Map – Durfee Street Right-of-Way and West Lot
Figure 4-6	Analytical Results Summary Map – Summit Street Right-of-Way Portion of Wetland TRC Data
Figure 4-7	BETA Post-Excavation Sample Locations – 2006

Figure 4-8	Estimated PCB Isoconcentration Contours – 0-1' Horizon TRC Samples
Figure 4-9	Estimated PCB Isoconcentration Contours – 1-3' Horizon TRC Samples
Figure 5-1	Schematic Conceptual Site Model
Figure 6-1	Ecological Risk Characterization and Near Surface Stratification Sample Locations
Figure 6-2	Supplemental Ecological Risk Characterization Sediment, Soil, Groundwater and Surface Water Sampling Locations
Figure 6-3	Supplemental Sampling Locations
Figure 6-4	Supplemental Cap Slope Sample Locations

2.3 Disposal Site History

Per 310 CMR 40.0835(4)(c), the following presents a Site Description and Site History.

2.3.1 Site Description

The area of focus under this Phase II CSA occupies an approximately 5-acre area adjacent to the approximately 6.5-acre KMS property portion of the RTN 4-15685 disposal site. The KMS property is identified by the City of New Bedford Assessor as block 167 on map 75. The Site is located between the east side of Summit Street and the west side of the KMS campus, and is bordered to the north by Durfee Street.

For the purposes of this Phase II CSA, the Site boundary includes the KMS wetland, the adjacent capped slope area of the KMS campus to the east of the wetland (i.e., the Phase I Embankment), the Summit Street Right-of-Way (ROW) west of the wetland, the Durfee Street ROW north of the wetland, and the "Durfee Street West Lot" northeast of the wetland (a municipal property located within the fence that surrounds the northern portion of the wetland). These areas reflect the locations investigated during the assessment of Site impacts tracked under RTN 4-21300.

Properties in the vicinity of the Site include the KMS, a commercial property occupied by a store, a state-owned ice arena (Hetland Rink), the NBHS, several vacant lots, and numerous residential properties. The Universal Transverse Mercator (UTM) coordinates for the Site are 4,612,273 meters north and 337,538 meters east in Zone 19. The latitude and longitude of the Site are 41.645640° latitude and -70.950853° longitude. A Site Location Map is provided as Figure 1-1 that includes 500-foot and ½-mile radii of the Site boundary.

Review of the United States Geological Survey (USGS) Topographic Quadrangles for New Bedford South dated 1977 and New Bedford North dated 1979 indicates that the Site is located at approximately 90 feet above mean sea level. The Site is level with hills to the east and west. New Bedford Harbor is located approximately 1.5 miles east of the Site.

There are no buildings at the wetland Site. The KMS building is located directly east of the Site on the KMS campus and several residential properties are located to the west of the Site. An unpaved land bridge separating the northern and southern portions of the wetland is present

between the KMS campus and Auburn Street. There are no impervious surfaces (e.g., pavement or buildings) within the Site boundary.

A MassDEP Priority Resource Map is provided as Figure 2-1. Figure 2-2 presents current Site conditions.

This Phase II CSA discusses analytical results by defined exposure areas which include the northern and southern portions of the wetland, as separated by the land bridge between Auburn Street and the KMS campus. The northern portion of the wetland is surrounded by a tall (approximately 8-foot) permanent metal chain-link perimeter fence to restrict unauthorized access. Within the northern portion of the wetland there is a distinct area defined via chemical distribution/concentration in the immediate vicinity of sediment sample ERC-SED-11A, which is evaluated as a separate exposure area. The boundaries of the exposure areas are indicated on Figure 2-2, and discussed in Section 7 (Human Health Risk Characterization).

2.3.2 Site History

Based on review of historical USGS topographic maps from 1941, 1949 and 1979, the Site and the KMS campus area adjacent to the east of the Site were a contiguous wetland area prior to the apparent waste disposal activity associated with the RTN 4-15685 disposal site. In the 1941 (1936 survey data) and 1949 (1948 survey data) maps, the Site and adjacent KMS campus area are still illustrated as a contiguous wetland; however, the eastern portion of the wetland and the entire KMS campus are depicted as dry unoccupied land in the 1979 (1974/1975 survey data) map.

In 2000, during an environmental due-diligence investigation of the Former McCoy Field as a possible location for the new middle school, PCB soil impacts were detected. MassDEP assigned RTN 4-15685 to the disposal site (the site name for RTN 4-15685 was initially McCoy Field based on the original location of the reported impacts). Following the original detection of PCBs at the Former McCoy Field, additional investigations of the surrounding area were undertaken by BETA on behalf of the City in response to a conditional approval for the KMS site remedy issued by the United States Environmental Protection Agency (EPA)[1].

An EPA-approved remedy for the PCB impacted wetland sediments at the Former McCoy Field/KMS portion of the RTN 4-15685 disposal site was implemented between July and December 2006. The remedy included the removal of up to 6 inches of impacted sediments with PCB concentrations greater than 1 milligram per kilogram (mg/kg) at locations within the wetland, capping of PCB impacted soils along the embankment adjacent to the east side of the wetland (i.e., Phase I Embankment), and subsequent restoration of the wetland (i.e., replacement of excavated wetland soils and replanting disturbed wetland vegetation). The 1 mg/kg concentration represents a self-implementing clean-up level for *Bulk PCB Remediation Waste in High Occupancy Areas* under 40 CFR Part 761.61(a)(4)(i)(A) without further conditions, such as capping. Following stabilization of the Phase I Embankment and impacted sediment excavation, verification samples were collected and analyzed for PCBs via SW-846 Method 8082. Removal

[1] EPA jurisdiction over the KMS portion of the RTN 4-15685 disposal site is due to the presence of PCBs above TSCA thresholds.

efforts continued until verification sample results were below the 1 mg/kg remediation goal, at which point Site restoration activities were initiated. Additional details of the remediation work performed under the direction of BETA in the KMS wetland during 2006 are provided in Section 2.3.5.

The KMS was constructed in 2006 on a 3-foot cap (2 to 2.5 feet of sandy gravel and topsoil overlying 0.5 to 1-foot of crushed stone) to limit exposures to soil impacts, with a geotextile separation fabric and orange snow fence warning layer. The cap extends to the property line along Hathaway Boulevard to the east, to a paper street known as Nemasket Street to the south, to the west over the embankment that serves as a boundary for the Site wetland, and along the back lot lines of the Durfee Street properties to the north.

On December 11, 2006, the Former McCoy Field/KMS portion of the RTN 4-15685 disposal site was closed with a Class A-3 Partial RAO including an activity and use limitation (AUL). The KMS remedy is monitored under a Long-Term Monitoring and Maintenance Implementation Plan (LTMMIP) approved by EPA (dated October 20, 2006). Please refer to BETA's 2006 *Final Completion and Inspection Report prepared for the McCoy Field/Keith Middle School* (BETA, 2006c - 2006j) for additional details concerning the remedy implemented by BETA for the KMS portion of the RTN 4-15685 disposal site. An RAO was not filed for the wetland remediation.

In accordance with the provisions for wetland sediment monitoring at the Site as set forth in the EPA-approved LTMMIP, TRC performed sampling of sediment in the wetland on May 27, 2008 (SD-01 through SD-04), with the samples analyzed for PCBs via SW-846 Method 8082. Three out of the four samples were non-detect; however, sediment sample SD-03 contained total PCBs at a concentration above the criteria per 310 CMR 40.0321(2)(b). This detection triggered a regulatory reporting obligation to MassDEP in accordance with 310 CMR 40.0321(2) and 310 CMR 40.0311(7). TRC notified MassDEP via telephone within the regulatory reporting timeframe at approximately 3:15 P.M. on June 9, 2008. MassDEP assigned RTN 4-21300 and approved an "assessment only" IRA. Additional details regarding the IRA performed to address conditions associated with RTN 4-21300 are provided in Section 6.

2.3.3 Petroleum and Hazardous Substance Storage History

Historical documentation indicates that the Site and KMS campus area were undeveloped wetland prior to disposal of impacted fill. The impacted fill at the KMS campus area of the property was capped as part of the remedy implemented by BETA in 2006. No petroleum or hazardous substances are currently, or have historically been, stored at the Site.

The KMS building adjacent to the Site is heated via natural gas-fired boilers, and back-up power is provided by a natural gas generator. A 12,000-gallon above ground storage tank containing No. 2 fuel oil, which is kept as a contingency measure for an alternate heat source, is located to the rear of the building.

2.3.4 Previous Subsurface Investigations

Previous subsurface environmental investigations at the Site were conducted by VHB and BETA between August 2000 and January 2006. VHB collected soil, sediment and surface water

samples which were submitted for laboratory analysis of PCBs, barium, lead, semi-volatile organic compounds (SVOCs) and/or pesticides. A list of reports prepared by VHB for the Site is provided in Section 12.

Between July 2004 and January 2006, BETA submitted approximately 158 sediment samples collected from the wetland for the following laboratory analyses:

Analysis	**Number of Sediment Samples**[1]
PCB Aroclors	158
RCRA 8 Metals	135
TCLP Lead	36
Total Organic Carbon	65
PAHs	135
Pesticides	17
Herbicides	17

Notes:
[1]Does not include quality control (QC) samples.
PCB – polychlorinated biphenyl
RCRA – Resource Conservation and Recovery Act
TCLP – toxicity characteristic leaching procedure
PAHs – polyaromatic hydrocarbons

In addition to those sediment samples, BETA collected soil samples in July and September 2004 from 33 locations along the water line on the eastern side of the wetland at depths ranging from 1 to 8 feet below ground surface. In September 2006, BETA collected soil samples from 33 locations within the Durfee Street ROW, the wooded portion of the northern wetland south of the Durfee Street ROW, and the Durfee Street West Lot (sample depths ranging from the surface to 3 feet below grade).

Subsequent to their Site characterization sampling, BETA conducted remedial activities in the wetland between July and December 2006, as discussed in Section 2.3.5. Following the remedial action, BETA collected approximately 545 post-excavation samples for PCB analysis.

Analytical results for BETA samples that reflect current Site conditions are discussed in Section 4 relative to MCP regulatory standards. Specifically, characterization samples representative of locations that BETA did not excavate during the 2006 remedy were included in the Phase II CSA. In addition, TRC included representative BETA post-excavation samples collected following the remedy. The aforementioned BETA data sets are considered representative of current Site conditions and are evaluated in Section 4 as part of the Phase II CSA.

The following chemicals were detected in Site sediment at concentrations above regulatory criteria during BETA's investigations (BETA, 2005a – 2005g, BETA, 2006a – 2006k):

- PCBs
- cadmium
- chromium
- lead

- mercury
- PAHs (chrysene, fluoranthene, fluorene, and phenanthrene).

2.3.5 Previous Remedial Action

Between July and December 2006, the EPA-approved remedy for the PCB impacted wetland sediments at the Site was implemented. Information regarding the remedy can be found in the following documents:

- *Wetlands Risk-Based Cleanup Request: Wetlands Site at McCoy Field* (BETA, 2005d);
- *Wetlands Risk-Based Cleanup Request Revision 1 (Revised Portions Only): Wetlands Site at McCoy Field* (BETA, 2005e); and
- *Final Completion and Inspection Report prepared for the McCoy Field/Keith Middle School,* Volumes 1 through 8 (BETA, 2006c - 2006j).

The 2006 wetland remedy involved the following:

- **Excavation.** Excavation of wetland sediment containing total PCB concentrations in excess of 1 mg/kg for off-Site disposal[2];

- **Capping.** Capping PCB impacted soils along the embankment adjacent to the east side of the wetland (i.e., Phase I Embankment) with a geotextile marker overlain by three feet of clean granular fill with vegetated topsoil (the Phase I cap was implemented as part of the remedy for the KMS campus area and subsequently modified to accommodate implementation of the wetland remedy); and

- **Restoration.** Restoration of the wetland, including replacement of the excavated wetland sediment with organic wetland soil and replanting wetland vegetation.

Excavation of impacted sediment and wetland restoration construction activities were performed by RC&D Construction (RC&D), under the oversight of BETA. At the time of Site remedy implementation, an additional 12 to 36 inches (approximately) of soil was removed from the toe of the slope of the Phase I Embankment along the east side of the wetland. The soil in this area was originally to be removed as part of the previously completed Phase I Embankment Stabilization (performed by WES Construction) in order to meet the cap thickness requirement of 3 feet over PCB-impacted soils or reach the target cleanup level of 1 mg/kg established by EPA. However, the soil in this area was judged at that time to be inaccessible due to the high water level in the wetland during the original stabilization activities. Consequently, soil at the toe of the slope was not removed at that time, necessitating an adjustment to the wetland remedy design. Since concentrations of PCBs in soils along the toe of slope were above 1 mg/kg, and the minimum 3-foot thick soil cap could not be installed without encroaching into the wetland, additional excavation was required to complete the embankment cap.

According to Volume 1 of the *Final Completion and Inspection Report prepared for the McCoy Field/Keith Middle School* (BETA, 2006c), the completion of the Phase 1 Embankment cap was

[2] The cleanup criterion of 1 mg/kg was established by the EPA for unrestricted use of the wetland.

performed primarily by RC&D at the time of wetland remediation. The design called for soil impacted by PCBs above 1 mg/kg to be removed from the bottom of the Phase I Embankment and for the geotextile separation barrier along the completed portion of the embankment to be extended to the toe of slope at the edge of the wetland. The end of the extended geotextile fabric was to be folded into the excavation and crushed stone was to be placed on top of the barrier to provide additional stability for the slope.[3] Finally, the geotextile was to be covered with granular fill, a warning barrier, and vegetated topsoil to meet the 3-foot thick cap criterion.

Excavation of the southern wetland, which was drier than the northern wetland, was completed first. The northern wetland required dewatering since portions contained 4 to 5 feet of water. Excavation of the impacted sediments in the northern wetland reportedly proceeded from south to north. The contractor used bladder bags to divide the northern wetland into three cells to facilitate dewatering and sediment removal. The sequence of excavation in the northern wetland reportedly proceeded as follows:

- **Embankment modification.** A section of the toe of the Phase I Embankment was excavated and the geotextile separation barrier on the embankment was exposed;
- **Sediment excavation.** Sediments were excavated from the wetland adjacent to the toe of the Phase I Embankment.
- **Post-excavation sampling.** In general, post-excavation sediment samples were collected from the excavated area shortly after the removal of sediments to evaluate if the 1 mg/kg PCB cleanup criterion was met; and
- **Geotextile extension.** The geotextile separation barrier was extended into the wetland and crushed stone was placed on the end of the geotextile in the wetland.

Post-excavation sediment samples collected from the wetland indicated that the concentrations of PCBs in the excavated areas were below the 1 mg/kg criteria. On this basis, the wetland was backfilled with engineered wetland soils having a minimum organic carbon content of 12-percent and wetland vegetation was re-established.

Sediment sampling conducted subsequent to the 2005-2006 sediment remediation detected PCB concentrations in sediment above reporting thresholds and cleanup criteria. The potential source(s) of the post-remedy PCB concentrations are not known, but are not thought to be on-going or active conditions.

2.4 Phase I Information Updates

A Phase I Initial Site Investigation (ISI) report has not been prepared for the Site. This Phase II CSA is intended to fulfill the requirements of a Phase I ISI, as set forth in 310 CMR 40.0483, as summarized below:

Phase I ISI-Required Information	Section(s) of Phase II CSA
General Disposal Site Information	2.1
Disposal Site Map	2.2

[3] Note that according to field notes maintained by the City of New Bedford on-site representative, the geotextile may have been installed vertically along the edge of the wetland and stabilized with crushed stone, rather than lining the excavation.

Phase I ISI-Required Information	Section(s) of Phase II CSA
Disposal Site History	2.3
Site Hydrogeological Characteristics	3.0
Nature and Extent of Impacts	4.0
Migration Pathways and Exposure Potential	5.0 and 6.0
Evaluation of Immediate Response Actions	6.0

3.0 SITE HYDROGEOLOGICAL CHARACTERISTICS

Environmental site investigation activities described in the following section were conducted on behalf of the City between November 2007 and May 2011. Information and observations relative to Site geology and hydrogeology are summarized below, in accordance with 310 CMR 40.0835(4)(d).

3.1 Subsurface Investigations/Documentation

Environmental investigations consisted of iterative sediment and soil sampling and also included surface water and groundwater sampling. Sediment sampling was performed to delineate the extent of impacts and evaluate potential sources of the release, and surface water and surface soil sampling were conducted. Groundwater monitoring was conducted to evaluate groundwater conditions in the vicinity of the Site and confirm the absence of impacts to groundwater noted by BETA, as well as to evaluate whether a potential "background" condition may exist with regard to zinc in groundwater and surface water.

Sediment and soil sampling were primarily conducted using hand tools, though direct push sediment/soil borings advanced using track- or dolly-mounted drill rigs, as well as handheld soil probes (i.e., Bosch hammer drill) were also utilized to sample sediment/soil and observe subsurface conditions. Drilling services and equipment, when utilized, were provided by New England Geotech of Jamestown, Rhode Island. Copies of boring logs prepared by TRC's field geologists/engineers are provided in Appendix C.

Two new groundwater monitoring wells were installed within the City-owned Summit Street ROW adjacent to the western portion of the Site. The new monitoring wells were then sampled in conjunction with three existing monitoring wells (MW-1 through MW-3) at the KMS campus located east of the Site that are sampled twice per year as part of LTMMIP activities. In addition, TRC installed and sampled three monitoring wells located south of the Site on City-owned parcels along Nemasket Street.

TRC undertook an iterative investigative approach to evaluate the extent of impacts within the KMS wetland. In general, sediment samples were initially collected from 0 to 6 inches below grade, with locations showing impacts above regulatory standards subsequently revisited to evaluate the lateral and vertical extent of the impacts. When borings were advanced or sediment/soil samples were collected from deeper than 6 inches below grade, sediment/soil samples were collected until native overburden was encountered unless refusal was encountered first. Where native material was submitted for laboratory analysis, two samples of native material from two different depths were typically collected at locations selected to characterize the native horizon. The lower native sample was retained for analysis contingent upon the results of the upper native horizon analysis in an attempt to delineate the vertical extent of constituents. The contingent native material was not analyzed if the native material interval above it did not indicate constituents above regulatory standards. Some relatively shallow soil samples were also collected to supplement previously collected data to support an evaluation of current risk. All sampling locations were professionally surveyed by a qualified surveying firm.

Soil samples were evaluated in the field for visual and olfactory evidence of impacts and field screened using the MassDEP jar headspace methodology and a photoionization detector (PID [10.6 eV lamp]) calibrated to an appropriate standard. The geologic characteristics of the soil samples were also evaluated and logged.

Groundwater samples were collected following EPA Region I low stress (low flow) sampling guidelines (USEPA, 1996). During purging, water quality parameters were monitored and recorded on groundwater sampling forms. Groundwater samples were collected after water quality parameters had stabilized in accordance with the low flow guidance, or after one hour of purging if parameters did not stabilize.

Figure 3-1 shows the locations investigated by TRC at the Site using the above-described techniques. The surveying firm Land Planning, Incorporated of Hanson, Massachusetts (Land Planning) recorded the locations of TRC's sampling activities.

Sections 3.1.1 and 3.1.2 summarize Site investigations performed between November 2007 and May 2011. Samples collected from the Site were submitted to the following laboratories for analysis: Northeast Analytical Laboratories (NEA) of Schenectady, New York; Con-Test Analytical Laboratory (Con-Test) of East Longmeadow, Massachusetts; Alpha Analytical (Alpha) of Westborough, Massachusetts; SGS Environmental Services (SGS) of Wilmington, North Carolina, and Aquatec Biological Sciences (Aquatec) of Williston, Vermont. Sediment and soil samples were analyzed for PCB Aroclors (SW-846 Method 8082), PCB homologues (EPA Method 680), PCB congeners (co-planar congeners via SW-846 Method 1668 [Revision A]), the 13 MCP metals plus mercury (SW-846 Method 6010B/7471A), PAHs (SW-846 Method 8270C), pesticides (SW-846 Method 8081A), total organic carbon (SM 5310C), and/or toxicity (using *Chironomus tentans* and *Hyallela azteca)*. Groundwater and surface water samples were analyzed for PCB Aroclors (SW-846 Method 8082), PCB homologues (EPA Method 680), the 13 MCP metals plus mercury (total and dissolved [filtered] via SW-846 Method 6010B/7470A), PAHs (SW-846 Method 8270C with Selective Ion Monitoring [SIM]), and/or hardness (SW-846 Method 6010B). All samples were submitted under proper chain-of-custody.

3.1.1 Sediment and Soil Investigations

The following table summarizes sediment and soil samples collected from the Site between November 2007 and May 2011.

Summary of Investigation Activities - KMS Wetland: 2007 – 2011						
Sediment and Soil Sampling Summary						
Sample Type	**Number of Samples Submitted for Laboratory Analysis**	**Analyses[1]**				
		PCBs[2]	**PAHs[3]**	**MCP Metals/Hg[4]**	**Pb, Se and/or Zn Only[5]**	**Biological Testing**
Sediment[6]	358	358	46	77	25	7
Soil[7,8]	187	152	90	90	0	0

Notes:
[1]Does not include quality control (QC) samples.
[2]Polychlorinated biphenyls (PCBs) as Aroclors by SW-846 Method 8082; in addition, two sediment samples and two soil samples were submitted for PCB homologue analysis by EPA Method 680, and four sediment samples were submitted for PCB congener analysis by SW-846 Method 1668 [Revision A].
[3]Polyaromatic hydrocarbons (PAHs) by SW-846 Method 8270C.
[4]Massachusetts Contingency Plan (MCP) Metals/Hg - antimony, arsenic, barium, beryllium, cadmium, chromium, lead, nickel, selenium, silver, thallium, vanadium, zinc, and mercury by SW-846 Methods 6010B/7471A.
[6] Four sediment samples were also analyzed for total organic carbon (TOC) by SM 5310C.
[5] Pb: lead, Se: selenium, and/or Zn: zinc by SW-846 Method 6010B.
[7]Includes six samples of material accumulated within storm water drain pipes.
[8] Five surface soil samples from the southern portion of the wetland were also analyzed for pesticides via SW-846 Method 8081A.

Sediment, soil boring and surface soil sample details are summarized below (chronologically by medium). The sediment and soil depth intervals analyzed from each sampling location are tabulated in Appendix D. Soil boring logs are provided in Appendix C. Boring logs were not prepared for samples collected with hand tools or for samples collected from material accumulated within storm drain pipes. The locations of the samples tabulated below are shown on Figure 3-1.

Sediment and Soil Sampling Details - KMS Wetland: 2007 – 2011			
Sample IDs	**Sample Date(s)**	**Total Depth (range in ft bgs)**	**Drilling / Sampling Method**
Sediment/Soil Borings			
SB-01 to SB-15, SB-25	11/7 - 11/28/2007	5 - 13	6620 DT Track Rig
SB-142 to SB-154	5/20 - 5/21/2008	8 - 14	6620 DT Track Rig
WSB-1 to WSB-10[(1)]	6/24/2009	5 - 15	6620 DT Track Rig (WSB-1 through WSB-6) / Bosch Hammer Drill (WSB-7 through WSB-10)
WSB-11 to WSB-19	12/17 - 12/18/2009	1 - 8	5400 or 6600 Truck Rig
TSB-1 to TSB-12	2/8 - 2/9/2010	1 - 4	540M Dolly Rig

Sediment and Soil Sampling Details - KMS Wetland: 2007 – 2011			
Sample IDs	**Sample Date(s)**	**Total Depth (range in ft bgs)**	**Drilling / Sampling Method**
Sediment Samples			
SD-01 to SD-04[(2)]	5/27/2008	0.5	Hand Auger
SD-3A, SD-3C, SD-3D, SD-03R	6/10/2008	0.5 - 1.5	Hand Auger
SD-3E to SD-3J	6/19/2008	0.5	Hand Auger
SD-3K to SD-3Q[(3)]	7/30/2008	1.5	Hand Auger
SD-3R to SD-3W[(4)]	8/19/2008	1.5	Hand Auger
SD-04 through SD-12[(5)], SD-3K, SD-3V	9/17 - 9/18/2008	0.5 - 3	Hand Auger
SD-09A, SD-13 through SD-23[(6)]	10/3 - 10/6/2008	0.5 - 3	Hand Auger
SD-13A, SD-24 through SD-36[(7)]	10/22 - 10/23/2008	0.5 - 3	Hand Auger
SD-37 through SD-82[(8)], SD-84, SD-85	12/3 - 12/9/2008	0.5 - 4.5	Hand Auger
ERC-SED-1 through ERC-SED-5	3/5/2009	0.5	Hand Tools
ERC-SED-6 through ERC-SED-10, ERC-SED-11A, ERC-SED-12 through ERC-SED-15, ERC-SED-6A, ERC-SED-9A, ERC-SED-11B, ERC-SED-14A [(9)]	3/5 - 3/6/2009	0.25 - 0.5	Hand Auger
SED-11A-A through SED-11A-F[(10)], ERC-SED-16, ERC-SED-17	3/20/2009	0.5	Hand Auger
SD-85 through SD-91	6/25/2009	0.5 - 2.5	Hand Auger
SD-92 through SD-94	7/17/2009	0.5 - 3	Hand Auger
SED-11A-G through SED-11A-N	8/12/2009	0.5 - 5.7	Hand Auger
WD.5-6.5, WI-6	12/29/2009	0.5	Hand Auger
SED-KMS-1 through SED-KMS-4	5/17/2010	0.5	Hand Tools
SED-KMS-10 through SED-KMS-13	5/19/2011	0.5	Hand Tools
Soil Samples			
SD-3B	6/10/2008	0.5	Hand Auger
OF-DS-1*	11/25/2008	0.2	Hand Tools
SD-83	12/9/2008	0.5	Hand Auger
OF-1 through OF-5	12/9/2008	0.5	Hand Tools
SLP-01 through SLP-10	12/9 - 12/10/2008	0.5	Hand Tools
SDR-01 through SDR-05*	12/9 - 12/10/2008	0.2	Hand Tools
SLP-11A-1 through SLP-11A-4	3/19/2009	0.5	Hand Tools

Sediment and Soil Sampling Details - KMS Wetland: 2007 – 2011			
Sample IDs	**Sample Date(s)**	**Total Depth (range in ft bgs)**	**Drilling / Sampling Method**
SLP-12 through SLP-27, OF-5A, OF-5B	8/13/2009	0.5	Hand Tools
Durfee Post	11/12/2009	1	Hand Tools

Notes:
* - Sample(s) of material accumulated within storm water drain pipes collected using hand tools.
bgs - below ground surface; ft - feet
1 - Boring WSB-9 was re-sampled (0-6") on 12/28/2009 as part of ERC related assessment activities.
2 - Sediment sample SD-03 was re-sampled on 6/10/2008 (1.5') and 9/18/2008 (2') for the purpose of vertical delineation.
3 - Sediment sample SD-3K was re-sampled on 9/18/2008 (2.5-3') for the purpose of vertical delineation.
4 - Sediment sample SD-3T was re-sampled on 12/29/2009 (0-0.5') as part of ERC related assessment activities; SD-3V was re-sampled on 9/17/2008 (2.5-3') for the purpose of vertical delineation.
5 - Sediment sample SD-07 was re-sampled (0-6") on 12/29/2009 as part of ERC related assessment activities.
6 - Sediment sample SD-16 was re-sampled (0-6") on 12/28/2009 as part of ERC related assessment activities.
7 - Sediment sample SD-27 was re-sampled (0-6") on 12/29/2009 as part of ERC related assessment activities.
8 - Sediment samples SD-04, SD-23, SD-35, SD-40, SD-42, SD-43, SD-44, SD-48, SD-51, SD-68, SD-71, SD-93, and SD-3Q were re-sampled (0-6") between 12/28/2009 and 12/29/2009 as part of ERC related assessment activities.
9 - Sediment samples ERC-SED-7, ERC-SED-9, and ERC-SED-12 - ERC-SED-15 were re-sampled (0-6") on 12/28/2009 as part of ERC related assessment activities.
10 - Sediment sample SED-11A-C was re-sampled (0-6") on 12/28/2009 as part of ERC related assessment activities.

3.1.2 Groundwater and Surface Water Investigations

The following table summarizes groundwater and surface water samples collected for laboratory analysis during Site investigation activities between May 2008 and May 2011.

Summary of Investigation Activities - KMS Wetland: 2008 – 2011							
Groundwater and Surface Water Sampling Summary							
Sample Type	**Number of Samples Submitted for Laboratory Analysis**	**Analyses[1]**					
		VOCs[2]	**PCBs[3]**	**PAHs[4]**	**MCP Metals/ Hg[5]**	**Calcium and Magnesium[6]**	**Zinc and Hardness[7]**
Groundwater	26	21	23	0	26[8]	0	0
Surface Water	24	0	5	5	5[8]	10	24

Notes:
[1]Does not include quality control (QC) samples.
[2]Volatile organic compounds (VOCs) by SW-846 Method 8260B.
[3]Polychlorinated biphenyls (PCBs) as Aroclors by SW-846 Method 8082; surface water as PCB homologues by EPA Method 680.
[4]Polyaromatic hydrocarbons (PAHs) by SW-846 Method 8270C.
[5]Massachusetts Contingency Plan (MCP) Metals/Hg - antimony, arsenic, barium, beryllium, cadmium, chromium, lead, nickel, selenium, silver, thallium, vanadium, zinc and mercury by SW-846 Methods 6010B/7470A.
[6]Calcium (total) and magnesium (total) by SW-846 Method 6010B.
[7]Zinc (dissolved) by SW-846 Method 6010B; hardness by SM 18-20 2340B.
[8]Groundwater and surface water samples were analyzed for total metals and dissolved (field-filtered) metals, as needed.

3.1.2.1 Groundwater Monitoring Well Installation

Two groundwater monitoring wells were installed within the City-owned Summit Street ROW

adjacent to the Site on December 18, 2009 to evaluate "background" groundwater concentrations in the vicinity of the northern portion of the wetland. This sampling was conducted because of surface water concentrations of zinc in the northern wetland above the Massachusetts Water Quality Standard. The monitoring wells, identified as MW-9 and MW-10, were installed at soil boring locations WSB-16 and WSB-19, respectively.

Three monitoring wells (MW-37 through MW-39) were also installed on parcels located south of the Site along Nemasket Street on December 14 and 16, 2010. Monitoring wells MW-37 through MW-39 were installed at soil boring locations SB-NM-1, SB-NM-14 and SB-NM-18, respectively.

Each of the monitoring wells was installed by New England Geotech via Geoprobe® direct-push methods and surveyed by Land Planning following installation. The wells were constructed of two-inch outside diameter polyvinyl chloride (PVC) riser pipe with a 10-slot (0.010-inch machine slotted) screen set across the water table, based on observations made during boring advancement. The screened interval and riser were surrounded by a filter pack of silica sand extending to a bentonite seal present approximately 0.5 to 1 foot below surface grade. Wells MW-9 and MW-10 were constructed as flush-mount installations, while wells MW-37 through MW-39 were "stick-up" wells with the riser extending approximately two feet above grade. The wells were subsequently developed using a Whale Mini Purge Pump and dedicated tubing, with a LaMotte 2020 turbidity meter used throughout development to monitor turbidity levels. Well construction logs are included in Appendix C and the well locations are shown on Figure 3-2.

3.1.2.2 Groundwater Elevation Surveys

On March 13, 2009, April 7, May 5, May 17, and September 14, 2010, and January 20, 2011, synoptic water level events were conducted to assess groundwater flow direction and gradient in the vicinity of the Site. The synoptic rounds included up to thirty monitoring wells on properties that are part of the RTN 4-15685 disposal site (see Figure 3-2). Water level measurements were also collected from three staff gauges in the northern portion of the wetland on numerous occasions as part of water level surveys in 2010. Well construction information, depth to water, and calculated water elevations are summarized in Appendix E. Staff gauge measurements are also provided in Appendix E.

3.1.2.3 Groundwater Sampling

Groundwater samples were collected from three monitoring wells (MW-1 through MW-3) at the KMS campus located east of the Site on a semi-annual basis since May 2008. In addition, groundwater samples were collected from two monitoring wells (MW-9 and MW-10) within the City-owned Summit Street ROW located west of the Site on January 7, 2010, and from three monitoring wells (MW-37 through MW-39) located to the south of the Site on January 13, 2011. Figure 3-2 shows the monitoring well locations. Groundwater samples were collected following EPA Region I low stress (low flow) sampling guidelines (USEPA, 1996). During purging, water quality parameters were monitored using a YSI 600XL Sonde with a 650 MDS datalogger and a LaMotte 2020 turbidity meter. Water quality parameters (temperature, conductivity, dissolved oxygen content, pH, Eh and turbidity) were recorded on groundwater sampling forms included in Appendix C. Groundwater samples were collected after water quality parameters had stabilized

in accordance with the low flow guidance, or after one hour of purging if parameters did not stabilize.

3.1.2.4 Surface Water Sampling

Between March 2009 and August 2010, a total of 24 surface water samples were collected from 16 locations within the northern portion of the wetland. These samples were collected in clean, dedicated sample containers which were either dipped directly into the surface water or, in the case of samples collected during the winter when the wetland surface was frozen, filled using a peristaltic pump with the tubing installed into the water through a hole punctured through the ice. Surface water sample locations are presented in Figure 3-3 and include: ERC-SW-7, ERC-SW-9, ERC-SW-11, ERC-SW-11A, ERC-SW-14, ERC-SW-16 and ERC-SW-20 through ERC-SW-29.

On March 10, 2010, three staff gauges (SG-A through SG-C) were installed within the northern portion of the wetland to periodically monitor the surface water elevation and aid in determining the timing of the collection of additional surface water samples for toxicity testing. The staff gauge locations were surveyed by Land Planning and are depicted on Figure 3-3.

3.2 Site Geologic/Hydrogeologic Conditions

3.2.1 Site Geology

Subsurface material at the Site generally consists of up to approximately four feet of dark brown organic silt (i.e., peat) material underlain by various sized sands. Minor amounts of gravel have been observed within the peat and sand layers in places. Boring logs documenting sediment/soil boring advancement are included in Appendix C.

Observation of Site soils and review of historical topographic maps and information published by the United States Department of Agriculture indicates that surficial geology at the Site consists of glacial till and potentially eolian derived deposits. Drumlins flank the Site to the east and west.

Based on review of the USGS Bedrock Geologic Map of Massachusetts (Zen et al., 1983), bedrock beneath the Site is light gray, pinkish-gray to tan, mafic-poor granite known as Alaskite (Zagr). Sampling activities were terminated in native material unless refusal was encountered first. The methods employed to sample Site sediment and soil were designed to characterize the horizontal and vertical extent of chemical impacts, if any, as well as to evaluate the presence of fill materials. Bedrock was not assessed during this investigation. The sampling methods employed were sufficient to assess the vertical extent of Site impacts (see Section 4).

3.2.2 Site Hydrogeology

The Site is mostly a wetland. The land bridge between Auburn Street and the KMS campus separates the southern and northern portions of the wetland; however, there is no culvert through the land bridge and thus no surface water flow occurs between the two areas. Depending on the season, the northern portion of the wetland may contain up to several feet of surface water,

whereas the southern portion of the wetland generally does not contain significant amounts of surface water.

Additional wetland areas are located north (downstream) of the KMS wetland on the opposite side of Durfee Street and are connected hydrologically to the KMS wetland via a culvert. Surface water flow through the northern portion of the KMS wetland is controlled by topography and the elevation of surface water in the wetland relative to the culvert that crosses Durfee Street. During wet periods (i.e., periods of rain and snowmelt), water flows overland into the wetland primarily through two mechanisms: direct runoff across the ground into the wetland and flow from storm water drains surrounding the KMS that collect both runoff from paved areas surrounding the school and from the roof of the school. Some runoff may collect in channels and be conveyed into the wetland. When water in the wetland rises above the elevation of the outfall of the culvert at the north end of the wetland crossing Durfee Street (the outfall appears to be at a higher elevation than the inlet), surface water flows through the culvert and along the channel north of Durfee Street, eventually discharging into Apponagansett Swamp to the north. Apponagansett Swamp is approximately 15 feet lower in elevation than the KMS wetland; hence water flows downgradient into the swamp.

As discussed in Section 3.1.2.2, several synoptic groundwater monitoring rounds were conducted between March 2009 and January 2011 to determine groundwater flow direction and gradient across the study area. Figure 3-2 shows the water table elevation throughout the study area on January 20, 2011. The groundwater flows predominantly to the south/southeast at a gradient of approximately $2x10^{-3}$ ft/ft.

Based on the results of the April 2010 synoptic round, which also included surface water level measurements collected from staff gauges SG-A thru SG-C, it appears that shallow groundwater at the Site discharges to the wetland surface water. During that event, groundwater elevations in monitoring wells located adjacent to the wetland (i.e., wells MW-2, MW-9, and MW-10) were greater than the water levels at adjacent staff gauge locations indicating groundwater discharge to the wetland. Note that during the early part of May 2010, the water level in the wetland was higher than the groundwater elevation on either side of the wetland indicating that there are times (e.g., during periods of runoff/snowmelt) when the wetland may discharge to groundwater. However, these conditions are not considered significant for the following reasons: 1) with the exception of lead attributed to turbidity in one groundwater sample, analytical results for PCBs, PAHs, VOCs, and metals in groundwater adjacent to the wetland are well below the applicable MCP groundwater criteria for the area of the wetland; 2) the primary constituent of interest in the wetland (PCB Aroclors) is hydrophobic and tends to adsorb to organic carbon (which is abundant in wetland sediments) rather than be transported in groundwater; and 3) concentrations of the constituent of interest detected in surface water in the wetland (zinc) are more than 10 times below the applicable groundwater criteria indicating that surface water is not adversely impacting groundwater. Staff gauge measurements are provided in Appendix E.

The groundwater aquifer at the Site is unconfined and is generally present about 4 feet below ground surface in the vicinity of the Site. The aquifer is composed of organic peat underlain by glacial/eolian deposits. The aquifer thickness is not known. It is expected to extend down to the

underlying bedrock. The aquifer is not considered potentially productive, as shown in Figure 2-1.

Based on literature values, the peat layer is expected to exhibit low hydraulic conductivity, on the range of 10^{-4} to 10^{-2} centimeters per second (cm/sec) while glacial deposits having relatively less fine material could exhibit a hydraulic conductivity range of 10^{-3} to 15 cm/sec (Fetter, 1980).

The City receives an average of 47.34 inches of precipitation annually (www.fedstats.gov). A portion of the precipitation will infiltrate soils within the Site area with the majority leaving as evapotranspiration or through the outfall at Durfee Street.

3.2.3 Flooding Potential

As shown in Figure 3-4, the Site is not within the 100-year or 500-year flood plains and flooding potential appears to be low.

4.0 NATURE AND EXTENT OF CHEMICAL IMPACTS

Per 310 CMR 40.0835(4)(f) of the MCP, the following section documents the analysis of the nature and extent of compounds detected in sediment, soil, groundwater and surface water at the Site. This section summarizes the analytical results of samples collected at the Site by TRC and representative samples collected during previous assessments conducted by BETA.

The nature and extent of impacted media is discussed by exposure point areas for the southern and northern portions of the wetland, as separated by the land bridge between Auburn Street and the KMS campus. This distinction is based on the premise that while human activities within each portion of the wetland are expected to be similar, the northern portion of the wetland is surrounded by a permanent 8-foot high metal chain-link perimeter fence to restrict unauthorized access, while there is no fencing around the southern portion of the wetland. Further differentiating the two areas, no chemical concentrations above MCP Method 1 S-1 soil standards have been detected in samples collected from the southern portion of the wetland since implementation of the 2006 wetland remedy. Within the northern portion of the wetland, the area in the vicinity of sediment sample ERC-SED-11A contains PCB concentrations greater than one hundred times the corresponding MCP Method 1 S-1 soil standard (2 mg/kg), and the average PCB concentration in the remainder of the northern wetland. Therefore, the ERC-SED-11A area meets the MCP definition of a "hot spot" and is evaluated as a separate exposure point. The part of the northern portion of the wetland located north of the perimeter fence within the Durfee Street ROW is also evaluated as a separate exposure point since access to that area is not restricted. Boundaries and sample locations for the four exposure point areas are shown on Figure 2-2.

The delineation of the nature and extent of contamination provided in the following section is suitable for planning and implementing the next phase of response actions at the Site.

As discussed in Section 7, MCP Method 1 soil categories S-1, S-2 and S-3 currently apply to Site soil and MCP Method 1 groundwater categories GW-1, GW-2 and GW-3 apply to groundwater beneath this Site (note that only portions of the Site are subject to the GW-1 groundwater classification due to proximity to a private well located at a property on Summit Street). An MCP Method 3 Risk Characterization that considers both current and foreseeable future uses of the Site has been completed and is presented in Section 7.

4.1 Analytical Results

The following is a discussion of laboratory analytical results for sediment, soil, groundwater and surface water samples collected at the Site. Analytical results suggest that Site impacts are related to the historical use of material from the RTN 4-15685 disposal site as fill.

Sediment and soil sample results for detected analytes only are summarized in Table 4-1, with color-coded sample identifications used to distinguish sample media and location. For descriptive purposes in the Phase II CSA narrative, samples of solid media (i.e., sediment/soil) collected from within the wetland boundary (as shown on the majority of the figures included with this report) are called sediment samples, while samples of solid media collected from

outside the wetland boundary are called soil samples. Some solid media sample classifications utilized in the Stage I ES and Stage II ERC may differ from those used herein based on the ecological specialist's detailed understanding of the local environment and related receptors (the Stage I ES and Stage II ERC evaluated risks to specific ecological receptors known to live within different media at the Site, which warranted additional investigation into, and classification of, the specific habitat types present). In addition, because potential human exposure scenarios are different in upland/maintained areas of the Site (the upper part of the grassed slope [Phase I Embankment] where groundskeepers work, for example) than in areas with more dense terrain, the MCP Method 3 Risk Characterization presented in Section 7 evaluates samples of solid media obtained from around the edge of the wetland as sediment, which presents a more conservative exposure factor for dermal contact due to the potential for sediment to adhere to skin more than soil does.

TRC sediment and soil sample results are summarized on Figures 4-1 and 4-2 for the southern and northern portions of the wetland, respectively, with BETA sample locations also provided for reference. Representative BETA sediment and soil sample results are summarized on Figures 4-3 and 4-4 for the southern and northern portions of the wetland, respectively, with TRC sample locations also provided for reference. TRC and BETA sample results for the Durfee Street ROW are summarized on Figure 4-5 and TRC sample results for the Summit Street ROW are summarized on Figure 4-6.

The locations of the post-excavation samples collected by BETA during the 2006 remedy are provided on Figure 4-7. A tabulation of BETA post-excavation sample results, as well as other relevant historical BETA documents, can be found in Appendix F.

Groundwater sample results for detected analytes only are summarized in Table 4-2. Surface water sample results for detected analytes only are summarized in Table 4-3. Groundwater and surface water sample locations are shown on Figures 3-2 and 3-3, respectively.

Where duplicate samples were collected, the maximum results are cited below. Copies of laboratory data reports are provided in Appendix G. TRC has performed an evaluation of the Site data which is discussed in Section 9, with associated data usability assessments and data validation reports included in Appendix G.

4.1.1 Sediment and Soil Analytical Results

The discussion of the nature and extent of impacted sediment and soil focuses on the 0 to 1 foot below ground surface horizon, 1 to 3 feet below ground surface horizon, and greater than 3 feet below ground surface horizon. The 0 to 1 foot horizon is considered to be representative of impacted sediment/soil located at or near the ground surface that is directly accessible, has a high potential for contact by people, and is representative of current exposures. However, when evaluating the nature and extent of sediment and soil impacts with respect to ecological receptors, the 0 to 1 foot horizon was further divided to focus primarily on surficial impacts more accessible to ecological receptors (i.e., generally from the surface to 6 inches below grade) than deeper media. The 1 to 3 foot horizon is considered to be representative of impacted soil that is below the ground surface, not immediately accessible and has a lower potential for contact by

people (potential exists for contact by maintenance or construction personnel when performing activities that require digging below the ground surface) or ecological receptors. The greater than 3 feet horizon for soil is considered the least accessible horizon with the lowest potential for contact by human and ecological receptors. Sediment beneath the 0 to 1 foot horizon is not expected to be accessible in a wetland environment. The amount of surface water present above the ground surface at each sediment sample location was also considered with regard to accessibility. Sediment sample locations that are usually below more than one foot of surface water are considered less accessible to humans than sample locations with less than one foot of surface water above the sediment surface.

For discussion purposes, where the sample interval includes surficial sediment or soil (for example sampling interval 0 to 2 feet), the sampling interval was considered to be part of the 0 to 1 foot sediment/soil horizon. Where a sample interval does not include surficial sediment or soil (for example 0.5 to 1.5 feet), the sampling interval was considered to be part of the 1 to 3 feet sediment/soil horizon. Sediment and soil sample depth intervals are listed in Table 4-1.

Sediment and soil samples submitted by BETA were analyzed for PCB Aroclors, with many also analyzed for RCRA 8 metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver), PAHs, pesticides, herbicides, and/or total organic carbon (TOC). Analyses of BETA samples were conducted in accordance with the MassDEP CAM.

Sediment and soil samples submitted by TRC were analyzed for MCP metals (antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium, vanadium and zinc), PAHs, PCB Aroclors and homologues, pesticides, and/or TOC. TRC sediment and soil samples submitted for PCB homologue analysis were analyzed in accordance with EPA Method 680. TOC analyses were performed in accordance with SM 5310C. All other analyses were performed in accordance with the MassDEP CAM.

MCP Method 1 soil standards and/or the TSCA PCB soil standard for unrestricted future use of the Site (1 mg/kg) were utilized initially to evaluate sediment/soil analytical results to delineate the extent of impacts. The results were later verified by a MCP Method 3 Risk Characterization, which was adopted to characterize risk for this Phase II CSA.

The sediment/soil chemical concentration units in the following discussion are in mg/kg, unless otherwise noted. The discussion is presented by exposure point area (see Figure 2-2). Laboratory reporting limits were below the applicable regulatory standards, unless otherwise noted and discussed in the following sections or the data usability assessment in Appendix K.

4.1.1.1 Southern Portion of Wetland

The southern (unfenced) portion of the wetland is identified as the “Southern Wetland” Exposure Point Area on Figure 2-2. The following section discusses analytical results for sediment and soil samples collected from the Southern Wetland Exposure Point Area.

Southern Portion of Wetland Sediment and Soil Analytical Results

Analytical results for sediment and soil samples from the southern portion of the wetland do not indicate any chemical concentrations above MCP Method 1 soil standards.

The TOC content of native sediment within the southern portion of the wetland, based on the results of eleven samples collected by BETA, ranged from 3.45-percent to 17.56-percent. The mean TOC content for the sediment samples was 10.1-percent.

The reporting limits for samples collected from the Southern Wetland Exposure Point Area were below applicable MCP Method 1 soil standards. A summary of the Southern Wetland Exposure Point Area sediment/soil analytical results for detected chemicals only is included in Table 4-1.

4.1.1.2 Northern Portion of Wetland

The northern (fenced) portion of the wetland is identified as the "Northern Wetland" Exposure Point Area on Figure 2-2. The following sections discuss analytical results for sediment and soil samples collected from the Northern Wetland Exposure Point Area, with the exception of the samples located within the ERC-SED-11A Exposure Point Area, and the samples located north of the perimeter fence within the Durfee Street ROW, which are discussed in Sections 4.1.1.3 and 4.1.1.4, respectively.

Northern Portion of Wetland Sediment and Soil PCB Results

For sediment and soil samples taken in the 0 to 1 foot below ground surface horizon within the northern portion of the wetland, the analytical results did not indicate PCB concentrations above the MCP Method 1 S-1 soil standard (2 mg/kg), with the following exceptions:

- Sediment sample locations SD-03 (four samples analyzed with concentrations ranging from 11.88 to 16.56 mg/kg), SD-3A (14.58 mg/kg), SD-3D (33.47 mg/kg), SD-3E (3.64 mg/kg), SD-3F (22.77 mg/kg), SD-3G (8.361 mg/kg), SD-3H (11.70 mg/kg), SD-3I (6.793 mg/kg), SD-3J (5.785 mg/kg), SD-3K (18.30 mg/kg), SD-3L (5.00 mg/kg), SD-3N (21.50 mg/kg), SD-3P (3.17 mg/kg), SD-3V (5.64 mg/kg), SD-06 (2.49 mg/kg), SD-13 (4.113 mg/kg), SD-16 (two samples analyzed with concentrations of 3.57 and 4.872 mg/kg), SD-19 (2.69 mg/kg), SD-34 (4.47 mg/kg), SD-35 (6.81 mg/kg), SD-40 (four samples analyzed with concentrations ranging from 4.57 to 5.23 mg/kg), SD-48 (two samples analyzed with concentrations ranging from 1.36 to 4.08 mg/kg), ERC-SED-6 (27.80 mg/kg), ERC-SED-6A (9.21 mg/kg [0-0.25'] and 16.50 mg/kg [0.25-0.5']), ERC-SED-9 (3.43 mg/kg), ERC-SED-9A (5.07 mg/kg), ERC-SED-11B (66.90 mg/kg), SED-11A-A (20.60 mg/kg), SED-11A-C (two samples analyzed with concentrations of 5.44 and 9.82 mg/kg), SED-11A-E (31.30 mg/kg), SED-11A-F (5.50 mg/kg), SD-91 (2.10 mg/kg), SED-11A-I (4.71 mg/kg), SED-11A-K (12.29 mg/kg), SED-11A-M (3.542 mg/kg), TSB-2 (23.80 mg/kg), TSB-3 (18.50 mg/kg), TSB-5 (4.249 mg/kg), TSB-6 (4.58 mg/kg), TSB-7 (5.04 mg/kg), TSB-8 (2.28 mg/kg), TSB-9 (17.60 mg/kg), TSB-12 (3.02 mg/kg); and

- Soil sample locations T-1 (three samples analyzed with concentrations ranging from 6.01 to 8.92 mg/kg) and SLP-12 (3.34 mg/kg).

For sediment and soil samples taken from the 1 to 3 feet below ground surface and greater than 3 feet below ground surface horizons, the analytical results did not indicate the detection of any PCB concentrations above MCP Method 1 soil standards, with the following exceptions:

- Sediment sample locations SD-03 (20.37 mg/kg [1-1.5']), SD-3K (5.84 mg/kg [1-1.5']), SD-3V (3.49 mg/kg [1-1.5']), SD-09 (2.09 mg/kg [2.5-3']), SD-70 (7.99 mg/kg [1.5-2']), TSB-3 (3.01 mg/kg [1-2']), TSB-6 (3.65 mg/kg [2-4']), TSB-8 (2.86 mg/kg [1-2.5']), TSB-9 (8.29 mg/kg [1-2.5']); and

- Soil sample location WSB-16 (4.69 mg/kg [1-3']).

The reporting limits for PCBs were below MCP Method 1 soil standards, with the following exceptions: PCB Aroclors 1016, 1221, 1232, 1242, 1248, and 1260 in samples ERC-SED-6 (0-0.5'), ERC-SED-11A (0-0.5'), ERC-SED-11B (0-0.5'), SED-11A-B (0-0.5' and duplicate), SED-11A-D (0-0.5'), and SED-11A-E (0-0.5'). However, the elevated reporting limits for the above-mentioned Aroclors/samples are attributed to the elevated concentrations of PCB Aroclor 1254 detected in those samples, which required the laboratory to dilute the samples to accurately quantify the Aroclor 1254 concentrations.

Northern Portion of Wetland Sediment and Soil PAH Results

For sediment and soil samples taken in the 0 to 1 foot below ground surface horizon, the analytical results did not indicate the detection of any PAHs at concentrations above MCP Method 1 soil standards, with the following exceptions:

- 2-methylnaphthalene at sediment sample location ERC-SED-8 (2.15 mg/kg);
- acenaphthene at sediment sample location ERC-SED-8 (7.54 mg/kg);
- benzo(a)anthracene at sediment sample location ERC-SED-8 (74.7 mg/kg);
- benzo(a)pyrene at sediment sample locations SD-40 (2.1 mg/kg), ERC-SED-8 (69.5 mg/kg), and soil sample location WSB-16 (2.2 mg/kg);
- benzo(b)fluoranthene at sediment sample location ERC-SED-8 (80.8 mg/kg);
- chrysene at sediment sample location ERC-SED-8 (72.7 mg/kg);
- dibenz(a,h)anthracene at sediment sample location ERC-SED-8 (20.0 mg/kg);
- indeno(1,2,3-cd)pyrene at sediment sample location ERC-SED-8 (45.6 mg/kg);
- naphthalene at sediment sample location ERC-SED-8 (6.19 mg/kg); and
- phenanthrene at sediment sample location ERC-SED-8 (62.13 mg/kg).

Sediment samples collected from the 1 to 3 feet below ground surface and greater than 3 feet below ground surface horizons were not analyzed for PAHs. For soil samples taken from the 1 to 3 feet below ground surface and greater than 3 feet below ground surface horizons, the

analytical results did not indicate the detection of any PAHs at concentrations above MCP Method 1 soil standards.

The reporting limits for all analytes were below applicable MCP Method 1 soil standards except benzo(a)pyrene for WI.5-4.5 and dibenz(a,h)anthracene for the following samples: WD.5-4.5 (0-0.5'), WD.5-5.5 (0-0.5'), WE.5-3 (0-0.5' [and duplicate sample]), WE.5-3.5 (0-0.5'), WH-6 (0-0.5'), WI.5-4.5 (0-0.5'), and SD-44 (0-0.5'). However, no PAHs were detected above the laboratory reporting limits in these samples.

Northern Portion of Wetland Sediment and Soil Metals Results

For sediment samples taken in the 0 to 1 foot below ground surface horizon, the analytical results did not indicate the detection of any metals at concentrations above MCP Method 1 soil standards, with the following exceptions:

- antimony at sediment sample location TSB-8 (40 mg/kg);

- cadmium at sediment sample locations WB5 (2.05 mg/kg), WC.5-14.5 (4.73 mg/kg), WD-7 (2.62 mg/kg), WD-8 (2.44 mg/kg), WF-6 (3.33 mg/kg), ERC-SED-6 (2.81 mg/kg), ERC-SED-8 (2.65 mg/kg), TSB-2 (2.4 mg/kg), TSB-3 (2.5 mg/kg), TSB-4 (3.0 mg/kg), and TSB-5 (2.2 mg/kg);

- chromium, assumed to be chromium(III) but evaluated as chromium(VI), at sediment sample locations WB4 (38 mg/kg), WB5 (42 mg/kg), WC.5-13.5 (36 mg/kg), WC.5-17.14 (34 mg/kg), WD-16 (40 mg/kg), WD-17.57 (70 mg/kg), ERC-SED-6 (59.0 mg/kg), ERC-SED-8 (32.8 mg/kg), TSB-2 (68 mg/kg), TSB-3 (100 mg/kg), TSB-6 (32 mg/kg), TSB-7 (47 mg/kg), and TSB-12 (36 mg/kg). Note that total chromium data in all environmental media are assumed to be attributable to chromium(III) (based on speciation data from other properties associated with the RTN 4-15685 disposal site, including NBHS and the Nemasket Street parcels) but were evaluated as chromium(VI) since site-specific speciation data was not gathered as part of the characterization sampling (as further discussed in Section 7);

- lead at sediment sample locations WA3 (374 mg/kg), WB7 (502 mg/kg), WD-7 (477 mg/kg), WC.5-14.5 (524 mg/kg), SD-16 (630 mg/kg), SD-40 (650 mg/kg), SD-48 (600 mg/kg), ERC-SED-6 (977 mg/kg), ERC-SED-7 (345 mg/kg), ERC-SED-8 (685 mg/kg), and ERC-SED-12 (328 mg/kg), TSB-2 (710 mg/kg), TSB-3 (760 mg/kg), TSB-5 (390 mg/kg), TSB-6 (420 mg/kg), TSB-7 (570 mg/kg), TSB-8 (350 mg/kg), and TSB-12 (450 mg/kg); and

- nickel at sediment sample locations ERC-SED-6 (21.5 mg/kg), TSB-2 (24 mg/kg), TSB-6 (21 mg/kg), and TSB-7 (29 mg/kg).

For soil samples taken in the 0 to 1 foot below ground surface horizon, the analytical results did not indicate the detection of any metals at concentrations above MCP Method 1 soil standards, with the following exceptions:

- cadmium at soil sample location WF-8 (5.75 mg/kg);

- chromium, assumed to be chromium(III) but evaluated as chromium(VI) as noted above, at soil sample locations WF-8 (78 mg/kg), WSB-16 (37 mg/kg), WSB-17 (67 mg/kg), and WSB-18 (50 mg/kg);

- lead at soil sample locations WF-8 (633 mg/kg), S2 (409 mg/kg), and Durfee Post (380 mg/kg); and

- nickel at soil sample locations WSB-17 (30 mg/kg), WSB-18 (22 mg/kg), and SB-148 (20.9 mg/kg).

For sediment and soil samples taken from the 1 to 3 foot below ground surface and greater than 3 feet below ground surface horizons, the analytical results did not indicate the detection of any metals at concentrations above MCP Method 1 soil standards, with the following exceptions:

- cadmium at sediment sample locations TSB-6 (3.3 mg/kg [2-4’]) and TSB-12 (12 mg/kg [1-2’]);

- chromium, assumed to be chromium(III) but evaluated as chromium(VI) as noted previously, at sediment sample locations TSB-3 (75 mg/kg [1-2’]), TSB-4 (47 mg/kg [1-2’]), TSB-6 (38 mg/kg [2-4’]), and TSB-11 (36 mg/kg [1-2’]), and at soil sample location SB-143 (40.2 mg/kg [5’]);

- lead at sediment sample locations TSB-3 (350 mg/kg [1-2’]) and TSB-6 (460 mg/kg [2-4’]); and

- nickel at sediment sample location TSB-6 (41 mg/kg [2-4’]).

The reporting limits were below applicable regulatory standards for all analytes with the following exceptions:

- thallium for sediment samples ERC-SED-7 (0-0.5’ [and duplicate sample]), ERC-SED-8 (0-0.5’), ERC-SED-10 (0-0.5’), ERC-SED-12 (0-0.5’), ERC-SED-13 (0-0.5’), ERC-SED-15 (0-0.5’), ERC-SED-16 (0-0.5’), ERC-SED-17 (0-0.5’), TSB-3 (1-2’), TSB-4 (0-1’, 1-2’, 2-3’ and 3-4’), TSB-5 (1-2’, 2-3’ and 3-4’), TSB-7 (2-4’), TSB-8 (0-1’, 1-2.5’ and 2.5-4’ [and duplicate sample]), TSB-9 (0-1’, 1-2.5’ and 2.5-4’), TSB-10 (1-2.5’ and 2.5-4’), TSB-11 (0-1’ [and duplicate sample] and 1-2’), and TSB-12 (0-1’ and 2-3’).

- antimony for sediment samples ERC-SED-7 (0-0.5’ [and duplicate sample]), ERC-SED-10 (0-0.5’), ERC-SED-16 (0-0.5’), ERC-SED-17 (0-0.5’), TSB-4 (2-3’), TSB-5 (3-4’), TSB-7 (2-4’), TSB-8 (1-2.5’ and 2.5-4’ [and duplicate sample]), TSB-9 (1-2.5’ and 2.5-4’), TSB-10 (2.5-4’).

The reporting limits for antimony and thallium in these samples were above the MCP Method 1 S-1/GW-1, S-1/GW-2 and S-1/GW-3 standards. However, antimony has only been detected above MCP Method 1 standards in one location (TSB-8 [0-1'; 40 mg/kg]) and thallium has not been detected above the reporting limits in any sediment or soil samples collected from the Site.

Northern Portion of Wetland Sediment TOC Results

Twenty-eight (28) sediment samples and four soil samples collected from the northern portion of the wetland were analyzed for TOC. The TOC content of the sediment samples ranged from 2.05-percent to 73.5-percent. The mean TOC content for the sediment samples was 37.32-percent. The TOC content of the soil samples ranged from 28-percent to 50.5-percent. The mean TOC content for the soil samples was 35.7-percent.

4.1.1.3 ERC-SED-11A

Sediment samples located within the ERC-SED-11A Exposure Point Area include ERC-SED-11A, SED-11A-B, and SED-11A-D, which each had detected PCB concentrations greater than 100 times the corresponding MCP Method 1 S-1 soil standard of 2 mg/kg, and accordingly constitute a "hot spot" pursuant to the MCP. Sediment samples ERC-SED-11A, SED-11A-B, and SED-11A-D were collected from the surface to 6 inches below grade (i.e., from the 0 to 1 foot below grade horizon). The "ERC-SED-11A" Exposure Point Area is identified on Figure 2-2.

Sample ERC-SED-11A was analyzed for PAHs, PCB Aroclors and congeners, MCP metals and mercury, and TOC, while samples SED-11A-B and SED-11A-D were analyzed for only PCB Aroclors. Analytical results for the ERC-SED-11A Exposure Point Area are discussed below.

Chemical concentrations detected above MCP Method 1 soil standards in sediment sample ERC-SED-11A consist of PCB Aroclors (434 mg/kg); the PAHs benzo(a)pyrene (3.31 mg/kg) and dibenz(a,h)anthracene (0.766 mg/kg); and metals including cadmium (7.19 mg/kg), chromium, (assumed to be chromium(III) but evaluated as chromium(VI) as noted previously [31.1 mg/kg]), lead (1,020 mg/kg), and nickel (62.2 mg/kg). The TOC result for ERC-SED-11A indicates the sample was approximately 12-percent organic carbon. PCB concentrations were detected above MCP Method 1 soil standards in sediment samples SED-11A-B (805 mg/kg) and SED-11A-D (838 mg/kg).

The reporting limits for all analytes were below applicable MCP Method 1 soil standards, with the exception of thallium for sample ERC-SED-11A, and PCB Aroclors 1016, 1221, 1242, and 1260 for each of the samples. Thallium has not been detected above the reporting limits in any sediment or soil samples collected from the Site to date, and the elevated PCB Aroclor reporting limits are attributed to the PCB Aroclor 1254 concentrations detected, which required the laboratory to dilute the samples to accurately quantify the Aroclor 1254 concentrations.

4.1.1.4 Durfee Street ROW

The Durfee Street ROW portion of the wetland is identified as the "Durfee Street ROW" Exposure Point Area on Figure 2-2. Samples obtained from the Durfee Street ROW include soil samples collected from various depths (extending to 8 feet below grade) from borings R1 thru R7, R11, R12, SB-25, SB-152 through SB-154, and WSB-11 through WSB-15. These samples were analyzed for PCB Aroclors, PAHs, and/or MCP metals and mercury (except R1 thru R7, R11, and R12 which were analyzed for RCRA 8 metals not MCP metals and mercury). Analytical results for soil samples from the Durfee Street ROW indicate no concentrations above MCP Method 1 soil standards.

4.1.2 Groundwater Analytical Results

Groundwater samples have been collected from seven groundwater monitoring wells (MW-1 through MW-3, MW-9, MW-10, and MW-37 through MW-39) in the immediate vicinity of the Site to evaluate potential impacts to Site groundwater. Groundwater samples were collected on the following dates:

- May 22 and September 25, 2008, May 6 and September 17, 2009, January 6, April 21 and September 14, 2010, and May 19, 2011 (MW-1 through MW-3);
- January 7, 2010 (MW-9 and MW-10); and
- January 13, 2011 (MW-37 through MW-39).

Groundwater samples were submitted for laboratory analysis of VOCs (MW-1 through MW-3 only), PAHs (MW-37 through MW-39 only), PCB Aroclors, and both total and dissolved MCP metals and mercury. These analyses were selected to evaluate the potential for groundwater impacts from the chemicals of concern in sediment and soil associated with the RTN 4-15685 disposal site.

The groundwater sampling techniques were described previously in Section 3.1.2.3. Groundwater samples were collected using peristaltic pumps and dedicated polyethylene tubing or bladder pump assemblies. During purging of the groundwater monitoring wells, the following parameters were monitored: dissolved oxygen, temperature, oxidation/reduction potential, conductivity, pH, turbidity, and depth to water.

Groundwater analytical results for detected analytes only are provided in Table 4-2. Where duplicate samples were collected, the maximum results are cited below. Monitoring well locations are shown on Figure 3-2.

Groundwater analytical results are compared below to MCP Method 1 GW-1, GW-2 and/or GW-3 groundwater standards. Based on current land use and location and an evaluation of the criteria provided in 310 CMR 40.0932, groundwater in the vicinity of monitoring wells MW-3, MW-9, MW-10, and MW-37 through MW-39 is considered subject to MCP Method 1 GW-1 and GW-3 groundwater standards, while groundwater in the vicinity of wells MW-1 and MW-2 is considered subject to MCP Method 1 GW-3 groundwater standards. Please note that groundwater results are also compared to MCP Method 1 GW-2 standards in the absence of

occupied structures to evaluate the potential for vapor intrusion if structures were to be built at these locations.

4.1.2.1 Groundwater PCB Results

Analysis of groundwater for PCB Aroclors was conducted on samples from all groundwater monitoring wells in accordance with the MassDEP CAM. The analytical results for the groundwater samples did not indicate the detection of any PCB Aroclors at concentrations above MCP Method 1 GW-1, GW-2, and/or GW-3 groundwater standards. The PCB reporting limits were below all MCP Method 1 groundwater standards.

4.1.2.2 Groundwater PAH Results

Analysis of groundwater for PAHs was conducted on the samples from groundwater monitoring wells MW-37 through MW-39 in accordance with the MassDEP CAM. The analytical results for the groundwater samples did not indicate the detection of any PAHs at concentrations above the laboratory reporting limits. The PAH reporting limits were below the MCP Method 1 groundwater standards, with the exception of the reporting limits for benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene, which were above MCP GW-1 standards.

4.1.2.3 Groundwater MCP Metals and Mercury Results

Analysis of groundwater for total and dissolved MCP metals and mercury was conducted on samples from all monitoring wells in accordance with the MassDEP CAM. The analytical results for the groundwater samples did not indicate the detection of any MCP metals or mercury at concentrations above MCP Method 1 GW-1 and GW-3 groundwater standards, with the exception of the total lead concentration detected in the sample collected from MW-3 on January 7, 2010 (34 micrograms per liter [µg/L]), which is above both the GW-1 standard (15 µg/L) and GW-3 standard (10 µg/L). However, the dissolved lead analytical results for that sample did not indicate the presence of dissolved lead above the laboratory reporting limit of 7.5 µg/L.

The detection of lead in groundwater monitoring well MW-3 on January 7, 2010 is most likely attributable to lead being adsorbed to, or contained in, particulates in the groundwater sample. Groundwater samples were analyzed for total lead and dissolved lead (sample field filtered). Given that dissolved lead was not detected in the field filtered groundwater sample from MW-3, the total lead concentration of 34 µg/L detected in the unfiltered groundwater sample from MW-3 is associated with particulates in the sample.

The MCP metals and mercury reporting limits were below the applicable MCP Method 1 groundwater standards with the exception of antimony and thallium reporting limits above GW-1 standards for the samples from MW-3 on September 17, 2009 and January 6, 2010, and for the samples from MW-9 (and duplicate sample) and MW-10 on January 7, 2010. However, antimony has only been identified above the MCP Method 1 S-1 soil standard in sediment or soil in one location at the Site (TSB-8), and thallium has not been detected in Site sediment or soil

above the laboratory reporting limits, indicating the elevated reporting limits for these compounds is not a significant concern.

4.1.2.4 Groundwater VOC Results

Analysis of groundwater for VOCs was conducted on samples from groundwater monitoring wells MW-1 through MW-3 in accordance with the MassDEP CAM. The analytical results for the groundwater samples did not indicate the detection of any VOCs at concentrations above the laboratory reporting limits, with the exception of methyl tert-butyl ether (MTBE), which was detected at concentrations well below applicable MCP Method 1 standards in the samples collected from MW-2 on May 22 (3.3 µg/L) and September 25, 2008 (1.3 µg/L) and September 14, 2010 (1.6 µg/L). The VOC reporting limits were below the MCP Method 1 groundwater standards, with the exception of the reporting limits for 1,2-dibromomethane, cis- and trans-1,3-dichloropropene, and 1,4-dioxane above MCP GW-1 standards in the samples from MW-3.

4.1.3 Surface Water Analytical Results

Analysis of surface water for PCB homologues was conducted on samples collected on March 5 and 6, 2009 from five locations within the northern portion of the wetland (i.e., ERC-SW-7, ERC-SW-9, ERC-SW-11A, ERC-SW-14 and ERC-SW-16) in accordance with EPA Method 680. The same five surface water samples were also analyzed for PAHs and total and dissolved MCP metals and mercury in accordance with the MassDEP CAM, as well as hardness by SM 18-20 2340B.

Nineteen additional surface water samples (i.e., ERC-SW-7 on six other occasions, ERC-SW-9 on two other occasions, ERC-SW-11, and ERC-SW-20 through ERC-SW-29) were analyzed for dissolved zinc in accordance with the MassDEP CAM and hardness by SM 18-20 2340B. Samples ERC-SW-20 through ERC-SW-29 were also analyzed for calcium and magnesium in accordance with the MassDEP CAM.

4.1.3.1 Surface Water PCB Homologue and PAH Results

The analytical results for the surface water samples did not indicate the detection of any PCB homologues or PAHs at concentrations above the laboratory reporting limits. The reporting limits for individual PCB homologues were above the surface water standard for total PCBs (0.014 µg/L). Massachusetts surface water standards for PAHs have not been promulgated at the time of this report (the surface water standards listed for PAHs in the EPA National Recommended Ambient Water Quality Criteria document [USEPA, 2009] are based on human health risks associated with consuming water and organisms that contain levels of PAHs and do not apply to the Site since surface water at the Site is not a drinking water source nor is the wetland used to obtain organisms for human consumption).

4.1.3.2 Surface Water MCP Metals and Mercury, Calcium, Magnesium, and Hardness Results

Analytical results for total MCP metals and mercury indicate low concentrations of barium, chromium, lead, nickel and zinc. However, of those metals, only barium, nickel and zinc were detected within the dissolved surface water samples. The EPA National Recommended Ambient Water Quality Criteria document recommends that when both total and dissolved (i.e., filtered) results are available for these metals, that the dissolved phase concentrations be compared to surface water standards, as discussed below.

Dissolved nickel concentrations were below the surface water standard. Dissolved barium concentrations in the surface water samples ranged from 1.7 to 26.9 µg/L; however, a Massachusetts surface water standard for dissolved barium has not been promulgated at the time of this report (the surface water standard listed for barium in the EPA National Recommended Ambient Water Quality Criteria document [1,000 µg/L] is based on human health risks associated with consuming water and organisms that contain levels of barium and does not apply to the Site since surface water at the Site is not a drinking water source nor is the wetland used to obtain organisms for human consumption). Dissolved zinc concentrations were detected above the site-specific standard of 22.6 µg/L determined using a mean water hardness of 14.2 milligrams per liter (mg/L), which represents the Massachusetts Surface Water Standard for zinc promulgated in 314 CMR 4.05(5)(e), in eleven surface water samples. The surface water samples with dissolved zinc concentrations above the surface water standard include:

- ERC-SW-7 (3/5/09), ERC-SW-9 (3/5/09 and 3/10/10), ERC-SW-20 through ERC-SW-24 (7/17/09), and ERC-SW-26 through ERC-SW-28 (7/17/09). Eleven out of 24 zinc results were greater than the Massachusetts Surface Water Standard [314 CMR 4.05(5)(e)]. Per 310 CMR 40.0995(3)(b)(1)(b), hazardous material attributable to the Site at concentrations above the Massachusetts Surface Water Standard categorically represents a condition of "readily apparent harm."

The reporting limits for MCP metals and mercury were below applicable surface water standards except for cadmium in samples ERC-SW-7 and ERC-SW-9 (3/5/09), ERC-SW-11A, ERC-SW-14 and ERC-SW-16, lead in sample ERC-SW-16, and zinc in samples ERC-SW-7 and ERC-SW-9 (12/28/09) and ERC-SW-16 (3/20/09).

The surface water samples tested for calcium and magnesium were subjected to those analyses in order to calculate site-specific water hardness results. Massachusetts surface water standards for calcium, magnesium and hardness have not been promulgated at the time of this report. Calcium concentrations in the surface water samples collected at the Site ranged from 1,600 to 16,000 µg/L, magnesium concentrations ranged from 270 to 1,800 µg/L, and hardness concentrations ranged from 5,300 to 44,000 µg/L.

4.2 Extent of Site Impacts

This section describes the horizontal and vertical extent of impacts for chemicals of concern identified during TRC's subsurface investigations and during prior assessments conducted by

BETA, as presented in previous reports for the Site.

4.2.1 Sediment and Soil

As noted in Section 4.1.1, chemicals detected in sediment and soil samples collected from the Site in excess of their respective MCP Method 1 S-1 soil standards include PCBs, metals (antimony, cadmium, chromium, lead, and nickel), and PAHs [2-methylnaphthalene, acenaphthene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, and phenanthrene]. This discussion of the extent of chemical impacts focuses the following: cadmium, lead, nickel, benzo(a)pyrene and PCBs.

Table 4-1 summarizes analytical results for sediment and soil samples collected at the Site. Analytical results for cadmium, chromium, lead, nickel, benzo(a)pyrene and total PCBs are shown on Figures 4-1 through 4-6. Estimated total PCB isoconcentration contours based on TRC sampling results are depicted on Figures 4-8 and 4-9.

4.2.1.1 Southern Portion of Wetland

No concentrations of PAHs, PCBs, or metals above MCP Method 1 S-1 soil standards have been identified in samples collected from the southern wetland that were not excavated or capped during the 2006 BETA remedy.

4.2.1.2 Northern Portion of Wetland

Cadmium. Cadmium was detected in sediment and soil above the MCP Method 1 S-1 soil standard in the 0 to 1 foot and 1 to 3 feet horizons. In the 0 to 1 foot horizon, cadmium exceeded the MCP Method 1 S-1 soil standard at five locations near the southeastern boundary of the wetland (TSB-2 through TSB-4, ERC-SED-6, and ERC-SED-8), at two locations along the eastern boundary of the wetland (TSB-5 and ERC-SED-11A), at five locations in the central/northern portion of the wetland (WB-5, WD-7, WD-8, WF-6, and WF-8), and at one location along the northern area of the slope between the wetland and the KMS building (WC.5-14.5). In the 1 to 3 feet horizon, cadmium exceeded the MCP Method 1 S-1 soil standard at one location along the eastern boundary of the wetland (TSB-6) and at one location along the northeastern boundary of the wetland (WC.5-14.5).

Lead. Lead was detected in sediment and soil above the MCP Method 1 S-1 soil standard in the 0 to 1 foot and 1 to 3 feet horizons. In the 0 to 1 foot horizon, lead exceeded the MCP Method 1 S-1 soil standard at six locations near the southeastern boundary of the wetland (TSB-2, TSB-3, ERC-SED-6 through ERC-SED-8, and SD-16), at four locations along the western edge of the wetland (WC.5-14.5, SD-48, WB-7, and WA-3), at six locations along the eastern boundary of the wetland (TSB-5 through TSB-8, SD-40, and ERC-SED-11A), at four locations in the central/northern portion of the wetland (WF-8, WD-7, ERC-SED-12, and Durfee Post), at one location along the northeastern boundary of the wetland (TSB-12), and at one location in the Durfee Street West Lot in the northeastern part of the Site (S2). In the 1 to 3 feet horizon, lead

exceeded the MCP Method 1 S-1 soil standard at one location along the eastern boundary of the wetland (TSB-6) and at one location along the southeastern boundary of the wetland (TSB-3).

Nickel. Nickel was detected in sediment and soil above the MCP Method 1 S-1 soil standard in the 0 to 1 foot and 1 to 3 feet horizons. In the 0 to 1 foot horizon, nickel exceeded the MCP Method 1 S-1 soil standard at two locations near the southeastern boundary of the wetland (TSB-2 and ERC-SED-6), at two locations within the Summit Street ROW along the western edge of the wetland (WSB-17 and WSB-18), and at three locations along the eastern boundary of the wetland (TSB-6, TSB-7, and ERC-SED-11A). In the 1 to 3 feet horizon, nickel exceeded the MCP Method 1 S-1 soil standard at one location along the eastern boundary of the wetland (TSB-6).

Benzo(a)pyrene. Benzo(a)pyrene was detected above the MCP Method 1 S-1 soil standard in the 0 to 1 foot horizon at four locations. These locations include the southeastern boundary of the wetland (ERC-SED-8), the eastern boundary of the wetland (SD-40 and ERC-SED-11A), and the Summit Street ROW along the western edge of the wetland (WSB-16).

PCBs. PCBs were detected above the MCP Method 1 S-1 soil standard in the 0 to 1 foot and 1 to 3 feet horizons. In the 0 to 1 foot horizon, PCBs exceeded the MCP Method 1 S-1 soil standard in six areas. In one of these six areas (the ERC-SED-11A Exposure Point Area), three sample locations (ERC-SED-11A, SED-11B, and SED-11D) contain PCB concentrations in sediment greater than one hundred times the corresponding MCP Method 1 S-1 soil standard, and the average PCB concentration in the remainder of the northern wetland. Therefore, the ERC-SED-11A Exposure Point Area meets the MCP definition of a "hot spot". The ERC-SED-11A Exposure Point Area is located along the eastern boundary of the wetland. In the 1 to 3 feet horizon, PCBs exceeded the MCP Method 1 S-1 soil standard in six areas.

Figures 4-8 and 4-9 present estimated isoconcentration contours for PCB concentrations ranging from 2 to 9.9 mg/kg, 10 to 99.9 mg/kg, and greater than 100 mg/kg, as applicable, for TRC samples collected from the 0 to 1 foot and 1 to 3 feet horizons, respectively.

4.2.2 Groundwater

The results of the analysis of groundwater at and in the vicinity of the Site for VOCs, PAHs, PCB Aroclors, and/or both total and dissolved MCP metals and mercury did not indicate impacts above MCP Method 1 groundwater standards with the exception of total lead at MW-3, which is located near the southern parking lot at the KMS campus. As discussed in Section 4.1.2.3, the total lead concentration is most likely attributable to the lead being adsorbed to, or contained in, particulates in the groundwater sample, and not likely due to mobile dissolved phase lead.

Groundwater monitoring well locations are presented on Figure 3-2. Groundwater sampling results for VOCs, PAHs, PCB Aroclors, and metals are presented on Table 4-2 and were discussed previously in Section 4.1.2.

4.2.3 Surface Water

Laboratory analytical results for surface water samples collected from the Site did not indicate impacts above surface water standards with the exception of dissolved zinc, which was detected above the surface water standard at ten sample locations within the northern portion of the wetland. Locations where zinc was detected above the surface water standard include: ERC-SW-7, ERC-SW-9, ERC-SW-20 through ERC-SW-24, and ERC-SW-26 through ERC-SW-28. These sample locations are along the eastern boundary of the wetland at or near the base of the Phase I Embankment.

5.0 FATE AND TRANSPORT ANALYSIS

Consistent with 310 CMR 40.0835(4)(e), the following section provides an analysis of the fate and transport of chemicals identified at the Site. This section summarizes environmental fate and transport characteristics and potential migration pathways of chemicals identified at the Site.

5.1 Environmental Fate and Transport Characteristics

Based on the subsurface investigations completed to date, compounds identified in Site sediment, soil, groundwater and surface water above MCP Method 1 soil standards include PAHs (2-methylnaphthalene, acenaphthene, benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, chrysene, dibenz[a,h]anthracene, indeno[1,2,3-cd]pyrene, naphthalene, and phenanthrene), PCBs, and metals (antimony, cadmium, chromium [assumed to be chromium(III) but evaluated as chromium(VI) as noted previously], lead, nickel and zinc), as shown in Tables 4-1 through 4-3. The distribution of Site impacts is influenced, in part, by factors such as the physical and chemical properties of the chemicals, geochemical reactions in soil and/or groundwater, the nature and location of sources, and Site characteristics such as geology, hydrology and topography. Characteristics of these compounds that affect mobility, stability, volatility, persistence and bioaccumulative potential are discussed herein. Chemical characteristics are discussed below and summarized in a table provided in Appendix H.

5.1.1 Fate and Transport-Related Properties

To evaluate the fate and transport of chemicals in the environment, it is important to identify the physical and chemical properties that influence fate and transport processes. Chemicals that are structurally similar and tend to exhibit like behavior in the environment can be grouped into classes. Classes of chemicals detected above regulatory standards at the Site include PAHs, PCBs and metals (focused on those potentially present to account for element by element property differences).

General definitions of physical properties are discussed below, followed by a description of the characteristics of each chemical class.

Specific Gravity. The specific gravity of a chemical is the ratio of the mass of a given volume of the chemical to an equal volume of water at a specified temperature, usually 4 degrees Celsius (°C). Specific gravity is a relative measure of density. Compounds with specific gravities greater than 1.0, if they are immiscible with water, can separate as a sinking phase. Immiscible compounds with specific gravities less than 1.0 tend to float on water. The majority of the compounds identified above regulatory standards at the Site have specific gravities greater than 1.0.

Water Solubility. The solubility of a chemical in water is the maximum amount of the chemical that can dissolve in pure water at a specific temperature and pressure. Water solubility is a general predictor of a chemical's potential mobility and distribution in the environment. Chemicals with moderate to high solubility (greater than 100 mg/L) can readily leach from soils into groundwater, and once there, are generally mobile. Compounds that are highly soluble in

water are less likely to volatilize from water and may be more susceptible to microbial degradation. Compounds like PAHs, PCBs and metals generally exhibit a relatively low level of water solubility.

Vapor Pressure. The vapor pressure of a liquid or solid is a relative measure of its volatility in its pure form. This value expresses the pressure of the vapor phase of a compound in equilibrium with its liquid or solid phase of the compound at a given temperature. Vapor pressure is important in evaluating migration of chemicals to air from other environmental media; factors such as temperature, wind speed, water solubility and degree of adsorption also play a key role. Chemicals with vapor pressures greater than 10 millimeters of mercury (mm Hg) are considered to be highly volatile. Compounds like PAHs, PCBs and metals generally exhibit a relatively low vapor pressure.

Henry's Law Constant. The Henry's Law Constant is another measure of chemical volatility. It is expressed as a ratio of the concentration of a chemical in air to the chemical's concentration in water (i.e., dissolved state). The higher the Henry's Law Constant, the greater the tendency to volatilize. In general, compounds with values above 10^{-5} atmospheres-cubic meter per mole (atm-m^3/mol) are considered highly volatile and have a greater potential for movement into groundwater. Compounds like PAHs, PCBs and metals generally exhibit a relatively low Henry's Law Constant (low volatility).

Organic Carbon Partition Coefficient (K_{oc}). This value is a measure of the relative sorption potential of organic compounds. K_{oc} reflects the tendency of an organic compound to be adsorbed onto soils and sediments and is generally independent of soil properties. This value is expressed as the ratio of the amount of a compound adsorbed per unit weight of organic carbon, to the concentration of the compound in aqueous solution at equilibrium. Chemicals with a high K_{oc} (greater than 1,000 milliliters per gram [mL/g]) may exhibit a high sorption potential in soils and are less likely to leach into groundwater. K_{oc} values less than 100 mL/g indicate that the chemical has a high potential to leach into groundwater. Compounds like PCBs and PAHs generally exhibit a relatively high K_{oc} values and tend to exhibit high sorption potential and limited potential to leach.

Log K_{ow} (log octanol/water partition coefficient). This value is a measure of the tendency of a compound to partition between an organic phase (octanol) and an aqueous phase. Log K_{ow} relates indirectly to water solubility and directly to soil adsorption. Chemicals with low partition coefficients (log K_{ow} less than 1) have high water solubilities and low adsorption coefficients, and would, therefore, be expected to have a high potential to leach into groundwater. Organic chemicals generally exhibit relatively high K_{ow} values and tend to exhibit high sorption potential and limited potential to leach.

5.1.2 Contaminant Types

Chemical classes detected in excess of MCP Method 1 soil standards at the Site include PAHs, PCBs, and metals. The chemicals detected above regulatory standards are attributable to fill associated with the RTN 4-15685 disposal site.

Polychlorinated Biphenyls (PCBs). PCBs are a mixture of up to 209 chlorinated compounds which do not occur naturally in the environment. PCB oils were commonly used as fire-resistant dielectric fluids in high voltage transformers, and are also associated with hydraulic equipment and lubricants among many other uses. The manufacture of PCBs in the United States was banned in 1977. PCBs have a very low solubility in water and they strongly partition (adsorb) to soils and soil organic phases. Due to their high lipid solubility, PCBs bioaccumulate and biomagnify within the food chain.

Polycyclic Aromatic Hydrocarbons (PAHs). PAHs are the product of incomplete combustion of fossil fuels. They are also components of petroleum and coal. High molecular weight PAHs such as those detected above MCP Method 1 soil standards at the Site generally have low mobility in soil and possess very low aqueous solubility. Therefore, compounds in this class are not likely to be conveyed in the dissolved phase to groundwater and have relatively low mobility. PAHs have a tendency to strongly partition (adsorb) to soils and soil organic phases.

Antimony. Antimony is a naturally-occurring metal found in natural deposits such as ores containing other elements. The most widely used antimony compound is antimony trioxide, which is used as a flame retardant; however, antimony is also found in batteries, pigments, and ceramics/glass. Antimony is considered only very slightly soluble in water and has little potential for transport via dissolved phase.

Cadmium. Cadmium is a naturally-occurring metal and always occurs in combination with zinc. About three-fourths of cadmium mined is used in nickel-cadmium (Ni-Cd) batteries, most of the remaining cadmium mined is used mainly for pigments, coatings and plating, and as stabilizers for plastics. Cadmium has a very low solubility in water and little potential for transport via dissolved phase.

Chromium. Chromium is a naturally-occurring metal and is mainly used in alloys such as stainless steel, in chrome plating and in ceramics. Chromium plating was once widely used to give steel a polished silvery mirror coating. Chromium is used in metallurgy to impart corrosion resistance and a shiny finish, in dyes and paints, and as a catalyst in dyeing and in the tanning of leather. Chromium has a very low solubility in water and little potential for transport via the dissolved phase. The mobility of chromium is also affected by the oxidation-reduction potential (Eh) and pH of the surrounding environment.

Chromium is present in the environment in several different forms, the most common being the metal forms chromium(0), chromium(III), and chromium(VI). Chromium(III) occurs naturally in the environment and is an essential nutrient. Chromium(VI) and chromium(0) are generally produced by industrial processes. Chromium(III) is far more prevalent in the environment than chromium(VI), as chromium(VI) requires extreme pH and oxidation-reduction potential (Eh) conditions that rarely exist in the natural environment to predominate over chromium(III).

Lead. Lead is a naturally-occurring metal and is also a very commonly employed industrial chemical, and has been used in gasoline, paints, solders, glazes, electronics, batteries, lead-arsenate pesticides, ammunition shot and sinkers. Lead is dispersed throughout the environment primarily as a result of human activities. Lead has a strong tendency for bioaccumulation and

due to its persistence in the environment and toxicity, the use of lead in the United States has been eliminated or strictly regulated. Lead has a very low solubility in water and little potential for transport via the dissolved phase.

Nickel. Nickel is a naturally-occurring metal and the major use of nickel is in the preparation of alloys. A majority of the nickel mined is used to make stainless steel with other industrial uses including the manufacture of alloy steels, rechargeable batteries, catalysts and other chemicals, coinage, foundry products, and plating. Nickel has a very low solubility in water and little potential for transport via the dissolved phase. The solubility of nickel is also affected by the pH and oxidation-reduction potential (Eh) of the surrounding environment.

Zinc. Zinc is a naturally-occurring metal with a tendency to bioaccumulate in the aquatic environment. The solubility of zinc depends on the temperature and pH of the water. When the pH is fairly neutral, zinc is at its minimum solubility. Solubility increases with increasing acidity but decreases above pH 11. Zinc is used in paint, rubber, dyes, wood preservatives, ointments, batteries, and in rust prevention.

5.2 Migration Pathways

Figure 5-1 presents a schematic conceptual site model that illustrates, on a site-specific basis, how chemicals entered the environment, how the chemicals were transported at the Site, and the potential for exposure to human and environmental receptors, as currently supported by the available data, information on chemicals identified at the Site, and chemical properties. An analysis of the potential migration pathways as they relate to the chemicals identified at the Site is presented in the following sections.

5.2.1 Sediment and Soil

Chemicals detected in sediment and soil at the Site above MCP Method 1 soil standards include PAHs, PCBs, and certain metals. The PAHs and PCBs identified at the Site tend to exhibit strong partitioning tendencies and limited potential to leach, and/or low solubility, indicating a low likelihood of leaching through the soil and migrating with groundwater.

The chemicals of concern (PAHs, PCBs, lead and zinc) are highly persistent (do not readily degrade) and PCBs, lead and zinc also have a tendency for bioaccumulation. However, based on the groundwater and surface water analytical results obtained during TRC's investigations, the potential for transport of the chemicals identified in Site sediment and soil above MCP Method 1 soil standards to groundwater and surface water is limited. This is demonstrated by the fact that none of the chemicals of concern in sediment and soil have been detected in dissolved phase groundwater samples above applicable MCP Method 1 groundwater standards. Furthermore, zinc (the only chemical detected in surface water at the Site above Massachusetts surface water standards) has not been identified in Site sediment or soil above the MCP Method 1 S-1 soil standard, suggesting the zinc concentrations detected in surface water may be attributable to a "background" condition, as further discussed in Section 5.2.2.

Sediment sampling activities were conducted at four properties, collectively referred to as the "Durfee Street Wetlands," located north across Durfee Street from the KMS wetland by the EPA's contractor Weston Solutions, Inc. (Weston) in May and July 2010. Weston advanced a total of 28 sediment borings up to 3 feet in depth within the four properties, from which 72 sediment samples were analyzed for PAHs, PCBs, and/or metals (not including quality control samples). The City is not a participant in the Durfee Street Wetlands work undertaken by EPA and its contractors.

Analytical results from the Weston investigation indicate the presence of PAHs, PCBs, and/or metals concentrations in sediment above MassDEP sediment screening criteria in each of the four properties, and above MCP Method 1 S-1 soil standards at two of the properties. The distribution and concentration of the compounds detected within the sediment samples generally indicate higher impacts in areas closest to the channel flowing through the Durfee Street wetlands from the KMS wetland, with the sediment results above MCP Method 1 S-1 standards identified in the samples collected from properties located adjacent to the channel. This indicates transport of hydrophobic organic Site chemicals (i.e., PAHs and PCBs) bound to sediment and/or soil particles via erosion and/or surface water flow from the KMS wetland to the Durfee Street wetlands. This type of chemical transport potentially occurs when water in the KMS wetland rises above the elevation of the outfall of the culvert at the north end of the wetland crossing Durfee Street (culvert elevations at the outfall appear to be higher than at the inlet) and flows downstream.

Future development of the KMS wetland is considered highly unlikely.

5.2.2 Groundwater

The groundwater aquifer in the vicinity of the KMS wetland is unconfined and is generally present about 4 feet below ground surface. Groundwater gauging activities performed by TRC in the vicinity of the wetland indicate a southeast to southerly flow direction towards the topographically lower parts of the watershed. Groundwater analytical results for samples collected from monitoring wells surrounding the KMS wetland for VOCs, PAHs, PCB Aroclors, and/or total and dissolved MCP metals and mercury indicate no PAH concentrations above laboratory reporting limits and no PCB or dissolved metals concentrations above applicable MCP Method 1 GW-1, GW-2 and/or GW-3 standards.

However, while not above MCP Method 1 GW-1 and GW-3 standards, the dissolved zinc concentration detected in the groundwater sample collected from monitoring well MW-9 (99 µg/L, and duplicate sample [94 µg/L]) was less than ten-times the corresponding MCP Method 1 GW-3 standard (900 µg/L). Monitoring well MW-9 is located directly west of the area of the northern wetland where zinc levels have been identified in surface water. Pursuant to 40.0983(4)(b), MCP Method 1 GW-3 standards are based on the assumption that a ten-fold dilution occurs when groundwater discharges to surface water. Based on the above information, it appears that the expected ten-fold dilution may not in fact be occurring when local groundwater discharges to surface water, further suggesting that the zinc concentrations detected in surface water may be attributable to a "background" groundwater condition (with that

"background" condition below MCP Method 1 groundwater standards). As such, there is potential for transfer of dissolved zinc in groundwater to surface water.

Total lead was detected above MCP Method 1 standards at monitoring well MW-3, which is located near the southern parking lot at the KMS campus. As discussed in Section 4.1.2.3, the total lead concentration is most likely attributable to the lead being adsorbed to, or contained in, particulates in the groundwater sample, and not likely due to dissolved phase lead. Lead has a specific gravity of 11.34 but does not tend to migrate in its pure phase form, which is a solid under most typical environmental conditions. Additionally, lead is nearly insoluble in water and strongly partitions to solid phases. Therefore lead is likely to be largely immobile in groundwater. Based on the nature of lead, it is not expected to migrate significantly from its current distribution.

5.2.3 Air

Chemicals of concern identified at the Site generally exhibit relatively low vapor pressures and therefore, are not likely to migrate to air from other environmental media.

5.2.4 Surface Water

The land bridge between Auburn Street and the KMS campus separates the southern and northern portions of the wetland. There is no culvert through the land bridge and thus no surface water flow occurs between the two areas. Depending on the season, the northern portion of the wetland may contain up to several feet of surface water, whereas the southern portion of the wetland generally does not contain significant amounts of surface water. When water in the northern portion of the wetland rises above the elevation of the outfall of the culvert crossing Durfee Street (the outfall appears to be at a higher elevation than the inlet), surface water flows through the culvert and along the channel north of Durfee Street into the "Durfee Street Wetlands," eventually discharging into Apponagansett Swamp to the north.

Surface water analytical results obtained to date indicate zinc detected above surface water standards in the southeastern end of the wetland. As zinc has not been identified in Site sediment or soil above the MCP Method 1 S-1 soil standard, nor identified in groundwater samples collected from monitoring wells surrounding the Site above MCP Method 1 GW-3 standards, the zinc concentrations in surface water may be a "background" condition.

Zinc levels in soil and groundwater throughout the RTN 4-15685 disposal site have been evaluated. One elevated zinc concentration was detected in a soil/fill sample collected at the 129 Hathaway Boulevard church property (not part of the wetland west of KMS), which is most likely attributable to a zinc-containing product (e.g., battery, galvanized metal) in the sample location. Zinc concentrations in RTN 4-15685 disposal site soil are generally below the MCP S-1/GW-1 soil standard of 2,500 mg/kg. Over 99-percent of the soil samples collected from the RTN 4-15685 disposal site have zinc concentrations below the MCP S-1/GW-1 standard.

Total zinc has only been identified above the applicable MCP GW-3 groundwater standard in a sample of water obtained from a seep in the floor of the boiler room at NBHS, which is

attributed to zinc associated with galvanized metal objects and/or paint on the floor of the boiler room and not considered a reflection of actual groundwater conditions. Dissolved zinc has not been identified above the MCP GW-3 standard in any of the 36 RTN 4-15685 disposal site groundwater samples collected by TRC that have been analyzed for dissolved zinc.

The fact that RTN 4-15685 disposal site soil/fill generally contains zinc levels below the MCP S-1/GW-1 soil standard coupled with the fact that dissolved zinc levels in RTN 4-15685 disposal site groundwater are below the MCP GW-3 standard further suggests that the zinc levels identified in surface water at the KMS wetland may be a "background condition."

However, as discussed in Section 5.2.1, erosion and/or surface water flow during flooding events is considered a potential transport mechanism for sediment and soil bound chemicals; therefore, the potential also exists for transport of zinc in surface water via flow during flooding events.

5.2.5 Food Chain

Due to their high lipid solubility, PCBs bioaccumulate and biomagnify within the food chain. Lead also bioaccumulates within the food chain though it is not known to biomagnify. Some metals such as cadmium and mercury may biomagnify within the food chain although most other metals tend to bioaccumulate in lower trophic level organisms. PAHs are generally not a concern with respect to bioaccumulation or biomagnification. TRC's Stage I ES and Stage II ERC, included as Appendix I, provides a detailed evaluation of the effects of Site chemicals on the food chain.

6.0 DISCUSSION OF IMMEDIATE RESPONSE ACTION AND ECOLOGICAL RISK CHARACTERIZATION

The following summarizes the IRA undertaken at the Site, including a discussion of ERC activities and associated data collection/evaluation.

6.1 Immediate Response Action

6.1.1 Initial Iterative Sediment Sampling

As a result of assessment activities conducted as part of the LTMMIP for the Site, PCB impacts were detected in shallow wetland sediment (sample SD-03) in excess of a concentration in the MCP per 310 CMR 40.0321(2)(b) on June 9, 2008. The detection was reported to MassDEP via telephone on June 9, 2008. MassDEP verbally approved IRA assessment activities and assigned RTN 4-21300. A summary of the IRA activities performed is provided below.

The initial follow-up included:

- Re-extraction and re-analysis of sample SD-03 by the laboratory (NEA) to verify the original PCB result.
- Collection of six additional sediment samples on June 10, 2008 in areas around the SD-03 PCB sediment detection, which were submitted to NEA for PCB analysis (SW-846 Method 8082) on a rush turn-around basis to verify the original result. The samples were collected as follows:
    - SD-03R (and duplicate sample) – A repeat sample from the approximate location of SD-03 (sediment). Note that a second SD-3R location was sampled on August 19, 2008 which, as detailed later in this section, is unrelated to the SD-03R location sampled on June 10, 2008 and discussed here.
    - SD-03-1-1.5 – A sample collected at a depth of 1 to 1.5 feet at SD-3R/SD-03 (sediment).
    - SD-3A – A sample collected 5 feet to the north of SD-03 (sediment).
    - SD-3B – A sample collected 5 feet to the east of SD-03 (soil from the adjacent KMS cap).
    - SD-3C – A sample collected 5 feet to the south of SD-03 (sediment).
    - SD-3D – A sample collected 5 feet to the west of SD-03 (sediment).

All samples were collected from a depth of 0 to 6 inches below the sediment or soil surface, with the exception of SD-03-1-1.5, which was collected from a depth of 1 to 1.5 feet below the surface at the SD-03 detection location. At the time, all of the aforementioned sediment sample locations were under approximately 4 to 6 inches of water with the exceptions of SD-3B and SD-3C. Sample SD-3B is a soil sample collected from the adjacent KMS cap. Sample SD-3C was wet, but not under water. As noted above, the SD-03R sample collected on June 10, 2008 was collected in duplicate for quality control (QC) purposes. This follow-up sampling was conducted consistent with the depth of sampling specified in the LTMMIP except that: 1) one additional

sample (SD-03-1-1.5) was collected at the approximate location of sediment sample SD-03 at a depth of 1 to 1.5 feet below the sediment surface to evaluate the depth of potential impacts; and 2) a duplicate sample was collected from SD-03R for QC purposes.

The above described follow-up sampling indicated the following:

- Sample SD-03R (and duplicate sample) contained PCB concentrations consistent with the original SD-03 detection.
- Sediment samples collected 5 feet to the north and west of SD-03 (i.e., samples SD-3A and SD-3D, respectively) each contained total PCB concentrations above the 10 mg/kg potential IH reporting concentration under the MCP.
- Analytical results from sediment sample SD-03-1-1.5 indicated that impacted sediment is present deeper than 6 inches.
- The sample collected 5 feet to the south of SD-03 (i.e., SD-3C) contained a total PCB concentration of 0.143 mg/kg.
- No PCBs were detected in cap soil sample SD-3B.

TRC's next round of iterative sampling on June 19, 2008 consisted of the collection of sediment samples SD-3E through SD-3J from 0 to 6 inches below the sediment surface at additional 5 to 10-foot increments to the north and west of previous samples SD-3A and SD-3D, respectively (see Figure 3-1). The laboratory (NEA) was directed to analyze the first 5-foot increment sediment sample and to keep remaining incremental samples on hold pending the results of the first increment analysis. Sample SD-3J was collected 20 feet to the west of SD-03 to coincide with the approximate western edge of the 2006 BETA remedial sediment excavation. This follow-up sampling indicated the following:

- All of the sediment samples contained total PCB concentrations above 3 mg/kg.
- Two samples (i.e., SD-3F to the north and SD-3H to the west) contained total PCB concentrations greater than the 10 mg/kg potential IH threshold (TRC verified with MassDEP that no additional reporting was required since the condition was consistent with that reported to MassDEP on June 9, 2008).

Sampling continued to delineate the extent of the PCB sediment impacts to the north and west of SD-03.

An IRA Plan was submitted to MassDEP on August 7, 2008. The IRA Plan outlined supplemental assessment sampling planned in coordination with the City's Department of Environmental Stewardship that consisted of the following tasks:

- Evaluate the areal extent of PCB impacted shallow sediment (0 to 6 inches below the sediment surface) incrementally.
- Develop an efficient sampling plan to evaluate the depth of impacted sediment in conjunction with the areal extent evaluation.
- Adjust the incremental sediment sampling approach based on sampling results.

Several iterative rounds of sediment sampling were subsequently conducted based on laboratory analytical results that continued to indicate concentrations of PCBs. Sediment samples were submitted to NEA for laboratory analysis of PCB Aroclors via SW-846 Method 8082. The sampling locations were surveyed by Land Planning. The iterative progression and locations of sediment sampling are indicated on Figure 3-1. The specific sample depth intervals submitted for laboratory analysis for each sediment sample are tabulated in Appendix D. Analytical results for the sediment and soil samples are summarized in Table 4-1 and on Figures 4-1 and 4-2 for the southern and northern portions of the wetland, respectively. A summary of the iterative sampling rounds is provided below.

- **July 30, 2008 -** TRC collected twelve additional sediment samples from six locations (i.e., SD-3K, SD-3L, SD-3M, SD-3N, SD-3P and SD-3Q). The analytical results indicated that PCB impacted sediments above 2 mg/kg were bounded to the north by SD-3M.

- **August 19, 2008 -** TRC collected twelve additional sediment samples from six locations, SD-3R through SD-3W, in the wetland area to the northwest of SD-03. The analytical results indicated additional sampling to assess the lateral extent of PCB impacts in the wetland and vertical extent in some locations (i.e., PCB detections extended down to 1.5 feet in three locations).

- **September 17-18, 2008 -** TRC collected 28 additional sediment samples on September 17 and 18, 2008. All westernmost sample results were below 1 mg/kg, as shown on Figure 4-1. Two out of the three northernmost sample points indicated as follows: SD-09-2.5-3 (2.09 mg/kg) and SD-10-0-0.5 (1.23 mg/kg).

- **October 3-6, 2008 -** TRC collected a total of twenty additional sediment samples from twelve locations (SD-09A and SD-13 through SD-23) within the wetland to confirm the western delineation boundary, to delineate the northern extent of PCB impacts, and to investigate the vertical extent of PCB impacts at SD-09. Results from the northern extent of sampling indicated PCB concentrations in excess of 1 mg/kg.

- **October 22-23, 2008 -** TRC mobilized to the Site to collect 36 additional sediment samples from 14 locations (SD-13A and SD-24 through SD-36) to assess the extent of PCB impacts in the vicinity of samples with detected total PCB concentrations as follows: SD-16-0-0.5 (4.872 mg/kg), SD-17-0-0.5 (1.55 mg/kg), SD-18-0-0.5 (1.38 mg/kg), SD-19-0-0.5 (2.69 mg/kg), and SD-21-0-0.5 (1.63 mg/kg). Analytical results indicated that PCB concentrations generally tended to decrease to the west and north of the wetland, but again indicated PCB concentrations in excess of 2 mg/kg, suggesting a more comprehensive sampling approach was warranted.

6.1.2 Comprehensive Sampling Program

Following TRC's October 22 and 23, 2008 sampling program, TRC's LSP, in consultation with the City and EPA, re-evaluated the iterative approach to delineating PCB sediment impacts employed thus far and elected to perform a comprehensive sampling effort. As noted above,

TRC initially proposed the additional sampling approach to EPA via electronic mail on November 26, 2008. EPA approved the approach, which included the sampling of other media to identify potential sources of PCB sediment impacts.

TRC mobilized to the Site on December 3, 2008 to collect the following samples:

- Eighty-four (84) additional sediment samples from 48 locations (i.e. SD-37 through SD-84).
- Five samples of material accumulated within storm water drain pipes (SDR-01 through SDR-05).
- Five soil samples immediately adjacent to the discharges of storm water drain pipes (OF-1 through OF-5).
- Ten soil samples from the slope adjacent to the wetland (SLP-01 through SLP-10).

Note that one storm water drain-pipe sample (OF-DS-1) was previously collected on November 25, 2008 from the same pipe as the SDR-04 sample noted above. Sediment samples were collected north of previously-collected samples to evaluate the northern extent of potential impacts in the wetland, and to the south of the land bridge that separates the northern and southern portions of the wetland to provide additional characterization of sediment in that portion of the Site. Samples of soil from adjacent to the end of storm water drain pipes, samples of accumulated materials within the storm water drain pipes, and soil samples collected from the slope adjacent to the wetland (i.e., Phase I Embankment) were also collected to evaluate potential sources of PCB sediment impacts.

Analytical results of samples collected in December 2008 indicated that concentrations of PCBs generally tended to be lower further north into the wetland, but also that PCB concentrations were present at various locations throughout the northern portion of the wetland as follows: SD-40-0-0.5 (5.23 mg/kg), SD-42-0-0.5 (1.34 mg/kg), SD-43-0-0.5 (1.22 mg/kg), SD-45-0-0.5 (1.06 mg/kg), SD-48-0-0.5 (1.36 mg/kg), SD-50-0-0.5 (1.21 mg/kg), SD-57-0-0.5 (1.36 mg/kg), SD-58-0-0.5 (1.77 mg/kg), SD-59-0-0.5 (1.02 mg/kg), SD-70-1.5-2 (7.99 mg/kg), and SD-71-0-0.5 (1.15 mg/kg). Sediment samples collected from the southern portion of the wetland (i.e. south of the land bridge) did not contain PCBs in excess of 2 mg/kg.

Table 4-1 and Figures 4-1 and 4-2 summarize analytical results for sediment and soil samples for the southern and northern wetland areas. Figures 4-8 and 4-9 present estimated isoconcentration contours for PCB concentrations ranging from 2 to 9.9 mg/kg, 10 to 99.9 mg/kg, and greater than 100 mg/kg, as applicable, for TRC samples collected from the 0 to 1 foot and 1 to 3 feet horizons, respectively.

TRC's sample results to date indicate that PCB concentrations in wetland sediment samples in excess of 2 mg/kg are present in portions of the wetland to the north of the land bridge. Samples collected to the south of the land bridge indicate that total PCB concentrations in that area are below 1 mg/kg. Samples of slope soils, soils adjacent to storm drain outfalls, and material accumulated in storm drain pipes do not indicate runoff from these areas as a source of PCB sediment impacts.

6.2 Ecological Risk Characterization Related Sampling

TRC proposed an approach to evaluate ecological risks within the KMS wetland consistent with MCP ERC guidance with the exception that Exposure Point Concentrations (EPCs) for mobile receptor species such as birds and mammals would be represented by the 95-percent upper confidence limit of the arithmetic mean rather than the arithmetic mean.

PCB sediment data (for Aroclors) were requested to be collected within 1.5 to 2 feet of each proposed sample location from 0 to 3 inches and 3 to 6 inches below the sediment surface to supplement data proposed to be collected from 0 to 6 inches, in order to evaluate near surface stratification (see Section 6.3.1).

A Stage I ES and Stage II ERC was initiated for the Site in accordance with the MCP (310 CMR 40.0900) and consistent with other related MassDEP guidance. Initially, the Stage I ES was conducted to determine potential ecological receptor exposure pathways. Following review of the results of the Stage I ES, including surface water laboratory results above Massachusetts Water Quality Standards, the Stage II ERC was initiated to further evaluate potential ecological exposure pathways.

The details of Stage I ES and Stage II ERC sampling activities are provided in the report titled *Stage I Environmental Screening & Stage II Environmental Risk Characterization* (TRC, 2010c), which is attached as Appendix I. A summary of Stage I ES and Stage II ERC sampling activities is presented below.

6.2.1 Surface Water Data Collection

A total of five surface water samples (ERC-SW-7, ERC-SW-9, ERC-SW-11A, ERC-SW-14 and ERC-SW-16) were collected from the northern portion of the wetland to support the Stage I ES in March 2009. The Stage I ES surface water samples were analyzed for PCB homologues (EPA Method 680), the 13 MCP metals plus mercury (total and dissolved [filtered] using SW-846 Method 6010B/6020/7470A), hardness (SM 18-20 2340B) and/or PAHs (SW-846 Method 8270C with SIM). PCB homologue analyses were conducted by NEA and the metals, hardness and PAHs analyses were conducted by Alpha. Ten additional surface water samples (ERC-SW-20 through ERC-SW-29) plus one duplicate sample were collected from the northern portion of the wetland by TRC on July 17, 2009 and analyzed by Con-Test for dissolved calcium, magnesium and zinc, as well as water hardness. Surface water samples targeted for metals analyses were field filtered. The locations of the Stage I ES surface water samples are shown on Figure 3-3.

On December 28, 2009, two surface water samples were collected from previously sampled locations (ERC-SW-7 and ERC-SW-9) within the northern portion of the wetland to support the Stage II ERC. The Stage II ERC surface water samples were analyzed for dissolved (field filtered) zinc (SW-846 Method 6010B) and hardness (SW-846 Method 6010B) by Alpha. In addition, surface water samples ERC-SW-7 and ERC-SW-9 were submitted to and initially held by Aquatec of Williston, Vermont for potential surface water toxicity testing pending the results of the dissolved zinc and hardness analyses. Based on the dissolved zinc and water hardness

results, TRC's Ecological Risk Specialist determined that these samples should not be authorized and that representative samples to be submitted for toxicity testing would have to be collected at a later date. The locations of the Stage II ERC surface water samples are presented on Figure 3-3.

On March 10, 2010, three staff gauges were installed in the northern portion of the wetland to periodically monitor the surface water elevation and to aid in determining the timing of the collection of additional surface water samples for toxicity testing. The staff gauge locations were surveyed by Land Planning and are depicted in Figure 3-3.

Based on the December 28, 2009 surface water sampling results and periodic staff gauge measurements, additional surface water samples were collected from location ERC-SW-7 on March 10, April 21, May 5, May 17, and August 23, 2010. Additional surface water samples were also collected from location ERC-SW-9 and ERC-SW-11 on March 10 and August 23, 2010, respectively (see Figure 3-3). In each case, the surface water samples were analyzed for total hardness (SM 18-20 2340B) and dissolved (field filtered) zinc (SW-846 Method 6010B) by Alpha. Sample volume was also collected from the ERC-SW-7 location on each of the above referenced dates for potential aquatic life toxicity testing pending the results of the water hardness and dissolved zinc analyses. However, due to detected concentrations of dissolved zinc ranging from 6.3 to 11.9 µg/L in the samples (which were below the target concentration of 20 µg/L that would warrant performing toxicity testing), toxicity testing was not authorized on any of the samples based on the professional judgment of TRC's Ecological Risk Specialist.

6.2.2 Sediment Data Collection

An additional twelve sediment samples (ERC-SED-6 through ERC-SED-10, ERC-SED-11A through ERC-SED-15, ERC-SED-16 and ERC-SED-17) were collected from the areas previously excavated by BETA within the northern wetland in March 2009 to support the Stage I ES. The samples were analyzed for the 13 MCP metals plus mercury (SW-846 Method 6010B/7471A) by Con-Test and PAHs (SW-846 Method 8270C with SIM) by Alpha. In addition, a subset of the sediment samples (i.e., four samples) were analyzed for PCB congeners (co-planar congeners via SW-846 Method 1668 [Revision A]) by SGS and PCB Aroclors (SW-846 Method 8082) by NEA to obtain congener/Aroclor ratios. The same subset of samples were analyzed for total organic carbon (SM 5310C) by Con-Test. The locations of these samples (0 to 6 inch depth interval) are depicted on Figure 6-1. Note that additional sediment samples were collected during March 2009 (ERC-SED-6A, ERC-SED-9A, ERC-SED-11B, and ERC-SED-14A) for the purpose of investigating PCB near surface stratification within the sediment column.

An additional 20 sediment samples were collected in December 2009 to support the Stage II ERC for the northern wetland area. All of the sediment sample locations corresponded to previous TRC (e.g., ERC-SED-7, SD-3T, SD-07, etc.) or BETA (i.e., WD.5-6.5 and WI-6) sample locations. Each of the sediment samples was collected from the 0 to 6 inch depth interval. The sediment samples were analyzed for PCB Aroclors (SW-846 Method 8082) by NEA, and PAHs (SW-846 Method 8270C with SIM), lead, selenium, and/or zinc by Alpha. The locations of the Stage II ERC sediment samples are shown on Figure 6-2.

In addition, a subset of the sediment samples (SD-16, SD-40, SD-48, ERC-SED-7, ERC-SED-9, ERC-SED-11A-C and ERC-SED-14) were analyzed for sediment toxicity (using *Chironomus tentans* and *Hyallela azteca)* by Aquatec of Williston, Vermont to evaluate site-specific impact potential.

6.2.3 Surface Soil Data Collection

Because previous sampling by BETA detected the pesticide 4,4-DDT in the southern portion of the wetland (i.e., south of the land bridge), TRC collected five surface soil samples (ERC-SED-1 through ERC-SED-5) from the southern portion of the wetland on March 5, 2009. Each of the samples was analyzed by Alpha for select pesticides including 4,4-DDT and its derivatives 4,4-dichlorodiphenyldichloroethane [4,4-DDD] and 4,4-dichlorodiphenyldichloroethylene [4,4-DDE] via SW-846 Method 8081A.

Seven surface soil samples (SD-3Q, SD-04, SD-23, SD-35, SD-42, SD-93 and WSB-9) were collected from the northern wetland on December 29, 2009. Each of the samples was collected from the 0 to 6 inch depth interval and analyzed for lead and/or zinc (SW-846 Method 6010B) by Alpha. The surface soil sample locations are shown on Figure 6-2.

6.3 Additional Delineation Sampling

6.3.1 Near Surface Stratification Sampling

Samples were collected from 0 to 3 inches and 3 to 6 inches below the sediment surface to supplement data to be collected from 0 to 6 inches, to evaluate near surface stratification. Four additional locations (ERC-SED-6A, ERC-SED-9A, ERC-SED-11B and ERC-SED-14A) were selected to assess near surface stratification in close proximity to the four locations selected for PCB congener/Aroclor ratio evaluation.

The results of the near surface stratification sampling indicated that the concentrations of PCB Aroclors present in the upper 0 to 3 inch sample interval ranged from 0.319 to 66.9 mg/kg, while concentrations in the deeper 3 to 6 inch interval ranged from 0.305 to 16.5 mg/kg. Total PCB Aroclor concentrations in three of the four 0 to 3 inch samples (ERC-SED-9A, ERC-SED-11B and ERC-SED-14A; 5.07, 66.9 and 0.319 mg/kg, respectively) were greater than the corresponding 3 to 6 inch sample (0.305, 0.797 mg/kg and non-detect, respectively). The sample from ERC-SED-6A exhibited total PCB Aroclor concentrations of 9.21 mg/kg in the 0 to 3 inch sample and 16.5 mg/kg in the 3 to 6 inch sample.

Furthermore, in each case, the total combined PCB Aroclor concentration of the stratification samples (e.g., 25.71 mg/kg in the case of samples ERC-SED-6A [0-0.25] and ERC-SED-6A [0.25-0.5]) correlated relatively well with the adjacent 0 to 6 inch depth interval sample (e.g., 27.8 mg/kg in the case of sample ERC-SED-6 (0-0.5)). This further supports the observation that PCB impacts are generally within the shallowest sediments at the Site. Note that PCB Aroclor concentrations have been detected at a small number of locations in the wetland at

greater depths (e.g., SD-03 (1-1.5') [20.37 mg/kg] and SD-70 (1.5-2') [7.99 mg/kg], which are located at opposites ends of the northern wetland area).

6.3.2 Supplemental Sampling

On March 20, 2009, seven additional sediment samples (SED-11A-A through SED-11A-F) were collected, including one duplicate, in the vicinity of sediment samples ERC-SED-11A (0-0.5) (434 mg/kg) and ERC-SED-11B (0-0.25) (66.9 mg/kg), to evaluate the lateral extent of potential impacts in the vicinity of ERC-SED-11A. The sediment samples were collected from the 0 to 6 inch depth interval in accordance with previously described sampling methodology.

The results of additional sediment sampling confirmed total PCB concentrations in the vicinity of ERC-SED-11A (SED-11A-A [20.6 mg/kg], SED-11A-B and the associated duplicate sample SED-11A-BB [705 mg/kg and 805 mg/kg, respectively], SED-11A-D [838 mg/kg], and SED-11A-E [31.3 mg/kg]). In addition, the results from locations SED-11A-C [9.82 mg/kg] and SED-11A-F [5.50 mg/kg], located approximately 5 feet west and 10 feet north of ERC-SED-11A, respectively, provided an initial indication that these impacts were localized.

In conjunction with the collection of supplemental sediment samples, four soil sampling locations (SLP-11A-1 through SLP-11A-4) were selected along the cap slope immediately adjacent to ERC-SED-11A. On March 19, 2009 the four shallow (0-6 inch depth interval) soil samples (SLP-11A-1 through SLP-11A-4) on the cap slope were collected (see Figure 6-3). All four of the samples were analyzed for PCB Aroclors (SW-846 Method 8082) by NEA. Sample SLP-11A-1 was the only soil sample that exhibited a detectable concentration of PCBs (0.079 mg/kg).

Based on the PCB concentrations of the March 2009 sediment samples, a two-phase approach to further evaluate Site conditions was proposed. The first phase of work would employ a sampling program consistent with the previous sampling efforts in the wetland with the goals of further evaluating and delineating the lateral extents of potential PCB sediment impacts in the vicinity of the ERC-SED-11A sediment sample location. Although a total of fourteen soil samples along the cap slope, five samples of storm drain sediment material and five samples of material beneath the storm drain outfall rip-rap had previously been collected, additional sampling, particularly of the soil along the cap slope, was conducted. Sediment samples at eight additional locations north, west or south of ERC-SED-11A were proposed. In addition, a total of sixteen additional soil samples from the Phase I cap slope and two outfall material samples were proposed.

The additional sediment sampling was conducted on August 12, 2009. Eight additional sediment locations (SED-11A-G through SED-11A-N) in the vicinity of ERC-SED-11A were sampled from the 0 to 6 inch depth interval and one deeper interval using hand augers. Consistent with previous sampling protocol, the deeper interval corresponded to the depth that native sand was encountered or the maximum depth that could be reached with the hand auger if the sand layer was not encountered. This approach served to help determine the vertical extent of the PCB impacts as well as the thickness of organic material within this portion of the wetland. A total of seventeen sediment samples including one duplicate were collected and analyzed for PCB

Aroclors (SW-846 Method 8082) by NEA. See Figure 6-3 for the locations of these sediment samples.

The analytical results of the shallow (0 to 6 inch) samples were generally consistent with other PCB concentrations detected in the wetland, ranging between non-detect (SED-11A-H; less than 0.307 mg/kg) and 7.65 mg/kg (SED-11A-K [duplicate analysis was 12.29 mg/kg]). None of the sediment samples collected at depth exhibited detectable concentrations of PCBs. The analytical results confirmed a localized area both laterally and vertically surrounding ERC-SED-11A.

On August 13, 2009, 16 shallow soil samples (SLP-12 through SLP-27) plus one duplicate along the cap slope were collected between the land bridge (separating the northern and southern portions of the wetland) and the northeast extent of the cap. The locations were approximately evenly distributed between the previous collected cap slope samples (see Figure 6-4). In addition, two shallow samples (OF-5A and OF-5B) were collected adjacent to rip-rap associated with the storm drain outfall immediately southeast of ERC-SED-11A. Consistent with previously employed sampling methods, the soil samples were collected from the 0 to 6 inch depth interval and analyzed by NEA for PCB Aroclors (SW-846 Method 8082).

Detected total PCB concentrations in the additional soil samples were less than 2 mg/kg or non-detect, with the exception of sample SLP-12 (3.34 mg/kg) collected on the north side of the land bridge. This sample was collected approximately two feet above the water level in the northern portion of the wetland.

The orange snow fence warning layer associated with the cap was observed at the surface in the vicinity of sample location SLP-22 and at shallow depths (i.e., less than 6 inches below surface) along the northwest corner of the cap at sample locations SLP-23 and SLP-24 (see Figure 6-4). In response, an engineer familiar with the Site was mobilized to conduct an inspection of the cap. Based on the inspection, it was determined that the integrity of the cap was not compromised.

The second phase of the investigation focused on the collection of continuous samples at depth (i.e., approximately 4 to 5-feet below grade) along the toe of the cap using direct push methods. Given the logistical issues with conducting this phase of the investigation (e.g., wet conditions, limited access point for equipment, the steepness of the cap slope, desire not to adversely impact the cap slope, etc.) a limited number of potential approaches were feasible. This phase of the investigation would be conducted in the winter, under frozen conditions, to minimize the number of logistical concerns and allow deployment of the drilling rig on flat winter ice. This phase of the investigation is discussed in Section 6.4.

6.3.3 Western Delineation Sampling in Northern Portion of Wetland

Following the detection of the following total PCB concentrations: SD-70-1.5-2 (7.99 mg/kg) and SD-71-0-0.5 (1.15 mg/kg) in two sediment samples collected within the northwestern portion of the wetland in December 2008, additional investigation was conducted along the western boundary of the northern wetland. In order to facilitate this additional sampling, the precise limits of the City-owned ROW extending from the intersection of Summit Street and Hapwell Street north to Durfee Street (hereafter referred to as the Summit Street ROW) were

evaluated. Land Planning was mobilized in June 2009 to survey the western boundary of the Summit Street ROW, including the corners of the bordering properties, based on current information from the City of New Bedford Assessor's Office (see Figure 6-5).

Following completion of the Summit Street ROW survey, a site-walk was conducted to determine an efficient sampling approach that would minimize disturbance of the wetland buffer zone/upland area. A scope of work was submitted to the City and the City of New Bedford Conservation Commission (ConComm) for review on June 19, 2009, approval to proceed was received on June 22, 2009, and the sampling program was initiated on June 24, 2009.

A total of ten soil borings (WSB-1 through WSB-10), were advanced along the western boundary of the Summit Street ROW in order to assess the western extent of wetland-related impacts, as well as investigate potential impacted soil in the buffer zone and/or upland area bordering the northwestern portion of the wetland. The environmental investigation consisted of direct push soil borings using a Geoprobe® 6620 DT track-mounted drill rig to sample soil and observe subsurface soil conditions. In select locations (WSB-7 through WSB-10), where drill rig access was infeasible without undue damage to the wetland buffer zone, soil borings were advanced using hand tools (i.e., Bosch hammer drill). Drilling services and equipment were provided by New England Geotech**.**

Soil borings were advanced and samples were collected until native overburden was encountered and/or an elevation less than or equal to the approximate elevation of the wetland sediment surface was reached, unless refusal was encountered first. Where native material was submitted for laboratory analysis, a minimum of two samples of native material were collected in borings selected to characterize the native horizon. The lower native sample was retained for as-needed analysis contingent upon the results of the upper native horizon analysis in an attempt to delineate the vertical extent of impacts, if present. The contingent native material was not analyzed if the native material interval above it was found to be below cleanup criteria.

A total of 42 soil samples (plus one laboratory duplicate) were collected on June 24, 2009. Samples were analyzed for PCB Aroclors (SW-846 Method 8082) by NEA, and PAHs (SW-846 Method 8270C) and/or the 13 MCP metals plus mercury (SW-846 Method 6010B/7471A) by Con-Test. Analytical results indicated no detections above MCP Method 1 S-1 soil standards. The maximum detected total PCB concentration was 0.587 mg/kg in sample WSB-9 (1-2').

The June 24, 2009 soil sampling program indicated that the Summit Street ROW buffer zone/upland area had been adequately assessed. There were no signs of fill material in the ten soil borings based on visual observations, no VOC headspace readings above background were noted and, as previously mentioned, no concentrations in excess of MCP Method 1 S-1 soil standards were detected.

Since portions of the Summit Street ROW intersect areas of the wetland with current or intermittent water, a total of seven sediment locations (SD-85 through SD-91) were sampled along the western property boundary of the Summit Street ROW concurrent with the soil boring investigation on June 25, 2009. Consistent with previously described sampling protocols,

sediment samples were collected northwest of previous sample location SD-70 and west of previous sample locations SD-71 and SD-72 to assess the northern extent of the wetland impacts.

The sediment samples were analyzed for PCB Aroclors (SW-846 Method 8082) by NEA. Only one sample (SD-91 (0-0.5) [2.1 mg/kg]) indicated a concentration in excess of the MCP RCS-1 Reportable Concentration (2 mg/kg). This sample was collected from the northwestern-most portion of the Site, from an area of intermittent water near the northern extent of the Summit Street ROW and immediately southwest of the Durfee Street culvert.

Six additional sediment samples (SD-92 through SD-94 from 0-0.5' and a deeper interval), were collected on July 17, 2009 to assess the potential for impacts in the vicinity of SD-91. Sampling was conducted consistent with previously described sampling protocol and the sediment samples were analyzed for PCB Aroclors (SW-846 Method 8082) by NEA. Analytical results indicated no PCB concentrations above 2 mg/kg in the sediment samples.

6.3.4 Monitoring Well Installation

A total of nine supplemental soil borings (WSB-11 through WSB-19) were advanced adjacent to the Site within the City ROWs on Durfee Street and Summit Street on December 17 and 18, 2009 (see Figure 6-2). Two of the borings within the Summit Street ROW (WSB-16 and WSB-19) were completed as permanent groundwater monitoring wells (MW-9 and MW-10) to evaluate "background" groundwater conditions in the vicinity of the northern portion of the wetland. The monitoring well locations were surveyed by Land Planning. Well construction logs are included in Appendix C. The monitoring wells were subsequently developed on December 21, 2009 using a Whale Mini Purge Pump and dedicated tubing. A LaMotte 2020 turbidity meter was used throughout development to monitor turbidity levels.

Following an appropriate stabilization period, groundwater samples were collected from the newly installed monitoring wells, as well as from the three existing monitoring wells within the KMS campus (MW-1 through MW-3), on January 7, 2010. Groundwater samples were collected following EPA Region I low stress (low flow) sampling guidelines. During purging activities, water quality parameters were monitored using a YSI 600XL Sonde with 650 MDS data logger and a LaMotte 2020 turbidity meter. Water quality parameters were recorded on groundwater sampling log forms. Groundwater samples were collected after water quality parameters had stabilized in accordance with the low flow guidance. Groundwater sampling field forms are included in Appendix C.

Groundwater samples were collected for PCB Aroclor (SW-846 Method 8082) and total and dissolved (field filtered) MCP metals plus mercury (SW-846 Methods 6010B/7471A) analyses to determine if groundwater (particularly with regard to zinc) has potentially impacted the wetland surface water. Groundwater samples for PCB Aroclor analysis were submitted to NEA and samples for total and dissolved MCP metals and mercury were submitted to Con-Test. All samples were submitted under proper chain-of-custody.

6.4 Toe-of-Slope Investigation

As previously noted, the City conducted two phases of supplemental sampling in the vicinity of the wetland to further evaluate the potential for the capped area to impact wetland sediments. The first phase of the work was conducted in August 2009 and included supplemental wetland sediment sampling, cap slope soil sampling, and outfall sediment sampling.

The second phase of the investigation focused on the collection of continuous samples at depth (i.e., approximately 4 to 5 feet below grade) along the toe of the cap using direct push Geoprobe® methods. Given the logistical issues with conducting this phase of the investigation (e.g., wet conditions, limited access point for equipment, the steepness of the cap slope, desire not to adversely impact the cap slope, etc.) this phase of the investigation was conducted in the winter, under frozen conditions to facilitate access to the areas targeted for investigation.

A total of twelve borings (TSB-1 through TSB-12) were advanced along the toe of the cap slope within the northern portion of the wetland on February 8 and 9, 2010. Direct push borings via a Geoprobe® 540M dolly rig were utilized to sample sediment and observe subsurface conditions. Drill rig access was facilitated by the presence of a solid ice surface on the wetland water body. Drilling services and equipment were provided by New England Geotech. A total of 41 sediment samples (plus two laboratory duplicates) were collected.

The borings were intended to evaluate the presence or absence of fill, the vertical extent of potential impacts, and the potential for sediment impacts and/or fill material that may be present along the toe of the cap slope. Care was taken to advance the borings outside the limits of the engineered cap (within areas of standing water) to avoid potentially compromising any portion of the cap. Borings were advanced and samples were collected to a depth of approximately four feet below the sediment surface. Where refusal or insufficient sample recovery was initially encountered (TSB-6, TSB-7, TSB-8, TSB-9 and TSB-10), the boring location was modified slightly (moved approximately one foot from the original boring location) and additional attempts were made to reach the target depth of four feet.

Samples were analyzed for PCB Aroclors (SW-846 Method 8082) by NEA and for MCP metals plus mercury (SW-846 Method 6010B/7471A) by Con-Test. Several analytes including PCBs, cadmium, chromium, lead, and nickel were detected at concentrations in excess of MCP Method 1 S-1 soil standards. The maximum detected concentration of total PCBs was 23.8 mg/kg in sample TSB-2 (0-1'). The maximum concentration of cadmium (12 mg/kg), chromium (100 mg/kg), lead (760 mg/kg) and nickel (41 mg/kg) were detected in TSB-12 (1-2'), TSB-3 (0-1'), TSB-3 (0-1') and TSB-6 (2-4'), respectively.

Subsurface material generally consisted of dark brown organic silt (i.e., peaty) material. At several of the locations (TSB-2, TSB-3, TSB-11 and TSB-12) various sized sands were encountered below the organic silt, consistent with previous sampling within the wetland. There were no obvious signs of potential fill material in the twelve borings. Boring logs are included in Appendix C.

6.5 Fence Installation

To mitigate the IH condition within the northern portion of the KMS wetland in accordance with the MCP, the City elected to install a chain-link perimeter fence enclosing the entire northern portion of the wetland. The fence is 8 feet in height and constructed of black-coated metal (steel) to match the existing fencing at the KMS and was installed by Southeast Fence Company, Incorporated of Lakeville, Massachusetts.

Fence post installation began between November 10 and 13, 2009. Fence posts that were installed in areas with the potential to encounter impacted soils were put in using direct-push techniques to eliminate the need to disturb subsurface soil (indicated with a bold red line on Figure 6-6). Select data associated with properties adjacent to the fence along Durfee Street (i.e., 288 Durfee Street and the "Durfee Street West Lot") are presented in Table 6-1.

The remaining posts were drilled using fence post auger equipment (i.e., Toro Dingo TX 425). At auger locations, cement footings were poured at the base of the post and soil was backfilled over the cement once it had set. The chain-link fence material was hung between November 24 and December 9, 2009. Two gates were installed completing the perimeter fence on December 11, 2009, with locks installed by the City of New Bedford School Department on December 14, 2009.

Fill material was found at an augured hole adjacent to 288 Durfee Street and near to the road. Soil removed from this location was stored in buckets pending results of testing. Results indicated a detection of lead above the MCP Method 1 S-1 soil standard (see Table 6-1). Due to the small volume, this sediment was combined, treated and disposed of with the soil associated with remedial action occurring at Walsh Athletic Field in New Bedford, which was coordinated with representatives of MassDEP (please see *Release Abatement Measure Completion Report - Contaminated Soil Removal Remedy Implemented at the Walsh Field Athletic Complex* [TRC, 2011a] for additional information concerning the Walsh Field remedial action).

As shown on Figure 6-6, the fence ties into the existing KMS fence at the land bridge, runs west to Summit Street, north to enclose the corner of Summit Street and Hapwell Street, then north along the western boundary of the Summit Street ROW and ultimately ties into the existing fence along Durfee Street. The purpose of the fence installation was to mitigate the IH condition and close-out IRA activities.

The fence both mitigated the IH condition and met the ConComm's resource protection requirements. Fence fabric was hung an average of approximately 9 to 12-inches above the ground surface in order to allow wildlife migration to and from the wetland. However, upon completion of fence construction and review by the LSP, some portions of the fence included gaps between the fence fabric and ground surface large enough for people to pass through.

The City subsequently had Southeast Fence Company adjust select sections of the fence fabric. The City review the final fence construction with MassDEP during a Site walk on August 30, 2010. MassDEP approved the fence construction, confirming that the IH condition has been mitigated.

7.0 HUMAN HEALTH RISK CHARACTERIZATION

This section was prepared per 310 CMR 40.0835(4) (g) and (h) of the MCP and the MassDEP *Guidance for Disposal Site Risk Characterization* (MassDEP, 1995), and provides a human health risk characterization for the Site. The risk characterization addresses human receptors reasonably expected to be at and near the Site. As discussed herein, a Method 3 approach was selected to characterize human health risk at the Site. Because residential use is not contemplated by the City and an AUL will be used to prohibit future residential use of the Site, adult and child on-site residential receptors are not quantitatively evaluated in the risk characterization. However, since a portion of the Site is classified into the GW-1 category, the off-property residential drinking water pathway is evaluated through a comparison of groundwater concentrations to Massachusetts Drinking Water Standards and Guidelines.

Supporting information applicable to the risk characterization is contained in Appendix J of this report as follows: Appendix J-1 (Medium-Specific Sampling Data), Appendix J-2 (ProUCL Documentation for 95-Percent Upper Confidence Limits), Appendix J-3 (Risk and Hazard Calculations for the 0 to 1 Foot Soil Interval), Appendix J-4 (Risk and Hazard Calculations for the 0 to 3 Feet Soil Interval), Appendix J-5 (Risk and Hazard Calculations for the 0 to 15 Feet Soil Interval), Appendix J-6 (Risk and Hazard Calculations for Groundwater), Appendix J-7 (Risk and Hazard Calculations for Sediment), Appendix J-8 (Risk and Hazard Calculations for Surface Water) and Appendix J-9 (Supporting Information for the Uncertainty Section).

The following references were also utilized: MassDEP 1995, MassDEP 2002a, MassDEP 2002b, MassDEP 2002c, MassDEP 2007a, MassDEP 2007b, MassDEP 2008a, MassDEP 2008b, MassDEP, 2009, EPA 1997, EPA 2002, and EPA 2006.

7.1 Adequacy of Site Characterization

7.1.1 Impacted Media

At the Site, environmental media known to be potentially impacted include soil, groundwater, sediment and surface water. As described in Sections 2 and 3, soil, groundwater, sediment and surface water impacts were evaluated during environmental investigations at the Site between 2004 and 2006 (soil and sediment only) and between 2007 and 2011 (soil, groundwater, sediment and surface water). All soil, groundwater and surface water data collected from the Site were considered in the Method 3 risk characterization. However, only data from those sediment samples that remain representative of current Site conditions following excavation activities performed in 2006 were considered for use in this risk characterization.

7.1.1.1 Soil

Impacts detected in soils at the Site above MCP Method 1 S-1 soil standards include PCBs, metals (antimony, cadmium, chromium, lead, and nickel), and one PAH (benzo(a)pyrene), as described in Section 4.1.1. Analytical results for soil samples collected at the Site are summarized in Table 4-1.

7.1.1.2 Groundwater

No impacts were detected in groundwater at or in the vicinity of the Site in excess of MCP Method 1 groundwater standards with the exception of total lead at monitoring well MW-3. As discussed in Section 4.1.2.3, the total lead concentration is attributable to the lead being adsorbed to, or contained in, particulates in the groundwater sample, and not likely due to dissolved phase lead. Table 4-2 summarizes analytical results for groundwater samples collected at and in the vicinity of the Site.

7.1.1.3 Sediment

Impacts detected in sediment at the Site above MCP Method 1 S-1 soil standards include PCBs, metals (antimony, cadmium, chromium, lead, and nickel), and various PAHs, as described in Section 4.1.1. PAH-related impacts in sediment above MCP Method 1 S-1 soil standards include 2-methylnaphthalene, acenaphthene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, and phenanthrene. Analytical results for sediment samples collected at the Site are summarized in Table 4-1.

7.1.1.4 Surface Water

No impacts were detected at the Site in excess of Massachusetts surface water standards with the exception of zinc. Table 4-3 summarizes analytical results for surface water samples collected at the Site.

7.1.2 Extent of Impacts

The nature and extent analysis is provided in Section 4. The nature and extent has been sufficiently delineated to support conclusions and opinions regarding the source, nature, extent, and potential impacts at the Site and to support conceptual remedial planning.

7.1.2.1 Horizontal and Vertical Extent

The horizontal and vertical extent of sediment and soil impacts is described in Section 4. In general, the horizontal and vertical extent of PCBs, metals, and PAHs in sediment and soil at the Site is consistent with impacts associated with the RTN 4-15685 disposal site fill. The horizontal and vertical extent of sediment and soil impacts detected above regulatory standards has been characterized via laboratory analysis and field screening (visual, olfactory, jar headspace, and professional judgment). For sediment and soil from the 0 to 1 foot horizon, data indicate that the surficial media are comparatively more impacted than deeper media. Sediment and soil impacts at the Site are summarized on Figures 4-1 to 4-6.

The horizontal and vertical extent of groundwater and surface water impacts is described in Section 4. The results of the analysis of groundwater at and in the vicinity of the Site for VOCs, PAHs, PCBs, and/or both total and dissolved MCP metals and mercury indicated that all compounds are below applicable MCP Method 1 standards, with the exception of total lead at well MW-3. As discussed in Section 4.1.2.3, the total lead concentration is most likely

attributable to the lead being adsorbed to, or contained in, particulates in the groundwater sample, and not likely due to dissolved phase lead. The only compound detected above regulatory standards in surface water samples collected at the Site was zinc. In general, the lack of groundwater and surface water impacts from RTN 4-15685 disposal site fill containing PCBs, PAHs, and metals is consistent with the chemical properties, namely the high sorption potential and limited potential to leach, and/or low solubility of the chemicals.

7.1.2.2 Background Concentrations

Site-specific background concentrations were not characterized in soil, groundwater, sediment or surface water. For sediment and surface water, MassDEP has not developed background concentrations to serve as a basis of comparison. Therefore, background concentrations for these media for VOCs, PCBs, SVOCs, pesticides and metals are reasonably assumed to be non-detect. For groundwater, MassDEP (2008b) has published background concentrations for select metals (arsenic, cadmium, chromium, lead, mercury, and silver) which have been used in this risk characterization. Groundwater background concentrations for all other analytes are considered to be non-detect, again because MassDEP has not developed or adopted background concentrations to serve as a basis of comparison. For the same reasons, soil background concentrations for VOCs, PCBs, SVOCs (other than PAHs), pesticides, and herbicides are also considered to be non-detect.

Even though the presence of fill containing coal, coal ash or wood ash is present at the Site, soil background concentrations of metals and PAHs selected for use in the risk characterization are MassDEP "Natural Soil" background concentrations as presented in the *Technical Update Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil* (MassDEP, 2002b).

7.1.2.3 Existing or Potential Migration Pathways

Existing and potential migration pathways were discussed in Section 5.2. Figure 5-1 illustrates the potential migration pathways for the Site.

7.1.3 Representativeness

The nature and extent discussion is presented in Section 4. The nature and extent is characterized sufficiently to evaluate risk, support conceptual remedial planning, and select remedial actions for the Site.

A data usability assessment was conducted for samples collected from the Site, which is summarized in Section 9.

7.1.4 Compounds of Potential Concern

Compounds of Potential Concern (COPCs) for the risk characterization were identified by: a) screening concentrations against available background values, b) eliminating results with low detection frequencies and concentrations, and c) eliminating those results that are considered laboratory contaminants and not related to potential Site impacts. In addition, compounds that

were not reported above laboratory reporting limits were also removed from further consideration as COPCs.

Compounds eliminated from the list of soil COPCs based on the comparison of detected concentrations to the MassDEP native soil background concentrations are provided in Tables 7-1 through 7-9. All compounds detected in groundwater and summarized in Tables 7-10 through 7-13, except for chromium in monitoring well MW-3 (Table 7-13), were considered COPCs, even if present below MCP standards. All compounds detected in sediment and surface water and summarized in Tables 7-14 through 7-16 (unfenced and fenced wetland sediment and ERC-SED-11A area) and Table 7-17 (fenced wetland surface water) were considered COPCs.

The following table summarizes the COPCs at the Site and the media in which they were detected.

Compounds of Potential Concern	
Compounds	**Affected Media**
Methyl tert-butyl ether	Groundwater
Polycyclic Aromatic Hydrocarbons	Soil, Sediment
Polychlorinated Biphenyls	Soil, Groundwater, Sediment
PCB TEQs	Sediment
4,4'-DDD	Sediment
4,4'-DDE	Sediment
4,4'-DDT	Sediment
Antimony	Sediment
Arsenic	Groundwater, Sediment
Barium	Soil, Groundwater, Sediment, Surface Water
Beryllium	Sediment
Cadmium	Soil, Sediment
Chromium	Soil, Groundwater, Sediment, Surface Water
Lead	Soil, Groundwater, Sediment, Surface Water
Mercury	Soil, Groundwater, Sediment
Nickel	Soil, Groundwater, Sediment Surface Water
Selenium	Soil, Groundwater, Sediment
Silver	Sediment
Vanadium	Soil, Sediment
Zinc	Groundwater, Sediment, Surface Water

7.2 Site Activities and Uses (Current and Foreseeable Future)

7.2.1 Current Uses

The Site occupies an approximate 5-acre area within the approximate 11.5-acre KMS property. The Site is located between the east side of Summit Street and the west side of the KMS campus, and is bordered to the north by Durfee Street and to the south by a paper street known as Nemasket Street.

Included within the Site are the KMS wetland, the adjacent capped slope area to the east of the wetland (i.e., the Phase I Embankment), the Summit Street ROW west of the wetland and the Durfee Street ROW north of the wetland.

There are no buildings at the Site. The KMS building is located directly east of the Site and several residential properties are located to the west. An unfenced land bridge separating the northern and southern portions of the wetland is present between the KMS campus and Auburn Street. Access to the northern wetland area, including the upland slope soils and soils along the Summit Street ROW to the north of the land bridge, is limited by the presence of an 8-foot chain-link fence. There are no access restrictions to the southern wetland area, including the upland slope soil and soils along the Summit Street ROW near the land bridge. In addition, soils along the Durfee Street ROW are unfenced. There are no impervious surfaces (e.g., pavement or buildings) within the Site boundary.

Though the area is serviced by the municipal water supply system, there is a private drinking water well located within 500 feet of the Site. Therefore, portions of the local aquifer qualify as a GW-1 category groundwater resource. The drinking water pathway for off-property residents is evaluated through comparison of monitoring well data to Massachusetts Drinking Water Standards and Guidelines.

For the purposes of the current risk characterization, the Site has been divided into the following four exposure points based on current activities known to be occurring. Only exposures to authorized personnel (i.e., workers) are assumed for the Fenced Wetland area due to the presence of the chain-link fence. Potentially impacted media found within each exposure area are also provided:

- Unfenced Wetland (southern portion of the wetland)
    - sediment
    - slope soil
    - Summit Street ROW soil (near land bridge)
- Fenced Wetland (northern portion of the wetland)
    - slope soil
    - Summit Street ROW soil (north of land bridge)
- Durfee Street ROW
    - soil
- GW-1 groundwater (MW-3, MW-9 and MW-10)

Current potential child and adult receptors, and media to which they may be exposed, include:

- recreational visitors at the Unfenced Wetland (children and adults exposed to sediment and soil);
- recreational visitors at the Durfee Street ROW (children and adults exposed to soil);
- groundskeepers at the Unfenced Wetland upland areas (adults exposed to soil);
- groundskeepers at the Fenced Wetland upland areas (adults exposed to soil);
- groundskeepers at the Durfee Street ROW (adults exposed to soil); and

- off-property drinking water well exposures (adult and child residents).

Though adults and young children may be exposed recreationally to the upland soils within the KMS wetland Site, older children (age 8 through 15) are expected to be the most exposed age group to wetland sediments as they might be drawn to the wetland area out of curiosity. Due to their age, they would also be free to explore the area without the need for adult supervision. There is little attractive potential of these areas for adults, and young children would be unlikely to go into these areas without adult supervision. Exposure of recreational visitors to soil, sediment and surface water COPCs at the Fenced Wetland were not evaluated as part of the current scenario due to the presence of the chain-link fence.

Groundskeepers periodically perform maintenance activities in the upland areas, such as lawn mowing and weed removal. Though there may be occasional contact with sediment while performing maintenance activities in the upland areas, older children are assumed to have more frequent contact and to be the more exposed receptor for wetland sediment exposures.

For the current exposure points, analytical results for surface soil (less than 3 feet below ground surface) and sediment (less than 1 foot below ground surface) were combined, by media, to generate EPCs. Because all compounds were non-detect or below background for the Unfenced Wetland slope soil (see Appendix J-1, Table J-1.2), no quantitative risk evaluation of this exposure medium was performed in the risk characterization.

Each monitoring well that was classified into the GW-1 category was evaluated as a separate exposure point (monitoring wells MW-3, MW-9 and MW-10). Though monitoring wells MW-37 through MW-39 are also classified into the GW-1 category, these wells are located on the Nemasket Street property and have been evaluated as part of a separate risk characterization prepared for that parcel.

7.2.2 Foreseeable Future Uses

The City has no plans to change the land use of the KMS wetland parcel in the foreseeable future. Because residential use is not contemplated by the City and an AUL will be placed on the property prohibiting future residential use of the KMS wetland parcel, on-property adult and child residential receptors are not quantitatively evaluated in the risk characterization. Therefore, future receptors are anticipated to be the same as current receptors (including off-property drinking water exposures), with the addition of soil and shallow groundwater exposures to future excavation and utility workers engaging in improvements or repairs at the Site. Because the chain-link fence around the northern portion of the wetland could fall into disrepair or be removed in the future, future recreational receptors are additionally assumed to be exposed to potentially impacted media within the currently fenced areas of the Site.

Though unlikely, it is possible for a commercial building to be constructed within the upland portions of the wetland. Soil exposure for a commercial worker scenario is evaluated as the groundskeeper scenario, using conservative exposure assumptions appropriate for commercial exposures. The vapor intrusion pathway has not been quantitatively evaluated since only trace levels of one VOC (methyl tert-butyl ether) have been sporadically detected in one monitoring

well at concentrations up to 3.3 µg/L (reporting limit of 1 µg/L and GW-2 standard of 50,000 µg/L). Compounds with only limited volatility have been detected in soil, consistent with the conceptual model for the Site. The soil and groundwater sampling data indicate that no source of VOCs is present at the Site and the vapor intrusion pathway is not of concern.

For the purposes of the future risk characterization, the Site has been divided into the following four exposure points based on potential future activities anticipated to occur. Potentially impacted media found within each exposure area are also provided:

- Unfenced Wetland (southern portion of the wetland)
    - sediment
    - slope soil
    - Summit Street ROW soil (near land bridge)
    - groundwater along slope (MW-3)
- Fenced Wetland (northern portion of the wetland)
    - sediment
    - drain sediment
    - surface water
    - slope soil
    - Summit Street ROW soil (north of land bridge)
    - Durfee Street ROW soil
    - groundwater along slope (MW-1 and MW-2)
    - groundwater along Summit and Durfee Streets (MW-9 and MW-10)
- ERC-SED-11A Area
    - sediment
- GW-1 groundwater (MW-3, MW-9 and MW-10)

Future potential child and adult receptors, and the media to which they may be exposed, include:

- recreational visitors at the Unfenced Wetland (children and adults exposed to sediment and soil);
- recreational visitors at the Fenced Wetland (children and adults exposed to sediment, soil and surface water);
- recreational visitors at the ERC-SED-11A Area (older children exposed to sediment);
- groundskeepers/commercial workers at the Unfenced Wetland upland areas (adults exposed to soil);
- groundskeepers/commercial workers at the Fenced Wetland upland areas (adults exposed to soil);
- excavation/utility workers at the Unfenced Wetland upland areas (adults exposed to soil and groundwater);
- excavation/utility workers at the Fenced Wetland upland areas (adults exposed to soil, drain sediment, and groundwater); and
- off-property drinking water well exposures (adult and child residents).

For the future exposure points, analytical results for soil (up to 15 feet below ground surface) and sediment (less than 1 foot below ground surface) were combined, by media, to generate EPCs. As described previously, each monitoring well that was classified into the GW-1 category was evaluated as a separate exposure point. Because all compounds were non-detect or below background for the Unfenced Wetland slope soil and Fenced Wetland drain sediment (see Appendix J-1, Table J-1-15), no quantitative risk evaluation of these exposure media was performed in the risk characterization.

The ERC-SED-11A Area, comprised of sediment sampling locations ERC-SED-11A, SED-11A-B, and SED-11A-D, located in the Fenced Wetland area, was identified as a hot spot due to elevated concentrations of total PCBs. The concentrations of total PCBs in these three samples ranged from 434 mg/kg to 838 mg/kg, with an average concentration of 676 mg/kg. The total PCB EPC for the remainder of the Fenced Wetland sediment was 5.0 mg/kg, with a range from non-detect to 66.9 mg/kg. Because the total PCB concentrations found in the ERC-SED-11A area were more than 100-fold greater than the concentrations typically present in the remainder of the wetland, these three sampling locations were grouped together and identified as a hot spot, as defined by the MCP.

7.3 Imminent Hazards

An IH is not present at this Site. This determination is based on a review of criteria for site conditions "deemed to pose" an IH under 310 CMR 40.0321(1) and the criteria for site conditions that "could pose" an IH under 310 CMR 40.0321(2). IRA activities conducted on Site to date are summarized in Section 6. The results of TRC's review of conditions "deemed to pose" or that "could pose" an IH are set forth below.

7.3.1 Criteria for Releases Deemed to Pose an Imminent Hazard – 310 CMR 40.0321(1)

Site conditions are not known to have resulted in the presence of impacts within buildings, structures, or underground utility conduits at a concentration equal to or greater than 10-percent of the Lower Explosive Limit (LEL), as set forth in 310 CMR 40.0321(1)(a). The City has not received reports or complaints of persistent odors in ambient or indoor air possibly attributable to potential site impacts.

The chemicals detected at the Site either do not possess reactive or explosive characteristics consistent with 310 CMR 40.0321(1)(b), or the chemicals are not present at concentrations or in situations expected to threaten safety.

The potential impacts detected at the Site do not appear to be related to impacts to a roadway that could endanger public safety as set forth in 310 CMR 40.0321(1)(c).

Potential site impacts did not result in immediate and acute adverse impacts to freshwater or saltwater fish populations consistent with 310 CMR 40.0321(e).

7.3.2 Criteria for Release that Could Pose an Imminent Hazard – 310 CMR 40.0321(2)

There are no reports of the potential impacts detected at the Site resulting in detections in a private drinking water supply well at a concentration equal to or greater than ten-times the GW-1 Reportable Concentration (RC) per 310 CMR 40.0321(2)(a).

As discussed in Section 6, a potential IH condition was identified on June 9, 2008, based on the detection of PCB impacts in shallow wetland sediment (sample SD-03) in excess of a concentration that could pose an IH as defined in the MCP, pursuant to 310 CMR 40.0321(2)(b). The potential IH condition was associated with the sample's concentration, depth below surface, proximity to a school or residential dwelling, and accessibility. To mitigate the IH condition within the northern portion of the KMS wetland in accordance with the MCP, the City elected to install an 8-foot chain-link perimeter fence enclosing the entire northern portion of the wetland. Fence post installation began on November 10, 2009. The chain-link fence material was hung between November 24 and December 9, 2009. Two gates were installed, completing the perimeter fence, on December 11, 2009, with locks installed by the City of New Bedford School Department on December 14, 2009. The City reviewed the final fence construction with MassDEP during a Site walk on August 30, 2010. MassDEP approved the fence construction, confirming that the IH condition has been mitigated. Therefore, an IH condition does not exist for the Fenced Wetland exposure point.

To demonstrate that an IH condition associated with surficial soil and sediment does not exist in the unfenced portions of the Site, Tables 7-1 (Summit Street ROW near land bridge), 7-2 (Durfee Street ROW) and 7-14 summarize the surficial soil and sediment data available for the Site. The data are representative of the 0 to 1 foot surface interval as the most applicable to actual exposures occurring at the Site.

Method 3 risk calculations, presented in Appendix J-3 (soil) and Appendix J-7 (sediment), were performed to document that cumulative risks and hazards for the 0 to 1 foot soil and sediment intervals do not present an IH condition within the unfenced portions of the Site. The assumptions and methods used for these calculations are discussed in detail in Section 7.6.1. Based on these calculations, no IH condition exists at the Site. A summary of the cumulative risks and hazards for the 0 to 1 foot soil interval for each applicable human receptor is presented in Table 7-18.

7.4 Groundwater and Soil Categorization

The following sets forth the groundwater and soil categories at the Site. This categorization was prepared consistent with 310 CMR 40.0932, 310 CMR 40.0933, and Table 40.0933(9) of the MCP.

7.4.1 Groundwater Categories

The groundwater categories for this Site were determined pursuant to 310 CMR 40.0932, research of available documentation, and through the use of MassDEP Priority Resource Map (Figure 2-1). Based on the available information, groundwater category GW-1 applies to

portions of the Site and groundwater categories GW-2 and GW-3 apply to groundwater beneath the entire Site for the following reasons:

- **GW-1.** Groundwater in the vicinity of monitoring wells MW-3, MW-9 and MW-10 is located within 500 feet of a private well. Therefore, consistent with 310 CMR 40.0932(a) of the MCP, these monitoring wells are considered to meet the GW-1 criteria under current and future use conditions.

- **GW-2.** Groundwater beneath the Site is located less than 15 feet below ground surface, but is not within 30 feet of any existing occupied buildings. However, consistent with 310 CMR 40.0932(b) of the MCP, potential future development of the Site by the construction of additional buildings was considered to meet the GW-2 criteria under future use conditions.

- **GW-3.** All groundwater is thought to eventually discharge to surface water bodies per the MCP (310 CMR 40.0932 (2)); therefore, groundwater category 3 (GW-3) is also relevant to the entire Site.

7.4.2 Soil Categories

Consistent with 310 CMR 40.0933(4), the applicability of the MCP soil categories was determined based on consideration of the frequency of Site use, intensity of activities and the accessibility of the soil, as well as human receptor characteristics.

Current adult frequency of use at the Site is determined to be "Low" due to the potential for adults to be working only occasionally at the Site performing periodic maintenance activities. Adult intensity of activity is determined to be "High" because the Site lacks pavement or other barriers, and soil impacts are located at depths less than three feet below grade. Because the Site is near residential areas and a school, children could be frequent visitors to the unfenced areas of the Site under current conditions; therefore, frequency of Site use by children is assumed to be "High". The intensity of use by children is also expected to be "High" because the Site is unpaved and could be used for recreational activities.

Potentially impacted soil at the Site is present within the 0 to 3 feet depth interval as well as the 3 to 15 feet depth interval (based on field observations and sampling results). Potential soil impacts within the top three feet are therefore considered *accessible*, consistent with 310 CMR 40.0933(4)(c)(2), and soil within the 3 to 15 foot interval is considered *potentially accessible*.

Based on the above-summarized information, and Table 40.0933(9) of the MCP, soil categories S-1 and S-2 apply to Site soil. As previously stated, an AUL will be placed on the property prohibiting future residential use of the KMS wetland parcel.

7.5 Hazard Identification

For the Hazard Identification, soil, groundwater, sediment and surface water analytical data were reviewed to identify COPCs, as presented on Tables 7-1 through 7-17. Sample-specific data for

soil, groundwater, sediment and surface water are provided in Appendix J-1. Site data were evaluated for the presence of hot spots. As previously stated, three sediment sampling locations in the ERC-SED-11A area were identified as a future hot spot due to the presence of elevated concentrations of total PCBs.

Sediment data collected within one foot of the sediment surface were quantitatively evaluated in the risk characterization, including characterization samples collected prior to excavation activities in 2006 that remain representative of current Site conditions, post-excavation confirmation samples collected in 2006 that remain representative of current Site conditions, and long-term monitoring samples and additional characterization samples collected between 2007 and 2011. Sediment data sets used in the risk characterization were constructed so as to minimize dilution of contaminant data by not combining areas of lower contaminant levels with areas of high contaminant levels. As such, sediment from locations displaying non-detect or below native soil background levels of contaminants were removed from the data sets. These samples are highlighted in red in Appendix J-1, Tables J-1.13 and J-1.14.

In the case of the Unfenced Wetland, the sediment samples that were removed from the data set were located at the center of the wetland area, where removal actions occurred. By removing sample data from the center of the wetland, not only is the data set conservative but it is also representative of exposures along the edges of the wetland, where children are more likely to play.

For the Fenced Wetland, locations displaying non-detect or below soil native background concentrations were primarily located along the perimeter of the wetland. These samples can be described as beyond the horizontal boundary of the disposal site, as defined in the MCP. Therefore, it is appropriate to exclude these samples from the quantitative evaluation. In addition, a portion of the wetland is ponded and has surface water present at depths greater than 1 foot, even during dry periods of the year. Therefore, sampling data collected from areas below greater than 1 foot of ponded water were not quantitatively evaluated as these locations would be contacted less frequently than locations in drier areas of the wetland. It should be noted that sediments in the area of the ponded water, in general, displayed lesser contaminant levels than those in the drier and more accessible portions of the wetland. The samples located below more than one foot or surface water are highlighted in blue in Appendix J-1, Table J-1.14.

The same rationale applied to construction of the sediment data sets was also used for the soil data sets. However, soil data collected from depths greater than 1 foot below the surface were evaluated for current and future scenarios. Soil data collected at depths displaying non-detect or below native soil background concentrations were excluded from the quantitative evaluation. These samples can be described as beyond the horizontal or vertical boundary of the disposal site, as defined in the MCP. Therefore, it is appropriate to exclude these samples from the quantitative evaluation.

To demonstrate that the sediment and soil data sets are conservative, data summaries using data from all available sampling locations are presented and discussed in the uncertainty section of the risk characterization.

For surface water and groundwater, all available sampling data were quantitatively evaluated. Surface water samples were collected from the Fenced Wetland due to the presence of standing water throughout the year. Because the Unfenced Wetland is dry for the warmest months of the year when exposures are most likely to occur, no surface water samples were collected from the Unfenced Wetland. Groundwater samples were collected from monitoring wells installed along the slope of the Fenced Wetland (MW-1 and MW-2), along the slope of the Unfenced Wetland (MW-3), and along Summit and Durfee Streets (MW-9 and MW-10). Data from these wells have been used to evaluate direct contact worker exposures during excavation activities.

Data for soil are presented in Tables 7-1 through 7-9 for various exposure points and soil depth intervals. The 0 to 1 foot and 0 to 3 feet soil interval data were used to evaluate current exposures. The 0 to 15 feet soil interval data were used to evaluate the future scenarios. Groundwater data presented in Table 7-10 were used to evaluate the current and future drinking water pathway, while groundwater data presented in Tables 7-11 through 7-113 were used for the evaluation of future direct contact excavation worker exposures. Tables 7-14 through 7-16 present the sediment data used to evaluate the current and future recreational scenarios. Surface water data presented in Table 7-17 were used to evaluate the future recreational scenario.

7.6 Exposure Assessment

Consistent with the requirements of 310 CMR 40.0923, the Exposure Assessment requires the identification of all current and reasonably foreseeable activities and uses associated with a site and a description of how these uses and activities could result in the exposure of human receptors to the COPCs present. Receptors and exposure pathways applicable to this risk characterization are discussed in this section as well as the exposure assumptions used for each receptor, developed to estimate the frequency and intensity of the exposure.

Section 7.2.1 identifies receptor populations that may be present at the Site, based on information obtained through observations made during visits to the Site. The receptors quantitatively evaluated in the risk characterization include:

- recreational visitors;
- groundskeepers;
- excavation/utility workers; and
- off-property residents with private wells.

With the exception of off-property residents, each of these receptor populations may be exposed to potentially impacted media during outdoor activities. Adults and young children are assumed to be exposed recreationally to the upland soils within the KMS Wetland Site (slope soil and soil within the ROWs). Older children (age 8 through 15) are evaluated as the most exposed population for contact with wetland sediment and surface water. Young children would not go to these areas without adult supervision, and adults, accompanied by young children, would be expected to visit these areas infrequently due to the limited attraction of this wetland area. Therefore, the young child's exposure is evaluated assuming a lower exposure frequency than that assumed for the older child.

Groundskeepers periodically perform maintenance activities in the upland areas, such as lawn mowing and weed removal. Excavation/utility workers were assumed to perform intrusive activities only in the upland areas where utilities are present. Though there may be occasional contact with sediment and surface water while performing maintenance or excavation activities in the upland areas, older children are assumed to have more frequent contact and to be the more exposed receptor for wetland sediment and surface water exposures.

The drinking water pathway for off-property residents is evaluated through comparison of monitoring well data to Massachusetts Drinking Water Standards and Guidelines.

7.6.1 Exposure Assumptions

For the purposes of this Method 3 risk characterization, young child and adult recreational visitors, groundskeepers and excavation/utility workers were selected for quantitative evaluation via incidental ingestion of soil and dermal contact with soil. Excavation/utility workers were additionally evaluated for exposure to fugitive dusts via inhalation and to shallow groundwater via dermal contact. Older child recreational users were evaluated for exposure to sediment via incidental ingestion and dermal contact and exposure to surface water via dermal contact. Exposure assumptions applicable to the receptors are provided on the risk calculation spreadsheets presented in Appendices J-3 through J-8. The following provides a description of the exposure assumptions used for the identified receptors.

- **Older Child Recreational Visitor.** For the 8 to 15 year-old older child, exposures to sediment and surface water are assumed to occur 2 days per week for the warmest 30 weeks of the year for a total of 60 days. The exposure duration for non-cancer endpoints of toxicity was averaged over 30 weeks. The average weight of the child was set at 39.9 kilograms (kg). Incidental ingestion of sediment was set at 50 milligrams per day (mg/day). Dermal contact with COPCs in sediment was evaluated using a soil adherence factor of 1 milligram per square centimeter (mg/cm^2) and assumed exposure via the face, hands, forearms, lower legs, and feet (approximate body surface area of 4,427 cm^2). Dermal contact with surface water also assumed an exposed body surface area of 4,427 cm^2 for 1 hour per event. These sample exposure assumptions were used to evaluate risks and hazards for a potential imminent hazard condition as used to evaluate chronic risks associated with sediment exposure.

- **Child/Youth/Adult Recreational Visitor.** For the adult and child, outdoor exposures to COPCs in soil are assumed to occur for 90 days/year (3 days/week for 30 weeks/year). The exposure duration for non-cancer endpoints of toxicity was averaged over 16 years for the adult, and 7 years each for the youth and child. The average weights of the adult, youth, and child were set at 58.7 kg, 39.9 kg, and 17.0 kg, respectively. Incidental ingestion of soil was set at 50 mg/day and 100 mg/day for the adult/youth and child, respectively. Dermal contact with COPCs in soil was evaluated using a soil adherence factor of 0.13 mg/cm^2 for the adult, 0.14 mg/cm^2 for the youth, and 0.35 mg/cm^2 for the child, which assumes exposure via the face, hands, forearms, lower legs, and feet (5,653 cm^2, 4,427 cm^2, and 2,431 cm^2 for the adult, youth, and child, respectively). MassDEP's Park Visitor Shortform was used to evaluate this receptor for exposures to COPCs in the

0-3 feet and 0-15 feet soil intervals. MassDEP's Imminent Hazard Park Visitor Shortform was used to evaluate this receptor for exposures to COPCs in the 0-1 foot soil interval.

- **Adult Groundskeeper/Commercial Worker.** For the adult worker, exposures are assumed to occur over a total of 30 weeks, during the spring, summer and fall, when the ground is not frozen or covered by snow. During this 30-week period, outdoor exposures are assumed to occur 5 days per week for 4 hours per day. The exposure duration for non-cancer endpoints of toxicity was averaged over 27 years. The average weight of the adult was set at 61.1 kg. Incidental ingestion of soil was set at 50 mg/day. Dermal contact with COPCs in soil was evaluated using a soil adherence factor of 0.03 mg/cm^2 and a body surface area of 3,473 cm^2. Methods and assumptions consistent with the MassDEP Technical Update "Characterization of Risks Due to Inhalation of Particulates by Construction Workers" (MassDEP, 2008c) were used for the fugitive dust pathway including an inhalation rate of 60 liters/minute. These exposure assumptions, while overly conservative for a groundskeeper scenario, are suitable to evaluate future commercial use of the upland portions of the Site.

- **Excavation/Utility Worker.** Exposure could occur during excavations that expose impacted soil and groundwater. Potential exposures to soil COPCs are assumed to occur 8 hours/day for 130 days/year. The exposure duration for non-cancer endpoints was averaged over 0.5 years (182 days). Workers are identified as adults (58 kg average body weight) involved in physical activities equivalent to an average inhalation rate of 20 cubic meters per day (m^3/day). Inhalation of fugitive dusts outdoors by adult workers was evaluated using a PM_{10} of 60 micrograms per cubic meter ($\mu g/m^3$). The incidental ingestion rate of soil was set at 100 mg/day. Dermal contact with soil COPCs was assumed via the face, hands, forearms, and feet (approximate surface area of 3,477 cm^2) using a soil adherence factor of 0.29 mg/cm^2. Excavations were assumed to proceed down to the water table. Contact with shallow groundwater was conservatively assumed to occur 8 hours/day for 65 days/year. Dermal contact with groundwater COPCs was also assumed to occur via the face, hands, forearms, and feet, consistent with soil exposures. MassDEP's Construction Worker Shortform was used to evaluate soil exposures for this receptor.

7.6.2 Estimation of Chemical Intake

To evaluate the risk of harm to human health, the intake of each COPC must be estimated, a process which involves assessing the amount of material in contact with the receptor and the amount actually available for absorption by the body. This assessment is achieved through the calculation of an average daily dose (ADD) for each COPC and for each route of exposure. Compound-specific and exposure route-specific Relative Absorption Factors (RAFs) are used in the ADD equations to convert an exposure (amount) to a dose (amount per unit body weight).

The general ADD equation used to calculate intake is as follows and is consistent with that provided in MassDEP's *Guidance for Disposal Site Risk Characterization* (MassDEP, 1995):

$$ADD = \frac{\text{Total Amount of Chemical Taken In}}{\text{(Body Weight) * (Averaging Period)}}$$

The specific ADD equations for the various exposure pathways evaluated are provided below:

Incidental Ingestion of Soil or Sediment

$$ADD = \frac{\text{(EPC)*(Ingestion Rate)*(Exposure Frequency)*(Exposure Period)*RAF}}{\text{(Body Weight)*(Averaging Period)}}$$

Dermal Contact with Soil or Sediment

$$ADD = \frac{\text{(EPC)*(Surface Area)*(Exposure Frequency)*(Exposure Period)*(AdherenceFactor)*RAF}}{\text{(Body Weight)*(Averaging Period)}}$$

Dermal Contact with Groundwater or Surface Water

$$ADD = \frac{\text{(EPC)*(Surface Area)*(Exposure Frequency)*(Exposure Duration)*(Exposure Period)*RAF*}K_p}{\text{(Body Weight)*(Averaging Period)}}$$

For the fugitive dust pathway, equations presented in *Characterization of Risks Due to Inhalation of Particulates by Construction Workers (Revised Technical Update; 2008)* (MassDEP, 2008c) were used. The equations used are as follows:

Inhalation of Fugitive Dust – GI System

$$ADD/LADD = \frac{\text{(EPC)*1.5*(InhalationRate)*RAF*(ExposureDuration)*(ExposureFrequency)*(ExposurePeriod)*}PM_{10}}{\text{(Body Weight)*(Averaging Period)}}$$

Inhalation of Fugitive Dust – Respiratory System

$$ADD/LADD = \frac{\text{(EPC)*0.5*(InhalationRate)*RAF*(ExposureDuration)*(ExposureFrequency)*(ExposurePeriod)*}PM_{10}}{\text{(Body Weight)*(Averaging Period)}}$$

Exposure assumptions and the specific equations used to calculate ADDs are provided on the calculation spreadsheets presented in Appendices J-3 through J-8.

7.6.3 Exposure Point Concentrations (EPCs)

EPCs for soil, groundwater, sediment and surface water were determined for the Site consistent with 310 CMR 40.0926 and supporting MassDEP guidance.

An EPC is the measured or estimated amount of a constituent in the environmental medium of concern at the point of human contact. Based on MassDEP (1995) guidance, the EPCs for the environmental media typically correspond to the arithmetic mean of the reported results for each data set for areas of contiguous impacts that do not show evidence over which people average their exposure. However, when sample locations are not evenly distributed over the Site, or concentrations are highly variable over the Site, or where exposure frequencies are higher in

some areas than others, the arithmetic mean may not represent the average exposure concentration and, in cases of extremely high concentrations, a hot spot evaluation may be warranted. According to 310 CMR 40.0926(3), consideration of the observed distribution of the data, sampling strategy, graphical representation of analytical results, and/or statistical analyses with sufficient power and confidence may be used to demonstrate that the arithmetic mean concentration is unlikely to underestimate the average concentration at the exposure point.

For this Site, arithmetic average concentrations have been primarily used as EPCs; however, in accordance with MCP requirements, in those instances where individual chemicals were present at concentrations greater than ten times applicable standards or where greater than 25-percent of the analytical results for an individual chemical exceeded an applicable standard, EPCs that represent the 95-percent upper confidence limit of the arithmetic mean were calculated using EPA's ProUCL software version 4.01.01 (USEPA, 2006). The 95-percent upper confidence limit recommended by the ProUCL software was selected as the EPC in these cases. For small data sets, the maximum detected concentration was used as the EPC. EPCs were calculated for soil, groundwater, sediment and surface water under current and future use scenarios. Tables provided in Appendix J-1 present the individual samples used to generate the EPCs for each exposure point; Appendix J-2 includes the ProUCL outputs for those COPCs with EPCs based on 95-percent upper confidence limits.

Tables 7-1 through 7-9 present the soil EPCs (i.e., maximum, arithmetic mean, or 95-percent upper confidence limit on the arithmetic mean) for the current and future scenarios. Groundwater EPCs are summarized in Tables 7-10 through 7-13. Sediment EPCs are presented in Tables 7-14 through 7-16; surface water EPCs are presented in Table 7-17.

7.7 Dose-Response Assessment

The Dose-Response Assessment is designed to evaluate the potential non-carcinogenic (threshold) and carcinogenic (non-threshold) effects of COPCs and describes the effects observed in humans and/or laboratory animals following the intake of a specific dose of the compound. The information from the Dose-Response Assessment is used in conjunction with information from the Exposure Assessment to estimate the risk and hazard generated by each COPC from an exposure.

The toxicity values used in this Dose-Response Assessment of COPCs producing non-carcinogenic effects are the Reference Doses (RfDs) for oral and dermal exposures and Reference Concentrations (RfCs) for inhalation exposures. The chronic RfD and RfC values are based upon a 70-year lifetime exposure, and used to evaluate recreational and groundskeeper/commercial worker exposures. Subchronic RfD and RfC values are based on defined, less than lifetime exposures and are appropriate for use in evaluating excavation/utility worker-related risks.

The EPA has developed a system for classifying chemicals according to the likelihood that the compound is a human carcinogen. This system groups chemicals into five classes based upon the weight-of-evidence (of carcinogenicity) of the available data. Consistent with MassDEP risk characterization guidelines, class A, B, and C carcinogens are evaluated in a Method 3 risk

characterization. Slope factors (SFs), for the oral and dermal exposure routes, and unit risks (URs), for the inhalation route, are used in this risk characterization to calculate cancer risks.

RAFs are used to account for differences between the method of administration in the study on which the RfD or SF is based and the site-specific routes of exposure. These values vary with the medium and route of exposure.

Total chromium data in all environmental media are assumed to be attributable to chromium(III) (based on speciation data from other properties associated with the RTN 4-15685 disposal site, including NBHS and the Nemasket Street parcels) but are evaluated as chromium(VI) in this Risk Characterization since site-specific speciation data was not gathered as part of the characterization sampling. Total chromium data is assumed to be attributable to chromium(III) because in environments with reducing conditions where you have abundant organic carbon (e.g., wetlands), chromium will be present in its reduced form (chromium[III]) rather than as chromium(VI) (USEPA, 2007), and the extreme oxidized conditions necessary for chromium(VI) to predominate are unlikely to be achieved at the Site.

The RfD, RfC, SF, UR and RAF values used in this risk characterization are the same as those values used by MassDEP in the development of the MCP numerical standards (MassDEP, 2008b), and these toxicity values for COCs have not been updated in USEPA's Integrated Risk Information System database since development of the MCP numerical standards in 2008.

Chronic and subchronic RfDs and RfCs, SFs and URs, as well as medium-specific RAFs, are provided on the calculation spreadsheets presented in Appendices J-3 through J-8.

7.8 Risk Characterization

To characterize the risk of harm to human health from potential soil, groundwater, sediment and surface water exposures, carcinogenic risks and non-carcinogenic hazards were estimated using the EPC for each COPC present at each exposure point for each receptor, and the cumulative receptor risk values were compared to the MassDEP Risk Limits to assess whether a condition of "No Significant Risk" exists.

To estimate non-carcinogenic hazards, the Hazard Quotient for each COPC was calculated by dividing the ADD computed in the Exposure Assessment by the RfD or RfC identified in the Dose-Response Assessment. The cumulative Hazard Index (HI) for each receptor was subsequently calculated by summing the COPC hazard quotients for the exposure pathways applicable to each receptor. This HI is called a Screening HI and provides a conservative estimate of the true hazard because it assumes additivity even though COPCs may exert effects on different organ systems and/or through different mechanisms of action. The Screening HI was first compared to the Cumulative Receptor Non-Carcinogenic Risk Limit (Cumulative Receptor Hazard Index) of 1 (310 CMR 40.0993(6)) to characterize the risk of harm to human health, and to establish whether a condition of "No Significant Risk" exists at the Site. If the Screening HI was less than 1, no further discussion was necessary to characterize non-cancer hazard. However, if the Screening HI exceeded the Risk Limit of 1, the Screening HI was segregated by target organ, as described in MassDEP guidance (MassDEP, 1995). Each target

organ HI was then compared to the Risk Limit of 1 to establish whether a condition of "No Significant Risk" exists at the Site.

To calculate the Excess Lifetime Cancer Risk (ELCR) for each COPC, the Lifetime Average Daily Dose (LADD) estimated in the Exposure Assessment is multiplied by the SF or UR identified in the Dose-Response Assessment. The ELCR for each COPC is then summed to calculate the Total ELCR for each exposure pathway. The Total Site Cancer Risk for each receptor is subsequently computed by summing the Total ELCR values for the exposure pathways applicable to each receptor. The Total Site Cancer Risk is then compared to the Total Site Cancer Risk Limit of 1×10^{-5} (CMR 40.0993(6)) to characterize the risk of harm to human health, and to establish whether a condition of "No Significant Risk" exists, as defined in 310 CMR 40.0993(7).

The risks and hazards estimated for each receptor and exposure point are summarized in Table 7-18 (Imminent Hazard), Table 7-19 (Current Scenario) and Table 7-20 (Future Scenario).

As shown on Table 7-18, no Imminent Hazard condition exists for recreational visitors exposed to sediment and the 0 to 1 foot soil interval within the Unfenced Wetland Exposure Point.

Table 7-19 indicates that a Condition of No Significant Risk exists for recreational visitors exposed to sediment and the 0 to 3 feet soil interval within the Unfenced Wetland Exposure Point. A Condition of No Significant Risk also exists for groundskeepers exposed to the 0 to 3 feet soil interval within the Unfenced Wetland and Fenced Wetland Exposure Points.

Table 7-20 identifies that, under future conditions, recreational visitor exposure to sediment and the 0 to 15 feet soil interval at the Unfenced Wetland Exposure Point and exposure to sediment, surface water and the 0 to 3 feet and 0 to 15 feet soil interval at the Fenced Wetland Exposure Point is associated with a Condition of No Significant Risk. In addition, a Condition of No Significant Risk exists for exposure to the 0 to 15 feet soil interval for groundskeepers/ commercial workers and excavation/utility workers, as well as groundwater at both exposure points.

The exposure point and chemical determined to pose a significant risk to human health under future conditions is:

- ERC-SED-11A Area: PCBs (recreational visitor)

7.8.1 Applicable or Suitably Analogous Public Health Standards

As part of the evaluation of the condition of "No Significant Risk" of harm to human health (as defined in 310 CMR 40.0993(7)), the MCP requires a comparison of EPCs to Applicable or Suitably Analogous Public Health Standards (310 CMR 40.0993(3)). Such standards include, but are not limited to, Massachusetts *Air Quality Standards* promulgated in 310 CMR 6.00, Massachusetts *Surface Water Quality Standards* promulgated in 314 CMR 4.00, and Massachusetts *Drinking Water Quality Standards* promulgated in 310 CMR 22.00.

As noted in Section 7.1, groundwater under portions of the Site is considered to meet the criteria for GW-1 groundwater due to proximity to an existing private well. To evaluate the drinking water pathway, COPC groundwater concentrations for monitoring wells MW-3, MW-9 and MW-10 are compared to Massachusetts Drinking Water Standards and Guidelines for the evaluation of significant risk of harm to human health. As indicated on Table 7-10, a single Drinking Water Standard total lead exceedance (34 µg/L) was noted in monitoring well MW-3 on one occasion. However, all dissolved lead concentrations were less than the Drinking Water Standard of 15 µg/L, indicating that a Condition of No Significant Risk to human health for the drinking water pathway exists. The Drinking Water Standard exceedance was likely associated with suspended particulate material that would be removed prior to use of the groundwater as drinking water.

In addition, surface water analytical data are compared to USEPA National Recommended Water Quality Criteria (NRWQC) for consumption of organisms only. No exceedances of NRWQCs are noted.

7.9 Uncertainty Analysis

Risk characterizations are subject to a number of uncertainties. As a result, risk estimates derived from the equations and assumptions in this risk characterization should not be interpreted as absolute estimates of the risks of harm to human health posed by potential exposures to COPCs reported at the Site.

General sources of uncertainty include:

- adequacy of the Site characterization;
- adequacy of the sampling plan;
- quality and treatment of the analytical data;
- accuracy of the exposure assumptions; and
- development of toxicity values (RfDs, RfCs, SFs, and URs).

Site-specific uncertainties are discussed below. As discussed below, conservative (health-protective) assumptions are selected for use in the risk characterization process which generally leads to overestimation, rather than underestimation, of Site risks and hazards.

7.9.1 Hazard Identification

Sampling was conducted with bias, targeting areas and depths that were likely to have elevated concentrations of oil and/or hazardous material based on field screening and observations. This type of sampling strategy is commonly used for site characterization. However, the data set may over-represent the impacts present across the property, resulting in an overestimation of the risks and hazards. Due to the heterogeneous nature of the sediment impacts present at the Site, some areas with impacts may not have been characterized by the investigative efforts. However, any unidentified areas of impacts should be minimal since a large number of sediment samples were collected during the Phase II investigation at the Site.

7.9.2 Dose-Response Assessment

In the Dose-Response Assessment, Uncertainty and Modifying Factors, applied to toxicity information to obtain RfD and RfC values, are used to account for the following uncertainties, which, in turn, can add to the overall uncertainty of the risk characterization findings:

- the use of dose-response information from effects observed at high doses to predict the adverse health effects that may occur following exposure to the low levels expected from human contact with the COPCs in the environment;

- the use of dose-response information from short-term exposure studies to predict the effects of long-term exposures, and vice-versa;

- the use of dose-response information from animal studies to predict adverse health effects in humans; and

- the use of dose-response information from homogeneous animal populations or healthy human populations to predict the adverse health effects likely to be observed in the general population, consisting of individuals with a wide range of sensitivities.

In addition, the following practice results in additional uncertainties in the dose-response assessment:

- the use of oral toxicity values as surrogate toxicity values for the dermal route of exposure.

7.9.3 Exposure Assessment

The Exposure Assessment focuses on the evaluation of non-carcinogenic and carcinogenic effects for an exposed individual. Conservative (health-protective) exposure assumptions, as recommended by MassDEP, were used such as values for intake rates, surface areas, and body weights. Exposure frequencies and exposure periods were default MassDEP values, or selected to conservatively represent site-specific exposure conditions. The use of such conservative exposure assumptions can potentially overestimate the estimate of the risk of harm from exposure to the fill and contribute to the uncertainty of the risk characterization.

For some compounds, maximum detected concentrations were used as EPCs which results in uncertainty in the evaluation and may over- or underestimate the true risks and hazards at the Site, depending on the representativeness of the samples selected for site characterization. Because sampling was biased towards areas of suspected or observed contamination, the dataset likely overestimates overall impacts at the Site.

7.9.4 Risk Characterization

Because some sediment samples were not included in the quantitative analysis, alternate EPCs and risk and hazards calculations have been performed using the excluded samples to

demonstrate that their exclusion does not change the conclusions of the risk characterization. The sediment samples were excluded because they were collected at a depth greater than 1 foot below the sediment surface or the depth of overlying surface water was greater than 1 foot.

Summary statistics for sediment in the Unfenced Wetland and Fenced Wetland Exposure Points are presented in Appendix J-9 (Table J-9.1 and J-9.2). EPCs presented on these tables were used for the calculation of risks and hazards for the recreational visitor. The risk calculation spreadsheets for these two sediment exposure points are also contained in Appendix J-9. The risk and hazard calculations, using the excluded samples, do not significantly change from those calculated in the quantitative analysis indicating that the conclusions of the risk characterization remain valid even when these deep and considerably submerged samples are included in the sediment data sets.

As previously noted, a portion of the Site groundwater is classified into the GW-1 category due to the presence of a private well within 500 feet to the west of the Site. This private well is a low volume well, likely pumping intermittently and at a rate less than 5 gallons per minute. Based on the results of the synoptic groundwater level events conducted by TRC, groundwater flows predominantly to the south/southeast. Therefore, it is unlikely that Site groundwater flows toward this well. COPC concentrations detected in GW-1 monitoring wells located at the Site are less than Massachusetts Drinking Water Standards and Guidelines. In addition, sampling of the private well (analytical data sheets presented in Appendix J-9) indicates that COPC concentrations in the private well are also less than Massachusetts Drinking Water Standards and Guidelines. Therefore, this private well and the surrounding groundwater are not impacted by the Site.

7.10 Risk of Harm to Safety and Public Welfare

The following sections present a characterization of risk to safety and public welfare.

7.10.1 Characterization of Risk to Safety

The risk of harm to safety, as described in 310 CMR 40.0960, was evaluated for the Site. The Site location does not contain the following items related to potential environmental impacts:

- There are no rusted or corroded drums or containers, open pits or lagoons, at the Site.
- There is no threat of fire or explosion, or the presence of explosive vapors from potential site impacts; and
- There are no uncontainerized materials exhibiting the characteristics of corrosivity, reactivity, or flammability.

Based on the above information, it was determined that the Site does not pose a risk to safety.

7.10.2 Risk to Public Welfare

Per the MCP (310 CMR 40.0994), there are two purposes for characterizing the risk to public welfare: 1) to identify and evaluate nuisance conditions, which may be localized, and 2) to identify and evaluate significant community effects.

The characterization of risk to public welfare considers effects that are or may result from the presence of residual impacts or the implementation of a proposed remedial alternative. Further, the characterization of risk to public welfare is for current and reasonably foreseeable site activities and uses, requiring an understanding of the site, the receptors and exposure information. Per 310 CMR 40.0994, the characterization of risk to public welfare does not consider pecuniary effects or private resources.

The risk characterization has shown that the southern unfenced wetland poses no significant risk. The northern wetland is currently safe for maintenance staff and other personnel to work on the land area (mow the grass, etc.) inside the fence, and it is safe for maintenance staff and the public to use the land outside the fence. The potential risks do not represent an impact on public welfare. Benefits to the public, and the good of the general population, are not affected (i.e., a public resource is not impacted, such as a community water supply nor is the local atmosphere impacted by noxious odors).

Factors that the MCP takes into consideration to evaluate nuisance conditions and significant community effects include the following:

- **Nuisance conditions –** The breathing zone of ambient and/or indoor air associated with the wetland to the west of KMS is free of persistent, noxious odors (at present and for the reasonably foreseeable future). There are also no impacts from the Site on drinking water (noxious taste/odors), and there are no livestock impacts. Per the MCP, a nuisance condition is not present.

- **Loss of active or passive property uses –** Currently, the northern wetland is not accessible for active or passive uses due to fencing installed as part of a response action, and the fencing was taken into consideration in the current use scenarios for the wetland human health risk characterization. Prior to fencing, the northern wetland was not utilized, maintained or promoted for use as passive or active recreational space. Although the northern wetland was accessible prior to fencing, any access to the wetland was infrequent. Therefore, while the use may have been lost with the fence installation, the present access restriction was not judged to have a significant community effect.

- **Non-pecuniary effects –** No public resource is known to be impacted by the wetland. No public water supplies are impacted (odors, etc.), and the atmosphere is not impacted by noxious odors. While access to the wetland is currently restricted, the wetland is not a significant public facility, such as a park; thus the present access restriction was not judged to have a significant community effect.

- **Upper Concentration Limits –** UCL conditions under the MCP apply only to soil and groundwater. A comparison of soil EPCs to MCP UCLs is presented in Tables 7-1

through 7-9 for each soil data set. No soil EPC exceeds its respective MCP UCL. Individual concentrations detected in groundwater at the Site also did not exceed MCP UCLs, as presented in Tables 7-10 through 7-13.

With regard to public health effects, please note the results of the recently issued Massachusetts Department of Public Health (MassDPH) Study, *Health Consultation Public Comment Release Evaluation of Serum PCB Levels and Cancer Incidence Data Parker Street Waste Site Neighborhood* (MassDPH, 2011). The MassDPH serum results indicate that PCB concentrations in serum of study participants are within the typical variation seen in the population of the United States.

Based on the above information a Condition of No Significant Risk to public welfare exists at the Site.

7.11 Conclusions

No IH condition currently exists at the Site. However, sediment EPCs for PCBs are associated with HIs greater than 1 and/or ELCRs greater than 1×10^{-5} for future Site conditions at the ERC-SED-11A area located in the currently fenced northern wetland area. As a result, a Condition of No Significant Risk does not exist for potential sediment impacts at the Site under future use scenarios.

With regard to public welfare, no nuisance conditions exist with respect to the Site, there has been no significant loss of active or passive uses of the property, no public resource is known to be impacted by the wetland, and soil and groundwater EPCs are less than their respective MCP UCLs. Therefore, a Condition of No Significant Risk to public welfare exists at the Site.

8.0 SUMMARY OF STAGE I ENVIRONMNETAL SCREENING AND STAGE II ECOLOGICAL RISK CHARCTERIZATION RESULTS

Stage I ES and Stage II ERC sampling activities were discussed in Section 6. The results of the Stage I ES and Stage II ERC are summarized below. A copy of the Stage I ES and Stage II ERC is included in Appendix I.

8.1 Summary Discussion of Stage I ES and Stage II ERC Results

TRC conducted a Stage I ES and a Stage II ERC for the wetland to the rear (west) of the KMS Campus. The Stage I ES resulted in the identification of potential impacts associated with zinc in surface water samples collected from the wetland aquatic habitat, potential impacts to aquatic habitat sediment from 17 PAHs, 3 pesticides, PCB Aroclors 1254 and 1260, and 7 inorganics, potential impacts to surface soil within the southern forested wetland area from 3 pesticides and 2 inorganics, and potential impacts to surface soil within the northern forested wetland area associated with 15 PAHs, PCB Aroclors 1254 and 1260, and 6 inorganics. Each of these potential impacts was recommended for further evaluation in the Stage II ERC. Six indicator species and two indicator communities were selected to evaluate risks associated with exposure to potentially impacted sediments in the aquatic habitat of the KMS wetland while five indicator species were selected to evaluate potential surface soil impacts identified within the forested wetland habitats of the KMS wetland. Endpoints in the Stage II ERC were selected to represent ecological attributes that are to be protected (assessment endpoints) and a measurable characteristic of those attributes (measurement endpoints) that can be used to gauge the degree of impact that has or may occur.

Based on the comparison of surface water zinc concentrations with amphibian toxicity reference values (TRVs), it does not appear that amphibians are at risk from the concentrations of zinc detected within the surface water samples collected from the aquatic habitat of the KMS wetland. Although amphibians may not be at risk, the zinc concentrations detected in 10 of 13 surface water samples collected in 2009 are higher than the acute/chronic national recommended ambient water quality criteria for zinc that also represents the Massachusetts Surface Water Standard for zinc promulgated in 314 CMR 4.05(5)(e). The existence of a hazardous material potentially attributable to the site that exceeds its water quality criterion meets the threshold standard defined in the MCP regulations, specifically 310 CMR 40.0995(3)(b)(1). Additional sampling of surface water for zinc analysis was conducted in 2010. Only one of seven surface water samples collected from the wetland in 2010 detected zinc at a concentration above its acute/chronic water quality criteria. However, biological testing of this surface water sample resulted in no impacts on survival, growth, and/or reproduction to two test organisms (fathead minnow and water flea). The lower observed levels of zinc in surface water samples collected from the KMS wetland in 2010 coupled with the lack of toxic effects on the survival and growth/reproduction of the two test organisms indicate that impacts from zinc on the aquatic biota community inhabiting the wetland aquatic habitat are not anticipated provided levels remain similar as detected in 2010.

The detections of PCBs (total and Aroclor 1254) and lead (and to a lesser extent, total PAHs and zinc) within the sediments of the aquatic habitat at the KMS wetland are above sediment benchmarks associated with adverse effects to benthic macroinvertebrates. The pesticide 4,4'-DDT presents less risk potential due to its lower concentration (with respect to its benchmark) and/or its reduced bioavailability (high TOC content in sediments of the aquatic habitat). Six sediment samples containing elevated levels of total PCBs, lead, zinc and/or total PAHs collected from the aquatic habitat of the KMS wetland were subsequently tested for their toxicity (survival and growth) to aquatic midge larvae (10-day test) and an amphipod (28-day test) along with a laboratory control and site reference sample (containing low concentrations of the detected constituents). Concentrations of total PCBs (above 5 mg/kg) and total PAHs (above 30 mg/kg) were found to reduce growth rates of midge larvae compared to the control and reference samples. No other significant differences were noted in the remaining sediment samples compared to the control and reference samples. Concentrations of lead and zinc do not appear to present a risk to aquatic macroinvertebrates based on the results of the biological testing.

A Condition of No Significant Risk is anticipated for herbivorous birds, omnivorous birds/mammals, and insectivorous bats that forage within the aquatic habitat of the KMS wetland. Risks to mammalian herbivores and insectivorous birds inhabiting the aquatic habitat provided by the KMS wetland are somewhat uncertain considering that Hazard Quotients (HQs) for high-molecular weight (HMW) PAHs exceed the No Observable Adverse Effect Level (NOAEL) TRV but are less than the Lowest Observable Adverse Effect Level (LOAEL) TRV or, in the case of lead and selenium, HQs both for the NOAEL and LOAEL TRV are the same but less than the geometric mean of NOAELs reported in the literature. However, PCB congener exposure exceeds both NOAEL and LOAEL TRVs for the insectivorous bird (marsh wren) indicating a Condition of No Significant Risk does not exist for this receptor. Overall, a Condition of No Significant Risk does not exist from the estimated doses of PCB congeners and, to a lesser extent, from detected concentrations of HMW PAHs ingested by the muskrat and/or marsh wren.

A Condition of No Significant Risk exists in the forested wetland habitat provided by the southern wetland area as estimated exposure doses ingested by all indicator species are less than their respective NOAEL TRVs. For those species with larger home ranges than provided by the southern forested wetland area (i.e., red-tailed hawk and red fox), risk is still unlikely considering foraging exposure within the adjacent northern forested wetland area.

Omnivorous birds and mammals (as represented by the American robin and white-footed mouse) as well as insectivorous mammals (as represented by the short-tailed shrew) inhabiting the forested wetland within the northern wetland area may potentially be adversely affected by concentrations of PCB congeners, lead and/or zinc detected within surface soils and estimated to be within terrestrial invertebrates of the northern forested wetland area. A Condition of No Significant Risk exists for foraging carnivorous birds/mammals within this habitat.

8.2 Stage I ES and Stage II ERC Report

The Stage I ES and Stage II ERC was submitted electronically to MassDEP, via eDEP, on November 5, 2010. A copy of the Stage I ES and Stage II ERC and related documentation are included as Appendix I.

9.0 DATA EVALUATION

TRC's Lead Chemist coordinated, tracked, and oversaw sample analyses and validation of data produced. PCB Aroclor soil and groundwater data were validated in accordance with relevant EPA guidance to Tier II. VOC, metals, PAH and PCB homologue soil and groundwater analyses are evaluated for usability consistent with the MassDEP CAM. Data usability evaluations and data validation are performed on an ongoing basis to support regulatory submittals where required.

TRC's data management team incorporated electronic data deliverables (EDDs) from the analytical laboratories into TRC's proprietary Lowell Information System (LIS) database, and produced standardized analytical data tables with comparisons to regulatory standards and other relevant criteria. Data associated with sediment, soil, groundwater and surface water samples utilized for this report were reviewed.

Copies of laboratory reports are presented in Appendix G. Data usability assessments, data validation reports, and related usability notations are provided in Appendix K. Note that Appendix K also includes evaluation of data from other areas of the RTN 4-15685 disposal site that were not utilized for this Phase II CSA.

10.0 CONCLUSIONS

TRC completed this Phase II CSA report for the wetland to the rear (west) of the KMS to address impacts administratively tracked under RTN 4-21300. The Phase II CSA included collection and laboratory analysis of sediment, soil, groundwater and surface water samples as well as an MCP Method 3 risk characterization and a Stage I ES and Stage II ERC.

Based on the results of the Phase II CSA, TRC has developed the following conclusions:

- The KMS wetland initially became impacted due to fill material associated with the construction of New Bedford High School. In 2006, BETA oversaw the excavation of 6 inches of PCB impacted sediment by a contractor from areas of the wetland where the TSCA 1 mg/kg sediment cleanup criterion was exceeded. TRC subsequently conducted sampling of sediment, as set forth in the LTMMIP, and discovered:

- An IH reporting condition based on the detection of PCB impacts in shallow wetland sediment in excess of a concentration that could pose an IH per 310 CMR 40.0321(2)(b) was identified at the Site on June 9, 2008. The City reported the detection to MassDEP per 310 CMR 40.0321(2) and 310 CMR 40.0311(7) via telephone on June 9, 2008. MassDEP assigned RTN 4-21300 and verbally approved IRA assessment activities. An IRA Completion report was filed with the MassDEP in October 2010 after completing the installation of a perimeter fence surrounding the northern portion of the KMS wetland on December 14, 2009, which restricts access to the entire northern portion of the wetland.

- Potentially impacted environmental media at the Site following the BETA excavation may include sediment, soil, groundwater and surface water. The potential source(s) of the post-remedy PCB concentrations are not known, but are not thought to be on-going or active conditions.

- A Stage II ERC evaluated potential exposures to six indicator species and two indicator communities to PAHs, pesticides, PCBs and/or inorganics in sediment, potential exposures to five indicator species from PAHs, pesticides, PCBs and/or inorganics in surface soil, and potential exposures to the amphibian community from zinc in surface water. Assessment and measurement endpoints were selected to represent ecological attributes used to gauge the degree of potential impact. The results of the Stage II ERC indicate the following:

  - **Sediment/Northern Wetland –**

    - Potential for adverse effects to benthic macroinvertebrates from PCB and PAH concentrations based on a reduction in midge larvae growth rates when exposed to the highest detected concentrations of those chemicals.
    - Low potential for risk from the pesticide 4,4'-DDT due to its lower ecological screening benchmark criteria, but reduced bioavailability (a function of the high organic carbon content of the sediment).

- No apparent risk from lead and zinc based on lack of toxicity observed during testing.

- **Surface Soils/Northern Wetland** (0-12 inches deep) **–**

  - A Condition of No Significant Risk exists for foraging carnivorous birds and mammals.
  - Potential impacts to omnivorous birds and mammals and insectivorous mammals from concentrations of PCB congeners, lead and/or zinc.

- **Surface Water/Northern Wetland –**

  - Zinc concentrations detected in 11 of 24 surface water samples collected from the northern wetland are above the acute/chronic national recommended water quality standard, which represents the Massachusetts Surface Water Standard for zinc [314 CMR 4.05(5)(e)].
  - TRC's ecological risk characterization has demonstrated that amphibians are not at risk based on site-specific testing.
  - However, pursuant to 310 CMR 40.0995(3)(b)(1)(b), even though six out of seven surface water samples collected in 2010 were below the Massachusetts standard for zinc, the presence of zinc at concentrations above the Massachusetts surface water standard categorically represents a condition of "readily apparent harm," and, therefore, indicates a Condition of No Significant Risk does not exist for surface water at the Site.

- A Condition of No Significant Risk exists for both human and environmental receptors in the southern portion of the wetland (south of the land bridge).

- Based on the groundwater results obtained to date, a Condition of No Significant Risk exists for Site groundwater.

- A Condition of No Significant Risk exists in the northern portion of the wetland under the current use scenario based on data collected to date.

- A Condition of No Significant Risk exists for human receptors in the northern portion of the wetland under future use scenarios, with the exception of the ERC-SED-11A area.

- The ERC-SED-11A area contains PCB concentrations in sediment greater than one hundred times the corresponding MCP Method 1 S-1 soil standard, and the average PCB concentration in the remainder of the northern wetland. Therefore, the ERC-SED-11A area meets the MCP definition of a "hot spot".

- No individual soil or groundwater concentration, or soil or groundwater EPC, exceeds its respective MCP UCL.

- No nuisance conditions exist with respect to the Site, there has been no significant loss of active or passive uses of the property, no public resource is known to be impacted by the

wetland, and soil and groundwater EPCs are less than their respective MCP UCLs. Therefore, a Condition of No Significant Risk to public welfare exists at the Site.

11.0 PHASE II OUTCOME

In accordance with 310 CMR 40.0840, the following are possible outcomes upon completion of a Phase II CSA:

1. Comprehensive Remedial Actions are necessary at the Site to achieve a RAO; or

2. The requirements of a Class A, B, or C RAO have been met, and a RAO Statement supported by information from the Phase II CSA report shall be submitted to MassDEP.

Based on the findings of this Phase II CSA, comprehensive remedial actions are needed to achieve Site closure.

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TABLES

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																					
	Sample Matrix:							Sediment		Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
	Sample ID:							WA3		WB4	WB5	WB6	WB7	WC4	WC5	WC6	WC7	WC8	WC18	WC19	WC20	WC21	WC22	WC23	WC-24	WC-25	WC26	WC-27
	Sample Depth (ft.):							0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
	Sample Date:							12/21/2004	12/21/2004	12/21/2004	12/21/2004	12/21/2004	12/21/2004	12/21/2004	12/21/2004	12/21/2004	12/21/2004	12/21/2004	12/23/2004	12/23/2004	12/23/2004	12/23/2004	12/23/2004	12/23/2004	12/23/2004	12/23/2004	12/23/2004	12/23/2004
									Field Dup																			
PAHs																												
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	R	0.071 U	0.12 U	0.18 U	0.33 U	0.31 U	0.26 U	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	0.092 U	0.13 U	0.11 U	0.084 U	0.11 U	0.084 U	0.11 U	0.13 U	0.13 U
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	R	0.071 U	0.12 U	0.18 U	0.33 U	0.31 U	0.26 U	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	0.092 U	0.13 U	0.11 U	0.084 U	0.11 U	0.084 U	0.11 U	0.13 U	0.13 U
	Acenaphthylene	1	600	10	600	10	NS	R	0.071 U	0.12 U	0.18 U	0.33 U	0.31 U	0.26 U	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	0.092 U	0.13 U	0.11 U	0.084 U	0.11 U	0.084 U	0.11 U	0.13 U	0.13 U
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	R	0.071 U	0.12 U	0.18 U	0.33 U	0.31 U	0.26 U	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	0.092 U	0.13 U	0.11 U	0.084 U	0.11 U	0.084 U	0.11 U	0.13 U	0.13 U
	Benzo[a]anthracene	7	7	7	40	40	0.11	R	0.071 U	**0.75**	0.18 U	0.33 U	0.31 U	0.26 U	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	**0.1**	0.13 U	0.11 U	0.084 U	0.11 U	0.084 U	0.11 U	0.13 U	**0.14**
	Benzo[a]pyrene	2	2	2	4	4	0.15	R	0.071 U	0.12 U	0.18 U	0.33 U	0.31 U	0.26 U	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	**0.11**	0.13 U	0.11 U	0.084 U	0.11 U	0.084 U	0.11 U	0.13 U	0.13 U
	Benzo[b]fluoranthene	7	7	7	40	40	NS	R	0.071 U	0.12 U	0.18 U	0.33 U	0.31 U	0.26 U	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	**0.16**	0.13 U	0.11 U	0.084 U	0.11 U	0.084 U	0.11 U	0.13 U	0.13 U
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	R	0.071 U	0.12 U	0.18 U	0.33 U	0.31 U	0.26 U	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	0.092 U	0.13 U	0.11 U	0.084 U	0.11 U	0.084 U	0.11 U	0.13 U	0.13 U
	Benzo[k]fluoranthene	70	70	70	400	400	NS	R	0.071 U	0.12 U	0.18 U	0.33 U	0.31 U	0.26 U	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	0.092 U	0.13 U	0.11 U	0.084 U	0.11 U	0.084 U	0.11 U	0.13 U	0.13 U
	Chrysene	70	70	70	400	400	0.17	R	0.071 U	**0.81**	0.18 U	0.33 U	0.31 U	0.26 U	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	**0.11**	0.13 U	0.11 U	0.084 U	0.11 U	0.084 U	**0.11**	0.13 U	**0.14**
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	R	0.071 U	0.12 U	0.18 U	0.33 U	0.31 U	0.26 U	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	0.092 U	0.13 U	0.11 U	0.084 U	0.11 U	0.084 U	0.11 U	0.13 U	0.13 U
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	R	0.071 U	**2.2**	**0.47**	0.33 U	0.31 U	0.26 U	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	**0.18**	0.13 U	0.11 U	**0.12**	**0.11**	0.084 U	**0.22**	0.13 U	**0.26**
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	R	0.071 U	0.12 U	0.18 U	0.33 U	0.31 U	0.26 U	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	0.092 U	0.13 U	0.11 U	0.084 U	0.11 U	0.084 U	0.11 U	0.13 U	0.13 U
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	R	0.071 U	0.12 U	0.18 U	0.33 U	0.31 U	0.26 U	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	0.092 U	0.13 U	0.11 U	0.084 U	0.11 U	0.084 U	0.11 U	0.13 U	0.13 U
	Naphthalene	4	40	500	40	1,000	0.18	R	0.071 U	0.12 U	0.18 U	0.33 U	0.31 U	0.26 U	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	0.092 U	0.13 U	0.11 U	0.084 U	0.11 U	0.084 U	0.11 U	0.13 U	0.13 U
	Phenanthrene	10	500	500	1,000	1,000	0.2	R	0.071 U	**1.0**	0.18 U	0.33 U	0.31 U	0.26 U	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	**0.095**	0.13 U	0.11 U	0.084 U	0.11 U	0.084 U	**0.13**	0.13 U	**0.14**
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	R	0.071 U	**1.5**	**0.35**	0.33 U	0.31 U	**0.26**	0.31 U	0.26 U	0.23 U	0.36 U	0.079 U	**0.17**	0.13 U	0.11 U	**0.14**	**0.12**	0.084 U	**0.23**	0.13 U	**0.24**
PCB Aroclors																												
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.005 U	0.006 U	0.010 U	0.014 U	0.028 U	0.025 U	0.023 U	0.026 U	0.021 U	0.019 U	0.028 U	0.012 U	0.016 U	0.019 U	0.017 U	0.014 U	0.016 U	0.012 U	0.016 U	0.019 U	0.014 U
	Aroclor 1254	2	2	2	3	3	NS	**0.110**	**0.230**	**0.068**	**0.080**	**0.113**	0.025 U	**0.036**	**0.074**	**0.107**	**0.640**	**0.058**	**0.026**	**0.110**	**0.104**	**0.100**	**0.068**	**0.159**	**0.014**	**0.071**	**0.076**	**0.041**
	Aroclor 1260	2	2	2	3	3	NS	0.005 U	0.006 U	0.010 U	0.014 U	0.028 U	0.025 U	0.023 U	0.026 U	0.021 U	0.019 U	0.028 U	0.012 U	0.016 U	0.019 U	0.017 U	0.014 U	0.016 U	0.012 U	0.016 U	0.019 U	0.014 U
								0.005 U	0.006 U	0.010 U	0.014 U	0.028 U	0.025 U	0.023 U	0.026 U	0.021 U	0.019 U	0.028 U	0.012 U	0.016 U	0.019 U	0.017 U	0.014 U	0.016 U	0.012 U	0.016 U	0.019 U	0.014 U
	Total PCBs	2	2	2	3	3	0.06	**0.110**	**0.230**	**0.068**	**0.080**	**0.113**	0.049 U	**0.036**	**0.074**	**0.107**	**0.640**	**0.058**	**0.026**	**0.110**	**0.104**	**0.100**	**0.068**	**0.159**	**0.014**	**0.071**	**0.076**	**0.041**
PCB Congeners																												
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																												
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.014 U
	4,4'-DDE	3	3	3	20	20	NS	0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.014 U
	4,4'-DDT	3	3	3	20	20	NS	0.014 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.014 U
Metals																												
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	**1.09**	**1.04**	**0.27**	**0.58**	0.64 U	**1.11**	**0.71**	0.54 U	0.5 U	0.47 U	0.62 U	**0.94**	**1.37**	**2.38**	**1.17**	**1.23**	**1.91**	**0.65**	**2.25**	**1.94**	**1.94**
	Barium	1,000	1,000	1,000	3,000	3,000	NS	**23**	**28**	**55**	**62**	**99**	**40**	**88**	**62**	**99**	**102**	**73**	**9.27**	**23**	**23**	**12**	**13**	**16**	**10**	**49**	**163**	**109**
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	**1.04**	**1.05**	**1.76**	**2.05**	**1.8**	**0.98**	**1.56**	**0.98**	**1.58**	**1.31**	**1.11**	**0.78**	**0.68**	**0.66**	**0.65**	**0.46**	**0.6**	**0.26**	**0.78**	**1.64**	**1.24**
	Chromium	30	30	30	200	200	110	**13**	**16**	**38**	**42**	**18**	**11**	**17**	**11**	**3.37**	**12**	**9.84**	**5.26**	**6.95**	**5.14**	**3.26**	**4.62**	**7.96**	**3.42**	**10**	**25**	**16**
	Lead	300	300	300	300	300	130	**198**	**374**	**134**	**127**	**170**	**502**	**178**	**50**	**18**	**184**	**112**	**19**	**47**	**43**	**16**	**28**	**36**	**9.42**	**54**	**119**	**120**
	Mercury	20	20	20	30	30	0.18	**0.037**	**0.057**	**0.094**	**0.096**	**0.136**	**0.235**	**0.181**	**0.079**	**0.065**	**0.128**	**0.197**	**0.029**	**0.062**	**0.06**	**0.058**	**0.067**	**0.096**	**0.025**	**0.111**	**0.055**	**0.033**
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	0.14 U	0.13 U	0.22 U	0.32 U	0.64 U	**0.86**	**0.96**	**2.18**	0.5 U	0.47 U	0.62 U	0.12 U	0.16 U	0.18 U	0.15 U	0.14 U	**0.74**	0.11 U	0.14 U	0.19 U	**0.2**
	Silver	100	100	100	200	200	NS	0.07 U	0.06 U	**0.11**	0.16 U	0.32 U	**0.37**	0.25 U	0.27 U	0.25 U	0.23 U	0.31 U	0.06 U	0.08 U	0.09 U	0.08 U	0.07 U	0.08 U	0.06 U	0.07 U	0.09 U	0.06 U
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals																												
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	**1.8**	**2.1**	**0.21**	**0.17**	0.1 U	0.1 U	0.1 U	NA	NA	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	0.1 U
Total Organic Carbon																												
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	**2.9**	**3.1**	**12**	**12.6**	**38**	**57.1**	**45.2**	**58.6**	**51**	**37.6**	**54.6**	**3.45**	**6.97**	**14.75**	**15.1**	**5.92**	**16.23**	**6.15**	**13.28**	**4.94**	**6.69**

Notes:

mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:

Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																					
	Sample Matrix:							Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment		Sediment	Sediment	Sediment	Sediment	Soil	Sediment	Sediment	Sediment	Sediment	Sediment
	Sample ID:							WD-3	WD-7	WD8	WD-9	WD-16	WD18	WE-3.5	WE-4	WE-5	WE-6		WF-3	WF-4	WF-5	WF-6	WG-4	WG-6	WH-4	WH-4.5	WC.5-6.5	WC.5-8.5
	Sample Depth (ft.):							0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0.5-5	0.5-5	0.5-5	0-0.5	0-0.5
	Sample Date:							12/22/2004	12/21/2004	12/21/2004	12/22/2004	12/22/2004	12/23/2004	4/25/2005	12/22/2004	12/22/2004	12/21/2004	12/22/2004	12/22/2004	12/22/2004	12/22/2004	12/22/2004	4/22/2005	4/22/2005	4/23/2005	4/22/2005	4/22/2005	4/22/2005
PAHs																												
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	0.13 U	0.17 U	0.27 U	0.28 U	0.23 U	0.11 U	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	0.13 U	0.17 U	0.27 U	0.28 U	0.23 U	0.11 U	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
	Acenaphthylene	1	600	10	600	10	NS	0.13 U	0.17 U	0.27 U	0.28 U	0.23 U	0.11 U	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	0.13 U	0.17 U	0.27 U	0.28 U	0.23 U	0.11 U	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
	Benzo[a]anthracene	7	7	7	40	40	0.11	0.13 U	0.17 U	0.27 U	0.28 U	0.23 U	**0.15**	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
	Benzo[a]pyrene	2	2	2	4	4	0.15	0.13 U	0.17 U	0.27 U	0.28 U	0.23 U	0.11 U	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
	Benzo[b]fluoranthene	7	7	7	40	40	NS	0.13 U	0.17 U	0.27 U	0.28 U	0.23 U	0.11 U	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	0.13 U	0.17 U	0.27 U	0.28 U	0.23 U	0.11 U	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
	Benzo[k]fluoranthene	70	70	70	400	400	NS	0.13 U	0.17 U	0.27 U	0.28 U	0.23 U	0.11 U	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
	Chrysene	70	70	70	400	400	0.17	0.13 U	0.17 U	0.27 U	0.28 U	0.23 U	**0.13**	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	0.13 U	0.17 U	0.27 U	0.28 U	0.23 U	0.11 U	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	0.13 U	**0.19**	0.27 U	0.28 U	0.23 U	**0.26**	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	0.13 U	0.17 U	0.27 U	0.28 U	0.23 U	0.11 U	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	0.13 U	0.17 U	0.27 U	0.28 U	0.23 U	0.11 U	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
	Naphthalene	4	40	500	40	1,000	0.18	0.13 U	0.17 U	0.27 U	0.28 U	0.23 U	0.11 U	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
	Phenanthrene	10	500	500	1,000	1,000	0.2	0.13 U	0.17 U	0.27 U	0.28 U	0.23 U	**0.18**	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	0.13 U	**0.19**	0.27 U	0.28 U	0.23 U	**0.26**	0.37 U	0.50 U	0.33 U	0.27 U	0.51 U	0.34 U	0.34 U	0.36 U	0.44 U	0.36 U	0.14 U	0.24 U	0.13 U	0.84 U	0.65 U
PCB Aroclors																												
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.020 U	0.014 U	0.021 U	0.042 U	0.035 U	0.017 U	0.083 U	0.079 U	0.051 U	0.022 U	0.076 U	0.052 U	0.050 U	0.053 U	0.069 U	0.054 U	0.012 U	0.030 U	0.015 U	0.085 U	0.056 U
	Aroclor 1254	2	2	2	3	3	NS	**0.160**	**0.571**	**0.151**	**0.560**	0.035 U	**0.724**	0.083 U	**0.122**	**0.320**	0.022 U	0.076 U	**0.740**	**0.640**	0.053 U	**0.270**	**0.280**	0.012 U	**0.113**	0.015 U	0.085 U	**0.094**
	Aroclor 1260	2	2	2	3	3	NS	0.020 U	0.014 U	0.021 U	0.042 U	0.035 U	0.017 U	0.083 U	0.079 U	0.051 U	0.022 U	0.076 U	0.052 U	0.050 U	0.053 U	0.069 U	0.054 U	0.012 U	0.030 U	0.015 U	0.085 U	0.056 U
								0.020 U	0.014 U	0.021 U	0.042 U	0.035 U	0.017 U	0.083 U	0.079 U	0.051 U	0.022 U	0.076 U	0.052 U	0.050 U	0.053 U	0.069 U	0.054 U	0.012 U	0.030 U	0.015 U	0.085 U	0.056 U
	Total PCBs	2	2	2	3	3	0.06	**0.160**	**0.571**	**0.151**	**0.560**	0.070 U	**0.724**	0.166 U	**0.122**	**0.320**	0.044 U	0.151 U	**0.740**	**0.640**	0.106 U	**0.270**	**0.280**	0.025 U	**0.113**	0.029 U	0.169 U	**0.094**
PCB Congeners																												
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																												
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.054 U	NA	NA	NA	NA	0.013 U
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.054 U	NA	NA	NA	NA	0.013 U
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.054 U	NA	NA	NA	NA	0.013 U
Metals																												
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	**0.19**	**0.6**	0.51 U	0.39 U	**2.93**	**1.61**	0.63 U	0.77 U	**0.63**	0.51 U	0.76 U	0.51 U	0.48 U	0.47 U	**0.88**	0.50 U	0.12 U	0.24 U	0.12 U	0.68 U	0.60 U
	Barium	1,000	1,000	1,000	3,000	3,000	NS	**28**	**104**	**150**	**77**	**77**	**36**	**50**	**107**	**86**	**106**	**57**	**64**	**129**	**84**	**210**	**116**	**8.73**	**17**	**8.91**	**62**	**48**
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	**0.36**	**2.62**	**2.44**	**0.86**	**0.81**	**0.79**	**0.56**	**1**	**1.16**	**1.12**	**0.84**	**0.72**	**1.62**	**0.99**	**3.33**	**1.21**	**0.22**	**0.33**	**0.22**	**0.75**	**0.66**
	Chromium	30	30	30	200	200	110	**3.71**	**26**	**16**	**4.26**	**40**	**8.8**	**4.01**	**7**	**11**	**14**	**6.3**	**4.3**	**6.09**	**8.31**	**13**	**7.2**	**4.24**	**4.72**	**3.51**	**5.94**	**5.89**
	Lead	300	300	300	300	300	130	**23**	**477**	**162**	**33**	**47**	**70**	**10**	**53**	**167**	**25**	**9.03**	**42**	**251**	**231**	**177**	**92**	**2.48**	**16**	**3.41**	**14**	**27**
	Mercury	20	20	20	30	30	0.18	**0.060**	**0.245**	**0.155**	**0.117**	**0.164**	**0.115**	**0.101**	**0.172**	**0.235**	**0.07**	**0.185**	**0.244**	**0.175**	**0.294**	**0.188**	**0.212**	0.012 U	**0.032**	0.011 U	**0.083**	**0.078**
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	**0.83**	0.34 U	0.51 U	**0.78**	**1.97**	0.17 U	**1.63**	**1.77**	**1.94**	**4.44**	**1.67**	**2.05**	0.48 U	0.47 U	**2.11**	**1.46**	0.12 U	0.24 U	0.12 U	**2.12**	**2.34**
	Silver	100	100	100	200	200	NS	0.09 U	0.17 U	0.25 U	0.2 U	0.16 U	0.08 U	0.31 U	0.38 U	0.24 U	0.26 U	0.38 U	0.26 U	0.24 U	0.23 U	0.29 U	0.25 U	0.06 U	0.12 U	0.06 U	0.34 U	0.30 U
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals																												
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	**0.1**	0.1 U	NA	NA	NA	NA	NA	NA	NA	0.1 U	NA	0.1 U	0.1 U	0.1 U	NA	NA	NA	NA	NA	NA
Total Organic Carbon																												
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	**24**	**39.9**	**58.7**	**29.2**	**17.56**	NA	**73.5**	**62.5**	**52.1**	**73.4**	**39**	**48.6**	**33.5**	**46**	**50.5**	NA	NA	NA	NA	NA

Notes:

mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:

Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																					
	Sample Matrix:							Sediment	Sediment	Sediment	Sediment	Sediment		Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
	Sample ID:							WC.5-9.5	WC.5-10.5	WC.5-11.5	WC.5-12.5	WC.5-13.5		WC.5-14.5	WC.5-15.5	WC.5-16.5	WC.5-17.14	WC.5-17.28	WC.5-18.5	WC.5-19.5	WC.5-20.5	WC.5-21.5	WC.5-22.5	WC.5-25.5	WC.5-26.5	WD-6.5	WD-15.5	WD-17.46
	Sample Depth (ft.):							0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
	Sample Date:							4/22/2005	4/20/2005	4/20/2005	4/20/2005	4/20/2005	4/20/2005	4/20/2005	4/20/2005	4/20/2005	4/20/2005	4/20/2005	4/25/2005	4/25/2005	4/25/2005	4/25/2005	4/25/2005	4/25/2005	4/25/2005	4/22/2005	4/20/2005	4/20/2005
													Field Dup															
PAHs																												
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	0.14 U	0.34 U	0.13 U	0.43 U	0.44 U	0.14 U	0.056 U	0.16 U	0.095 U	0.088 U	0.17 U	0.20 U	3.5 U	0.071 U	0.36 U
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	0.14 U	0.34 U	0.13 U	0.43 U	0.44 U	0.14 U	0.056 U	0.16 U	0.095 U	0.088 U	0.17 U	0.20 U	3.5 U	0.071 U	0.36 U
	Acenaphthylene	1	600	10	600	10	NS	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	0.14 U	0.34 U	0.13 U	0.43 U	0.44 U	0.14 U	0.056 U	0.16 U	0.095 U	0.088 U	0.17 U	0.20 U	3.5 U	0.071 U	0.36 U
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	**0.54**	0.34 U	0.13 U	0.43 U	0.44 U	0.14 U	0.056 U	0.16 U	0.095 U	0.088 U	0.17 U	0.20 U	3.5 U	0.071 U	0.36 U
	Benzo[a]anthracene	7	7	7	40	40	0.11	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	**1.4**	0.34 U	0.13 U	0.43 U	**0.54**	0.14 U	0.056 U	0.16 U	0.095 U	0.088 U	0.17 U	0.20 U	3.5 U	0.071 U	0.36 U
	Benzo[a]pyrene	2	2	2	4	4	0.15	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	**1.4**	0.34 U	0.13 U	0.43 U	**0.68**	0.14 U	0.056 U	0.16 U	0.095 U	0.088 U	0.17 U	0.20 U	3.5 U	0.071 U	0.36 U
	Benzo[b]fluoranthene	7	7	7	40	40	NS	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	**1.5**	0.34 U	0.13 U	0.43 U	**0.77**	0.14 U	0.056 U	0.16 U	0.095 U	**0.12**	0.17 U	0.20 U	3.5 U	0.071 U	0.36 U
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	**1.1**	0.34 U	0.13 U	0.43 U	0.44 U	0.14 U	0.056 U	0.16 U	0.095 U	0.088 U	0.17 U	0.20 U	3.5 U	0.071 U	0.36 U
	Benzo[k]fluoranthene	70	70	70	400	400	NS	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	**0.74**	0.34 U	0.13 U	0.43 U	**0.49**	0.14 U	0.056 U	0.16 U	0.095 U	0.088 U	0.17 U	0.20 U	3.5 U	0.071 U	0.36 U
	Chrysene	70	70	70	400	400	0.17	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	**1.2**	0.34 U	0.13 U	0.43 U	**0.54**	0.14 U	0.056 U	0.16 U	0.095 U	0.088 U	0.17 U	0.20 U	3.5 U	0.071 U	0.36 U
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	0.14 U	0.34 U	0.13 U	0.43 U	0.44 U	0.14 U	0.056 U	0.16 U	0.095 U	0.088 U	0.17 U	0.20 U	3.5 U	0.071 U	0.36 U
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	**1.8**	0.34 U	0.13 U	0.43 U	**0.76**	0.14 U	0.056 U	0.16 U	0.095 U	**0.11**	0.17 U	0.20 U	3.5 U	0.071 U	0.36 U
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	0.14 U	0.34 U	0.13 U	0.43 U	0.44 U	0.14 U	0.056 U	0.16 U	0.095 U	0.088 U	0.17 U	0.20 U	3.5 U	0.071 U	0.36 U
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	**1.1**	0.34 U	0.13 U	0.43 U	0.44 U	0.14 U	0.056 U	0.16 U	0.095 U	0.088 U	0.17 U	0.20 U	3.5 U	0.071 U	0.36 U
	Naphthalene	4	40	500	40	1,000	0.18	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	0.14 U	0.34 U	0.13 U	0.43 U	0.44 U	0.14 U	0.056 U	0.16 U	0.095 U	0.088 U	0.17 U	0.20 U	3.5 U	0.071 U	0.36 U
	Phenanthrene	10	500	500	1,000	1,000	0.2	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	**2.2**	0.34 U	0.13 U	0.43 U	0.44 U	0.14 U	0.056 U	0.16 U	0.095 U	0.088 U	0.17 U	0.20 U	3.5 U	0.071 U	0.36 U
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	0.60 U	0.70 U	0.44 U	0.54 U	0.47 U	0.44 U	**4.2**	0.34 U	0.13 U	0.43 U	**1.5**	0.14 U	0.056 U	0.16 U	0.095 U	**0.17**	0.17 U	0.20 U	3.5 U	0.071 U	**0.59**
PCB Aroclors																												
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.066 U	0.044 U	0.030 U	0.037 U	0.035 U	0.027 U	0.020 U	0.022 U	0.007 U	0.028 U	0.013 U	0.017 U	0.012 U	0.019 U	0.017 U	0.021 U	0.017 U	0.019 U	0.071 U	0.010 U	0.026 U
	Aroclor 1254	2	2	2	3	3	NS	**0.135**	0.044 U	**0.036**	0.037 U	**0.232**	**0.105**	**0.922**	**0.175**	0.007 U	**0.441**	**0.546**	**0.135**	0.012 U	0.019 U	**0.072**	**1.160**	**0.119**	**0.140**	**0.093**	**0.033**	**0.282**
	Aroclor 1260	2	2	2	3	3	NS	0.066 U	0.044 U	0.030 U	0.037 U	0.035 U	0.027 U	0.020 U	0.022 U	0.007 U	0.028 U	0.013 U	0.017 U	0.012 U	0.019 U	0.017 U	0.021 U	0.017 U	0.019 U	0.071 U	0.010 U	0.026 U
								0.066 U	0.044 U	0.030 U	0.037 U	0.035 U	0.027 U	0.020 U	0.022 U	0.007 U	0.028 U	0.013 U	0.017 U	0.012 U	0.019 U	0.017 U	0.021 U	0.017 U	0.019 U	0.071 U	0.010 U	0.026 U
	Total PCBs	2	2	2	3	3	0.06	**0.135**	0.089 U	**0.036**	0.074 U	**0.232**	**0.105**	**0.922**	**0.175**	0.014 U	**0.441**	**0.546**	**0.135**	0.024 U	0.039 U	**0.072**	**1.160**	**0.119**	**0.140**	**0.093**	**0.033**	**0.282**
PCB Congeners																												
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																												
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	0.011 U	NA	NA	NA	0.0068 U	NA	0.0088 U	NA	NA	0.0023 U	NA	NA	**0.01**	NA	**0.036**	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	0.011 U	NA	NA	NA	0.0068 U	NA	0.0088 U	NA	NA	0.0023 U	NA	NA	**0.03**	NA	**0.008**	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	0.011 U	NA	NA	NA	0.0068 U	NA	0.0088 U	NA	NA	0.0023 U	NA	NA	**0.031**	NA	**0.073**	NA	NA	NA
Metals																												
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	0.69 U	0.62 U	0.38 U	**0.83**	0.46 U	**1.42**	**5.27**	**0.82**	0.1 U	**1.7**	0.4 U	**0.38**	**1.03**	**0.78**	**0.96**	**1.08**	**0.96**	**0.84**	0.63 U	**0.25**	**1.05**
	Barium	1,000	1,000	1,000	3,000	3,000	NS	**78**	**80**	**44**	**78**	**86**	**47**	**275**	**35**	**5.2**	**28**	**30**	**6.59**	**9.3**	**9.31**	**23**	**13**	**11**	**23**	**68**	**14**	**89**
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	**0.76**	**1.18**	**0.45**	**0.78**	**1.15**	**0.71**	**4.73**	**0.7**	**0.22**	**0.71**	**0.96**	**0.29**	**0.6**	**0.31**	**0.41**	**0.63**	**0.31**	**0.69**	**1.07**	**0.2**	**1.05**
	Chromium	30	30	30	200	200	110	**7.12**	**6.27**	**6.01**	**16**	**12**	**36**	**26**	**26**	**3.9**	**34**	**20**	**3.71**	**5.97**	**4.16**	**4.94**	**8.38**	**5.41**	**11**	**4.64**	**8.8**	**13**
	Lead	300	300	300	300	300	130	**23**	**63**	**15**	**26**	**55**	**19**	**524**	**13**	**1.7**	**12**	**14**	**7.41**	**4.22**	**7.1**	**18**	**34**	**17**	**41**	**36**	**4.41**	**97**
	Mercury	20	20	20	30	30	0.18	**0.075**	**0.088**	**0.056**	**0.117**	**0.114**	**0.121**	**0.457**	**0.039**	0.011 U	**0.091**	**0.238**	**0.026**	0.010 U	**0.022**	**0.101**	**0.056**	**0.046**	**0.073**	**0.077**	**0.035**	**0.072**
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	**2.21**	**1.86**	**3.61**	**4.04**	**2.89**	**3.78**	**0.38**	0.32 U	0.1 U	**1.08**	0.4 U	0.13 U	0.1 U	0.13 U	**0.24**	0.15 U	**0.43**	**0.25**	**1.57**	0.12 U	**1.16**
	Silver	100	100	100	200	200	NS	0.35 U	0.31 U	0.19 U	0.23 U	0.23 U	0.2 U	**0.4**	0.16 U	0.05 U	0.21 U	0.2 U	0.07 U	0.05 U	0.07 U	0.07 U	0.08 U	0.08 U	0.08 U	0.31 U	0.06 U	0.18 U
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals																												
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	**0.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																												
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																					
	Sample Matrix:							Sediment	Sediment	Sediment	Sediment		Sediment	Sediment	Sediment	Sediment	Sediment		Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment		Sediment
	Sample ID:							WD-17.57	WD.5-4.5	WD.5-5.5	WD.5-6.5		WD.5-17.14	WD.5-17.28	WD.5-17.46	WE.5-2.5	WE.5-3		WE.5-3.5	WH-5.5	WH-6	WH.5-4.5	WH.5-5.5	WI-4	WI-5	WI-6		WI.5-4
	Sample Depth (ft.):							0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
	Sample Date:							4/20/2005	4/22/2005	4/22/2005	4/22/2005	12/29/2009	4/20/2005	4/20/2005	4/20/2005	4/25/2005	4/25/2005	4/25/2005	4/25/2005	4/22/2005	4/22/2005	4/22/2005	4/22/2005	4/22/2005	4/22/2005	4/22/2005	12/29/2009	4/22/2005
																		Field Dup										
PAHs																												
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	0.17 U	0.79 U	0.73 U	0.57 U	NA	0.30 U	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	0.17 U	0.79 U	0.73 U	0.57 U	NA	0.30 U	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
	Acenaphthylene	1	600	10	600	10	NS	0.17 U	0.79 U	0.73 U	0.57 U	NA	0.30 U	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	0.17 U	0.79 U	0.73 U	0.57 U	NA	0.30 U	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
	Benzo[a]anthracene	7	7	7	40	40	0.11	0.17 U	0.79 U	0.73 U	0.57 U	NA	0.30 U	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
	Benzo[a]pyrene	2	2	2	4	4	0.15	0.17 U	0.79 U	0.73 U	0.57 U	NA	0.30 U	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
	Benzo[b]fluoranthene	7	7	7	40	40	NS	0.17 U	0.79 U	0.73 U	0.57 U	NA	0.30 U	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	0.17 U	0.79 U	0.73 U	0.57 U	NA	0.30 U	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
	Benzo[k]fluoranthene	70	70	70	400	400	NS	0.17 U	0.79 U	0.73 U	0.57 U	NA	0.30 U	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
	Chrysene	70	70	70	400	400	0.17	0.17 U	0.79 U	0.73 U	0.57 U	NA	0.30 U	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	0.17 U	0.79 U	0.73 U	0.57 U	NA	0.30 U	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	0.17 U	0.79 U	0.73 U	0.57 U	NA	0.30 U	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	0.17 U	0.79 U	0.73 U	0.57 U	NA	0.30 U	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	0.17 U	0.79 U	0.73 U	0.57 U	NA	0.30 U	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
	Naphthalene	4	40	500	40	1,000	0.18	0.17 U	0.79 U	0.73 U	0.57 U	NA	0.30 U	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
	Phenanthrene	10	500	500	1,000	1,000	0.2	0.17 U	0.79 U	0.73 U	0.57 U	NA	0.30 U	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	0.17 U	0.79 U	0.73 U	0.57 U	NA	**0.33**	0.20 U	0.32 U	0.51 U	1.1 U	0.76 U	0.93 U	0.24 U	1.8 U	0.11 U	0.18 U	0.62 U	0.25 U	0.43 U	NA	0.24 U
PCB Aroclors																												
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.013 U	0.083 U	0.078 U	0.080 U	NA	0.022 U	0.013 U	0.023 U	0.061 U	0.111 U	0.074 U	0.076 U	0.026 U	0.035 U	0.014 U	0.017 U	0.070 U	0.025 U	0.039 U	NA	0.023 U
	Aroclor 1254	2	2	2	3	3	NS	**0.035**	0.083 U	0.078 U	0.080 U	NA	**0.065**	0.013 U	**0.118**	**0.601**	0.111 U	0.074 U	0.076 U	**0.100**	0.035 U	**0.086**	**0.056**	**0.240**	**0.090**	**0.254**	NA	**0.045**
	Aroclor 1260	2	2	2	3	3	NS	0.013 U	0.083 U	0.078 U	0.080 U	NA	0.022 U	0.013 U	0.023 U	0.061 U	0.111 U	0.074 U	0.076 U	0.026 U	0.035 U	0.014 U	0.017 U	0.070 U	0.025 U	0.039 U	NA	0.023 U
								0.013 U	0.083 U	0.078 U	0.080 U	NA	0.022 U	0.013 U	0.023 U	0.061 U	0.111 U	0.074 U	0.076 U	0.026 U	0.035 U	0.014 U	0.017 U	0.070 U	0.025 U	0.039 U	NA	0.023 U
	Total PCBs	2	2	2	3	3	0.06	**0.035**	0.165 U	0.157 U	0.160 U	NA	**0.065**	0.026 U	**0.118**	**0.601**	0.221 U	0.147 U	0.151 U	**0.100**	0.071 U	**0.086**	**0.056**	**0.240**	**0.090**	**0.254**	NA	**0.045**
PCB Congeners																												
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																												
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	0.0064 U	NA	0.020 U	**0.064**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.08**
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	0.0064 U	NA	0.020 U	**0.094**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.032**
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	0.0064 U	NA	0.020 U	**0.213**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.217**
Metals																												
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	**6.57**	0.74 U	0.67 U	0.7 U	NA	**1.29**	**0.59**	**0.44**	0.99 U	1.87 U	0.61 U	0.68 U	0.22 U	0.31 U	0.14 U	0.16 U	0.65 U	**0.79**	0.36 U	NA	**0.49**
	Barium	1,000	1,000	1,000	3,000	3,000	NS	**63**	**39**	**48**	**37**	NA	**46**	**40**	**51**	**57**	**51**	**74**	**65**	**34**	**36**	**17**	**12**	**93**	**27**	**88**	NA	**14**
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	**0.48**	**0.37**	**0.53**	**0.49**	NA	**0.43**	**0.42**	**0.56**	**1**	0.93 U	**0.85**	**0.48**	**0.35**	**0.31**	**0.34**	**0.25**	**1.18**	**0.51**	**0.97**	NA	**0.19**
	Chromium	30	30	30	200	200	110	**70**	**3.99**	**8.14**	**10**	NA	**17**	**8.59**	**4.79**	**6.96**	**4.67**	**5.12**	**6.64**	**4.49**	**7.9**	**4.3**	**3.12**	**6.09**	**8.86**	**5.26**	NA	**3.73**
	Lead	300	300	300	300	300	130	**22**	**11**	**23**	**5.04**	**67.8**	**54**	**11**	**14**	**105**	**15**	**17**	**9.65**	**13**	**6.83**	**11**	**12**	**71**	**6.72**	**100**	**38.3**	**5.44**
	Mercury	20	20	20	30	30	0.18	**0.111**	0.077 U	**0.087**	**0.125**	NA	**0.159**	**0.134**	**0.278**	**0.158**	**0.101**	**0.15**	**0.106**	**0.04**	0.033 U	**0.024**	**0.024**	**0.128**	**0.031**	**0.114**	NA	**0.038**
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	0.8 U	**1.62**	**2.54**	**2.8**	**3.91**	**2.7**	**1.13**	**2.19**	0.99 U	1.87 U	**2.31**	**3.08**	**0.77**	**0.82**	0.14 U	0.16 U	**3.01**	**1.64**	**1.36**	**5.63**	**0.71**
	Silver	100	100	100	200	200	NS	0.4 U	0.37 U	0.33 U	0.35 U	NA	0.12 U	0.09 U	0.15 U	0.5 U	0.93 U	0.3 U	0.34 U	0.11 U	0.15 U	0.07 U	0.08 U	**0.33**	0.12 U	0.18 U	NA	0.11 U
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	**109**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**64.9**	NA
TCLP Metals																												
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																												
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																						
	Sample Matrix:							Sediment	Sediment	Sediment	Sediment	Sediment		Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Soil				Soil		Soil		Soil	
	Sample ID:							WI.5-4.5	WI.5-5.5	WC.75-26	WC-9	WC-10		WC-11	WC-12	WC-13	WC-14	WC-15	WC-16	R-1				R-2		R-3		R-4	
	Sample Depth (ft.):							0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-1.5	0-1.5	1.5-3	1.5-3	0-1.5	1.5-3	0-1.5	1.5-3	0-1.5	1.5-3
	Sample Date:							4/22/2005	4/22/2005	9/8/2005	1/27/2006	1/27/2006	1/27/2006	1/27/2006	1/27/2006	1/27/2006	1/27/2006	1/27/2006	1/27/2006	9/11/2006	9/11/2006 composite	9/11/2006	9/11/2006 composite	9/11/2006	9/11/2006	9/11/2006	9/11/2006	9/11/2006	9/11/2006
													Field Dup																
PAHs																													
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	**0.14**	NA	ND	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	**0.14**	NA	ND	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	**0.35**	NA	**0.22**	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	**0.29**	NA	**0.23**	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	**0.41**	NA	**0.32**	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	**0.11**	NA	**0.18**	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	**0.16**	NA	**0.12**	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	**0.32**	NA	**0.22**	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	**0.70**	NA	**0.35**	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	**0.093**	NA	ND	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	**0.11**	NA	**0.095**	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	**0.058**	NA	ND	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	**0.68**	NA	**0.097**	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	2.3 U	0.48 U	NA	0.11 U	0.25 U	NA	0.23 U	0.23 U	0.25 U	0.15 U	0.15 U	0.21 U	NA	**0.67**	NA	**0.55**	NA	NA	NA	NA	NA	NA
PCB Aroclors																													
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.045 U	0.042 U	0.236 U	0.021 U	0.021 U	0.025 U	0.019 U	0.014 U	0.018 U	0.012 U	0.031 U	0.015 U	ND	NA	ND	NA	ND	**0.398**	ND	ND	ND	ND
	Aroclor 1254	2	2	2	3	3	NS	**0.085**	**0.074**	**0.119**	0.021 U	**0.115**	**0.099**	**0.133**	**0.033**	0.018 U	**0.084**	**0.039**	**0.218**	ND	NA	ND	NA	ND	ND	**0.844**	ND	ND	ND
	Aroclor 1260	2	2	2	3	3	NS	0.045 U	0.042 U	0.236 U	0.021 U	0.021 U	0.025 U	0.019 U	0.014 U	0.018 U	0.012 U	0.031 U	0.015 U	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND
								0.045 U	0.042 U	0.236 U	0.021 U	0.021 U	0.025 U	0.019 U	0.014 U	0.018 U	0.012 U	0.031 U	0.015 U	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND
	Total PCBs	2	2	2	3	3	0.06	**0.085**	**0.074**	**0.119**	0.042 U	**0.115**	**0.099**	**0.133**	**0.033**	0.036 U	**0.084**	**0.039**	**0.218**	ND	NA	ND	NA	ND	**0.398**	**0.844**	ND	ND	ND
PCB Congeners																													
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																													
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																													
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	**2.62**	**0.8**	NA	**0.9**	**0.53**	NA	**1.33**	**0.6**	**0.61**	**1.37**	**1.6**	**0.89**	NA	**1.96**	NA	**3.04**	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	**54**	**51**	NA	**45**	**45**	NA	**48**	**51**	**38**	**69**	**69**	**50**	NA	**23.00**	NA	**31.00**	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	**0.48**	**0.56**	NA	**0.39**	**0.38**	NA	**0.59**	**0.26**	**0.25**	**0.57**	**0.7**	**0.39**	NA	**0.65**	NA	**1.04**	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	**11**	**6.57**	NA	**6.85**	**3.06**	NA	**6.82**	**1.97**	**3.82**	**7.29**	**13**	**9.65**	NA	**11.00**	NA	**20.00**	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	**14**	**13**	NA	**29**	**25**	NA	**48**	**15**	**12**	**69**	**108**	**32**	NA	**37.00**	NA	**83.00**	NA	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	**0.13**	**0.08**	NA	**0.056**	**0.061**	NA	**0.112**	**0.049**	**0.042**	**0.112**	**0.19**	**0.08**	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	**2.18**	**2.15**	NA	**1.59**	**1.22**	NA	**1.62**	**1.09**	**1.89**	**2.08**	**1.18**	**2.43**	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	0.22 U	0.2 U	NA	0.11 U	0.09 U	NA	0.08 U	0.12 U	0.1 U	0.1 U	0.1 U	0.1 U	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals																													
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																													
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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E - Estimated value; exceeds upper limit of calibration.
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Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
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* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
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Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

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Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]	R-5	R-5	R-5	R-5	R-6	R-6	R-7	R-7	R-8	R-8	R-9	R-9	R-9	R-9	R-10	R-10	R-11	R-11	R-12	R-12	S-1
	Sample Matrix:							Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Soil	Soil	Soil	Soil	Soil
	Sample Depth (ft.):							0-1.5	0-1.5	1.5-3	1.5-3	0-1.5	1.5-3	0-1.5	1.5-3	0-1.5	1.5-3	0-1.5	0-1.5	1.5-3	1.5-3	0-1.5	1.5-3	0-1.5	1.5-3	0-1.5	1.5-3	0-1
	Sample Date:							9/11/2006	9/11/2006 composite	9/11/2006	9/11/2006 composite	9/11/2006	9/11/2006	9/11/2006	9/11/2006	9/11/2006	9/11/2006	9/11/2006	9/12/2006 composite	9/12/2006	9/12/2006 composite	9/12/2006	9/12/2006	9/12/2006	9/12/2006	9/12/2006	9/12/2006	11/6/2006
PAHs																												
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	**0.054**	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																												
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND
	Aroclor 1254	2	2	2	3	3	NS	ND	NA	ND	NA	ND	ND	ND	ND	**0.357**	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	**0.538**
	Aroclor 1260	2	2	2	3	3	NS	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND
								ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND
	Total PCBs	2	2	2	3	3	0.06	ND	NA	ND	NA	ND	ND	ND	ND	**0.357**	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	**0.538**
PCB Congeners																												
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																												
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																												
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	**1.43**	NA	**0.72**	NA	NA	NA	NA	NA	NA	NA	**1.09**	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	**16.00**	NA	**16**	NA	NA	NA	NA	NA	NA	NA	**14.00**	NA	**10.00**	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	**0.46**	NA	**0.53**	NA	NA	NA	NA	NA	NA	NA	**0.36**	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	**6.12**	NA	**23**	NA	NA	NA	NA	NA	NA	NA	**5.24**	NA	**2.52**	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	**21.00**	NA	**4.07**	NA	NA	NA	NA	NA	NA	NA	**7.54**	NA	**7.35**	NA	NA	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	**0.094**	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals																												
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																												
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
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mg/L - milligrams per liter.
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E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
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Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
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* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
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Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																						
							Sample Matrix:	Soil			Soil		Soil	Soil	Soil		Soil		Soil		Soil		Soil	Soil		Sediment			
							Sample ID:	S-2			S-2A		S-2 B	S-2 B1.5	S-2C		S-2D		S-3		S-4		S-5	S-6		S-9			
							Sample Depth (ft.):	0-1.5	0-1.5	1-2	0-1	1-1.5	0-1	0-1	0-1	1-1.5	0-1	1-1.5	0-1.5	1.5-3	0-1.5	0-1.5	0-1.5	0-1.5	1.5-3	0-1.5	0-1.5	1.5-3	1.5-3
							Sample Date:	9/12/2006	9/12/2006	11/16/2006	9/25/2006	9/25/2006	11/6/2006	11/6/2006	9/25/2006	9/25/2006	9/25/2006	9/25/2006	9/12/2006	9/12/2006	9/12/2006	9/12/2006	9/12/2006	9/12/2006	9/12/2006	9/12/2006	9/12/2006	9/12/2006	9/12/2006
									composite													composite					composite		composite
PAHs
(mg/kg) 2-Methylnaphthalene 0.7 80 300 80 500 NS NA ND NA NA NA NA NA NA NA NA NA NA NA NA ND NA NA NA NA ND NA ND
Acenaphthene 4 1,000 1,000 3,000 3,000 NS NA ND NA NA NA NA NA NA NA NA NA NA NA NA ND NA NA NA NA ND NA ND
Acenaphthylene 1 600 10 600 10 NS NA ND NA NA NA NA NA NA NA NA NA NA NA NA ND NA NA NA NA **0.068** NA ND
Anthracene 1,000 1,000 1,000 3,000 3,000 0.057 NA ND NA NA NA NA NA NA NA NA NA NA NA NA ND NA NA NA NA ND NA ND
Benzo[a]anthracene 7 7 7 40 40 0.11 NA **0.076** NA NA NA NA NA NA NA NA NA NA NA NA **0.25** NA NA NA NA **0.17** NA **0.15**
Benzo[a]pyrene 2 2 2 4 4 0.15 NA **0.068** NA NA NA NA NA NA NA NA NA NA NA NA **0.22** NA NA NA NA **0.20** NA **0.14**
Benzo[b]fluoranthene 7 7 7 40 40 NS NA **0.095** NA NA NA NA NA NA NA NA NA NA NA NA **0.38** NA NA NA NA **0.31** NA **0.20**
Benzo[g,h,i]perylene 1,000 1,000 1,000 3,000 3,000 NS NA ND NA NA NA NA NA NA NA NA NA NA NA NA **0.11** NA NA NA NA **0.12** NA **0.065**
Benzo[k]fluoranthene 70 70 70 400 400 NS NA ND NA NA NA NA NA NA NA NA NA NA NA NA **0.16** NA NA NA NA **0.10** NA **0.10**
Chrysene 70 70 70 400 400 0.17 NA **0.087** NA NA NA NA NA NA NA NA NA NA NA NA **0.26** NA NA NA NA **0.22** NA **0.15**
Dibenz[a,h]anthracene 0.7 0.7 0.7 4 4 0.033 NA ND NA NA NA NA NA NA NA NA NA NA NA NA ND NA NA NA NA ND NA ND
Fluoranthene 1,000 1,000 1,000 3,000 3,000 0.42 NA **0.12** NA NA NA NA NA NA NA NA NA NA NA NA **0.47** NA NA NA NA **0.38** NA **0.31**
Fluorene 1,000 1,000 1,000 3,000 3,000 0.077 NA ND NA NA NA NA NA NA NA NA NA NA NA NA ND NA NA NA NA ND NA ND
Indeno[1,2,3-cd]pyrene 7 7 7 40 40 NS NA ND NA NA NA NA NA NA NA NA NA NA NA NA **0.11** NA NA NA NA **0.10** NA **0.061**
Naphthalene 4 40 500 40 1,000 0.18 NA ND NA NA NA NA NA NA NA NA NA NA NA NA ND NA NA NA NA ND NA ND
Phenanthrene 10 500 500 1,000 1,000 0.2 NA ND NA NA NA NA NA NA NA NA NA NA NA NA **0.17** NA NA NA NA **0.33** NA **0.19**
Pyrene 1,000 1,000 1,000 3,000 3,000 0.2 NA **0.12** NA NA NA NA NA NA NA NA NA NA NA NA **0.69** NA NA NA NA **0.56** NA **0.35**
PCB Aroclors
(mg/kg) Aroclor 1248 2 2 2 3 3 NS ND NA ND ND ND ND ND ND ND ND ND ND ND ND ND NA ND ND ND ND NA ND NA
Aroclor 1254 2 2 2 3 3 NS **0.658** NA ND **0.618** **0.394** ND **0.837** **0.398** ND **0.524** ND ND ND **0.288** NA **0.239** ND ND ND NA ND NA
Aroclor 1260 2 2 2 3 3 NS ND NA ND ND ND ND ND ND ND ND ND ND ND ND ND NA ND ND ND ND NA ND NA
0.428 NA ND ND ND ND ND ND ND ND ND ND ND ND ND NA ND ND ND ND NA ND NA
Total PCBs 2 2 2 3 3 0.06 **1.086** NA ND **0.618** **0.394** ND **0.837** **0.398** ND **0.524** ND ND ND **0.288** NA **0.239** ND ND ND NA ND NA
PCB Congeners
(pg/g) 77-TeCB NS NS NS NS NS NS NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
123-PeCB NS NS NS NS NS NS NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
118-PeCB NS NS NS NS NS NS NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
114-PeCB NS NS NS NS NS NS NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
105-PeCB NS NS NS NS NS NS NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
167-HxCB NS NS NS NS NS NS NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
156,157-HxCB NS NS NS NS NS NS NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
189-HpCB NS NS NS NS NS NS NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
Pesticides
(mg/kg) 4,4'-DDD 4 4 4 30 30 NS NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
4,4'-DDE 3 3 3 20 20 NS NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
4,4'-DDT 3 3 3 20 20 NS NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
Metals
(mg/kg) Antimony 20 20 20 30 30 NS NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
Arsenic 20 20 20 20 20 33 NA **5.41** NA NA NA NA NA NA NA NA NA NA NA NA **1.68** NA NA NA NA **2.22** NA NA
Barium 1,000 1,000 1,000 3,000 3,000 NS NA **720** NA NA NA NA NA NA NA NA NA NA NA NA **19.00** NA NA NA NA **28.00** NA **20.00**
Beryllium 100 100 100 200 200 NS NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
Cadmium 2 2 2 30 30 5.0 NA **0.99** NA NA NA NA NA NA NA NA NA NA NA NA **0.44** NA NA NA NA **0.38** NA ND
Chromium 30 30 30 200 200 110 NA **11.00** NA NA NA NA NA NA NA NA NA NA NA NA **5.21** NA NA NA NA **5.29** NA **5.61**
Lead 300 300 300 300 300 130 NA **409** NA NA NA NA NA NA NA NA NA NA NA NA **26.00** NA NA NA NA **41.00** NA **51.00**
Mercury 20 20 20 30 30 0.18 NA ND NA NA NA NA NA NA NA NA NA NA NA NA ND NA NA NA NA ND NA ND
Nickel 20 20 20 700 700 49 NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
Selenium 400 400 400 800 800 NS NA ND NA NA NA NA NA NA NA NA NA NA NA NA ND NA NA NA NA ND NA ND
Silver 100 100 100 200 200 NS NA ND NA NA NA NA NA NA NA NA NA NA NA NA ND NA NA NA NA ND NA ND
Vanadium 600 600 600 1,000 1,000 NS NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
Zinc 2,500 2,500 2,500 3,000 3,000 459 NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
TCLP Metals
(mg/L) Lead N/A N/A N/A N/A 5^ N/A NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
Total Organic Carbon
(%) Rep1 N/A N/A N/A N/A N/A N/A NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
Rep2 N/A N/A N/A N/A N/A N/A NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
TOC N/A N/A N/A N/A N/A N/A NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA

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	Sample Matrix:							Sediment		Sediment		Soil	Soil	Soil	Soil	Soil	Soil	Soil		Soil		Soil			Soil	Soil		Soil	Soil
	Sample ID:							S-10		S-11	S-12	T-1	T-1 C1.5	T-1 C1.75	T-1 D1.5	T-1 D1.75	T-1 E1.75	T-1A		T-1B		T-1C			T-1C 1.5	T-1D			T-1D 1.5	T-1D 1.5A
	Sample Depth (ft.):							0-1.5	1.5-3	0-1.5	0-1.5	0-1.5	0-1	0-1	0-1	0-1	0-1	0-1	1-1.5	0-1	1-1.5	0-1	1-1.5	1-2	1-2	0-1	1-1.5	1-2	1-2	0-1
	Sample Date:							9/12/2006	9/12/2006	9/12/2006	9/12/2006	9/12/2006	11/6/2006	11/6/2006	11/6/2006	11/6/2006	11/6/2006	9/25/2006	9/25/2006	9/25/2006	9/25/2006	9/25/2006	9/25/2006	11/16/2006	11/16/2006	9/25/2006	9/25/2006	11/16/2006	11/16/2006	11/16/2006
PAHs																														
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																														
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	ND	ND	**0.181**	ND	ND	ND U	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Aroclor 1254	2	2	2	3	3	NS	**0.597**	**0.256**	ND	**0.200**	**1.080**	**8.670**	**0.146**	**1.590**	**0.165**	**0.133**	**0.291**	**0.197**	**0.290**	**0.115**	**6.010**	**1.920**	**0.354**	ND	**8.920**	**1.490**	**0.121**	ND	**1.070**
	Aroclor 1260	2	2	2	3	3	NS	ND	ND	ND	ND	ND	ND U	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
								ND	ND	ND	ND	ND	ND U	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Total PCBs	2	2	2	3	3	0.06	**0.597**	**0.256**	**0.181**	**0.200**	**1.080**	**8.670**	**0.146**	**1.590**	**0.165**	**0.133**	**0.291**	**0.197**	**0.290**	**0.115**	**6.010**	**1.920**	**0.354**	ND	**8.920**	**1.490**	**0.121**	ND	**1.070**
PCB Congeners																														
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																														
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																														
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals																														
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																														
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																						
	Sample Matrix:							Soil	Soil	Soil	Soil	Sediment	Sediment		Soil	Soil	Soil	Soil	Sediment	Soil		Sediment		Sediment		Sediment		Sediment	
	Sample ID:							T-1D 1.75	T-1D 1.75A	T-3	T-6	T-11	T-12		U-1	U-2	U-3	U-4	U-13	V-1		SB-01		SB-02		SB-03		SB-04	
	Sample Depth (ft.):							1-2	0-1	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5	0-0.5	5.5-6	0.5-1	9.5-10	0.5-1	9.5-10	0.5-1	4.5-5
	Sample Date:							11/16/2006	11/16/2006	9/12/2006	9/12/2006	9/12/2006	9/12/2006	9/12/2006 composite	9/12/2006	9/12/2006	9/12/2006	9/12/2006	9/12/2006	9/12/2006	9/12/2006 composite	11/7/2007	11/7/2007	11/7/2007	11/7/2007	11/7/2007	11/7/2007	11/7/2007	11/7/2007
PAHs																													
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	**0.16**	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	**0.15**	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	**0.22**	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	**0.082**	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	**0.13**	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	**0.17**	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	**0.31**	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	**0.08**	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	**0.28**	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	**0.55**	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	0.20 U	NA	0.19 U	NA	NA
PCB Aroclors																													
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA	0.056 U	0.056 U	0.054 U	0.056 U	0.052 U	0.052 U	0.051 U	0.054 U
	Aroclor 1254	2	2	2	3	3	NS	**0.135**	**0.923**	ND	ND	**0.166**	**0.396**	NA	ND	**0.237**	ND	ND	**0.476**	ND	NA	**0.170 ***	0.056 U	0.054 U	0.056 U	0.052 U	0.052 U	0.051 U	0.054 U
	Aroclor 1260	2	2	2	3	3	NS	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	**0.230**	ND	ND	NA	0.056 U	0.056 U	0.054 U	0.056 U	0.052 U	0.052 U	0.051 U	0.054 U
								ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA	0.056 U	0.056 U	0.054 U	0.056 U	0.052 U	0.052 U	0.051 U	0.054 U
	Total PCBs	2	2	2	3	3	0.06	**0.135**	**0.923**	ND	ND	**0.166**	**0.396**	NA	ND	**0.237**	ND	**0.230**	**0.476**	ND	NA	**0.170**	0.056 U	0.054 U	0.056 U	0.052 U	0.052 U	0.051 U	0.054 U
PCB Congeners																													
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																													
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																													
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.73 U	4.23 U	4.43 U	4.66 U	4.28 U	4.39 U	4.21 U	4.37 U
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	**1.68**	NA	NA	NA	NA	NA	NA	**0.99**	2.96 U	2.65 U	2.77 U	2.91 U	2.68 U	2.74 U	2.64 U	2.73 U
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	**24.00**	NA	NA	NA	NA	NA	NA	**12.00**	**42.3**	**14.4**	**12.7**	**17.4**	**18.0**	**18.3**	**11.1**	**24.4**
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.30 U	0.27 U	0.28 U	0.30 U	0.27 U	0.28 U	0.27 U	0.28 U
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	**0.57**	0.30 U	0.27 U	0.28 U	0.30 U	0.27 U	0.28 U	0.27 U	0.28 U
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	**5.88**	NA	NA	NA	NA	NA	NA	**8.64**	**6.69**	**6.21**	**4.51**	**6.29**	**6.20**	**19.9**	**10.7**	**6.31**
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	NA	**190**	NA	NA	NA	NA	NA	NA	**33.00**	**26.8**	**1.28**	**1.98**	**1.90**	**2.66**	**2.24**	**3.16**	**1.44**
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	**0.185**	NA	NA	NA	NA	NA	NA	ND	**0.010**	0.004 U	0.005 U	0.005 U	0.004 U	0.006 U	0.004 U	0.005 U
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.30**	**3.17**	**2.67**	**4.12**	**3.81**	**9.10**	**4.10**	**3.70**
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	5.91 U	5.29 U	5.54 U	5.82 U	5.35 U	5.48 U	5.27 U	5.46 U
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	0.60 U	0.53 U	0.56 U	0.59 U	0.54 U	0.55 U	0.53 U	0.55 U
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7.68**	**8.93**	**6.85**	**11.4**	**7.84**	**13.5**	**15.6**	**9.62**
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**20.8**	**12.0**	**11.3**	**13.6**	**12.7**	**17.1**	**15.1**	**14.6**
TCLP Metals																													
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																													
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
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UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:

Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]	SB-05		SB-06		SB-07		SB-08		SB-09		SB-10		SB-11		SB-12		SB-13		SB-14		
	Sample Matrix:							Sediment		Soil		Sediment		Sediment		Soil		Sediment		Sediment		Soil		Soil		Soil		
	Sample Depth (ft.):							0.5-1	7.5-8	0.5-1	8.5-9	0.5-1	8.5-9	0.5-1	9.5-10	0.5-1	6.5-7	0.5-1	8.5-9	0.5-1	6.5-7	0.5-1	5.5-6	0.5-1	9.5-10	0.5-1	9-9.5	12.5-13
	Sample Date:							11/7/2007	11/7/2007	11/7/2007	11/7/2007	11/7/2007	11/7/2007	11/7/2007	11/7/2007	11/8/2007	11/8/2007	11/8/2007	11/8/2007	11/8/2007	11/8/2007	11/8/2007	11/8/2007	11/8/2007	11/8/2007	11/8/2007	11/8/2007	11/8/2007
PAHs																												
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	0.19 U	0.21 U	NA	0.20 U	NA	0.21 U	0.18 U	0.20 U	0.18 U	NA	NA	NA	0.19 U	0.20 U	0.18 U	NA	0.19 U	NA	NA	NA
PCB Aroclors																												
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.056 U	0.056 U	0.059 U	0.050 U	0.054 U	0.052 U	0.056 U	0.054 U	0.060 U	0.050 U	0.055 U	0.058 U	0.053 U	0.055 U	0.059 U	0.050 U	0.052 U	0.057 U	0.050 U	0.051 U	0.052 U
	Aroclor 1254	2	2	2	3	3	NS	0.056 U	0.056 U	**0.149** *	0.050 U	0.054 U	0.052 U	0.056 U	0.054 U	0.060 U	0.050 U	0.055 U	0.058 U	0.053 U	0.055 U	0.059 U	0.050 U	**0.749** *	0.057 U	**0.500** *	**0.101** *	0.052 U
	Aroclor 1260	2	2	2	3	3	NS	0.056 U	0.056 U	**0.109** *	0.050 U	0.054 U	0.052 U	0.056 U	0.054 U	0.060 U	0.050 U	0.055 U	0.058 U	0.053 U	0.055 U	0.059 U	0.050 U	0.052 U	0.057 U	0.050 U	**0.238** *	0.052 U
								0.056 U	0.056 U	0.059 U	0.050 U	0.054 U	0.052 U	0.056 U	0.054 U	0.060 U	0.050 U	0.055 U	0.058 U	0.053 U	0.055 U	0.059 U	0.050 U	0.052 U	0.057 U	0.050 U	0.051 U	0.052 U
	Total PCBs	2	2	2	3	3	0.06	0.056 U	0.056 U	**0.258**	0.050 U	0.054 U	0.052 U	0.056 U	0.054 U	0.060 U	0.050 U	0.055 U	0.058 U	0.053 U	0.055 U	0.059 U	0.050 U	**0.749**	0.057 U	**0.500**	**0.339**	0.052 U
PCB Congeners																												
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																												
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																												
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	4.53 U	4.81 U	NA	4.57 U	NA	4.85 U	4.31 U	4.79 U	4.22 U	NA	NA	NA	4.54 U	4.80 U	4.19 U	NA	4.34 U	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	2.83 U	3.01 U	NA	2.86 U	NA	3.03 U	2.70 U	3.00 U	2.64 U	NA	NA	NA	2.84 U	3.00 U	2.62 U	NA	2.72 U	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	**13.1**	**11.9**	NA	**14.4**	NA	**12.1**	**22.2**	**13.4**	**7.19**	NA	NA	NA	**9.44**	**13.6**	**5.81**	NA	**11.5**	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	0.29 U	0.31 U	NA	0.29 U	NA	0.31 U	0.27 U	0.30 U	0.27 U	NA	NA	NA	0.29 U	0.30 U	0.27 U	NA	0.28 U	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	0.29 U	0.31 U	NA	0.29 U	NA	0.31 U	0.27 U	0.30 U	0.27 U	NA	NA	NA	0.29 U	0.30 U	0.27 U	NA	0.28 U	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	**4.71**	**6.88**	NA	**9.09**	NA	**5.91**	**5.92**	**8.00**	**2.98**	NA	NA	NA	**3.16**	**9.40**	**3.10**	NA	**5.50**	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	**0.85**	**26.9**	NA	**3.04**	NA	**4.98**	**1.61**	**17.2**	**1.30**	NA	NA	NA	**1.39**	**52.1**	**1.85**	NA	**4.50**	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	0.005 U	**0.054**	NA	0.005 U	NA	**0.016**	0.004 U	**0.052**	0.004 U	NA	NA	NA	0.005 U	**0.039**	0.004 U	NA	**0.005**	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	**3.20**	**4.95**	NA	**3.66**	NA	**3.09**	**3.86**	**3.38**	**2.23**	NA	NA	NA	**2.20**	**3.76**	**2.51**	NA	**2.62**	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	5.66 U	6.01 U	NA	5.71 U	NA	6.06 U	5.39 U	5.99 U	5.27 U	NA	NA	NA	5.67 U	6.00 U	5.24 U	NA	5.43 U	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	0.57 U	0.61 U	NA	0.58 U	NA	0.61 U	0.54 U	0.60 U	0.53 U	NA	NA	NA	0.57 U	0.60 U	0.53 U	NA	0.55 U	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	**8.77**	**15.3**	NA	**10.6**	NA	**9.32**	**8.71**	**16.5**	5.27 U	NA	NA	NA	**6.35**	**17.3**	5.24 U	NA	**5.45**	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	**12.6**	**17.8**	NA	**11.6**	NA	**11.3**	**13.3**	**16.3**	**9.81**	NA	NA	NA	**10.4**	**16.6**	**8.10**	NA	**9.66**	NA	NA	NA
TCLP Metals																												
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																												
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
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Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
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Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																								
	Sample Matrix:							Soil		Soil		Soil			Soil			Soil			Soil			Soil			Soil			Soil		
	Sample ID:							SB-15		SB-25		SB-142			SB-143			SB-144			SB-145			SB-146			SB-147			
	Sample Depth (ft.):							0.5-1	7.5-8	1.0	6.0	1	6	11	1	5	8	1	5	8	1	6	8	1	5	8	1	5	5	9
	Sample Date:							11/8/2007	11/8/2007	11/28/2007	11/28/2007	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008	5/20/2008
																													Field Dup	
PAHs																															
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	0.176 U	0.174 U	0.195 U	0.193 U	0.173 U	0.174 U	0.194 U	0.182 U	0.182 U	0.192 U	0.181 U	0.197 U	0.197 U	0.172 U	0.181 U	0.203 U	0.182 U	0.177 U	0.178 U
PCB Aroclors																															
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.051 U	0.055 U	0.0534 U	0.0571 U	0.0526 U	0.0536 U	0.0512 U	0.0600 U	0.0507 U	0.0500 U	0.0574 U	0.0549 U	0.0549 U	0.0577 U	0.0528 U	0.0570 U	0.0562 U	0.0500 U	0.0533 U	0.0627 U	0.0517 U	0.0530 U	0.052 U
	Aroclor 1254	2	2	2	3	3	NS	0.051 U	0.055 U	**0.108** *	0.0571 U	0.0526 U	**0.0725** J	0.0512 U	0.0600 U	0.0507 U	0.0500 U	**0.186** J	0.0549 U	0.0549 U	**0.637** J	0.0528 U	0.0570 U	0.0562 U	0.0500 U	0.0533 U	0.0627 U	0.0517 U	0.0530 U	0.052 U
	Aroclor 1260	2	2	2	3	3	NS	**0.110** *	0.055 U	0.0534 U	0.0571 U	0.0526 U	0.0536 U	0.0512 U	0.0600 U	0.0507 U	0.0500 U	0.0574 U	0.0549 U	0.0549 U	**0.108** J	0.0528 U	0.0570 U	0.0562 U	0.0500 U	0.0533 U	0.0627 U	0.0517 U	0.0530 U	0.052 U
								0.051 U	0.055 U	0.0534 U	0.0571 U	0.0526 U	0.0536 U	0.0512 U	0.0600 U	0.0507 U	0.0500 U	0.0574 U	0.0549 U	0.0549 U	0.0577 U	0.0528 U	0.0570 U	0.0562 U	0.0500 U	0.0533 U	0.0627 U	0.0517 U	0.0530 U	0.052 U
	Total PCBs	2	2	2	3	3	0.06	**0.110**	0.055 U	**0.108**	0.0571 U	0.0526 U	**0.0725** J	0.0512 U	0.0600 U	0.0507 U	0.0500 U	**0.186** J	0.0549 U	0.0549 U	**0.745** J	0.0528 U	0.0570 U	0.0562 U	0.0500 U	0.0533 U	0.0627 U	0.0517 U	0.0530 U	0.052 U
PCB Congeners																															
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																															
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																															
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	4.21 U	4.17 U	4.67 U	4.63 U	4.14 U	4.16 U	4.65 U	4.37 U	4.37 U	4.61 U	4.34 U	4.72 U	4.72 U	4.11 U	4.35 U	4.87 U	4.36 U	4.23 U	4.27 U
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	2.63 U	2.61 U	2.92 U	2.90 U	2.59 U	2.60 U	2.91 U	2.73 U	2.73 U	2.88 U	2.72 U	2.95 U	2.95 U	2.57 U	2.72 U	3.05 U	2.73 U	2.65 U	2.67 U
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	**11.0**	**21.2**	**18.8**	**15.3**	**51.5**	**46.9**	**10.6**	**16.3**	**17.3**	**6.71**	**8.31**	**13.4**	**13.3**	**20.4**	**15.7**	**16.4**	**21.4**	**33.4**	**11.0**
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	0.27 U	0.27 U	0.30 U	0.29 U	0.26 U	0.26 U	0.30 U	0.28 U	0.28 U	0.29 U	0.28 U	0.30 U	0.30 U	0.26 U	0.28 U	0.31 U	0.28 U	0.27 U	0.27 U
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	0.27 U	0.27 U	0.30 U	0.29 U	0.26 U	0.26 U	0.30 U	0.28 U	0.28 U	0.29 U	0.28 U	0.30 U	0.30 U	0.26 U	0.28 U	0.31 U	0.28 U	0.27 U	0.27 U
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	**16.7**	**26.0**	**14.0**	**13.3**	**40.2**	**23.2**	**7.00**	**16.4**	**23.8**	**5.29**	**6.27**	**15.2**	**8.47**	**8.75**	**7.93**	**10.0**	**6.49**	**5.52**	**2.23**
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	**107**	**2.76**	**1.77**	**6.30**	**3.30**	**2.41**	**15.1**	**2.66**	**4.02**	**14.2**	**2.46**	**2.32**	**8.37**	**2.35**	**2.55**	**20.3**	**2.73**	**2.42**	**2.01**
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	0.022 U	0.023 U	0.012 U	**0.021**	0.010 U	0.015 U	**0.022**	0.015 U	0.017 U	**0.041**	0.018 U	0.012 U	**0.025**	0.013 U	0.019 U	**0.040**	0.022 U	0.014 U	0.020 U
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	**9.15**	**10.3**	**6.29**	**6.79**	**15.5**	**9.64**	**3.06**	**5.71**	**12.0**	**1.51**	**2.96**	**6.09**	**4.15**	**5.86**	**5.52**	**3.62**	**6.30**	**8.30**	**1.79**
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	5.26 U	5.21 U	5.83 U	5.79 U	5.17 U	5.20 U	5.81 U	5.46 U	5.46 U	5.76 U	5.43 U	5.90 U	5.90 U	5.14 U	5.43 U	6.09 U	5.45 U	5.29 U	5.34 U
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	0.53 U	0.53 U	0.59 U	0.58 U	**0.75**	0.52 U	0.59 U	0.55 U	0.55 U	0.58 U	0.55 U	0.59 U	0.59 U	0.52 U	0.55 U	**0.99**	0.55 U	0.53 U	0.54 U
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	**17.9**	**23.9**	**11.5**	**20.2**	**44.9**	**22.1**	**16.1**	**14.6**	**21.5**	**14.3**	**10.1**	**9.87**	**15.4**	**12.6**	**10.9**	**18.4**	**18.8**	**32.3**	**6.62**
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	**29.4**	**19.9**	**13.7**	**18.7**	**36.6**	**18.0**	**19.1**	**16.6**	**25.7**	**8.44**	**11.8**	**16.4**	**16.0**	**16.9**	**15.2**	**65.5**	**29.6**	**36.4**	**14.9**
TCLP Metals																															
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																															
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria(c)																								
	Sample Matrix:							Soil			Soil			Soil			Soil			Soil					Soil			Soil		Sediment		Sediment
	Sample ID:							SB-148			SB-149			SB-150			SB-151			SB-152				SB-153			SB-154		SD-01		SD-02
	Sample Depth (ft.):							1	4	8	1	6	10	1	4	7	1	5	8	1	1	4	7	1	8	1	6	0-0.5	0-0.5	0-0.5
	Sample Date:							5/21/2008	5/21/2008	5/21/2008	5/20/2008	5/20/2008	5/20/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/21/2008	5/27/2008	5/27/2008	5/27/2008
																					Field Dup								Field Dup	
PAHs																															
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	0.215 U	0.185 U	0.187 U	0.200 U	0.184 U	0.178 U	0.199 U	0.188 U	0.188 U	0.208 U	0.182 U	0.180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																															
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.0590 U	0.0533 U	0.0533 U	0.0540 U	0.0541 U	0.0521 U	0.056 U	0.0540 U	0.0522 U	0.0602 U	0.0524 U	0.0504 U	0.0546 U	0.054 U	0.0539 U	0.0511 U	0.0541 U	0.0532 U	0.0560 U	0.054 U	0.275 UJ	0.298 UJ	0.218 UJ
	Aroclor 1254	2	2	2	3	3	NS	0.0590 U	0.0533 U	0.0533 U	0.0540 U	0.0541 U	0.0521 U	0.056 U	0.0540 UJ	0.0522 U	0.0602 U	0.0524 UJ	0.0504 UJ	0.0546 U	0.054 U	0.0539 U	0.0511 U	**0.108 J**	0.0532 U	0.0560 U	0.054 U	0.275 UJ	0.298 UJ	0.218 UJ
	Aroclor 1260	2	2	2	3	3	NS	0.0590 U	0.0533 U	0.0533 U	0.0540 U	0.0541 U	0.0521 U	0.056 U	0.0540 U	0.0522 U	0.0602 U	0.0524 U	0.0504 U	0.0546 U	0.054 U	0.0539 U	0.0511 U	0.0541 U	0.0532 U	0.0560 U	0.054 U	0.275 UJ	0.298 UJ	0.218 UJ
								0.0590 U	0.0533 U	0.0533 U	0.0540 U	0.0541 U	0.0521 U	0.056 U	0.0540 U	0.0522 U	0.0602 U	0.0524 U	0.0504 U	0.0546 U	0.054 U	0.0539 U	0.0511 U	0.0541 U	0.0532 U	0.0560 U	0.054 U	0.275 UJ	0.298 UJ	0.218 UJ
	Total PCBs	2	2	2	3	3	0.06	0.0590 U	0.0533 U	0.0533 U	0.0540 U	0.0541 U	0.0521 U	0.056 U	0.0540 U	0.0522 U	0.0602 U	0.0524 U	0.0504 U	0.0546 U	0.054 U	0.0539 U	0.0511 U	**0.108 J**	0.0532 U	0.0560 U	0.054 U	0.275 UJ	0.298 UJ	0.218 UJ
PCB Congeners																															
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																															
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																															
(mg/kg)	Antimony	20	20	20	30	30	NS	5.15 U	4.44 U	4.47 U	4.78 U	4.40 U	4.27 U	4.77 U	4.50 U	4.51 U	4.97 U	4.36 U	4.32 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	3.22 U	2.78 U	2.80 U	2.99 U	2.75 U	2.67 U	2.98 U	2.82 U	2.82 U	3.11 U	2.73 U	2.70 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	**39.4**	**12.7**	**18.8**	**13.8**	**8.77**	**7.14**	**13.0**	**7.48**	**7.22**	**18.0**	**9.13**	**16.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	0.33 U	0.28 U	0.28 U	0.30 U	0.28 U	0.27 U	0.30 U	0.29 U	0.29 U	0.32 U	0.28 U	0.27 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	**0.44**	0.28 U	0.28 U	0.30 U	0.28 U	0.27 U	0.30 U	0.29 U	0.29 U	0.32 U	0.28 U	0.27 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	**9.06**	**4.49**	**9.54**	**8.49**	**4.34**	**2.15**	**8.63**	**4.52**	**5.40**	**8.87**	**7.85**	**14.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	**110**	**2.58**	**2.07**	**5.75**	**1.81**	**1.28**	**10.7**	**3.35**	**0.86**	**7.95**	**2.34**	**2.29**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	**0.125**	0.017 U	0.011 U	**0.026**	0.012 U	0.011 U	**0.020**	0.024 U	0.025 U	**0.028**	0.010 U	0.017 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	**20.9**	**3.69**	**6.52**	**3.93**	**2.75**	**1.32**	**4.12**	**4.62**	**3.36**	**4.54**	**4.93**	**6.59**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	6.44 U	5.55 U	5.59 U	5.98 U	5.50 U	5.34 U	5.96 U	5.63 U	5.64 U	6.22 U	5.45 U	5.39 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	0.65 U	0.56 U	0.56 U	0.60 U	0.55 U	0.54 U	0.60 U	0.57 U	0.57 U	0.63 U	0.55 U	0.54 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	**22.5**	**15.6**	**11.0**	**14.6**	**6.71**	5.34 U	**16.1**	**7.45**	**7.04**	**17.3**	**9.07**	**19.8**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	**105**	**21.0**	**23.7**	**32.9**	**14.5**	**16.8**	**41.3**	**16.2**	**11.9**	**21.9**	**15.5**	**19.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals																															
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																															
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:

Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																				
							Sample Matrix:	Sediment						Sediment	Sediment	Soil	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment		
							Sample ID:	SD-03						SD-04-PRE	SD-3A	SD-3B	SD-3C	SD-3D	SD-3E	SD-3F	SD-3G	SD-3H	SD-3I	SD-3J	SD-3K		
							Sample Depth (ft.):	0-0.5	0-0.5	0-0.5	0-0.5	1-1.5	1.5-2	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	1-1.5	2.5-3
							Sample Date:	5/27/2008	5/27/2008	6/10/2008	6/10/2008	6/10/2008	9/18/2008	5/27/2008	6/10/2008	6/10/2008	6/10/2008	6/10/2008	6/19/2008	6/19/2008	6/19/2008	6/19/2008	6/19/2008	6/19/2008	7/30/2008	7/30/2008	9/18/2008
									(a)		Field Dup																
PAHs																											
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																											
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.485 U	0.302 U	0.424 UJ	0.355 UJ	0.483 UJ	0.055 U	0.059 U	0.264 U	0.058 U	0.059 U	0.761 U	0.074 U	0.605 UJ	0.311 UJ	0.288 U	0.221 U	0.231 U	0.552 U	0.272 U	0.065 U
	Aroclor 1254	2	2	2	3	3	NS	**15.000 J**	**10.600 J**	**11.800 J**	**13.900 J**	**18.000 J**	**0.933 J**	0.059 U	**12.900 J**	0.058 U	**0.143 J**	**29.900 J**	**3.640 J**	**20.200 J**	**7.410 J**	**11.700 J**	**6.120 J**	**5.050 J**	**18.300 J**	**5.840 J**	0.065 U
	Aroclor 1260	2	2	2	3	3	NS	**1.560 J**	**1.280 J**	**1.480 J**	**1.760 J**	**2.370 J**	0.055 U	0.059 U	**1.680 J**	0.058 U	0.059 U	**3.570 J**	0.074 U	**2.570 J**	**0.951 J**	0.288 U	**0.673 J**	**0.735 J**	0.552 U	0.272 U	0.065 U
								0.485 U	0.302 U	0.424 UJ	0.355 UJ	0.483 UJ	0.055 U	0.059 U	0.264 U	0.058 U	0.059 U	0.761 U	0.074 U	0.605 UJ	0.311 UJ	0.288 U	0.221 U	0.231 U	0.552 U	0.272 U	0.065 U
	Total PCBs	2	2	2	3	3	0.06	**16.560 J**	**11.880 J**	**13.280 J**	**15.660 J**	**20.370 J**	**0.933 J**	0.059 U	**14.580 J**	0.058 U	**0.143 J**	**33.470 J**	**3.640 J**	**22.770 J**	**8.361 J**	**11.700 J**	**6.793 J**	**5.785 J**	**18.300 J**	**5.840 J**	0.065 U
PCB Congeners																											
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																											
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																											
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals																											
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																											
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
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UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]	SD-3L 0-0.5 7/30/2008	SD-3L 1-1.5 7/30/2008	Field Dup 1-1.5 7/30/2008	SD-3M 0-0.5 7/30/2008	SD-3M 1-1.5 7/30/2008	SD-3N 0-0.5 7/30/2008	SD-3N 1-1.5 7/30/2008	SD-3P 0-0.5 7/30/2008	SD-3P 0.7-1.2 7/30/2008	SD-3Q 0-0.5 7/30/2008	SD-3Q 0.8-1.3 7/30/2008	SD-3Q 0-0.5 12/29/2009	SD-3R 0-0.5 8/19/2008	SD-3R 1-1.5 8/19/2008	SD-3S 0-0.5 8/19/2008	SD-3S 1-1.5 8/19/2008	SD-3T 0-0.5 8/19/2008	SD-3T 1-1.5 8/19/2008	SD-3T 0-0.5 12/29/2009
	Sample Matrix:							Sediment			Sediment		Sediment		Sediment		Sediment			Sediment		Sediment		Sediment		
	Sample ID:							SD-3L			SD-3M		SD-3N		SD-3P		SD-3Q			SD-3R		SD-3S		SD-3T		
	Sample Depth (ft.):							0-0.5	1-1.5	1-1.5	0-0.5	1-1.5	0-0.5	1-1.5	0-0.5	0.7-1.2	0-0.5	0.8-1.3	0-0.5	0-0.5	1-1.5	0-0.5	1-1.5	0-0.5	1-1.5	0-0.5
	Sample Date:							7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008	12/29/2009	8/19/2008	8/19/2008	8/19/2008	8/19/2008	8/19/2008	8/19/2008	12/29/2009
PAHs																										
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.15 U
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.15 U
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.15 U
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.173**
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.506**
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.426**
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.494**
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.332**
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.337**
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.488**
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.15 U
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.964**
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.15 U
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.308**
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.15 U
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.707**
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.15**
PCB Aroclors																										
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.172 U	0.161 U	0.165 UJ	0.158 U	0.259 UJ	0.779 U	0.055 U	0.132 U	0.063 U	0.059 U	0.102 U	NA	0.175 UJ	0.192 UJ	0.104 U	0.053 U	0.079 U	0.291 UJ	NA
	Aroclor 1254	2	2	2	3	3	NS	**5.000 J**	**0.219 J**	0.165 UJ	**0.812 J**	**0.765 J**	**21.500 J**	**0.430 J**	**3.170 J**	**0.329 J**	**1.610 J**	**0.195 J**	NA	**0.470 J**	**0.267 J**	**0.805 J**	0.053 U	**0.872 J**	0.291 UJ	NA
	Aroclor 1260	2	2	2	3	3	NS	0.172 U	0.161 U	0.165 UJ	0.158 U	0.259 UJ	0.779 U	0.055 U	0.132 U	0.063 U	0.059 U	0.102 U	NA	0.175 UJ	0.192 UJ	0.104 U	0.053 U	0.079 U	0.291 UJ	NA
								0.172 U	0.161 U	0.165 UJ	0.158 U	0.259 UJ	0.779 U	0.055 U	0.132 U	0.063 U	0.059 U	0.102 U	NA	0.175 UJ	0.192 UJ	0.104 U	0.053 U	0.079 U	0.291 UJ	NA
	Total PCBs	2	2	2	3	3	0.06	**5.000 J**	**0.219 J**	0.165 UJ	**0.812 J**	**0.765 J**	**21.500 J**	**0.430 J**	**3.170 J**	**0.329 J**	**1.610 J**	**0.195 J**	NA	**0.470 J**	**0.267 J**	**0.805 J**	0.053 U	**0.872 J**	0.291 UJ	NA
PCB Congeners																										
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																										
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																										
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**48.4**	NA	NA	NA	NA	NA	NA	**262**
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.56**
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**61.1**	NA	NA	NA	NA	NA	NA	**253**
TCLP Metals																										
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																										
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																			
	Sample Matrix:							Sediment			Sediment			Sediment		Sediment					Sediment			Sediment		
	Sample ID:							SD-3U			SD-3V			SD-3W		SD-04					SD-05			SD-06		
	Sample Depth (ft.):							0-0.5	0-0.5	1-1.5	0-0.5	1-1.5	2.5-3	0-0.5	1-1.5	0-0.5	0-0.5	0-0.5	1.5-2	2-2.5	0-0.5	1.5-2	2-2.5	0-0.5	1-1.5	2.5-3
	Sample Date:							8/19/2008	8/19/2008	8/19/2008	8/19/2008	8/19/2008	9/17/2008	8/19/2008	8/19/2008	9/17/2008	9/17/2008	12/29/2009	9/17/2008	9/17/2008	9/17/2008	9/17/2008	9/17/2008	9/18/2008	9/18/2008	9/18/2008
									Field Dup								Field Dup									
PAHs																										
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																										
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.216 UJ	0.245 UJ	0.239 UJ	0.116 U	0.148 U	0.060 U	0.147 U	0.240 UJ	0.179 UJ	0.188 UJ	NA	0.058 U	0.057 U	0.180 UJ	0.056 U	0.058 U	0.152 U	0.271 UJ	0.053 U
	Aroclor 1254	2	2	2	3	3	NS	**1.700 J**	**1.850 J**	**0.353 J**	**5.640 J**	**3.490 J**	0.060 U	**1.860 J**	0.240 UJ	**0.552 J**	**0.730 J**	NA	0.058 U	0.057 U	**0.263 J**	0.056 U	0.058 U	**2.490 J**	**0.320 J**	0.053 U
	Aroclor 1260	2	2	2	3	3	NS	0.216 UJ	0.245 UJ	0.239 UJ	0.116 U	0.148 U	0.060 U	0.147 U	0.240 UJ	0.179 UJ	0.188 UJ	NA	0.058 U	0.057 U	0.180 UJ	0.056 U	0.058 U	0.152 U	0.271 UJ	0.053 U
								0.216 UJ	0.245 UJ	0.239 UJ	0.116 U	0.148 U	0.060 U	0.147 U	0.240 UJ	0.179 UJ	0.188 UJ	NA	0.058 U	0.057 U	0.180 UJ	0.056 U	0.058 U	0.152 U	0.271 UJ	0.053 U
	Total PCBs	2	2	2	3	3	0.06	**1.700 J**	**1.850 J**	**0.353 J**	**5.640 J**	**3.490 J**	0.060 U	**1.860 J**	0.240 UJ	**0.552 J**	**0.730 J**	NA	0.058 U	0.057 U	**0.263 J**	0.056 U	0.058 U	**2.490 J**	**0.320 J**	0.053 U
PCB Congeners																										
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																										
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																										
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**115**	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**37**	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals																										
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																										
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																	
	Sample Matrix:							Sediment				Sediment		Sediment			Sediment	Sediment			Sediment			Sediment	
	Sample ID:							SD-07				SD-08		SD-09			SD-09A	SD-10			SD-11			SD-12	
	Sample Depth (ft.):							0-0.5	0-0.5	1.5-2	2.5-3	0-0.5	1.5-2	0-0.5	1.5-2	2.5-3	2.5-3	0-0.5	1.5-2	2.5-3	0-0.5	1.5-2	2.5-3	0-0.5	1.5-2
	Sample Date:							9/17/2008	12/29/2009	9/17/2008	9/17/2008	9/17/2008	9/17/2008	9/18/2008	9/18/2008	9/18/2008	10/6/2008	9/17/2008	9/17/2008	9/17/2008	9/17/2008	9/17/2008	9/17/2008	9/17/2008	9/17/2008
PAHs																									
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																									
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.237 UJ	NA	0.070 U	0.061 U	0.158 UJ	0.183 UJ	0.134 U	0.058 U	0.138 U	0.061 U	0.188 UJ	0.077 U	0.063 U	0.238 UJ	0.060 U	0.057 U	0.061 U	0.092 U
	Aroclor 1254	2	2	2	3	3	NS	**1.840 J**	NA	0.070 U	0.061 U	**0.984 J**	0.183 UJ	**0.236 J**	0.058 U	**2.090 J**	0.061 U	**1.230 J**	0.077 U	0.063 U	**0.909 J**	0.060 U	0.057 U	0.061 U	0.092 U
	Aroclor 1260	2	2	2	3	3	NS	0.237 UJ	NA	0.070 U	0.061 U	0.158 UJ	0.183 UJ	0.134 U	0.058 U	0.138 U	0.061 U	0.188 UJ	0.077 U	0.063 U	0.238 UJ	0.060 U	0.057 U	0.061 U	0.092 U
								0.237 UJ	NA	0.070 U	0.061 U	0.158 UJ	0.183 UJ	0.134 U	0.058 U	0.138 U	0.061 U	0.188 UJ	0.077 U	0.063 U	0.238 UJ	0.060 U	0.057 U	0.061 U	0.092 U
	Total PCBs	2	2	2	3	3	0.06	**1.840 J**	NA	0.070 U	0.061 U	**0.984 J**	0.183 UJ	**0.236 J**	0.058 U	**2.090 J**	0.061 U	**1.230 J**	0.077 U	0.063 U	**0.909 J**	0.060 U	0.057 U	0.061 U	0.092 U
PCB Congeners																									
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																									
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																									
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	**102**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	**10.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	**175**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals																									
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																									
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
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Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
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* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

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Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]	SD-13	SD-13	SD-13	SD-13	SD-13A	SD-14	SD-14	SD-14	SD-14	SD-15	SD-15	SD-15	SD-16	SD-16	SD-16	SD-16	SD-17	SD-17	SD-17
	Sample Matrix:							Sediment				Sediment	Sediment				Sediment			Sediment				Sediment		
	Sample Depth (ft.):							0-0.5	0-0.5	1.5-2	2.5-3	2.5-3	0-0.5	0-0.5	1.5-2	2.5-3	0-0.5	1.5-2	2.5-3	0-0.5	0-0.5	1.5-2	2.5-3	0-0.5	1.5-2	2.5-3
	Sample Date:							10/6/2008	10/6/2008	10/6/2008	10/6/2008	10/23/2008	10/3/2008	10/3/2008	10/3/2008	10/3/2008	10/3/2008	10/3/2008	10/3/2008	10/3/2008	12/28/2009	10/3/2008	10/3/2008	10/3/2008	10/3/2008	10/3/2008
									Field Dup					Field Dup												
PAHs																										
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.31 U	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.31 U	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.31 U	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.5**	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.3**	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.1**	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.4**	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.78**	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.58**	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.3**	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.44**	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.6**	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.31 U	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.77**	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.31 U	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.5**	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.6**	NA	NA	NA	NA	NA
PCB Aroclors																										
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.125 U	0.112 U	0.058 U	0.054 U	0.060 U	0.277 UJ	0.271 UJ	0.059 U	0.057 U	0.225 UJ	0.059 U	0.054 U	0.168 U	0.101 U	0.057 U	0.057 U	0.212 UJ	0.055 U	0.057 U
	Aroclor 1254	2	2	2	3	3	NS	**3.660 J**	0.112 UJ	0.058 U	**1.490 J**	**0.193 J**	**1.880 J**	**1.750 J**	0.059 U	0.057 U	**0.771 J**	0.059 U	0.054 U	**4.300 J**	**3.570 J**	0.057 U	0.057 U	**1.550 J**	0.055 U	0.057 U
	Aroclor 1260	2	2	2	3	3	NS	**0.453 J**	0.112 U	0.058 U	**0.205 J**	0.060 U	0.277 UJ	0.271 UJ	0.059 U	0.057 U	0.225 UJ	0.059 U	0.054 U	**0.572 J**	0.101 U	0.057 U	0.057 U	0.212 UJ	0.055 U	0.057 U
								0.125 U	0.112 U	0.058 U	0.054 U	0.060 U	0.277 UJ	0.271 UJ	0.059 U	0.057 U	0.225 UJ	0.059 U	0.054 U	0.168 U	0.101 U	0.057 U	0.057 U	0.212 UJ	0.055 U	0.057 U
	Total PCBs	2	2	2	3	3	0.06	**4.113 J**	0.112 U	0.058 U	**1.695 J**	**0.193 J**	**1.880 J**	**1.750 J**	0.059 U	0.057 U	**0.771 J**	0.059 U	0.054 U	**4.872 J**	**3.570 J**	0.057 U	0.057 U	**1.550 J**	0.055 U	0.057 U
PCB Congeners																										
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																										
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																										
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**630**	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**390**	NA	NA	NA	NA	NA
TCLP Metals																										
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																										
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																			
	Sample Matrix:							Sediment			Sediment			Sediment			Sediment			Sediment	Sediment		Sediment			
	Sample ID:							SD-18			SD-19			SD-20			SD-21			SD-22	SD-23		SD-24			
	Sample Depth (ft.):							0-0.5	1.5-2	2.5-3	0-0.5	1-1.5	2.5-3	0-0.5	1.5-2	2.5-3	0-0.5	1.5-2	2.5-3	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	1.5-2	2.5-3
	Sample Date:							10/3/2008	10/3/2008	10/3/2008	10/3/2008	10/3/2008	10/3/2008	10/3/2008	10/3/2008	10/3/2008	10/3/2008	10/3/2008	10/3/2008	10/6/2008	10/6/2008	12/29/2009	10/22/2008	10/22/2008	10/22/2008	10/22/2008
																								Field Dup		
PAHs																										
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																										
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.208 UJ	0.057 U	0.058 U	0.163 UJ	0.058 U	0.058 U	0.221 UJ	0.058 U	0.059 U	0.190 UJ	0.117 U	0.058 U	0.179 UJ	0.076 U	NA	0.172 UJ	0.182 UJ	0.059 U	0.057 U
	Aroclor 1254	2	2	2	3	3	NS	**1.380 J**	0.057 U	0.058 U	**2.690 J**	0.058 U	0.058 U	**0.331 J**	0.058 U	0.059 U	**1.630 J**	0.117 U	0.058 U	**0.633 J**	0.076 U	NA	**1.600 J**	**1.300 J**	0.059 U	0.057 U
	Aroclor 1260	2	2	2	3	3	NS	0.208 UJ	0.057 U	0.058 U	0.163 UJ	0.058 U	0.058 U	0.221 UJ	0.058 U	0.059 U	0.190 UJ	0.117 U	0.058 U	0.179 UJ	0.076 U	NA	0.172 UJ	0.182 UJ	0.059 U	0.057 U
								0.208 UJ	0.057 U	0.058 U	0.163 UJ	0.058 U	0.058 U	0.221 UJ	0.058 U	0.059 U	0.190 UJ	0.117 U	0.058 U	0.179 UJ	0.076 U	NA	0.172 UJ	0.182 UJ	0.059 U	0.057 U
	Total PCBs	2	2	2	3	3	0.06	**1.380 J**	0.057 U	0.058 U	**2.690 J**	0.058 U	0.058 U	**0.331 J**	0.058 U	0.059 U	**1.630 J**	0.117 U	0.058 U	**0.633 J**	0.076 U	NA	**1.600 J**	**1.300 J**	0.059 U	0.057 U
PCB Congeners																										
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																										
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																										
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**21.2**	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**44.6**	NA	NA	NA	NA
TCLP Metals																										
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																										
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
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UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]	Sediment			Sediment			Sediment					Sediment			Sediment			Sediment		
	Sample ID:							SD-25			SD-26			SD-27					SD-28			SD-29			SD-30		
	Sample Depth (ft.):							0-0.5	1.5-2	2.5-3	0-0.5	1.5-2	2.5-3	0-0.5	0-0.5	0-0.5	1.5-2	2.5-3	0-0.5	1.5-2	2.5-3	0-0.5	1.5-2	2.5-3	0-0.5	1.5-2	2.5-3
	Sample Date:							10/22/2008	10/22/2008	10/22/2008	10/22/2008	10/22/2008	10/22/2008	10/22/2008	12/29/2009	12/29/2009	10/22/2008	10/22/2008	10/22/2008	10/22/2008	10/22/2008	10/22/2008	10/22/2008	10/22/2008	10/22/2008	10/22/2008	10/22/2008
																Field Dup											
PAHs																											
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	0.486 U	0.41 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	0.486 U	0.41 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	0.486 U	0.41 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	0.486 U	0.41 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	0.486 U	0.41 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	0.486 U	0.41 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	0.486 U	0.41 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	0.486 U	0.41 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	0.486 U	0.41 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	0.486 U	0.41 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	0.486 U	0.41 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	0.486 U	**0.505**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	0.486 U	0.41 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	0.486 U	0.41 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	0.486 U	0.41 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	0.486 U	**0.683**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	0.486 U	**0.733**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																											
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.220 UJ	0.060 U	0.058 U	0.184 UJ	0.156 U	0.061 U	0.102 U	NA	NA	0.062 U	0.056 U	0.070 U	0.059 U	0.055 U	0.247 UJ	0.059 U	0.056 U	0.085 U	0.285 UJ	0.063 U
	Aroclor 1254	2	2	2	3	3	NS	**0.600 J**	0.060 U	0.058 U	**1.390 J**	0.156 U	0.061 U	**0.390 J**	NA	NA	0.062 U	0.056 U	**0.071 J**	0.059 U	0.055 U	**1.390 J**	0.059 U	0.056 U	0.085 U	0.285 UJ	0.063 U
	Aroclor 1260	2	2	2	3	3	NS	0.220 UJ	0.060 U	0.058 U	0.184 UJ	0.156 U	0.061 U	0.102 U	NA	NA	0.062 U	0.056 U	0.070 U	0.059 U	0.055 U	0.247 UJ	0.059 U	0.056 U	0.085 U	0.285 UJ	0.063 U
								0.220 UJ	0.060 U	0.058 U	0.184 UJ	0.156 U	0.061 U	0.102 U	NA	NA	0.062 U	0.056 U	0.070 U	0.059 U	0.055 U	0.247 UJ	0.059 U	0.056 U	0.085 U	0.285 UJ	0.063 U
	Total PCBs	2	2	2	3	3	0.06	**0.600 J**	0.060 U	0.058 U	**1.390 J**	0.156 U	0.061 U	**0.390 J**	NA	NA	0.062 U	0.056 U	**0.071 J**	0.059 U	0.055 U	**1.390 J**	0.059 U	0.056 U	0.085 U	0.285 UJ	0.063 U
PCB Congeners																											
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																											
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																											
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	NA	NA	**55.2**	**45.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	**7.33**	**5.52**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	**96.2**	**76.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals																											
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																											
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]	SD-31			SD-32			SD-33			SD-34				SD-35		SD-36	SD-37		SD-38	
	Sample Matrix:							Sediment			Sediment			Sediment			Sediment				Sediment		Sediment	Sediment		Sediment	
	Sample Depth (ft.):							0-0.5	1.5-2	2.5-3	0-0.5	1.5-2	2.5-3	0-0.5	1.5-2	2.5-3	0-0.5	0-0.5	1.5-2	2.5-3	0-0.5	0-0.5	0-0.5	0-0.5	2-2.5	0-0.5	2-2.5
	Sample Date:							10/22/2008	10/22/2008	10/22/2008	10/22/2008	10/22/2008	10/22/2008	10/23/2008	10/23/2008	10/23/2008	10/23/2008	10/23/2008	10/23/2008	10/23/2008	10/23/2008	12/29/2009	10/23/2008	12/3/2008	12/3/2008	12/3/2008	12/3/2008
																		Field Dup									
PAHs																											
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																											
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.254 UJ	0.075 U	0.063 U	0.327 UJ	0.064 U	0.058 U	0.079 U	0.288 UJ	0.062 U	0.376 UJ	0.198 UJ	0.276 UJ	0.313 UJ	0.249 UJ	NA	0.098 U	0.175 UJ	0.058 U	0.135 U	0.060 U
	Aroclor 1254	2	2	2	3	3	NS	**0.747 J**	0.075 U	**0.510 J**	**0.690 J**	0.064 U	0.058 U	**0.835 J**	0.288 UJ	0.062 U	**4.470 J**	0.198 UJ	0.276 UJ	0.313 UJ	**6.810 J**	NA	**0.152 J**	**0.593 J**	0.058 U	0.135 U	0.060 U
	Aroclor 1260	2	2	2	3	3	NS	0.254 UJ	0.075 U	0.063 U	0.327 UJ	0.064 U	0.058 U	0.079 U	0.288 UJ	0.062 U	0.376 UJ	0.198 UJ	0.276 UJ	0.313 UJ	0.249 UJ	NA	0.098 U	0.175 UJ	0.058 U	0.135 U	0.060 U
								0.254 UJ	0.075 U	0.063 U	0.327 UJ	0.064 U	0.058 U	0.079 U	0.288 UJ	0.062 U	0.376 UJ	0.198 UJ	0.276 UJ	0.313 UJ	0.249 UJ	NA	0.098 U	0.175 UJ	0.058 U	0.135 U	0.060 U
	Total PCBs	2	2	2	3	3	0.06	**0.747 J**	0.075 U	**0.510 J**	**0.690 J**	0.064 U	0.058 U	**0.835 J**	0.288 UJ	0.062 U	**4.470 J**	0.198 UJ	0.276 UJ	0.313 UJ	**6.810 J**	NA	**0.152 J**	**0.593 J**	0.058 U	0.135 U	0.060 U
PCB Congeners																											
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																											
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																											
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**36**	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**18.3**	NA	NA	NA	NA	NA
TCLP Metals																											
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																											
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																					
	Sample Matrix:							Sediment		Sediment					Sediment		Sediment			Sediment				Sediment			Sediment	
	Sample ID:							SD-39		SD-40					SD-41		SD-42			SD-43				SD-44			SD-45	
	Sample Depth (ft.):							0-0.5	3-3.5	0-0.5	0-0.5	0-0.5	0-0.5	3-3.5	0-0.5	3-3.5	0-0.5	2.5-3	0-0.5	0-0.5	2.5-3	0-0.5	0-0.5	0-0.5	0-0.5	2.5-3	0-0.5	1.5-2
	Sample Date:							12/3/2008	12/3/2008	12/3/2008	12/3/2008	12/28/2009	12/28/2009	12/3/2008	12/3/2008	12/3/2008	12/3/2008	12/3/2008	12/29/2009	12/3/2008	12/3/2008	12/29/2009	12/29/2009	12/3/2008	12/29/2009	12/3/2008	12/3/2008	12/3/2008
											Field Dup		Field Dup										Field Dup					
PAHs																												
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	0.29 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.385 U	0.381 U	NA	0.717 U	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	0.29 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.385 U	0.381 U	NA	0.717 U	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	**0.34**	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.385 U	0.381 U	NA	0.717 U	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	**1.1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.385 U	0.381 U	NA	0.717 U	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	**2.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.703**	0.381 U	NA	0.717 U	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	**2.1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.482**	0.381 U	NA	0.717 U	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	**2.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.566**	0.381 U	NA	0.717 U	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	**1.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.385 U	0.381 U	NA	0.717 U	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	**1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.407**	0.381 U	NA	0.717 U	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	**2.1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.657**	0.381 U	NA	0.717 U	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	**0.55**	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.385 U	0.381 U	NA	0.717 U	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	**4.9**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.34**	**0.624**	NA	0.717 U	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	**0.46**	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.385 U	0.381 U	NA	0.717 U	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	**1.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.385 U	0.381 U	NA	0.717 U	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	0.29 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.385 U	0.381 U	NA	0.717 U	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	**3.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.799**	0.381 U	NA	0.717 U	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	**4.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.51**	**0.717**	NA	0.717 U	NA	NA	NA
PCB Aroclors																												
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.355 UJ	0.058 U	0.185 U	0.284 U	0.092 U	0.161 U	0.345 UJ	0.226 UJ	0.406 UJ	0.263 UJ	0.059 U	NA	0.155 U	0.297 UJ	NA	NA	0.317 UJ	NA	0.315 UJ	0.283 UJ	0.345 UJ
	Aroclor 1254	2	2	2	3	3	NS	0.355 UJ	0.058 U	**4.900 J**	**5.230 J**	**4.570 J**	**4.710 J**	0.345 UJ	**0.692 J**	0.406 UJ	**1.340 J**	0.059 U	NA	**1.220 J**	0.297 UJ	NA	NA	0.317 UJ	NA	0.315 UJ	**1.060 J**	**0.505 J**
	Aroclor 1260	2	2	2	3	3	NS	0.355 UJ	0.058 U	0.185 U	0.284 U	0.092 U	0.161 U	0.345 UJ	0.226 UJ	0.406 UJ	0.263 UJ	0.059 U	NA	0.155 U	0.297 UJ	NA	NA	0.317 UJ	NA	0.315 UJ	0.283 UJ	0.345 UJ
								0.355 UJ	0.058 U	0.185 U	0.284 U	0.092 U	0.161 U	0.345 UJ	0.226 UJ	0.406 UJ	0.263 UJ	0.059 U	NA	0.155 U	0.297 UJ	NA	NA	0.317 UJ	NA	0.315 UJ	0.283 UJ	0.345 UJ
	Total PCBs	2	2	2	3	3	0.06	0.355 UJ	0.058 U	**4.900 J**	**5.230 J**	**4.570 J**	**4.710 J**	0.345 UJ	**0.692 J**	0.406 UJ	**1.340 J**	0.059 U	NA	**1.220 J**	0.297 UJ	NA	NA	0.317 UJ	NA	0.315 UJ	**1.060 J**	**0.505 J**
PCB Congeners																												
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																												
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																												
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	**650**	NA	NA	NA	NA	NA	NA	**116**	NA	NA	**205**	**160**	NA	**5.93**	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.39**	NA	NA	**4.08**	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	**380**	NA	NA	NA	NA	NA	NA	**112**	NA	NA	**292**	**280**	NA	**25.1**	NA	NA	NA
TCLP Metals																												
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																												
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]	SD-46		SD-47		SD-48			SD-49		SD-50		SD-51			SD-52		SD-53		SD-54		
	Sample Matrix:							Sediment		Sediment		Sediment			Sediment		Sediment		Sediment			Sediment		Sediment		Sediment		
	Sample ID:							SD-46		SD-47		SD-48			SD-49		SD-50		SD-51			SD-52		SD-53		SD-54		
	Sample Depth (ft.):							0-0.5	2.5-3	0-0.5	4-4.5	0-0.5	0-0.5	3-3.5	0-0.5	2.5-3	0-0.5	3.5-4	0-0.5	0-0.5	3-3.5	0-0.5	3-3.5	0-0.5	3-3.5	0-0.5	0-0.5	3.5-4
	Sample Date:							12/3/2008	12/3/2008	12/4/2008	12/4/2008	12/4/2008	12/28/2009	12/4/2008	12/4/2008	12/4/2008	12/4/2008	12/4/2008	12/4/2008	12/29/2009	12/4/2008	12/4/2008	12/4/2008	12/5/2008	12/5/2008	12/4/2008	12/4/2008	12/4/2008
																											Field Dup	
PAHs																												
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	0.49 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	0.49 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	0.49 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	0.49 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	**0.57**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	**0.87**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	**1.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	**0.76**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	0.49 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	**0.88**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	0.49 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	**1.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	0.49 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	**0.81**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	0.49 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	**0.55**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	**1.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																												
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.074 U	0.366 UJ	0.263 UJ	0.347 UJ	0.156 U	0.190 UJ	0.060 U	0.104 U	0.320 UJ	0.209 UJ	0.197 UJ	0.365 UJ	NA	0.385 UJ	0.215 UJ	0.383 UJ	0.081 U	0.267 UJ	0.245 UJ	0.245 UJ	0.069 U
	Aroclor 1254	2	2	2	3	3	NS	**0.399 J**	0.366 UJ	**0.381 J**	0.347 UJ	**1.360 J**	**4.080 J**	0.060 U	**0.837 J**	**0.341 J**	**1.210 J**	0.197 UJ	0.365 UJ	NA	0.385 UJ	**1.000 J**	0.383 UJ	**0.343 J**	0.267 UJ	**0.507 J**	**0.435 J**	0.069 U
	Aroclor 1260	2	2	2	3	3	NS	0.074 U	0.366 UJ	0.263 UJ	0.347 UJ	0.156 U	0.190 UJ	0.060 U	0.104 U	0.320 UJ	0.209 UJ	0.197 UJ	0.365 UJ	NA	0.385 UJ	0.215 UJ	0.383 UJ	0.081 U	0.267 UJ	0.245 UJ	0.245 UJ	0.069 U
								0.074 U	0.366 UJ	0.263 UJ	0.347 UJ	0.156 U	0.190 UJ	0.060 U	0.104 U	0.320 UJ	0.209 UJ	0.197 UJ	0.365 UJ	NA	0.385 UJ	0.215 UJ	0.383 UJ	0.081 U	0.267 UJ	0.245 UJ	0.245 UJ	0.069 U
	Total PCBs	2	2	2	3	3	0.06	**0.399 J**	0.366 UJ	**0.381 J**	0.347 UJ	**1.360 J**	**4.080 J**	0.060 U	**0.837 J**	**0.341 J**	**1.210 J**	0.197 UJ	0.365 UJ	NA	0.385 UJ	**1.000 J**	0.383 UJ	**0.343 J**	0.267 UJ	**0.507 J**	**0.435 J**	0.069 U
PCB Congeners																												
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																												
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																												
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	**600**	NA	NA	NA	NA	NA	NA	**38.1**	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**6.28**	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	**180**	NA	NA	NA	NA	NA	NA	**84.3**	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals																												
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																												
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																				
							Sample Matrix:	Sediment		Sediment		Sediment		Sediment		Sediment		Sediment		Sediment		Sediment		Sediment		Sediment	
							Sample ID:	SD-55		SD-56		SD-57		SD-58		SD-59		SD-60		SD-61		SD-62		SD-63		SD-64	
							Sample Depth (ft.):	0-0.5	1.5-2	0-0.5	3.5-4	0-0.5	2-2.5	0-0.5	2.5-3	0-0.5	2.5-3	0-0.5	1.5-2	0-0.5	2.5-3	0-0.5	1-1.5	0-0.5	1.5-2	0-0.5	2-2.5
							Sample Date:	12/4/2008	12/4/2008	12/4/2008	12/4/2008	12/8/2008	12/8/2008	12/4/2008	12/4/2008	12/4/2008	12/4/2008	12/8/2008	12/8/2008	12/4/2008	12/4/2008	12/8/2008	12/8/2008	12/5/2008	12/5/2008	12/5/2008	12/5/2008
PAHs																											
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																											
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.235 UJ	0.227 UJ	0.178 UJ	0.067 U	0.351 UJ	0.063 U	0.197 UJ	0.058 U	0.301 UJ	0.058 U	0.132 U	0.061 U	0.063 U	0.055 U	0.061 U	0.062 U	0.060 U	0.062 U	0.340 UJ	0.359 UJ
	Aroclor 1254	2	2	2	3	3	NS	0.235 UJ	0.227 UJ	**0.470 J**	0.067 U	**1.360 J**	0.063 U	**1.770 J**	0.058 U	**1.020 J**	0.058 U	**0.820 J**	0.061 U	**0.264 J**	0.055 U	0.061 U	0.062 U	0.060 U	**0.332 J**	0.340 UJ	0.359 UJ
	Aroclor 1260	2	2	2	3	3	NS	0.235 UJ	0.227 UJ	0.178 UJ	0.067 U	0.351 UJ	0.063 U	0.197 UJ	0.058 U	0.301 UJ	0.058 U	0.132 U	0.061 U	0.063 U	0.055 U	0.061 U	0.062 U	0.060 U	0.062 U	0.340 UJ	0.359 UJ
								0.235 UJ	0.227 UJ	0.178 UJ	0.067 U	0.351 UJ	0.063 U	0.197 UJ	0.058 U	0.301 UJ	0.058 U	0.132 U	0.061 U	0.063 U	0.055 U	0.061 U	0.062 U	0.060 U	0.062 U	0.340 UJ	0.359 UJ
	Total PCBs	2	2	2	3	3	0.06	0.235 UJ	0.227 UJ	**0.470 J**	0.067 U	**1.360 J**	0.063 U	**1.770 J**	0.058 U	**1.020 J**	0.058 U	**0.820 J**	0.061 U	**0.264 J**	0.055 U	0.061 U	0.062 U	0.060 U	**0.332 J**	0.340 UJ	0.359 UJ
PCB Congeners																											
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																											
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																											
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals																											
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																											
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]	SD-65		SD-66		SD-67		SD-68			SD-69		SD-70			SD-71			SD-72		SD-73	
	Sample Matrix:							Sediment		Sediment		Sediment		Sediment			Sediment		Sediment			Sediment			Sediment		Sediment	
	Sample ID:							SD-65		SD-66		SD-67		SD-68			SD-69		SD-70			SD-71			SD-72		SD-73	
	Sample Depth (ft.):							0-0.5	1-1.5	0-0.5	2-2.5	0-0.5	2.5-3	0-0.5	0-0.5	4-4.5	0-0.5	4-4.5	0-0.5	0-0.5	1.5-2	0-0.5	0-0.5	3-3.5	0-0.5	1.5-2	0-0.5	0-0.5
	Sample Date:							12/5/2008	12/5/2008	12/5/2008	12/5/2008	12/5/2008	12/5/2008	12/5/2008	12/29/2009	12/5/2008	12/5/2008	12/5/2008	12/5/2008	12/5/2008	12/5/2008	12/5/2008	12/28/2009	12/5/2008	12/5/2008	12/5/2008	12/8/2008	12/8/2008
																				Field Dup								Field Dup
PAHs																												
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	0.325 U	NA	NA	NA	NA	NA	NA	NA	0.09 U	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	0.325 U	NA	NA	NA	NA	NA	NA	NA	0.09 U	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	0.325 U	NA	NA	NA	NA	NA	NA	NA	0.09 U	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	0.325 U	NA	NA	NA	NA	NA	NA	NA	0.09 U	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	0.325 U	NA	NA	NA	NA	NA	NA	NA	0.09 U	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	0.325 U	NA	NA	NA	NA	NA	NA	NA	0.09 U	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	0.325 U	NA	NA	NA	NA	NA	NA	NA	**0.09**	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	0.325 U	NA	NA	NA	NA	NA	NA	NA	0.09 U	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	0.325 U	NA	NA	NA	NA	NA	NA	NA	0.09 U	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	0.325 U	NA	NA	NA	NA	NA	NA	NA	0.09 U	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	0.325 U	NA	NA	NA	NA	NA	NA	NA	0.09 U	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	**0.432**	NA	NA	NA	NA	NA	NA	NA	**0.12**	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	0.325 U	NA	NA	NA	NA	NA	NA	NA	0.09 U	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	0.325 U	NA	NA	NA	NA	NA	NA	NA	0.09 U	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	0.325 U	NA	NA	NA	NA	NA	NA	NA	0.09 U	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	0.325 U	NA	NA	NA	NA	NA	NA	NA	0.09 U	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	**0.506**	NA	NA	NA	NA	NA	NA	NA	**0.099**	NA	NA	NA	NA	NA
PCB Aroclors																												
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.454 UJ	0.477 UJ	0.129 U	0.070 U	0.209 UJ	0.436 UJ	0.279 UJ	NA	0.387 UJ	0.165 UJ	0.397 UJ	0.076 U	0.068 U	0.349 UJ	0.359 UJ	0.368 UJ	0.336 UJ	0.416 UJ	0.151 U	0.213 UJ	0.210 UJ
	Aroclor 1254	2	2	2	3	3	NS	0.454 UJ	0.477 UJ	**0.244 J**	**0.236 J**	**0.982 J**	0.436 UJ	**0.961 J**	NA	0.387 UJ	**0.368 J**	0.397 UJ	0.076 U	**0.090 J**	**7.990 J**	**1.150 J**	0.368 UJ	0.336 UJ	**0.526 J**	0.151 U	0.213 UJ	0.210 UJ
	Aroclor 1260	2	2	2	3	3	NS	0.454 UJ	0.477 UJ	0.129 U	0.070 U	0.209 UJ	0.436 UJ	0.279 UJ	NA	0.387 UJ	0.165 UJ	0.397 UJ	0.076 U	0.068 U	0.349 UJ	0.359 UJ	0.368 UJ	0.336 UJ	0.416 UJ	0.151 U	0.213 UJ	0.210 UJ
								0.454 UJ	0.477 UJ	0.129 U	0.070 U	0.209 UJ	0.436 UJ	0.279 UJ	NA	0.387 UJ	0.165 UJ	0.397 UJ	0.076 U	0.068 U	0.349 UJ	0.359 UJ	0.368 UJ	0.336 UJ	0.416 UJ	0.151 U	0.213 UJ	0.210 UJ
	Total PCBs	2	2	2	3	3	0.06	0.454 UJ	0.477 UJ	**0.244 J**	**0.236 J**	**0.982 J**	0.436 UJ	**0.961 J**	NA	0.387 UJ	**0.368 J**	0.397 UJ	0.076 U	**0.090 J**	**7.990 J**	**1.150 J**	0.368 UJ	0.336 UJ	**0.526 J**	0.151 U	0.213 UJ	0.210 UJ
PCB Congeners																												
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																												
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																												
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	NA	NA	**115**	NA	NA	NA	NA	NA	NA	NA	**49**	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	**3.74**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	**118**	NA	NA	NA	NA	NA	NA	NA	**110**	NA	NA	NA	NA	NA
TCLP Metals																												
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																												
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																					
	Sample Matrix:							Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Soil	Sediment	Solids	Soil	Soil	Soil	Soil	Soil		Solids	Solids	Solids
	Sample ID:							SD-74	SD-75	SD-76	SD-77	SD-78	SD-79	SD-80	SD-81	SD-82	SD-83	SD-84	OF-DS-1	OF-1	OF-2	OF-3	OF-4	OF-5		SDR-1	SDR-2	SDR-3
	Sample Depth (ft.):							0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.2	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.2	0-0.2	0-0.2
	Sample Date:							12/8/2008	12/8/2008	12/8/2008	12/8/2008	12/8/2008	12/8/2008	12/9/2008	12/9/2008	12/9/2008	12/9/2008	12/9/2008	11/25/2008	12/9/2008	12/9/2008	12/9/2008	12/10/2008	12/10/2008	12/10/2008	12/9/2008	12/9/2008	12/9/2008
																			(b)						Field Dup			
PAHs																												
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																												
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.253 UJ	0.107 U	0.260 UJ	0.069 U	0.238 UJ	0.206 UJ	0.297 UJ	0.167 UJ	0.369 UJ	0.232 UJ	0.324 UJ	0.257 UJ	0.056 U	0.064 U	0.067 U	0.055 U	0.060 U	0.064 U	0.080 U	0.066 U	0.095 U
	Aroclor 1254	2	2	2	3	3	NS	0.253 UJ	**0.612 J**	0.260 UJ	**0.386 J**	0.238 UJ	0.206 UJ	0.297 UJ	**0.183 J**	0.369 UJ	0.232 UJ	0.324 UJ	0.257 UJ	0.056 U	**0.082 J**	**0.117 J**	0.055 U	**1.070 J**	**0.963 J**	0.080 U	0.066 U	0.095 U
	Aroclor 1260	2	2	2	3	3	NS	0.253 UJ	**0.204 J**	0.260 UJ	**0.134 J**	0.238 UJ	0.206 UJ	0.297 UJ	0.167 UJ	0.369 UJ	0.232 UJ	0.324 UJ	0.257 UJ	0.056 U	0.064 U	0.067 U	0.055 U	0.060 U	0.064 U	0.080 U	0.066 U	0.095 U
								0.253 UJ	0.107 U	0.260 UJ	0.069 U	0.238 UJ	0.206 UJ	0.297 UJ	0.167 UJ	0.369 UJ	0.232 UJ	0.324 UJ	0.257 UJ	0.056 U	0.064 U	0.067 U	0.055 U	0.060 U	0.064 U	0.080 U	0.066 U	0.095 U
	Total PCBs	2	2	2	3	3	0.06	0.253 UJ	**0.816 J**	0.260 UJ	**0.520 J**	0.238 UJ	0.206 UJ	0.297 UJ	**0.183 J**	0.369 UJ	0.232 UJ	0.324 UJ	0.257 UJ	0.056 U	**0.082 J**	**0.117 J**	0.055 U	**1.070 J**	**0.963 J**	0.080 U	0.066 U	0.095 U
PCB Congeners																												
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																												
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																												
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals																												
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																												
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
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mg/L - milligrams per liter.
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Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
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PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

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Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]	SDR-4	SDR-5	SLP-01	SLP-02	SLP-03	SLP-04	SLP-05	SLP-06	SLP-06 Field Dup	SLP-07	SLP-08	SLP-09	SLP-10	ERC-SED-1	ERC-SED-1 Field Dup	ERC-SED-2	ERC-SED-3	ERC-SED-4	ERC-SED-5	ERC-SED-6
	Sample Matrix:							Solids	Solids	Soil	Soil	Soil	Soil	Soil	Soil		Soil	Soil	Soil	Soil	Sediment		Sediment	Sediment	Sediment	Sediment	Sediment
	Sample ID:							SDR-4	SDR-5	SLP-01	SLP-02	SLP-03	SLP-04	SLP-05	SLP-06		SLP-07	SLP-08	SLP-09	SLP-10	ERC-SED-1		ERC-SED-2	ERC-SED-3	ERC-SED-4	ERC-SED-5	ERC-SED-6
	Sample Depth (ft.):							0-0.2	0-0.2	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
	Sample Date:							12/10/2008	12/10/2008	12/9/2008	12/9/2008	12/9/2008	12/9/2008	12/9/2008	12/9/2008	12/9/2008	12/10/2008	12/10/2008	12/10/2008	12/10/2008	3/5/2009	3/5/2009	3/5/2009	3/5/2009	3/5/2009	3/5/2009	3/5/2009
PAHs																											
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0553**
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.156**
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.320**
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.594**
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.75**
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.47**
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.20**
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.04**
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.32**
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.47**
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.40**
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.02**
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.204**
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.976**
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.108**
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.84**
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.59**
PCB Aroclors																											
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.149 U	0.070 U	0.057 U	0.057 U	0.058 U	0.058 U	0.055 U	0.058 U	0.059 U	0.059 U	0.056 U	0.058 U	0.058 U	NA	NA	NA	NA	NA	NA	1.470 U
	Aroclor 1254	2	2	2	3	3	NS	0.149 U	0.070 U	0.057 U	0.057 U	0.058 U	0.058 U	0.055 U	0.058 U	0.059 U	0.059 U	0.056 U	0.058 U	0.058 U	NA	NA	NA	NA	NA	NA	**27.800 J**
	Aroclor 1260	2	2	2	3	3	NS	0.149 U	0.070 U	0.057 U	0.057 U	0.058 U	0.058 U	0.055 U	0.058 U	0.059 U	0.059 U	0.056 U	0.058 U	0.058 U	NA	NA	NA	NA	NA	NA	1.470 U
								0.149 U	0.070 U	0.057 U	0.057 U	0.058 U	0.058 U	0.055 U	0.058 U	0.059 U	0.059 U	0.056 U	0.058 U	0.058 U	NA	NA	NA	NA	NA	NA	1.470 U
	Total PCBs	2	2	2	3	3	0.06	0.149 U	0.070 U	0.057 U	0.057 U	0.058 U	0.058 U	0.055 U	0.058 U	0.059 U	0.059 U	0.056 U	0.058 U	0.058 U	NA	NA	NA	NA	NA	NA	**27.800 J**
PCB Congeners																											
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21.2 U
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**39.3**
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3,130**
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**50.7**
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**883**
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**147**
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**433**
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**25.9**
Pesticides																											
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.076 U	0.0615 U	0.0875 U	0.0333 U	0.0725 U	0.0238 U	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.076 U	0.0615 U	0.0875 U	**0.106**	0.0725 U	0.0238 U	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.076 U	0.0615 U	0.0875 U	**0.0837**	0.0725 U	0.0238 U	NA
Metals																											
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.83 U
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9.05**
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**583**
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43 U
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.81**
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**59.0**
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**977**
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.651**
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**21.5**
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.54 U
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.86 U
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**41.7**
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**615**
TCLP Metals																											
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																											
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.4**
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.1**
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.25**

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria(c)	ERC-SED-6A		ERC-SED-7			ERC-SED-8	ERC-SED-9			ERC-SED-9A		ERC-SED-10	ERC-SED-11A	ERC-SED-11B		ERC-SED-12		ERC-SED-13	
	Sample Matrix:							Sediment		Sediment			Sediment	Sediment			Sediment		Sediment	Sediment	Sediment		Sediment		Sediment	
	Sample Depth (ft.):							0-0.25	0.25-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.25	0.25-0.5	0-0.5	0-0.5	0-0.25	0.25-0.5	0-0.5	0-0.5	0-0.5	0-0.5
	Sample Date:							3/5/2009	3/5/2009	3/5/2009	3/5/2009	12/28/2009	3/5/2009	3/5/2009	3/5/2009	12/28/2009	3/5/2009	3/5/2009	3/5/2009	3/6/2009	3/6/2009	3/6/2009	3/6/2009	12/28/2009	3/6/2009	12/28/2009
	Sample ID:										Field Dup				Field Dup											
PAHs																										
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	0.0331 U	0.0279 U	**0.252**	**2.15**	0.0135 U	NA	0.128 U	NA	NA	0.040 U	**0.270**	NA	NA	0.0358 U	0.445 U	**0.0314**	0.326 U
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	0.0331 U	0.0279 U	**0.471**	**7.54**	**0.0175**	NA	0.128 U	NA	NA	0.040 U	**1.58**	NA	NA	0.0358 U	0.445 U	**0.0876**	0.326 U
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	0.0331 U	0.0279 U	**0.233**	**0.837**	**0.0298**	NA	0.128 U	NA	NA	0.040 U	**0.268**	NA	NA	**0.106**	0.445 U	**0.183**	0.326 U
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	**0.0343**	0.0279 U	**1.24**	**21.4**	**0.0591**	NA	0.128 U	NA	NA	0.040 U	**1.32**	NA	NA	**0.131**	0.445 U	**0.252**	0.326 U
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	**0.106**	**0.0606**	**2.53**	**74.7**	**0.172**	NA	**0.348**	NA	NA	**0.0682**	**3.48**	NA	NA	**0.460**	0.445 U	**0.593**	0.326 U
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	**0.0904**	**0.0551**	**1.8**	**69.5**	**0.148**	NA	**0.294**	NA	NA	**0.0561**	**3.31**	NA	NA	**0.433**	0.445 U	**0.563**	0.326 U
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	**0.105**	**0.0720**	**1.72**	**80.8**	**0.168**	NA	**0.289**	NA	NA	**0.0698**	**3.07**	NA	NA	**0.432**	0.445 U	**0.534**	0.326 U
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	**0.0835**	**0.0442**	**1.03**	**45.1**	**0.105**	NA	**0.203**	NA	NA	**0.0437**	**2.69**	NA	NA	**0.339**	0.445 U	**0.443**	0.326 U
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	**0.0748**	**0.0405**	**1.38**	**38.1**	**0.0985**	NA	**0.236**	NA	NA	**0.0490**	**2.18**	NA	NA	**0.412**	0.445 U	**0.434**	0.326 U
	Chrysene	70	70	70	400	400	0.17	NA	NA	**0.115**	**0.0716**	**2.51**	**72.7**	**0.162**	NA	**0.374**	NA	NA	**0.079**	**3.07**	NA	NA	**0.507**	0.445 U	**0.578**	0.326 U
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	**0.106**	0.0279 U	**0.378**	**20.0**	**0.0404**	NA	0.128 U	NA	NA	0.040 U	**0.766**	NA	NA	**0.117**	0.445 U	**0.133**	0.326 U
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	**0.235**	**0.141**	**5**	**153**	**0.348**	NA	**0.656**	NA	NA	**0.163**	**5.70**	NA	NA	**1.02**	**0.594**	**1.21**	0.326 U
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	0.0331 U	0.0279 U	**0.615**	**8.18**	**0.0450**	NA	0.128 U	NA	NA	**0.0710**	**0.959**	NA	NA	**0.0921**	0.445 U	**0.214**	0.326 U
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	**0.104**	**0.0424**	**0.955**	**45.6**	**0.102**	NA	**0.174**	NA	NA	**0.0418**	**2.30**	NA	NA	**0.316**	0.445 U	**0.382**	0.326 U
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	0.0331 U	0.0279 U	**0.341**	**6.19**	0.0135 U	NA	0.128 U	NA	NA	0.040 U	**0.396**	NA	NA	**0.0418**	0.445 U	**0.0537**	0.326 U
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	**0.158**	**0.080**	**5.39**	**62.3**	**0.219**	NA	**0.45**	NA	NA	**0.0974**	**4.74**	NA	NA	**0.564**	0.445 U	**0.855**	0.326 U
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	**0.224**	**0.122**	**5.79**	**120**	**0.302**	NA	**0.713**	NA	NA	**0.126**	**6.91**	NA	NA	**0.865**	**0.697**	**1.12**	**0.348**
PCB Aroclors																										
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.692 U	0.794 U	NA	NA	0.180 UJ	NA	0.216 U	0.112 U	0.066 U	0.360 U	0.085 U	NA	20.600 UJ	3.370 UJ	0.081 U	NA	0.263 UJ	NA	0.228 UJ
	Aroclor 1254	2	2	2	3	3	NS	**9.210 J**	**16.500 J**	NA	NA	**0.520 J**	NA	**3.430 J**	**0.870 J**	**0.770 J**	**5.070 J**	**0.305 J**	NA	**434.000 J**	**66.900 J**	**0.797 J**	NA	**0.594 J**	NA	**0.276 J**
	Aroclor 1260	2	2	2	3	3	NS	0.692 U	0.794 U	NA	NA	0.180 UJ	NA	0.216 U	0.112 U	0.066 U	0.360 U	0.085 U	NA	20.600 UJ	3.370 UJ	0.081 U	NA	0.263 UJ	NA	0.228 UJ
								0.692 U	0.794 U	NA	NA	0.180 UJ	NA	0.216 U	0.112 U	0.066 U	0.360 U	0.085 U	NA	20.600 UJ	3.370 UJ	0.081 U	NA	0.263 UJ	NA	0.228 UJ
	Total PCBs	2	2	2	3	3	0.06	**9.210 J**	**16.500 J**	NA	NA	**0.520 J**	NA	**3.430 J**	**0.870 J**	**0.770 J**	**5.070 J**	**0.305 J**	NA	**434.000 J**	**66.900 J**	**0.797 J**	NA	**0.594 J**	NA	**0.276 J**
PCB Congeners																										
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	**251**	**433**	NA	NA	NA	NA	52.8 U	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	**470**	**783**	NA	NA	NA	NA	**292**	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	**38,200 E**	**64,000 E**	NA	NA	NA	NA	**24,300**	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	**417**	**806**	NA	NA	NA	NA	**517**	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	**12,700 E**	**20,700 E**	NA	NA	NA	NA	**7,860**	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	**1,820**	**3,190**	NA	NA	NA	NA	**1,080**	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	**5,840**	**10,100**	NA	NA	NA	NA	**3,730**	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	**197**	**336**	NA	NA	NA	NA	**124**	NA	NA	NA	NA	NA	NA
Pesticides																										
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																										
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	21.0 U	15.6 U	NA	14.5 U	8.78 U	NA	NA	NA	NA	20.7 U	15.9 U	NA	NA	18.8 U	NA	16.7 U	NA
	Arsenic	20	20	20	20	20	33	NA	NA	13.1 U	9.69 U	NA	9.06 U	5.49 U	NA	NA	NA	NA	12.9 U	9.89 U	NA	NA	11.8 U	NA	10.5 U	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	**217**	**163**	NA	**906**	**141**	NA	NA	NA	NA	**175**	**647**	NA	NA	**194**	NA	**166**	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	1.31 U	0.97 U	NA	0.91 U	0.55 U	NA	NA	NA	NA	1.29 U	0.99 U	NA	NA	1.18 U	NA	1.05 U	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	1.31 U	0.97 U	NA	**2.65**	**0.91**	NA	NA	NA	NA	1.29 U	**7.19**	NA	NA	**1.77**	NA	1.05 U	NA
	Chromium	30	30	30	200	200	110	NA	NA	**12.7**	**13.3**	NA	**32.8**	**26.9**	NA	NA	NA	NA	**8.79**	**31.1**	NA	NA	**18.6**	NA	**18.2**	NA
	Lead	300	300	300	300	300	130	NA	NA	**222**	**180**	**345**	**685**	**184**	NA	**106**	NA	NA	**74.2**	**1,020**	NA	NA	**328**	**140**	**143**	**39.5**
	Mercury	20	20	20	30	30	0.18	NA	NA	**0.282**	**0.201**	NA	**0.690**	**0.191**	NA	NA	NA	NA	**0.164**	**0.370**	NA	NA	**0.340**	NA	**0.217**	NA
	Nickel	20	20	20	700	700	49	NA	NA	**11.3**	**9.95**	NA	**19.8**	**7.75**	NA	NA	NA	NA	**7.64**	**62.2**	NA	NA	**14.7**	NA	**9.38**	NA
	Selenium	400	400	400	800	800	NS	NA	NA	26.2 U	19.4 U	NA	18.2 U	11.0 U	NA	NA	NA	NA	25.8 U	19.8 U	NA	NA	23.5 U	NA	20.9 U	NA
	Silver	100	100	100	200	200	NS	NA	NA	2.62 U	1.94 U	NA	1.82 U	1.10 U	NA	NA	NA	NA	2.58 U	**1.98**	NA	NA	2.35 U	NA	2.09 U	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	26.2 U	19.4 U	NA	**41.4**	**18.7**	NA	NA	NA	NA	25.8 U	**31.2**	NA	NA	**33.7**	NA	**23.9**	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	**108**	**88.4**	**398**	**543**	**167**	NA	**105**	NA	NA	**84.3**	**1,180**	NA	NA	**358**	**191**	**158**	**67.2**
TCLP Metals																										
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																										
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	**8.3**	**3.8**	NA	NA	NA	NA	**14**	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	**6.8**	**4.9**	NA	NA	NA	NA	**10**	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	**7.55**	**4.35**	NA	NA	NA	NA	**12**	NA	NA	NA	NA	NA	NA

Notes:

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mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
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NA - Sample not analyzed for the listed analyte.
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U - Compound was not detected at specified quantitation limit.
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NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:

Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																				
	Sample Matrix:							Sediment		Sediment		Sediment		Soil	Soil	Soil	Soil	Sediment	Sediment		Sediment		Sediment	Sediment	Sediment	Sediment	Sediment
	Sample ID:							ERC-SED-14		ERC-SED-14A		ERC-SED-15		SLP-11A-1	SLP-11A-2	SLP-11A-3	SLP-11A-4	SED-11A-A	SED-11A-B		SED-11A-C		SED-11A-D	SED-11A-E	SED-11A-F	ERC-SED-16	ERC-SED-17
	Sample Depth (ft.):							0-0.5	0-0.5	0-0.25	0.25-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
	Sample Date:							3/6/2009	12/28/2009	3/6/2009	3/6/2009	3/6/2009	12/28/2009	3/19/2009	3/19/2009	3/19/2009	3/19/2009	3/20/2009	3/20/2009	3/20/2009	3/20/2009	12/28/2009	3/20/2009	3/20/2009	3/20/2009	3/20/2009	3/20/2009
																				Field Dup							
PAHs																											
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	0.0127 U	0.107 U	NA	NA	0.0221 U	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	0.432 U	NA	NA	NA	0.0616 U	0.0401 U
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	0.0127 U	0.107 U	NA	NA	0.0221 U	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	0.432 U	NA	NA	NA	0.0616 U	0.0401 U
	Acenaphthylene	1	600	10	600	10	NS	**0.0127**	0.107 U	NA	NA	0.0221 U	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	0.432 U	NA	NA	NA	0.0616 U	0.0401 U
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	**0.0251**	0.107 U	NA	NA	**0.0394**	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	0.432 U	NA	NA	NA	0.0616 U	**0.0610**
	Benzo[a]anthracene	7	7	7	40	40	0.11	**0.0660**	0.107 U	NA	NA	**0.0951**	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	0.432 U	NA	NA	NA	0.0616 U	**0.173**
	Benzo[a]pyrene	2	2	2	4	4	0.15	**0.0577**	0.107 U	NA	NA	**0.0896**	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	0.432 U	NA	NA	NA	0.0616 U	**0.176**
	Benzo[b]fluoranthene	7	7	7	40	40	NS	**0.0634**	0.107 U	NA	NA	**0.110**	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	0.432 U	NA	NA	NA	0.0616 U	**0.266**
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	**0.0453**	0.107 U	NA	NA	**0.0690**	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	0.432 U	NA	NA	NA	0.0616 U	**0.146**
	Benzo[k]fluoranthene	70	70	70	400	400	NS	**0.0392**	0.107 U	NA	NA	**0.0741**	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	0.432 U	NA	NA	NA	0.0616 U	**0.198**
	Chrysene	70	70	70	400	400	0.17	**0.0645**	0.107 U	NA	NA	**0.110**	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	0.432 U	NA	NA	NA	**0.065**	**0.260**
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	**0.0142**	0.107 U	NA	NA	**0.0239**	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	0.432 U	NA	NA	NA	0.0616 U	**0.0428**
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	**0.127**	0.107 U	NA	NA	**0.231**	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	0.432 U	NA	NA	NA	**0.143**	**0.462**
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	0.0127 U	0.107 U	NA	NA	0.0221 U	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	0.432 U	NA	NA	NA	0.0616 U	**0.174**
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	**0.0412**	0.107 U	NA	NA	**0.0634**	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	0.432 U	NA	NA	NA	0.0616 U	**0.132**
	Naphthalene	4	40	500	40	1,000	0.18	0.0127 U	0.107 U	NA	NA	0.0221 U	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	0.432 U	NA	NA	NA	0.0616 U	0.0401 U
	Phenanthrene	10	500	500	1,000	1,000	0.2	**0.0888**	0.107 U	NA	NA	**0.156**	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	0.432 U	NA	NA	NA	0.0616 U	**0.248**
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	**0.118**	0.107 U	NA	NA	**0.196**	0.131 U	NA	NA	NA	NA	NA	NA	NA	NA	**0.453**	NA	NA	NA	**0.101**	**0.383**
PCB Aroclors																											
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.176 UJ	0.061 U	0.060 U	0.058 U	NA	0.083 U	0.062 U	0.061 U	0.059 U	0.059 U	0.812 U	19.300 UJ	42.000 UJ	0.669 UJ	0.289 UJ	30.9 U	1.700 UJ	0.485 UJ	NA	NA
	Aroclor 1254	2	2	2	3	3	NS	**0.250 J**	0.061 U	**0.319 J**	0.058 U	NA	**0.150 J**	**0.079 J**	0.061 U	0.059 U	0.059 U	**20.600 J**	**705.000 J**	**805.000 J**	**9.820 J**	**5.440 J**	**838.000 J**	**31.300 J**	**5.500 J**	NA	NA
	Aroclor 1260	2	2	2	3	3	NS	0.176 UJ	0.061 U	0.060 U	0.058 U	NA	0.083 U	0.062 U	0.061 U	0.059 U	0.059 U	0.812 U	19.300 UJ	42.000 UJ	0.669 UJ	0.289 UJ	30.9 U	1.700 UJ	0.485 UJ	NA	NA
								0.176 UJ	0.061 U	0.060 U	0.058 U	NA	0.083 U	0.062 U	0.061 U	0.059 U	0.059 U	0.812 U	19.300 UJ	42.000 UJ	0.669 UJ	0.289 UJ	30.9 U	1.700 UJ	0.485 UJ	NA	NA
	Total PCBs	2	2	2	3	3	0.06	**0.250 J**	0.061 U	**0.319 J**	0.058 U	NA	**0.150 J**	**0.079 J**	0.061 U	0.059 U	0.059 U	**20.600 J**	**705.000 J**	**805.000 J**	**9.820 J**	**5.440 J**	**838.000 J**	**31.300 J**	**5.500 J**	NA	NA
PCB Congeners																											
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	**134**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	**113**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	**7,580**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	**108**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	**2,550**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	**432**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	**1,280**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	**35.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																											
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																											
(mg/kg)	Antimony	20	20	20	30	30	NS	10.2 U	NA	NA	NA	11.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	32.0 U	21.2 U
	Arsenic	20	20	20	20	20	33	6.33 U	NA	NA	NA	7.38 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.0 U	13.3 U
	Barium	1,000	1,000	1,000	3,000	3,000	NS	**66.9**	NA	NA	NA	**72.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**50.1**	**66.7**
	Beryllium	100	100	100	200	200	NS	0.64 U	NA	NA	NA	0.74 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.00 U	1.33 U
	Cadmium	2	2	2	30	30	5.0	0.64 U	NA	NA	NA	0.74 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.00 U	1.33 U
	Chromium	30	30	30	200	200	110	**15.7**	NA	NA	NA	**9.74**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**5.99**	**9.87**
	Lead	300	300	300	300	300	130	**26.6**	**7.84**	NA	NA	**59.7**	**15.0**	NA	NA	NA	NA	NA	NA	NA	NA	**59.3**	NA	NA	NA	**13.2**	**104**
	Mercury	20	20	20	30	30	0.18	**0.096**	NA	NA	NA	**0.133**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.089**	**0.235**
	Nickel	20	20	20	700	700	49	**6.79**	NA	NA	NA	**5.77**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.00 U	**5.63**
	Selenium	400	400	400	800	800	NS	12.7 U	NA	NA	NA	14.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.24**	NA	NA	NA	40.0 U	26.5 U
	Silver	100	100	100	200	200	NS	1.27 U	NA	NA	NA	1.48 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.00 U	2.65 U
	Vanadium	600	600	600	1,000	1,000	NS	**15.6**	NA	NA	NA	**19.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40.0 U	26.5 U
	Zinc	2,500	2,500	2,500	3,000	3,000	459	**91.8**	**26.6**	NA	NA	**50.8**	**15.3**	NA	NA	NA	NA	NA	NA	NA	NA	**180**	NA	NA	NA	**40.3**	**58.3**
TCLP Metals																											
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																											
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	**1.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	**2.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	**2.05**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																				
	Sample Matrix:							Soil			Sediment			Soil			Soil			Soil			Soil			
	Sample ID:							WSB-1			WSB-2			WSB-3			WSB-4			WSB-5			WSB-6			
	Sample Depth (ft.):							0-1	3-4	5-6	0-1	3-4	5-6	0-1	2-3	5-6	0-1	2-3	5-6	0-1	2-3	5-6	0-1	0-1	2-3	5-6
	Sample Date:							6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009
																								Field Dup		
PAHs																										
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
	Acenaphthylene	1	600	10	600	10	NS	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
	Benzo[a]anthracene	7	7	7	40	40	0.11	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
	Benzo[a]pyrene	2	2	2	4	4	0.15	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
	Benzo[b]fluoranthene	7	7	7	40	40	NS	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
	Benzo[k]fluoranthene	70	70	70	400	400	NS	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
	Chrysene	70	70	70	400	400	0.17	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
	Naphthalene	4	40	500	40	1,000	0.18	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
	Phenanthrene	10	500	500	1,000	1,000	0.2	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	0.19 U	0.19 U	0.18 U	0.22 U	0.20 U	0.19 U	0.21 U	0.19 U	0.18 U	0.23 U	0.19 U	0.18 U	0.21 U	0.18 U	0.19 U	0.25 U	0.24 U	0.20 U	0.18 U
PCB Aroclors																										
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.060 U	0.055 U	0.056 U	0.063 U	0.056 U	0.056 U	0.066 U	0.056 U	0.055 U	0.064 U	0.055 U	0.056 U	0.063 U	0.055 U	0.059 U	0.073 U	0.068 U	0.056 U	0.054 U
	Aroclor 1254	2	2	2	3	3	NS	0.060 U	0.055 U	0.056 U	0.063 U	0.056 U	0.056 U	0.066 U	0.056 U	0.055 U	0.064 U	0.055 U	0.056 U	0.063 U	0.055 U	0.059 U	0.073 U	0.068 U	0.056 U	0.054 U
	Aroclor 1260	2	2	2	3	3	NS	0.060 U	0.055 U	0.056 U	0.063 U	0.056 U	0.056 U	0.066 U	0.056 U	0.055 U	0.064 U	0.055 U	0.056 U	0.063 U	0.055 U	0.059 U	0.073 U	0.068 U	0.056 U	0.054 U
								0.060 U	0.055 U	0.056 U	0.063 U	0.056 U	0.056 U	0.066 U	0.056 U	0.055 U	0.064 U	0.055 U	0.056 U	0.063 U	0.055 U	0.059 U	0.073 U	0.068 U	0.056 U	0.054 U
	Total PCBs	2	2	2	3	3	0.06	0.060 U	0.055 U	0.056 U	0.063 U	0.056 U	0.056 U	0.066 U	0.056 U	0.055 U	0.064 U	0.055 U	0.056 U	0.063 U	0.055 U	0.059 U	0.073 U	0.068 U	0.056 U	0.054 U
PCB Congeners																										
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																										
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																										
(mg/kg)	Antimony	20	20	20	30	30	NS	4.6 U	4.5 U	4.3 U	5.3 U	4.6 U	4.5 U	4.9 U	4.5 U	4.3 U	5.5 U	4.5 U	4.4 U	5.0 U	4.3 U	4.5 U	5.9 U	5.8 U	4.7 U	4.4 U
	Arsenic	20	20	20	20	20	33	**3.9**	**3.0**	2.7 U	3.3 U	**3.5**	**4.8**	**3.7**	2.8 U	2.7 U	3.4 U	**3.2**	**3.1**	**3.6**	2.7 U	2.8 U	3.7 U	3.6 U	2.9 U	2.7 U
	Barium	1,000	1,000	1,000	3,000	3,000	NS	**13**	**18**	**16**	**22**	**13**	**63**	**20**	**9.4**	**19**	**26**	**17**	**20**	**16**	**10**	**11**	**19**	**23**	**12**	**15**
	Beryllium	100	100	100	200	200	NS	0.29 U	0.28 U	0.27 U	0.33 U	0.29 U	0.28 U	0.30 U	0.28 U	0.27 U	0.34 U	0.28 U	0.27 U	0.32 U	0.27 U	0.28 U	0.37 U	0.36 U	0.29 U	0.27 U
	Cadmium	2	2	2	30	30	5.0	0.29 U	0.28 U	0.27 U	0.33 U	0.29 U	0.28 U	0.30 U	0.28 U	0.27 U	0.34 U	0.28 U	0.27 U	0.32 U	0.27 U	0.28 U	0.37 U	0.36 U	0.29 U	0.27 U
	Chromium	30	30	30	200	200	110	**11**	**8.0**	**7.3**	**9.7**	**8.1**	**16**	**12**	**7.8**	**11**	**15**	**11**	**9.9**	**12**	**4.8**	**7.4**	**7.9**	**6.7**	**10**	**5.5**
	Lead	300	300	300	300	300	130	**14**	**2.9**	**2.9**	**36**	**5.5**	**4.6**	**19**	**1.9**	**2.7**	**26**	**3.2**	**2.7**	**16**	**1.8**	**4.1**	**45**	**48**	**5.7**	**1.8**
	Mercury	20	20	20	30	30	0.18	**0.032**	0.019 U	0.014 U	**0.23**	0.021 U	0.018 U	**0.041**	0.017 U	0.010 U	**0.098**	0.020 U	0.015 U	**0.072**	0.020 U	0.014 U	**0.11**	**0.068**	0.020 U	0.012 U
	Nickel	20	20	20	700	700	49	**4.1**	**4.7**	**4.6**	**4.6**	**3.9**	**9.4**	**4.9**	**4.3**	**5.4**	**5.3**	**6.1**	**3.5**	**4.5**	**2.3**	**2.7**	**3.4**	**3.5**	**4.9**	**3.1**
	Selenium	400	400	400	800	800	NS	5.7 U	5.6 U	5.4 U	6.6 U	5.7 U	5.7 U	6.1 U	5.6 U	5.4 U	6.9 U	5.6 U	5.4 U	6.3 U	5.3 U	5.7 U	7.4 U	7.2 U	5.8 U	5.4 U
	Silver	100	100	100	200	200	NS	0.57 U	0.56 U	0.54 U	0.66 U	0.57 U	0.57 U	0.61 U	0.56 U	0.54 U	0.69 U	0.56 U	0.54 U	0.63 U	0.53 U	0.57 U	0.74 U	0.72 U	0.58 U	0.54 U
	Vanadium	600	600	600	1,000	1,000	NS	**16**	**10**	**8.5**	**16**	**12**	**20**	**17**	**9.9**	**10**	**20**	**12**	**11**	**15**	**6.8**	**7.0**	**21**	**17**	**13**	**6.9**
	Zinc	2,500	2,500	2,500	3,000	3,000	459	**17**	**17**	**15**	**19**	**13**	**31**	**24**	**14**	**17**	**21**	**15**	**22**	**18**	**13**	**12**	**24**	**28**	**13**	**9.8**
TCLP Metals																										
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																										
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																						
	Sample Matrix:							Soil				Sediment				Sediment					Sediment				Sediment		Sediment	
	Sample ID:							WSB-7				WSB-8				WSB-9					WSB-10				SD-85		SD-86	
	Sample Depth (ft.):							0-1	1-2	3-4	4-5	0-1	1-2	3-4	4-5	0-0.5	0-1	1-2	2-3	3.5-5	0-1	1-2	2-3	3.5-5	0-0.5	1.5-2	0-0.5	2-2.5
	Sample Date:							6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	12/29/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/24/2009	6/25/2009	6/25/2009	6/25/2009	6/25/2009
PAHs																													
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	0.43 U	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	0.43 U	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	0.43 U	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	0.43 U	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	0.43 U	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	0.43 U	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	0.43 U	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	0.43 U	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	0.43 U	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	0.43 U	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	0.43 U	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	**0.52**	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	0.43 U	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	0.43 U	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	0.43 U	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	**0.53**	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	0.26 U	0.19 U	0.19 U	NA	0.25 U	0.21 U	0.19 U	NA	NA	NA	0.51 U	NA	**0.54**	0.24 U	0.53 U	NA	0.39 U	NA	NA	NA	NA
PCB Aroclors																													
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.073 U	0.061 U	NA	0.055 U	0.078 U	0.061 U	NA	0.054 U	NA	0.063 U	0.068 U	0.074 U	NA	0.091 U	0.069 U	0.080 U	NA	0.143 U	0.065 U	0.170 UJ	0.092 U
	Aroclor 1254	2	2	2	3	3	NS	**0.114 J**	0.061 U	NA	0.055 U	0.078 U	0.061 U	NA	0.054 U	NA	**0.586 J**	**0.587 J**	**0.585 J**	NA	**0.445 J**	**0.085 J**	**0.296 J**	NA	0.143 U	0.065 U	0.170 UJ	0.092 U
	Aroclor 1260	2	2	2	3	3	NS	0.073 U	0.061 U	NA	0.055 U	0.078 U	0.061 U	NA	0.054 U	NA	0.063 U	0.068 U	0.074 U	NA	0.091 U	0.069 U	0.080 U	NA	0.143 U	0.065 U	0.170 UJ	0.092 U
								0.073 U	0.061 U	NA	0.055 U	0.078 U	0.061 U	NA	0.054 U	NA	0.063 U	0.068 U	0.074 U	NA	0.091 U	0.069 U	0.080 U	NA	0.143 U	0.065 U	0.170 UJ	0.092 U
	Total PCBs	2	2	2	3	3	0.06	**0.114 J**	0.061 U	NA	0.055 U	0.078 U	0.061 U	NA	0.054 U	NA	**0.586 J**	**0.587 J**	**0.585 J**	NA	**0.445 J**	**0.085 J**	**0.296 J**	NA	0.143 U	0.065 U	0.170 UJ	0.092 U
PCB Congeners																													
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																													
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																													
(mg/kg)	Antimony	20	20	20	30	30	NS	6.2 U	4.5 U	4.4 U	NA	5.8 U	4.9 U	4.4 U	NA	NA	NA	5.9 U	NA	5.0 U	5.6 U	6.2 U	NA	9.1 U	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	3.9 U	**4.1**	**3.4**	NA	3.6 U	**3.4**	**2.8**	NA	NA	NA	**3.7**	NA	**3.9**	3.5 U	3.9 U	NA	**6.4**	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	**11**	**9.6**	**17**	NA	**12**	**13**	**22**	NA	NA	NA	**48**	NA	**41**	**21**	**20**	NA	**66**	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	0.39 U	0.28 U	0.28 U	NA	0.36 U	0.31 U	0.28 U	NA	NA	NA	0.37 U	NA	0.31 U	0.35 U	0.39 U	NA	0.57 U	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	0.39 U	0.28 U	0.28 U	NA	0.36 U	0.31 U	0.28 U	NA	NA	NA	0.37 U	NA	0.31 U	0.35 U	0.39 U	NA	0.57 U	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	**4.9**	**11**	**11**	NA	**6.1**	**11**	**8.9**	NA	NA	NA	**8.3**	NA	**7.8**	**6.1**	**4.9**	NA	**7.8**	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	**21**	**4.0**	**2.6**	NA	**6.1**	**4.8**	**3.2**	NA	**77**	NA	**61**	NA	**68**	**55**	**17**	NA	**39**	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	**0.077**	0.016 U	0.018 U	NA	0.020 U	0.015 U	0.021 U	NA	NA	NA	**0.064**	NA	**0.052**	**0.061**	0.022 U	NA	**0.10**	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	**2.2**	**4.2**	**3.9**	NA	**2.2**	**3.3**	**4.0**	NA	NA	NA	**6.6**	NA	**4.8**	**4.1**	**3.8**	NA	**5.1**	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	7.7 U	5.7 U	5.5 U	NA	7.3 U	6.2 U	5.5 U	NA	NA	NA	7.4 U	NA	6.3 U	6.9 U	7.7 U	NA	11 U	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	0.77 U	0.57 U	0.55 U	NA	0.73 U	0.62 U	0.55 U	NA	NA	NA	0.74 U	NA	0.63 U	0.69 U	0.77 U	NA	1.1 U	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	**20**	**17**	**13**	NA	**8.2**	**14**	**11**	NA	NA	NA	**14**	NA	**12**	**10**	**8.7**	NA	**13**	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	**11**	**16**	**18**	NA	**13**	**14**	**13**	NA	NA	NA	**45**	NA	**39**	**29**	**31**	NA	**45**	NA	NA	NA	NA
TCLP Metals																													
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																													
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																				
							Sample Matrix:	Sediment		Sediment			Sediment	Sediment		Sediment		Sediment			Sediment			Sediment		Sediment	
							Sample ID:	SD-87		SD-88			SD-89	SD-90		SD-91		SD-92			SD-93			SD-94		SED-11A-G	
							Sample Depth (ft.):	0-0.5	0.5-1	0-0.5	0-0.5	1-1.5	0-0.5	0-0.5	1.5-2	0-0.5	1.5-2	0-0.5	0-0.5	1.5-2	0-0.5	0-0.5	2.5-3	0-0.5	1.5-2	0-0.5	3-3.5
							Sample Date:	6/25/2009	6/25/2009	6/25/2009	6/25/2009	6/25/2009	6/25/2009	6/25/2009	6/25/2009	6/25/2009	6/25/2009	7/17/2009	7/17/2009	7/17/2009	7/17/2009	12/29/2009	7/17/2009	7/17/2009	7/17/2009	8/12/2009	8/12/2009
											Field Dup								Field Dup								
PAHs																											
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																											
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.207 UJ	0.263 UJ	0.159 UJ	0.245 UJ	0.232 UJ	0.275 UJ	0.078 U	0.275 UJ	0.141 U	0.056 U	0.080 U	0.075 U	0.057 U	0.070 U	NA	0.089 U	0.067 U	0.055 U	0.275 UJ	0.125 U
	Aroclor 1254	2	2	2	3	3	NS	0.207 UJ	0.263 UJ	**0.294 J**	0.245 UJ	0.232 UJ	0.275 UJ	**0.553 J**	0.275 UJ	**2.100 J**	0.056 U	**1.340 J**	**1.060 J**	0.057 U	**0.140 J**	NA	0.089 U	0.067 U	0.055 U	**0.616 J**	0.125 U
	Aroclor 1260	2	2	2	3	3	NS	0.207 UJ	0.263 UJ	0.159 UJ	0.245 UJ	0.232 UJ	0.275 UJ	0.078 U	0.275 UJ	0.141 U	0.056 U	0.080 U	0.075 U	0.057 U	0.070 U	NA	0.089 U	0.067 U	0.055 U	0.275 UJ	0.125 U
								0.207 UJ	0.263 UJ	0.159 UJ	0.245 UJ	0.232 UJ	0.275 UJ	0.078 U	0.275 UJ	0.141 U	0.056 U	0.080 U	0.075 U	0.057 U	0.070 U	NA	0.089 U	0.067 U	0.055 U	0.275 UJ	0.125 U
	Total PCBs	2	2	2	3	3	0.06	0.207 UJ	0.263 UJ	**0.294 J**	0.245 UJ	0.232 UJ	0.275 UJ	**0.553 J**	0.275 UJ	**2.100 J**	0.056 U	**1.340 J**	**1.060 J**	0.057 U	**0.140 J**	NA	0.089 U	0.067 U	0.055 U	**0.616 J**	0.125 U
PCB Congeners																											
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																											
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																											
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**36.3**	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals																											
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																											
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																					
	Sample Matrix:							Sediment		Sediment		Sediment		Sediment			Sediment		Sediment		Sediment		Soil	Soil	Soil		Soil	Soil
	Sample ID:							SED-11A-H		SED-11A-I		SED-11A-J		SED-11A-K			SED-11A-L		SED-11A-M		SED-11A-N		SLP-12	SLP-13	SLP-14		SLP-15	SLP-16
	Sample Depth (ft.):							0-0.5	2.5-3	0-0.5	4-4.5	0-0.5	3.33-3.67	0-0.5	0-0.5	4.5-5	0-0.5	3.33-3.67	0-0.5	3-3.5	0-0.5	5.16-5.67	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
	Sample Date:							8/12/2009	8/12/2009	8/12/2009	8/12/2009	8/12/2009	8/12/2009	8/12/2009	8/12/2009	8/12/2009	8/12/2009	8/12/2009	8/12/2009	8/12/2009	8/12/2009	8/12/2009	8/13/2009	8/13/2009	8/13/2009	8/13/2009	8/13/2009	8/13/2009
															Field Dup											Field Dup		
PAHs																												
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																												
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.307 UJ	0.251 UJ	0.233 U	0.245 UJ	0.162 U	0.243 UJ	0.314 U	**2.510 J**	0.333 UJ	0.145 U	0.165 UJ	0.108 U	0.362 UJ	0.225 UJ	0.175 UJ	0.147 U	0.055 U	0.057 U	0.057 U	0.056 U	0.053 U
	Aroclor 1254	2	2	2	3	3	NS	0.307 UJ	0.251 UJ	**4.710 J**	0.245 UJ	**0.854 J**	0.243 UJ	**7.650 J**	**9.780 J**	0.333 UJ	**1.620 J**	0.165 UJ	**3.110 J**	0.362 UJ	**0.654 J**	0.175 UJ	**3.340 J**	**0.394 J**	0.057 U	0.057 U	0.056 U	0.053 U
	Aroclor 1260	2	2	2	3	3	NS	0.307 UJ	0.251 UJ	0.233 U	0.245 UJ	0.162 U	0.243 UJ	0.314 U	0.411 U	0.333 UJ	**0.207 J**	0.165 UJ	**0.4315 J**	0.362 UJ	0.225 UJ	0.175 UJ	0.147 U	0.055 U	0.057 U	0.057 U	0.056 U	0.053 U
								0.307 UJ	0.251 UJ	0.233 U	0.245 UJ	0.162 U	0.243 UJ	0.314 U	0.411 U	0.333 UJ	0.145 U	0.165 UJ	0.108 U	0.362 UJ	0.225 UJ	0.175 UJ	0.147 U	0.055 U	0.057 U	0.057 U	0.056 U	0.053 U
	Total PCBs	2	2	2	3	3	0.06	0.307 UJ	0.251 UJ	**4.710 J**	0.245 UJ	**0.854 J**	0.243 UJ	**7.650 J**	**12.290 J**	0.333 UJ	**1.827 J**	0.165 UJ	**3.5415 J**	0.362 UJ	**0.654 J**	0.175 UJ	**3.340 J**	**0.394 J**	0.057 U	0.057 U	0.056 U	0.053 U
PCB Congeners																												
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																												
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																												
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals																												
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																												
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]	SLP-17	SLP-18	SLP-19	SLP-20	SLP-21	SLP-22	SLP-23	SLP-24	SLP-25	SLP-26	SLP-27	OF-5A	OF-5B	Durfee-Post	WSB-11				
	Sample Matrix:							Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
	Sample Depth (ft.):							0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-1	0.5-1	1-3	1-3	4-5	7-8
	Sample Date:							8/13/2009	8/13/2009	8/13/2009	8/13/2009	8/13/2009	8/13/2009	8/13/2009	8/13/2009	8/13/2009	8/13/2009	8/13/2009	8/13/2009	8/13/2009	11/13/2009	12/17/2009	12/17/2009	12/17/2009	12/17/2009	12/17/2009
																								Field Dup		
PAHs																										
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.21 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.21 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.21 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.21 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.45**	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.49**	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.69**	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.21**	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.25**	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.59**	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.21 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.1**	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.21 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.26**	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.21 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.2**	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.77**	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U
PCB Aroclors																										
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.055 U	0.114 U	**0.184 J**	0.053 U	0.055 U	0.055 U	0.052 U	0.058 U	0.059 U	0.057 U	0.056 U	**0.088 J**	0.061 U	0.062 U	0.055 U	0.053 U	0.051 U	0.057 U	0.054 U
	Aroclor 1254	2	2	2	3	3	NS	0.055 U	**0.314 J**	**0.389 J**	**0.132 J**	0.055 U	0.055 U	0.052 U	**0.075 J**	0.059 U	0.057 U	0.056 U	**0.306 J**	0.061 U	**0.211 J**	0.055 U	0.053 U	0.051 U	0.057 U	0.054 U
	Aroclor 1260	2	2	2	3	3	NS	0.055 U	0.114 U	0.111 U	0.053 U	0.055 U	0.055 U	0.052 U	0.058 U	0.059 U	0.057 U	0.056 U	0.064 U	0.061 U	0.062 U	0.055 U	0.053 U	0.051 U	0.057 U	0.054 U
								0.055 U	0.114 U	0.111 U	0.053 U	0.055 U	0.055 U	0.052 U	0.058 U	0.059 U	0.057 U	0.056 U	0.064 U	0.061 U	0.062 U	0.055 U	0.053 U	0.051 U	0.057 U	0.054 U
	Total PCBs	2	2	2	3	3	0.06	0.055 U	**0.314 J**	**0.573 J**	**0.132 J**	0.055 U	0.055 U	0.052 U	**0.075 J**	0.059 U	0.057 U	0.056 U	**0.394 J**	0.061 U	**0.211 J**	0.055 U	0.053 U	0.051 U	0.057 U	0.054 U
PCB Congeners																										
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																										
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																										
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.9 U	4.4 U	4.3 U	4.1 U	4.5 U	4.4 U
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.1 U	**3.2**	**2.9**	2.6 U	2.8 U	2.8 U
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**110**	**11**	**17**	**14**	5.6 U	**10**
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.31 U	0.27 U	0.27 U	0.26 U	0.28 U	0.28 U
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.88**	0.27 U	0.27 U	0.26 U	0.28 U	0.28 U
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**18**	**4.9**	**5.1**	**4.0**	**2.3**	**2.7**
	Lead	300	300	300	300	300	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**380**	**13**	**13**	**10**	**3.3**	**5.4**
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.14**	0.020 U	0.023 U	0.021 U	0.017 U	**0.047**
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**6.0**	**3.5**	**3.6**	**3.3**	**1.7**	**2.4**
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2 U	5.5 U	5.4 U	5.2 U	5.6 U	5.5 U
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.62 U	0.55 U	0.54 U	0.52 U	0.56 U	0.55 U
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**18**	**9.8**	**9.3**	**6.3**	5.6 U	5.5 U
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**190**	**15**	**15**	**20**	**11**	**11**
TCLP Metals																										
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																										
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
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R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:

Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																			
	Sample Matrix:							Soil				Soil				Soil			Soil				Soil			
	Sample ID:							WSB-12				WSB-13				WSB-14			WSB-15				WSB-16			
	Sample Depth (ft.):							0.5-1	1-3	4-5	7-8	0.5-1	1-3	5-6	7-8	1-3	4-5	7-8	0.5-1	1-3	4-5	7-8	0.5-1	1-3	4-5	7-8
	Sample Date:							12/17/2009	12/17/2009	12/17/2009	12/17/2009	12/17/2009	12/17/2009	12/17/2009	12/17/2009	12/17/2009	12/17/2009	12/17/2009	12/17/2009	12/17/2009	12/17/2009	12/17/2009	12/18/2009	12/18/2009	12/18/2009	12/18/2009
PAHs																										
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	0.37 U	0.39 U	0.39 U	0.19 U
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	0.37 U	0.39 U	0.39 U	0.19 U
	Acenaphthylene	1	600	10	600	10	NS	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	**0.38**	0.39 U	0.39 U	0.19 U
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	0.37 U	0.39 U	0.39 U	0.19 U
	Benzo[a]anthracene	7	7	7	40	40	0.11	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	**1.7**	0.39 U	0.39 U	0.19 U
	Benzo[a]pyrene	2	2	2	4	4	0.15	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	**2.2**	0.39 U	0.39 U	0.19 U
	Benzo[b]fluoranthene	7	7	7	40	40	NS	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	**2.6**	0.39 U	0.39 U	0.19 U
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	**1.0**	0.39 U	0.39 U	0.19 U
	Benzo[k]fluoranthene	70	70	70	400	400	NS	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	**1.1**	0.39 U	0.39 U	0.19 U
	Chrysene	70	70	70	400	400	0.17	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	**1.9**	0.39 U	0.39 U	0.19 U
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	0.37 U	0.39 U	0.39 U	0.19 U
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	**2.3**	0.39 U	0.39 U	0.19 U
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	0.37 U	0.39 U	0.39 U	0.19 U
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	**1.3**	0.39 U	0.39 U	0.19 U
	Naphthalene	4	40	500	40	1,000	0.18	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	0.37 U	0.39 U	0.39 U	0.19 U
	Phenanthrene	10	500	500	1,000	1,000	0.2	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	**1.5**	0.39 U	0.39 U	0.19 U
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	0.18 U	0.18 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.20 U	0.20 U	**2.4**	0.39 U	0.39 U	0.19 U
PCB Aroclors																										
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.052 U	0.052 U	0.057 U	0.053 U	0.052 U	0.051 U	0.056 U	0.053 U	0.052 U	0.058 U	0.052 U	0.053 U	0.051 U	0.059 U	0.057 U	0.054 U	0.173 U	0.057 U	0.056 U
	Aroclor 1254	2	2	2	3	3	NS	0.052 U	0.052 U	0.057 U	0.053 U	0.052 U	0.051 U	0.056 U	0.053 U	0.052 U	0.058 U	0.052 U	0.053 U	0.051 U	0.059 U	0.057 U	**0.864 J**	**4.690 J**	**0.066 J**	0.056 U
	Aroclor 1260	2	2	2	3	3	NS	0.052 U	0.052 U	0.057 U	0.053 U	0.052 U	0.051 U	0.056 U	0.053 U	0.052 U	0.058 U	0.052 U	0.053 U	0.051 U	0.059 U	0.057 U	0.054 U	0.173 U	0.057 U	0.056 U
								0.052 U	0.052 U	0.057 U	0.053 U	0.052 U	0.051 U	0.056 U	0.053 U	0.052 U	0.058 U	0.052 U	0.053 U	0.051 U	0.059 U	0.057 U	0.054 U	0.173 U	0.057 U	0.056 U
	Total PCBs	2	2	2	3	3	0.06	0.052 U	0.052 U	0.057 U	0.053 U	0.052 U	0.051 U	0.056 U	0.053 U	0.052 U	0.058 U	0.052 U	0.053 U	0.051 U	0.059 U	0.057 U	**0.864 J**	**4.690 J**	**0.066 J**	0.056 U
PCB Congeners																										
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																										
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																										
(mg/kg)	Antimony	20	20	20	30	30	NS	4.2 U	4.2 U	4.5 U	4.5 U	4.2 U	4.3 U	4.5 U	4.3 U	4.2 U	4.5 U	4.3 U	4.2 U	4.1 U	4.7 U	4.7 U	4.4 U	4.5 U	4.6 U	4.4 U
	Arsenic	20	20	20	20	20	33	2.6 U	**3.3**	2.8 U	2.8 U	2.6 U	**3.0**	2.8 U	2.7 U	**3.1**	2.8 U	**3.0**	**2.8**	**3.3**	3.0 U	**3.7**	**5.9**	2.8 U	2.9 U	**3.2**
	Barium	1,000	1,000	1,000	3,000	3,000	NS	**6.6**	**18**	**14**	**14**	**29**	**14**	**12**	**10**	**17**	**9.9**	**45**	**9.4**	**10**	**8.1**	**29**	**63**	**18**	**15**	**11**
	Beryllium	100	100	100	200	200	NS	0.26 U	0.26 U	0.28 U	0.28 U	0.26 U	0.27 U	0.28 U	0.27 U	0.26 U	0.28 U	0.27 U	0.26 U	0.26 U	0.30 U	0.29 U	0.27 U	1.4 U	0.29 U	0.27 U
	Cadmium	2	2	2	30	30	5.0	0.26 U	0.26 U	0.28 U	0.28 U	0.26 U	0.27 U	0.28 U	0.27 U	0.26 U	0.28 U	0.27 U	0.26 U	0.26 U	0.30 U	0.29 U	0.27 U	0.28 U	0.29 U	0.27 U
	Chromium	30	30	30	200	200	110	**2.8**	**5.2**	**6.0**	**2.3**	**5.5**	**5.1**	**4.9**	**2.4**	**5.4**	**6.6**	**7.9**	**7.5**	**5.1**	**4.3**	**30**	**37**	**10**	**8.4**	**5.3**
	Lead	300	300	300	300	300	130	**4.7**	**5.6**	**10**	**4.2**	**4.9**	**8.8**	**18**	**3.8**	**5.8**	**5.2**	**1.7**	**11**	**1.8**	**1.4**	**2.4**	**37**	**8.2**	**4.2**	**3.0**
	Mercury	20	20	20	30	30	0.18	0.015 U	0.019 U	**0.031**	0.017 U	0.019 U	0.026 U	**0.017**	0.022 U	0.020 U	0.019 U	0.018 U	**0.026**	0.013 U	0.016 U	0.016 U	**0.098**	**0.025**	0.013 U	0.021 U
	Nickel	20	20	20	700	700	49	**2.2**	**4.1**	**3.1**	**2.1**	**4.8**	**4.0**	**2.5**	**1.7**	**3.8**	**2.3**	**5.7**	**2.9**	**2.3**	**2.2**	**13**	**16**	**7.6**	**4.2**	**4.3**
	Selenium	400	400	400	800	800	NS	5.3 U	5.3 U	5.6 U	5.6 U	5.2 U	5.3 U	5.6 U	5.4 U	5.3 U	5.7 U	5.3 U	5.2 U	5.1 U	5.9 U	5.8 U	5.5 U	5.6 U	5.7 U	5.5 U
	Silver	100	100	100	200	200	NS	0.53 U	0.53 U	0.56 U	0.56 U	0.52 U	0.53 U	0.56 U	0.54 U	0.53 U	0.57 U	0.53 U	0.52 U	0.51 U	0.59 U	0.58 U	0.55 U	0.56 U	0.57 U	0.55 U
	Vanadium	600	600	600	1,000	1,000	NS	5.3 U	**9.8**	**7.3**	5.6 U	**8.1**	**8.8**	**6.1**	5.4 U	**8.8**	5.7 U	**12**	**7.6**	**8.9**	**6.0**	**24**	**28**	**21**	**12**	**9.0**
	Zinc	2,500	2,500	2,500	3,000	3,000	459	**15**	**14**	**12**	**8.1**	**19**	**12**	**11**	**6.9**	**14**	**9.2**	**12**	**21**	**14**	**12**	**26**	**38**	**28**	**15**	**9.8**
TCLP Metals																										
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																										
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																					
	Sample Matrix:							Soil				Soil					Soil				Sediment				Sediment			
	Sample ID:							WSB-17				WSB-18					WSB-19				TSB-1				TSB-2			
	Sample Depth (ft.):							0.5-1	1-3	4-5	7-8	0.5-1	1-3	1-3	4-5	7-8	0.5-1	1-3	4-5	7-8	0-1	1-2	2-3	3-4	0-1	1-2	2-3	3-4
	Sample Date:							12/17/2009	12/17/2009	12/18/2009	12/18/2009	12/17/2009	12/17/2009	12/17/2009	12/17/2009	12/17/2009	12/18/2009	12/18/2009	12/18/2009	12/18/2009	2/9/2010	2/9/2010	2/9/2010	2/9/2010	2/9/2010	2/9/2010	2/9/2010	2/9/2010
														Field Dup														
PAHs																												
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	0.20 U	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	0.20 U	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	0.20 U	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	0.20 U	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	**0.83**	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	**0.88**	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	**1.2**	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	**0.45**	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	**0.45**	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	**0.91**	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	0.20 U	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	**2.0**	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	0.20 U	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	**0.52**	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	0.20 U	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	**0.78**	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	0.18 U	0.38 U	0.19 U	0.19 U	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U	**1.5**	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																												
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.054 U	0.053 U	0.051 U	0.054 U	0.054 U	0.056 U	0.056 U	0.054 U	0.054 U	0.056 U	0.059 U	0.060 U	0.059 U	0.057 U	0.055 U	0.052 U	0.053 U	0.826 U	0.054 U	0.054 U	0.055 U
	Aroclor 1254	2	2	2	3	3	NS	0.054 U	**0.348 J**	0.051 U	0.054 U	0.054 U	0.056 U	**0.136**	0.054 U	0.054 U	**1.370 J**	**0.136 J**	0.060 U	0.059 U	0.057 U	0.055 U	0.052 U	0.053 U	**23.800 J**	**0.366 J**	0.054 U	0.055 U
	Aroclor 1260	2	2	2	3	3	NS	0.054 U	0.053 U	0.051 U	0.054 U	0.054 U	0.056 U	0.056 U	0.054 U	0.054 U	0.056 U	0.059 U	0.060 U	0.059 U	0.057 U	0.055 U	0.052 U	0.053 U	0.826 U	0.054 U	0.054 U	0.055 U
								0.054 U	0.053 U	0.051 U	0.054 U	0.054 U	0.056 U	0.056 U	0.054 U	0.054 U	0.056 U	0.059 U	0.060 U	0.059 U	0.057 U	0.055 U	0.052 U	0.053 U	0.826 U	0.054 U	0.054 U	0.055 U
	Total PCBs	2	2	2	3	3	0.06	0.054 U	**0.348 J**	0.051 U	0.054 U	0.054 U	0.056 U	**0.136**	0.054 U	0.054 U	**1.370 J**	**0.136 J**	0.060 U	0.059 U	0.057 U	0.055 U	0.052 U	0.053 U	**23.800 J**	**0.366 J**	0.054 U	0.055 U
PCB Congeners																												
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																												
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																												
(mg/kg)	Antimony	20	20	20	30	30	NS	4.2 U	4.6 U	4.4 U	4.4 U	4.3 U	4.7 U	4.6 U	4.3 U	4.4 U	4.8 U	4.7 U	4.8 U	4.7 U	4.6 U	4.3 U	4.3 U	4.4 U	6.0 U	4.4 U	4.4 U	4.6 U
	Arsenic	20	20	20	20	20	33	**3.1**	2.9 U	**6.2**	2.8 U	**2.7**	**3.4**	**3.3**	2.7 U	2.7 U	**4.8**	**4.9**	**4.4**	**5.7**	**3.3**	**3.4**	2.7 U	2.7 U	**7.8**	**3.6**	2.7 U	**4.5**
	Barium	1,000	1,000	1,000	3,000	3,000	NS	**97**	**29**	**16**	**7.7**	**87**	**18**	**18**	**5.6**	**17**	**41**	**19**	**11**	**14**	**45**	**47**	**15**	**14**	**770**	**42**	**14**	**15**
	Beryllium	100	100	100	200	200	NS	1.3 U	1.4 U	0.28 U	0.28 U	1.3 U	1.5 U	1.4 U	0.27 U	1.4 U	0.30 U	0.29 U	0.30 U	0.29 U	0.29 U	0.27 U	0.27 U	0.27 U	0.38 U	0.27 U	0.27 U	0.29 U
	Cadmium	2	2	2	30	30	5.0	0.26 U	0.29 U	0.28 U	0.28 U	0.27 U	0.30 U	0.29 U	0.27 U	0.27 U	0.30 U	0.29 U	0.30 U	0.29 U	0.29 U	0.27 U	0.27 U	0.27 U	**2.4**	0.27 U	0.27 U	0.29 U
	Chromium	30	30	30	200	200	110	**67**	**14**	**7.4**	**4.7**	**50**	**10**	**8.3**	**3.2**	**8.9**	**15**	**11**	**8.9**	**14**	**13**	**8.1**	**5.6**	**8.2**	**68**	**11**	**8.1**	**13**
	Lead	300	300	300	300	300	130	**5.2**	**29**	**3.3**	**1.8**	**8.5**	**26**	**24**	**2.0**	**3.1**	**120**	**27**	**8.6**	**7.1**	**13**	**4.3**	**1.8**	**2.3**	**710**	**6.6**	**2.8**	**3.1**
	Mercury	20	20	20	30	30	0.18	0.020 U	**0.034**	0.020 U	0.017 U	0.023 U	**0.11**	**0.069**	0.022 U	0.017 U	**0.10**	**0.057**	**0.042**	**0.033**	0.016 U	0.025 U	0.021 U	0.020 U	**0.74**	**0.050**	0.024 U	0.019 U
	Nickel	20	20	20	700	700	49	**30**	**7.7**	**5.7**	**2.4**	**22**	**5.6**	**4.7**	**2.7**	**6.6**	**6.1**	**5.3**	**4.4**	**7.3**	**3.8**	**3.5**	**3.3**	**3.2**	**24**	**3.4**	**2.9**	**3.3**
	Selenium	400	400	400	800	800	NS	5.3 U	5.7 U	5.5 U	5.5 U	5.3 U	5.9 U	5.7 U	5.4 U	5.5 U	5.9 U	5.8 U	6.0 U	5.9 U	5.7 U	5.4 U	5.3 U	5.5 U	7.5 U	5.4 U	5.5 U	5.7 U
	Silver	100	100	100	200	200	NS	0.53 U	0.57 U	0.55 U	0.55 U	0.53 U	0.59 U	0.57 U	0.54 U	0.55 U	0.59 U	0.58 U	0.60 U	0.59 U	0.57 U	0.54 U	0.53 U	0.55 U	0.75 U	0.54 U	0.55 U	0.57 U
	Vanadium	600	600	600	1,000	1,000	NS	**38**	**16**	**16**	**5.9**	**35**	**19**	**17**	5.4 U	**10**	**19**	**18**	**14**	**20**	**16**	**16**	**8.4**	**13**	**62**	**15**	**10**	**21**
	Zinc	2,500	2,500	2,500	3,000	3,000	459	**40**	**28**	**18**	**12**	**45**	**28**	**24**	**10**	**24**	**43**	**23**	**24**	**35**	**35**	**30**	**12**	**13**	**480**	**22**	**12**	**17**
TCLP Metals																												
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																												
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:

Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																				
							Sample Matrix:	Sediment				Sediment				Sediment				Sediment		Sediment		Sediment			
							Sample ID:	TSB-3				TSB-4				TSB-5				TSB-6		TSB-7		TSB-8			
							Sample Depth (ft.):	0-1	1-2	2-3	3-4	0-1	1-2	2-3	3-4	0-1	1-2	2-3	3-4	0-2	2-4	0-2	2-4	0-1	1-2.5	2.5-4	2.5-4
							Sample Date:	2/9/2010	2/9/2010	2/9/2010	2/9/2010	2/9/2010	2/9/2010	2/9/2010	2/9/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010
																											Field Dup
PAHs																											
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																											
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.564 U	0.132 U	0.053 U	0.052 U	0.195 UJ	0.226 UJ	0.272 UJ	0.156 U	0.190 UJ	0.219 UJ	0.339 UJ	0.299 UJ	0.200 U	0.109 U	0.216 U	0.220 UJ	0.284 UJ	0.378 UJ	0.324 UJ	0.339 UJ
	Aroclor 1254	2	2	2	3	3	NS	**18.500 J**	**3.010 J**	0.053 U	0.052 U	**0.634 J**	**0.295 J**	0.272 UJ	0.156 U	**3.680 J**	0.219 UJ	0.339 UJ	0.299 UJ	**4.580 J**	**3.650 J**	**5.040 J**	0.220 UJ	**2.280 J**	**2.860 J**	**0.436 J**	0.339 UJ
	Aroclor 1260	2	2	2	3	3	NS	0.564 U	0.132 U	0.053 U	0.052 U	0.195 UJ	0.226 UJ	0.272 UJ	0.156 U	**0.569 J**	0.219 UJ	0.339 UJ	0.299 UJ	0.200 U	0.109 U	0.216 U	0.220 UJ	0.284 UJ	0.378 UJ	0.324 UJ	0.339 UJ
								0.564 U	0.132 U	0.053 U	0.052 U	0.195 UJ	0.226 UJ	0.272 UJ	0.156 U	0.190 UJ	0.219 UJ	0.339 UJ	0.299 UJ	0.200 U	0.109 U	0.216 U	0.220 UJ	0.284 UJ	0.378 UJ	0.324 UJ	0.339 UJ
	Total PCBs	2	2	2	3	3	0.06	**18.500 J**	**3.010 J**	0.053 U	0.052 U	**0.634 J**	**0.295 J**	0.272 UJ	0.156 U	**4.249 J**	0.219 UJ	0.339 UJ	0.299 UJ	**4.580 J**	**3.650 J**	**5.040 J**	0.220 UJ	**2.280 J**	**2.860 J**	**0.436 J**	0.339 UJ
PCB Congeners																											
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																											
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																											
(mg/kg)	Antimony	20	20	20	30	30	NS	7.1 U	11 U	4.5 U	4.5 U	16 U	19 U	23 U	12 U	7.0 U	19 U	29 U	25 U	5.5 U	9.8 U	5.9 U	21 U	**40**	28 U	25 U	22 U
	Arsenic	20	20	20	20	20	33	**9.5**	7.0 U	**4.0**	2.8 U	10 U	**12**	15 U	7.7 U	**6.1**	12 U	18 U	16 U	**12**	**9.7**	**7.9**	13 U	14 U	18 U	16 U	14 U
	Barium	1,000	1,000	1,000	3,000	3,000	NS	**440**	**300**	**28**	**12**	**180**	**240**	**100**	**40**	**560**	**440**	**200**	**100**	**340**	**670**	**750**	**250**	**200**	**45**	**56**	**60**
	Beryllium	100	100	100	200	200	NS	**0.54**	**2.2**	0.28 U	0.28 U	1.0 U	**2.8**	**1.7**	0.77 U	0.43 U	1.2 U	1.8 U	1.6 U	0.34 U	0.61 U	0.37 U	1.3 U	1.4 U	1.8 U	1.6 U	1.4 U
	Cadmium	2	2	2	30	30	5.0	**2.5**	**1.9**	0.28 U	0.28 U	**3.0**	1.2 U	1.5 U	0.77 U	**2.2**	1.2 U	1.8 U	1.6 U	**1.5**	**3.3**	**1.7**	1.3 U	**1.9**	1.8 U	1.6 U	1.4 U
	Chromium	30	30	30	200	200	110	**100**	**75**	**14**	**5.5**	**14**	**47**	**20**	**20**	**28**	**5.2**	**7.2**	**11**	**32**	**38**	**47**	**4.4**	**11**	**4.1**	**12**	**15**
	Lead	300	300	300	300	300	130	**760**	**350**	**3.6**	**1.8**	**71**	**42**	**27**	**7.3**	**390**	**35**	**44**	**31**	**420**	**460**	**570**	**20**	**350**	**9.4**	**8.1**	**5.3**
	Mercury	20	20	20	30	30	0.18	**0.74**	**0.54**	0.021 U	0.014 U	**0.097**	**0.34**	0.10 U	0.040 U	**0.098**	0.087 U	0.17 U	**0.35**	**0.37**	**0.33**	**0.45**	0.061 U	0.13 U	0.15 U	**0.12**	0.081 U
	Nickel	20	20	20	700	700	49	**17**	**13**	**7.8**	**2.4**	**19**	**12**	**9.5**	**10**	**17**	**6.5**	3.6 U	3.2 U	**21**	**41**	**29**	2.7 U	**9.7**	3.5 U	**3.3**	**4.2**
	Selenium	400	400	400	800	800	NS	8.9 U	14 U	5.6 U	5.6 U	20 U	23 U	29 U	15 U	8.7 U	23 U	36 U	32 U	6.9 U	12 U	7.4 U	27 U	29 U	35 U	31 U	27 U
	Silver	100	100	100	200	200	NS	0.89 U	1.4 U	0.56 U	0.56 U	2.0 U	2.3 U	2.9 U	1.5 U	0.87 U	2.3 U	3.6 U	3.2 U	0.69 U	1.2 U	0.74 U	2.7 U	2.9 U	3.5 U	3.1 U	2.7 U
	Vanadium	600	600	600	1,000	1,000	NS	**58**	**25**	**16**	**6.4**	20 U	23 U	**30**	**19**	**26**	23 U	36 U	32 U	**40**	**34**	**33**	27 U	29 U	35 U	31 U	27 U
	Zinc	2,500	2,500	2,500	3,000	3,000	459	**320**	**320**	**28**	**9.8**	**610**	**340**	**140**	**32**	**370**	**170**	**59**	**30**	**400**	**720**	**630**	**26**	**190**	**15**	**9.9**	**5.6**
TCLP Metals																											
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																											
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]																					
	Sample Matrix:							Sediment			Sediment			Sediment					Sediment				Sediment	Sediment	Sediment	Sediment		Sediment
	Sample ID:							TSB-9			TSB-10			TSB-11					TSB-12				SED-KMS-1	SED-KMS-2	SED-KMS-3	SED-KMS-4		SED-KMS-10
	Sample Depth (ft.):							0-1	1-2.5	2.5-4	0-1	1-2.5	2.5-4	0-1	0-1	1-2	2-3	3-4	0-1	1-2	2-3	3-4	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
	Sample Date:							2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/9/2010	2/9/2010	2/9/2010	2/9/2010	2/9/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	5/17/2010	5/17/2010	5/17/2010	5/17/2010	5/17/2010	5/19/2011
															Field Dup												Field Dup	
PAHs																												
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB Aroclors																												
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.669 UJ	0.282 UJ	0.358 UJ	0.136 U	0.190 UJ	0.359 UJ	0.181 UJ	0.183 UJ	0.146 U	0.084 U	0.058 U	0.163 U	0.227 UJ	0.224 UJ	0.057 U	0.153 U	0.266 UJ	0.253 UJ	0.300 UJ	0.336 UJ	0.509 UJ
	Aroclor 1254	2	2	2	3	3	NS	**17.600 J**	**8.290 J**	0.358 UJ	**0.812 J**	0.190 UJ	0.359 UJ	**1.050 J**	**1.550 J**	**0.257 J**	0.084 U	0.058 U	**3.020 J**	**0.399 J**	0.224 UJ	0.057 U	**0.371 J**	0.266 UJ	0.253 UJ	0.300 UJ	0.336 UJ	0.509 UJ
	Aroclor 1260	2	2	2	3	3	NS	0.669 UJ	0.282 UJ	0.358 UJ	0.136 U	0.190 UJ	0.359 UJ	0.181 UJ	0.183 UJ	0.146 U	0.084 U	0.058 U	0.163 U	0.227 UJ	0.224 UJ	0.057 U	0.153 U	0.266 UJ	0.253 UJ	0.300 UJ	0.336 UJ	0.509 UJ
								0.669 UJ	0.282 UJ	0.358 UJ	0.136 U	0.190 UJ	0.359 UJ	0.181 UJ	0.183 UJ	0.146 U	0.084 U	0.058 U	0.163 U	0.227 UJ	0.224 UJ	0.057 U	0.153 U	0.266 UJ	0.253 UJ	0.300 UJ	0.336 UJ	0.509 UJ
	Total PCBs	2	2	2	3	3	0.06	**17.600 J**	**8.290 J**	0.358 UJ	**0.812 J**	0.190 UJ	0.359 UJ	**1.050 J**	**1.550 J**	**0.257 J**	0.084 U	0.058 U	**3.020 J**	**0.399 J**	0.224 UJ	0.057 U	**0.371 J**	0.266 UJ	0.253 UJ	0.300 UJ	0.336 UJ	0.509 UJ
PCB Congeners																												
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																												
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																												
(mg/kg)	Antimony	20	20	20	30	30	NS	15 U	23 U	31 U	6.3 U	16 U	29 U	7.2 U	14 U	13 U	6.1 U	4.9 U	19 U	7.5 U	17 U	4.2 U	NA	NA	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	9.3 U	14 U	19 U	**6.8**	10 U	18 U	**5.3**	9.0 U	8.1 U	3.8 U	3.0 U	12 U	**6.2**	11 U	2.6 U	NA	NA	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	**460**	**280**	**65**	**76**	**180**	**61**	**120**	**320**	**110**	**45**	**21**	**390**	**200**	**93**	**11**	NA	NA	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	0.93 U	1.4 U	1.9 U	0.39 U	1.0 U	1.8 U	0.45 U	**1.1**	**1.5**	0.38 U	0.30 U	1.2 U	0.47 U	**2.0**	0.26 U	NA	NA	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	**1.5**	1.4 U	1.9 U	**1.1**	1.0 U	1.8 U	**0.52**	**1.1**	0.81 U	0.38 U	0.30 U	**1.8**	**12**	1.1 U	0.26 U	NA	NA	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	**7.3**	**7.2**	**6.5**	**13**	**8.3**	**6.7**	**17**	**27**	**36**	**19**	**11**	**36**	**15**	**22**	**3.7**	NA	NA	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	**130**	**23**	5.8 U	**110**	**56**	**6.1**	**120**	**220**	**75**	**13**	**5.0**	**450**	**230**	**10**	**2.3**	NA	NA	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	**0.16**	0.11 U	0.14 U	**0.097**	**0.16**	0.16 U	**0.055**	**0.26**	**0.076**	0.019 U	0.014 U	**0.35**	**0.29**	0.095 U	0.011 U	NA	NA	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	**15**	**9.5**	3.9 U	**12**	**8.9**	3.6 U	**9.2**	**12**	**12**	**8.5**	**4.5**	**19**	**10**	**13**	**1.9**	NA	NA	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	19 U	29 U	39 U	7.9 U	21 U	36 U	9.0 U	18 U	16 U	7.6 U	6.1 U	24 U	9.3 U	21 U	5.3 U	NA	NA	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	1.9 U	2.9 U	3.9 U	0.79 U	2.1 U	3.6 U	0.90 U	1.8 U	1.6 U	0.76 U	0.61 U	2.4 U	0.93 U	2.1 U	0.53 U	NA	NA	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	19 U	29 U	39 U	**17**	21 U	36 U	**13**	**24**	**29**	**20**	**10**	**44**	**18**	**40**	5.3 U	NA	NA	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	**440**	**270**	**33**	**270**	**170**	**17**	**140**	**250**	**86**	**27**	**15**	**320**	**230**	**16**	**7.0**	NA	NA	NA	NA	NA	NA
TCLP Metals																												
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon																												
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
R - Rejected due to surrogate recoveries <10%.
Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:
Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-1
Summary of Detected Analytical Results for Sediment and Soil Samples - 2004 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-1	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	Sediment Screening Criteria[c]	Sediment		Sediment	Sediment
	Sample ID:							SED-KMS-11		SED-KMS-12	SED-KMS-13
	Sample Depth (ft.):							0-0.5	0-0.5	0-0.5	0-0.5
	Sample Date:							5/19/2011	5/19/2011	5/19/2011	5/19/2011
									Field Dup		
PAHs											
(mg/kg)	2-Methylnaphthalene	0.7	80	300	80	500	NS	NA	NA	NA	NA
	Acenaphthene	4	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA
	Acenaphthylene	1	600	10	600	10	NS	NA	NA	NA	NA
	Anthracene	1,000	1,000	1,000	3,000	3,000	0.057	NA	NA	NA	NA
	Benzo[a]anthracene	7	7	7	40	40	0.11	NA	NA	NA	NA
	Benzo[a]pyrene	2	2	2	4	4	0.15	NA	NA	NA	NA
	Benzo[b]fluoranthene	7	7	7	40	40	NS	NA	NA	NA	NA
	Benzo[g,h,i]perylene	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA
	Benzo[k]fluoranthene	70	70	70	400	400	NS	NA	NA	NA	NA
	Chrysene	70	70	70	400	400	0.17	NA	NA	NA	NA
	Dibenz[a,h]anthracene	0.7	0.7	0.7	4	4	0.033	NA	NA	NA	NA
	Fluoranthene	1,000	1,000	1,000	3,000	3,000	0.42	NA	NA	NA	NA
	Fluorene	1,000	1,000	1,000	3,000	3,000	0.077	NA	NA	NA	NA
	Indeno[1,2,3-cd]pyrene	7	7	7	40	40	NS	NA	NA	NA	NA
	Naphthalene	4	40	500	40	1,000	0.18	NA	NA	NA	NA
	Phenanthrene	10	500	500	1,000	1,000	0.2	NA	NA	NA	NA
	Pyrene	1,000	1,000	1,000	3,000	3,000	0.2	NA	NA	NA	NA
PCB Aroclors											
(mg/kg)	Aroclor 1248	2	2	2	3	3	NS	0.246 UJ	0.257 UJ	0.248 UJ	0.217 UJ
	Aroclor 1254	2	2	2	3	3	NS	0.246 UJ	0.257 UJ	0.248 UJ	0.217 UJ
	Aroclor 1260	2	2	2	3	3	NS	0.246 UJ	0.257 UJ	0.248 UJ	0.217 UJ
								0.246 UJ	0.257 UJ	0.248 UJ	0.217 UJ
	Total PCBs	2	2	2	3	3	0.06	0.246 UJ	0.257 UJ	0.248 UJ	0.217 UJ
PCB Congeners											
(pg/g)	77-TeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA
	123-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA
	118-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA
	114-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA
	105-PeCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA
	167-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA
	156,157-HxCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA
	189-HpCB	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA
Pesticides											
(mg/kg)	4,4'-DDD	4	4	4	30	30	NS	NA	NA	NA	NA
	4,4'-DDE	3	3	3	20	20	NS	NA	NA	NA	NA
	4,4'-DDT	3	3	3	20	20	NS	NA	NA	NA	NA
Metals											
(mg/kg)	Antimony	20	20	20	30	30	NS	NA	NA	NA	NA
	Arsenic	20	20	20	20	20	33	NA	NA	NA	NA
	Barium	1,000	1,000	1,000	3,000	3,000	NS	NA	NA	NA	NA
	Beryllium	100	100	100	200	200	NS	NA	NA	NA	NA
	Cadmium	2	2	2	30	30	5.0	NA	NA	NA	NA
	Chromium	30	30	30	200	200	110	NA	NA	NA	NA
	Lead	300	300	300	300	300	130	NA	NA	NA	NA
	Mercury	20	20	20	30	30	0.18	NA	NA	NA	NA
	Nickel	20	20	20	700	700	49	NA	NA	NA	NA
	Selenium	400	400	400	800	800	NS	NA	NA	NA	NA
	Silver	100	100	100	200	200	NS	NA	NA	NA	NA
	Vanadium	600	600	600	1,000	1,000	NS	NA	NA	NA	NA
	Zinc	2,500	2,500	2,500	3,000	3,000	459	NA	NA	NA	NA
TCLP Metals											
(mg/L)	Lead	N/A	N/A	N/A	N/A	5^	N/A	NA	NA	NA	NA
Total Organic Carbon											
(%)	Rep1	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA
	Rep2	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA
	TOC	N/A	N/A	N/A	N/A	N/A	N/A	NA	NA	NA	NA

Notes:

mg/kg - milligrams per kilogram (dry weight).
mg/L - milligrams per liter.
pg/g - picograms per gram (dry weight).
E - Estimated value; exceeds upper limit of calibration.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
UN - Unknown (individual Aroclor concentrations not reported).
NS - No MassDEP standards exist for this analyte.
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Values shown in **bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
(a) - The sample was reextracted and reanalyzed to confirm the results.
(b) - The sample was collected at the same location as sample SDR-4.
(c) - MassDEP Freshwater Sediment Screening Criteria, January 2006; for reference purposes only.
* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.
^ - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Color Coding:

Sample located outside the wetland boundary.
Soil samples located in northern portion of Site.
Soil samples located in southern portion of Site.
Sediment samples located in northern portion of Site.
Sediment samples located in southern portion of Site.
Samples of material accumulated within storm water drain pipes.

Table 4-2
Summary of Detected Analytical Results for Groundwater Samples - 2008 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte			Sample ID:	MW-1														
				Sample Date:	5/22/2008	5/22/2008 Field Dup	9/25/2008	9/25/2008 Field Dup	5/6/2009	5/6/2009 Field Dup	9/17/2009	9/17/2009 Field Dup	1/6/2010	4/21/2010	4/21/2010 Field Dup	9/14/2010	9/14/2010 Field Dup	5/19/2011	5/19/2011 Field Dup
				Compared Standard(s):	**GW-3**														
		GW-1	GW-2	GW-3															
VOCs																			
(ug/L)	Methyl tert-Butyl Ether (MTBE)	70	50,000	50,000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
PCBs																			
(ug/L)	Aroclor 1242	0.5	5	10	0.0500 U	0.0500 U	0.051 U	0.0505 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	NA	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
	Aroclor 1254	0.5	5	10	0.0500 U	0.0500 U	**0.0117 J**	0.0505 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	NA	**0.0208 J**	**0.0174 J**	0.0500 U	0.0500 U	0.0500 U	0.0500 U
	Total PCBs	0.5	5	10	0.0500 U	0.0500 U	**0.0117 J**	0.0505 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	NA	**0.0208 J**	**0.0174 J**	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Metals, total																			
(ug/L)	Arsenic	10	NS	900	NA	NA	NA	NA	NA	NA	NA	NA	**7.8**	NA	NA	NA	NA	NA	NA
	Barium	2,000	NS	50,000	NA	NA	NA	NA	NA	NA	NA	NA	**100**	NA	NA	NA	NA	NA	NA
	Chromium	100	NS	300	NA	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
	Lead	15	NS	10	NA	NA	NA	NA	NA	NA	NA	NA	7.5 U	NA	NA	NA	NA	NA	NA
	Mercury	2	NS	20	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	NA	NA	NA	NA	NA	NA
	Nickel	100	NS	200	NA	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA
	Zinc	5,000	NS	900	NA	NA	NA	NA	NA	NA	NA	NA	**86**	NA	NA	NA	NA	NA	NA
Metals, dissolved																			
(ug/L)	Arsenic	10	NS	900	10.0 U	NA	0.50 U	0.50 U	5.0 U	5.0 U	5.0 U	5.0 U	**8.6**	10 U	10 U	0.40 U	0.40 U	0.40 U	0.40 U
	Barium	2,000	NS	50,000	100 U	NA	**116.5**	**105.8**	**79**	**77**	**100**	**100**	**98**	**130**	**130**	**61**	**54**	**59**	**56**
	Chromium	100	NS	300	10.0 U	NA	**0.90**	**0.90**	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	**1.3**	**1.3**	1.0 U	1.0 U
	Lead	15	NS	10	5.0 U	NA	0.50 U	0.50 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	10 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U
	Nickel	100	NS	200	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	NA	NA	NA	NA	NA	NA
	Selenium	50	NS	100	**60**	NA	**2.0**	**3.0**	25 U	25 U	25 U	25 U	25 U	50 U	50 U	5.0 U	5.0 U	5.0 U	5.0 U
	Zinc	5,000	NS	900	NA	NA	NA	NA	**15**	**19**	**15**	**13**	**18.0**	NA	NA	NA	NA	NA	NA

Notes:
ug/L - micrograms per liter.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
NS - No MassDEP standards exist for this compound.
U - Compound was not detected at specified quantitation limit.
Values in **Bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the compared MassDEP Method 1 standards.
VOCs - Volatile Organic Compounds.
PCBs - Polychlorinated Biphenyls.
(1) - MassDEP Method 1 standards for C9-C10 aromatic hydrocarbons used.
(2) - MassDEP Method 1 standards for 1,3-Dichloropropene used.

Table 4-2
Summary of Detected Analytical Results for Groundwater Samples - 2008 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte			Sample ID:	MW-2								MW-3							
				Sample Date:	5/22/2008	9/25/2008	5/6/2009	9/17/2009	1/6/2010	4/21/2010	9/14/2010	5/19/2011	5/22/2008	9/25/2008	5/6/2009	9/17/2009	1/6/2010	4/21/2010	9/14/2010	5/19/2011
				Compared Standard(s):	**GW-3**								**GW-1/3**							
		GW-1	GW-2	GW-3																
VOCs																				
(ug/L)	Methyl tert-Butyl Ether (MTBE)	70	50,000	50,000	**3.3**	**1.3**	1.0 U	1.0 U	NA	1.0 U	**1.6**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
PCBs																				
(ug/L)	Aroclor 1242	0.5	5	10	0.0500 U	0.0833 U	0.0556 U	0.0500 U	NA	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0505 U	0.0515 U	0.0500 U	NA	0.0500 U	0.0500 U	0.0500 U
	Aroclor 1254	0.5	5	10	0.0500 U	0.0833 U	0.0556 U	0.0500 U	NA	0.0500 U	0.0500 U	0.0500 U	0.0500 U	**0.0166 J**	**0.152 J**	0.0500 U	NA	0.0500 U	0.0500 U	0.0500 U
	Total PCBs	0.5	5	10	0.0500 U	0.0833 U	0.0556 U	0.0500 U	NA	0.0500 U	0.0500 U	0.0500 U	0.0500 U	**0.0166 J**	**0.152 J**	0.0500 U	NA	0.0500 U	0.0500 U	0.0500 U
Metals, total																				
(ug/L)	Arsenic	10	NS	900	NA	NA	NA	NA	**11.0**	NA	NA	NA	NA	NA	NA	NA	**7.5**	NA	NA	NA
	Barium	2,000	NS	50,000	NA	NA	NA	NA	**450**	NA	NA	NA	NA	NA	NA	NA	**470**	NA	NA	NA
	Chromium	100	NS	300	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA
	Lead	15	NS	10	NA	NA	NA	NA	7.5 U	NA	NA	NA	NA	NA	NA	NA	**34**	NA	NA	NA
	Mercury	2	NS	20	NA	NA	NA	NA	**0.14**	NA	NA	NA	NA	NA	NA	NA	0.10 U	NA	NA	NA
	Nickel	100	NS	200	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA
	Zinc	5,000	NS	900	NA	NA	NA	NA	**160**	NA	NA	NA	NA	NA	NA	NA	**38**	NA	NA	NA
Metals, dissolved																				
(ug/L)	Arsenic	10	NS	900	10.0 U	**0.90**	5.0 U	5.0 U	**7.4**	10 U	**5.2**	0.40 U	10.0 U	**0.60**	5.0 U	5.0 U	**7.0**	10 U	0.40 U	0.40 U
	Barium	2,000	NS	50,000	**516**	**562**	**360**	**740**	**300**	**190**	**1,200**	**340**	**324**	**326.6**	**110**	**390**	**420**	**76**	**310**	**83**
	Chromium	100	NS	300	10.0 U	**1.0**	5.0 U	5.0 U	5.0 U	10 U	**2.1**	1.0 U	10.0 U	**0.90**	5.0 U	5.0 U	5.0 U	10 U	**1.6**	**1.1**
	Lead	15	NS	10	5.0 U	0.5 U	7.5 U	7.5 U	7.5 U	10 U	1.0 U	1.0 U	5.0 U	**1.2**	7.5 U	7.5 U	7.5 U	10 U	**1.9**	**4.7**
	Nickel	100	NS	200	NA	NA	NA	5.0 U	5.0 U	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	NA	NA	NA
	Selenium	50	NS	100	50 U	**2.0**	25 U	25 U	25 U	50 U	5.0 U	5.0 U	50 U	1.0 U	25 U	25 U	25 U	50 U	5.0 U	5.0 U
	Zinc	5,000	NS	900	NA	NA	**57**	**35**	**97**	NA	NA	NA	NA	NA	**13**	**32**	**41**	NA	NA	NA

Notes:
ug/L - micrograms per liter.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
NS - No MassDEP standards exist for this compound.
U - Compound was not detected at specified quantitation limit.
Values in **Bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the compared MassDEP Method 1 standards.
VOCs - Volatile Organic Compounds.
PCBs - Polychlorinated Biphenyls.
(1) - MassDEP Method 1 standards for C9-C10 aromatic hydrocarbons used.
(2) - MassDEP Method 1 standards for 1,3-Dichloropropene used.

Table 4-2
Summary of Detected Analytical Results for Groundwater Samples - 2008 through 2011
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte			Sample ID:	MW-9		MW-10	MW-37	MW-38	MW-39	
				Sample Date:	1/7/2010	1/7/2010 Field Dup	1/7/2010	1/13/2011	1/13/2011	1/13/2011	1/13/2011 Field Dup
				Compared Standard(s):	**GW-1/3**		**GW-1/3**	**GW-1/3**	**GW-1/3**	**GW-1/3**	
		GW-1	GW-2	GW-3							
VOCs											
(ug/L)	Methyl tert-Butyl Ether (MTBE)	70	50,000	50,000	NA	NA	NA	NA	NA	NA	NA
PCBs											
(ug/L)	Aroclor 1242	0.5	5	10	**0.0495 J**	**0.0500 J**	0.0500 U	0.0500 U	0.0500 U	0.0500 U	NA
	Aroclor 1254	0.5	5	10	**0.0235 J**	**0.0311 J**	0.0500 U	0.0500 U	0.0500 U	0.0500 U	NA
	Total PCBs	0.5	5	10	**0.0730 J**	**0.0811 J**	0.0500 U	0.0500 U	0.0500 U	0.0500 U	NA
Metals, total											
(ug/L)	Arsenic	10	NS	900	**8.9**	**9.1**	5.0 U	0.40 U	**0.96**	0.40 U	0.40 U
	Barium	2,000	NS	50,000	**360**	**360**	50 U	**170**	**240**	**51**	**49**
	Chromium	100	NS	300	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	**1.4**	1.0 U
	Lead	15	NS	10	7.5 U	7.5 U	7.5 U	1.0 U	1.0 U	1.0 U	1.0 U
	Mercury	2	NS	20	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
	Nickel	100	NS	200	**7.1**	**6.8**	5.0 U	**8.9**	**6.1**	5.0 U	**5.5**
	Zinc	5,000	NS	900	**100**	**130**	**16**	**45**	**37**	**24**	**24**
Metals, dissolved											
(ug/L)	Arsenic	10	NS	900	**8.2**	**9.8**	5.0 U	0.40 U	**0.93**	0.40 U	0.40 U
	Barium	2,000	NS	50,000	**330**	**340**	50 U	**150**	**240**	**47**	**49**
	Chromium	100	NS	300	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	Lead	15	NS	10	7.5 U	7.5 U	7.5 U	1.0 U	1.0 U	1.0 U	1.0 U
	Nickel	100	NS	200	**6.7**	**6.8**	5.0 U	**12**	**6.2**	5.0 U	5.0 U
	Selenium	50	NS	100	25 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U
	Zinc	5,000	NS	900	**99**	**94**	**17**	**47**	**30**	**19**	**23**

Notes:
ug/L - micrograms per liter.
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
NS - No MassDEP standards exist for this compound.
U - Compound was not detected at specified quantitation limit.
Values in **Bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the compared MassDEP Method 1 standards.
VOCs - Volatile Organic Compounds.
PCBs - Polychlorinated Biphenyls.
(1) - MassDEP Method 1 standards for C9-C10 aromatic hydrocarbons used.
(2) - MassDEP Method 1 standards for 1,3-Dichloropropene used.

Table 4-3
Summary of Detected Analytical Results for Surface Water Samples - 2009 and 2010
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	Sample ID:	ERC-SW-7							ERC-SW-9				ERC-SW-11	ERC-SW-11A
		Sample Date:	3/5/2009	12/28/2009	3/10/2010	4/21/2010	5/5/2010	5/17/2010	8/23/2010	3/5/2009	3/5/2009	12/28/2009	3/10/2010	8/23/2010	3/6/2009
		Criteria*									Field Dup				
Metals, total															
(ug/L)	Barium	NS	**11.8**	NA	NA	NA	NA	NA	NA	**9.4**	**9.7**	NA	NA	NA	**27.1**
	Chromium	NS	0.50 U	NA	NA	NA	NA	NA	NA	0.50 U	0.50 U	NA	NA	NA	0.50 U
	Lead	NS	0.50 U	NA	NA	NA	NA	NA	NA	**0.60**	**0.70**	NA	NA	NA	0.50 U
	Nickel	NS	**0.50**	NA	NA	NA	NA	NA	NA	0.50 U	0.50 U	NA	NA	NA	0.50 U
	Zinc	NS	**32.1**	NA	NA	NA	NA	NA	NA	**29.8**	**33.0**	NA	NA	NA	**23.4**
Metals, dissolved															
(ug/L)	Barium	NS	**12.2**	NA	NA	NA	NA	NA	NA	**8.6**	**8.3**	NA	NA	NA	**26.9**
	Calcium	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Magnesium	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	52	**0.70**	NA	NA	NA	NA	NA	NA	0.50 U	0.50 U	NA	NA	NA	**0.50**
	Zinc	22.6**	**35.0**	50 U	**9.30**	**8.50**	**11.90**	**6.30**	5.0 U	**30.4**	**29.2**	50 U	**23.7**	**6.0**	**21.9**
Hardness															
(ug/L)	Hardness	NS	**9,400**	**8,700**	**16,000**	**21,000**	**18,000**	**17,000**	**18,000**	**6,800**	**6,600**	**5,700**	**9,600**	**31,000**	**12,000**

Notes:
All units in ug/L unless otherwise specified.
ug/L - micrograms per liter.
NA - Sample not analyzed for the listed analyte.
NS - No criteria exist for this analyte.
U - Compound was not detected at specified quantitation limit.
Values in **Bold** indicate the compound was detected.
* - EPA National Recommended Water Quality Criteria, Freshwater CCC, 2006.
** - Site-specific surface water standard for zinc determined pursuant to
314 CMR 4.05(5)(e) and EPA National Recommended Water Quality
Criteria (2009) using mean detected water hardness concentration of 14.2 milligrams per liter.

Table 4-3
Summary of Detected Analytical Results for Surface Water Samples - 2009 and 2010
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	Sample ID:	ERC-SW-14	ERC-SW-16	ERC-SW-20	ERC-SW-21	ERC-SW-22	ERC-SW-23	ERC-SW-24	ERC-SW-25	ERC-SW-26	ERC-SW-27	ERC-SW-28		ERC-SW-29
		Sample Date:	3/6/2009	3/20/2009	7/17/2009	7/17/2009	7/17/2009	7/17/2009	7/17/2009	7/17/2009	7/17/2009	7/17/2009	7/17/2009	7/17/2009	7/17/2009
		Criteria*												Field Dup	
Metals, total															
(ug/L)	Barium	NS	**5.5**	**28**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	NS	**0.60**	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	NS	0.50 U	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	NS	0.50 U	25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	NS	**22.5**	50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals, dissolved															
(ug/L)	Barium	NS	**1.7**	**25**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Calcium	NS	NA	NA	**3,100**	**4,900**	**4,600**	**3,500**	**1,700**	**1,900**	**1,600**	**5,300**	**16,000**	**3,700**	**4,800**
	Magnesium	NS	NA	NA	**470**	**590**	**750**	**390**	**280**	**320**	**270**	**620**	**1,800**	**380**	**610**
	Nickel	52	0.50 U	25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	22.6**	**18.2**	50 U	**35**	**38**	**63**	**44**	**42**	20 U	**30**	**27**	**40**	20 U	20 U
Hardness															
(ug/L)	Hardness	NS	**8,200**	**27,000**	**9,200**	**16,000**	**18,000**	**9,500**	**6,300**	**6,800**	**5,300**	**18,000**	**44,000**	**11,000**	**15,000**

Notes:
All units in ug/L unless otherwise specified.
ug/L - micrograms per liter.
NA - Sample not analyzed for the listed analyte.
NS - No criteria exist for this analyte.
U - Compound was not detected at specified quantitation limit.
Values in **Bold** indicate the compound was detected.
* - EPA National Recommended Water Quality Criteria, Freshwater CCC, 2006.
** - Site-specific surface water standard for zinc determined pursuant to
314 CMR 4.05(5)(e) and EPA National Recommended Water Quality
Criteria (2009) using mean detected water hardness concentration of 14.2 milligrams per liter.

Table 6-1
Summary of Analytical Results for Fenceline Soil Samples - Durfee Street Properties
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte					Sample ID:	SB-27			SB-95			SB-100		SB-101			SB-105			
						Sample Depth (ft.)*:	1.0	3.5	7.0	1	4	8	1	5	1	3.5	7	1	4	7	10
						Sample Date:	11/29/2007	11/29/2007	11/29/2007	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/5/2008	5/6/2008	5/6/2008	5/6/2008	5/6/2008
		S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RC S-1**															
PAHs																					
(mg/kg)	Acenaphthene	1,000	1,000	3,000	3,000	4	0.20 U	**0.32**	0.19 U	0.19 U	0.20 U	0.19 U	0.21 U	0.19 U	0.20 U	**34.5**	0.18 U	0.21 U	0.19 U	0.19 U	NA
	Acenaphthylene	600	10	600	10	1	0.20 U	0.24 U	0.19 U	0.19 U	0.20 U	0.19 U	0.21 U	0.19 U	0.20 U	1.11 U	0.18 U	0.21 U	0.19 U	0.19 U	NA
	Anthracene	1,000	1,000	3,000	3,000	1,000	0.20 U	**0.94**	0.19 U	0.19 U	0.20 U	0.19 U	0.21 U	0.19 U	0.20 U	**61.8**	0.18 U	0.21 U	0.19 U	0.19 U	NA
	Benzo(a)anthracene	7	7	40	40	7	0.20 U	**3.12**	0.19 U	**0.19**	**0.34**	0.19 U	**0.35**	0.19 U	**0.24**	**77.9**	0.18 U	0.21 U	0.19 U	0.19 U	NA
	Benzo(a)pyrene	2	2	4	4	2	0.20 U	**2.73**	0.19 U	**0.20**	**0.33**	0.19 U	**0.38**	0.19 U	**0.25**	**59.5**	0.18 U	0.21 U	0.19 U	0.19 U	NA
	Benzo(b)fluoranthene	7	7	40	40	7	0.20 U	**3.63**	0.19 U	**0.23**	**0.46**	0.19 U	**0.63**	0.19 U	**0.39**	**79.0**	0.18 U	**0.25**	0.19 U	0.19 U	NA
	Benzo(g,h,i)perylene	1,000	1,000	3,000	3,000	1,000	0.20 U	**1.08**	0.19 U	0.19 U	0.20 U	0.19 U	0.21 U	0.19 U	0.20 U	**20.3**	0.18 U	0.21 U	0.19 U	0.19 U	NA
	Benzo(k)fluoranthene	70	70	400	400	70	0.20 U	**1.22**	0.19 U	0.19 U	0.20 U	0.19 U	**0.20**	0.19 U	0.20 U	**31.2**	0.18 U	0.21 U	0.19 U	0.19 U	NA
	Chrysene	70	70	400	400	70	0.20 U	**2.98**	0.19 U	**0.21**	**0.31**	0.19 U	**0.43**	0.19 U	**0.26**	**71.9**	0.18 U	0.21 U	0.19 U	0.19 U	NA
	Dibenz(a,h)anthracene	0.7	0.7	4	4	0.7	0.20 U	**0.31**	0.19 U	0.19 U	0.20 U	0.19 U	0.21 U	0.19 U	0.20 U	**6.84**	0.18 U	0.21 U	0.19 U	0.19 U	NA
	Fluoranthene	1,000	1,000	3,000	3,000	1,000	0.20 U	**3.73**	0.19 U	**0.32**	**0.62**	0.19 U	**0.76**	0.19 U	**0.47**	**228**	0.18 U	**0.28**	0.19 U	0.19 U	NA
	Fluorene	1,000	1,000	3,000	3,000	1,000	0.20 U	**0.34**	0.19 U	0.19 U	0.20 U	0.19 U	0.21 U	0.19 U	0.20 U	**42.5**	0.18 U	0.21 U	0.19 U	0.19 U	NA
	Indeno(1,2,3-cd)pyrene	7	7	40	40	7	0.20 U	**1.34**	0.19 U	0.19 U	0.20 U	0.19 U	0.21 U	0.19 U	0.20 U	**28.6**	0.18 U	0.21 U	0.19 U	0.19 U	NA
	2-Methylnaphthalene	80	300	80	500	1	0.20 U	0.24 U	0.19 U	0.19 U	0.20 U	0.19 U	0.21 U	0.19 U	0.20 U	**16.6**	0.18 U	0.21 U	0.19 U	0.19 U	NA
	Naphthalene	40	500	40	1,000	4	0.20 U	0.24 U	0.19 U	0.19 U	0.20 U	0.19 U	0.21 U	0.19 U	0.20 U	**46.5**	0.18 U	0.21 U	0.19 U	0.19 U	NA
	Phenanthrene	500	500	1,000	1,000	10	0.20 U	**4.32**	0.19 U	**0.25**	**0.39**	0.19 U	**0.47**	0.19 U	**0.32**	**288**	0.18 U	**0.23**	0.19 U	0.19 U	NA
	Pyrene	1,000	1,000	3,000	3,000	1,000	**0.22**	**4.26**	0.19 U	**0.39**	**0.45**	0.19 U	**0.48**	0.19 U	**0.31**	**163**	0.18 U	**0.39**	0.19 U	0.19 U	NA
PCB Aroclors																					
(mg/kg)	Aroclor 1016	2	2	3	3	2	0.0576 U	0.0648 U	0.0526 U	0.0580 U	0.0638 U	0.0536 U	0.0595 U	0.0525 U	0.0580 U	0.0667 U	0.0532 U	0.0510 U	0.0529 U	0.0505 U	NA
	Aroclor 1221	2	2	3	3	2	0.0576 U	0.0648 U	0.0526 U	0.0580 U	0.0638 U	0.0536 U	0.0595 U	0.0525 U	0.0580 U	0.0667 U	0.0532 U	0.0510 U	0.0529 U	0.0505 U	NA
	Aroclor 1232	2	2	3	3	2	0.0576 U	0.0648 U	0.0526 U	0.0580 U	0.0638 U	0.0536 U	0.0595 U	0.0525 U	0.0580 U	0.0667 U	0.0532 U	0.0510 U	0.0529 U	0.0505 U	NA
	Aroclor 1242	2	2	3	3	2	0.0576 U	0.0648 U	0.0526 U	0.0580 U	0.0638 U	0.0536 U	0.0595 U	0.0525 U	0.0580 U	0.0667 U	0.0532 U	0.0510 U	0.0529 U	0.0505 U	NA
	Aroclor 1248	2	2	3	3	2	0.0576 U	0.0648 U	0.0526 U	0.0580 U	0.0638 U	0.0536 U	0.0595 U	0.0525 U	0.0580 U	0.0667 U	0.0532 U	0.0510 U	0.0529 U	0.0505 U	NA
	Aroclor 1254	2	2	3	3	2	**0.0845 ***	**1.19 ***	0.0526 U	**0.0865 J**	**1.27 J**	0.0536 U	**0.270 J**	0.0525 U	**0.0789 J**	**0.515 J**	0.0532 U	**0.155 J**	0.0529 U	0.0505 U	NA
	Aroclor 1260	2	2	3	3	2	0.0576 U	0.0648 U	0.0526 U	0.0580 U	**0.182 J**	0.0536 U	0.0595 U	0.0525 U	0.0580 U	0.0667 U	0.0532 U	0.051 U	0.0529 U	0.0505 U	NA
	Total PCBs	2	2	3	3	2	**0.0845**	**1.19**	0.0526 U	**0.0865 J**	**1.452 J**	0.0536 U	**0.270 J**	0.0525 U	**0.0789 J**	**0.515 J**	0.0532 U	**0.155 J**	0.0529 U	0.0505 U	NA
PCB Homologs																					
(mg/kg)	Monochlorobiphenyls	N/A	N/A	N/A	N/A	N/A	NA	0.016 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dichlorobiphenyls	N/A	N/A	N/A	N/A	N/A	NA	0.016 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Trichlorobiphenyls	N/A	N/A	N/A	N/A	N/A	NA	0.016 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Tetrachlorobiphenyls	N/A	N/A	N/A	N/A	N/A	NA	0.032 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pentachlorobiphenyls	N/A	N/A	N/A	N/A	N/A	NA	**0.11**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Hexachlorobiphenyls	N/A	N/A	N/A	N/A	N/A	NA	**0.046**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Heptachlorobiphenyls	N/A	N/A	N/A	N/A	N/A	NA	0.049 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Octachlorobiphenyls	N/A	N/A	N/A	N/A	N/A	NA	0.049 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nonachlorobiphenyls	N/A	N/A	N/A	N/A	N/A	NA	0.081 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Decachlorobiphenyls	N/A	N/A	N/A	N/A	N/A	NA	0.081 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Total PCBs	2	2	3	3	2	NA	**0.156**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals, total																					
(mg/kg)	Antimony	20	20	30	30	20	4.65 U	5.61 U	4.48 U	4.50 U	4.74 U	4.50 U	4.91 U	4.47 U	4.61 U	5.32 U	4.31 U	4.90 U	4.35 U	4.35 U	4.48 U
	Arsenic	20	20	20	20	20	2.91 U	3.51 U	2.80 U	2.81 U	2.96 U	2.82 U	**4.42**	2.80 U	2.88 U	**7.22**	2.69 U	3.06 U	2.72 U	2.72 U	**3.25**
	Barium	1,000	1,000	3,000	3,000	1,000	**31.1**	**135**	**6.78**	**41.7**	**135**	**24.8**	**128**	**15.4**	**60.4**	**314**	**22.2**	**31.2**	**132**	**58.3**	**24.3**
	Beryllium	100	100	200	200	100	0.30 U	0.36 U	0.28 U	0.29 U	**0.67**	0.29 U	0.31 U	0.28 U	0.29 U	0.34 U	0.27 U	0.31 U	0.28 U	0.28 U	**0.38**
	Cadmium	2	2	30	30	2	0.30 U	**1.12**	0.28 U	0.29 U	**0.92**	0.29 U	**5.17**	0.28 U	**0.50**	**4.52**	0.27 U	0.31 U	**0.72**	0.28 U	0.28 U
	Chromium	30	30	200	200	30	**10.4**	**10.4**	**6.18**	**9.75**	**11.2**	**22.4**	**25.7**	**8.96**	**61.7**	**31.5**	**11.0**	**19.9**	**11.5**	**39.8**	**11.9**
	Lead	300	300	300	300	300	**60.9**	**366**	**3.25**	**95.8**	**443**	**3.60**	**816**	**9.18**	**150**	**749**	**3.36**	**3.39**	**587**	**5.53**	**3.07**
	Nickel	20	20	700	700	20	**6.10**	**6.70**	**5.59**	**5.20**	**5.15**	**10.3**	**15.1**	**5.90**	**5.96**	**78.9**	**6.38**	**13.3**	**5.30**	**17.0**	**5.11**
	Selenium	400	400	800	800	400	5.81 U	7.01 U	5.60 U	5.62 U	5.92 U	5.63 U	6.13 U	5.59 U	5.76 U	6.65 U	5.38 U	6.12 U	5.43 U	5.43 U	5.60 U
	Silver	100	100	200	200	100	0.59 U	0.71 U	0.56 U	0.57 U	**1.57**	**0.60**	**1.22**	0.56 U	**0.69**	**3.99**	0.54 U	**0.67**	**0.61**	**0.68**	**1.02**
	Thallium	8	8	60	60	8	3.49 U	4.21 U	3.36 U	3.38 U	3.56 U	3.38 U	3.68 U	3.35 U	3.46 U	3.99 U	3.23 U	3.68 U	3.26 U	3.26 U	3.36 U
	Vanadium	600	600	1,000	1,000	600	**14.1**	**18.6**	**9.44**	**13.6**	**21.5**	**21.9**	**17.5**	**12.7**	**19.1**	**21.9**	**17.8**	**24.2**	**14.1**	**27.8**	**13.3**
	Zinc	2,500	2,500	3,000	3,000	2,500	**41.2**	**254**	**23.0**	**64.9**	**168**	**27.9**	**497**	**26.6**	**131**	**1050**	**35.6**	**41.6**	**204**	**34.5**	**26.3**
	Mercury	20	20	30	30	20	**0.046**	**0.174**	**0.017**	**0.120**	**0.432**	0.011 U	**0.557**	**0.013**	**0.201**	**0.557**	0.022 U	**0.112**	**0.019**	0.010 U	0.010 U

Notes:

All units in mg/kg unless otherwise specified.

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

NA - Sample not analyzed for the listed analyte.

N/A - Not applicable/available.

U - Compound was not detected at specified quantitation limit.

Values in **Bold** indicate the compound was detected.

Values shown in Bold and shaded type exceed one or more of the listed Method 1 standards.

PAHs - Polynuclear Aromatic Hydrocarbons.

PCB - Polychlorinated Biphenyl.

RC - Reportable Concentration.

* - The sample exhibits altered PCB pattern; best possible Aroclor match reported.

** - For reference purposes only.

Table 7-1
Summary Statistics for Soil Samples - Summit Street ROW Near Land Bridge (0-1')
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-2	S-1/GW-3	UCL*	Background	# of Samples	# of Detects	Freq. of Detects	Min. of Detects (mg/kg)	Max. of Detects (mg/kg)	Location of Max. Detected	Min. of Non-Detects (mg/kg)	Max. of Non-Detects (mg/kg)	Mean Concentration (mg/kg)	EPC (mg/kg)	EPC Rationale
PAHs																
	Acenaphthylene	600	10	10,000	0.5	4	1	25.0%	0.38	0.38	WSB-16	0.18	0.36	1.9E-01	NA	Below background
	Benzo[a]anthracene	7	7	3,000	2	4	2	50.0%	0.83	1.7	WSB-16	0.18	0.36	7.0E-01	NA	Below background
	Benzo[a]pyrene	2	2	300	2	4	2	50.0%	0.88	**2.2**	WSB-16	0.18	0.36	8.4E-01	8.4E-01	Mean
	Benzo[b]fluoranthene	7	7	3,000	2	4	2	50.0%	1.2	2.6	WSB-16	0.18	0.36	1.0E+00	1.0E+00	Mean
	Benzo[g,h,i]perylene	1,000	1,000	10,000	1	4	2	50.0%	0.45	1	WSB-16	0.18	0.36	4.3E-01	NA	Below background
	Benzo[k]fluoranthene	70	70	10,000	1	4	2	50.0%	0.45	1.1	WSB-16	0.18	0.36	4.6E-01	4.6E-01	Mean
	Chrysene	70	70	10,000	2	4	2	50.0%	0.91	1.9	WSB-16	0.18	0.36	7.7E-01	NA	Below background
	Fluoranthene	1,000	1,000	10,000	4	4	2	50.0%	2	2.3	WSB-16	0.18	0.36	1.1E+00	NA	Below background
	Indeno[1,2,3-cd]pyrene	7	7	3,000	1	4	2	50.0%	0.52	1.3	WSB-16	0.18	0.36	5.2E-01	5.2E-01	Mean
	Phenanthrene	500	500	10,000	3	4	2	50.0%	0.78	1.5	WSB-16	0.18	0.36	6.4E-01	NA	Below background
	Pyrene	1,000	1,000	10,000	4	4	2	50.0%	1.5	2.4	WSB-16	0.18	0.36	1.0E+00	NA	Below background
PCB Aroclors																
	Total PCBs	2	2	100	NA	4	2	50.0%	0.864	1.37	WSB-19	0.0539	0.0544	5.7E-01	5.7E-01	Mean
Metals																
	Arsenic	20	20	200	20	4	4	100.0%	2.7	5.9	WSB-16	--	--	4.1E+00	NA	Below background
	Barium	1,000	1,000	10,000	50	4	4	100.0%	41	97	WSB-17	--	--	7.2E+01	7.2E+01	Mean
	Chromium	30	30	2,000	30	4	4	100.0%	15	**67**	WSB-17	--	--	4.2E+01	6.7E+01	Maximum
	Lead	300	300	3,000	100	4	4	100.0%	5.2	120	WSB-19	--	--	4.3E+01	4.3E+01	Mean
	Mercury	20	20	300	0.3	4	2	50.0%	0.098	0.1	WSB-19	0.02	0.023	5.5E-02	NA	Below background
	Nickel	20	20	7,000	20	4	4	100.0%	6.1	**30**	WSB-17	--	--	1.9E+01	3.0E+01	Maximum
	Vanadium	600	600	10,000	30	4	4	100.0%	19	38	WSB-17	--	--	3.0E+01	3.0E+01	Mean
	Zinc	2,500	2,500	10,000	100	4	4	100.0%	38	45	WSB-18	--	--	4.2E+01	NA	Below background

Notes:
mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).
NA - Not available or not applicable.
NS - No MassDEP standards exist for this analyte.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
Values outlined exceed Background but are less than the listed Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
UCL* - Upper Concentration Limit
EPC - Exposure Point Concentration.
Background - Background Concentration for natural soil.

Table 7-2
Summary Statistics for Soil Samples - Durfee Street ROW (0-1')
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-2	S-1/GW-3	UCL*	Background	# of Samples	# of Detects	Freq. of Detects	Min. of Detects (mg/kg)	Max. of Detects (mg/kg)	Location of Max. Detected	Min. of Non-Detects (mg/kg)	Max. of Non-Detects (mg/kg)	Mean Concentration (mg/kg)	EPC (mg/kg)	EPC Rationale
PCB Aroclors																
	Total PCBs	2	2	100	NA	3	3	100.0%	0.108	0.844	R-3	--	--	3.5E-01	3.5E-01	Mean

Notes:
mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).
NA - Not available or not applicable.
PCB - Polychlorinated Biphenyl.
UCL* - Upper Concentration Limit
EPC - Exposure Point Concentration.
Background - Background Concentration for natural soil.

Table 7-3
Summary Statistics for Soil Samples - Summit Street ROW Near Land Bridge (0-3')
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-2	S-1/GW-3	UCL*	Background	# of Samples	# of Detects	Freq. of Detects	Min. of Detects (mg/kg)	Max. of Detects (mg/kg)	Location of Max. Detected	Min. of Non-Detects (mg/kg)	Max. of Non-Detects (mg/kg)	Mean Concentration (mg/kg)	EPC (mg/kg)	EPC Rationale
PAHs																
	Acenaphthylene	600	10	10,000	0.5	8	1	12.5%	0.38	0.38	WSB-16	0.18	0.39	1.7E-01	NA	Below background
	Benzo[a]anthracene	7	7	3,000	2	8	2	25.0%	0.83	1.7	WSB-16	0.18	0.39	4.2E-01	NA	Below background
	Benzo[a]pyrene	2	2	300	2	8	2	25.0%	0.88	**2.2**	WSB-16	0.18	0.39	4.9E-01	4.9E-01	Mean
	Benzo[b]fluoranthene	7	7	3,000	2	8	2	25.0%	1.2	2.6	WSB-16	0.18	0.39	5.8E-01	5.8E-01	Mean
	Benzo[g,h,i]perylene	1,000	1,000	10,000	1	8	2	25.0%	0.45	1	WSB-16	0.18	0.39	2.9E-01	NA	Below background
	Benzo[k]fluoranthene	70	70	10,000	1	8	2	25.0%	0.45	1.1	WSB-16	0.18	0.39	3.0E-01	3.0E-01	Mean
	Chrysene	70	70	10,000	2	8	2	25.0%	0.91	1.9	WSB-16	0.18	0.39	4.6E-01	NA	Below background
	Fluoranthene	1,000	1,000	10,000	4	8	2	25.0%	2	2.3	WSB-16	0.18	0.39	6.4E-01	NA	Below background
	Indeno[1,2,3-cd]pyrene	7	7	3,000	1	8	2	25.0%	0.52	1.3	WSB-16	0.18	0.39	3.3E-01	3.3E-01	Mean
	Phenanthrene	500	500	10,000	3	8	2	25.0%	0.78	1.5	WSB-16	0.18	0.39	3.9E-01	NA	Below background
	Pyrene	1,000	1,000	10,000	4	8	2	25.0%	1.5	2.4	WSB-16	0.18	0.39	5.9E-01	NA	Below background
PCB Aroclors																
	Total PCBs	2	2	100	NA	8	6	75.0%	0.082	**4.69**	WSB-16	0.0539	0.0544	9.4E-01	9.4E-01	Mean
Metals																
	Arsenic	20	20	200	20	8	6	75.0%	2.7	5.9	WSB-16	2.8	2.9	3.5E+00	NA	Below background
	Barium	1,000	1,000	10,000	50	8	8	100.0%	18	97	WSB-17	--	--	4.7E+01	4.7E+01	Mean
	Chromium	30	30	2,000	30	8	8	100.0%	9.15	**67**	WSB-17	--	--	2.7E+01	6.7E+01	Maximum
	Lead	300	300	3,000	100	8	8	100.0%	5.2	120	WSB-19	--	--	3.2E+01	3.2E+01	Mean
	Mercury	20	20	300	0.3	8	6	75.0%	0.025	0.1	WSB-19	0.02	0.023	5.3E-02	NA	Below background
	Nickel	20	20	7,000	20	8	8	100.0%	5.15	**30**	WSB-17	--	--	1.2E+01	1.2E+01	Mean
	Vanadium	600	600	10,000	30	8	8	100.0%	16	38	WSB-17	--	--	2.4E+01	2.4E+01	Mean
	Zinc	2,500	2,500	10,000	100	8	8	100.0%	23	45	WSB-18	--	--	3.4E+01	NA	Below background

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

NA - Not available or not applicable.

NS - No MassDEP standards exist for this analyte.

Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

Values outlined exceed Background but are less than the listed Method 1 standards.

PAHs - Polynuclear Aromatic Hydrocarbons.

PCB - Polychlorinated Biphenyl.

UCL* - Upper Concentration Limit

EPC - Exposure Point Concentration.

Background - Background Concentration for natural soil.

Table 7-4
Summary Statistics for Soil Samples - Fenced Wetland Slope (Northern Wetland Area) (0-3')
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-2	S-1/GW-3	UCL*	Background	# of Samples	# of Detects	Freq. of Detects	Min. of Detects (mg/kg)	Max. of Detects (mg/kg)	Location of Max. Detected	Min. of Non-Detects (mg/kg)	Max. of Non-Detects (mg/kg)	Mean Concentration (mg/kg)	EPC (mg/kg)	EPC Rationale
PAHs																
	Benzo[a]anthracene	7	7	3,000	2	6	1	16.7%	0.076	0.076	S-2	0.176	0.36	1.1E-01	NA	Below background
	Benzo[a]pyrene	2	2	300	2	6	1	16.7%	0.068	0.068	S-2	0.176	0.36	1.1E-01	NA	Below background
	Benzo[b]fluoranthene	7	7	3,000	2	6	1	16.7%	0.095	0.095	S-2	0.176	0.36	1.1E-01	NA	Below background
	Chrysene	70	70	10,000	2	6	1	16.7%	0.087	0.087	S-2	0.176	0.36	1.1E-01	NA	Below background
	Fluoranthene	1,000	1,000	10,000	4	6	1	16.7%	0.12	0.12	S-2	0.176	0.36	1.1E-01	NA	Below background
	Pyrene	1,000	1,000	10,000	4	6	1	16.7%	0.12	0.12	S-2	0.176	0.36	1.1E-01	NA	Below background
PCB Aroclors																
	Total PCBs	2	2	100	NA	45	44	97.8%	0.0725	**8.92**	T-1D	0.059	0.059	9.7E-01	9.7E-01	Mean
Metals																
	Arsenic	20	20	200	20	6	1	16.7%	5.41	5.41	S-2	0.5	3.22	1.9E+00	NA	Below background
	Barium	1,000	1,000	10,000	50	6	6	100.0%	6.71	720	S-2	--	--	1.5E+02	1.5E+02	Mean
	Cadmium	2	2	300	2	6	3	50.0%	0.44	1.21	WG-4	0.27	0.3	5.1E-01	NA	Below background
	Chromium	30	30	2,000	30	6	6	100.0%	5.29	16.7	SB-142	--	--	9.4E+00	NA	Below background
	Lead	300	300	3,000	100	6	6	100.0%	14.2	**409**	S-2	--	--	1.2E+02	1.2E+02	Mean
	Mercury	20	20	300	0.3	5	4	80.0%	0.022	0.212	WG-4	0.022	0.022	8.2E-02	NA	Below background
	Nickel	20	20	7,000	20	4	4	100.0%	1.51	20.9	SB-148	--	--	8.7E+00	8.7E+00	Mean
	Selenium	400	400	8,000	0.5	5	1	20.0%	1.46	1.46	WG-4	5.26	6.44	2.6E+00	1.5E+00	Maximum of detects
	Vanadium	600	600	10,000	30	4	4	100.0%	14.3	22.5	SB-148	--	--	1.8E+01	NA	Below background
	Zinc	2,500	2,500	10,000	100	4	4	1	8.44	105	SB-148	--	--	4.0E+01	4.0E+01	Mean

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

NA - Not available or not applicable.

NS - No MassDEP standards exist for this analyte.

Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

Values outlined exceed Background but are less than the listed Method 1 standards.

PAHs - Polynuclear Aromatic Hydrocarbons.

PCB - Polychlorinated Biphenyl.

UCL* - Upper Concentration Limit

EPC - Exposure Point Concentration.

Background - Background Concentration for natural soil.

Table 7-5
Summary Statistics for Soil Samples - Summit Street ROW North of Land Bridge (0-3')
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-2	S-1/GW-3	UCL*	Background	# of Samples	# of Detects	Freq. of Detects	Min. of Detects (mg/kg)	Max. of Detects (mg/kg)	Location of Max. Detected	Min. of Non-Detects (mg/kg)	Max. of Non-Detects (mg/kg)	Mean Concentration (mg/kg)	EPC (mg/kg)	EPC Rationale
PCB Aroclors																
	Total PCBs	2	2	100	NA	7	7	100.0%	0.0845	0.587	WSB-9	--	--	3.9E-01	3.9E-01	Mean
Metals																
	Arsenic	20	20	200	20	4	1	25.0%	3.7	3.7	WSB-9	3.5	3.9	2.3E+00	NA	Below background
	Barium	1,000	1,000	10,000	50	4	4	100.0%	11	48	WSB-9	--	--	2.5E+01	NA	Below background
	Chromium	30	30	2,000	30	4	4	100.0%	4.9	8.3	WSB-9	--	--	6.1E+00	NA	Below background
	Lead	300	300	3,000	100	4	4	100.0%	17	61	WSB-9	--	--	3.9E+01	NA	Below background
	Mercury	20	20	300	0.3	4	3	75.0%	0.061	0.077	WSB-7	0.022	0.022	5.3E-02	NA	Below background
	Nickel	20	20	7,000	20	4	4	100.0%	2.2	6.6	WSB-9	--	--	4.2E+00	NA	Below background
	Vanadium	600	600	10,000	30	4	4	100.0%	8.7	20	WSB-7	--	--	1.3E+01	NA	Below background
	Zinc	2,500	2,500	10,000	100	4	4	100.0%	11	45	WSB-9	--	--	2.9E+01	NA	Below background

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

NA - Not available or not applicable.

NS - No MassDEP standards exist for this analyte.

Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

Values outlined exceed Background but are less than the listed Method 1 standards.

PAHs - Polynuclear Aromatic Hydrocarbons.

PCB - Polychlorinated Biphenyl.

UCL* - Upper Concentration Limit

EPC - Exposure Point Concentration.

Background - Background Concentration for natural soil.

Table 7-6
Summary Statistics for Soil Samples - Durfee Street ROW (0-3')
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-2	S-1/GW-3	UCL*	Background	# of Samples	# of Detects	Freq. of Detects	Min. of Detects (mg/kg)	Max. of Detects (mg/kg)	Location of Max. Detected	Min. of Non-Detects (mg/kg)	Max. of Non-Detects (mg/kg)	Mean Concentration (mg/kg)	EPC (mg/kg)	EPC Rationale
PCB Aroclors																
	Total PCBs	2	2	100	NA	4	4	100.0%	0.108	0.844	R-3	--	--	3.6E-01	3.6E-01	Mean

Notes:
mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).
NA - Not available or not applicable.
PCB - Polychlorinated Biphenyl.
UCL* - Upper Concentration Limit
EPC - Exposure Point Concentration.
Background - Background Concentration for natural soil.

Table 7-7
Summary Statistics for Soil Samples - Summit Street ROW Near Land Bridge (0-15')
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-2	S-1/GW-3	UCL*	Background	# of Samples	# of Detects	Freq. of Detects	Min. of Detects (mg/kg)	Max. of Detects (mg/kg)	Location of Max. Detected	Min. of Non-Detects (mg/kg)	Max. of Non-Detects (mg/kg)	Mean Concentration (mg/kg)	EPC (mg/kg)	EPC Rationale
PAHs																
	Acenaphthylene	600	10	10,000	0.5	9	1	11.1%	0.38	0.38	WSB-16	0.18	0.39	1.7E-01	NA	Below background
	Benzo[a]anthracene	7	7	3,000	2	9	2	22.2%	0.83	1.7	WSB-16	0.18	0.39	4.0E-01	NA	Below background
	Benzo[a]pyrene	2	2	300	2	9	2	22.2%	0.88	**2.2**	WSB-16	0.18	0.39	4.6E-01	4.6E-01	Mean
	Benzo[b]fluoranthene	7	7	3,000	2	9	2	22.2%	1.2	2.6	WSB-16	0.18	0.39	5.4E-01	5.4E-01	Mean
	Benzo[g,h,i]perylene	1,000	1,000	10,000	1	9	2	22.2%	0.45	1	WSB-16	0.18	0.39	2.8E-01	NA	Below background
	Benzo[k]fluoranthene	70	70	10,000	1	9	2	22.2%	0.45	1.1	WSB-16	0.18	0.39	2.9E-01	2.9E-01	Mean
	Chrysene	70	70	10,000	2	9	2	22.2%	0.91	1.9	WSB-16	0.18	0.39	4.3E-01	NA	Below background
	Fluoranthene	1,000	1,000	10,000	4	9	2	22.2%	2	2.3	WSB-16	0.18	0.39	5.9E-01	NA	Below background
	Indeno[1,2,3-cd]pyrene	7	7	3,000	1	9	2	22.2%	0.52	1.3	WSB-16	0.18	0.39	3.2E-01	3.2E-01	Mean
	Phenanthrene	500	500	10,000	3	9	2	22.2%	0.78	1.5	WSB-16	0.18	0.39	3.7E-01	NA	Below background
	Pyrene	1,000	1,000	10,000	4	9	2	22.2%	1.5	2.4	WSB-16	0.18	0.39	5.5E-01	NA	Below background
PCB Aroclors																
	Total PCBs	2	2	100	NA	9	7	77.8%	0.066	**4.69**	WSB-16	0.0539	0.0544	8.5E-01	8.5E-01	Mean
Metals																
	Arsenic	20	20	200	20	9	6	66.7%	2.7	5.9	WSB-16	2.8	2.9	3.2E+00	NA	Below background
	Barium	1,000	1,000	10,000	50	9	9	100.0%	15	97	WSB-17	--	--	4.3E+01	4.3E+01	Mean
	Chromium	30	30	2,000	30	9	9	100.0%	8.4	**67**	WSB-17	--	--	2.5E+01	6.7E+01	Maximum
	Lead	300	300	3,000	100	9	9	100.0%	4.2	120	WSB-19	--	--	2.9E+01	2.9E+01	Mean
	Mercury	20	20	300	0.3	9	6	66.7%	0.025	0.1	WSB-19	0.013	0.023	4.8E-02	NA	Below background
	Nickel	20	20	7,000	20	9	9	100.0%	4.2	**30**	WSB-17	--	--	1.2E+01	1.2E+01	Mean
	Vanadium	600	600	10,000	30	9	9	100.0%	12	38	WSB-17	--	--	2.3E+01	2.3E+01	Mean
	Zinc	2,500	2,500	10,000	100	9	9	100.0%	15	45	WSB-18	--	--	3.2E+01	NA	Below background

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

NA - Not available or not applicable.

NS - No MassDEP standards exist for this analyte.

Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

Values outlined exceed Background but are less than the listed Method 1 standards.

PAHs - Polynuclear Aromatic Hydrocarbons.

PCB - Polychlorinated Biphenyl.

UCL* - Upper Concentration Limit

EPC - Exposure Point Concentration.

Background - Background Concentration for natural soil.

Table 7-8
Summary Statistics for Soil Samples - Fenced Wetland Slope (Northern Wetland Area) (0-15')
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-2	S-1/GW-3	UCL*	Background	# of Samples	# of Detects	Freq. of Detects	Min. of Detects (mg/kg)	Max. of Detects (mg/kg)	Location of Max. Detected	Min. of Non-Detects (mg/kg)	Max. of Non-Detects (mg/kg)	Mean Concentration (mg/kg)	EPC (mg/kg)	EPC Rationale
PAHs																
	Benzo[a]anthracene	7	7	3,000	2	7	1	14.3%	0.076	0.076	S-2	0.173	0.36	1.0E-01	NA	Below background
	Benzo[a]pyrene	2	2	300	2	7	1	14.3%	0.068	0.068	S-2	0.173	0.36	1.0E-01	NA	Below background
	Benzo[b]fluoranthene	7	7	3,000	2	7	1	14.3%	0.095	0.095	S-2	0.173	0.36	1.1E-01	NA	Below background
	Chrysene	70	70	10,000	2	7	1	14.3%	0.087	0.087	S-2	0.173	0.36	1.1E-01	NA	Below background
	Fluoranthene	1,000	1,000	10,000	4	7	1	14.3%	0.12	0.12	S-2	0.173	0.36	1.1E-01	NA	Below background
	Pyrene	1,000	1,000	10,000	4	7	1	14.3%	0.12	0.12	S-2	0.173	0.36	1.1E-01	NA	Below background
PCB Aroclors																
	Total PCBs	2	2	100	NA	46	44	95.7%	0.0725	**8.92**	T-1D	0.0507	0.059	9.5E-01	9.5E-01	Mean
Metals																
	Arsenic	20	20	200	20	7	1	14.3%	5.41	5.41	S-2	0.5	3.22	1.8E+00	NA	Below background
	Barium	1,000	1,000	10,000	50	7	7	100.0%	6.71	720	S-2	--	--	1.4E+02	1.4E+02	Mean
	Cadmium	2	2	300	2	7	3	42.9%	0.44	1.21	WG-4	0.26	0.3	4.6E-01	NA	Below background
	Chromium	30	30	2,000	30	7	7	100.0%	5.29	**40.2**	SB-143	--	--	1.4E+01	1.4E+01	Mean
	Lead	300	300	3,000	100	7	7	100.0%	3.3	**409**	S-2	--	--	1.1E+02	1.1E+02	Mean
	Mercury	20	20	300	0.3	6	4	66.7%	0.022	0.212	WG-4	0.01	0.022	6.9E-02	NA	Below background
	Nickel	20	20	7,000	20	5	5	100.0%	1.51	20.9	SB-148	--	--	1.0E+01	1.0E+01	Mean
	Selenium	400	400	8,000	0.5	6	1	16.7%	1.46	1.46	WG-4	5.17	6.44	2.6E+00	1.5E+00	Maximum of detects
	Silver	100	100	2,000	0.6	6	1	16.7%	0.75	0.75	SB-143	0.25	0.65	3.4E-01	3.4E-01	Mean
	Vanadium	600	600	10,000	30	5	5	100.0%	14.3	44.9	SB-143	--	--	2.3E+01	2.3E+01	Mean
	Zinc	2,500	2,500	10,000	100	5	5	100.0%	8.44	105	SB-148	--	--	4.0E+01	4.0E+01	Mean

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

NA - Not available or not applicable.

NS - No MassDEP standards exist for this analyte.

Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

Values outlined exceed Background but are less than the listed Method 1 standards.

PAHs - Polynuclear Aromatic Hydrocarbons.

PCB - Polychlorinated Biphenyl.

UCL* - Upper Concentration Limit

EPC - Exposure Point Concentration.

Background - Background Concentration for natural soil.

Table 7-9
Summary Statistics for Soil Samples - Summit Street ROW North of Land Bridge (0-15')
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	S-1/GW-2	S-1/GW-3	UCL*	Background	# of Samples	# of Detects	Freq. of Detects	Min. of Detects (mg/kg)	Max. of Detects (mg/kg)	Location of Max. Detected	Min. of Non-Detects (mg/kg)	Max. of Non-Detects (mg/kg)	Mean Concentration (mg/kg)	EPC (mg/kg)	EPC Rationale
PCB Aroclors																
	Total PCBs	2	2	100	NA	7	7	100.0%	0.0845	0.587	WSB-9	--	--	3.9E-01	3.9E-01	Mean
Metals																
	Arsenic	20	20	200	20	5	2	40.0%	3.7	6.4	WSB-10	3.5	3.9	3.2E+00	NA	Below background
	Barium	1,000	1,000	10,000	50	5	5	100.0%	11	66	WSB-10	--	--	3.3E+01	3.3E+01	Mean
	Chromium	30	30	2,000	30	5	5	100.0%	4.9	8.3	WSB-9	--	--	6.4E+00	NA	Below background
	Lead	300	300	3,000	100	5	5	100.0%	17	61	WSB-9	--	--	3.9E+01	NA	Below background
	Mercury	20	20	300	0.3	5	4	80.0%	0.061	0.1	WSB-10	0.022	0.022	6.3E-02	NA	Below background
	Nickel	20	20	7,000	20	5	5	100.0%	2.2	6.6	WSB-9	--	--	4.4E+00	NA	Below background
	Vanadium	600	600	10,000	30	5	5	100.0%	8.7	20	WSB-7	--	--	1.3E+01	NA	Below background
	Zinc	2,500	2,500	10,000	100	5	5	100.0%	11	45	WSB-9	--	--	3.2E+01	NA	Below background

Notes:
mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).
NA - Not available or not applicable.
NS - No MassDEP standards exist for this analyte.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
Values outlined exceed Background but are less than the listed Method 1 standards.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
UCL* - Upper Concentration Limit
EPC - Exposure Point Concentration.
Background - Background Concentration for natural soil.

Table 7-10
Summary of Analytical Results for Groundwater Samples - Category GW-1 Groundwater (MW-3, MW-9 and MW-10)
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte			Sample ID:	MW-3								MW-9	MW-10
				Sample Date:	5/22/2008	9/25/2008	5/6/2009	9/17/2009	1/6/2010	4/21/2010	9/14/2010	5/19/2011	1/7/2010 combo	1/7/2010
		Background	UCL*	MMCL**										
PCBs														
	Total PCBs	NA	100	0.5	0.0500 U	**0.0166 J**	**0.152 J**	0.0500 U	NA	0.0500 U	0.0500 U	0.0500 U	**0.0771 J**	0.0500 U
Metals, total														
(ug/L)	Arsenic	5.5	9,000	10	NA	NA	NA	NA	**7.5**	NA	NA	NA	**9.0**	5.0 U
	Barium	NA	100,000	2,000	NA	NA	NA	NA	**470**	NA	NA	NA	**360**	50 U
	Chromium	4.9	3,000	100	NA	NA	NA	NA	5.0 U	NA	NA	NA	5.0 U	5.0 U
	Lead	8.8	150	15	NA	NA	NA	NA	**34**	NA	NA	NA	7.5 U	7.5 U
	Nickel	NA	2,000	100 (a)	NA	NA	NA	NA	5.0 U	NA	NA	NA	**7.0**	5.0 U
	Zinc	NA	50,000	5000 (b)	NA	NA	NA	NA	**38**	NA	NA	NA	**115**	**16**
Metals, dissolved														
(ug/L)	Arsenic	5.5	9,000	10	10.0 U	**0.60**	5.0 U	5.0 U	**7.0**	10 U	0.40 U	0.40 U	**9.0**	5.0 U
	Barium	NA	100,000	2,000	**324**	**326.6**	**110**	**390**	**420**	**76**	**310**	**83**	**335**	50 U
	Chromium	4.9	3,000	100	10.0 U	**0.90**	5.0 U	5.0 U	5.0 U	10 U	**1.6**	**1.1**	5.0 U	5.0 U
	Lead	8.8	150	15	5.0 U	**1.2**	7.5 U	7.5 U	7.5 U	10 U	**1.9**	**4.7**	7.5 U	7.5 U
	Nickel	NA	2,000	100 (a)	NA	NA	NA	5.0 U	5.0 U	NA	NA	NA	**6.8**	5.0 U
	Zinc	NA	50,000	5000 (b)	NA	NA	**13**	**32**	**41**	NA	NA	NA	**97**	**17**

Notes:
ug/L - micrograms per liter.
J - Estimated value.
NA - Not applicable or not analyzed for the listed analyte.
U - Compound was not detected at specified quantitation limit.
UCL* - Upper Concentration Limit.
MMCL** - Massachusetts Maximum Contaminant Level or other Massachusetts Drinking Water Guideline, if no MMCL available.
(a) Massachusetts Drinking Water Guideline
(b) Secondary Maximum Contaminant Level
Values in **Bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP criteria.
PCBs - Polychlorinated Biphenyls.

Table 7-11
Summary Statistics for Groundwater Samples -- Unfenced Wetland Slope (MW-3)
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	GW-1	GW-2	GW-3	UCL*	Sample ID: / Sample Date: / Background	# of Samples	# of Detects	Freq. of Detects	Min. of Detects (ug/L)	Max. of Detects (ug/L)	Location of Max. Detected	Min. of Non-Detects (ug/L)	Max. of Non-Detects (ug/L)	Mean Concentration (ug/L)	EPC (ug/L)	EPC Rationale
PCBs																	
	Total PCBs	0.5	5	10	100	NA	7	2	28.6%	0.0166	0.152	MW-3	0.05	0.05	4.2E-02	1.5E-01	Maximum
Metals, total																	
	Arsenic	10	NS	900	9,000	5.5	1	1	100.0%	7.5	7.5	MW-3	--	--	7.5E+00	7.5E+00	Maximum
	Barium	2,000	NS	50,000	100,000	NA	1	1	100.0%	470	470	MW-3	--	--	4.7E+02	4.7E+02	Maximum
	Lead	15	NS	10	150	8.8	1	1	100.0%	34	34	MW-3	--	--	3.4E+01	3.4E+01	Maximum
	Zinc	5,000	NS	900	50,000	NA	1	1	100.0%	38	38	MW-3	--	--	3.8E+01	NA	Dissolved EPC used
Metals, dissolved																	
	Arsenic	10	NS	900	9,000	5.5	8	2	25.0%	0.6	7	MW-3	0.4	10	2.9E+00	NA	Total EPC used
	Barium	2,000	NS	50,000	100,000	NA	8	8	100.0%	76	420	MW-3	--	--	2.5E+02	NA	Total EPC used
	Chromium	100	NS	300	3,000	4.9	8	3	37.5%	0.9	1.6	MW-3	5	10	2.6E+00	NA	Below background
	Lead	15	NS	10	150	8.8	8	3	37.5%	1.2	4.7	MW-3	5	10	3.3E+00	NA	Total EPC used
	Zinc	5,000	NS	900	50,000	NA	3	3	100.0%	13	41	MW-3	--	--	2.9E+01	4.1E+01	Maximum

Notes:
ug/L - micrograms per liter.
NA - Not available.
UCL* - Upper Concentration Limit.
NS - No MassDEP standards exist for this compound.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
PCBs - Polychlorinated Biphenyls.

Table 7-12
Summary Statistics of Groundwater Samples -- Fenced Wetland Slope (MW-1 and MW-2)
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	GW-2	GW-3	UCL*	Background	# of Samples	# of Detects	Freq. of Detects	Min. of Detects (ug/L)	Max. of Detects (ug/L)	Location of Max. Detected	Min. of Non-Detects (ug/L)	Max. of Non-Detects (ug/L)	Mean Concentration (ug/L)	EPC (ug/L)	EPC Rationale
VOCs																
	Methyl tert-Butyl Ether (MTBE)	50,000	50,000	100,000	NA	14	3	21.4%	1.3	3.3	MW-2	1	1	8.4E-01	3.3E+00	Maximum
PCBs																
	Total PCBs	5	10	100	NA	14	2	14.3%	0.018475	0.0191	MW-1	0.05	0.0833	2.6E-02	1.9E-02	Maximum
Metals, total																
	Arsenic	NS	900	9,000	5.5	2	2	100.0%	7.8	11	MW-2	--	--	9.4E+00	1.1E+01	Maximum
	Barium	NS	50,000	100,000	NA	2	2	100.0%	100	450	MW-2	--	--	2.8E+02	NA	Dissolved EPC used
	Mercury	NS	20	200	0.95	2	1	50.0%	0.14	0.14	MW-2	0.1	0.1	9.5E-02	NA	Below background
	Zinc	NS	900	50,000	NA	2	2	100.0%	86	160	MW-2	--	--	1.2E+02	1.6E+02	Maximum
Metals, dissolved																
	Arsenic	NS	900	9,000	5.5	16	4	25.0%	0.9	8.6	MW-1	0.4	10	3.3E+00	NA	Total EPC used
	Barium	NS	50,000	100,000	NA	16	15	93.8%	57.5	1200	MW-2	100	100	3.1E+02	1.2E+03	Maximum
	Chromium	NS	300	3,000	4.9	16	4	25.0%	0.9	2.1	MW-2	1	10	2.6E+00	2.1E+00	Maximum
	Selenium	NS	100	1,000	NA	16	3	18.8%	2	60	MW-1	5	50	1.4E+01	6.0E+01	Maximum
	Zinc	NS	900	50,000	NA	6	6	100.0%	14	97	MW-2	--	--	4.0E+01	NA	Total EPC used

Notes:
ug/L - micrograms per liter.
NA - Not available.
UCL* - Upper Concentration Limit.
NS - No MassDEP standards exist for this compound.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.
VOCs - Volatile Organic Compounds.

Table 7-13
Summary Statistics for Groundwater Samples -- Durfee and Summit Streets (MW-9 and MW-10)
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	GW-1	GW-2	GW-3	UCL*	Background	# of Samples	# of Detects	Freq. of Detects	Min. of Detects (ug/L)	Max. of Detects (ug/L)	Location of Max. Detected	Min. of Non-Detects (ug/L)	Max. of Non-Detects (ug/L)	Mean Concentration (ug/L)	EPC (ug/L)	EPC Rationale
PCBs																	
	Total PCBs	0.5	5	10	100	NA	2	1	50.0%	0.07705	0.07705	MW-9	0.05	0.05	5.1E-02	7.7E-02	Maximum
Metals, total																	
	Arsenic	10	NS	900	9,000	5.5	2	1	50.0%	9	9	MW-9	5	5	5.8E+00	9.0E+00	Maximum
	Barium	2,000	NS	50,000	100,000	NA	2	1	50.0%	360	360	MW-9	50	50	1.9E+02	3.6E+02	Maximum
	Nickel	100	NS	200	2,000	NA	2	1	50.0%	6.95	6.95	MW-9	5	5	4.7E+00	7.0E+00	Maximum
	Zinc	5,000	NS	900	50,000	NA	2	2	100.0%	16	115	MW-9	--	--	6.6E+01	1.2E+02	Maximum
Metals, dissolved																	
	Arsenic	10	NS	900	9,000	5.5	2	1	50.0%	9	9	MW-9	5	5	5.8E+00	NA	Total EPC used
	Barium	2,000	NS	50,000	100,000	NA	2	1	50.0%	335	335	MW-9	50	50	1.8E+02	NA	Total EPC used
	Nickel	100	NS	200	2,000	NA	2	1	50.0%	6.75	6.75	MW-9	5	5	4.6E+00	NA	Total EPC used
	Zinc	5,000	NS	900	50,000	NA	2	2	100.0%	17	96.5	MW-9	--	--	5.7E+01	NA	Total EPC used

Notes:
ug/L - micrograms per liter.
NA - Not available.
UCL* - Upper Concentration Limit.
NS - No MassDEP standards exist for this compound.
Values shown in Bold and shaded type exceed one or more of the listed MassDEP Method 1 standards.

Table 7-14
Summary Statistics for Sediment Samples - Unfenced Wetland (Southern Wetland Area)
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	Sample ID: / Sample Depth (ft.): / Sample Date:			# of Samples	# of Detects	Freq. of Detects	Min. of Detects (mg/kg)	Max. of Detects (mg/kg)	Location of Max. Detected	Min. of Non-Detects (mg/kg)	Max. of Non-Detects (mg/kg)	Mean Concentration (mg/kg)	EPC (mg/kg)	EPC Rationale
		S-1/GW-2	S-1/GW-3	Background											
PAHs															
	Benz[a]anthracene	7	7	2	17	3	17.6%	0.1	0.15	WD18	0.079	0.21	7.4E-02	7.4E-02	Mean
	Benzo[a]pyrene	2	2	2	17	1	5.9%	0.11	0.11	WC19	0.079	0.21	6.5E-02	6.5E-02	Mean
	Benzo[b]fluoranthene	7	7	2	17	2	11.8%	0.12	0.16	WC19	0.079	0.21	7.2E-02	7.2E-02	Mean
	Chrysene	70	70	2	17	4	23.5%	0.11	0.14	WC-27	0.079	0.21	7.7E-02	7.7E-02	Mean
	Fluoranthene	1,000	1,000	4	17	7	41.2%	0.11	0.26	WC-27	0.079	0.21	1.1E-01	1.1E-01	Mean
	Phenanthrene	500	500	3	17	4	23.5%	0.095	0.18	WD18	0.079	0.21	8.0E-02	8.0E-02	Mean
	Pyrene	1,000	1,000	4	17	7	41.2%	0.12	0.26	WD18	0.079	0.21	1.2E-01	1.2E-01	Mean
PCB Aroclors															
	Total PCBs	2	2	NA	44	44	100.0%	0.014	1.16	WC.5-22.5	--	--	2.9E-01	2.9E-01	Mean
Pesticides															
	4,4'-DDE	3	3	NA	4	3	75.0%	0.008	0.106	ERC-SED-3	0.014	0.014	3.8E-02	3.8E-02	Mean
	4,4'-DDD	4	4	NA	4	2	50.0%	0.01	0.036	WC.5-26.5	0.014	0.0333	1.7E-02	1.7E-02	Mean
	4,4'-DDT	3	3	NA	4	3	75.0%	0.031	0.0837	ERC-SED-3	0.014	0.014	4.9E-02	4.9E-02	Mean
Metals															
	Arsenic	20	20	20	18	16	88.9%	0.38	2.38	WC20	2.96	3.01	1.4E+00	1.4E+00	Mean
	Barium	1,000	1,000	50	18	18	100.0%	6.59	163	WC26	--	--	3.3E+01	3.3E+01	Mean
	Cadmium	2	2	2	18	16	88.9%	0.26	1.64	WC26	0.3	0.31	6.2E-01	6.2E-01	Mean
	Chromium	30	30	30	18	18	100.0%	3.26	25	WC26	--	--	8.0E+00	8.0E+00	Mean
	Lead	300	300	100	18	18	100.0%	7.41	120	WC-27	--	--	4.1E+01	4.1E+01	Mean
	Mercury	20	20	0.3	18	18	100.0%	0.01	0.115	WD18	--	--	6.0E-02	6.0E-02	Mean
	Nickel	20	20	20	2	2	100.0%	4.3	4.95	SB-06	--	--	4.6E+00	4.6E+00	Mean
	Selenium	400	400	0.5	18	5	27.8%	0.2	0.74	WC23	0.11	6.01	4.8E-01	4.8E-01	Mean
	Vanadium	600	600	30	2	2	100.0%	7.68	15.3	SB-06	--	--	1.1E+01	1.1E+01	Mean
	Zinc	2,500	2,500	100	2	2	100.0%	17.8	20.8	SB-01	--	--	1.9E+01	1.9E+01	Mean

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

N/A - Not applicable.

PAHs - Polynuclear Aromatic Hydrocarbons.

PCB - Polychlorinated Biphenyl.

EPC - Exposure Point Concentration.

Background - MassDEP "Natural" Soil Concentrations (MassDEP, 2002)

Table 7-15
Summary Statistics for Sediment Samples - Fenced Wetland (Northern Wetland Area)
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	# of Samples	S-1/GW-2	S-1/GW-3	Background	# of Samples	# of Detects	Freq. of Detects	Min. of Detects (mg/kg)	Max. of Detects (mg/kg)	Location of Max. Detected	Min. of Non-Detects (mg/kg)	Max. of Non-Detects (mg/kg)	Mean Concentration (mg/kg)	EPC (mg/kg)	EPC Nationale
PAHs															
	2-Methylnaphthalene	80	300	0.5	68	5	7.4%	0.0314	2.15	ERC-SED-8	0.0127	3.5	2.1E-01	2.1E-01	Mean
	Acenaphthene	1,000	1,000	0.5	68	6	8.8%	0.0175	7.54	ERC-SED-8	0.0127	3.5	3.0E-01	3.0E-01	Mean
	Acenaphthylene	600	10	0.5	68	9	13.2%	0.0127	0.837	ERC-SED-8	0.0221	3.5	2.0E-01	2.0E-01	Mean
	Anthracene	1,000	1,000	1	68	14	20.6%	0.024125	21.4	ERC-SED-8	0.071	3.5	5.5E-01	5.5E-01	Mean
	Benzo[a]anthracene	7	7	2	68	19	27.9%	0.066	74.7	ERC-SED-8	0.071	3.5	1.5E+00	6.2E+00	95% Chebyshev (Mean, Sd) UCL
	Benzo[a]pyrene	2	2	2	68	18	26.5%	0.0577	69.5	ERC-SED-8	0.071	3.5	1.4E+00	5.8E+00	95% Chebyshev (Mean, Sd) UCL
	Benzo[b]fluoranthene	7	7	2	68	18	26.5%	0.0634	80.8	ERC-SED-8	0.071	3.5	1.5E+00	6.7E+00	95% Chebyshev (Mean, Sd) UCL
	Benzo[g,h,i]perylene	1,000	1,000	1	68	16	23.5%	0.0453	45.1	ERC-SED-8	0.071	3.5	9.4E-01	9.4E-01	Mean
	Benzo[k]fluoranthene	70	70	1	68	17	25.0%	0.0392	38.1	ERC-SED-8	0.071	3.5	8.3E-01	8.3E-01	Mean
	Chrysene	70	70	2	68	19	27.9%	0.0645	72.7	ERC-SED-8	0.071	3.5	1.4E+00	1.4E+00	Mean
	Dibenz[a,h]anthracene	0.7	0.7	0.5	68	12	17.6%	0.0142	20	ERC-SED-8	0.071	3.5	4.9E-01	1.8E+00	95% Chebyshev (Mean, Sd) UCL
	Fluoranthene	1,000	1,000	4	68	24	35.3%	0.127	153	ERC-SED-8	0.071	3.5	2.8E+00	2.8E+00	Mean
	Fluorene	1,000	1,000	1	68	8	11.8%	0.045	8.18	ERC-SED-8	0.0127	3.5	3.2E-01	3.2E-01	Mean
	Indeno[1,2,3-cd]pyrene	7	7	1	68	16	23.5%	0.0412	45.6	ERC-SED-8	0.071	3.5	9.4E-01	9.4E-01	Mean
	Naphthalene	40	500	0.5	68	6	8.8%	0.0418	6.19	ERC-SED-8	0.0127	3.5	2.7E-01	2.7E-01	Mean
	Phenanthrene	500	500	3	68	19	27.9%	0.0888	62.3	ERC-SED-8	0.071	3.5	1.4E+00	1.4E+00	Mean
	Pyrene	1,000	1,000	4	68	28	41.2%	0.118	120	ERC-SED-8	0.071	3.5	2.4E+00	2.4E+00	Mean
PCB Aroclors															
	Total PCBs	2	2	NA	215	212	98.6%	0.033	66.9	ERC-SED-11B	0.049	0.184	2.9E+00	5.0E+00	95% Chebyshev (Mean, Sd) UCL
PCB Congeners															
	Dioxin-like PCB TEQs (ND=DL/2)	2.0E-05	2.0E-05	NA	4	4	100.0%	3.82232E-06	3.1E-05	ERC-SED-9	--	--	1.5E-05	1.5E-05	Mean
Pesticides															
	4,4'-DDE	3	3	NA	6	2	33.3%	0.032	0.052	WE.5-3	0.0064	0.014	1.8E-02	1.8E-02	Mean
	4,4'-DDD	4	4	NA	6	2	33.3%	0.037	0.08	WI.5-4	0.0064	0.014	2.3E-02	2.3E-02	Mean
	4,4'-DDT	3	3	NA	6	2	33.3%	0.1115	0.217	WI.5-4	0.0064	0.014	5.8E-02	5.8E-02	Mean
Metals															
	Antimony	20	20	1	19	1	5.3%	40	40	TSB-8	5.5	19	7.5E+00	7.5E+00	Mean
	Arsenic	20	20	20	66	35	53.0%	0.19	12	TSB-6	0.14	14	2.4E+00	2.4E+00	Mean
	Barium	1,000	1,000	50	66	66	100.0%	12	906	ERC-SED-8	--	--	1.5E+02	1.5E+02	Mean
	Beryllium	100	100	0.4	19	2	10.5%	0.54	0.6625	TSB-11	0.34	1.4	4.1E-01	4.1E-01	Mean
	Cadmium	2	2	2	66	62	93.9%	0.19	4.73	WC.5-14.5	0.64	1.14	1.1E+00	1.1E+00	Mean
	Chromium	30	30	30	67	67	100.0%	1.97	182.5	SD-43	--	--	2.1E+01	2.1E+01	Mean
	Lead	300	300	100	83	83	100.0%	4.41	977	ERC-SED-6	--	--	1.8E+02	1.8E+02	Mean
	Mercury	20	20	0.3	66	65	98.5%	0.024	0.74	TSB-2	0.13	0.13	1.8E-01	1.8E-01	Mean
	Nickel	20	20	20	20	20	100.0%	4.39	29	TSB-7	--	--	1.5E+01	1.5E+01	Mean
	Selenium	400	400	0.5	71	37	52.1%	0.38	10.6	SD-07	0.12	29	3.2E+00	3.2E+00	Mean
	Silver	100	100	0.6	66	5	7.6%	0.11	0.4	WC.5-14.5	0.06	2.9	3.0E-01	3.0E-01	Mean
	Vanadium	600	600	30	20	16	80.0%	15.6	286	SD-43	19	29	4.1E+01	4.1E+01	Mean
	Zinc	2,500	2,500	100	35	35	100.0%	15.3	630	TSB-7	--	--	2.6E+02	2.6E+02	Mean

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
NS - No MassDEP standards exist for this analyte.
Values in **Bold** indicate the compound was detected.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
RC - Reportable Concentration.
Background - Background Concentration for natural soil.

Table 7-16
Summary Statistics for Sediment Samples - ERC-SED-11A
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte						Sample ID:	ERC-SED-11A	SED-11A-B	SED-11A-D	
							Sample Depth (ft.):	0-0.5	0-0.5	0-0.5	EPC (mg/kg)
							Sample Date:	3/6/2009	3/20/2009	3/20/2009	
		S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RC S-1**			combo		
PAHs											
(mg/kg)	2-Chloronaphthalene	NS	NS	NS	NS	1,000	0.0280 U	NA	NA	ND
	2-Methylnaphthalene	80	300	80	500	0.7	**0.270**	NA	NA	0.270
	Acenaphthene	1,000	1,000	3,000	3,000	4	**1.58**	NA	NA	1.58
	Acenaphthylene	600	10	600	10	1	**0.268**	NA	NA	0.268
	Anthracene	1,000	1,000	3,000	3,000	1,000	**1.32**	NA	NA	1.32
	Benzo[a]anthracene	7	7	40	40	7	**3.48**	NA	NA	3.48
	Benzo[a]pyrene	2	2	4	4	2	**3.31**	NA	NA	3.31
	Benzo[b]fluoranthene	7	7	40	40	7	**3.07**	NA	NA	3.07
	Benzo[g,h,i]perylene	1,000	1,000	3,000	3,000	1,000	**2.69**	NA	NA	2.69
	Benzo[k]fluoranthene	70	70	400	400	70	**2.18**	NA	NA	2.18
	Chrysene	70	70	400	400	70	**3.07**	NA	NA	3.07
	Dibenz[a,h]anthracene	0.7	0.7	4	4	0.7	**0.766**	NA	NA	0.766
	Fluoranthene	1,000	1,000	3,000	3,000	1,000	**5.70**	NA	NA	5.70
	Fluorene	1,000	1,000	3,000	3,000	1,000	**0.959**	NA	NA	0.959
	Indeno[1,2,3-cd]pyrene	7	7	40	40	7	**2.30**	NA	NA	2.30
	Naphthalene	40	500	40	1,000	4	**0.396**	NA	NA	0.396
	Phenanthrene	500	500	1,000	1,000	10	**4.74**	NA	NA	4.74
	Pyrene	1,000	1,000	3,000	3,000	1,000	**6.91**	NA	NA	6.91
PCB Aroclors										
(mg/kg)	Total PCBs	2	2	3	3	2	**434 J**	**755 J**	**838 J**	676
PCB Congeners										
(mg/kg)	***Dioxin-like PCB TEQs (ND=DL/2)***	2.0E-05	2.0E-05	5.0E-05	5.0E-05	5.0E-05	**2.0E-05**	NA	NA	2.0E-05
Metals										
(mg/kg)	Antimony	20	20	30	30	20	15.9 U	NA	NA	ND
	Arsenic	20	20	20	20	20	9.89 U	NA	NA	ND
	Barium	1,000	1,000	3,000	3,000	1,000	**647**	NA	NA	647
	Beryllium	100	100	200	200	100	0.99 U	NA	NA	ND
	Cadmium	2	2	30	30	2	**7.19**	NA	NA	7.19
	Chromium	30	30	200	200	30	**31.1**	NA	NA	31.1
	Lead	300	300	300	300	300	**1,020**	NA	NA	1,020
	Mercury	20	20	30	30	20	**0.370**	NA	NA	0.370
	Nickel	20	20	700	700	20	**62.2**	NA	NA	62.2
	Selenium	400	400	800	800	400	19.8 U	NA	NA	ND
	Silver	100	100	200	200	100	**1.98**	NA	NA	1.98
	Thallium	8	8	60	60	8	11.9 U	NA	NA	ND
	Vanadium	600	600	1,000	1,000	600	**31.2**	NA	NA	31.2
	Zinc	2,500	2,500	3,000	3,000	2,500	**1,180**	NA	NA	1,180

Notes:
mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).
J - Estimated value.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
NS - No MassDEP standards exist for this analyte.
U - Compound was not detected at specified quantitation limit.
UJ - Estimated non-detect.
Values in **Bold** indicate the compound was detected.
PAHs - Polynuclear Aromatic Hydrocarbons.
PCB - Polychlorinated Biphenyl.
RC - Reportable Concentration.
EPC - Exposure Point Concentration

Table 7-17
Summary Statistics for Surface Water Samples - Fenced Wetland (Northern Wetland Area)
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	Sample ID: Sample Date: NRWQC	# of Samples	# of Detects	Freq. of Detects	Min. of Detects (ug/L)	Max. of Detects (ug/L)	Location of Max. Detected	Min. of Non-Detects (ug/L)	Max. of Non-Detects (ug/L)	Mean Concentration (ug/L)	EPC (ug/L)	EPC Rationale
Metals, total													
(ug/L)	Barium	1,000	5	5	100.0%	5.5	28	ERC-SW-16	--	--	1.6E+01	28	Maximum
	Chromium	100	5	1	20.0%	0.6	0.6	ERC-SW-14	0.5	10	2.4E+00	0.6	Maximum
	Lead	15	5	1	20.0%	0.65	0.65	ERC-SW-9	0.5	10	2.4E+00	0.65	Maximum
	Nickel	4,600	5	1	20.0%	0.5	0.5	ERC-SW-7	0.5	25	5.4E+00	NA	Dissolved Maximum Used
	Zinc	26,000	5	4	80.0%	22.5	32.1	ERC-SW-7	--	--	2.7E+01	NA	Dissolved Maximum Used
Metals, dissolved													
(ug/L)	Barium	1,000	5	5	100.0%	1.7	26.9	ERC-SW-11A	--	--	1.5E+01	NA	Total Maximum Used
	Nickel	4,600	5	2	40.0%	0.5	0.7	ERC-SW-7	0.5	25	5.4E+00	0.7	Maximum
	Zinc	26,000	24	18	75.0%	6	63	ERC-SW-22	5	20	2.5E+01	63	Maximum

Notes:

ug/L - micrograms per liter.

NA - Sample not analyzed for the listed analyte.

U - Compound was not detected at specified quantitation limit.

NRWQC - National Recommended Water Quality Criteria (USEPA, 2009); human health criteria for organisms only. If unavailable, values for "water and organisms" used or MCLs.

Values in **Bold** indicate the compound was detected.

Table 7-18
Summary of Receptor Risks and Hazards – Imminent Hazard
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Exposure Point	Scenario/ Receptor	Exposure Media	Exposure Pathway	ELCR	HI	Major contributors to risk/hazard
Unfenced Wetland	Recreational Visitor	Unfenced Wetland Sediment	Ingestion	6E-08	2E-02	N/A
			Dermal	3E-07	6E-02	
			Inhalation	NA	NA	
		0-1' Summit Street ROW Soil (near land bridge)	Ingestion	4E-07	2E-01	N/A
			Dermal	3E-07	7E-02	
			Inhalation	NA	NA	
			Total	1E-06	3E-01	
Fenced Wetland	Recreational Visitor	0-1' Durfee Street ROW Soil	Ingestion	7E-08	2E-02	N/A
			Dermal	1E-07	3E-02	
			Inhalation	NA	NA	
			Total	2E-07	5E-02	

Notes
Bolded values exceed a cancer risk of 1E-05 or a target organ HI of 1.

HI - Hazard Index
ELCR - Excess Lifetime Cancer Risk

(C) - Carcinogenic Risk
(NC) - Noncarcinogenic Risk
N/A - Not Applicable

Table 7-19
Summary of Receptor Risks and Hazards – Current Scenario
Wetland to the West of Keith Middle School
New Bedford, Massachusetts

Exposure Point	Scenario/ Receptor	Exposure Media	Exposure Pathway	ELCR	HI	Major contributors to risk/hazard
Unfenced Wetland	Recreational Visitor	Sediment	Ingestion	6E-08	2E-02	N/A
			Dermal	3E-07	6E-02	
			Inhalation	NA	NA	
		0-3' Summit Street ROW Soil (near land bridge)	Ingestion	6E-07	2E-01	
			Dermal	9E-07	9E-02	
			Inhalation	NA	NA	
			Total	2E-06	4E-01	
	Adult Groundskeeper	0-3' Summit Street ROW Soil (near land bridge)	Ingestion	4E-07	3E-02	N/A
			Dermal	1E-07	7E-03	
			Inhalation	9E-07	3E-03	
			Total	1E-06	4E-02	
Durfee Street ROW	Adult Groundskeeper	0-3' Durfee Street ROW Soil	Ingestion	8E-08	5E-03	N/A
			Dermal	3E-08	2E-03	
			Inhalation	2E-09	2E-04	
			Total	1E-07	7E-03	
	Recreational Visitor	0-3' Durfee Street ROW Soil	Ingestion	1E-07	2E-02	N/A
			Dermal	3E-07	4E-02	
			Inhalation	NA	NA	
			Total	4E-07	6E-02	
Fenced Wetland	Adult Groundskeeper	0-3' Slope Soil	Ingestion	2E-07	4E-02	N/A
			Dermal	8E-08	6E-03	
			Inhalation	1E-08	3E-03	
			Total	3E-07	5E-02	
		0-3' Summit Street ROW Soil (north of land bridge)	Ingestion	9E-08	6E-03	N/A
			Dermal	3E-08	2E-03	
			Inhalation	2E-09	2E-04	
			Total	1E-07	8E-03	

Notes
Bolded values exceed a cancer risk of 1E-05 or a target organ HI of 1.

HI - Hazard Index
ELCR - Excess Lifetime Cancer Risk

(C) - Carcinogenic Risk
(NC) - Noncarcinogenic Risk
N/A - Not Applicable

Table 7-20
Summary of Receptor Risks and Hazards – Future Scenario
Wetland to West of Keith Middle School
New Bedford, Massachusetts

Exposure Point	Scenario/ Receptor	Exposure Media	Exposure Pathway	ELCR	HI	Major contributors to risk/hazard
Unfenced Wetland	Recreational Visitor	Sediment	Ingestion	6E-08	2E-02	N/A
			Dermal	3E-07	6E-02	
			Inhalation	NA	NA	
		0-15' Summit Street ROW Soil (near land bridge)	Ingestion	6E-07	2E-01	
			Dermal	8E-07	8E-02	
			Inhalation	NA	NA	
			Total	2E-06	3E-01	
	Groundskeeper/ Commercial Worker	0-15' Summit Street ROW Soil (near land bridge)	Ingestion	3E-07	3E-02	N/A
			Dermal	1E-07	7E-03	
			Inhalation	9E-07	3E-03	
			Total	1E-06	4E-02	
	Excavation/Utility Worker	0-15' Summit Street ROW Soil (near land bridge)	Ingestion	2E-08	5E-02	N/A
			Dermal	3E-08	4E-02	
			Inhalation	2E-07	1E-02	
		Groundwater (MW-3)	Dermal	5E-07	6E-01	
			Total	7E-07	7E-01	
Fenced Wetland	Recreational Visitor	Sediment	Ingestion	7E-07	1E-01	N/A
			Dermal	6E-06	7E-01	
			Inhalation	NA	NA	
		Surface Water	Dermal	NA	2E-05	
		0-3' Slope Soil	Ingestion	4E-07	4E-01	
			Dermal	7E-07	1E-01	
			Inhalation	NA	NA	
			Total	8E-06	1E+00	
		Sediment	Ingestion	7E-07	1E-01	N/A
			Dermal	6E-06	7E-01	
			Inhalation	NA	NA	
		Surface Water	Dermal	NA	2E-05	
		0-15' Slope Soil	Ingestion	4E-07	4E-01	
			Dermal	7E-07	1E-01	
			Inhalation	NA	NA	
			Total	8E-06	1E+00	
		Sediment	Ingestion	7E-07	1E-01	N/A
			Dermal	6E-06	7E-01	
			Inhalation	NA	NA	
		Surface Water	Dermal	NA	2E-05	
		0-3' Summit Street ROW Soil (north of land bridge)	Ingestion	2E-07	2E-02	
			Dermal	3E-07	4E-02	
			Inhalation	NA	NA	
			Total	7E-06	9E-01	

Table 7-20
Summary of Receptor Risks and Hazards – Future Scenario
Wetland to West of Keith Middle School
New Bedford, Massachusetts

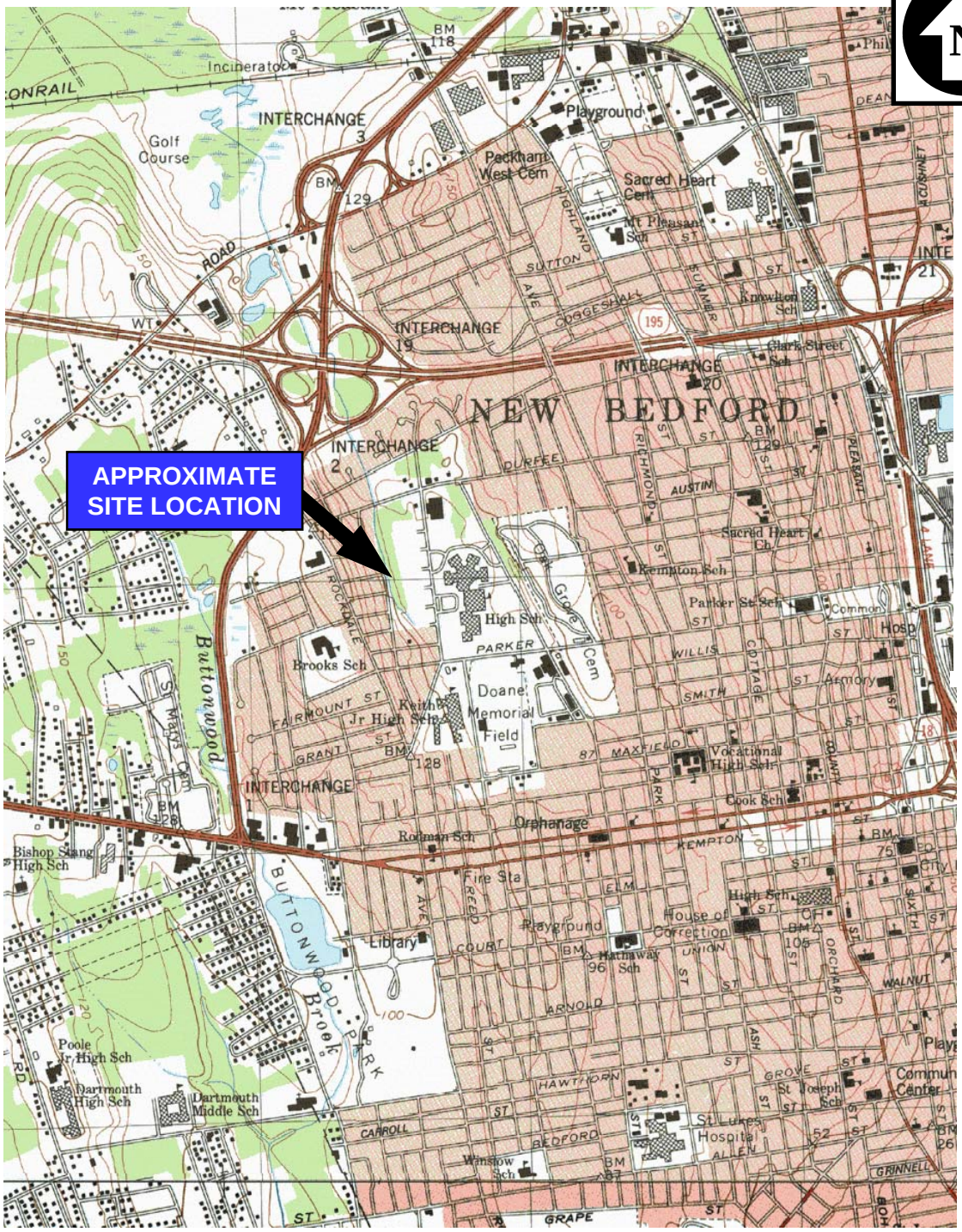
Exposure Point	Scenario/ Receptor	Exposure Media	Exposure Pathway	ELCR	HI	Major contributors to risk/hazard
		Sediment	Ingestion	7E-07	1E-01	N/A
			Dermal	6E-06	7E-01	
			Inhalation	NA	NA	
		Surface Water	Dermal	NA	2E-05	
		0-15' Summit Street ROW Soil (north of land bridge)	Ingestion	2E-07	2E-02	
			Dermal	3E-07	4E-02	
			Inhalation	NA	NA	
			Total	7E-06	9E-01	
		Sediment	Ingestion	7E-07	1E-01	N/A
			Dermal	6E-06	7E-01	
			Inhalation	NA	NA	
		Surface Water	Dermal	NA	2E-05	
		0-3' Durfee Street ROW Soil	Ingestion	1E-07	2E-02	
			Dermal	3E-07	4E-02	
			Inhalation	NA	NA	
			Total	7E-06	9E-01	
	Recreational Visitor	ERC-SED-11A Hot Spot Sediment	Ingestion	2E-05	6E+00	(C) PCBs,
			Dermal	4E-04	1E+02	(NC) PCBs
			Inhalation	NA	NA	
			Total	**4E-04**	**1E+02**	
	Groundskeeper/ Commercial Worker	0-15' Slope Soil	Ingestion	2E-07	4E-02	N/A
			Dermal	8E-08	6E-03	
			Inhalation	2E-07	3E-03	
			Total	5E-07	5E-02	
		0-15' Summit Street ROW Soil (north of land bridge)	Ingestion	9E-08	6E-03	
			Dermal	3E-08	2E-03	
			Inhalation	2E-09	4E-04	
			Total	1E-07	8E-03	
		0-3' Durfee Street ROW Soil	Ingestion	8E-08	5E-03	
			Dermal	3E-08	2E-03	
			Inhalation	2E-09	2E-04	
			Total	1E-07	7E-03	
	Excavation/Utility Worker	0-15' Slope Soil	Ingestion	1E-08	1E-01	N/A
			Dermal	3E-08	5E-02	
			Inhalation	5E-08	1E-02	
		Groundwater (MW-1, MW-2)	Dermal	8E-08	9E-02	
			Total	2E-07	3E-01	
		0-15' Summit Street ROW Soil (north of land bridge)	Ingestion	6E-09	9E-03	
			Dermal	1E-08	2E-02	
			Inhalation	2E-10	1E-03	
		Groundwater (MW-9, MW-10)	Dermal	2E-07	3E-01	
			Total	3E-07	4E-01	
		0-3' Durfee Street ROW Soil	Ingestion	5E-09	8E-03	
			Dermal	1E-08	1E-02	
			Inhalation	1E-10	9E-04	
		Groundwater (MW-9, MW-10)	Dermal	2E-07	3E-01	
			Total	3E-07	4E-01	

Notes
Bolded values exceed a cancer risk of 1E-05 or a target organ HI of 1.

HI - Hazard Index
ELCR - Excess Lifetime Cancer Risk

(C) - Carcinogenic Risk
(NC) - Noncarcinogenic Risk
N/A - Not Applicable

FIGURES



BASE MAP IS A PORTION OF THE FOLLOWING 7.5' X 15' USGS TOPOGRAPHIC QUADRANGLES: NEW BEDFORD NORTH, MA, 1979; NEW BEDFORD SOUTH, MA 1977

0 1000 2000 3000

scale in feet

QUADRANGLE LOCATION

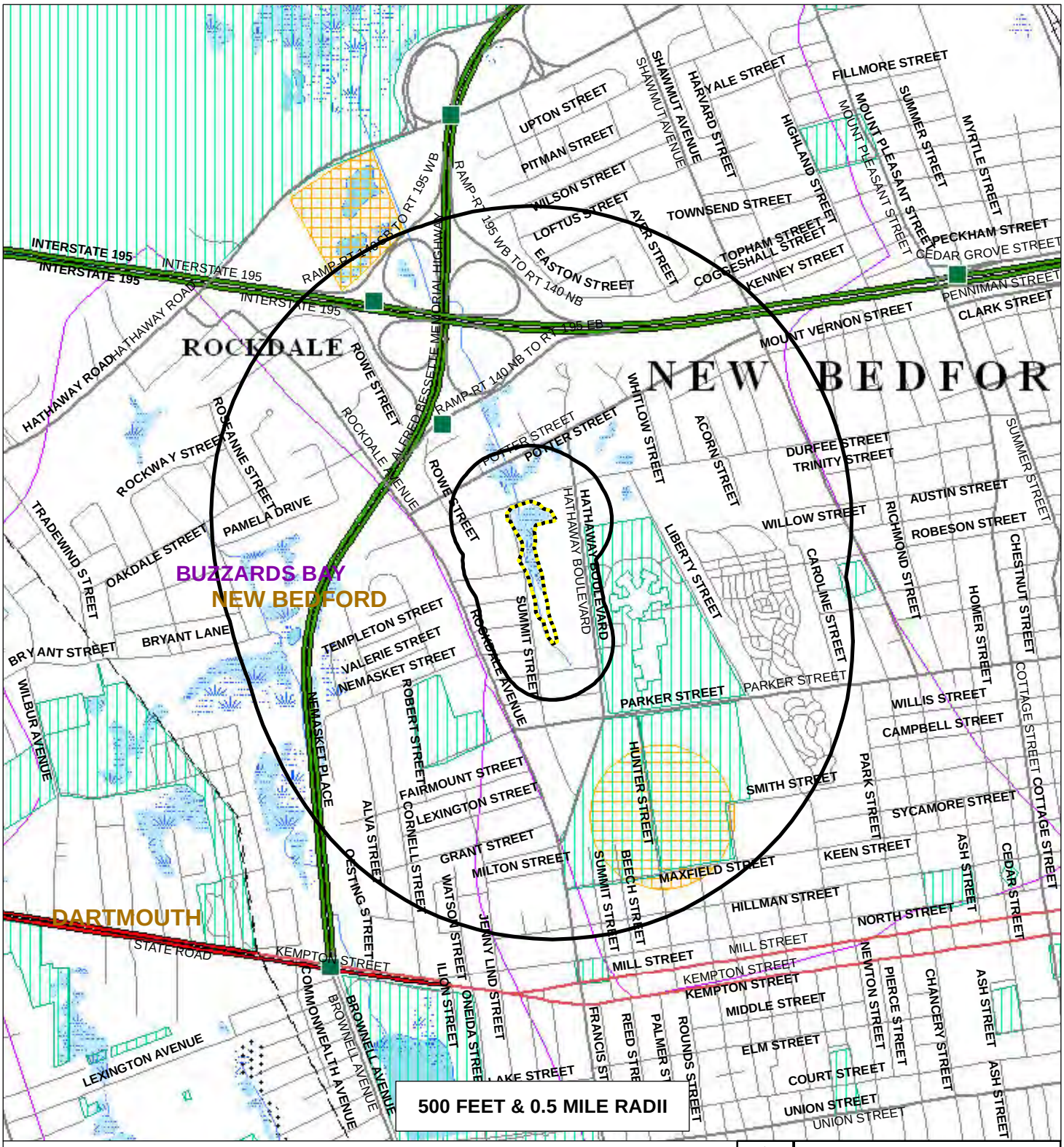
WETLAND TO THE WEST OF KEITH MIDDLE SCHOOL NEW BEDFORD, MASSACHUSETTS

SITE LOCATION MAP

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
978-970-5600

Drawn: HWB	SCALE: AS SHOWN	FIGURE 1-1
Checked: DS	Date: AUGUST 2011	

T:\E_CAD\115058\TOPO KEITH MIDDLE SCHOOL FIG 1-1 072011.ppt



Roads: Limited Access, Multi-Lane, Major/Minor, Track, Trail
Railroad, Pipline, Powerline
Major Basin, Sub Basin, Perennial Stream, Intermittent Stream, Shoreline, Man made Shore, Dam, Aqueduct
Wetland, Salt Wetland, Submerged Wetland, Open Water, Reservoir, Tidal Flat/Shoal
Potentially Productive Aquifers: Medium, High Yield
Non-Potential Drinking Water Source Area: Medium, High Yield
EPA Sole Source Aquifer, FEMA 100 Yr. Floodplain, DEP Solid Waste Facility
Approved Zone II, IWPA, Surface Water Supply Zone A
Protected Open Space, ACEC
Priority Habitat 2008, Certified Vernal Pool 2009
Approximate Wetland Boundary
Boundaries: County and Town
Public Water Supplies: Ground, Surface, Non-Community (NTNC, TNC)

Source: MassGIS/EOEA

0 500 1,000 1,500
Feet

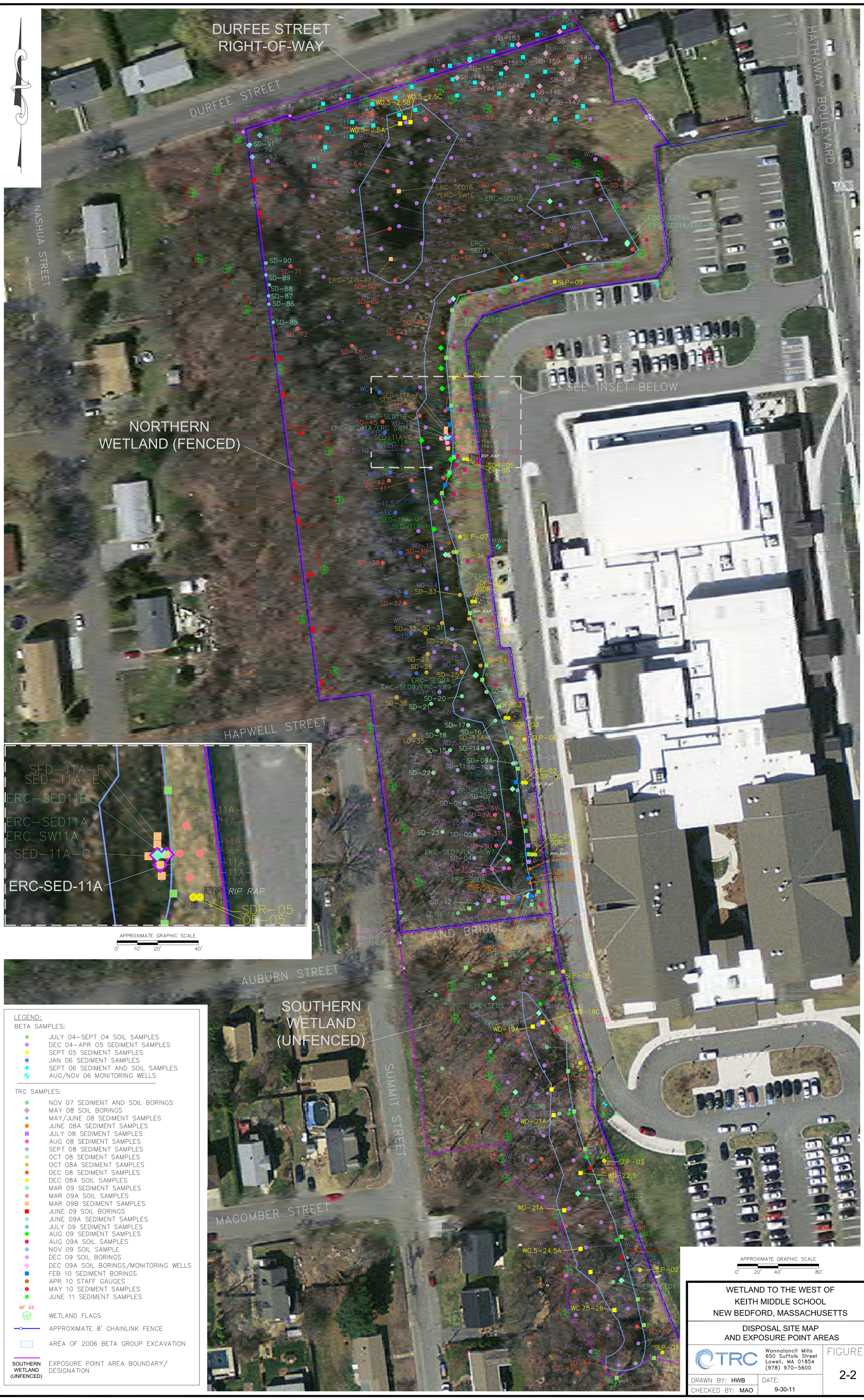
WETLAND TO THE WEST OF
KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

MASSDEP PRIORITY RESOURCE MAP

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

DRAWN BY: RJF
CHECKED BY: MO
DATE: AUGUST 2011

FIGURE 2-1



LEGEND:

BETA SAMPLES:

- JULY 04–SEPT 04 SOIL SAMPLES
- DEC 04–APR 05 SEDIMENT SAMPLES
- SEPT 05 SEDIMENT SAMPLES
- JAN 06 SEDIMENT SAMPLES
- SEPT 06 SEDIMENT AND SOIL SAMPLES
- AUG/NOV 06 MONITORING WELLS

TRC SAMPLES:

- NOV 07 SEDIMENT AND SOIL BORINGS
- MAY 08 SOIL BORINGS
- MAY/JUNE 08 SEDIMENT SAMPLES
- JUNE 08A SEDIMENT SAMPLES
- JULY 08 SEDIMENT SAMPLES
- AUG 08 SEDIMENT SAMPLES
- SEPT 08 SEDIMENT SAMPLES
- OCT 08 SEDIMENT SAMPLES
- OCT 08A SEDIMENT SAMPLES
- DEC 08 SEDIMENT SAMPLES
- DEC 08A SOIL SAMPLES
- MAR 09 SEDIMENT SAMPLES
- MAR 09A SOIL SAMPLES
- MAR 09B SEDIMENT SAMPLES
- JUNE 09 SOIL BORINGS
- JUNE 09A SEDIMENT SAMPLES
- JULY 09 SEDIMENT SAMPLES
- AUG 09 SEDIMENT SAMPLES
- AUG 09A SOIL SAMPLES
- NOV 09 SOIL SAMPLE
- DEC 09 SOIL BORINGS
- DEC 09A SOIL BORINGS/MONITORING WELLS
- FEB 10 SEDIMENT BORINGS
- APR 10 STAFF GAUGES
- MAY 10 SEDIMENT SAMPLES
- JUNE 11 SEDIMENT SAMPLES

WF 66 — WETLAND FLAGS

APPROXIMATE 8' CHAINLINK FENCE

AREA OF 2006 BETA GROUP EXCAVATION

SOUTHERN WETLAND (UNFENCED) — EXPOSURE POINT AREA BOUNDARY/ DESIGNATION

WETLAND TO THE WEST OF
KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

DISPOSAL SITE MAP
AND EXPOSURE POINT AREAS

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

DRAWN BY: HWB
CHECKED BY: MAO
DATE: 9-30-11

FIGURE 2-2

FILE: T:\E_CAD\115058\KMS DISP SITE - EXP POINT AREAS 9-30-11.dwg

WETLAND TO THE WEST OF
KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

TRC SAMPLE LOCATION PLAN

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

FIGURE
3-1

DRAWN BY: HWB
CHECKED BY: MAO
DATE: 9-20-11

FILE: T:\E_CAD\115058\KMS SAMP LOC PLAN - 9-20-11.dwg

LEGEND:

82.5	GROUNDWATER CONTOUR, DASHED WHERE INFERRED
MW-5 (82.32)	MONITORING WELL (GROUNDWATER ELEVATION JANUARY 20, 2011)
MW-22 (85.04)*	(ANOMALOUS WATER LEVEL ELEVATION NOT USED IN CONTOURING)
MW-15 NG	(WELL NOT GAUGED)
	PROPERTY LINE

APPROXIMATE GRAPHIC SCALE

0' 50' 100' 200'

WETLAND TO THE WEST OF
KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

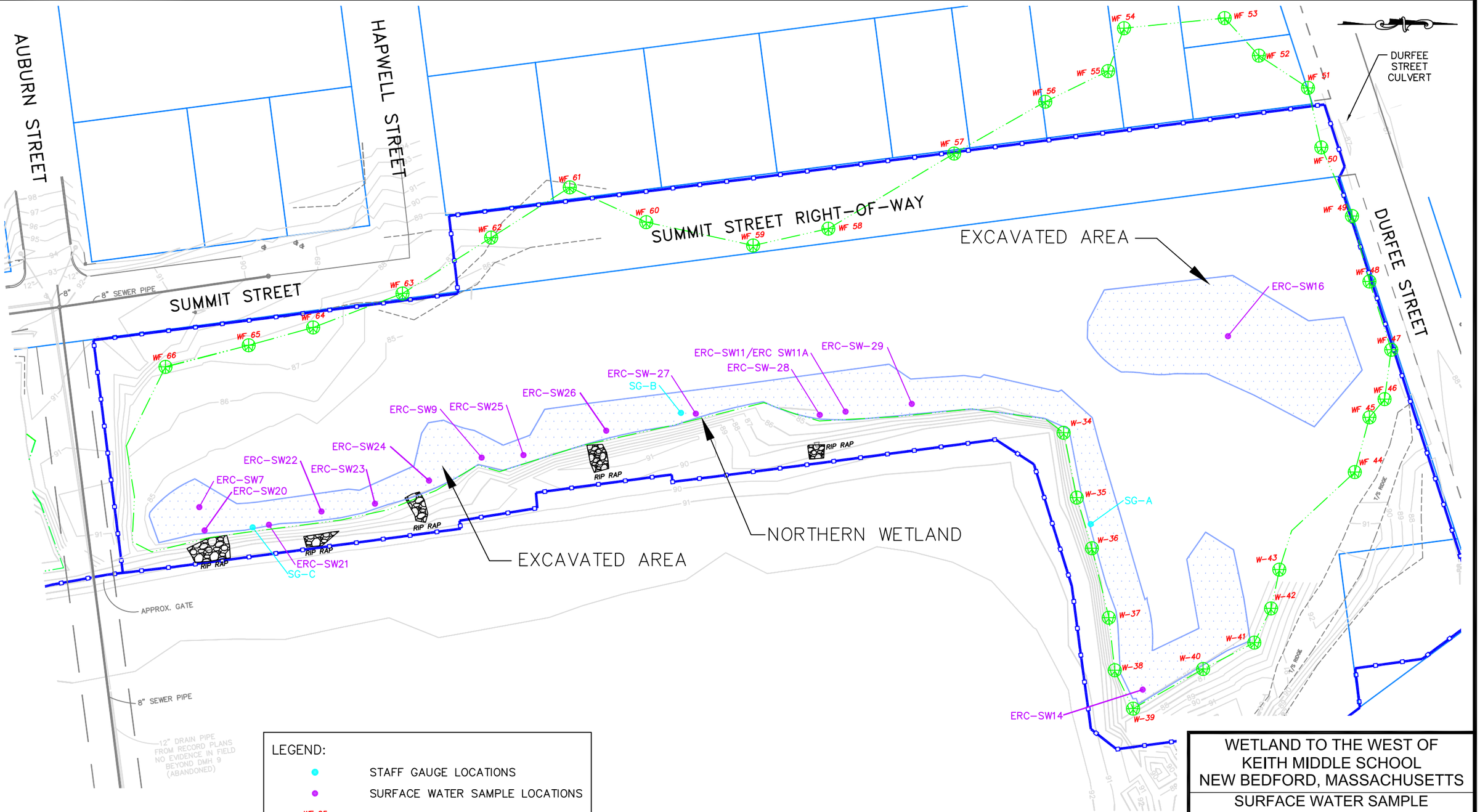
ESTIMATED GROUNDWATER CONTOUR PLAN - JANUARY 20, 2011

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

FIGURE 3-2

DRAWN BY: HWB
CHECKED BY: MAO
DATE: AUG 2011

FILE: T:\E_CAD\115058\KMS EST GW CONT - 1-20-11.dwg



LEGEND:

- STAFF GAUGE LOCATIONS
- SURFACE WATER SAMPLE LOCATIONS
- WF 65 — WETLAND FLAGS
- AREA OF 2006 BETA GROUP EXCAVATION
- APPROXIMATE 8' CHAINLINK FENCE

NOTE: DRAWING BASED ON "McCOY FIELD SITE PLAN" FROM BETA GROUP, NORWOOD, MA DATED 6-04 AND "NEW BEDFORD PROGRESS DRAWING" FROM BETA GROUP, NORWOOD, MA DATED 8-06.

APPROXIMATE GRAPHIC SCALE

0' 30' 60' 120'

WETLAND TO THE WEST OF KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

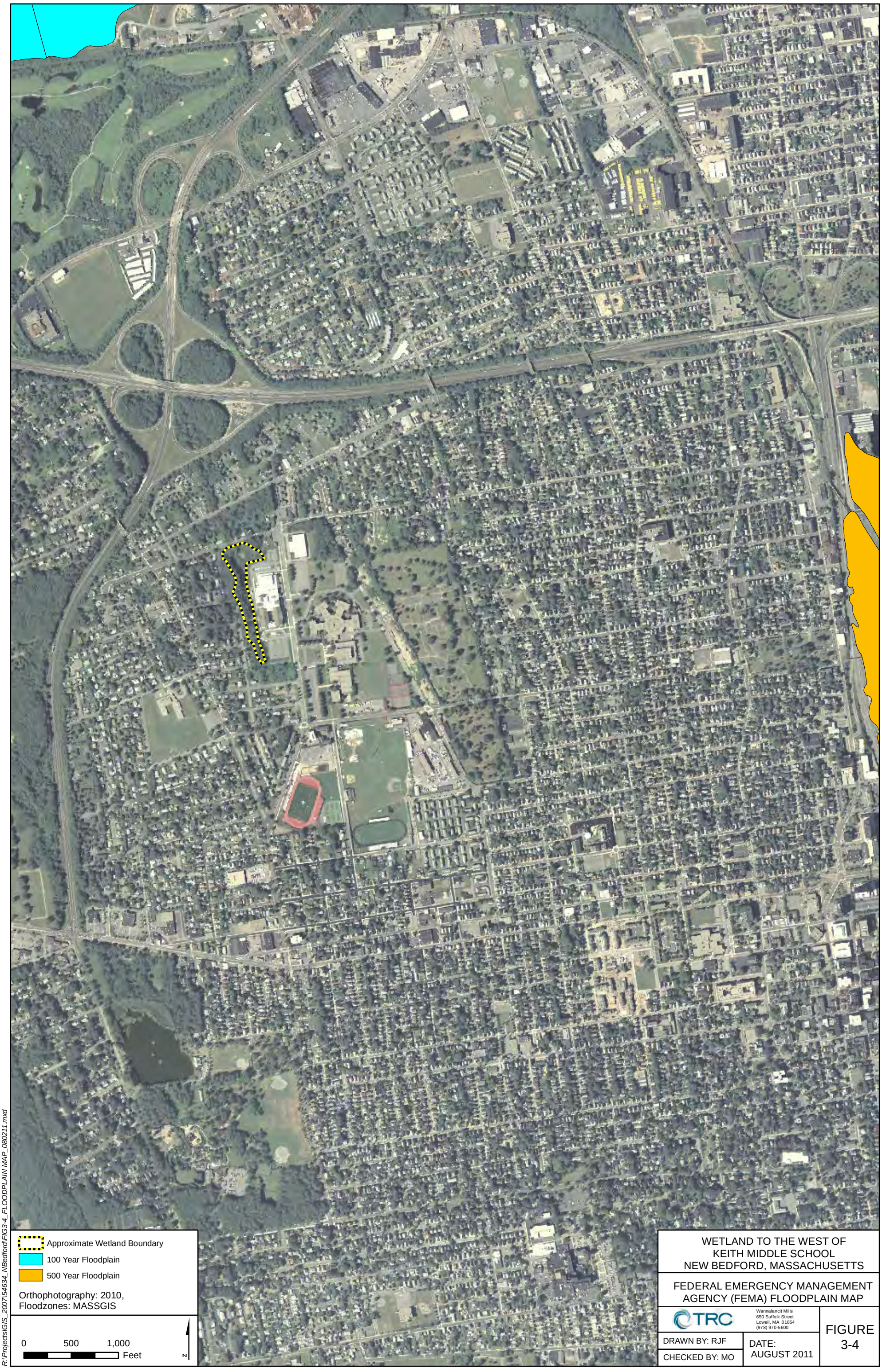
SURFACE WATER SAMPLE AND STAFF GAUGE LOCATIONS

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

DRAWN BY: HWB
CHECKED BY: MAO
DATE: AUG 2011

FIGURE 3-3

FILE: T:\E_CAD\115058\KMS SURF WATER SAMP LOCS - STAFF GAUGE.dwg



WETLAND TO THE WEST OF
KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

FEDERAL EMERGENCY MANAGEMENT
AGENCY (FEMA) FLOODPLAIN MAP

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

DRAWN BY: RJF
CHECKED BY: MO
DATE:
AUGUST 2011

FIGURE
3-4

R:\Projects\GIS_2007\54634_NBedford\FIG3-4_FLOODPLAIN MAP_080211.mxd

Summary of Regulatory Comparison Criteria for Soil (mg/kg)

Contaminant Names	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RCS-1
Benzo(a)pyrene (BAP)	2	2	4	4	2
Total PCBs	2	2	3	3	2
Cadmium	2	2	30	30	2
Chromium	30	30	200	200	30
Lead	300	300	300	300	300
Nickel	20	20	700	700	20

NOTES:
ALL UNITS IN MG/KG UNLESS OTHERWISE SPECIFIED.
MG/KG - MILLIGRAMS PER KILOGRAM (DRY WEIGHT).
J - ESTIMATED VALUE.
NA - SAMPLE NOT ANALYZED FOR THE LISTED ANALYTE.
N/A - NOT APPLICABLE.

PCBs - POLYCHLORINATED BIPHENYLS
RC - REPORTABLE CONCENTRATION.
U - COMPOUND WAS NOT DETECTED AT SPECIFIED QUANTITATION LIMIT.
UJ - ESTIMATED NONDETECT.

SAMPLE LOCATION

TSB-02 Constituent	02/09/10 0.00 – 1.00	02/09/10 1.00 – 2.00	02/09/10 2.00 – 3.00	02/09/10 3.00 – 4.00
Total PCBs	23.8 J	0.366 J	0.0539 U	0.0552 U
Cadmium	2.4	0.27 U	0.27 U	0.29 U
Chromium	68	11	8.1	13
Lead	710	6.6	2.8	3.1
Nickel	24	3.4	2.9	3.3

CONTAMINANT NAME /ABBREVIATION

SAMPLE DATE
DEPTH RANGE IN FEET

VALUES SHOWN IN PEACH BACKGROUND EXCEED ONE OR MORE OF THE LISTED MASSDEP METHOD 1 STANDARDS.

LEGEND:
BETA SAMPLES:
BETA SEDIMENT SAMPLES
TRC SAMPLES:
TRC SEDIMENT SAMPLES
TRC SOIL SAMPLES
WF 66 WETLAND FLAGS
APPROXIMATE 8' CHAINLINK FENCE
AREA OF 2006 BETA GROUP EXCAVATION
NOTE:
SEE FIGURE 4-6 FOR ANALYTICAL RESULTS FOR THE SUMMIT STREET RIGHT-OF-WAY.

APPROXIMATE GRAPHIC SCALE
0' 15' 30' 60'

WETLAND TO THE WEST OF
KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

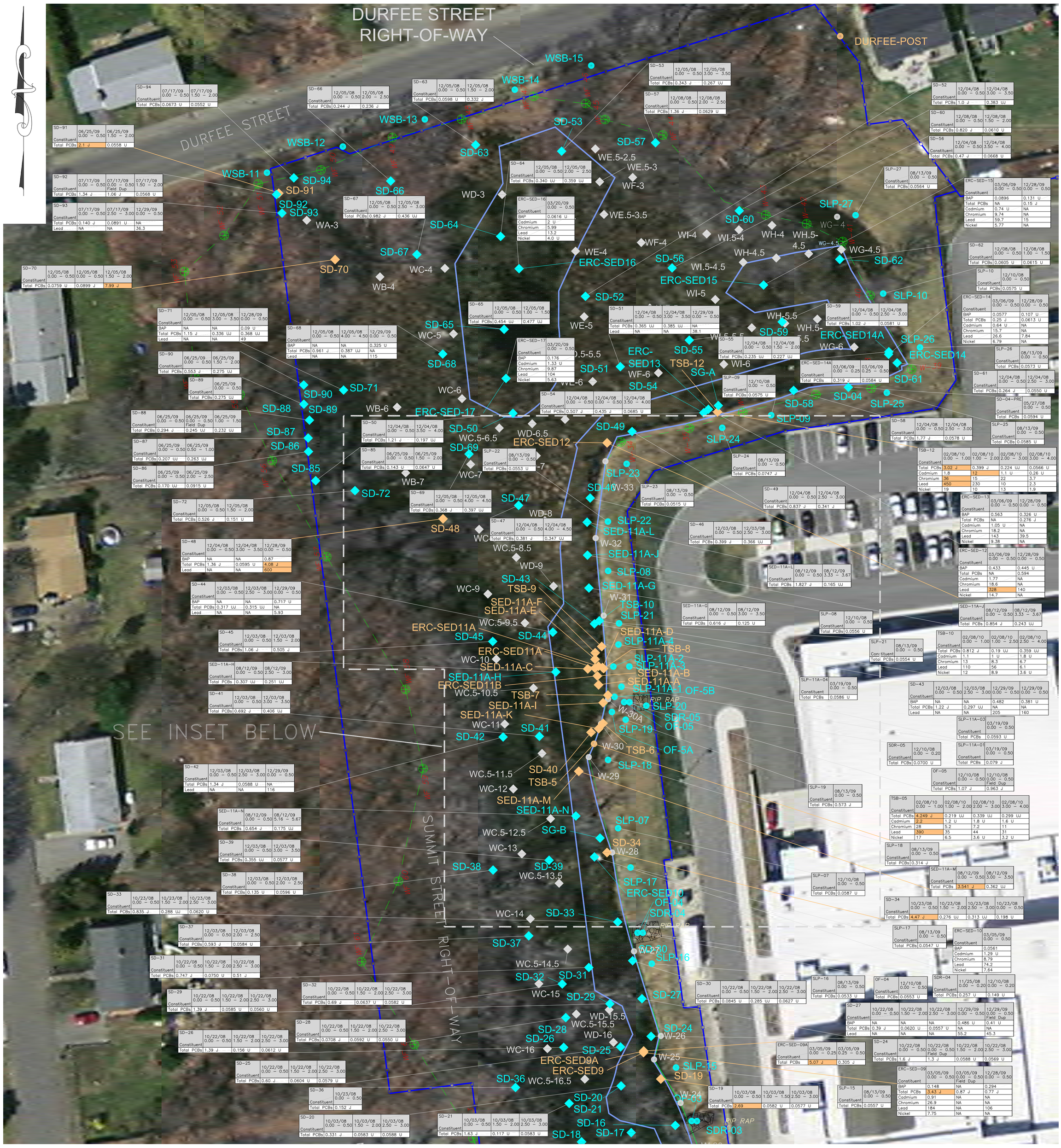
ANALYTICAL RESULTS SUMMARY MAP -
SOUTHERN PORTION OF WETLAND TRC DATA

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

DRAWN BY: PZ
CHECKED BY: MAO
DATE: 11-29-11

FIGURE 4-1

FILE: Q:\GEOSCI\GISKEY\Projects\NewBedford\KMS ANALYT RESULTS - SOUTH TRC DATA 11-29-11.dwg



LEGEND:

BETA SAMPLES:

- BETA SEDIMENT SAMPLES
- BETA SOIL SAMPLES

TRC SAMPLES:

- TRC SEDIMENT SAMPLES
- TRC SOIL SAMPLES
- WF 66 — WETLAND FLAGS
- APPROXIMATE 8' CHAINLINK FENCE
- AREA OF 2006 BETA GROUP EXCAVATION

NOTES:

1. SEE FIGURE 4-5 FOR ANALYTICAL RESULTS FOR THE DURFEE STREET RIGHT-OF-WAY AND WEST LOT.
2. SEE FIGURE 4-6 FOR ANALYTICAL RESULTS FOR THE SUMMIT STREET RIGHT-OF-WAY.

Summary of Regulatory Comparison Criteria for Soil (mg/kg)

Contaminant Names	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RCS-1
Benzo(a)pyrene (BAP)	2	2	4	4	2
Total PCBs	2	2	3	3	2
Cadmium	2	2	30	30	2
Chromium	30	30	200	200	30
Lead	300	300	300	300	300
Nickel	20	20	700	700	20

NOTES:
ALL UNITS IN MG/KG UNLESS OTHERWISE SPECIFIED.
MG/KG - MILLIGRAMS PER KILOGRAM (DRY WEIGHT).
J - ESTIMATED VALUE.
NA - SAMPLE NOT ANALYZED FOR THE LISTED ANALYTE.
N/A - NOT APPLICABLE.

PCBs - POLYCHLORINATED BIPHENYLS
RC - REPORTABLE CONCENTRATION.
U - COMPOUND WAS NOT DETECTED AT SPECIFIED QUANTITATION LIMIT.
UJ - ESTIMATED NONDETECT.

SAMPLE LOCATION: TSB-07
SAMPLE DATE: 02/08/10 — DEPTH RANGE IN FEET: 0.00 – 2.00
SAMPLE DATE: 02/08/10 — DEPTH RANGE IN FEET: 2.00 – 4.00

CONTAMINANT NAME /ABBREVIATION (Constituent)	0.00 – 2.00	2.00 – 4.00
Total PCBs	5.04 J	0.22 UJ
Cadmium	1.7	1.3 U
Chromium	47	4.4
Lead	570	20
Nickel	29	2.7 U

VALUES SHOWN IN PEACH BACKGROUND EXCEED ONE OR MORE OF THE LISTED MASSDEP METHOD 1 STANDARDS.

APPROXIMATE GRAPHIC SCALE
0' 15' 30' 60'

WETLAND TO THE WEST OF
KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

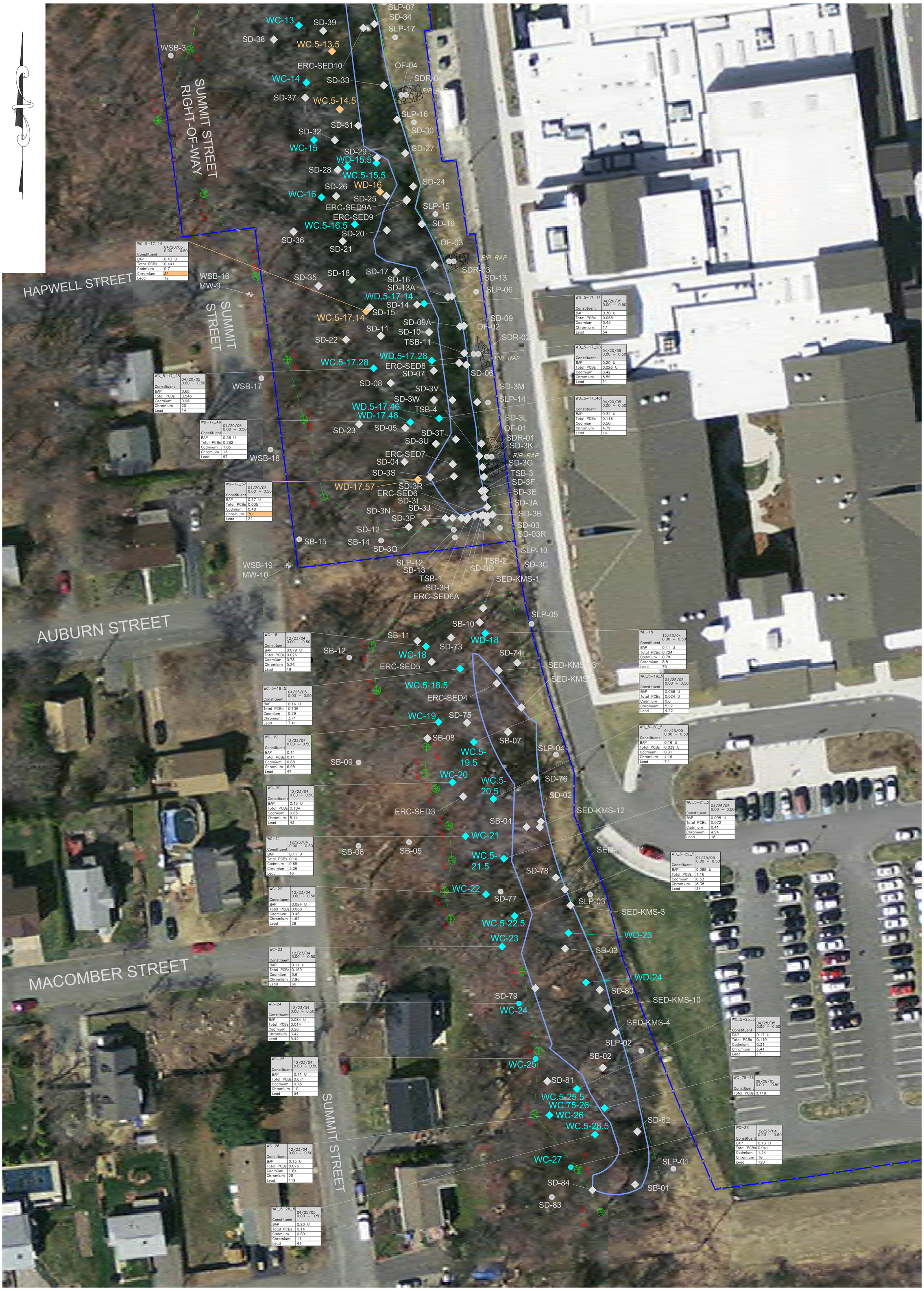
ANALYTICAL RESULTS SUMMARY MAP -
NORTHERN PORTION OF WETLAND TRC DATA

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

DRAWN BY: PZ
CHECKED BY: MAO
DATE: 11-29-11

FIGURE 4-2

FILE: Q:\GEOSCI\GISKEYProjects\NewBedford\KMS ANALYT RESULTS - NORTH TRC DATA 11-29-11.dwg



LEGEND:

BETA SAMPLES:

- BETA SEDIMENT SAMPLES

TRC SAMPLES:

- TRC SEDIMENT SAMPLES
- TRC SOIL SAMPLES
- TRC SOIL SAMPLES/MONITORING WELLS
- WF 66 WETLAND FLAGS
- APPROXIMATE 8' CHAINLINK FENCE
- AREA OF 2006 BETA GROUP EXCAVATION

NOTE:

SEE FIGURE 4–6 FOR ANALYTICAL RESULTS FOR THE SUMMIT STREET RIGHT–OF–WAY.

Summary of Regulatory Comparison Criteria for Soil (mg/kg)

Contaminant Names	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RCS-1
Benzo(a)pyrene (BAP)	2	2	4	4	2
Total PCBs	2	2	3	3	2
Cadmium	2	2	30	30	2
Chromium	30	30	200	200	30
Lead	300	300	300	300	300
Nickel	20	20	700	700	20

SAMPLE LOCATION: WC_5–17_14

Constituent	04/20/05 0.00 – 0.50
BAP	0.43 U
Total PCBs	0.441
Cadmium	0.71
Chromium	34
Lead	12

CONTAMINANT NAME /ABBREVIATION

SAMPLE DATE
DEPTH RANGE IN FEET

VALUES SHOWN IN PEACH BACKGROUND EXCEED ONE OR MORE OF THE LISTED MASSDEP METHOD 1 STANDARDS.

NOTES:
ALL UNITS IN MG/KG UNLESS OTHERWISE SPECIFIED.
MG/KG - MILLIGRAMS PER KILOGRAM (DRY WEIGHT).
J - ESTIMATED VALUE.
NA - SAMPLE NOT ANALYZED FOR THE LISTED ANALYTE.
N/A - NOT APPLICABLE.
PCBs - POLYCHLORINATED BIPHENYLS
RC - REPORTABLE CONCENTRATION.
U - COMPOUND WAS NOT DETECTED AT SPECIFIED QUANTITATION LIMIT.
UJ - ESTIMATED NONDETECT.

APPROXIMATE GRAPHIC SCALE
0' 15' 30' 60'

WETLAND TO THE WEST OF
KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

ANALYTICAL RESULTS SUMMARY MAP -
SOUTHERN PORTION OF WETLAND BETA DATA

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970–5600

FIGURE 4-3

DRAWN BY: PZ
CHECKED BY: MAO
DATE: 11-29-11

FILE: Q:\GEOSCI\GISKEYProjects\NewBedford\KMS ANALYT RESULTS – N-S BETA DATA 11-29-11.dwg

LEGEND:

BETA SAMPLES:
- BETA SEDIMENT SAMPLES
- BETA SOIL SAMPLES

TRC SAMPLES:
- TRC SEDIMENT SAMPLES
- TRC SOIL SAMPLES

WF 53 WETLAND FLAGS

APPROXIMATE 8' CHAINLINK FENCE

AREA OF 2006 BETA GROUP EXCAVATION

NOTES:

1. SEE FIGURE 4–5 FOR ANALYTICAL RESULTS FOR THE DURFEE STREET RIGHT–OF–WAY AND WEST LOT.
2. SEE FIGURE 4–6 FOR ANALYTICAL RESULTS FOR THE SUMMIT STREET RIGHT–OF–WAY.

Summary of Regulatory Comparison Criteria for Soil (mg/kg)

Contaminant Names	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RCS-1
Benzo(a)pyrene (BAP)	2	2	4	4	2
Total PCBs	2	2	3	3	2
Cadmium	2	2	30	30	2
Chromium	30	30	200	200	30
Lead	300	300	300	300	300
Nickel	20	20	700	700	20

SAMPLE LOCATION — WA–03; SAMPLE DATE / DEPTH RANGE IN FEET; CONTAMINANT NAME /ABBREVIATION

WA–03 Constituent	12/21/04 0.00 – 0.50	12/21/04 0.00 – 0.50 Field Dup
BAP	R	0.071 U
Total PCBs	0.11	0.23
Cadmium	1.04	1.05
Chromium	13	16
Lead	198	374

VALUES SHOWN IN PEACH BACKGROUND EXCEED ONE OR MORE OF THE LISTED MASSDEP METHOD 1 STANDARDS.

NOTES:
ALL UNITS IN MG/KG UNLESS OTHERWISE SPECIFIED.
MG/KG - MILLIGRAMS PER KILOGRAM (DRY WEIGHT).
J - ESTIMATED VALUE.
NA - SAMPLE NOT ANALYZED FOR THE LISTED ANALYTE.
N/A - NOT APPLICABLE.
PCBs - POLYCHLORINATED BIPHENYLS
RC - REPORTABLE CONCENTRATION.
U - COMPOUND WAS NOT DETECTED AT SPECIFIED QUANTITATION LIMIT.
UJ - ESTIMATED NONDETECT.

APPROXIMATE GRAPHIC SCALE
0' 15' 30' 60'

WETLAND TO THE WEST OF KEITH MIDDLE SCHOOL NEW BEDFORD, MASSACHUSETTS

ANALYTICAL RESULTS SUMMARY MAP - NORTHERN PORTION OF WETLAND BETA DATA

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970–5600

FIGURE 4-4

DRAWN BY: PZ
CHECKED BY: MAO
DATE: 11-29-11

FILE: Q:\GEOSCI\GISKEYProjects\NewBedford\KMS ANALYT RESULTS – N-S BETA DATA 11-29-11.dwg

WSB-14	12/17/09 1.00 – 3.00	12/17/09 4.00 – 5.00	12/17/09 7.00 – 8.00
BAP	0.18 U	0.19 U	0.18 U
Total PCBs	0.0517 U	0.0577 U	0.0522 U
Cadmium	0.26 U	0.28 U	0.27 U
Chromium	5.4	6.6	7.9
Lead	5.8	5.2	1.7
Nickel	3.8	2.3	5.7

WSB-15	12/17/09 0.50 – 1.00	12/17/09 1.00 – 3.00	12/17/09 4.00 – 5.00	12/17/09 7.00 – 8.00
BAP	0.18 U	0.17 U	0.20 U	0.20 U
Total PCBs	0.053 U	0.0509 U	0.0586 U	0.0571 U
Cadmium	0.26 U	0.26 U	0.30 U	0.29 U
Chromium	7.5	5.1	4.3	30
Lead	11	1.8	1.4	2.4
Nickel	2.9	2.3	2.2	13

SB-152	05/21/08 1.00 – 1.00	05/21/08 1.00 – 1.00 Field Dup	05/21/08 4.00 – 4.00	05/21/08 7.00 – 7.00
Total PCBs	0.0546 U	0.0537U	0.0539 U	0.0511 U

R-04	09/11/06 0.00 – 1.50	09/11/06 1.50 – 3.00
Total PCBs	ND	ND

R-03	09/11/06 0.00 – 1.50	09/11/06 1.50 – 3.00
Total PCBs	0.844	ND

SB-153	05/21/08 1.00 – 1.00	05/21/08 8.00 – 8.00
Total PCBs	0.108 J	0.0532 U

R-02	09/11/06 0.00 – 1.50	09/11/06 1.50 – 3.00
Total PCBs	ND	0.398

R-01	09/11/06 0.00 – 1.50	09/11/06 1.50 – 3.00
BAP	0.29	0.23
Total PCBs	ND	ND
Cadmium	0.65	1.04
Chromium	11.0	20.0
Lead	37.0	83.0

SB-151	05/21/08 1.00 – 1.00	05/21/08 5.00 – 5.00	05/21/08 8.00 – 8.00
BAP	0.208 U	0.182 U	0.18 U
Total PCBs	0.0602 U	0.0524 U	0.0504 U
Arsenic	3.11 U	2.73 U	2.7 U
Cadmium	0.32 U	0.28 U	0.27 U
Chromium	8.87	7.85	14.4
Lead	7.95	2.34	2.29
Nickel	4.54	4.93	6.59

R-05	09/11/06 0.00 – 1.50	09/11/06 1.50 – 3.00
BAP	ND	ND
Total PCBs	ND	ND
Cadmium	0.46	0.53
Chromium	6.12	23
Lead	21.00	4.07

R-06	09/11/06 0.00 – 1.50	09/11/06 1.50 – 3.00
Total PCBs	ND	ND

R-10	09/12/06 0.00 – 1.50	09/12/06 1.50 – 3.00
Total PCBs	ND	ND

R-011	09/12/06 0.00 – 1.50	09/12/06 1.50 – 3.00
Total PCBs	ND	ND

WSB-13	12/17/09 0.50 – 1.00	12/17/09 1.00 – 3.00	12/17/09 5.00 – 6.00	12/17/09 7.00 – 8.00
BAP	0.18 U	0.18 U	0.19 U	0.18 U
Total PCBs	0.0516 U	0.0514 U	0.0564 U	0.0529 U
Cadmium	0.26 U	0.27 U	0.28 U	0.27 U
Chromium	5.5	5.1	4.9	2.4
Lead	4.9	8.8	18	3.8
Nickel	4.8	4.0	2.5	1.7

R-12	09/12/06 0.00 – 1.50	09/12/06 1.50 – 3.00
Total PCBs	ND	ND

S-12	09/12/06 0.00 – 1.50
Total PCBs	0.200

WSB-12	12/17/09 0.50 – 1.00	12/17/09 1.00 – 3.00	12/17/09 4.00 – 5.00	12/17/09 7.00 – 8.00
BAP	0.18 U	0.18 U	0.19 U	0.19 U
Total PCBs	0.0523 U	0.0519 U	0.0566 U	0.0526 U
Cadmium	0.26 U	0.26 U	0.28 U	0.28 U
Chromium	2.8	5.2	6.0	2.3
Lead	4.7	5.6	10	4.2
Nickel	2.2	4.1	3.1	2.1

T-12	09/12/06 0.00 – 1.50
BAP	0.15
Total PCBs	0.396
Chromium	5.88
Lead	190

U-13	09/12/06 0.00 – 1.50
Total PCBs	0.476

S-11	09/12/06 0.00 – 1.50
Total PCBs	0.181

T-11	09/12/06 0.00 – 1.50
Total PCBs	0.166

S-10	09/12/06 0.00 – 1.50	09/12/06 1.50 – 3.00
Total PCBs	0.597	0.256

R-08	09/11/06 0.00 – 1.50	09/11/06 1.50 – 3.00
Total PCBs	0.357	ND

R-07	09/11/06 0.00 – 1.50	09/11/06 1.50 – 3.00
Total PCBs	ND	ND

T-06	09/12/06 0.00 – 1.50
Total PCBs	ND

S-06	09/12/06 0.00 – 1.50	09/12/06 1.50 – 3.00
Total PCBs	ND	ND

S-04	09/12/06 0.00 – 1.50
BAP	0.22
Total PCBs	0.288
Cadmium	0.44
Chromium	5.21
Lead	26.00

U-04	09/12/06 0.00 – 1.50
Total PCBs	0.230

SB-145	05/20/08 1.00 – 1.00	05/20/08 6.00 – 6.00	05/20/08 8.00 – 8.00
BAP	0.192 U	0.181 U	0.197 U
Total PCBs	0.745 J	0.0528 U	0.0570 U
Arsenic	2.88 U	2.72 U	2.95 U
Cadmium	0.29 U	0.28 U	0.3 U
Chromium	5.29	6.27	15.2
Lead	14.2	2.46	2.32
Nickel	1.51	2.96	6.09

WSB-11	12/17/09 0.50 – 1.00	12/17/09 1.00 – 3.00	12/17/09 1.00 – 3.00 Field Dup	12/17/09 4.00 – 5.00	12/17/09 7.00 – 8.00
BAP	0.19 U	0.18 U	0.18U	0.19 U	0.18 U
Total PCBs	0.0547 U	0.0526 U	0.0513U	0.0574 U	0.0535 U
Cadmium	0.27 U	0.27 U	0.26U	0.28 U	0.28 U
Chromium	4.9	5.1	4.0	2.3	2.7
Lead	13	13	10	3.3	5.4
Nickel	3.5	3.6	3.3	1.7	2.4

R-09	09/12/06 0.00 – 1.50	09/12/06 1.50 – 3.00
BAP	ND	ND
Total PCBs	ND	ND
Cadmium	0.36	ND
Chromium	5.24	2.52
Lead	7.54	7.35

S-09	09/12/06 0.00 – 1.50	09/12/06 1.50 – 3.00
BAP	0.20	0.14
Total PCBs	ND	ND
Cadmium	0.38	NA
Chromium	5.29	5.61
Lead	41.0	51.0

S-05	09/12/06 0.00 – 1.50
Constituent	
Total PCBs	0.239

SB-144	05/20/08 1.00 – 1.00	05/20/08 5.00 – 5.00	05/20/08 8.00 – 8.00
BAP	0.194 U	0.182 U	0.182 U
Total PCBs	0.186 J	0.0549 U	0.0549 U
Arsenic	2.91 U	2.73 U	2.73 U
Cadmium	0.3 U	0.28 U	0.28 U
Chromium	7	16.4	23.8
Lead	15.1	2.66	4.02
Nickel	3.06	5.71	12

SB-143	05/20/08 1.00 – 1.00	05/20/08 5.00 – 5.00	05/20/08 8.00 – 8.00
BAP	0.193 U	0.173 U	0.174 U
Total PCBs	0.0600 U	0.0507 U	0.0500 U
Arsenic	2.9 U	2.59 U	2.6 U
Cadmium	0.29 U	0.26 U	0.26 U
Chromium	13.3	40.2	23.2
Lead	6.3	3.3	2.41
Nickel	6.79	15.5	9.64

SB-142	05/20/08 1.00 – 1.00	05/20/08 6.00 – 6.00	05/20/08 11.00 – 11.00
BAP	0.176 U	0.174 U	0.195 U
Total PCBs	0.0725 J	0.0512 U	0.0607 U
Arsenic	2.63 U	2.61 U	2.92 U
Cadmium	0.27 U	0.27 U	0.3 U
Chromium	16.7	26	14
Lead	107	2.76	1.77
Nickel	9.15	10.3	6.29

SB-154	05/21/08 1.00 – 1.00	05/21/08 6.00 – 6.00
Total PCBs	0.0560 U	0.0543 U

S-03	09/12/06 0.00 – 1.50	09/12/06 1.50 – 3.00
Total PCBs	ND	ND

SB-150	05/21/08 1.00 – 1.00	05/21/08 4.00 – 4.00	05/21/08 7.00 – 7.00
BAP	0.199 U	0.188 U	0.188 U
Total PCBs	0.0555 U	0.0540 U	0.0522 U
Arsenic	2.98 U	2.82 U	2.82 U
Cadmium	0.3 U	0.29 U	0.29 U
Chromium	8.63	4.52	5.4
Lead	10.7	3.35	0.86
Nickel	4.12	4.62	3.36

DURFEE-POST	11/13/09 0.00 – 1.00
BAP	0.49
Total PCBs	0.211 J
Cadmium	0.88
Chromium	18
Lead	380
Nickel	6.0

SB-149	05/20/08 1.00 – 1.00	05/20/08 6.00 – 6.00	05/20/08 10.00 – 10.00
BAP	0.2 U	0.184 U	0.178 U
Total PCBs	0.0540 U	0.0541 U	0.0521 U
Arsenic	2.99 U	2.75 U	2.67 U
Cadmium	0.3 U	0.28 U	0.27 U
Chromium	8.49	4.34	2.15
Lead	5.75	1.81	1.28
Nickel	3.93	2.75	1.32

T-01	09/12/06 0.00 – 1.50
Total PCBs	1.080

S-02	09/12/06 0.00 – 1.50	09/12/06 0.00 – 2.00
BAP	0.068	NA
Total PCBs	1.086	ND
Cadmium	0.99	NA
Chromium	11.00	NA
Lead	409	NA

SB-148	05/21/08 1.00 – 1.00	05/21/08 4.00 – 4.00	05/21/08 8.00 – 8.00
BAP	0.215 U	0.185 U	0.187 U
Total PCBs	0.0590 U	0.0533 U	0.0533 U
Arsenic	3.22 U	2.78 U	2.8 U
Cadmium	0.44	0.28 U	0.28 U
Chromium	9.06	4.49	9.54
Lead	110	2.58	2.07
Nickel	20.9	3.69	6.52

U-01	09/12/06 0.00 – 1.50
Total PCBs	ND

SB-147	05/20/08 1.00 – 1.00	05/20/08 5.00 – 5.00	05/20/08 5.00 – 5.00 Field Dup	05/20/08 9.00 – 9.00
BAP	0.203 U	0.182 U	0.177U	0.178 U
Total PCBs	0.0627 U	0.0517 U	0.0530U	0.0519 U
Arsenic	3.05 U	2.73 U	2.65U	2.67 U
Cadmium	0.31 U	0.28 U	0.27U	0.27 U
Chromium	10	6.49	5.52	2.23
Lead	20.3	2.73	2.42	2.01
Nickel	3.62	6.3	8.3	1.79

SB-146	05/20/08 1.00 – 1.00	05/20/08 5.00 – 5.00	05/20/08 8.00 – 8.00
BAP	0.197 U	0.172 U	0.181 U
Total PCBs	0.0562 U	0.0500 U	0.0533 U
Arsenic	2.95 U	2.57 U	2.72 U
Cadmium	0.3 U	0.26 U	0.28 U
Chromium	8.47	8.75	7.93
Lead	8.37	2.35	2.55
Nickel	4.15	5.86	5.52

V-01	09/12/06 0.00 – 1.50
BAP	ND
Total PCBs	ND
Cadmium	0.57
Chromium	8.64
Lead	33.0

T-03	09/12/06 0.00 – 1.50
Total PCBs	ND

U-03	09/12/06 0.00 – 1.50
Total PCBs	ND

LEGEND:

BETA SAMPLES:

- BETA SEDIMENT SAMPLES
- BETA SOIL SAMPLES

TRC SAMPLES:

- TRC SEDIMENT SAMPLES
- TRC SOIL SAMPLES
- WF 55 — WETLAND FLAGS
- APPROXIMATE 8' CHAINLINK FENCE
- AREA OF 2006 BETA GROUP EXCAVATION

Summary of Regulatory Comparison Criteria for Soil (mg/kg)

Contaminant Names	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RCS-1
Benzo(a)pyrene (BAP)	2	2	4	4	2
Total PCBs	2	2	3	3	2
Cadmium	2	2	30	30	2
Chromium	30	30	200	200	30
Lead	300	300	300	300	300
Nickel	20	20	700	700	20

NOTES:
ALL UNITS IN MG/KG UNLESS OTHERWISE SPECIFIED,
MG/KG - MILLIGRAMS PER KILOGRAM (DRY WEIGHT),
J - ESTIMATED VALUE,
NA - SAMPLE NOT ANALYZED FOR THE LISTED ANALYTE,
ND - NOT DETECTED,
PCBs - POLYCHLORINATED BIPHENYLS
RC - REPORTABLE CONCENTRATION,
U - COMPOUND WAS NOT DETECTED AT SPECIFIED QUANTITATION LIMIT,
UJ - ESTIMATED NONDETECT.

SAMPLE LOCATION

S-02	09/12/06 0.00 – 1.50	09/12/06 0.00 – 2.00
Constituent		
BAP	0.068	NA
Total PCBs	1.086	ND
Cadmium	0.99	NA
Chromium	11.00	NA
Lead	409	NA

CONTAMINANT NAME /ABBREVIATION

SAMPLE DATE
DEPTH RANGE IN FEET

VALUES SHOWN IN PEACH BACKGROUND EXCEED ONE OR MORE OF THE LISTED MASSDEP METHOD 1 STANDARDS.

ANALYSIS	ANALYTE					SAMPLE ID:	S-1	S-2A		S-2B	S-2 B1.5	S-2C		S-2D		T-1 C1.5	T-1 C1.75	T-1 D1.5	T-1 D1.75	T-1 E1.75	T-1A	
						SAMPLE DEPTH (FT.):	0-1	0-1	1-1.5	0.1	0.1	0-1	1-1.5	0-1	1-1.5	0-1	0-1	0-1	0-1	0-1	0-1	1-1.5
						SAMPLE DATE:	11/16/2006	9/25/2006	9/25/2006	11/6/2006	11/6/2006	9/25/2006	9/25/2006	9/25/2006	9/25/2006	11/6/2006	11/6/2006	11/6/2006	11/6/2006	11/6/2006	9/25/2006	9/25/2006
		S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RC S-1																
PCBs (mg/kg)	TOTAL PCBs	2	2	2	2	2	**0.538**	**0.618**	**0.394**	ND	**0.837**	**0.398**	ND	**0.524**	ND	**8.670**	**0.146**	**1.590**	**0.165**	**0.133**	**0.291**	**0.197**

ANALYSIS	ANALYTE					SAMPLE ID:	T-1B		T-1C			T-IC 1.5	T-ID			T-1D 1.5	T-1D 1.5A	T-1D 1.75	T-1D 1.75A	U-2
						SAMPLE DEPTH (FT.):	0-1	1-1.5	0-1	1-1.5	1-2	1-2	0-1	1-1.5	1-2	0-1	0-1	1-2	0-1	0-1.5
						SAMPLE DATE:	9/25/2006	9/25/2006	9/25/2006	9/25/2006	11/16/2006	11/16/2006	9/25/2006	9/25/2006	11/16/2006	11/6/2006	11/16/2006	11/16/2006	11/6/2006	9/12/2006
		S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RC S-1														
PCBs (mg/kg)	TOTAL PCBs	2	2	2	2	2	**0.290**	**0.115**	**6.010**	**1.920**	**0.354**	ND	8.920	**1.490**	**0.121**	ND	**1.070**	**0.135**	**0.923**	**0.237**

LOCATION DATA WERE NOT AVAILABLE FOR SEVERAL SOIL/SEDIMENT SAMPLES COLLECTED FROM THE DURFEE STREET WEST LOT, THE DURFEE STREET RIGHT-OF-WAY AND/OR THE NORTHERN WETLAND BY BETA IN SEPTEMBER 2006. THIS INCLUDES THE FOLLOWING SAMPLES: S-1, S-2A, S-2B, S-2B 1.5, S-2C, S-2D, T-1 C1.5, T-1 C1.75, T-1 D1.5, T-1 D1.75, T-1 E1.75, T-1A, T-1B, T-1C, T-1C 1.5, T-1D, T-1D 1.5, T-1D 1.5A, T-1D 1.75, AND T-1D 1.75A, AND U-2.

APPROXIMATE GRAPHIC SCALE
0' 10' 20' 40'

WETLAND TO THE WEST OF
KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

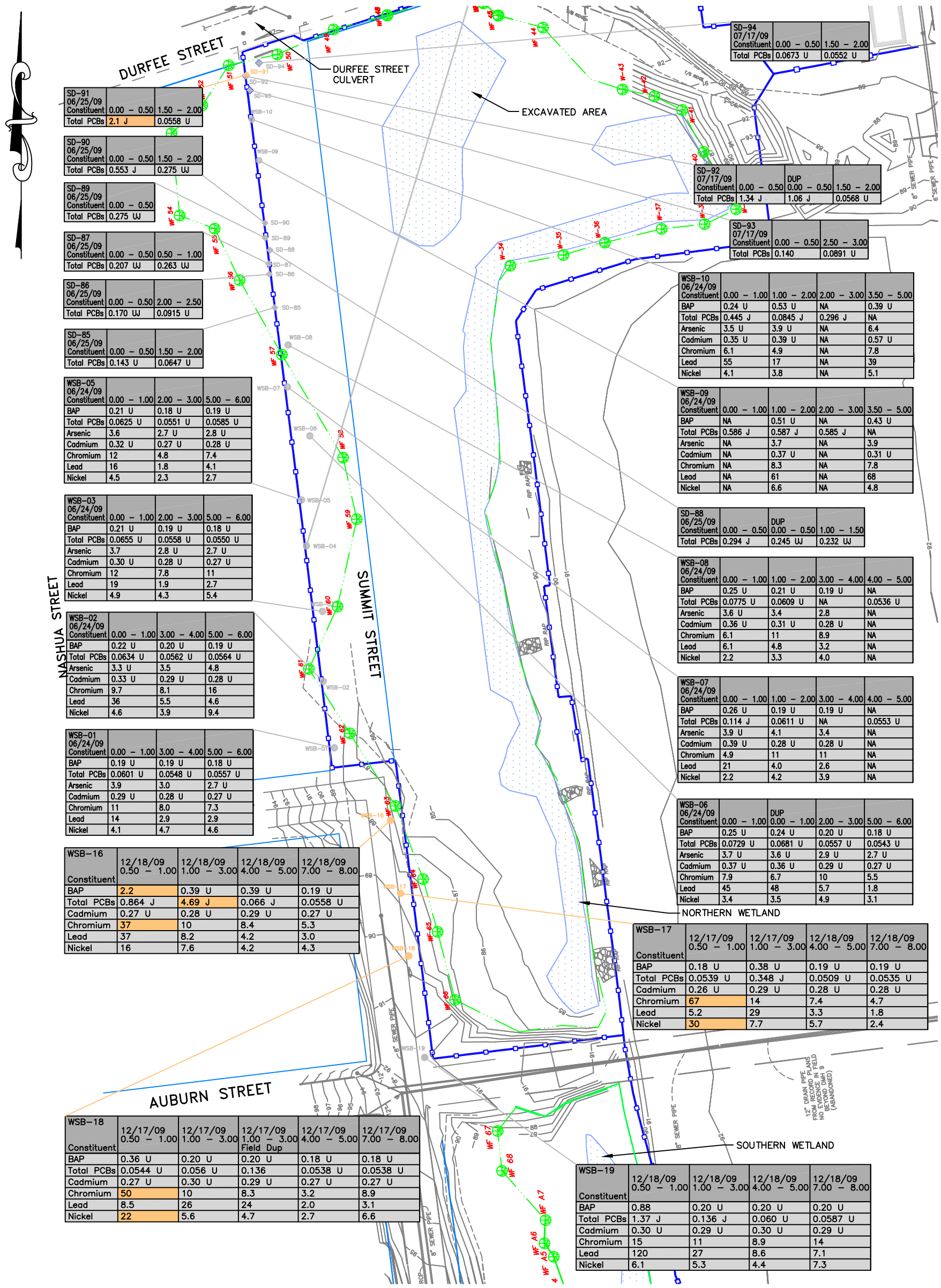
ANALYTICAL RESULTS SUMMARY MAP -
DURFEE STREET RIGHT-OF-WAY AND WEST LOT

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

FIGURE
4-5

DRAWN BY: PZ
DATE: 12-5-11
CHECKED BY: MAO

FILE: Q:\GEOSCI\GISKEYProjects\NewBedford\XMS ANALYT RESULTS - DURFEE ST ROW - WEST LOT - 12-5-11.dwg



SD-91 06/25/09 Constituent	0.00 – 0.50	1.50 – 2.00
Total PCBs	2.1 J	0.0558 U

SD-90 06/25/09 Constituent	0.00 – 0.50	1.50 – 2.00
Total PCBs	0.553 J	0.275 UJ

SD-89 06/25/09 Constituent	0.00 – 0.50
Total PCBs	0.275 UJ

SD-87 06/25/09 Constituent	0.00 – 0.50	0.50 – 1.00
Total PCBs	0.207 UJ	0.263 UJ

SD-86 06/25/09 Constituent	0.00 – 0.50	2.00 – 2.50
Total PCBs	0.170 UJ	0.0915 U

SD-85 06/25/09 Constituent	0.00 – 0.50	1.50 – 2.00
Total PCBs	0.143 U	0.0647 U

WSB-05 06/24/09 Constituent	0.00 – 1.00	2.00 – 3.00	5.00 – 6.00
BAP	0.21 U	0.18 U	0.19 U
Total PCBs	0.0625 U	0.0551 U	0.0585 U
Arsenic	3.6	2.7 U	2.8 U
Cadmium	0.32 U	0.27 U	0.28 U
Chromium	12	4.8	7.4
Lead	16	1.8	4.1
Nickel	4.5	2.3	2.7

WSB-03 06/24/09 Constituent	0.00 – 1.00	2.00 – 3.00	5.00 – 6.00
BAP	0.21 U	0.19 U	0.18 U
Total PCBs	0.0655 U	0.0558 U	0.0550 U
Arsenic	3.7	2.8 U	2.7 U
Cadmium	0.30 U	0.28 U	0.27 U
Chromium	12	7.8	11
Lead	19	1.9	2.7
Nickel	4.9	4.3	5.4

WSB-02 06/24/09 Constituent	0.00 – 1.00	3.00 – 4.00	5.00 – 6.00
BAP	0.22 U	0.20 U	0.19 U
Total PCBs	0.0634 U	0.0562 U	0.0564 U
Arsenic	3.3 U	3.5	4.8
Cadmium	0.33 U	0.29 U	0.28 U
Chromium	9.7	8.1	16
Lead	36	5.5	4.6
Nickel	4.6	3.9	9.4

WSB-01 06/24/09 Constituent	0.00 – 1.00	3.00 – 4.00	5.00 – 6.00
BAP	0.19 U	0.19 U	0.18 U
Total PCBs	0.0601 U	0.0548 U	0.0557 U
Arsenic	3.9	3.0	2.7 U
Cadmium	0.29 U	0.28 U	0.27 U
Chromium	11	8.0	7.3
Lead	14	2.9	2.9
Nickel	4.1	4.7	4.6

WSB-16 Constituent	12/18/09 0.50 – 1.00	12/18/09 1.00 – 3.00	12/18/09 4.00 – 5.00	12/18/09 7.00 – 8.00
BAP	2.2	0.39 U	0.39 U	0.19 U
Total PCBs	0.864 J	4.69 J	0.066 J	0.0558 U
Cadmium	0.27 U	0.28 U	0.29 U	0.27 U
Chromium	37	10	8.4	5.3
Lead	37	8.2	4.2	3.0
Nickel	16	7.6	4.2	4.3

WSB-18 Constituent	12/17/09 0.50 – 1.00	12/17/09 1.00 – 3.00	12/17/09 1.00 – 3.00 Field Dup	12/17/09 4.00 – 5.00	12/17/09 7.00 – 8.00
BAP	0.36 U	0.20 U	0.20 U	0.18 U	0.18 U
Total PCBs	0.0544 U	0.056 U	0.136	0.0538 U	0.0538 U
Cadmium	0.27 U	0.30 U	0.29 U	0.27 U	0.27 U
Chromium	50	10	8.3	3.2	8.9
Lead	8.5	26	24	2.0	3.1
Nickel	22	5.6	4.7	2.7	6.6

SD-94 07/17/09 Constituent	0.00 – 0.50	1.50 – 2.00
Total PCBs	0.0673 U	0.0552 U

SD-92 07/17/09 Constituent	0.00 – 0.50	DUP 0.00 – 0.50	1.50 – 2.00
Total PCBs	1.34 J	1.06 J	0.0568 U

SD-93 07/17/09 Constituent	0.00 – 0.50	2.50 – 3.00
Total PCBs	0.140	0.0891 U

WSB-10 06/24/09 Constituent	0.00 – 1.00	1.00 – 2.00	2.00 – 3.00	3.50 – 5.00
BAP	0.24 U	0.53 U	NA	0.39 U
Total PCBs	0.445 J	0.0845 J	0.296 J	NA
Arsenic	3.5 U	3.9 U	NA	6.4
Cadmium	0.35 U	0.39 U	NA	0.57 U
Chromium	6.1	4.9	NA	7.8
Lead	55	17	NA	39
Nickel	4.1	3.8	NA	5.1

WSB-09 06/24/09 Constituent	0.00 – 1.00	1.00 – 2.00	2.00 – 3.00	3.50 – 5.00
BAP	NA	0.51 U	NA	0.43 U
Total PCBs	0.586 J	0.587 J	0.585 J	NA
Arsenic	NA	3.7	NA	3.9
Cadmium	NA	0.37 U	NA	0.31 U
Chromium	NA	8.3	NA	7.8
Lead	NA	61	NA	68
Nickel	NA	6.6	NA	4.8

SD-88 06/25/09 Constituent	0.00 – 0.50	DUP 0.00 – 0.50	1.00 – 1.50
Total PCBs	0.294 J	0.245 UJ	0.232 UJ

WSB-08 06/24/09 Constituent	0.00 – 1.00	1.00 – 2.00	3.00 – 4.00	4.00 – 5.00
BAP	0.25 U	0.21 U	0.19 U	NA
Total PCBs	0.0775 U	0.0609 U	NA	0.0536 U
Arsenic	3.6 U	3.4	2.8	NA
Cadmium	0.36 U	0.31 U	0.28 U	NA
Chromium	6.1	11	8.9	NA
Lead	6.1	4.8	3.2	NA
Nickel	2.2	3.3	4.0	NA

WSB-07 06/24/09 Constituent	0.00 – 1.00	1.00 – 2.00	3.00 – 4.00	4.00 – 5.00
BAP	0.26 U	0.19 U	0.19 U	NA
Total PCBs	0.114 J	0.0611 U	NA	0.0553 U
Arsenic	3.9 U	4.1	3.4	NA
Cadmium	0.39 U	0.28 U	0.28 U	NA
Chromium	4.9	11	11	NA
Lead	21	4.0	2.6	NA
Nickel	2.2	4.2	3.9	NA

WSB-06 06/24/09 Constituent	0.00 – 1.00	DUP 0.00 – 1.00	2.00 – 3.00	5.00 – 6.00
BAP	0.25 U	0.24 U	0.20 U	0.18 U
Total PCBs	0.0729 U	0.0681 U	0.0557 U	0.0543 U
Arsenic	3.7 U	3.6 U	2.9 U	2.7 U
Cadmium	0.37 U	0.36 U	0.29 U	0.27 U
Chromium	7.9	6.7	10	5.5
Lead	45	48	5.7	1.8
Nickel	3.4	3.5	4.9	3.1

WSB-17 Constituent	12/17/09 0.50 – 1.00	12/17/09 1.00 – 3.00	12/18/09 4.00 – 5.00	12/18/09 7.00 – 8.00
BAP	0.18 U	0.38 U	0.19 U	0.19 U
Total PCBs	0.0539 U	0.348 J	0.0509 U	0.0535 U
Cadmium	0.26 U	0.29 U	0.28 U	0.28 U
Chromium	67	14	7.4	4.7
Lead	5.2	29	3.3	1.8
Nickel	30	7.7	5.7	2.4

WSB-19 Constituent	12/18/09 0.50 – 1.00	12/18/09 1.00 – 3.00	12/18/09 4.00 – 5.00	12/18/09 7.00 – 8.00
BAP	0.88	0.20 U	0.20 U	0.20 U
Total PCBs	1.37 J	0.136 J	0.060 U	0.0587 U
Cadmium	0.30 U	0.29 U	0.30 U	0.29 U
Chromium	15	11	8.9	14
Lead	120	27	8.6	7.1
Nickel	6.1	5.3	4.4	7.3

Summary of Regulatory Comparison Criteria for Soil (mg/kg)

Contaminant Names	S-1/GW-2	S-1/GW-3	S-2/GW-2	S-2/GW-3	RCS-1
Benzo(a)pyrene (BAP)	2	2	4	4	2
Total PCBs	2	2	3	3	2
Cadmium	2	2	30	30	2
Chromium	30	30	200	200	30
Lead	300	300	300	300	300
Nickel	20	20	700	700	20

NOTES:
ALL UNITS IN MG/KG UNLESS OTHERWISE SPECIFIED.
J - ESTIMATED.
MG/KG - MILLIGRAMS PER KILOGRAM (DRY WEIGHT).
NA - SAMPLE NOT ANALYZED FOR THE LISTED ANALYTE.
N/A - NOT APPLICABLE.
PCBs - POLYCHLORINATED BIPHENYLS.
RC - REPORTABLE CONCENTRATION.
U - COMPOUND WAS NOT DETECTED AT SPECIFIED QUANTITATION LIMIT.
UJ - ESTIMATED NON-DETECT.

SAMPLE LOCATION
SAMPLE DATE

WSB-03 06/24/09 Constituent	0.00 – 1.00	2.00 – 3.00	5.00 – 6.00
BAP	0.21 U	0.19 U	0.18 U
Total PCBs	0.0655 U	0.0558 U	0.0550 U
Arsenic	3.7	2.8 U	2.7 U
Cadmium	0.30 U	0.28 U	0.27 U
Chromium	12	7.8	11
Lead	19	1.9	2.7
Nickel	4.9	4.3	5.4

CONTAMINANT NAME /ABBREVIATION

SAMPLE DEPTH RANGE IN FEET

SOIL SAMPLE
SEDIMENT SAMPLE
SOIL SAMPLE THAT HAS CONCENTRATION WITH EXCEEDANCE
SEDIMENT SAMPLE THAT HAS CONCENTRATION WITH EXCEEDANCE

VALUES SHOWN IN PEACH BACKGROUND EXCEED ONE OR MORE OF THE LISTED MASSDEP METHOD 1 STANDARDS.

NOTE: DRAWING BASED ON "McCOY FIELD SITE PLAN" FROM BETA GROUP, NORWOOD, MA DATED 6-04 AND "NEW BEDFORD PROGRESS DRAWING" FROM BETA GROUP, NORWOOD, MA DATED 8-06.

APPROXIMATE GRAPHIC SCALE
0' 40' 80' 160'

WETLAND TO THE WEST OF KEITH MIDDLE SCHOOL NEW BEDFORD, MASSACHUSETTS

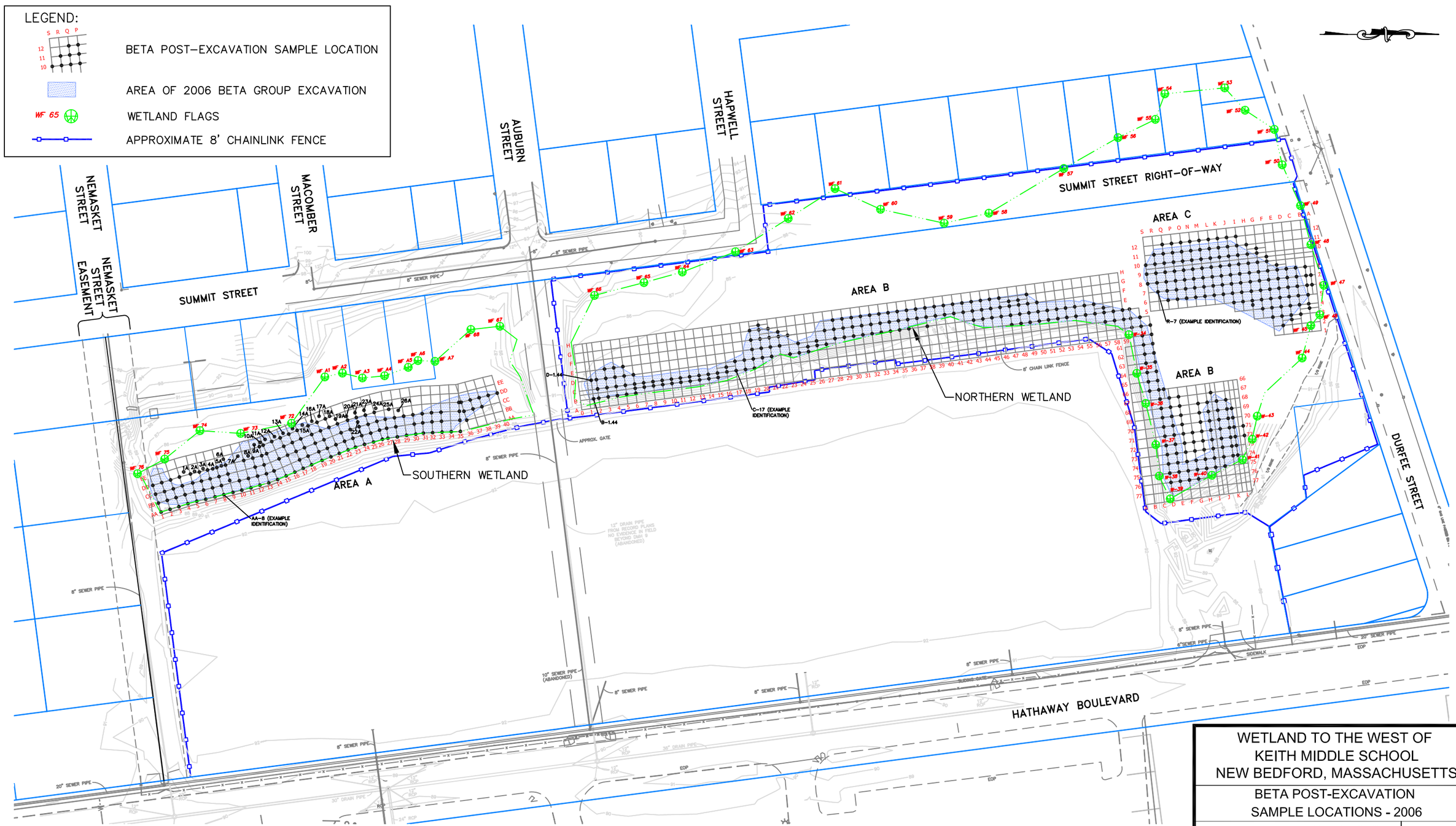
ANALYTICAL RESULTS SUMMARY MAP - SUMMIT STREET
RIGHT-OF-WAY PORTION OF WETLAND TRC DATA

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

DRAWN BY: HWB
CHECKED BY: MAO
DATE: 11-29-11

FIGURE 4-6

FILE: Q:\GEOSC\GISKEYProjects\NewBedford\KMS Summit St Soil Analytical Data 11-29-11.dwg



NOTES:

1. DRAWING BASED ON "CONFIRMATORY SAMPLING LOCATION PLAN" FROM BETA GROUP, NORWOOD, MA DATED 2006.
2. ONLY OFF GRID SAMPLES ARE IDENTIFIED EXCEPT FOR EXAMPLE SAMPLE IDENTIFICATION PROVIDED IN EACH AREA.

APPROXIMATE GRAPHIC SCALE

0' 50' 100' 200'

WETLAND TO THE WEST OF
KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

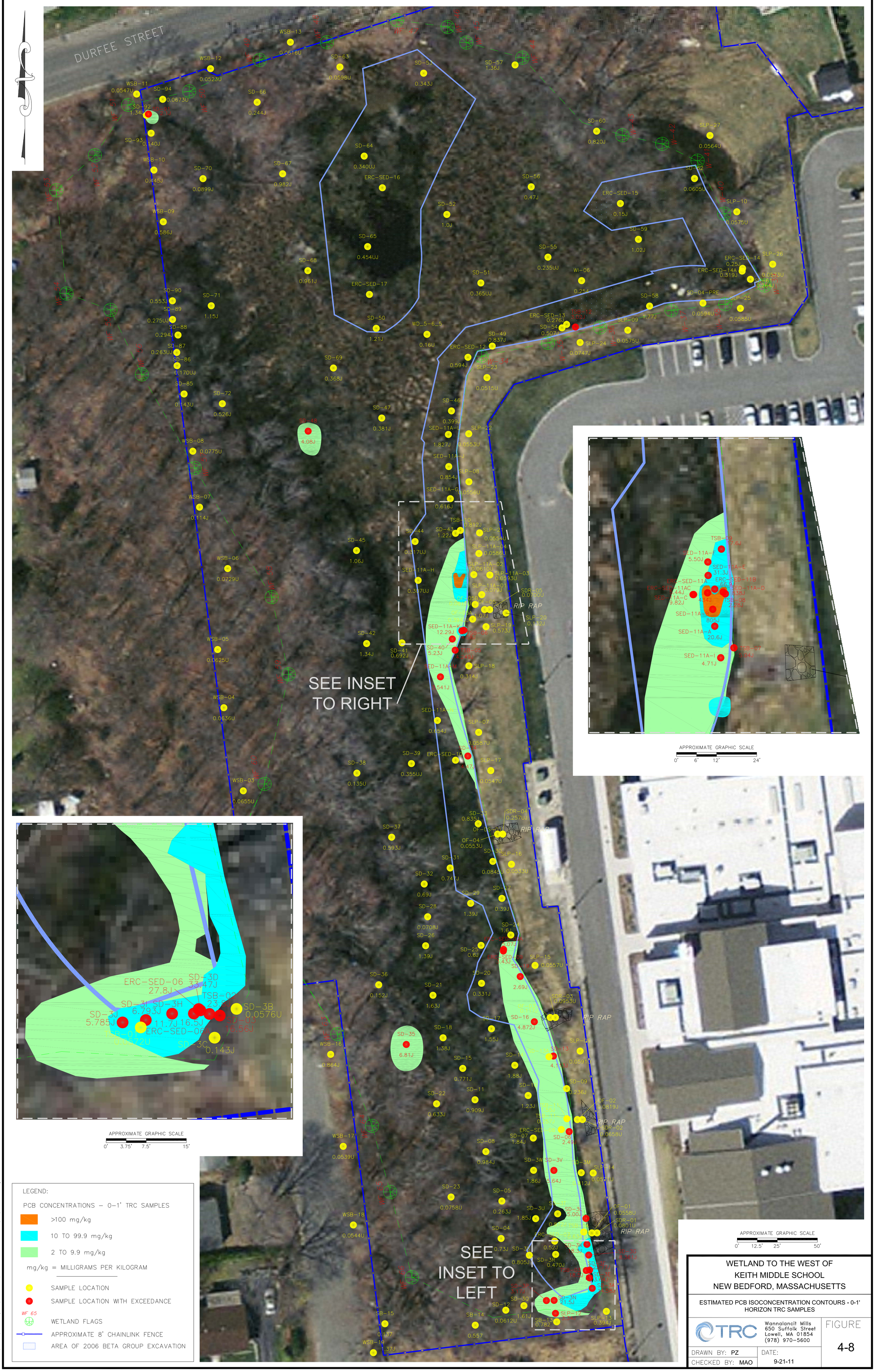
BETA POST-EXCAVATION
SAMPLE LOCATIONS - 2006

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

DRAWN BY: HWB
CHECKED BY: MAO
DATE: 9-21-11

FIGURE 4-7

FILE: T:\E_CAD\115058\KMS BETA POST-EXCAV SAMPS - 2006 - 9-21-11.dwg



LEGEND:

PCB CONCENTRATIONS – 0–1' TRC SAMPLES

- >100 mg/kg
- 10 TO 99.9 mg/kg
- 2 TO 9.9 mg/kg

mg/kg = MILLIGRAMS PER KILOGRAM

- SAMPLE LOCATION
- SAMPLE LOCATION WITH EXCEEDANCE
- WF 65 WETLAND FLAGS
- APPROXIMATE 8' CHAINLINK FENCE
- AREA OF 2006 BETA GROUP EXCAVATION

WETLAND TO THE WEST OF
KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

ESTIMATED PCB ISOCONCENTRATION CONTOURS - 0-1' HORIZON TRC SAMPLES

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

DRAWN BY: PZ
CHECKED BY: MAO
DATE: 9-21-11

FIGURE 4-8

FILE: Q:\GEOSCI\GISKEYProjects\NewBedford\KMS EST PCB ISO CONTS (0-1)_9-21-11.dwg

WETLAND TO THE WEST OF
KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

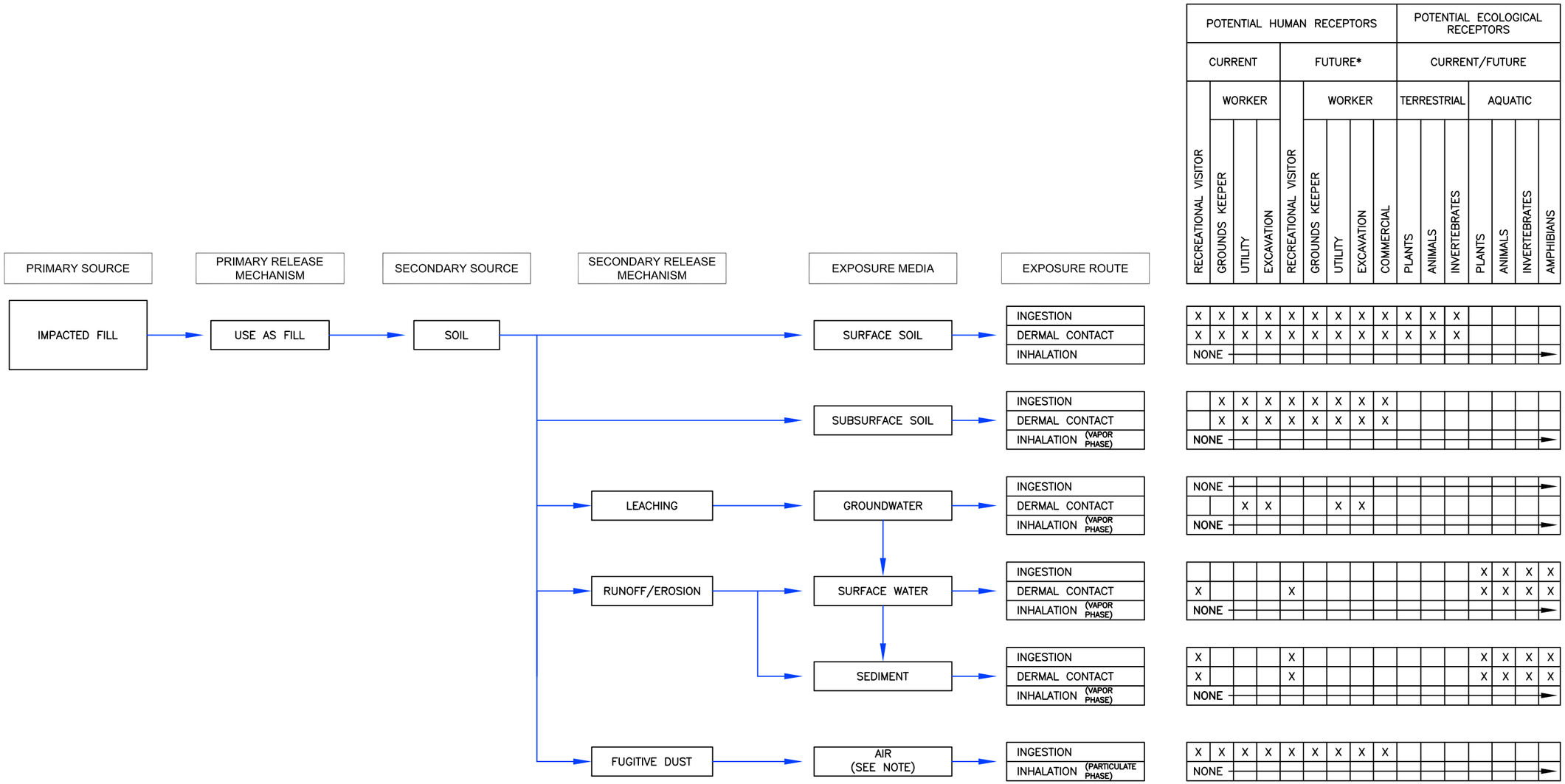
ESTIMATED PCB ISOCONCENTRATION CONTOURS - 1-3'
HORIZON TRC SAMPLES

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

FIGURE
4-9

DRAWN BY: PZ
CHECKED BY: MAO
DATE: 9-21-11

FILE: Q:\GEOSCI\GISKEYProjects\NewBedford\KMS EST PCB ISO CONTS (1-3)_9-21-11.dwg



LEGEND:

X POTENTIALLY COMPLETE EXPOSURE PATHWAYS IDENTIFIED

* ASSUMES NO RESIDENTIAL FUTURE USE

NOTE:

THE VAPOR INTRUSION PATHWAY AT THE SITE IS CONSIDERED NEGLIGIBLE SINCE ONLY TRACE LEVELS OF ONE VOLATILE COMPOUND HAVE BEEN DETECTED IN ONE MONITORING WELL AND COMPOUNDS DETECTED IN SOIL HAVE LIMITED VOLATILITY. BECAUSE THE SITE IS NOT OCCUPIED, NO QUANTITATIVE EVALUATION OF THE VAPOR INTRUSION PATHWAY HAS BEEN CONDUCTED.

WETLAND TO THE WEST OF
KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

SCHEMATIC
CONCEPTUAL SITE MODEL

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

DRAWN BY: HWB
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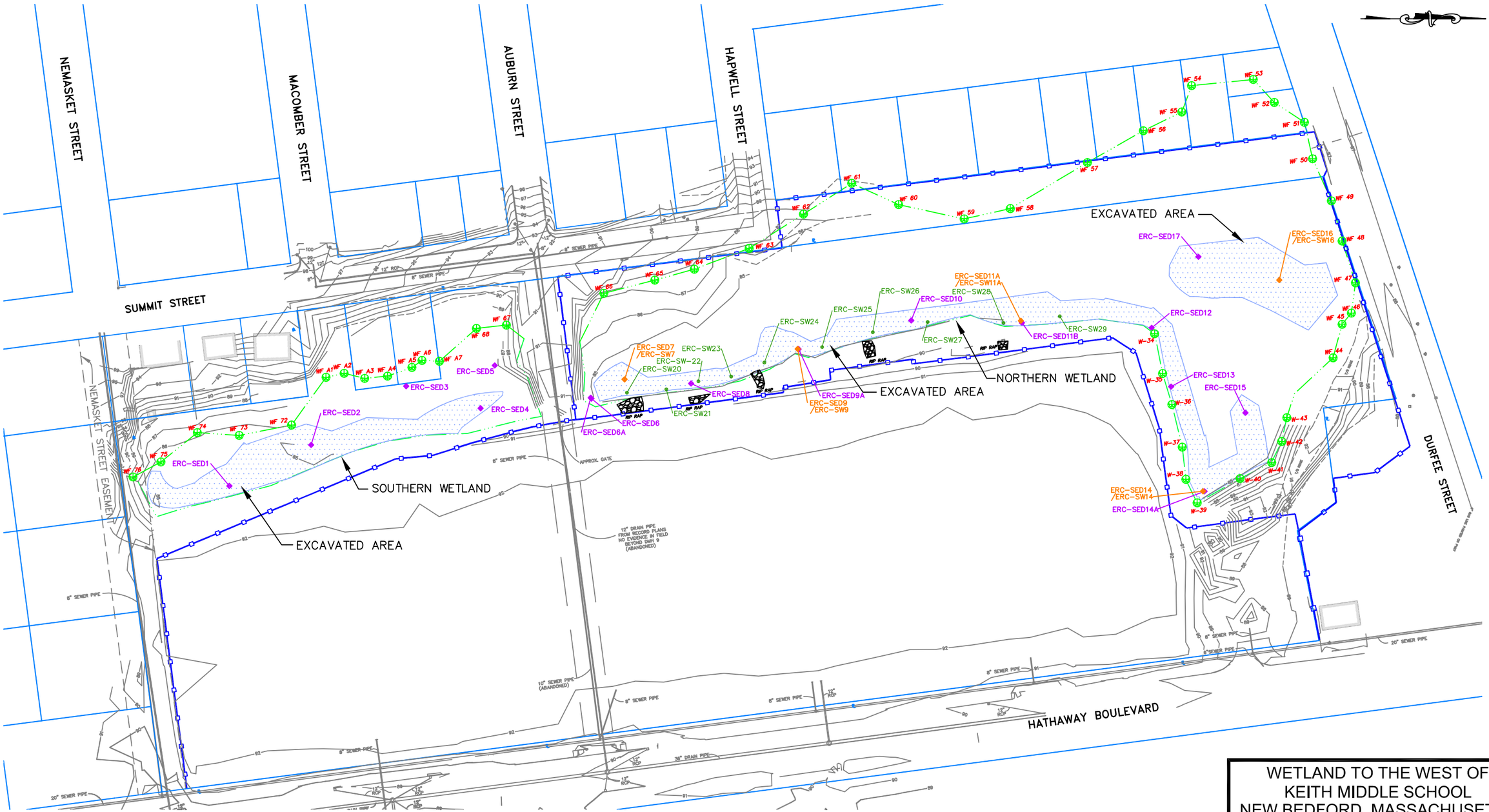
DATE: AUG 2011

FIGURE 5-1

FILE: T:\E_CAD\115058\KMS SCHEMATIC SITE MODEL.dwg



LEGEND:

ERC-SED6 ◆	MARCH 2009 SEDIMENT SAMPLES (NEAR SURFACE STRATIFICATION SAMPLES ARE DENOTED WITH AN "A" [e.g. ERC-SED-6A])
ERC-SW7 /ERC-SED7 ◆	MARCH 2009 SEDIMENT AND SURFACE WATER SAMPLES
ERC-SW21 ●	JULY 2009 SURFACE WATER SAMPLES
—□—□—	APPROXIMATE 8' CHAINLINK FENCE

NOTE: DRAWING BASED ON "McCOY FIELD SITE PLAN" FROM BETA GROUP, NORWOOD, MA DATED 6-04 AND "NEW BEDFORD PROGRESS DRAWING" FROM BETA GROUP, NORWOOD, MA DATED 8-06.

APPROXIMATE GRAPHIC SCALE

0' 50' 100' 200'

WETLAND TO THE WEST OF KEITH MIDDLE SCHOOL NEW BEDFORD, MASSACHUSETTS

ECOLOGICAL RISK CHARACTERIZATION AND NEAR SURFACE STRATIFICATION SAMPLE LOCATIONS

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650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

FIGURE 6-1

DRAWN BY: HWB
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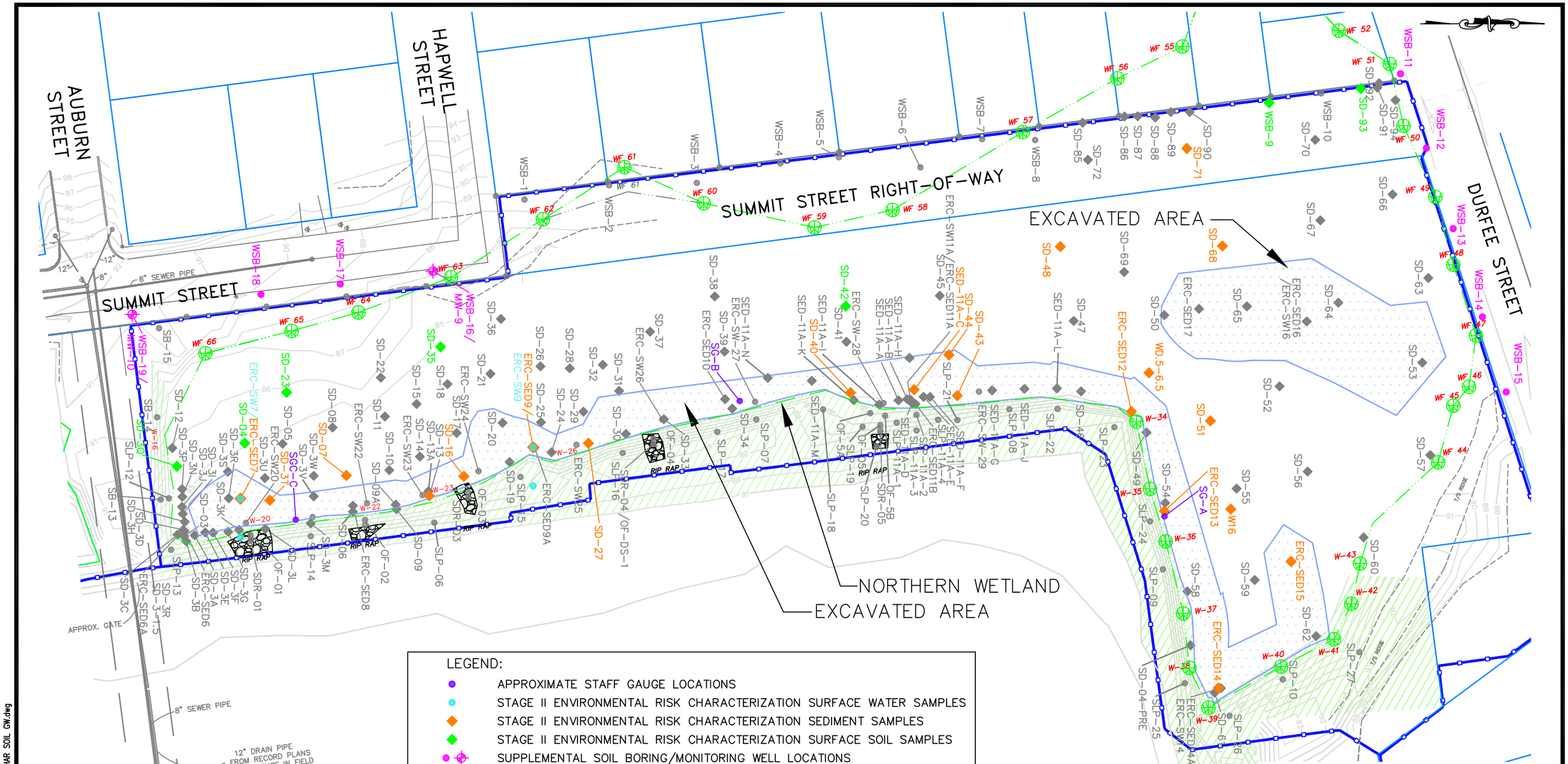
DATE: AUG 2011

FILE: T:\E_CAD\115058\KMS ECO RISK - SURF STRAT.dwg



LEGEND:

- APPROXIMATE STAFF GAUGE LOCATIONS
- STAGE II ENVIRONMENTAL RISK CHARACTERIZATION SURFACE WATER SAMPLES
- STAGE II ENVIRONMENTAL RISK CHARACTERIZATION SEDIMENT SAMPLES
- STAGE II ENVIRONMENTAL RISK CHARACTERIZATION SURFACE SOIL SAMPLES
- SUPPLEMENTAL SOIL BORING/MONITORING WELL LOCATIONS
- APPROXIMATE CAP SLOPE (INCLUDING LAND BRIDGE)
- AREA OF 2006 BETA GROUP EXCAVATION
- APPROXIMATE 8' CHAINLINK FENCE

PREVIOUS SAMPLE LOCATIONS:

- CAP SLOPE SAMPLE LOCATIONS (DECEMBER 2008 AND MARCH 2009)
- SUPPLEMENTAL CAP SLOPE SAMPLES (AUGUST 2009)
- SUPPLEMENTAL OUTFALL SAMPLES (AUGUST 2009)
- SEDIMENT SAMPLES (MAY 2008 THROUGH AUGUST 2009)

NOTE: DRAWING BASED ON "McCOY FIELD SITE PLAN" FROM BETA GROUP, NORWOOD, MA DATED 6-04 AND "NEW BEDFORD PROGRESS DRAWING" FROM BETA GROUP, NORWOOD, MA DATED 8-06.

APPROXIMATE GRAPHIC SCALE

0' 30' 60' 120'

WETLAND TO THE WEST OF KEITH MIDDLE SCHOOL NEW BEDFORD, MASSACHUSETTS

SUPPLEMENTAL ECOLOGICAL RISK CHARACTERIZATION SEDIMENT, SOIL, GROUNDWATER AND SURFACE WATER SAMPLING LOCATIONS

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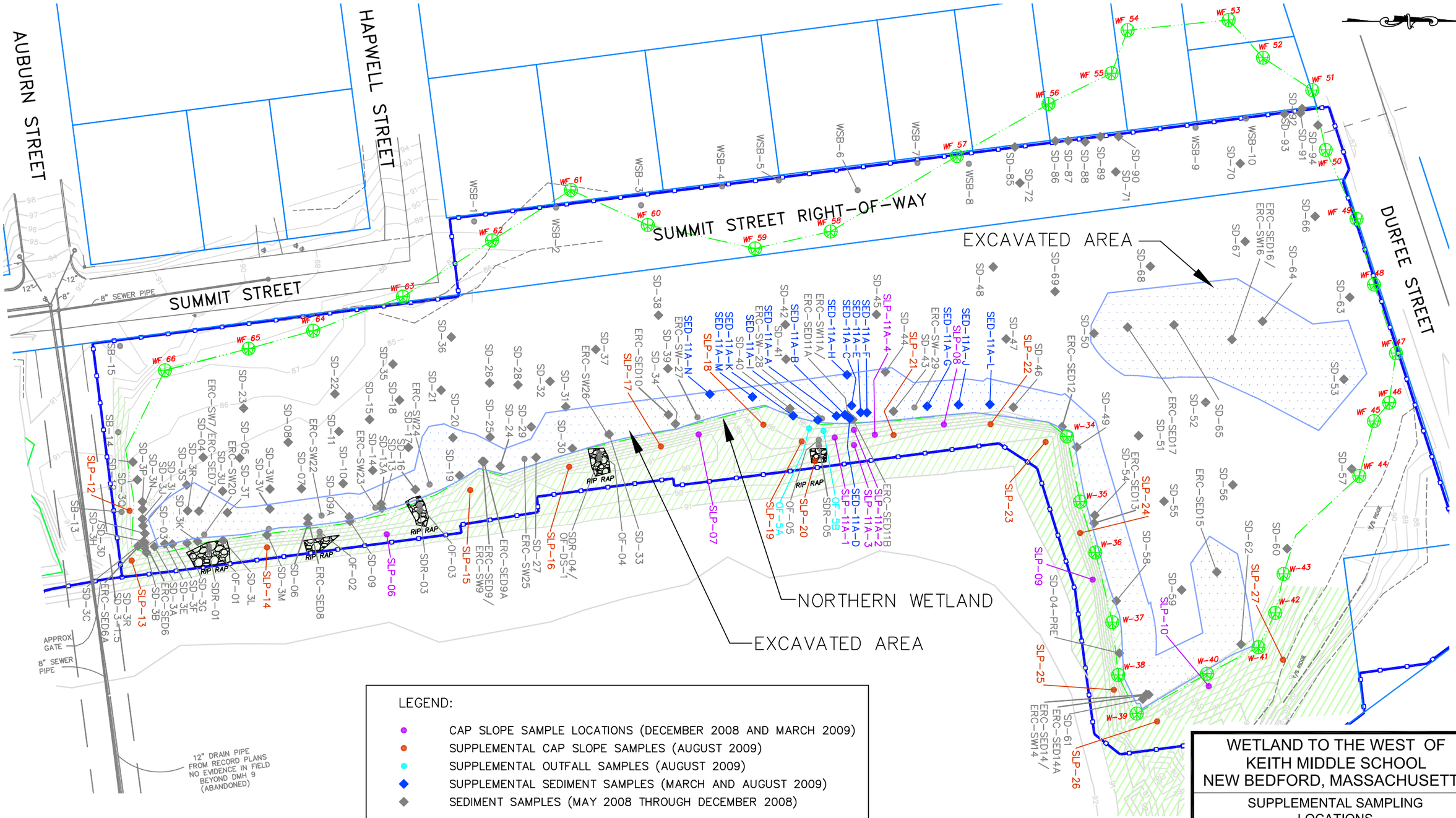
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

FIGURE 6-2

DRAWN BY: HWB
CHECKED BY: MAO
DATE: AUG 2011

FILE: T:\E_CAD\115058\KMS SUPPL ECO RISK CHAR SOIL GW.dwg



NOTE: DRAWING BASED ON "McCOY FIELD SITE PLAN" FROM BETA GROUP, NORWOOD, MA DATED 6-04 AND "NEW BEDFORD PROGRESS DRAWING" FROM BETA GROUP, NORWOOD, MA DATED 8-06.

WETLAND TO THE WEST OF KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

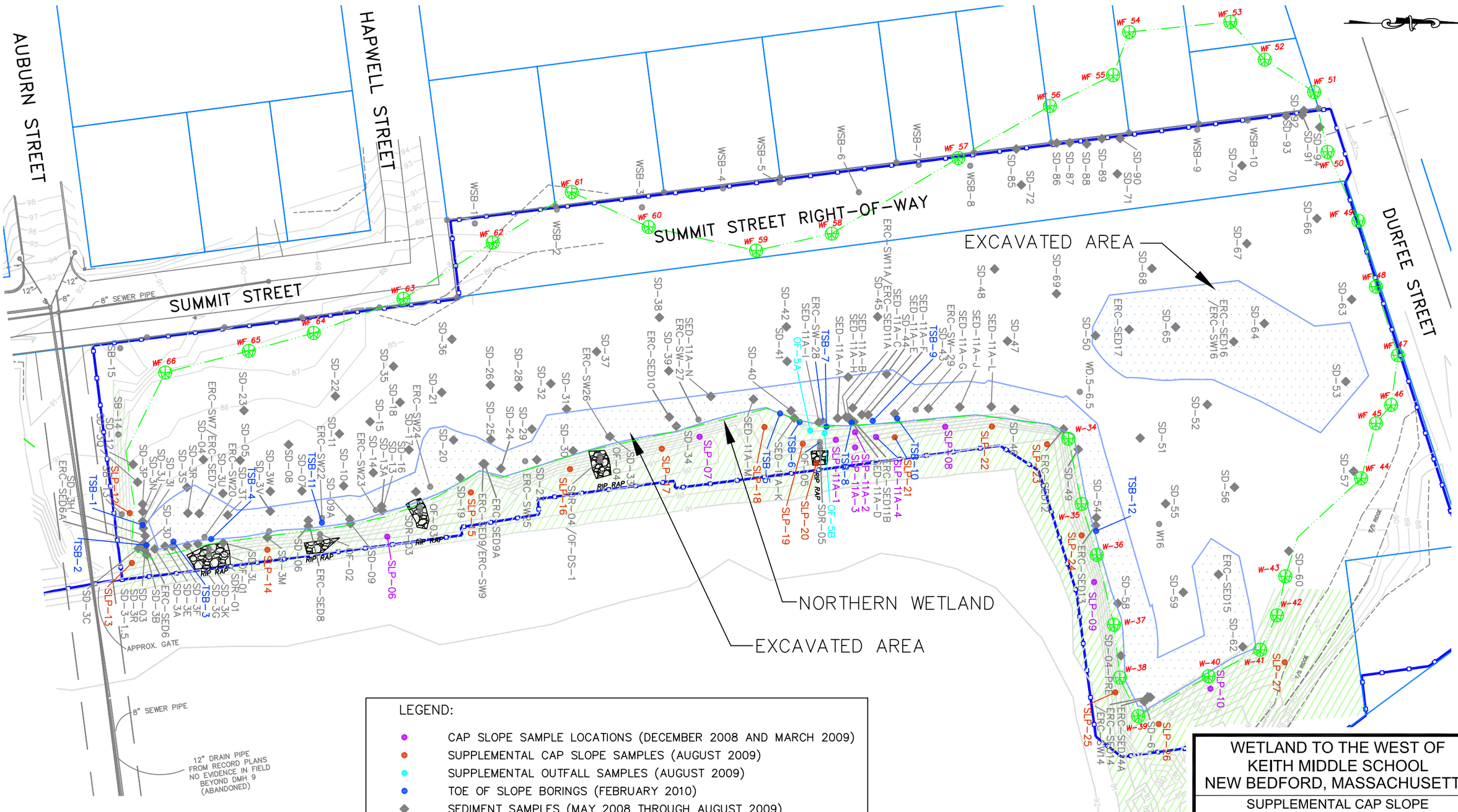
SUPPLEMENTAL SAMPLING LOCATIONS

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

DRAWN BY: HWB
CHECKED BY: MAO
DATE: AUG 2011

FIGURE 6-3

FILE: T:\E_CAD\115058\KMS SUPPLEMENTAL SAMP LOC.dwg



NOTE: DRAWING BASED ON "McCOY FIELD SITE PLAN" FROM BETA GROUP, NORWOOD, MA DATED 6-04 AND "NEW BEDFORD PROGRESS DRAWING" FROM BETA GROUP, NORWOOD, MA DATED 8-06.

WETLAND TO THE WEST OF KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

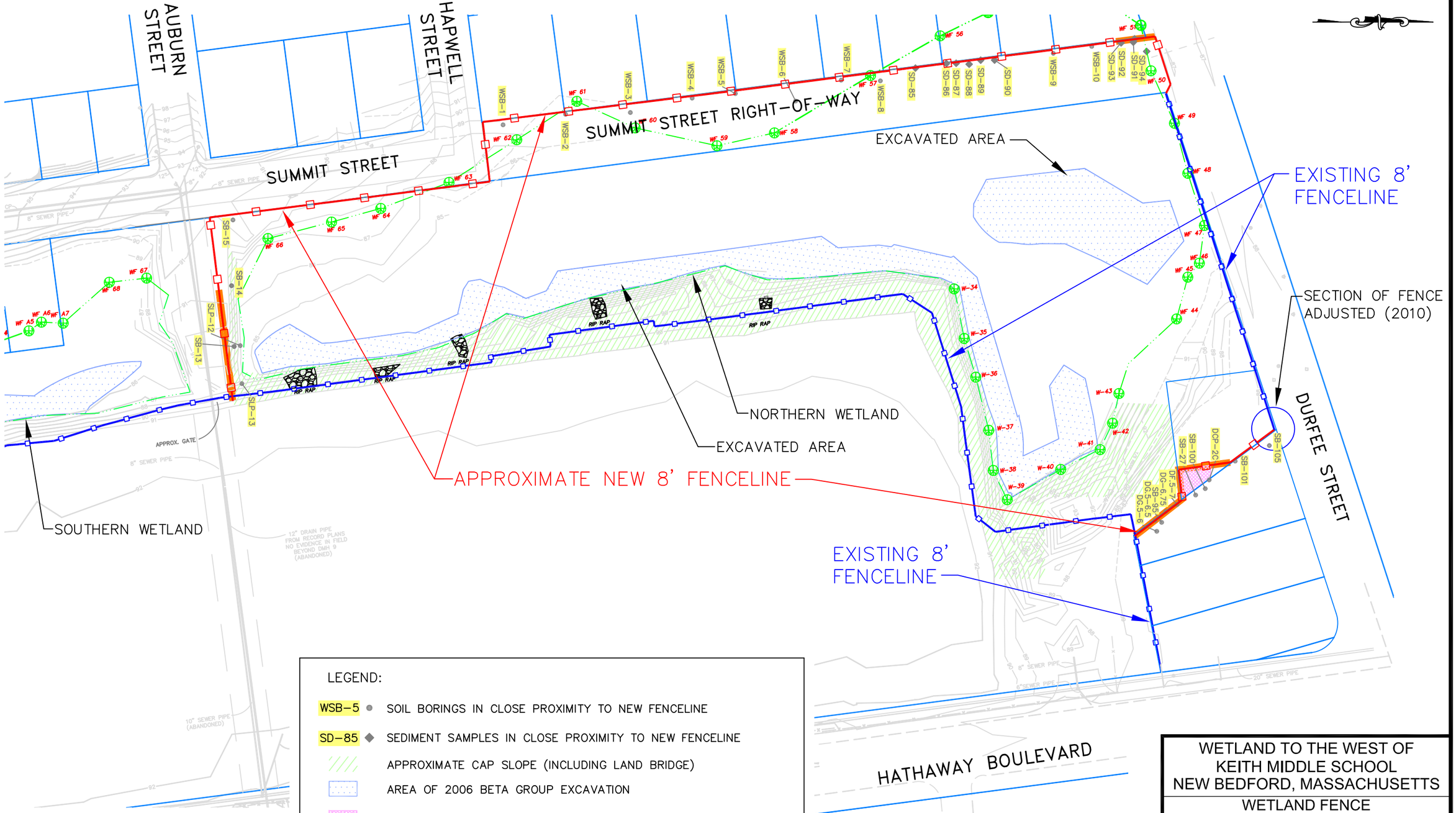
SUPPLEMENTAL CAP SLOPE SAMPLING LOCATIONS

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

DRAWN BY: HWB
CHECKED BY: MAO
DATE: AUG 2011

FIGURE 6-4

FILE: T:\E_CAD\115058\KMS SUPPLEMENTAL CAP SLOPE SAMP LOC.dwg



LEGEND:

- WSB-5 ● SOIL BORINGS IN CLOSE PROXIMITY TO NEW FENCELINE
- SD-85 ◆ SEDIMENT SAMPLES IN CLOSE PROXIMITY TO NEW FENCELINE
- APPROXIMATE CAP SLOPE (INCLUDING LAND BRIDGE)
- AREA OF 2006 BETA GROUP EXCAVATION
- AREA OF UNDOCUMENTED BETA RESULTS
- APPROXIMATE EXISTING FENCELINE (PRIOR TO 2009)
- APPROXIMATE CONVENTIONALLY INSTALLED FENCELINE (2009)
- APPROXIMATE DIRECT DRIVEN FENCELINE (2009)

NOTE: DRAWING BASED ON "McCOY FIELD SITE PLAN" FROM BETA GROUP, NORWOOD, MA DATED 6-04 AND "NEW BEDFORD PROGRESS DRAWING" FROM BETA GROUP, NORWOOD, MA DATED 8-06.

APPROXIMATE GRAPHIC SCALE

0' 40' 80' 160'

WETLAND TO THE WEST OF KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS

WETLAND FENCE LOCATION PLAN

TRC
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650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

DRAWN BY: HWB
CHECKED BY: MAO
DATE: 9-21-11

FIGURE 6-5

FILE: T:\E_CAD\115058\KMS WETLAND FENCE LOC PLAN-B - 9-21-11.dwg