

COOPERSTOWN environmental

RELEASE ABATEMENT MEASURE (RAM) PLAN COMPLETION REPORT & RESPONSE ACTION OUTCOME (RAO) STATEMENT

**CITY OF SALEM, MASSACHUSETTS
BERTRAM FIELD RENOVATION
29 HIGHLAND AVENUE
SALEM, MASSACHUSETTS 01970**

RTN 3-31579

Prepared for:

**Department of Planning & Community Development
City of Salem, Massachusetts**

Prepared by:

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1.0 RESPONSIBLE PARTY INFORMATION

The party taking responsibility for this Release Abatement Measure (RAM) Completion Report and Response Action Outcome (RAO) Statement is the owner:

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2.0 RELEASE DESCRIPTION

2.1 BACKGROUND

The City of Salem has nearly completed the construction of a new synthetic turf athletic field and running track complex at the Bertram Athletic Field located in Salem, Massachusetts. In support of plans and specifications for this project, the City contracted for a subsurface geotechnical investigation of the existing complex to be completed in March 2013.

During the installation of eleven tests pits as part of this geotechnical investigation, urban fill and ash materials were documented at three test pit locations at 2 to 6 feet below ground surface (bgs). Because soil handling and off-site transport would be required in the areas where the urban fill and ash had been identified, and would be required throughout the entire existing athletic field, **Cooperstown Environmental LLC** (Cooperstown) was asked to assist with these findings. Cooperstown subsequently completed four rounds of soil sampling, analyses, and characterization of these materials for handling and disposal purposes.

Bertram Athletic Field is adjacent to the Collins Middle School at 29 Highland Avenue in Salem, Massachusetts, and serves as Salem High School's athletic complex for football, lacrosse, soccer, and track and field events. Collins Middle School was formerly Salem High School until a new high school was constructed. The original high school (Collins Middle School) was constructed in the early 1900's. The Bertram athletic complex subsequently was constructed on an area where considerable cut and fill was required to establish a field large enough for sports activities.

The location of Bertram Athletic Field is in a mixed residential, commercial, and light industrial area of Salem near the center of Salem and approximately one mile west of Salem Harbor. **Figure 1 in Appendix A** is a site locus showing the Site and the surrounding area. In addition to Collins Middle School, neighboring properties bordering the site include the North Shore Medical Center, residential housing, and mixed-use light industrial and retail establishments.

Four rounds of soil disposal characterization sampling and analyses have been performed on this site. An overview of these investigations follows.

2.2 RELEASE DESCRIPTION

The first characterization round included the collection of two soil samples from within the limits of the Site from test pits installed during the geotechnical investigation, and the laboratory analyses of these

materials for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), total petroleum hydrocarbons (TPH), and other disposal criteria including: corrosivity, reactivity, specific conductance, and flashpoint.

Detectable concentrations of metals and SVOCs were reported in each of these two samples, and trace concentrations of petroleum hydrocarbons (measured as TPH) were reported in one of the samples. Almost all of these concentrations were below the levels established by DEP that require reporting, known as Reportable Concentrations (RCs). One sample, however, contained arsenic at 25 mg/kg, exceeding the RCS-1 standard of 20 mg/kg.

The elevated level of arsenic in this sample affects the reuse of the soils associated with sample SS-01, and had the potential to affect the project. Therefore, further characterization of the soils on the athletic field to confirm the preliminary results and refine the areas of elevated arsenic concentrations was performed as described below.

2.3 SUBSEQUENT INVESTIGATIONS PERFORMED TO DATE

On May 30, 2013, Cooperstown mobilized to the Site and collected a second round of soil samples from eight sample locations to refine the extent of arsenic contamination in the athletic field soils and to determine whether these materials would need to be transported to a licensed offsite disposal facility.

The locations of these eight samples (SS-03 through SS-10) are shown on **Figure 2** in **Appendix A**. The locations represent the characterization of soils on a grid that would support handling and disposal of these materials during construction. This work was performed using a hand-held auger to sample the soils from the surface to a maximum depth of one foot, representing the layer of soils (topsoil) scheduled for removal from the project site.

On June 6, 2013, Cooperstown returned to the Site and collected a third round of soil samples from nine other sample locations to determine the extent of arsenic contamination in the soils adjacent to the athletic field and to determine whether these materials will need to be transported to a licensed offsite disposal facility. The locations of these nine samples (SS-11 through SS-19) are shown on **Figure 2** in **Appendix A**. These locations included both soils within the construction footprint as well as residual soils outside of the construction footprint. This sampling also was performed using an auger to sample soils to a maximum depth of one foot.

On June 25, 2013, Cooperstown returned to the Site and collected a fourth round of soil samples from three other sample locations to augment the existing analytical data for disposal characterization. This round of sampling followed the same protocols as the prior rounds. The locations of these three samples (SS-20 through SS-22) are shown on **Figure 2** in **Appendix A**.

2.4 RESULTS AND FINDINGS

2.4.1. ANALYTICAL RESULTS - MAY 30, 2013 CHARACTERIZATION

A discussion of the analytical results was presented in the RAM Plan along with the laboratory analytical reports. As presented there, detectable levels of arsenic were reported in all eight of these samples. Elevated levels of arsenic (above the S-1 standard) were reported in five of the eight sample locations, and two of the sample locations had arsenic at levels greater than DEP's imminent hazard threshold of

40 mg/kg. The elevated levels of arsenic in these soils preclude their reuse by the City and so these materials were further characterized as required for disposal facilities both in and out of state.

There were no VOCs or PCBs reported in these eight samples collected. Detectable concentrations of metals were reported in each of the eight samples, trace concentrations of petroleum hydrocarbons (measured as TPH) were reported in five of the samples, and trace concentrations of SVOCs were reported in seven of the samples. All of these concentrations were below the levels established by DEP that require notice (Reportable Concentrations).

2.4.2. ANALYTICAL RESULTS – JUNE 6, 2013 CHARACTERIZATION

These analytical results and the laboratory analytical reports were also presented in the RAM Plan. As presented, detectable levels of arsenic were reported in all nine of these samples. The results from all of these samples were well below DEP's background threshold for arsenic (20 mg/kg). There were no VOCs or PCBs reported in the four samples where they were analyzed. Detectable concentrations of metals, trace concentrations of petroleum hydrocarbons (measured as TPH), and trace concentrations of SVOCs were reported in each of the four samples.

All of these concentrations were below the levels established by DEP that require notice (Reportable Concentrations).

2.4.3. ANALYTICAL RESULTS – JUNE 25, 2013 CHARACTERIZATION

The June 25, 2013 characterization was performed to meet the disposal criteria for materials scheduled to be disposed out of state. This additional sampling was required to meet the landfill ratio requirement of one sample per 250 tons of materials scheduled for disposal.

Elevated levels of arsenic were reported in each of these three sample locations, and two of the sample locations had arsenic at levels greater than DEP's imminent hazard threshold of 40 mg/kg. The elevated levels of arsenic in these soils precluded their reuse by the City and so these materials were further characterized as required for disposal facilities out of state.

There were no herbicides, VOCs, or PCBs reported in any of the three samples collected. Detectable concentrations of metals and pesticides were reported in each of the three samples, trace concentrations of petroleum hydrocarbons (measured as TPH) were reported in one of the samples, and trace concentrations of SVOCs were reported in one of the samples. All of these concentrations were below the levels established by DEP that require notice (Reportable Concentrations).

3.0 SUMMARY OF RELEASE ABATEMENT MEASURE (RAM)

3.1 RAM OBJECTIVE

The primary objective of the RAM was the off-site disposal of the soils that were excavated from within the footprint of the existing athletic field (Disposal Site) in order to achieve a condition of No Significant Risk. The defined horizontal limits of the Disposal Site, discussed below, are the athletic field within the boundary of the asphalt running track.

Pre-construction concentrations of arsenic in soils would likely preclude a finding of No Significant Risk if

a risk assessment were to be conducted with the existing soils in place. Removing the soils with elevated arsenic likely would allow the site to achieve a Class A Response Action Outcome (RAO).

3.2 COMPLETED RAM ACTIVITIES

Soil excavation and RAM activities commenced on July 16, 2013. Ambient air dust monitoring was performed during all active soil handling and removal activities. Copies of the air monitoring logs are presented in **Appendix B**. The focus of initial soil excavation was on soils that were not suitable for disposal or reuse in Massachusetts. These soils were designated as Type II-3 soils in the RAM Plan and delineated in the **Figure 3** in **Appendix A**. Soil excavation focused on the topsoil that was not structurally suitable for reuse beneath the planned artificial turf surface.

Soil excavation varied from a depth of one foot below grade at the inside perimeter of the running track to a depth of approximately 20 inches below grade at the centerline of the existing athletic field. The variance in depth was attributed to the crown in the center of the field that aided stormwater runoff.

All Type II-3 soils were removed from the Site by July 19, 2013, and work continued on the remaining soils.

Soil excavation and RAM activities continued on July 22, 2013. The focus on this continued excavation was on soils that were suitable for disposal or reuse in Massachusetts. These soils were designated as Type II-1 soils in the RAM Plan and as delineated on the attached **Figure 3** in **Appendix A**. Soil excavation again focused on the topsoil that was not structurally suitable for reuse beneath the planned artificial turf surface.

Soil excavation varied from a depth of one foot below grade at the inside perimeter of the running track to a depth of approximately 20 inches below grade at the centerline of the existing athletic field. The variance in depth was also attributed to the crown in the center of the field that aided stormwater runoff.

3.3 REMEDIATION WASTES

As of the completion of excavation activities on July 26, 2013, a total of 6,072.52 tons of soil had been transported and disposed off-site. A total of 4,060.65 tons of these materials was transported under MCP Bill of Lading protocols to the Casella Waste Systems Greenwood Street Landfill in Worcester, Massachusetts (Type II-1 soils) and a total of 2,011.87 tons was transported under MCP Bill of Lading protocols to Commercial Recycling Systems in Scarborough, Maine (Type II-3 soils). Copies of the BOLs and the receiving facility receipt summaries are provided in **Appendix C**.

3.4 POST EXCAVATION SAMPLING AND ANALYSES

Following excavation, Cooperstown collected post-excavation soil samples to verify the concentrations of contaminants of concern in the underlying soil to remain on the site. The locations of these post-excavation samples are aligned with the pre-construction characterization samples and are presented in **Figure 4** in **Appendix A**.

The residual presence of several metals was reported in all of the post excavation samples, but no concentrations were above the applicable Method 1 Standards, as discussed below. The resulting data

are presented in **Table 2** in **Appendix A** and the full laboratory reports are included in **Appendix D**. These data were used to calculate exposure point concentrations (EPCs) for the Method 1 risk assessment described below.

3.5 GROUNDWATER CHARACTERIZATION

Elevated arsenic concentrations were noted in surficial topsoil at the site. Post-excavation soil sampling, performed at the interface below the topsoil that had been removed, indicated that the arsenic and other COCs were limited to the surface soils. There was no evidence that the COCs had migrated to depth and post-excavation sampling demonstrated that remaining soil concentrations were below the standards used for unrestricted use (S-1). Because the arsenic and other COCs appear to have been limited to very shallow soils (less than two feet), the COCs have very low solubility, and there was no evidence that the compounds had been exposed to groundwater, no groundwater characterization was performed nor warranted.

3.6 ONGOING RAM ACTIVITIES

There are no ongoing activities pursuant to this RAM.

3.7 RAM COMPLETION STATEMENT

The activities under this RAM have been completed. The primary objective of the RAM was the off-site disposal of select soils excavated as part of the athletic complex project, in order to achieve a condition of No Significant Risk at the Disposal Site. As presented in the Method 1 Risk Characterization below, a condition of No Significant Risk has been achieved. There are no additional RAM activities planned for this site, and the objectives of this RAM have been met.

4.0 METHOD 1 RISK CHARACTERIZATION

The Massachusetts Contingency Plan ("MCP," 310 CMR 40.0000) requires a characterization of the risk of harm to health, safety, public welfare, and the environment at all disposal sites, except where remediation to background levels has been achieved. For this Site, a Method 1 Risk Characterization was performed to evaluate the risk of harm to health, public welfare, and the environment, using the soil data collected after the completion of all construction activities in July 2013. Both the Method 1 Risk Characterization and the risk of harm to safety are discussed below.

4.1 NATURE AND EXTENT OF CONTAMINATION

TPH, SVOCs, and metals were detected above laboratory reporting limits in soil samples collected from the Site as part of the initial investigation. Of the detected compounds, arsenic was determined to have concentrations above its respective RCS-1 standards. Groundwater was not analyzed during the investigation because there was no evidence that groundwater had been impacted by the arsenic nor would such an impact be likely.

The Site is located within an area of Salem known to have contamination due to historic urban fill activities. Contaminants present at the Site are of the same nature, and therefore the source of the arsenic and other COCs can likely be attributed to historic filling practices. The presence of elevated concentrations of arsenic within the active playing field (and not outside the footprint) further suggests

that historic application of arsenicals associated with herbicides and pesticides could also be the source or a contributing source of the contamination noted at the Site.

4.2 IDENTIFICATION OF CONTAMINANTS OF CONCERN

Contaminants of Concern (COCs) are those contaminants that are evaluated through the risk assessment process. Pursuant to the DEP's Guidance for Disposal Site Risk Characterization in Support of the MCP, all oil and hazardous materials (OHMs) detected at a site should be considered COCs and should be carried through the risk assessment process unless there is a specific, justifiable rationale for eliminating a particular OHM from the risk characterization, such as:

- the OHM is present at a low frequency of detection (less than 5%) and in low concentration;
- the OHM is present at levels which are consistent with "background" concentrations for the area and there is no evidence that their presence is related to activities at the Site; and/or
- the OHM is a field or laboratory contaminant.

The rationale for eliminating any OHM as a COC is provided below, by medium.

4.2.1 SOIL

No OHM could be eliminated through the first criterion of being present at a low frequency and in a low concentration, because 13 soil characterization samples were collected and analyzed for the full suite of analytes. The detection of an OHM in just one sample would yield a frequency of detection of 8%, above the low frequency threshold of 5%.

The Massachusetts Department of Environmental Protection (MassDEP) has established background concentrations of polycyclic aromatic hydrocarbons (PAHs) and metals in soil, disseminated as a technical update to WSC/ORS #95-141. The table below tabulates the maximum concentrations of PAHs and metals detected at the Disposal Site as well as the established background levels for fill soil.

Compound Name	MassDEP Urban Fill Background Concentration	Units	Maximum Concentration at Site
Polycyclic Aromatic Hydrocarbons (PAHs)			
Phenanthrene	20,000	µg/kg	180
Anthracene	4,000	µg/kg	140
Fluoranthene	10,000	µg/kg	410
Pyrene	20,000	µg/kg	380
Benzo(a)anthracene	9,000	µg/kg	250
Chrysene	7,000	µg/kg	260
Benzo(b)fluoranthene	8,000	µg/kg	370
Benzo(a)pyrene	7,000	µg/kg	260
Indeno(1,2,3-cd)pyrene	3,000	µg/kg	210
Benzo(g,h,i)perylene	3,000	µg/kg	190
Metals			

Cadmium	3	mg/kg	0.48
Lead	600	mg/kg	53.2

As shown in the above table, these contaminants were all detected below their established background concentrations. Furthermore, none of the above contaminants can be linked with historic site activities. These contaminants, therefore, are not considered COCs and will not be evaluated further in the risk assessment.

No OHM could be eliminated through the third criterion as field and laboratory controls prevented accidental cross contamination or transport of arsenic between sampling locations.

In conclusion, the following OHMs have been retained as COCs in soil for the Disposal Site:

- Arsenic
- Barium
- Chromium
- Mercury

4.2.2 GROUNDWATER

Groundwater was not characterized on this Site, and therefore no OHM in the groundwater has been considered as a COC.

4.3 AFFIRMATION OF METHOD 1 APPLICABILITY

A Method 1 risk assessment may be used to characterize the risk of harm to health, public welfare, and the environment at disposal sites where assessments have determined that the presence of OHM is limited to soil and/or groundwater, and risk assessment standards have been established for all OHM present at the Site.

Soil sampling activities have characterized the contamination, which is limited to soil at the Disposal Site. Additionally, Method 1 risk assessment standards have been promulgated for the COCs present at the Disposal Site. Therefore, a Method 1 risk assessment is applicable for this Disposal Site.

4.4 SOIL AND GROUNDWATER STANDARDS

4.4.1 POTENTIAL RECEPTORS AND EXPOSURE PATHWAYS

The Disposal Site is located in a mixed-use residential, commercial, and light industrial area of Salem. Human receptors include both adults and children. The related exposure pathways include ingestion or dermal exposure via direct contact with the soil; because the Disposal Site will be covered by an artificial turf athletic field, these potential exposure scenarios would only occur during future excavation activities or if the artificial surface were to be removed. Groundwater in this area is not a source of drinking water so the only exposure scenarios include contact with groundwater during excavation activities.

A current Priority Resource Map was created through the Massachusetts Office of Geographic Information (MassGIS) online data viewer and is provided as **Figure 5 of Appendix A**. No priority

resources are within 500 feet of the Disposal Site and the Disposal Site is not within any of the following areas: Areas of Critical Environmental Concern; the Natural Heritage & Endangered Species Program (NHESP) Priority Habitats of Rare Species; NHESP Estimated Habitats of Rare Wildlife; Surface Water Protection Areas; Wellhead Protection Areas; Non Potential Drinking Water Source Areas.

The Disposal Site will be beneath a constructed artificial turf athletic surface; vegetation in nearby grassed lawns and any fauna attracted by it are the only environmental receptors on the Site.

4.4.2 IDENTIFICATION OF APPLICABLE SOIL AND GROUNDWATER CATEGORIES

For the purpose of determining the soil categorization of the Disposal Site, the potential for exposure is described by the frequency and intensity of use envisioned. Soil categories S-1, S-2, and S-3 delineate a range of exposure potential based on the presence or absence of children, the accessibility of the soils, the frequency of access, and the intensity of planned use.

Soil exposure category S-1 is applied to soils that are:

- Accessible, i.e., within 0 to 3 feet of the ground surface and unpaved, and have high frequency and high intensity use by adults and children.

Soil exposure category S-2 is applied to soils that are:

- Potentially accessible (3 to 15 feet below the surface unpaved, or 0 to 15 feet below the surface and paved), with generally lowered intensity and frequency of use.

Soil exposure category S-3 is applied to soils that are:

- Isolated (greater than 15 feet below the surface or beneath a permanent structure), and generally without children present, and with lowered intensity and frequency of use by adults.

This Disposal Site has children present at a high frequency, with high intensity usage, and the contamination has been documented between the surface and three feet below grade; therefore, the exposure category of this Disposal Site is S-1.

The Disposal Site is required to meet Method 1 GW-2 and GW-3 Standards for groundwater. The Disposal Site does not qualify for GW-1 Standards because it is not within a Current or Potential Drinking Water Source Area, nor is it affected by any of the provisions set forth in 310 CMR 40.0932(5). Namely, the Disposal Site is not within a Zone II aquifer, an Interim Wellhead Protection Area, a Potentially Productive Aquifer, the Zone A of a Class A Surface Water, 500 feet of a public water system distribution pipeline, or 500 feet of a private water supply well.

Furthermore, the Disposal Site qualifies for GW-2 Standards because it is within 30 feet of an existing structure and depth to groundwater is presumed to be less than 15 feet. The Disposal Site also qualifies for GW-3 because this category applies to all sites in the Commonwealth.

4.5 EXPOSURE POINTS AND EXPOSURE POINT CONCENTRATIONS

4.5.1 SOIL

The MCP at 310 CMR 40.0924(2)(a)2 stipulates that exposure points for soil “shall be defined by the horizontal and vertical distribution of the material in soil in combination with the soil category determined to be applicable.” For the Disposal Site, one exposure point is identified by this definition, corresponding to the applicable soil category of S-1 for soils at all depths evaluated through this risk assessment (up to a depth of three feet below grade).

The exposure point concentrations (EPCs) for soil were determined by calculating the arithmetic mean concentration for each COC. If a COC was not detected in a sample, half of its laboratory detection limit was used in the calculation, as recommended in DEP’s risk characterization guidance. The EPCs for the COCs in soil are provided in **Table 2 of Appendix A**. Notably, no EPCs are above the applicable Method 1 Standard in soil at the Disposal Site. Furthermore, the maximum concentration of each COCs is below their respective background levels for fill soil, as established by MassDEP.

4.5.2 GROUNDWATER

Contamination is limited to soil, and therefore there are no exposure points or EPCs to consider for groundwater on the Disposal Site.

4.6 RISK OF HARM TO HEALTH, SAFETY, PUBLIC WELFARE, AND THE ENVIRONMENT

4.6.1 RISK OF HARM TO SAFETY

The MCP at 310 CMR 40.0960 requires the risk of harm to safety be characterized based on data collected during the response actions and the exposure information identified previously in this report. The Disposal Site conditions were evaluated with respect to the criteria for safety included in the MCP. The evaluation determined the following:

- No rusted or corroded drums or containers, open pits, lagoons, or other dangerous structures were observed at the Site (310 CMR 40.0960(3)(a)).
- No threat of fire or explosion was identified (310 CMR 40.0960(3)(b)).
- No uncontained material exists at the Site (310 CMR 40.0960(3)(c)).

Based on this analysis, the conditions at the Disposal Site related to the release of OHM do not currently and will not in the foreseeable future pose a threat of physical harm or bodily injury to people. A level of no significant risk of harm to safety has been achieved at the Disposal Site.

4.6.2 RISK OF HARM TO HEALTH, PUBLIC WELFARE, AND THE ENVIRONMENT

As defined at 310 CMR 40.0973(7), “a condition of no significant risk of harm to health, safety, public welfare, and the environment exists if no EPC is greater than the applicable MCP Method 1 Soil or Groundwater Standard.” As described above, this is the case for the Disposal Site, which means a level of no significant risk of harm to health, public welfare of the environment has been achieved.

4.7 CONCLUSIONS

As discussed above, the exposure point concentration for all COCs fall below the applicable MCP

Method 1 Soil Standards, and a risk of harm to safety does not exist at the Disposal Site. Therefore, a condition of No Significant Risk to Health, Safety, Public Welfare, and the Environment has been achieved for the Site.

4.8 UNCERTAINTY ANALYSIS

Inherent to risk characterization analyses, uncertainty arises from incomplete knowledge of site characteristics, incomplete data from scientific literature, and/or the effects of natural, unquantified variability.

The residual, post-excavation levels of COCs at the Disposal Site were characterized through the analysis of samples collected from eight locations on the Disposal Site, at varying depths. In addition to characterizing both the contaminants and the soil discretely, this method of sampling allowed for the potential identification of hot spots. Therefore, incomplete knowledge of site characteristics did not have a significant impact on the result of the risk characterization.

Method 1 Standards have been established for all COCs present at the Disposal Site. Therefore, the related uncertainty is not considered significant as it is the same level of uncertainty inherent to all Method 1 risk characterizations, and therefore, incomplete data from scientific literature did not have a significant impact on the result of the risk characterization.

Finally, the Disposal Site is not subject to significant natural, unquantified variability, such as a significant natural fluctuation in groundwater levels; therefore, natural, unquantified variability did not have a significant impact on the results of the risk characterization.

5.0 CLASS A-1 RESPONSE ACTION OUTCOME (RAO)

5.1 RAO CLASSIFICATION

A Class A-1 RAO is appropriate for the site because, in accordance with 310 CMR 40.1036(1), Class A-1 Response Action Outcomes shall apply to disposal sites where:

- a Permanent Solution has been achieved; and
- the level of oil and hazardous material in the environment has been reduced to background;
or
- response actions have eliminated all threats of release and no release of oil and/or hazardous material to the environment has occurred.

5.2 SOURCE AND LIMITS OF DISPOSAL SITE

Based on the field investigations and remedial actions that were conducted at the site, there appears to be a zone of soil impact that encompasses the area that is currently below the artificial turf athletic surface. The source of the contamination likely was historic fill that was placed on the Site. The past application of herbicides and pesticides containing arsenicals (prior to their removal as a controlling substance) may have also been the source or a contributing source at this site. The limits of the Disposal Site are defined as the non-native soils that lie directly under artificial turf athletic field to a depth of approximately 1.5 feet and within the boundaries of excavation as shown on **Figure 6 in Appendix A**.

5.3 NEED FOR AN ACTIVITY AND USE LIMITATION

As specified at 310 CMR 40.1012(2), an Activity and Use Limitation (AUL) is required at sites where:

- a Method 1 Risk Characterization has been completed, and soil EPCs meet the applicable Method 1 S-2 or S-3 Standards but do not meet Method 1 S-1 Standards;
- a Method 3 Risk Characterization has been completed and relies upon a limitation of site use to reduce exposure potential;
- OHM is present at concentrations above the applicable Upper Concentration Limits (UCLs) in soils at depths of greater than 15 feet;
- the elimination of an Exposure Pathway is required to reduce exposure potential that would otherwise pose a significant risk; or
- an existing private water supply well is removed from service as a source of drinking water but will be maintained for other uses.

A comparison of soil quality data to Method 1 S-1 Standards was used to evaluate risk of harm to health, public welfare, and the environment in the Risk Characterization. All soil EPCs for all COCs were found to be below the applicable S-1 Standards, as shown in **Table 2** of **Appendix A**. Therefore, an AUL is not required by the first criterion.

As a Method 3 Risk Characterization was not performed, the second criterion does not apply.

A comparison of soil quality data and UCLs for the COCs is presented in **Table 2** of **Appendix A**. All COCs are present at concentrations well below the corresponding UCL. As natural soils were observed at a depth of approximately 1.5 feet below ground surface, it is likely soils at depths of greater than 1.5 feet bgs have similar characteristics to the samples discussed here. Therefore, an AUL is not required by the third criterion.

Since the residual concentrations of COCs are well below the applicable Method 1 standards and a level of No Significant Risk has been achieved, there are no exposure pathways that pose a significant risk and the fourth criterion does not apply.

As there are no private water supply wells at the Disposal Site, the fifth criterion does not apply.

Based on the evaluation above, an AUL is not required to limit the potential activities and uses of the area in order to maintain a condition of No Significant Risk.

5.4 REPRESENTATIVENESS EVALUATION AND DATA USABILITY ASSESSMENT

The MCP at 310 CMR 40.1056(2)(k) requires all RAO statements to document the adequacy of the data sets used to support conclusions presented therein through a Representativeness Evaluation. Additionally, all RAO statements must document that the data relied upon is scientifically valid and defensible with a sufficient level of precision, accuracy, and completeness through a Data Usability Assessment. The DEP has prepared a guidance document, *MCP Representativeness Evaluations and Data Usability Assessments*, Policy #WSC-07-350, that addresses these requirements and has been used during the preparation of this statement.

The data used to support this RAO Statement were generated in accordance with standard industry

protocols including both sample collection and laboratory analyses. A summary inventory of all data reports for data collected by Cooperstown and the Compendium of Analytical Methods (CAM) analysis is presented in **Table 3** in **Appendix A**. The data used consist of "CAM data." Samples analyzed by New England Testing Laboratory of North Providence, Rhode Island follow CAM and exhibit Presumptive Certainty. All QA/QC performance requirements for presumptive certainty were met for the sampling rounds used in support of this RAO.

5.4.4. CONCEPTUAL SITE MODEL

The conceptual site model is based on site use history, and the recent soil sampling that was conducted by Cooperstown.

Prior to RAM activities, there was soil with elevated levels of arsenic at the Disposal Site.

This contamination is attributed either to the poor quality historical fill that was used in the early 1900s to fill the area for use as an athletic field, or a result of the application of herbicides and pesticides containing arsenicals, or both.

A large quantity of this fill material was removed under the RAM during the construction of the athletic structures. Remaining soil concentrations have been evaluated through the analysis of post-excavation samples. A condition of No Significant Risk exists at the Disposal Site based on the Method 1 Human Health Risk Characterization that was performed.

5.4.5. USE OF FIELD/SCREENING DATA AND FIELD DATA USABILITY ASSESSMENT

Field screening was not used to guide sample selection for soil at the Disposal Site. Characterization soil samples and post excavation soil samples were collected to define average soil quality. The contaminants of concern were generally distributed throughout the fill with no definable hotspots. Likewise, the contaminants associated with the Disposal Site are not highly volatile and OVM screening would be of limited value.

All data collected in support of this RAO was collected using field methods to ensure information reflected actual Site conditions at the sampling point including:

- Samples were collected using consistent methods, and sampling tools were decontaminated between sample locations or dedicated sampling equipment was used for each location. Each sample was collected from a discrete location.
- Sample containers were obtained from the laboratory, pre-cleaned, and preserved as necessary according to the analysis method.
- Sample containers were labeled and packed on ice in coolers immediately after collection and were accompanied by complete chain-of-custody forms from the time of collection until laboratory delivery.
- Sample containers were received at the analytical laboratory on ice and were extracted and analyzed within the holding times required.

5.4.6. SAMPLING RATIONALE

The sampling rationale is consistent with the conceptual site model in that soil contaminants are associated with poor quality fill with no point sources or spill locations. Due to this understanding, soil sampling was conducted to define the overall soil quality at the Bertram Athletic Field location.

5.4.7. NUMBER, SPATIAL DISTRIBUTION, AND HANDLING OF SAMPLES

Disposal characterization soil samples were collected at a rate of one sample per 250 to 500 cubic yards of soil to indicate an average pre-excavation condition. Eight post-excavation soil samples were collected to characterize soil quality remaining following excavation. These soil samples are sufficient in number and distribution to characterize soil quality throughout the entire Disposal Site. Sampling procedures and handling methods were all consistent with standard environmental practice to ensure presumptive certainty of data.

5.4.8. TEMPORAL DISTRIBUTION OF SAMPLES

Subsurface post-excavation soil samples were collected during two sampling events in July 2013. Given that the Site is not subject to significant natural, unquantified variability, such as a significant natural fluctuation in groundwater levels, these sampling events are considered sufficient and the samples collected are considered representative of site conditions.

5.4.9. COMPLETENESS

The data set is considered complete and acceptable to support the RAO.

5.4.10. ANALYTICAL DATA USABILITY ASSESSMENT

The analytical data set was evaluated for precision, accuracy, and sensitivity. Precision is the ability of the laboratory method yield consistent results. Accuracy is the ability of the laboratory method to yield representative results. Precision and accuracy of the analytical data was assessed by reviewing recoveries of laboratory control samples and method blanks. As reported in the laboratory analysis reports, all quality control criteria met the laboratory's established acceptance criteria, and therefore, the analytical data set has acceptable precision and accuracy.

Sensitivity is the ability of the laboratory method to detect and quantify the contaminant of concern. Based on risk characterization guidance published by DEP, half of the laboratory detection limit is to be used in the calculation of EPCs for any COC reported as not detected by laboratory analyses. Therefore, in order for an analysis to have sufficient sensitivity, half of the laboratory detection limit must be below the regulatory standard for all analytes in soil and groundwater. As determined by a comparison of laboratory reporting limits and the applicable soil and groundwater regulatory standards, this condition has been met for all data used in support of this RAO and is therefore of acceptable sensitivity.

5.4.11. DATA INCONSISTENCY AND UNCERTAINTY

The laboratory data for soil were generally well correlated and consistent across the Disposal Site within the typical bounds of sampling and analytical variability.

5.4.12. CONCLUSIONS

Based on the above representativeness evaluation and data usability assessment, the laboratory data are appropriate to be used for this RAO.

5.5 UNCONTROLLED SOURCES

The contaminants at the Disposal Site are likely associated with poor quality historical fill and did not result from a direct release to the environment from any source. The bulk of the soil with elevated concentrations of contaminants was removed from the site as part of the athletic field construction. A second potential source was the past application of pesticides and/or herbicides containing arsenicals. Because the project involved the construction of an artificial turf athletic complex, no pesticides or herbicides will be used in the future.

Therefore, in accordance with 310 CMR 40.1003(5), there are no known uncontrolled sources of OHM remaining on site.

5.6 APPLICABLE BACKGROUND CONCENTRATIONS

The pre-characterization soil samples were described as dark brown sands, silts and organics, medium to coarse in texture, with urban fill and ash. The applicable background concentrations are therefore the urban fill background concentration established by the MassDEP.

5.7 UPPER CONCENTRATION LIMIT (UCL) EXCEEDANCES

There have been no UCL exceedances reported in either the disposal characterization soil samples or post excavation soil samples collected at the site, as shown in **Table 1** and **Table 2** of **Appendix A**.

5.8 FEASIBILITY OF ACHIEVING BACKGROUND

There are no contaminants remaining in the soil at the Disposal Site at levels above background concentrations for "natural soil", as defined in the DEP's Technical Update to Background Levels.

A Class A-1 RAO is appropriate for a site when a level of No Significant Risk has been achieved through implementation of response actions and background levels have been reached. For a Class A-1 RAO, an evaluation of the feasibility of approaching or attaining background is not required, because background has been attained.

5.9 RAO STATEMENT AND CONCLUSION

A RAO Statement has been prepared and a draft copy of form BWSC 104 is provided in **Appendix E**. Based on the conclusions of the Risk Characterization, which show a condition of No Significant Risk has been achieved at the site and background conditions have been attained, a Class A-1 RAO has been determined to be appropriate for this Disposal Site.

The Class A-1 RAO indicates the following:

- A Permanent Solution has been achieved;
- The level of oil and hazardous material in the environment has been reduced to background; and
- Response actions have eliminated all threats of release and no release of oil and/or

hazardous material to the environment has occurred.

6.0 TRANSMITTAL FORMS & PUBLIC NOTICE

This RAM Completion Report and RAO Statement is being submitted via eDEP. This RAM Completion Report and RAO Statement will include a draft copy of the eDEP forms (BWSC 104 and BWSC 106), prior to submittal, in **Appendix E**.

Notification letters regarding the availability of the RAO Statement were provided to the Mayor's Office and Board of Health of the City of Salem. Copies are included in **Appendix F**.

The City of Salem, Massachusetts has provided Cooperstown with written authority to make submittals on its behalf as documented in **Appendix G**.

7.0 REFERENCES

Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup, *Massachusetts Contingency Plan*, 310 CMR 40.0000, effective April 3, 2006.

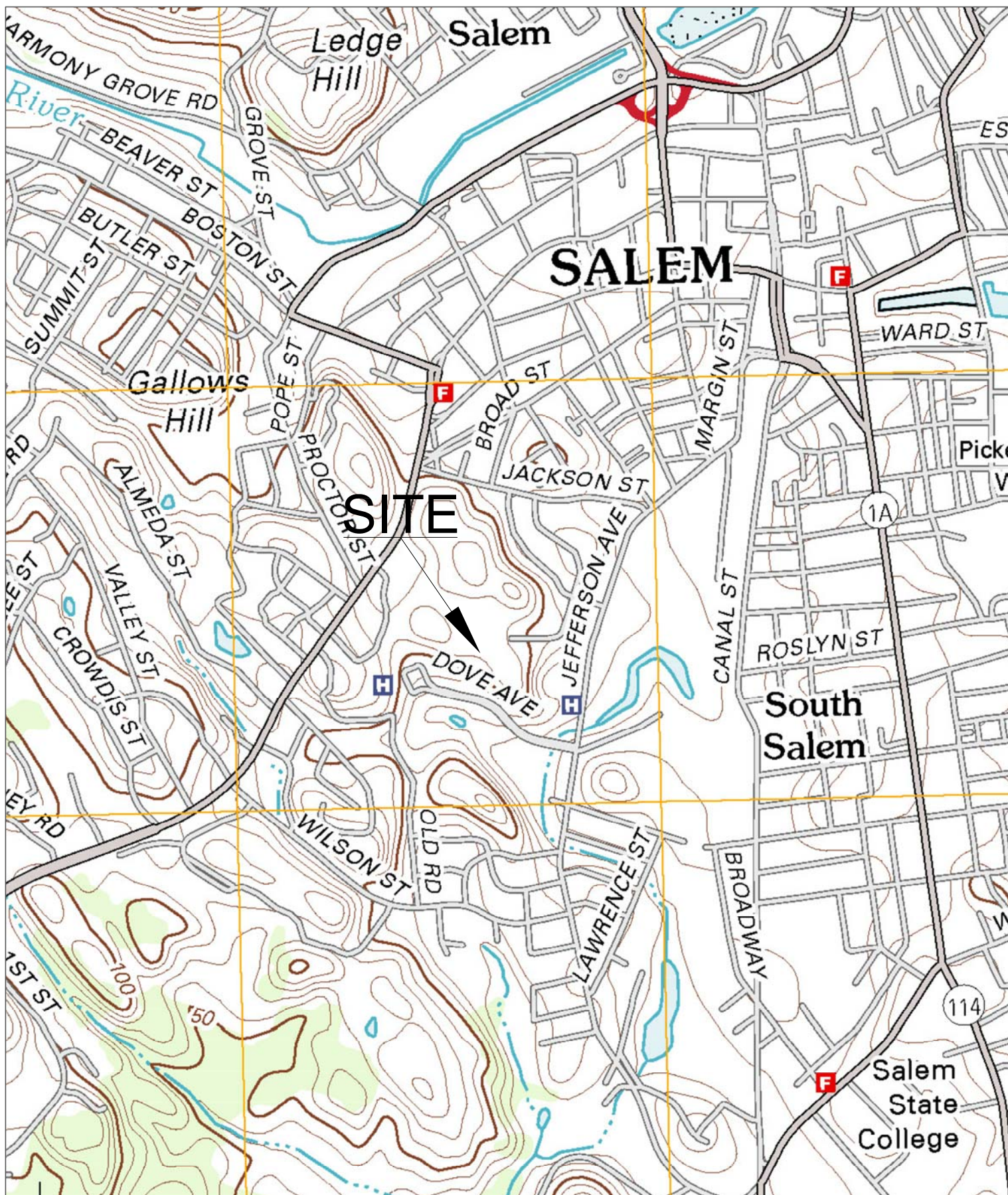
Massachusetts Department of Environmental Protection, *Compendium of Analytical Methods (CAM)*, dated June 2003.

Massachusetts Department of Environmental Protection, *Guidance for Disposal Site Risk Characterization – In Support of the Massachusetts Contingency Plan*, dated 1992.

Massachusetts Department of Environmental Protection, *MCP Representativeness Evaluations and Data Usability Assessments, Policy #WSC-07-350*, dated September 19, 2007.

APPENDIX A

Figures and Tables



COOPERSTOWN
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 www.cooperstownenv.com

Site Locus

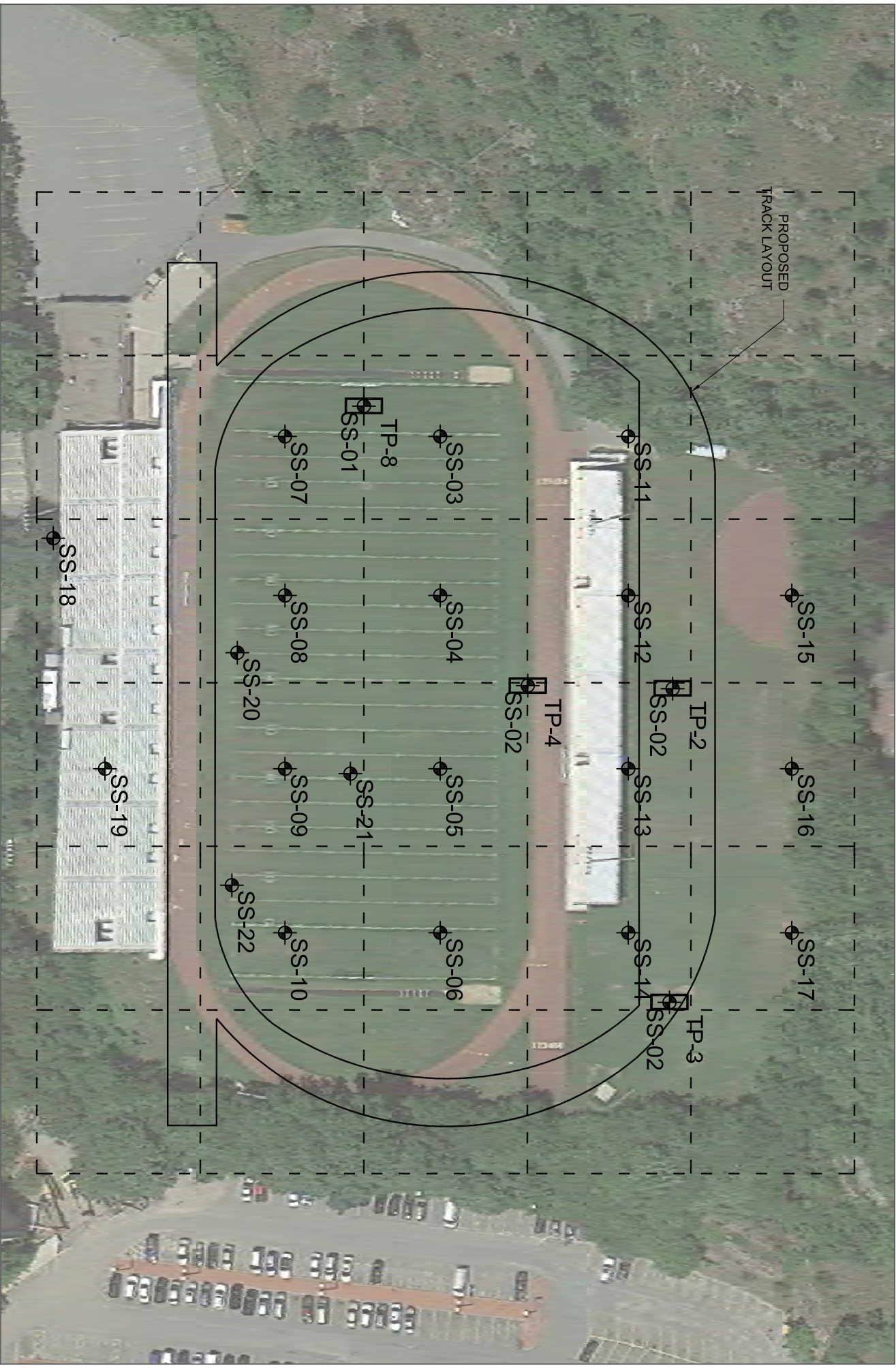
Bertram Field Renovations
 Salem, Massachusetts

FIGURE 1



SOURCE: USGS

SCALE: 1"=1000'



Pre-Excavation Characterization Sample Locations

Bertram Field Renovations
Salem, Massachusetts

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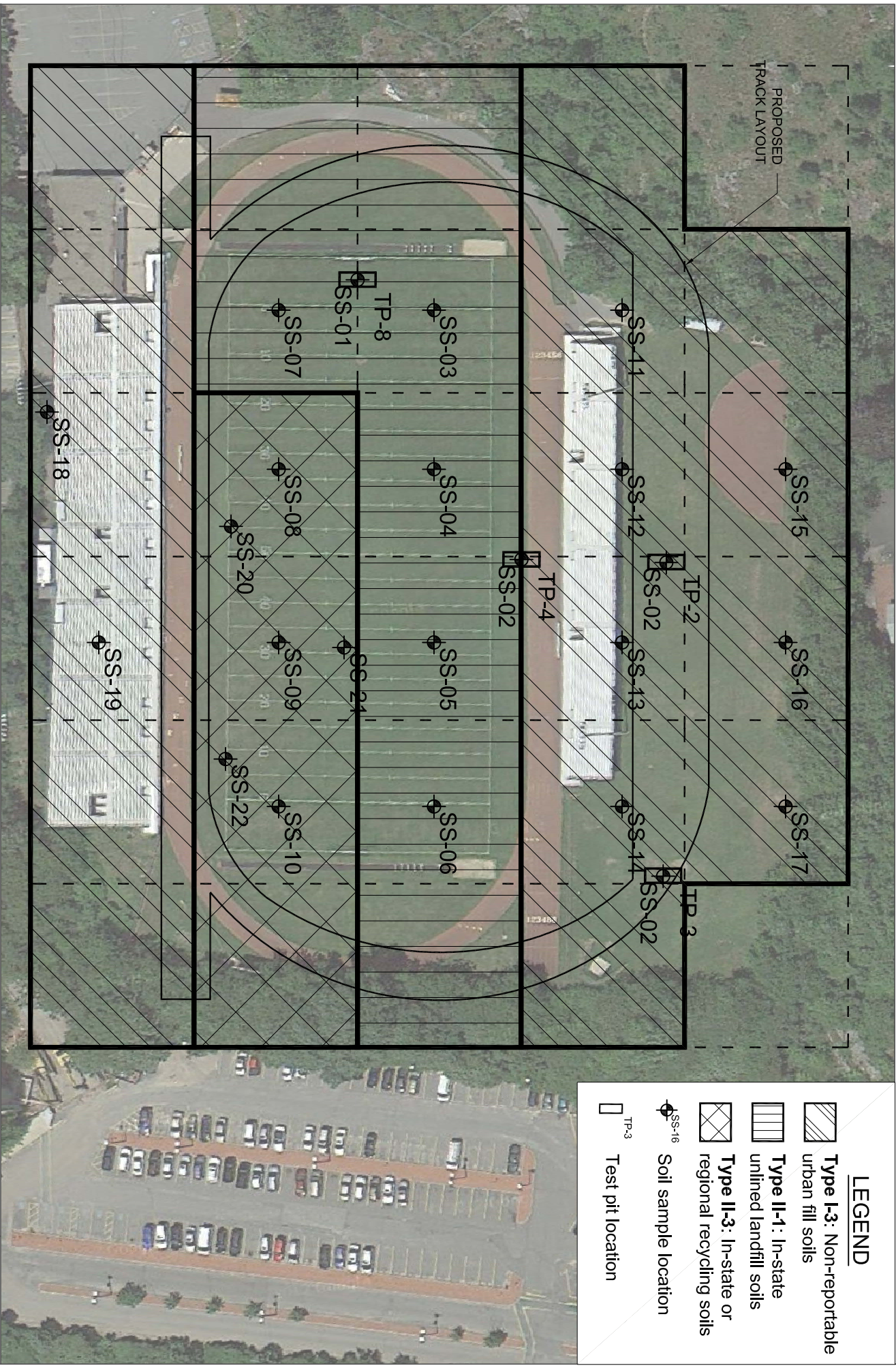
FIGURE 2

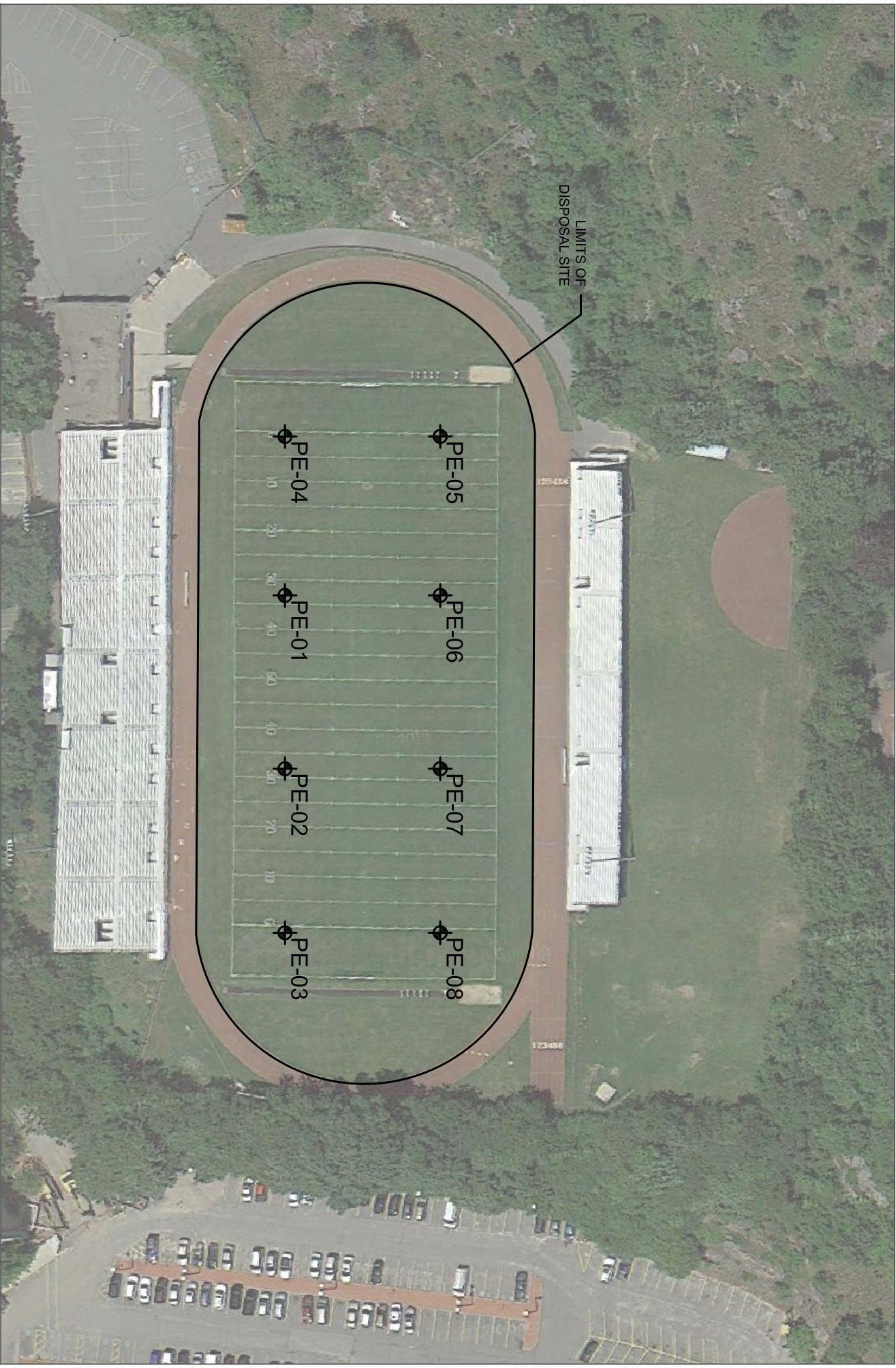
N



SOURCE: Geotechnical Services, Inc. and GoogleMaps

SCALE: 1"=80'





LIMITS OF
DISPOSAL SITE

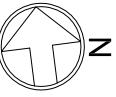
PE-05
PE-06
PE-07
PE-08
PE-04
PE-01
PE-02
PE-03

Post-Excavation Sample Locations

Bertram Field Renovations
Salem, Massachusetts

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FIGURE 4



SOURCE: Geotechnical Services, Inc. and GoogleMaps

SCALE: 1"=80'

MassDEP - Bureau of Waste Site Cleanup

MCP Numerical Ranking System Map: 500 feet & 0.5 Mile Radii

Site Information:

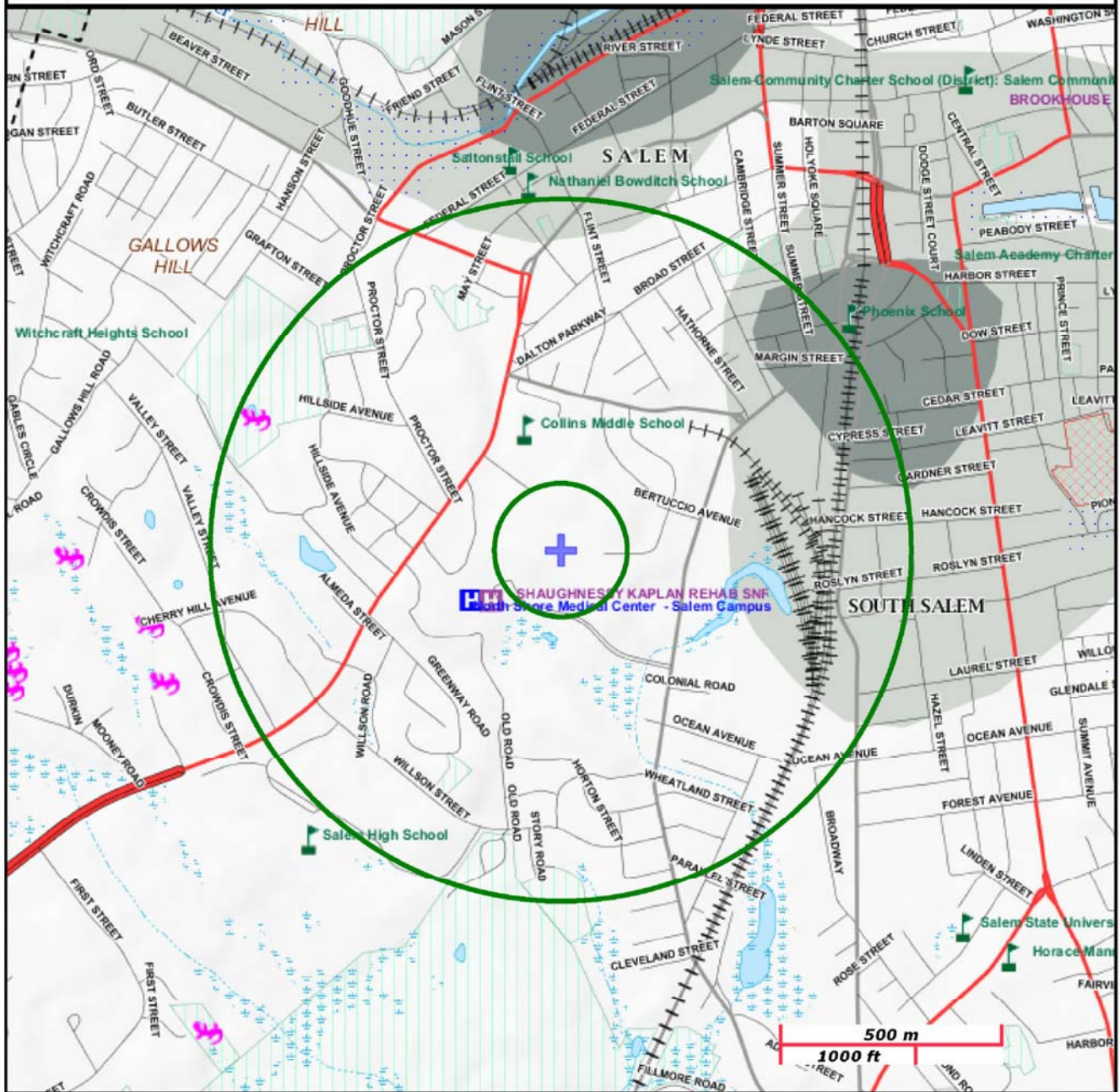
BERTRAM FIELD
29 HIGHLAND AVE SALEM, MA
3-000031579
NAD83 UTM Meters:
4708401mN, 343556mE (Zone: 19)
June 17, 2013

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



MassDEP

Commonwealth of Massachusetts
Department of Environmental Protection



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

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

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

Aquifers: Medium Yield, High Yield, EPA Sole Source

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

PWS Protection Areas: Zone II, IWPA, Zone A

Hydrography: Open Water, PWS Reservoir, Tidal Flat

Wetlands: Freshwater, Saltwater, Cranberry Bog

FEMA 100yr Floodplain; Protected Open Space; ACEC

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

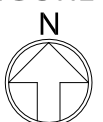
Solid Waste Landfill; PWS: Com. GW, SW, Emerg., Non-Com.

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Priority Resources

Bertram Field Renovation
Salem, Massachusetts

FIGURE 5



SOURCE: MassGIS

SCALE: 1"=1200'



LIMITS OF
DISPOSAL SITE

Limits of Disposal Site

Bertram Field Renovations
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FIGURE 6

N



SCALE: 1"=80'

SOURCE: Geotechnical Services, Inc. and GoogleMaps

Table 1
Soil Characterization Data
Bertram Field Renovation
Salem, Massachusetts

Compound Name	S-1 SOIL & GW-3	Reuse Levels RCS-1 Lined Landfills Unlined Landfills			Units	SS-01 Sample Result	SS-02 Sample Result	SS-03 Sample Result	SS-04 Sample Result	SS-05 Sample Result	SS-06 Sample Result	SS-07 Sample Result	SS-08 Sample Result	SS-09 Sample Result	SS-10 Sample Result	SS-11 Sample Result	SS-12 Sample Result	SS-13 Sample Result	SS-14 Sample Result	SS-15 Sample Result	SS-16 Sample Result	SS-17 Sample Result	SS-18 Sample Result	SS-19 Sample Result
Type						II-I	I-3	II-I	II-I	II-I	II-I	II-I	II-3	II-3	II-3	I-3	I-3	I-3	I-3	I-3	I-3	I-3	I-3	I-3
Total Petroleum Hydrocarbons (TPH)	1000	1000	5000	2500	mg/kg	ND	93	35	45	30	109	31	ND	ND	ND	44	62	33	50	-	-	-	-	-
Polychlorinated Biphenyls (PCBs)																								
Aroclor 1221	2000	2000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Aroclor 1232	2000	2000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Aroclor 1016	2000	2000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Aroclor 1242	2000	2000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Aroclor 1248	2000	2000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Aroclor 1254	2000	2000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Aroclor 1260	2000	2000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Aroclor 1262	2000	2000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Aroclor 1268	2000	2000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Total PCBs		-	<2000	<2000	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND					
General Chemistry																								
Corrosivity (pH)		-	-	-	pH units	6.3	8.08	7.28	7.32	7.43	7.01	6.79	6.81	6.65	6.6	7.94	6.65	6.33	6.29	-	-	-	-	-
Reactive Cyanide	100	100	-	-	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Reactive Sulfide		-	-	-	mg/kg	ND	ND	ND	0.51	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Specific Conductance		-	8000	4000	umhos/cm	72	123	25.9	34.5	23.6	16.1	15.7	17.1	12.6	41.8	9.8	5.9	8.1	6.8	-	-	-	-	-
Flashpoint		-	-	-	oF	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	-	-	-	-	-
Metals																								
Arsenic	20	20	40	40	mg/kg	25	7.85	17.5	25.7	11.4	23.2	19.4	42.8	38.7	41.6	10.8	5.58	5.28	6.11	5.28	5.13	7.61	0.96	1.62
Barium	1000	1000	-	-	mg/kg	39.9	110	33.2	24.9	25.4	34	34	27.7	31.1	29.6	63.4	25.5	27.8	28.3	-	-	-	-	-
Cadmium	1	2	80	30	mg/kg	ND	ND	0.48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Chromium(Total)*	30	30	1000	1000	mg/kg	35.1*	14	24.8	21.3	14.4	19.6	28.9	25	27.2	26.6	41.9*	12.6	12.9	10.5	-	-	-	-	-
Chromium(III)*	1000	-	-	-	mg/kg	35.1*	-	-	-	-	-	-	-	-	-	41.9*	-	-	-	-	-	-	-	-
Chromium(VI)	30	-	-	-	mg/kg	ND	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	-	-	-
Lead	300	300	2000	1000	mg/kg	51.1	53.2	41.8	38.6	27.7	45.4	43.6	31.4	40.1	41.7	13.7	33.5	40.2	40.4	-	-	-	-	-
Mercury	20	20	10	10	mg/kg	0.632	0.331	0.68	0.847	0.582	0.725	0.772	1.78	1.21	1.38	ND	0.084	0.156	0.427	-	-	-	-	-
Selenium	400	400	-	-	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Silver	100	100	-	-	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Volatile Organic Compounds (VOCs)																								
Vinyl Chloride	600	600	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Bromomethane	30000	500	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Chloroethane	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Acetone	400000	6000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,1-Dichloroethene	500000	3000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Carbon Disulfide	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Methylene Chloride	200000	100	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
tert-butyl Methyl Ether	100000	100	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
trans1,2-dichloroethene	500000	1000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,1-Dichloroethane	500000	400	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2-Butanone	400000	4000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2,2-dichloropropane	-	-	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
cis 1,2-dichloroethene	100000	300	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Chloroform	400000	300	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Bromochloromethane	-	-	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,1,1-Trichloroethane	500000	30000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,1-Dichloropropene	-	-	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Carbon Tetrachloride	10000	5000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Benzene	30000	2000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,2-Dichloroethane	10000	100	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Trichloroethene	90000	300	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,2-Dichloropropane	10000	100	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Bromodichloromethane	20000	100	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Dibromomethane	-	500000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
4-Methyl-2-pentanone	400000	400	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,2-Dibromoethane	700	100	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
cis-1,3-Dichloropropene	9000	10	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Toluene	500000	30000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
trans-1,3-Dichloropropene	9000	10	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,1,2-Trichloroethane	4000	100	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2-Hexanone	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Tetrachloroethene	30000	1000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-

Table 1
Soil Characterization Data
Bertram Field Renovation
Salem, Massachusetts

Compound Name	S-1 SOIL & GW-3	Reuse Levels		Units	SS-01 Sample Result	SS-02 Sample Result	SS-03 Sample Result	SS-04 Sample Result	SS-05 Sample Result	SS-06 Sample Result	SS-07 Sample Result	SS-08 Sample Result	SS-09 Sample Result	SS-10 Sample Result	SS-11 Sample Result	SS-12 Sample Result	SS-13 Sample Result	SS-14 Sample Result	SS-15 Sample Result	SS-16 Sample Result	SS-17 Sample Result	SS-18 Sample Result	SS-19 Sample Result
		RCS-1	Lined Landfills	Unlined Landfills																			
Dibromochloromethane	20000	5	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Chlorobenzene	100000	1000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,1,1,2-Tetrachloroethane	7000	100	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Ethylbenzene	500000	40000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
m,p-xylene	500000	300000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
o-xylene	500000	300000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Styrene	30000	3000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Bromoform	200000	100	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Isopropylbenzene	-	1000000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,1,2,2-Tetrachloroethene	800	5	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Bromobenzene	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,2,3-Trichloropropane	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2-chlorotoluene	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
n-Propylbenzene	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,3,5-Trimethylbenzene	-	10000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
4-chlorotoluene	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
tert-butylbenzene	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,2,4-Trimethylbenzene	-	1000000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
sec-butylbenzene	-	-	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
p-isopropyltoluene	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Chloromethane	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
tert-butyl Alcohol	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,3-Dichlorobenzene	100000	1000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Tetrahydrofuran	-	500000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,4-Dichlorobenzene	50000	700	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Diethyl ether	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
n-butyl Benzene	-	-	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,2-Dichlorobenzene	300000	9000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,2-dibromo-3-chloropropane	-	10000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,2,4-Trichlorobenzene	500000	2000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Hexachlorobutadiene	6000	6000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Naphthalene	500000	4000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,2,3-Trichlorobenzene	-	-	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Tert-amyl Methyl Ether	-	-	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Dichlorodifluoromethane	-	1000000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,3-Dichloropropane	-	500000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Trichlorofluoromethane	-	1000000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Ethyl Tert-butyl ether	-	-	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Diisopropyl Ether	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Total VOCs		-	10000	4000	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND					
Semi-volatile Organic Compounds (SVOCs)																							
n-Nitrosodimethylamine	-	50000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Pyridine	-	500000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Phenol	20000	1000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Aniline	-	1000000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
bis(2-Chloroethyl)ether	700	700	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2-Chlorophenol	100000	700	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,3-Dichlorobenzene	100000	1000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,4-Dichlorobenzene	50000	700	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,2-Dichlorobenzene	300000	9000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2-Methylphenol	-	500000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
bis(2-chloroisopropyl)ether	3000	700	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
3- & 4-Methylphenol	-	500000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
n-Nitroso-di-n-propylamine	-	50000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Hexachloroethane	9000	700	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Nitrobenzene	-	500000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Isophorone	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2-Nitrophenol	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2,4-Dimethylphenol	500000	700	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Benzoic acid	-	1000000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
bis(2-Chloroethoxy)methane	-	500000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2,4-Dichlorophenol	40000	700	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
1,2,4-Trichlorobenzene	500000	2000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-

Table 1
Soil Characterization Data
Bertram Field Renovation
Salem, Massachusetts

Compound Name	S-1 SOIL & GW-3	Reuse Levels		Units	SS-01 Sample Result	SS-02 Sample Result	SS-03 Sample Result	SS-04 Sample Result	SS-05 Sample Result	SS-06 Sample Result	SS-07 Sample Result	SS-08 Sample Result	SS-09 Sample Result	SS-10 Sample Result	SS-11 Sample Result	SS-12 Sample Result	SS-13 Sample Result	SS-14 Sample Result	SS-15 Sample Result	SS-16 Sample Result	SS-17 Sample Result	SS-18 Sample Result	SS-19 Sample Result
		RCS-1	Lined Landfills	Unlined Landfills																			
Naphthalene	500000	4000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
4-Chloroaniline	3000	1000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Hexachlorobutadiene	6000	6000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
4-Chloro-3-methylphenol	-	1000000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2-Methylnaphthalene	300000	700	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Hexachlorocyclopentadiene	-	50000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2,4,6-Trichlorophenol	20000	700	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2,4,5-Trichlorophenol	600000	4000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2-Chloronaphthalene	-	1000000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2-Nitroaniline	-	-	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Dimethyl phthalate	600000	30000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Acenaphthylene	10000	1000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2,6-Dinitrotoluene	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
3-Nitroaniline	-	-	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Acenaphthene	1000000	4000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2,4-Dinitrophenol	50000	3000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
4-Nitrophenol	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Dibenzofuran	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
2,4-Dinitrotoluene	2000	700	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Diethyl phthalate	300000	10000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Fluorene	1000000	1000000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
4-Chlorophenyl phenyl ether	-	1000000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
4-Nitroaniline	-	1000000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
4,6-Dinitro-2-methylphenol	-	50000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
n-Nitrosodiphenylamine	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
4-Bromophenyl phenyl ether	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Hexachlorobenzene	700	700	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Pentachlorophenol	10000	3000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Phenanthrene	500000	10000	-	-	ug/kg	ND	180	ND	130	130	160	ND	ND	ND	ND	690	470	ND	630	-	-	-	-
Anthracene	1000000	1000000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Di-n-butylphthalate	-	50000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Fluoranthene	1000000	1000000	-	-	ug/kg	120	310	250	290	230	400	240	ND	170	170	960	870	170	1200	-	-	-	-
Benzidine	-	10000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Pyrene	1000000	1000000	-	-	ug/kg	ND	300	180	230	170	310	170	ND	ND	ND	870	680	150	880	-	-	-	-
Butyl benzyl phthalate	-	100000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
3,3'-Dichlorobenzidine	1000	1000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Benzo(a)anthracene	7000	7000	-	-	ug/kg	ND	180	ND	130	ND	180	ND	ND	ND	ND	460	390	ND	560	-	-	-	-
Chrysene	70000	70000	-	-	ug/kg	ND	190	ND	140	ND	190	ND	ND	ND	ND	450	380	ND	540	-	-	-	-
bis(2-Ethylhexyl)phthalate	200000	200000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	170	ND	ND	-	-	-	-
Di-n-octyl phthalate	-	1000000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Benzo(b)fluoranthene	7000	7000	-	-	ug/kg	ND	250	190	240	200	300	ND	ND	ND	140	560	500	ND	670	-	-	-	-
Benzo(k)fluoranthene	70000	70000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	190	180	ND	230	-	-	-	-
Benzo(a)pyrene	2000	2000	-	-	ug/kg	ND	200	ND	160	130	210	ND	ND	ND	ND	350	340	ND	470	-	-	-	-
Dibenz(a,h)anthracene	700	7000	-	-	ug/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	7000	700	-	-	ug/kg	ND	180	ND	ND	ND	130	ND	ND	ND	ND	210	210	ND	290	-	-	-	-
Benzo(g,h,i)perylene	1000000	1000000	-	-	ug/kg	ND	190	ND	ND	ND	ND	ND	ND	ND	ND	190	190	ND	230	-	-	-	-
Total SVOCs		-	100000	100000	ug/kg	120	1980	620	1320	860	1880	410	ND	170	310	4930	4380	320	5700				

*Concentrations of chromium(III) were calculated by subtracting the concentration of chromium(VI) from the concentration of total chromium.

ND - Not Detected

- denotes Not Analyzed

Exceedances of S1-GW3 and RCS-1 Standards are **shaded**

Table 2
Post Excavation Soil Data
Bertram Field Renovation
Salem, Massachusetts

Compound Name	S-1 SOIL & GW-3	UCL	Urban Fill Background	Units	PE-01		PE-02		PE-03		PE-04		PE-05		PE-06		PE-07		PE-08		EPC	Max
					Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit		
					7/23/2013		7/23/2013		7/23/2013		7/29/2013		7/29/2013		7/29/2013		7/29/2013		7/29/2013			
Arsenic	20	200	20	mg/kg	3.46	0.76	7.26	0.72	5.71	0.74	5.3	0.39	12.6	0.42	8.4	0.36	14.9	0.46	9.14	0.42	8.35	14.9
Barium	1000	10000	50	mg/kg	13.1	0.38	25.6	0.36	15.2	0.37	20.3	0.2	26.5	0.21	28.6	0.18	37	0.23	32	0.21	24.79	37
Cadmium	2	300	3	mg/kg	0.19	0.38	0.18	0.36	0.185	0.37	0.56	0.2	0.46	0.21	0.63	0.18	0.48	0.23	0.45	0.21	0.39	0.63
Chromium	30	2000	40	mg/kg	7.96	0.38	18.7	0.36	8.77	0.37	13	0.2	17.6	0.21	13.2	0.18	18.4	0.23	14.2	0.21	13.98	18.7
Lead	300	3000	600	mg/kg	14.7	0.38	17.4	0.36	11.6	0.37	21.8	0.2	44.4	0.21	48.1	0.18	33.7	0.23	48.5	0.21	30.03	48.5
Mercury	20	300	1	mg/kg	0.0325	0.065	0.034	0.068	0.089	0.081	0.109	0.055	0.437	0.089	0.191	0.092	0.178	0.104	0.163	0.086	0.15	0.437
Selenium	400	8000	1	mg/kg	0.38	0.76	0.36	0.72	0.37	0.74	0.195	0.39	0.21	0.42	0.18	0.36	0.23	0.46	0.21	0.42	0.27	0.38
Silver	100	2000	5	mg/kg	0.19	0.38	0.18	0.36	0.185	0.37	0.1	0.2	0.105	0.21	0.09	0.18	0.115	0.23	0.105	0.21	0.13	0.19

Table 3
Laboratory Data Inventory
Bertram Athletic Field Renovations
Salem, Massachusetts

<i>Laboratory</i>	<i>Report Date</i>	<i>Report No.</i>	<i>Matrix Analyzed</i>	CAM form included	Lab Presumptive Certainty?	QC Performance Standards Met	All Analytes Reported	CAM Compliance
New England Testing	5/9/2013	Z0502-36	Soil - SS-01, SS-02 Full Suite	Y	Y	Y	Y	Y
New England Testing	5/14/2013	Z0502-36A	Soil - SS-01 Chromium 6	Y	Y	Y	Y	Y
New England Testing	5/31/2013	Z0530-22	Soil - SS-03 to SS-10 Arsenic	Y	Y	Y	Y	Y
New England Testing	6/7/2013	Z0530-22A	Soil - SS-03 to SS-10 Full Suite	Y	Y	Y	Y	Y
New England Testing	6/7/2013	Z0606-29A	Soil - SS-11 to SS-19 Arsenic	Y	Y	Y	Y	Y
New England Testing	6/12/2013	Z0606-29B	Soil - SS-11 to SS-14 Full Suite	Y	Y	Y	Y	Y
New England Testing	6/14/2013	Z0606-29C	Soil - SS-11 Chromium 6	Y	Y	Y	Y	Y
New England Testing	6/25/2013	Z0625-44A	Soil - SS-8 to SS-10 Herbicides & Pesticides	Y	Y	Y	Y	Y
New England Testing	7/2/2013	Z0625-44B	Soil - SS-20 to SS-22 Full Suite	Y	Y	Y	Y	Y
New England Testing	7/24/2013	Z0723-41	Soil - PE-01 to PE-03 and SP-01 Arsenic	Y	Y	Y	Y	Y
New England Testing	7/30/2013	Z0729-20	Soil - PE-04 to PE-08 Arsenic	Y	Y	Y	Y	Y
New England Testing	8/2/2013	Z0723-41A	Soil - PE-01 to PE-03 Metals	Y	Y	Y	Y	Y
New England Testing	8/2/2013	Z0729-20A	Soil - PE-04 to PE-08 Metals	Y	Y	Y	Y	Y

APPENDIX B

Air Monitoring Logs

BERTRAM FIELD SITE IMPROVEMENTS RELEASE ABATEMENT MEASURE PLAN RTN 3-31579
 AMBIENT AIR MONITORING LOG



Date: Friday July 12, 2013 NAAQS PM-10 0.150 mg/m³
 Weather: Cloudy 75°F Name: Stacey Q

TIME	ACTIVE	WIND	UPWIND	STATION					NOTES
	HANDLING	DIRECTION	BACKGROUND	A	B	C	D		
10:15 AM	N	E	A	Actual	0.010	0.017	0.009	0.014	
				Background	0.010	0.010	0.010	0.010	
				Net	0.000	0.007	(0.001)	0.004	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	

1. Note name, date, day of week, weather and time of day
2. Note if active soil excavation, handling, or transporting is taking place (Y/N)
3. Note wind direction (wind is coming from) using wind sock at hospital and identify station closest to upwind (eg., west/C)
4. Record reading at upwind/background station (eg., 0.000 mg/m³)
5. Record actual reading at each station
6. Subtract upwind/background from actual reading - if net is greater than 0.150 mg/m³ implement dust suppression
7. Add notes as necessary

BERTRAM FIELD SITE IMPROVEMENTS RELEASE ABATEMENT MEASURE PLAN RTN 3-31579
 AMBIENT AIR MONITORING LOG



Date: Tuesday July 16, 2013 NAAQS PM-10 0.150 mg/m³
 Weather: Warm/sunny, 90°F Name: Stacey Q

TIME	ACTIVE HANDLING	WIND DIRECTION	UPWIND BACKGROUND	STATION					NOTES
				A	B	C	D		
6:19 AM	Y	W	C	Actual	0.026	0.009	0.013	0.028	
				Background	0.013	0.013	0.013	0.013	
				Net	0.013	(0.004)	0.000	0.015	
7:15 AM	Y	N	D	Actual	2.206	0.030	0.029	0.029	14X background; dust supression requested
				Background	0.029	0.029	0.029	0.029	
				Net	2.177	0.001	0.000	0.000	
8:20 AM	N	N	D	Actual	0.096	0.061	0.038	0.039	
				Background	0.039	0.039	0.039	0.039	
				Net	0.057	0.022	(0.001)	0.000	
10:15 AM	N	N	D	Actual	0.000	0.000	0.017	0.005	Trace dust with steel removal
				Background	0.005	0.005	0.005	0.005	
				Net	(0.005)	(0.005)	0.012	0.000	
11:15 AM	Y	N	D	Actual	0.043	0.003	0.010	0.010	
				Background	0.010	0.010	0.010	0.010	
				Net	0.033	(0.007)	0.000	0.000	
12:20 PM	N	N	D	Actual	0.008	0.006	0.005	0.029	
				Background	0.029	0.029	0.029	0.029	
				Net	(0.021)	(0.023)	(0.024)	0.000	
1:08 PM	N	N	D	Actual	0.011	0.033	0.012	0.012	
				Background	0.012	0.012	0.012	0.012	
				Net	(0.001)	0.021	0.000	0.000	
2:16 PM	Y	N	D	Actual	0.004	0.020	0.005	0.019	
				Background	0.019	0.019	0.019	0.019	
				Net	(0.015)	0.001	(0.014)	0.000	

1. Note name, date, day of week, weather and time of day
2. Note if active soil excavation, handling, or transporting is taking place (Y/N)
3. Note wind direction (wind is coming from) using wind sock at hospital and identify station closest to upwind (eg., west/C)
4. Record reading at upwind/background station (eg., 0.000 mg/m³)
5. Record actual reading at each station
6. Subtract upwind/background from actual reading - if net is greater than 0.150 mg/m³ implement dust suppression
7. Add notes as necessary

BERTRAM FIELD SITE IMPROVEMENTS RELEASE ABATEMENT MEASURE PLAN RTN 3-31579
 AMBIENT AIR MONITORING LOG



Date: Wednesday July 17, 2013 NAAQS PM-10 0.150 mg/m³
 Weather: Sunny Name: Stacey Q

TIME	ACTIVE	WIND	UPWIND	STATION					NOTES
	HANDLING	DIRECTION	BACKGROUND	A	B	C	D		
6:15 AM	Y	N	D	Actual	0.195	0.020	0.038	0.011	Request to spray
				Background	0.011	0.011	0.011	0.011	
				Net	0.184	0.009	0.027	0.000	
7:15 AM	Y	S	B	Actual	0.030	0.015	0.029	0.026	
				Background	0.015	0.015	0.015	0.015	
				Net	0.015	0.000	0.014	0.011	
8:15 AM	Y	S	B	Actual	0.035	0.021	0.045	0.030	
				Background	0.021	0.021	0.021	0.021	
				Net	0.014	0.000	0.024	0.009	
9:28 AM	Y	S	B	Actual	0.038	0.041	0.060	0.028	
				Background	0.041	0.041	0.041	0.041	
				Net	(0.003)	0.000	0.019	(0.013)	
11:00 AM	Y	S	B	Actual	0.060	0.025	0.055	0.038	
				Background	0.025	0.025	0.025	0.025	
				Net	0.035	0.000	0.030	0.013	
12:30 PM	N	S	B	Actual	0.034	0.030	0.034	0.026	
				Background	0.030	0.030	0.030	0.030	
				Net	0.004	0.000	0.004	(0.004)	
1:40 PM	Y	N	D	Actual	0.035	0.031	0.051	0.034	
				Background	0.034	0.034	0.034	0.034	
				Net	0.001	(0.003)	0.017	0.000	
2:30 PM	Y	S	B	Actual	0.039	0.040	0.060	0.027	
				Background	0.040	0.040	0.040	0.040	
				Net	(0.001)	0.000	0.020	(0.013)	

1. Note name, date, day of week, weather and time of day
2. Note if active soil excavation, handling, or transporting is taking place (Y/N)
3. Note wind direction (wind is coming from) using wind sock at hospital and identify station closest to upwind (eg., west/C)
4. Record reading at upwind/background station (eg., 0.000 mg/m³)
5. Record actual reading at each station
6. Subtract upwind/background from actual reading - if net is greater than 0.150 mg/m³ implement dust suppression
7. Add notes as necessary

BERTRAM FIELD SITE IMPROVEMENTS RELEASE ABATEMENT MEASURE PLAN RTN 3-31579
 AMBIENT AIR MONITORING LOG



Date: Thursday July 18, 2013 NAAQS PM-10 0.150 mg/m³
 Weather: Hot, hazy, humid 95°F Name: Stacey Q

TIME	ACTIVE	WIND	UPWIND	STATION					NOTES
	HANDLING	DIRECTION	BACKGROUND	A	B	C	D		
6:53 AM	N	N	D	Actual	0.053	0.030	0.021	0.066	Spraying in progress
				Background	0.066	0.066	0.066	0.066	
				Net	(0.013)	(0.036)	(0.045)	0.000	
7:40 AM	Y	N	D	Actual	0.070	0.031	0.033	0.030	
				Background	0.030	0.030	0.030	0.030	
				Net	0.040	0.001	0.003	0.000	
8:40 AM	Y	N	D	Actual	0.011	0.024	0.039	0.023	
				Background	0.023	0.023	0.023	0.023	
				Net	(0.012)	0.001	0.016	0.000	
9:40 AM	N	N	D	Actual	0.017	0.012	0.010	0.008	
				Background	0.008	0.008	0.008	0.008	
				Net	0.009	0.004	0.002	0.000	
11:15 AM	Y	S	B	Actual	0.242	0.012	0.025	0.003	
				Background	0.012	0.012	0.012	0.012	
				Net	0.230	0.000	0.013	(0.009)	
12:15 PM	Y	N	D	Actual	0.011	0.017	0.004	0.022	
				Background	0.022	0.022	0.022	0.022	
				Net	(0.011)	(0.005)	(0.018)	0.000	
1:24 PM	Y	S	B	Actual	0.055	0.020	0.010	0.038	
				Background	0.020	0.020	0.020	0.020	
				Net	0.035	0.000	(0.010)	0.018	
2:30 PM	Y	S	B	Actual		0.010			
				Background	0.010	0.010	0.010	0.010	
				Net	(0.010)	0.000	(0.010)	(0.010)	

1. Note name, date, day of week, weather and time of day
2. Note if active soil excavation, handling, or transporting is taking place (Y/N)
3. Note wind direction (wind is coming from) using wind sock at hospital and identify station closest to upwind (eg., west/C)
4. Record reading at upwind/background station (eg., 0.000 mg/m³)
5. Record actual reading at each station
6. Subtract upwind/background from actual reading - if net is greater than 0.150 mg/m³ implement dust suppression
7. Add notes as necessary

BERTRAM FIELD SITE IMPROVEMENTS RELEASE ABATEMENT MEASURE PLAN RTN 3-31579
 AMBIENT AIR MONITORING LOG



Date: Friday July 19, 2013 NAAQS PM-10 0.150 mg/m³
 Weather: Humid, hot, hazy mid-70s°F to mid-90s°F Name: Eva W

TIME	ACTIVE	WIND	UPWIND	STATION					NOTES
	HANDLING	DIRECTION	BACKGROUND	A	B	C	D		
6:50 AM	Y	E	C	Actual	0.032	0.018	0.028	0.051	Spraying in progress
				Background	0.028	0.028	0.028	0.028	
				Net	0.004	(0.010)	0.000	0.023	
7:50 AM	N	N	B	Actual	0.027	0.023	0.022	0.030	
				Background	0.023	0.023	0.023	0.023	
				Net	0.004	0.000	(0.001)	0.007	
8:50 AM	Y	N	B	Actual	0.025	0.039	0.023	0.026	Spraying in progress
				Background	0.039	0.039	0.039	0.039	
				Net	(0.014)	0.000	(0.016)	(0.013)	
9:50 AM	Y	W	A	Actual	0.017	0.033	0.128	0.031	Spraying in progress
				Background	0.017	0.017	0.017	0.017	
				Net	0.000	0.016	0.111	0.014	
10:50 AM	Y	E	C	Actual	0.070	0.015	0.029	0.008	Spraying in progress
				Background	0.029	0.029	0.029	0.029	
				Net	0.041	(0.014)	0.000	(0.021)	
11:50 AM	Y	E	C	Actual	0.018	0.015	0.042	0.013	
				Background	0.042	0.042	0.042	0.042	
				Net	(0.024)	(0.027)	0.000	(0.029)	
12:50 PM	Y	N	B	Actual	0.010	0.003	0.012	0.025	
				Background	0.003	0.003	0.003	0.003	
				Net	0.007	0.000	0.009	0.022	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	

1. Note name, date, day of week, weather and time of day
2. Note if active soil excavation, handling, or transporting is taking place (Y/N)
3. Note wind direction (wind is coming from) using wind sock at hospital and identify station closest to upwind (eg., west/C)
4. Record reading at upwind/background station (eg., 0.000 mg/m³)
5. Record actual reading at each station
6. Subtract upwind/background from actual reading - if net is greater than 0.150 mg/m³ implement dust suppression
7. Add notes as necessary

BERTRAM FIELD SITE IMPROVEMENTS RELEASE ABATEMENT MEASURE PLAN RTN 3-31579
 AMBIENT AIR MONITORING LOG



Date: Monday July 22, 2013 NAAQS PM-10 0.150 mg/m³
 Weather: Mild, partly cloudy 70°F Name: Stacey Q

TIME	ACTIVE	WIND	UPWIND	STATION					NOTES
	HANDLING	DIRECTION	BACKGROUND	A	B	C	D		
7:19 AM	Y	N	D	Actual	0.050	0.040	0.082	0.030	
				Background	0.030	0.030	0.030	0.030	
				Net	0.020	0.010	0.052	0.000	
8:16 AM	N	N	D	Actual	0.025	0.033	0.011	0.019	No spray necessary due to prior rain
				Background	0.019	0.019	0.019	0.019	
				Net	0.006	0.014	(0.008)	0.000	
9:22 AM	N	N	D	Actual	0.022	0.012	0.020	0.013	
				Background	0.013	0.013	0.013	0.013	
				Net	0.009	(0.001)	0.007	0.000	
10:42 AM	Y	S	B	Actual	0.018	0.014	0.038	0.015	
				Background	0.014	0.014	0.014	0.014	
				Net	0.004	0.000	0.024	0.001	
11:55 AM	Y	E	A	Actual	0.024	0.024	0.009	0.010	
				Background	0.024	0.024	0.024	0.024	
				Net	0.000	0.000	(0.015)	(0.014)	
12:50 AM	Y	N	D	Actual	0.040	0.453	0.041	0.008	Request to spray
				Background	0.008	0.008	0.008	0.008	
				Net	0.032	0.445	0.033	0.000	
1:30 PM	Y	N	D	Actual	0.030	0.026	0.038	0.017	
				Background	0.017	0.017	0.017	0.017	
				Net	0.013	0.009	0.021	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	

1. Note name, date, day of week, weather and time of day
2. Note if active soil excavation, handling, or transporting is taking place (Y/N)
3. Note wind direction (wind is coming from) using wind sock at hospital and identify station closest to upwind (eg., west/C)
4. Record reading at upwind/background station (eg., 0.000 mg/m³)
5. Record actual reading at each station
6. Subtract upwind/background from actual reading - if net is greater than 0.150 mg/m³ implement dust suppression
7. Add notes as necessary

BERTRAM FIELD SITE IMPROVEMENTS RELEASE ABATEMENT MEASURE PLAN RTN 3-31579
 AMBIENT AIR MONITORING LOG



Date: Tuesday July 23, 2013 NAAQS PM-10 0.150 mg/m³
 Weather: Rainy Name: Stacey Q

TIME	ACTIVE	WIND	UPWIND	STATION					NOTES
	HANDLING	DIRECTION	BACKGROUND	A	B	C	D		
11:16 AM	Y	E	A	Actual	0.015	0.005	0.002	0.003	Heavy rain has dampened soil; very little dust; sprinklers running in conjunction with rain
				Background	0.015	0.015	0.015	0.015	
				Net	0.000	(0.010)	(0.013)	(0.012)	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	

1. Note name, date, day of week, weather and time of day
2. Note if active soil excavation, handling, or transporting is taking place (Y/N)
3. Note wind direction (wind is coming from) using wind sock at hospital and identify station closest to upwind (eg., west/C)
4. Record reading at upwind/background station (eg., 0.000 mg/m³)
5. Record actual reading at each station
6. Subtract upwind/background from actual reading - if net is greater than 0.150 mg/m³ implement dust suppression
7. Add notes as necessary

BERTRAM FIELD SITE IMPROVEMENTS RELEASE ABATEMENT MEASURE PLAN RTN 3-31579
 AMBIENT AIR MONITORING LOG



Date: Wednesday July 24, 2013 NAAQS PM-10 0.150 mg/m³
 Weather: Clear, warm Name: Stacey Q

TIME	ACTIVE	WIND	UPWIND	STATION					NOTES
	HANDLING	DIRECTION	BACKGROUND	A	B	C	D		
6:50 AM	Y	E	A	Actual	0.004	0.004	0.024	0.094	Soil damp due to rain
				Background	0.004	0.004	0.004	0.004	
				Net	0.000	0.000	0.020	0.090	
7:50 AM	Y	N	D	Actual	0.012	0.020	0.005	0.010	
				Background	0.010	0.010	0.010	0.010	
				Net	0.002	0.010	(0.005)	0.000	
8:50 AM	N	N	D	Actual	0.023	0.022	0.013	0.020	
				Background	0.020	0.020	0.020	0.020	
				Net	0.003	0.002	(0.007)	0.000	
9:50 AM	Y	E	A	Actual	0.032	0.028	0.060	0.006	
				Background	0.032	0.032	0.032	0.032	
				Net	0.000	(0.004)	0.028	(0.026)	
11:20 AM	Y	E	A	Actual	0.031	0.032	0.011	0.030	
				Background	0.031	0.031	0.031	0.031	
				Net	0.000	0.001	(0.020)	(0.001)	
12:54 PM	Y	N	D	Actual	0.040	0.036	0.033	0.026	
				Background	0.026	0.026	0.026	0.026	
				Net	0.014	0.010	0.007	0.000	
2:00 PM	Y	N	D	Actual	0.039	0.017	0.033	0.013	
				Background	0.013	0.013	0.013	0.013	
				Net	0.026	0.004	0.020	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	

1. Note name, date, day of week, weather and time of day
2. Note if active soil excavation, handling, or transporting is taking place (Y/N)
3. Note wind direction (wind is coming from) using wind sock at hospital and identify station closest to upwind (eg., west/C)
4. Record reading at upwind/background station (eg., 0.000 mg/m³)
5. Record actual reading at each station
6. Subtract upwind/background from actual reading - if net is greater than 0.150 mg/m³ implement dust suppression
7. Add notes as necessary

BERTRAM FIELD SITE IMPROVEMENTS RELEASE ABATEMENT MEASURE PLAN RTN 3-31579
 AMBIENT AIR MONITORING LOG



Date: Thursday July 25, 2013 NAAQS PM-10 0.150 mg/m³
 Weather: Clear, cloudy 66°F Name: Stacey Q

TIME	ACTIVE	WIND	UPWIND	STATION					NOTES
	HANDLING	DIRECTION	BACKGROUND	A	B	C	D		
7:00 AM	Y	N	D	Actual	0.011	0.021	0.055	0.027	
				Background	0.027	0.027	0.027	0.027	
				Net	(0.016)	(0.006)	0.028	0.000	
8:36 AM	N	N	D	Actual	0.014	0.038	0.034	0.060	Light rain
				Background	0.060	0.060	0.060	0.060	
				Net	(0.046)	(0.022)	(0.026)	0.000	
9:39 AM	N	N	D	Actual	0.012	0.015	0.008	0.010	
				Background	0.010	0.010	0.010	0.010	
				Net	0.002	0.005	(0.002)	0.000	
11:48 AM	N	N	D	Actual	0.016	0.014	0.017	0.011	
				Background	0.011	0.011	0.011	0.011	
				Net	0.005	0.003	0.006	0.000	
12:45 PM	Y	N	D	Actual	0.002	0.004	0.002	0.022	
				Background	0.022	0.022	0.022	0.022	
				Net	(0.020)	(0.018)	(0.020)	0.000	
1:45 PM	Y	N	D	Actual	0.040	0.020	0.017	0.040	Starting to rain
				Background	0.040	0.040	0.040	0.040	
				Net	0.000	(0.020)	(0.023)	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	

1. Note name, date, day of week, weather and time of day
2. Note if active soil excavation, handling, or transporting is taking place (Y/N)
3. Note wind direction (wind is coming from) using wind sock at hospital and identify station closest to upwind (eg., west/C)
4. Record reading at upwind/background station (eg., 0.000 mg/m³)
5. Record actual reading at each station
6. Subtract upwind/background from actual reading - if net is greater than 0.150 mg/m³ implement dust suppression
7. Add notes as necessary

BERTRAM FIELD SITE IMPROVEMENTS RELEASE ABATEMENT MEASURE PLAN RTN 3-31579
 AMBIENT AIR MONITORING LOG



Date: Friday July 26, 2013 NAAQS PM-10 0.150 mg/m³
 Weather: Light rain 62°F Name: Stacey Q

TIME	ACTIVE	WIND	UPWIND	STATION					NOTES
	HANDLING	DIRECTION	BACKGROUND	A	B	C	D		
6:50 AM	Y	S	D	Actual	0.009	0.012	0.010	0.014	Light rain
				Background	0.014	0.014	0.014	0.014	
				Net	(0.005)	(0.002)	(0.004)	0.000	
7:50 AM	Y	E	C	Actual	0.026	0.011	0.009	0.014	Light rain
				Background	0.009	0.009	0.009	0.009	
				Net	0.017	0.002	0.000	0.005	
8:50 AM	N	S	D	Actual	0.022	0.011	0.008	0.023	Rain
				Background	0.023	0.023	0.023	0.023	
				Net	(0.001)	(0.012)	(0.015)	0.000	
9:50 AM	Y	S	D	Actual	0.014	0.002	0.016	0.002	Light rain
				Background	0.002	0.002	0.002	0.002	
				Net	0.012	0.000	0.014	0.000	
10:50 AM	Y	S	D	Actual	0.031	0.020	0.042	0.031	Light rain
				Background	0.031	0.031	0.031	0.031	
				Net	0.000	(0.011)	0.011	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	
				Actual					
				Background	0.000	0.000	0.000	0.000	
				Net	0.000	0.000	0.000	0.000	

1. Note name, date, day of week, weather and time of day
2. Note if active soil excavation, handling, or transporting is taking place (Y/N)
3. Note wind direction (wind is coming from) using wind sock at hospital and identify station closest to upwind (eg., west/C)
4. Record reading at upwind/background station (eg., 0.000 mg/m³)
5. Record actual reading at each station
6. Subtract upwind/background from actual reading - if net is greater than 0.150 mg/m³ implement dust suppression
7. Add notes as necessary

APPENDIX C

Bills of Lading and Disposal Documentation



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC112

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number

3 - **31579**

A. LOCATION OF SITE OR DISPOSAL SITE WHERE REMEDIATION WASTE WAS GENERATED:

1. Release Name/Location Aid: **BERTRAM ATHLETIC FIELD**

2. Street Address: **29 HIGHLAND AVENUE**

3. City/Town: **SALEM**

4. Zip Code: **019700000**

☐ 5. Check here if a Tier Classification Submittal has been provided to DEP for this disposal site:

☐ a. Tier 1A ☐ b. Tier 1B ☐ c. Tier 1C ☐ d. Tier II

6. If applicable provide the Permit Number: _____

B. THIS FORM IS BEING USED TO: (check one: B1-B4):

☐ 1. Submit a **Bill of Lading (BOL)** to transport Remediation Waste to Temporary Storage or a Receiving Facility.
Response Actions associated with this BOL (check all that apply):

- ☐ a. Immediate Response Action (IRA) ☐ e. Comprehensive Response Actions
☐ b. Release Abatement Measure (RAM) ☐ f.. Limited Removal Action (LRA):
(must be retained pursuant to 310 CMR 40.0034(6); can't be submitted via eDEP)
☐ c. Downgradient Property Status (DPS) ☐ g. Other _____
☐ d. Utility Release Abatement Measure (URAM)

☐ 2. Submit an Attestation of Completion of **Shipment to Temporary Storage** (Sections C, F and J are not required):

☒ 3. Submit an Attestation of Completion of **Shipment to a Receiving Facility** (Sections C, F and J are not required):

☐ 4. Certify that Remediation Waste Was **Not Shipped, and the Bill of Lading is Void.** (Sections C, D, E, and F are not required)

5. Date Bill of Lading submitted to the Department: **7/24/2013 3:16:17** b. eDEP Transaction ID: **581378**
(mm/dd/yyyy)

6. Period of Generation Associated with this Bill of Lading **7/1/2013** to **12/1/2013**
(mm/dd/yyyy) (mm/dd/yyyy)

(All sections of this transmittal form must be filled out unless otherwise noted)

The Bill of Lading is not considered complete until the Attestation of Completion of Shipment is received by the Department.

C. DESCRIPTION OF WASTE AND WASTE SOURCE:

1. Contaminated Media /Debris (check all that apply):

- ☐ a. Soil ☐ b. Groundwater ☐ c. Surface Water ☐ d. Sediment ☐ e. Vegetation or Organic Debris
☐ f. Demolition/Construction Waste ☐ g. Inorganic Absorbent Materials ☐ h. Other: _____

2. Uncontainerized Waste (check all that apply):

- ☐ a. Inorganic Absorbent Materials ☐ b. Other: _____



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC112

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number

3 - **31579**

C. DESCRIPTION OF WASTE AND WASTE SOURCE (cont.):

3. Containerized Waste (check all that apply):

☐ a. Tank Bottoms/Sludges ☐ b. Containers ☐ c. Drums ☐ d. Engineered Impoundments

☐ e. Other:

4. Estimated Quantity: ☐ Tons ☐ Cu. Yds. ☐ Gallons

5. Contaminant Source (check one):

☐ a. Transportation Accident ☐ b. Underground Storage Tank ☐ c. Brownfields Redevelopment

☐ d. Other:

6. Type of Contaminant (check all that apply):

☐ a. Gasoline ☐ b. Diesel Fuel ☐ c. #2 Fuel Oil ☐ d. #4 Fuel Oil ☐ e. #6 Fuel Oil ☐ f. Jet Fuel

☐ g. Waste Oil ☐ h. Kerosene ☐ i. Chlorinated Solvents ☐ j. Urban Fill ☐ k. Other:

7. Constituents of Concern (check all that apply):

☐ a. As ☐ b. Cd ☐ c. Cr ☐ d. Pb ☐ e. Hg ☐ f. EPH/TPH ☐ g. VPH

☐ h. PCBs ☐ i. VOCs ☐ j. SVOCs ☐ k. Other:

8. If applicable, check the box for the Reportable Concentration Category of the site:

☐ a. RCS-1 ☐ b. RCS-2 ☐ c. RCGW-1 ☐ d. RCGW-2

9. Remediation Waste Characterization Documentation (check at least one):

☐ a. Site History Information ☐ b. Sampling Analytical Methods and Procedures ☐ c. Laboratory Data

☐ d. Field Screening Data ☐ e. Characterization Documentation previously submitted to the Department

i. Date submitted: ii. Type of Documentation:
(mm/dd/yyyy)

D. TRANSPORTER OR COMMON CARRIER INFORMATION:

1. Transporter/Common Carrier Name: **BRIGHTER HORIZONS ENVIRONMENTAL**

2. Contact First Name: **SHANE**

3. Last Name: **DUVAL**

4. Street: **PO BOX 219**

5. Title: **PRESIDENT**

6. City/Town: **CHELMSFORD**

7. State: **MA**

8. Zip Code: **018240000**

9. Telephone: **9789700500**

10. Ext:

11. Fax: **9789700501**



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC112

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number

3 - **31579**

E. RECEIVING FACILITY/TEMPORARY STORAGE LOCATION:

1. Operator/Facility Name: **GREENWOOD STREET LANDFILL**

2. Contact First Name: **CRAIG**

3. Last Name: **SALTER**

4. Street: **30 NIPP NAPP TRAIL**

5. Title: **TECHNICAL MANAGER**

6. City/Town: **WORCESTER**

7. State: **MA**

8. Zip Code: **016070000**

9. Telephone: **5087554604**

10. Ext:

11. Fax:

12. Type of Facility: (Check one)

a. Temporary Storage

i. Period of Temporary Storage: to

(mm/dd/yyyy)

(mm/dd/yyyy)

ii. Reason for Temporary Storage:

☐

b. Asphalt Batch/Hot Mix

☐

c. Landfill/Disposal

☒

d. Landfill/Structural Fill

☒

e. Landfill/Daily Cover

☐

f. Asphalt Batch/Cold Mix

☐

g. Thermal Processing

☐

h. Incinerator

☐

i. Other:

13. Division of Hazardous Waste/Class A Permit Number:

14. Division of Solid Waste Permit Number: **W056147-W118149**

15. EPA Identification Number:

F. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this submittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief, the assessment action(s) undertaken to characterize the Remediation Waste which is (are) the subject of this submittal for acceptance at the facility identified in this submittal comply with applicable provisions of 310 CMR 40.0000, and such facility is permitted to accept Remediation Waste having the characteristics described in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #:

2. First Name:

3. Last Name:

4. Telephone:

5. Ext.

6. FAX:

7. Signature:

8. Date:

(mm/dd/yyyy)

9. LSP Stamp:



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC112

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number

3 - **31579**

G. PERSON SUBMITTING BILL OF LADING:

1. Check all that apply: ☐ a. change in contact name ☐ b. Change of address ☐ c. change in person undertaking response actions
2. Name of Organization: **CITY OF SALEM**
3. Contact First Name: **TOM** 4. Last Name: **DEVINE**
5. Street: **120 WASHINGTON STREET 3RD FLOOR** 6. Title:
7. City/Town: **SALEM** 8. State: **MA** 9. Zip Code: **019700000**
10. Telephone: 11. Ext: 12. Fax:

H. RELATIONSHIP TO SITE OF PERSON SUBMITTING BILL OF LADING:

☐ Check here to change relationship

- ☒ 1. RP or PRP: ☐ a. Owner ☐ b. Operator ☐ c. Generator ☐ d. Transporter
- ☒ e. Other RP or PRP Specify: **NON-SPECIFIED PRP**
- ☐ 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c.21E, s.2):
- ☐ 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c.21E, s.5(j))
- ☐ 4. Any Other person Undertaking Response Actions: Specify Relationship:

I. REQUIRED ATTACHMENTS AND SUBMITTALS :

- ☐ 1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approvals issued by DEP or EPA. If the box is checked, you must attach a statement identifying the applicable provisions thereof.
- ☐ 2. Check here if any non-updatable information provided on this form is incorrect, e. g. property address. Send corrections to BWSC.eDEP@state.ma.us
- ☐ 3. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.

J. CERTIFICATION OF PERSON SUBMITTING BILL OF LADING :

1. I, , attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: 3. Title:

4. For 5. Date:
(Name of person or entity recorded in Section H) (mm/dd/yyyy)



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC112

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number

3

- **31579**

J. CERTIFICATION OF PERSON SUBMITTING BILL OF LADING (cont.) :

☐ 6. Check here if the address of the person providing certification is different from address recorded in Section H.

7. Street:

8. City/Town:

9. State:

10. Zip Code:

11. Telephone:

12. Ext:

13. Fax:

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (MassDEP USE ONLY):

8/14/2013 11:35:26 AM

**BILL OF LADING** (pursuant to 310 CMR 40.0030)

SUMMARY OF SHIPMENT SHEET

1

o

3

- 31579

1. Date of Shipment:
(mm/dd/yyyy)

2. Date of Receipt:
(mm/dd/yyyy)

3. Number of Loads Shipped:

4. Daily Volume Shipped:
☐ yds³ ☒ tons ☐ gals

7/22/2013

7/22/2013

27.00

860.90

7/23/2013

7/23/2013

33.00

1109.00

7/24/2013

7/24/2013

20.00

659.12

7/25/2013

7/25/2013

33.00

1125.43

7/26/2013

7/26/2013

9.00

306.20

5. Totals Recorded on this Summary of Shipment Sheet:

122

4060.65

B. ☐ Check here if additional BWSC112A BOL Summary Sheets are needed.



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC112B

Release Tracking Number

BILL OF LADING (pursuant to 310 CMR 40.0030)

SUMMARY SHEET SIGNATURE PAGE

3

- 31579

A. ACKNOWLEDGEMENT OF RECEIPT OF REMEDIATION WASTE AT RECEIVING FACILITY OR TEMPORARY STORAGE:

1. I, **Craig Salter**, attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: **Craig Salter**

3. Title: **TECHNICAL MANAGER**

4. For: **GREENWOOD STREET LANDFILL**

5. Date: **8/14/2013**

(mm/dd/yyyy)

6. Date of Final Shipment associated with this Bill of Lading: **7/26/2013**

(mm/dd/yyyy)

B. ACKNOWLEDGEMENT OF SHIPMENT AND RECEIPT OF REMEDIATION WASTE BY PERSON CONDUCTING RESPONSE ACTIONS ASSOCIATED WITH THIS BILL OF LADING:

1. I, **TOM DEVINE**, attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: **TOM DEVINE**

3. Title: **CONS. AGENT/STAFF PLANNER**

4. For: **CITY OF SALEM**

(Name of person or entity recorded in Section G)

5. Date: **8/14/2013**

(mm/dd/yyyy)

☐ 6. Check here if the address of the person providing certification is different from address recorded in BWSC112 Section H.

7. Street: _____

8. City/Town: _____ 9. State: _____ 10. Zip Code: _____

11. Telephone: _____ 12. Ext: _____ 13. Fax: _____

☐ 14. Check here if attaching optional supporting documentation such as copies of Load Information Summary Sheets



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC112

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number

3 - **31579**

A. LOCATION OF SITE OR DISPOSAL SITE WHERE REMEDIATION WASTE WAS GENERATED:

1. Release Name/Location Aid: **BERTRAM ATHLETIC FIELD**

2. Street Address: **29 HIGHLAND AVENUE**

3. City/Town: **SALEM**

4. Zip Code: **019700000**

☐ 5. Check here if a Tier Classification Submittal has been provided to DEP for this disposal site:

☐ a. Tier 1A ☐ b. Tier 1B ☐ c. Tier 1C ☐ d. Tier II

6. If applicable provide the Permit Number: _____

B. THIS FORM IS BEING USED TO: (check one: B1-B4):

☐ 1. Submit a **Bill of Lading (BOL)** to transport Remediation Waste to Temporary Storage or a Receiving Facility.
Response Actions associated with this BOL (check all that apply):

- ☐ a. Immediate Response Action (IRA) ☐ e. Comprehensive Response Actions
☐ b. Release Abatement Measure (RAM) ☐ f.. Limited Removal Action (LRA):
(must be retained pursuant to 310 CMR 40.0034(6); can't be submitted via eDEP)
☐ c. Downgradient Property Status (DPS) ☐ g. Other _____
☐ d. Utility Release Abatement Measure (URAM)

☐ 2. Submit an Attestation of Completion of **Shipment to Temporary Storage** (Sections C, F and J are not required):

☒ 3. Submit an Attestation of Completion of **Shipment to a Receiving Facility** (Sections C, F and J are not required):

☐ 4. Certify that Remediation Waste Was **Not Shipped, and the Bill of Lading is Void.** (Sections C, D, E, and F are not required)

5. Date Bill of Lading submitted to the Department: **6/27/2013 2:54:53** b. eDEP Transaction ID: **574907**
(mm/dd/yyyy)

6. Period of Generation Associated with this Bill of Lading **7/1/2013** to **12/1/2013**
(mm/dd/yyyy) (mm/dd/yyyy)

(All sections of this transmittal form must be filled out unless otherwise noted)

The Bill of Lading is not considered complete until the Attestation of Completion of Shipment is received by the Department.

C. DESCRIPTION OF WASTE AND WASTE SOURCE:

1. Contaminated Media /Debris (check all that apply):

- ☐ a. Soil ☐ b. Groundwater ☐ c. Surface Water ☐ d. Sediment ☐ e. Vegetation or Organic Debris
☐ f. Demolition/Construction Waste ☐ g. Inorganic Absorbent Materials ☐ h. Other: _____

2. Uncontainerized Waste (check all that apply):

- ☐ a. Inorganic Absorbent Materials ☐ b. Other: _____



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC112

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number

3 - **31579**

C. DESCRIPTION OF WASTE AND WASTE SOURCE (cont.):

3. Containerized Waste (check all that apply):

☐ a. Tank Bottoms/Sludges ☐ b. Containers ☐ c. Drums ☐ d. Engineered Impoundments

☐ e. Other:

4. Estimated Quantity: ☐ Tons ☐ Cu. Yds. ☐ Gallons

5. Contaminant Source (check one):

☐ a. Transportation Accident ☐ b. Underground Storage Tank ☐ c. Brownfields Redevelopment

☐ d. Other:

6. Type of Contaminant (check all that apply):

☐ a. Gasoline ☐ b. Diesel Fuel ☐ c. #2 Fuel Oil ☐ d. #4 Fuel Oil ☐ e. #6 Fuel Oil ☐ f. Jet Fuel

☐ g. Waste Oil ☐ h. Kerosene ☐ i. Chlorinated Solvents ☐ j. Urban Fill ☐ k. Other:

7. Constituents of Concern (check all that apply):

☐ a. As ☐ b. Cd ☐ c. Cr ☐ d. Pb ☐ e. Hg ☐ f. EPH/TPH ☐ g. VPH

☐ h. PCBs ☐ i. VOCs ☐ j. SVOCs ☐ k. Other:

8. If applicable, check the box for the Reportable Concentration Category of the site:

☐ a. RCS-1 ☐ b. RCS-2 ☐ c. RCGW-1 ☐ d. RCGW-2

9. Remediation Waste Characterization Documentation (check at least one):

☐ a. Site History Information ☐ b. Sampling Analytical Methods and Procedures ☐ c. Laboratory Data

☐ d. Field Screening Data ☐ e. Characterization Documentation previously submitted to the Department

i. Date submitted: ii. Type of Documentation:
(mm/dd/yyyy)

D. TRANSPORTER OR COMMON CARRIER INFORMATION:

1. Transporter/Common Carrier Name: **BRIGHTER HORIZONS ENVIRONMENTAL**

2. Contact First Name: **SHAVE**

3. Last Name: **DUVAL**

4. Street: **PO BOX 219**

5. Title: **PRESIDENT**

6. City/Town: **CHELMSFORD**

7. State: **MA**

8. Zip Code: **018240000**

9. Telephone: **9789700500**

10. Ext:

11. Fax: **9789700501**



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC112

Release Tracking Number

BILL OF LADING (pursuant to 310 CMR 40.0030)

3 - **31579**

E. RECEIVING FACILITY/TEMPORARY STORAGE LOCATION:

1. Operator/Facility Name: **COMMERCIAL RECYCLING SYSTEMS**

2. Contact First Name: **REGGIE**

3. Last Name: **SAUNDERS**

4. Street: **2 GIBSON ROAD**

5. Title: **FACILITY MANAGER**

6. City/Town: **SCARBOROUGH**

7. State: **ME**

8. Zip Code: **040700000**

9. Telephone: **2078833325**

10. Ext:

11. Fax:

12. Type of Facility: (Check one)

a. Temporary Storage

i. Period of Temporary Storage:

to
(mm/dd/yyyy)

(mm/dd/yyyy)

ii. Reason for Temporary Storage:



b. Asphalt Batch/Hot Mix



c. Landfill/Disposal



d. Landfill/Structural Fill



e. Landfill/Daily Cover



f. Asphalt Batch/Cold Mix



g. Thermal Processing



h. Incinerator



i. Other:

13. Division of Hazardous Waste/Class A Permit Number:

14. Division of Solid Waste Permit Number: **S-021243-WK-A-N**

15. EPA Identification Number:

F. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this submittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief, the assessment action(s) undertaken to characterize the Remediation Waste which is (are) the subject of this submittal for acceptance at the facility identified in this submittal comply with applicable provisions of 310 CMR 40.0000, and such facility is permitted to accept Remediation Waste having the characteristics described in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #:

2. First Name:

3. Last Name:

4. Telephone:

5. Ext.

6. FAX:

7. Signature:

8. Date:

(mm/dd/yyyy)

9. LSP Stamp:



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC112

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number

3 - **31579**

G. PERSON SUBMITTING BILL OF LADING:

1. Check all that apply: ☐ a. change in contact name ☐ b. Change of address ☐ c. change in person undertaking response actions
2. Name of Organization: **CITY OF SALEM**
3. Contact First Name: **TOM** 4. Last Name: **DEVINE**
5. Street: **120 WASHINGTON STREET 3RD FLOOR** 6. Title:
7. City/Town: **SALEM** 8. State: **MA** 9. Zip Code: **019700000**
10. Telephone: 11. Ext: 12. Fax:

H. RELATIONSHIP TO SITE OF PERSON SUBMITTING BILL OF LADING:

☐ Check here to change relationship

- ☒ 1. RP or PRP: ☐ a. Owner ☐ b. Operator ☐ c. Generator ☐ d. Transporter
- ☒ e. Other RP or PRP Specify: **NON-SPECIFIED PRP**
- ☐ 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c.21E, s.2):
- ☐ 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c.21E, s.5(j))
- ☐ 4. Any Other person Undertaking Response Actions: Specify Relationship:

I. REQUIRED ATTACHMENTS AND SUBMITTALS :

- ☐ 1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approvals issued by DEP or EPA. If the box is checked, you must attach a statement identifying the applicable provisions thereof.
- ☐ 2. Check here if any non-updatable information provided on this form is incorrect, e. g. property address. Send corrections to BWSC.eDEP@state.ma.us
- ☐ 3. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.

J. CERTIFICATION OF PERSON SUBMITTING BILL OF LADING :

1. I, , attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: 3. Title:

4. For 5. Date:
(Name of person or entity recorded in Section H) (mm/dd/yyyy)



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC112

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number

3

- **31579**

J. CERTIFICATION OF PERSON SUBMITTING BILL OF LADING (cont.) :

☐ 6. Check here if the address of the person providing certification is different from address recorded in Section H.

7. Street:

8. City/Town:

9. State:

10. Zip Code:

11. Telephone:

12. Ext:

13. Fax:

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (MassDEP USE ONLY):

8/7/2013 8:58:05 AM

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number

SUMMARY OF SHIPMENT SHEET

1 OF 1

$$3 - 31579$$

A. SUMMARY OF SHIPMENT (To be filled out by the receiving facility upon receipt of Remediation Waste):

1. Date of Shipment: (mm/dd/yyyy)	2. Date of Receipt: (mm/dd/yyyy)	3. Number of Loads Shipped:	4. Daily Volume Shipped: <input type="checkbox"/> yds³ <input checked="" type="checkbox"/> tons <input type="checkbox"/> gals
7/16/2013	7/16/2013	11.00	346.64
7/17/2013	7/17/2013	19.00	562.05
7/18/2013	7/18/2013	22.00	674.60
7/19/2013	7/19/2013	14.00	428.58
5. Totals Recorded on this Summary of Shipment Sheet:		66	2011.87

B. ☐ Check here if additional BWSC112A BOL Summary Sheets are needed.



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC112B

Release Tracking Number

BILL OF LADING (pursuant to 310 CMR 40.0030)

SUMMARY SHEET SIGNATURE PAGE

3

- 31579

A. ACKNOWLEDGEMENT OF RECEIPT OF REMEDIATION WASTE AT RECEIVING FACILITY OR TEMPORARY STORAGE:

1. I, **Marcia Montague**, attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: **Marcia Montague**

3. Title: **COMPLIANCE COORDINATOR**

4. For: **CPRC GROUP**

5. Date: **8/5/2013**

(mm/dd/yyyy)

6. Date of Final Shipment associated with this Bill of Lading: **7/19/2013**

(mm/dd/yyyy)

B. ACKNOWLEDGEMENT OF SHIPMENT AND RECEIPT OF REMEDIATION WASTE BY PERSON CONDUCTING RESPONSE ACTIONS ASSOCIATED WITH THIS BILL OF LADING:

1. I, **TOM DEVINE**, attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: **TOM DEVINE**

3. Title: **CONS. AGENT/STAFF PLANNER**

4. For: **CITY OF SALEM**

(Name of person or entity recorded in Section G)

5. Date: **8/7/2013**

(mm/dd/yyyy)

☐ 6. Check here if the address of the person providing certification is different from address recorded in BWSC112 Section H.

7. Street: _____

8. City/Town: _____ 9. State: _____ 10. Zip Code: _____

11. Telephone: _____ 12. Ext: _____ 13. Fax: _____

☐ 14. Check here if attaching optional supporting documentation such as copies of Load Information Summary Sheets

APPENDIX D

Laboratory Data (Additional Lab Reports Included in RAM Plan)



REPORT OF ANALYTICAL RESULTS

NETLAB Case Number Z0723-41

Prepared for:

Cooperstown Environmental
23 Main Street, Terrace Level
Andover, MA 01810

Report Date: July 24, 2013

Lab # RI010

NEW ENGLAND TESTING LABORATORY, INC.

1254 Douglas Avenue, North Providence, RI 02904

(401) 353-3420

MassDEP Analytical Protocol Certification Form

Laboratory Name: New England Testing Laboratory, Inc.

Project #:

Project Location: Salem Bertram Field

RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
Z0723-41

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

CAM Protocol (check all that apply below):

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

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

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

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

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
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Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

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

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

Signature: Richard Warila

Position: Laboratory Director

Printed Name: Richard Warila

Date: 7/24/2013

SAMPLES SUBMITTED and REQUEST FOR ANALYSIS:

The samples listed in Table I were submitted to New England Testing Laboratory on July 23, 2013. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is Z0723-41.

Custody records are included in this report.

Site: Salem – Bertram Field

TABLE I, Samples Submitted

Sample ID	Date Sampled	Matrix	Analysis Requested
PE-01	7/23/13	Soil	Table II
PE-02	7/23/13	Soil	Table II
PE-03	7/23/13	Soil	Table II
SP-01	7/23/13	Soil	Table II

TABLE II, Analysis and Methods

ANALYSIS	PREPARATION METHOD	DETERMINATIVE METHOD
Total Metals		
Arsenic	3050B	6010C

These methods are documented in:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, USEPA/OSW.



New England Testing Laboratory, Inc.

CASE NARRATIVE:

Sample Receipt

All samples were found to be properly preserved/cooled upon receipt. All analyses were performed within EPA designated holding-times. Procedure/calibration checks required by the designated protocols were within control limits.

Metals

All analyses were performed according to NETLAB's documented Standard Operating Procedures, within all required holding times, and with appropriate quality control measures. All QC was within laboratory established acceptance criteria. The samples were received, processed, and reported with no anomalies.

METALS RESULTS

The presence of the NETLAB LOGO in the top right corner of each page in this section indicates:

The Technical Manager of the Metals Analysis Department certifies that the results included in this section have been reviewed and approved. Any exceptions or qualifications of substance have been reported in the case narrative.

METALS RESULTS



Case Number: Z0723-41
 Sample ID: PE-01
 Date collected: 7/23/13
 Matrix: Soil
 Solids, %: 83.72
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	3.46	0.76	mg/kg	7/24/13	7/24/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Case Number: Z0723-41
 Sample ID: PE-02
 Date collected: 7/23/13
 Matrix: Soil
 Solids, %: 79.87
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	7.26	0.72	mg/kg	7/24/13	7/24/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Case Number: Z0723-41
 Sample ID: PE-03
 Date collected: 7/23/13
 Matrix: Soil
 Solids, %: 85.72
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	5.71	0.74	mg/kg	7/24/13	7/24/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Case Number: Z0723-41
 Sample ID: SP-01
 Date collected: 7/23/13
 Matrix: Soil
 Solids, %: 79.62
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	17.8	0.71	mg/kg	7/24/13	7/24/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Sample ID: Preparation Blank
 Matrix Soil
 Solids, % 100
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	ND	0.67	mg/kg	7/24/13	7/24/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

LABORATORY CONTROL SAMPLE RECOVERY

Parameter	True Value	Result	Units	Recovery, %	Internal		Date Analyzed
					LCL, %	UCL, %	
Arsenic	13.3	11.5	mg/kg	87	80	108	7/24/13

New England Testing Laboratory, Inc.

CHAIN OF CUSTODY RECORD

[illegible]

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



REPORT OF ANALYTICAL RESULTS

NETLAB Case Number Z0729-20

Prepared for:

Cooperstown Environmental
23 Main Street, Terrace Level
Andover, MA 01810

Report Date: July 30, 2013

Lab # RI010

NEW ENGLAND TESTING LABORATORY, INC.

1254 Douglas Avenue, North Providence, RI 02904

(401) 353-3420

MassDEP Analytical Protocol Certification Form

Laboratory Name: New England Testing Laboratory, Inc.

Project #:

Project Location: Salem Bertram Field

RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
Z0729-20

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

CAM Protocol (check all that apply below):

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

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

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

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

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	x Yes	No ¹
----------	---	-------	-----------------

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

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

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

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

Signature: Richard Warila

Position: Laboratory Director

Printed Name: Richard Warila

Date: 7/30/2013

SAMPLES SUBMITTED and REQUEST FOR ANALYSIS:

The samples listed in Table I were submitted to New England Testing Laboratory on July 29, 2013. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is Z0729-20.

Custody records are included in this report.

Site: Salem Bertram Field

TABLE I, Samples Submitted

Sample ID	Date Sampled	Matrix	Analysis Requested
PE-04	7/29/13	Soil	Table II
PE-05	7/29/13	Soil	Table II
PE-06	7/29/13	Soil	Table II
PE-07	7/29/13	Soil	Table II
PE-08	7/29/13	Soil	Table II

TABLE II, Analysis and Methods

ANALYSIS	PREPARATION METHOD	DETERMINATIVE METHOD
Total Metals		
Arsenic	3050B	6010C

These methods are documented in:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, USEPA/OSW.



New England Testing Laboratory, Inc.

CASE NARRATIVE:

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Metals

All analyses were performed according to NETLAB's documented Standard Operating Procedures, within all required holding times, and with appropriate quality control measures. All QC was within laboratory established acceptance criteria. The samples were received, processed, and reported with no anomalies.

METALS RESULTS

The presence of the NETLAB LOGO in the top right corner of each page in this section indicates:

The Technical Manager of the Metals Analysis Department certifies that the results included in this section have been reviewed and approved. Any exceptions or qualifications of substance have been reported in the case narrative.

METALS RESULTS



Case Number: Z0729-20
 Sample ID: PE-04
 Date collected: 7/29/13
 Matrix: SOIL
 Solids, %: 75.76
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	5.30	0.39	mg/kg	7/30/13	7/30/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Case Number: Z0729-20
 Sample ID: PE-05
 Date collected: 7/29/13
 Matrix: SOIL
 Solids, %: 78.33
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	12.6	0.42	mg/kg	7/30/13	7/30/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Case Number: Z0729-20
 Sample ID: PE-06
 Date collected: 7/29/13
 Matrix: SOIL
 Solids, %: 75.08
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	8.40	0.36	mg/kg	7/30/13	7/30/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Case Number: Z0729-20
 Sample ID: PE-07
 Date collected: 7/29/13
 Matrix: SOIL
 Solids, %: 68.27
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	14.9	0.46	mg/kg	7/30/13	7/30/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Case Number: Z0729-20
 Sample ID: PE-08
 Date collected: 7/29/13
 Matrix: SOIL
 Solids, %: 78.17
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	9.14	0.42	mg/kg	7/30/13	7/30/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Sample ID: Preparation Blank
 Matrix SOIL
 Solids, % 100
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	ND	0.33	mg/kg	7/30/13	7/30/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

LABORATORY CONTROL SAMPLE RECOVERY

Parameter	True Value	Result	Units	Recovery, %	Internal		Date Analyzed
					LCL, %	UCL, %	
Arsenic	13.3	10.7	mg/kg	80	80	108	7/30/13

New England Testing Laboratory, Inc.

NEW ENGLAND TESTING LABORATORY, INC.
1254 Douglas Avenue
North Providence, RI 02904
1-888-863-8522

CHAIN OF CUSTODY RECORD

[illegible]

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



REPORT OF ANALYTICAL RESULTS

NETLAB Case Number Z0729-20A

Prepared for:

Cooperstown Environmental
23 Main Street, Terrace Level
Andover, MA 01810

Report Date: August 2, 2013

Lab # RI010

NEW ENGLAND TESTING LABORATORY, INC.

1254 Douglas Avenue, North Providence, RI 02904

(401) 353-3420

MassDEP Analytical Protocol Certification Form

Laboratory Name: New England Testing Laboratory, Inc.

Project #:

Project Location: Salem Bertram Field

RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
Z0729-20A

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

CAM Protocol (check all that apply below):

8260 VOC CAM II A	7470/7471 Hg CAM III B <input checked="" type="checkbox"/>	MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B	7010 Metals CAM III C	MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A <input checked="" type="checkbox"/>	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	

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

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

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

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
----------	---	--

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

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

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

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

Signature: Richard Warila

Position: Laboratory Director

Printed Name: Richard Warila

Date: 8/2/2013

SAMPLES SUBMITTED and REQUEST FOR ANALYSIS:

The samples listed in Table I were submitted to New England Testing Laboratory on July 29, 2013 and additional analysis was requested July 31, 2013. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is Z0729-20A.

Custody records are included in this report.

Site: Salem Bertram Field

TABLE I, Samples Submitted

Sample ID	Date Sampled	Matrix	Analysis Requested
PE-04	7/29/13	Soil	Table II
PE-05	7/29/13	Soil	Table II
PE-06	7/29/13	Soil	Table II
PE-07	7/29/13	Soil	Table II
PE-08	7/29/13	Soil	Table II

TABLE II, Analysis and Methods

ANALYSIS	PREPARATION METHOD	DETERMINATIVE METHOD
Total Metals		
Arsenic	3050B	6010C
Barium	3050B	6010C
Cadmium	3050B	6010C
Chromium	3050B	6010C
Lead	3050B	6010C
Mercury	NA	7471B
Selenium	3050B	6010C
Silver	3050B	6010C

These methods are documented in:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, USEPA/OSW.



New England Testing Laboratory, Inc.

CASE NARRATIVE:

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Metals

All analyses were performed according to NETLAB's documented Standard Operating Procedures, within all required holding times, and with appropriate quality control measures. All QC was within laboratory established acceptance criteria. The samples were received, processed, and reported with no anomalies.

METALS RESULTS

The presence of the NETLAB LOGO in the top right corner of each page in this section indicates:

The Technical Manager of the Metals Analysis Department certifies that the results included in this section have been reviewed and approved. Any exceptions or qualifications of substance have been reported in the case narrative.

METALS RESULTS



Case Number: Z0729-20A
 Sample ID: PE-04
 Date collected: 7/29/13
 Matrix: Soil
 Solids, %: 75.76
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	5.30	0.39	mg/kg	7/30/13	7/30/13
Barium	7440-39-3	3050B	6010C	20.3	0.20	mg/kg	7/30/13	7/30/13
Cadmium	7440-43-9	3050B	6010C	0.56	0.20	mg/kg	7/30/13	7/30/13
Chromium	7440-47-3	3050B	6010C	13.0	0.20	mg/kg	7/30/13	7/30/13
Lead	7439-92-1	3050B	6010C	21.8	0.20	mg/kg	7/30/13	7/30/13
Mercury	7439-97-6	NA	7471B	0.109	0.055	mg/kg	8/1/13	8/1/13
Selenium	7782-49-2	3050B	6010C	ND	0.39	mg/kg	7/30/13	7/30/13
Silver	7440-22-4	3050B	6010C	ND	0.20	mg/kg	7/30/13	7/30/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Case Number: Z0729-20A
 Sample ID: PE-05
 Date collected: 7/29/13
 Matrix: Soil
 Solids, %: 78.33
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	12.6	0.42	mg/kg	7/30/13	7/30/13
Barium	7440-39-3	3050B	6010C	26.5	0.21	mg/kg	7/30/13	7/30/13
Cadmium	7440-43-9	3050B	6010C	0.46	0.21	mg/kg	7/30/13	7/30/13
Chromium	7440-47-3	3050B	6010C	17.6	0.21	mg/kg	7/30/13	7/30/13
Lead	7439-92-1	3050B	6010C	44.4	0.21	mg/kg	7/30/13	7/30/13
Mercury	7439-97-6	NA	7471B	0.437	0.089	mg/kg	8/1/13	8/1/13
Selenium	7782-49-2	3050B	6010C	ND	0.42	mg/kg	7/30/13	7/30/13
Silver	7440-22-4	3050B	6010C	ND	0.21	mg/kg	7/30/13	7/30/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Case Number: Z0729-20A
 Sample ID: PE-06
 Date collected: 7/29/13
 Matrix: Soil
 Solids, %: 75.08
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	8.40	0.36	mg/kg	7/30/13	7/30/13
Barium	7440-39-3	3050B	6010C	28.6	0.18	mg/kg	7/30/13	7/30/13
Cadmium	7440-43-9	3050B	6010C	0.63	0.18	mg/kg	7/30/13	7/30/13
Chromium	7440-47-3	3050B	6010C	13.2	0.18	mg/kg	7/30/13	7/30/13
Lead	7439-92-1	3050B	6010C	48.1	0.18	mg/kg	7/30/13	7/30/13
Mercury	7439-97-6	NA	7471B	0.191	0.092	mg/kg	8/1/13	8/1/13
Selenium	7782-49-2	3050B	6010C	ND	0.36	mg/kg	7/30/13	7/30/13
Silver	7440-22-4	3050B	6010C	ND	0.18	mg/kg	7/30/13	7/30/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Case Number: Z0729-20A
 Sample ID: PE-07
 Date collected: 7/29/13
 Matrix: Soil
 Solids, %: 68.27
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	14.9	0.46	mg/kg	7/30/13	7/30/13
Barium	7440-39-3	3050B	6010C	37.0	0.23	mg/kg	7/30/13	7/30/13
Cadmium	7440-43-9	3050B	6010C	0.48	0.23	mg/kg	7/30/13	7/30/13
Chromium	7440-47-3	3050B	6010C	18.4	0.23	mg/kg	7/30/13	7/30/13
Lead	7439-92-1	3050B	6010C	33.7	0.23	mg/kg	7/30/13	7/30/13
Mercury	7439-97-6	NA	7471B	0.178	0.104	mg/kg	8/1/13	8/1/13
Selenium	7782-49-2	3050B	6010C	ND	0.46	mg/kg	7/30/13	7/30/13
Silver	7440-22-4	3050B	6010C	ND	0.23	mg/kg	7/30/13	7/30/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Case Number: Z0729-20A
 Sample ID: PE-08
 Date collected: 7/29/13
 Matrix: Soil
 Solids, %: 78.17
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	9.14	0.42	mg/kg	7/30/13	7/30/13
Barium	7440-39-3	3050B	6010C	32.0	0.21	mg/kg	7/30/13	7/30/13
Cadmium	7440-43-9	3050B	6010C	0.45	0.21	mg/kg	7/30/13	7/30/13
Chromium	7440-47-3	3050B	6010C	14.2	0.21	mg/kg	7/30/13	7/30/13
Lead	7439-92-1	3050B	6010C	48.5	0.21	mg/kg	7/30/13	7/30/13
Mercury	7439-97-6	NA	7471B	0.163	0.086	mg/kg	8/1/13	8/1/13
Selenium	7782-49-2	3050B	6010C	ND	0.42	mg/kg	7/30/13	7/30/13
Silver	7440-22-4	3050B	6010C	ND	0.21	mg/kg	7/30/13	7/30/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Sample ID: Preparation Blank
 Matrix Soil
 Solids, % 100
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	ND	0.33	mg/kg	7/30/13	7/30/13
Barium	7440-39-3	3050B	6010C	ND	0.17	mg/kg	7/30/13	7/30/13
Cadmium	7440-43-9	3050B	6010C	ND	0.17	mg/kg	7/30/13	7/30/13
Chromium	7440-47-3	3050B	6010C	ND	0.17	mg/kg	7/30/13	7/30/13
Lead	7439-92-1	3050B	6010C	ND	0.17	mg/kg	7/30/13	7/30/13
Mercury	7439-97-6	NA	7471B	ND	0.033	mg/kg	8/1/13	8/1/13
Selenium	7782-49-2	3050B	6010C	ND	0.33	mg/kg	7/30/13	7/30/13
Silver	7440-22-4	3050B	6010C	ND	0.17	mg/kg	7/30/13	7/30/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

LABORATORY CONTROL SAMPLE RECOVERY

Parameter	True Value	Result	Units	Recovery, %	Internal		Date Analyzed
					LCL, %	UCL, %	
Arsenic	13.3	10.7	mg/kg	80	80	108	7/30/13
Barium	66.7	58.0	mg/kg	87	80	112	7/30/13
Cadmium	66.7	53.5	mg/kg	80	80	110	7/30/13
Chromium	66.7	59.5	mg/kg	89	80	114	7/30/13
Lead	66.7	56.9	mg/kg	85	80	114	7/30/13
Mercury	0.133	0.124	mg/kg	93	80	120	8/1/13
Selenium	13.3	11.1	mg/kg	84	80	111	7/30/13
Silver	33.3	32.7	mg/kg	98	80	120	7/30/13

New England Testing Laboratory, Inc.

NEW ENGLAND TESTING LABORATORY, INC.
1254 Douglas Avenue
North Providence, RI 02904
1-888-863-8522

CHAIN OF CUSTODY RECORD

[illegible]

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



REPORT OF ANALYTICAL RESULTS

NETLAB Case Number Z0723-41A

Prepared for:

Cooperstown Environmental
23 Main Street, Terrace Level
Andover, MA 01810

Report Date: August 2, 2013

Lab # RI010

NEW ENGLAND TESTING LABORATORY, INC.

1254 Douglas Avenue, North Providence, RI 02904

(401) 353-3420

MassDEP Analytical Protocol Certification Form

Laboratory Name: New England Testing Laboratory, Inc.

Project #:

Project Location: Salem-Bertram Field

RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
Z0723-41A

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

CAM Protocol (check all that apply below):

8260 VOC CAM II A	7470/7471 Hg CAM III B <input checked="" type="checkbox"/>	MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B	7010 Metals CAM III C	MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A <input checked="" type="checkbox"/>	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	

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

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

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

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
----------	---	--

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

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ¹

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

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

Signature: Richard Warila

Position: Laboratory Director

Printed Name: Richard Warila

Date: 8/2/2013

SAMPLES SUBMITTED and REQUEST FOR ANALYSIS:

The samples listed in Table I were submitted to New England Testing Laboratory on July 23, 2013 and additional analysis was requested July 31, 2013. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is Z0723-41A.

Custody records are included in this report.

Site: Salem – Bertram Field

TABLE I, Samples Submitted

Sample ID	Date Sampled	Matrix	Analysis Requested
PE-01	7/23/13	Soil	Table II
PE-02	7/23/13	Soil	Table II
PE-03	7/23/13	Soil	Table II

TABLE II, Analysis and Methods

ANALYSIS	PREPARATION METHOD	DETERMINATIVE METHOD
Total Metals		
Arsenic	3050B	6010C
Barium	3050B	6010C
Cadmium	3050B	6010C
Chromium	3050B	6010C
Lead	3050B	6010C
Mercury	NA	7471B
Selenium	3050B	6010C
Silver	3050B	6010C

These methods are documented in:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, USEPA/OSW.

CASE NARRATIVE:

Sample Receipt

All samples were found to be properly preserved/cooled upon receipt. All analyses were performed within EPA designated holding-times. Procedure/calibration checks required by the designated protocols were within control limits.

Metals

All analyses were performed according to NETLAB's documented Standard Operating Procedures, within all required holding times, and with appropriate quality control measures. All QC was within laboratory established acceptance criteria. The samples were received, processed, and reported with no anomalies.

METALS RESULTS

The presence of the NETLAB LOGO in the top right corner of each page in this section indicates:

The Technical Manager of the Metals Analysis Department certifies that the results included in this section have been reviewed and approved. Any exceptions or qualifications of substance have been reported in the case narrative.

METALS RESULTS



Case Number: Z0723-41A
 Sample ID: PE-01
 Date collected: 7/23/13
 Matrix: Soil
 Solids, %: 83.72
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	3.46	0.76	mg/kg	7/24/13	7/24/13
Barium	7440-39-3	3050B	6010C	13.1	0.38	mg/kg	7/24/13	7/25/13
Cadmium	7440-43-9	3050B	6010C	ND	0.38	mg/kg	7/24/13	7/25/13
Chromium	7440-47-3	3050B	6010C	7.96	0.38	mg/kg	7/24/13	7/25/13
Lead	7439-92-1	3050B	6010C	14.7	0.38	mg/kg	7/24/13	7/25/13
Mercury	7439-97-6	NA	7471B	ND	0.065	mg/kg	8/1/13	8/1/13
Selenium	7782-49-2	3050B	6010C	ND	0.76	mg/kg	7/24/13	7/25/13
Silver	7440-22-4	3050B	6010C	ND	0.38	mg/kg	7/24/13	7/25/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Case Number: Z0723-41A
 Sample ID: PE-02
 Date collected: 7/23/13
 Matrix: Soil
 Solids, %: 79.87
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	7.26	0.72	mg/kg	7/24/13	7/24/13
Barium	7440-39-3	3050B	6010C	25.6	0.36	mg/kg	7/24/13	7/25/13
Cadmium	7440-43-9	3050B	6010C	ND	0.36	mg/kg	7/24/13	7/25/13
Chromium	7440-47-3	3050B	6010C	18.7	0.36	mg/kg	7/24/13	7/25/13
Lead	7439-92-1	3050B	6010C	17.4	0.36	mg/kg	7/24/13	7/25/13
Mercury	7439-97-6	NA	7471B	ND	0.068	mg/kg	8/1/13	8/1/13
Selenium	7782-49-2	3050B	6010C	ND	0.72	mg/kg	7/24/13	7/25/13
Silver	7440-22-4	3050B	6010C	ND	0.36	mg/kg	7/24/13	7/25/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Case Number: Z0723-41A
 Sample ID: PE-03
 Date collected: 7/23/13
 Matrix: Soil
 Solids, %: 85.72
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	5.71	0.74	mg/kg	7/24/13	7/24/13
Barium	7440-39-3	3050B	6010C	15.2	0.37	mg/kg	7/24/13	7/25/13
Cadmium	7440-43-9	3050B	6010C	ND	0.37	mg/kg	7/24/13	7/25/13
Chromium	7440-47-3	3050B	6010C	8.77	0.37	mg/kg	7/24/13	7/25/13
Lead	7439-92-1	3050B	6010C	11.6	0.37	mg/kg	7/24/13	7/25/13
Mercury	7439-97-6	NA	7471B	0.089	0.081	mg/kg	8/1/13	8/1/13
Selenium	7782-49-2	3050B	6010C	ND	0.74	mg/kg	7/24/13	7/25/13
Silver	7440-22-4	3050B	6010C	ND	0.37	mg/kg	7/24/13	7/25/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

METALS RESULTS



Sample ID: Preparation Blank
 Matrix Soil
 Solids, % 100
 Sample Type: Total

Analyst MM/BD

		Preparative	Analytical		Reporting		Date of	Date
Parameter	CAS Number	Method	Method	Result	Limit	Units	Preparation	Analyzed
Arsenic	7440-38-2	3050B	6010C	ND	0.67	mg/kg	7/24/13	7/24/13
Barium	7440-39-3	3050B	6010C	ND	0.33	mg/kg	7/24/13	7/25/13
Cadmium	7440-43-9	3050B	6010C	ND	0.33	mg/kg	7/24/13	7/25/13
Chromium	7440-47-3	3050B	6010C	ND	0.33	mg/kg	7/24/13	7/25/13
Lead	7439-92-1	3050B	6010C	ND	0.33	mg/kg	7/24/13	7/25/13
Mercury	7439-97-6	NA	7471B	ND	0.067	mg/kg	8/1/13	8/1/13
Selenium	7782-49-2	3050B	6010C	ND	0.67	mg/kg	7/24/13	7/25/13
Silver	7440-22-4	3050B	6010C	ND	0.33	mg/kg	7/24/13	7/25/13

ND indicates Not Detected.

All results are reported on a dry weight basis.

LABORATORY CONTROL SAMPLE RECOVERY

Parameter	True Value	Result	Units	Recovery, %	Internal		Date Analyzed
					LCL, %	UCL, %	
Arsenic	13.3	11.5	mg/kg	87	80	108	7/24/13
Barium	66.7	57.0	mg/kg	86	80	112	7/25/13
Cadmium	66.7	53.7	mg/kg	80	80	110	7/25/13
Chromium	66.7	58.4	mg/kg	88	80	114	7/25/13
Lead	66.7	54.4	mg/kg	82	80	114	7/25/13
Mercury	0.133	0.124	mg/kg	93	80	120	8/1/13
Selenium	13.3	10.8	mg/kg	81	80	111	7/25/13
Silver	33.3	30.1	mg/kg	90	80	120	7/25/13

New England Testing Laboratory, Inc.

NEW ENGLAND TESTING LABORATORY, INC.
1254 Douglas Avenue
North Providence, RI 02904
1-888-863-8522

CHAIN OF CUSTODY RECORD

[illegible]

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

APPENDIX E

**eDEP Transmittal Forms
(BWSC 104 and BWSC 106)**



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC104

RESPONSE ACTION OUTCOME (RAO) STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

Release Tracking Number

3

-

31579

For sites with multiple RTNs, enter the Primary RTN above.

A. SITE LOCATION:

1. Site Name/Location Aid: **BERTRAM ATHLETIC FIELD**
2. Street Address: **29 HIGHLAND AVENUE**
3. City/Town: **SALEM** 4. ZIP Code: **019700000**
- ☐ 5. Check here if a Tier Classification Submittal has been provided to DEP for this disposal site.
- ☐ a. Tier IA ☐ b. Tier IB ☐ c. Tier IC ☐ d. Tier II
6. If a Tier I Permit has been issued, provide Permit Number: _____

4708403

343558

B. THIS FORM IS BEING USED TO: (check all that apply)

1. List Submittal Date of RAO Statement (if previously submitted): _____ mm/dd/yyyy
- ☒ 2. Submit a **Response Action Outcome (RAO) Statement**
- ☐ a. Check here if this RAO Statement covers additional Release Tracking Numbers (RTNs). RTNs that have been previously linked to a Tier Classified Primary RTN do not need to be listed here.
- b. Provide additional Release Tracking Number(s) covered by this RAO Statement. ☐ - ☐ ☐ - ☐
- ☐ 3. Submit a **Revised Response Action Outcome Statement**
- ☐ a. Check here if this Revised RAO Statement covers additional Release Tracking Numbers (RTNs), not listed on the RAO Statement or previously submitted Revised RAO Statements. RTNs that have been previously linked to a Tier Classified Primary RTN do not need to be listed here.
- b. Provide additional Release Tracking Number(s) covered by this RAO Statement. ☐ - ☐ ☐ - ☐
- ☐ 4. Submit a **Response Action Outcome Partial (RAO-P) Statement**
- Check above box, if any Response Actions remain to be taken to address conditions associated with this disposal site having the Primary RTN listed in the header section of this transmittal form. This RAO Statement will record only an RAO-Partial Statement for that RTN. A final RAO Statement will need to be submitted that references all RAO-Partial Statements and, if applicable, covers any remaining conditions not covered by the RAO-Partial Statements.
- Also, specify if you are an Eligible Person or Tenant pursuant to M.G.L. c. 21E s.2, and have no further obligation to conduct response actions on the remaining portion(s) of the disposal site:
- ☐ a. Eligible Person ☐ b. Eligible Tenant
- ☐ 5. Submit an optional **Phase I Completion Statement** supporting an RAO Statement
- ☐ 6. Submit a **Periodic Review Opinion evaluating the status of a Temporary Solution** for a Class C-1 RAO Statement, as specified in 310 CMR 40.1051 (Section F is optional)
- ☐ 7. Submit a **Retraction** of a previously submitted **Response Action Outcome Statement** (Sections E & F are not required)

(All sections of this transmittal form must be filled out unless otherwise noted above)



RESPONSE ACTION OUTCOME (RAO) STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

Release Tracking Number

3 - **31579**

C. DESCRIPTION OF RESPONSE ACTIONS: (check all that apply; for volumes, list cumulative amounts)

- | | |
|--|---|
| <input type="checkbox"/> 1. Assessment and/or Monitoring Only | <input type="checkbox"/> 2. Temporary Covers or Caps |
| <input type="checkbox"/> 3. Deployment of Absorbent or Containment Materials | <input type="checkbox"/> 4. Treatment of Water Supplies |
| <input type="checkbox"/> 5. Structure Venting System | <input type="checkbox"/> 6. Engineered Barrier |
| <input type="checkbox"/> 7. Product or NAPL Recovery | <input type="checkbox"/> 8. Fencing and Sign Posting |
| <input type="checkbox"/> 9. Groundwater Treatment Systems | <input type="checkbox"/> 10. Soil Vapor Extraction |
| <input type="checkbox"/> 11. Bioremediation | <input type="checkbox"/> 12. Air Sparging |
| <input type="checkbox"/> 13. Monitored Natural Attenuation | <input type="checkbox"/> 14. In-situ Chemical Oxidation |

☒ 15. Removal of Contaminated Soils

☒ a. Re-use, Recycling or Treatment ☐ i. On Site Estimated volume in cubic yards _____

☒ ii. Off Site Estimated volume in cubic yards **2012**

ii.a. Facility Name: **CRS** Town: **SCARBOROUGH** State: **ME**

ii.b. Facility Name: _____ Town: _____ State: _____

iii. Describe: _____

☒ b. Landfill

☒ i. Cover Estimated volume in cubic yards **4061**

Facility Name: **GREENWOOD ST LANDFILL** Town: **WORCESTER** State: **MA**

☐ ii. Disposal Estimated volume in cubic yards _____

Facility Name: _____ Town: _____ State: _____

☐ 16. Removal of Drums, Tanks or Containers:

a. Describe Quantity and Amount: _____

b. Facility Name: _____ Town: _____ State: _____

c. Facility Name: _____ Town: _____ State: _____

☐ 17. Removal of Other Contaminated Media:

a. Specify Type and Volume: _____

b. Facility Name: _____ Town: _____ State: _____

c. Facility Name: _____ Town: _____ State: _____



RESPONSE ACTION OUTCOME (RAO) STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

Release Tracking Number

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31579

C. DESCRIPTION OF RESPONSE ACTIONS (cont.): (check all that apply; for volumes, list cumulative amounts)

☐ 18. Other Response Actions:

Describe: _____

☐ 19. Use of Innovative Technologies:

Describe: _____

D. SITE USE:

1. Are the response actions that are the subject of this submittal associated with the *redevelopment*, *reuse* or the *major expansion of the current use* of property(ies) impacted by the presence of oil and/or hazardous materials?

☒ a. Yes ☐ b. No ☐ c. Don't know

2. Is the property a *vacant or under-utilized commercial or industrial* property ("a brownfield property")?

☐ a. Yes ☒ b. No ☐ c. Don't know

3. Will funds from a state or federal brownfield incentive program be used on one or more of the property(ies) within the disposal site?

☐ a. Yes ☒ b. No ☐ c. Don't know If Yes, identify program(s): _____

4. Has a Covenant Not to Sue been obtained or sought?

☐ a. Yes ☒ b. No ☐ c. Don't know

5. Check all applicable categories that apply to the person making this submittal: ☐ a. Redevelopment Agency or Authority

☐ b. Community Development Corporation ☐ c. Economic Development and Industrial Corporation

☐ d. Private Developer ☐ e. Fiduciary ☐ f. Secured Lender ☒ g. Municipality

☐ h. Potential Buyer (non-owner) ☐ i. Other, describe: _____

This data will be used by MassDEP for information purposes only, and does not represent or create any legal commitment, obligation or liability on the part of the party or person providing this data to MassDEP.

E. RESPONSE ACTION OUTCOME CLASS:

Specify the Class of Response Action Outcome that applies to the disposal site, or site of the Threat of Release.

Select **ONLY** one Class.

☒ 1. **Class A-1 RAO:** Specify one of the following:

☒ a. Contamination has been reduced to background levels. ☐ b. A Threat of Release has been eliminated.

☐ 2. **Class A-2 RAO:** You **MUST** provide justification that reducing contamination to or approaching background levels is infeasible.

☐ 3. **Class A-3 RAO:** You **MUST** provide an implemented Activity and Use Limitation (AUL) and justification that reducing contamination to or approaching background levels is infeasible.

☐ 4. **Class A-4 RAO:** You **MUST** provide an implemented AUL, justification that reducing contamination to or approaching background levels is infeasible, and justification that reducing contamination to less than Upper Concentration Limits (UCLs) 15 feet below ground surface or below an Engineered Barrier is infeasible. If the Permanent Solution relies upon an Engineered Barrier, you must provide or have previously provided a Phase III Remedial Action Plan that justifies the selection of the Engineered Barrier.



RESPONSE ACTION OUTCOME (RAO) STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

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E. RESPONSE ACTION OUTCOME CLASS (cont.):

☐ **5. Class B-1 RAO: Specify one of the following:**

- ☐ a. Contamination is consistent with background levels ☐ b. Contamination is **NOT** consistent with background levels.

☐ **6. Class B-2 RAO:** You **MUST** provide an implemented AUL.

☐ **7. Class B-3 RAO:** You **MUST** provide an implemented AUL and justification that reducing contamination to less than Upper Concentration Limits (UCLs) 15 feet below ground surface is infeasible.

☒ **8. Class C-1 RAO:** You must submit a plan as specified at 310 CMR 40.0861(2)(h). Indicate type of ongoing response actions.

☐ a. Active Remedial System ☐ b. Active Remedial Monitoring Program ☐ c. None

☐ d. Other Specify: _____

☐ **9. Class C-2 RAO:** You must hold a valid Tier I Permit or Tier II Classification to continue response actions toward a Permanent Solution.

F. RESPONSE ACTION OUTCOME INFORMATION:

1. Specify the Risk Characterization Method(s) used to achieve the RAO described above:

- ☒ a. Method 1 ☐ b. Method 2 ☐ c. Method 3
☐ d. Method Not Applicable-Contamination reduced to or consistent with background, or Threat of Release abated

2. Specify all Soil Category(ies) applicable. More than one Soil Category may apply at a Site. Be sure to check off all **APPLICABLE** categories:

- ☐ a. S-1/GW-1 ☐ d. S-2/GW-1 ☐ g. S-3/GW-1
☒ b. S-1/GW-2 ☐ e. S-2/GW-2 ☐ h. S-3/GW-2
☒ c. S-1/GW-3 ☐ f. S-2/GW-3 ☐ i. S-3/GW-3

3. Specify all Groundwater Category(ies) impacted. A site may impact more than one Groundwater Category. Be sure to check off all **IMPACTED** categories:

- ☐ a. GW-1 ☐ b. GW-2 ☐ c. GW-3 ☒ d. No Groundwater Impacted

4. Specify remediation conducted:

- ☒ a. Check here if soil remediation was conducted.
☐ b. Check here if groundwater remediation was conducted.

5. Specify whether the analytical data used to support the Response Action Outcome was generated pursuant to the Department's Compendium of Analytical Methods (CAM) and 310 CMR 40.1056:

- ☒ a. CAM used to support all analytical data. ☐ b. CAM used to support some of the analytical data.
☐ c. CAM not used.

☒ 6. Check here to certify that the Class A, B or C Response Action Outcome includes a Data Usability Assessment and Data Representativeness Evaluation pursuant to 310 CMR 40.1056.

7. Estimate the number of acres this RAO Statement applies to: 2.1



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC104

RESPONSE ACTION OUTCOME (RAO) STATEMENT

Release Tracking Number

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Pursuant to 310 CMR 40.1000 (Subpart J)

G. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> if Section B indicates that either an **RAO Statement, Phase I Completion Statement and/or Periodic Review Opinion** is being provided, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 1548

2. First Name: JAMES T

3. Last Name: CURTIS

4. Telephone: 9784704755

5. Ext.:

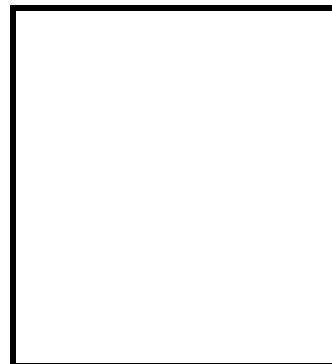
6. FAX: 9784704756

7. Signature:

8. Date:

mm/dd/yyyy

9. LSP Stamp:



H. PERSON MAKING SUBMITTAL:

1. Check all that apply: ☒ a. change in contact name ☐ b. change of address ☐ c. change in the person undertaking response actions

2. Name of Organization: CITY OF SALEM

3. Contact First Name: TOM

4. Last Name: DEVINE

5. Street: 120 WASHINGTON STREET 3RD FLOOR

6. Title:

7. City/Town: SALEM

8. State: MA

9. ZIP Code: 019700000

10. Telephone: 9786195682

11. Ext.:

12. FAX: 9784700404



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC104

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I. RELATIONSHIP TO RELEASE OR THREAT OF RELEASE OF PERSON MAKING SUBMITTAL:

☒ 1. RP or PRP ☐ a. Owner ☐ b. Operator ☐ c. Generator ☐ d. Transporter

☒ e. Other RP or PRP Specify: **NON-SPECIFIED PRP**

☐ 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

☐ 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

☐ 4. Any Other Person Making Submittal Specify Relationship: _____

J. REQUIRED ATTACHMENT AND SUBMITTALS:

☐ 1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

☐ 2. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of an RAO Statement that relies on the public way/rail right-of-way exemption from the requirements of an AUL.

☒ 3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of a RAO Statement with instructions on how to obtain a full copy of the report.

☒ 4. Check here to certify that documentation is attached specifying the location of the Site, or the location and boundaries of the Disposal Site subject to this RAO Statement. If submitting an RAO Statement for a PORTION of a Disposal Site, you must document the location and boundaries for both the portion subject to this submittal and, to the extent defined, the entire Disposal Site.

☐ 5. Check here to certify that, pursuant to 310 CMR 40.1406, notice was provided to the owner(s) of each property within the disposal site boundaries, or notice was not required because the disposal site boundaries are limited to property owned by the party conducting response actions. (check all that apply)

☐ a. Notice was provided prior to, or concurrent with the submittal of a Phase II Completion Statement to the Department.

☐ b. Notice was provided prior to, or concurrent with the submittal of this RAO Statement to the Department.

☐ c. Notice not required. d. Total number of property owners notified, if applicable: _____

☐ 6. Check here if required to submit one or more AULs. You must submit an AUL Transmittal Form (BWSC113) and a copy of each implemented AUL related to this RAO Statement. Specify the type of AUL(s) below: (required for Class A-3, A-4, B-2, B-3 RAO Statements)

☐ a. Notice of Activity and Use Limitation b. Number of Notices submitted: _____

☐ c. Grant of Environmental Restriction d. Number of Grants submitted: _____

☐ 7. If an RAO Compliance Fee is required for any of the RTNs listed on this transmittal form, check here to certify that an RAO Compliance Fee was submitted to DEP, P. O. Box 4062, Boston, MA 02211.

☐ 8. Check here if any non-updatable information provided on this form is incorrect, e.g. Site Address/Location Aid. Send corrections to the DEP Regional Office.

☒ 9. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC104

RESPONSE ACTION OUTCOME (RAO) STATEMENT

Pursuant to 310 CMR 40.1000 (Subpart J)

Release Tracking Number

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31579

K. CERTIFICATION OF PERSON MAKING SUBMITTAL:

1. I, , attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By:
Signature

3. Title:

4. For:
(Name of person or entity recorded in Section H)

5. Date:
mm/dd/yyyy

☐ 6. Check here if the address of the person providing certification is different from address recorded in Section H.

7. Street: _____

8. City/Town: _____ 9. State: _____ 10. ZIP Code: _____

11. Telephone: _____ 12. Ext.: _____ 13. FAX: _____

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (DEP USE ONLY:)



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC106

**RELEASE ABATEMENT MEASURE (RAM)
TRANSMITTAL FORM**

Release Tracking Number

3

-

31579

Pursuant to 310 CMR 40.0444 - 0446 (Subpart D)

A. SITE LOCATION:

1. Site Name/Location Aid: **BERTRAM ATHLETIC FIELD**
2. Street Address: **29 HIGHLAND AVENUE**
3. City/Town: **SALEM** 4. ZIP Code: **01970-0000**
5. UTM Coordinates: a. UTM N: **4708399** b. UTM E: **343558**
- ☐ 6. Check here if a Tier Classification Submittal has been provided to DEP for this disposal site.
☐ a. Tier IA ☐ b. Tier IB ☐ c. Tier IC ☐ d. Tier II
7. If a Tier I Permit has been issued, provide Permit Number:

B. THIS FORM IS BEING USED TO: (check all that apply)

1. List Submittal Date of Initial RAM Plan (if previously submitted): **06/24/2013**
(mm/dd/yyyy)
- ☐ 2. Submit an **Initial Release Abatement Measure (RAM) Plan**.
a. Check here if the RAM is being conducted as part of the construction of a permanent structure. If checked, you must specify what type of permanent structure is to be erected in or in the immediate vicinity of the area where the RAM is to be conducted.
☐ b. Specify type of permanent structure: (check all that apply) ☐ i. School ☐ ii. Residential ☐ iii. Commercial
☐ iv. Industrial ☐ v. Other Specify: _____
- ☐ 3. Submit a **Modified RAM Plan** of a previously submitted RAM Plan.
- ☐ 4. Submit a **RAM Status Report**.
- ☐ 5. Submit a **Remedial Monitoring Report**. (This report can only be submitted through eDEP, concurrent with a RAM Status Report.)
a. Type of Report: (check one) ☐ i. Initial Report ☐ ii. Interim Report ☐ iii. Final Report
b. Number of Remedial Systems and/or Monitoring Programs: _____
- A separate BWSC106A, RAM Remedial Monitoring Report, must be filled out for each Remedial System and/or Monitoring Program addressed by this transmittal form.
- ☒ 6. Submit a **RAM Completion Statement**.
- ☐ 7. Submit a **Revised RAM Completion Statement**.
8. Provide Additional RTNs:

- ☐ a. Check here if this RAM Submittal covers additional Release Tracking Numbers (RTNs). RTNs that have been previously linked to a Primary Tier Classified RTN do not need to be listed here. This section is intended to allow a RAM to cover more than one unclassified RTN and not show permanent linkage to a Primary Tier Classified RTN.
- b. Provide the additional Release Tracking Number(s) covered by this RAM Submittal. - -

(All sections of this transmittal form must be filled out unless otherwise noted above)



**RELEASE ABATEMENT MEASURE (RAM)
TRANSMITTAL FORM**

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Pursuant to 310 CMR 40.0444 - 0446 (Subpart D)

C. RELEASE OR THREAT OF RELEASE CONDITIONS THAT WARRANT RAM:

1. Identify Media Impacted and Receptors Affected: (check all that apply)

- ☐ a. Air ☐ b. Basement ☐ c. Critical Exposure Pathway ☐ d. Groundwater ☐ e. Residence
☐ f. Paved Surface ☐ g. Private Well ☐ h. Public Water Supply ☐ i. School ☐ j. Sediments
☒ k. Soil ☐ l. Storm Drain ☐ m. Surface Water ☐ n. Unknown ☐ o. Wetland ☐ p. Zone 2
☐ q. Others Specify:

2. Identify all sources of the Release or Threat of Release, if known: (check all that apply)

- ☐ a. Above-ground Storage Tank (AST) ☐ b. Boat/Vessel ☐ c. Drums ☐ d. Fuel Tank
☐ e. Pipe/Hose/Line ☐ f. Tanker Truck ☐ g. Transformer ☐ h. Under-ground Storage Tank (UST)
☐ i. Vehicle ☒ j. Others Specify:

3. Identify Oils and Hazardous Materials Released: (check all that apply)

- ☐ a. Oils ☐ b. Chlorinated Solvents ☒ c. Heavy Metals
☐ d. Others Specify:

D. DESCRIPTION OF RESPONSE ACTIONS: (check all that apply, for volumes list cumulative amounts)

- | | |
|--|---|
| <input type="checkbox"/> 1. Assessment and/or Monitoring Only | <input type="checkbox"/> 2. Temporary Covers or Caps |
| <input type="checkbox"/> 3. Deployment of Absorbent or Containment Materials | <input type="checkbox"/> 4. Temporary Water Supplies |
| <input type="checkbox"/> 5. Structure Venting System | <input type="checkbox"/> 6. Temporary Evacuation or Relocation of Residents |
| <input type="checkbox"/> 7. Product or NAPL Recovery | <input type="checkbox"/> 8. Fencing and Sign Posting |
| <input type="checkbox"/> 9. Groundwater Treatment Systems | <input type="checkbox"/> 10. Soil Vapor Extraction |
| <input type="checkbox"/> 11. Bioremediation | <input type="checkbox"/> 12. Air Sparging |



Massachusetts Department of Environmental Protection
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**RELEASE ABATEMENT MEASURE (RAM)
TRANSMITTAL FORM**

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Pursuant to 310 CMR 40.0444 - 0446 (Subpart D)

D. DESCRIPTION OF RESPONSE ACTIONS (cont.): (check all that apply, for volumes list cumulative amounts)

☒ **13. Excavation of Contaminated Soils**

☒ a. Re-use, Recycling or Treatment

☐ i. On Site Estimated volume in cubic yards

☒ ii. Off Site Estimated volume in cubic yards

2012

ii.a. Receiving Facility: **CRS** Town: **SCARBOROUGH** State: **ME**

ii.b. Receiving Facility: Town: State:

iii. Describe:

☐ b. Store

☐ i. On Site Estimated volume in cubic yards

☐ ii. Off Site Estimated volume in cubic yards

ii.a. Receiving Facility: Town: State:

ii.b. Receiving Facility: Town: State:

☒ c. Landfill

☒ i. Cover Estimated volume in cubic yards

4061

Receiving Facility: **GREENWOOD ST LANDFILL** Town: **WORCESTER** State: **MA**

☐ ii. Disposal Estimated volume in cubic yards

Receiving Facility: Town: State:

☐ **14. Removal of Drums, Tanks or Containers:**

a. Describe Quantity and Amount:

b. Receiving Facility: Town: State:

c. Receiving Facility: Town: State:

☐ **15. Removal of Other Contaminated Media:**

a. Specify Type and Volume:

b. Receiving Facility: Town: State:

c. Receiving Facility: Town: State:

☐ **16. Other Response Actions:**

Describe:

☐ **17. Use of Innovative Technologies:**

Describe:



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

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RELEASE ABATEMENT MEASURE (RAM)
TRANSMITTAL FORM

Release Tracking Number

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- 31579

Pursuant to 310 CMR 40.0444 - 0446 (Subpart D)

E. LSP SIGNATURE AND STAMP :

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> if Section B of this form indicates that a **Release Abatement Measure Plan** is being submitted, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that a **Release Abatement Measure Status Report** and/or **Remedial Monitoring Report** is being submitted, the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that a **Release Abatement Measure Completion Statement** is being submitted, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal:

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 1548

2. First Name: JAMES T

3. Last Name: CURTIS

4. Telephone: (978) 470-4755

5. Ext.:

6. FAX: (978) 470-4756

7. Signature:

8. Date:

(mm/dd/yyyy)

9. LSP Stamp:



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC106

**RELEASE ABATEMENT MEASURE (RAM)
TRANSMITTAL FORM**

Release Tracking Number

3

- **31579**

Pursuant to 310 CMR 40.0444 - 0446 (Subpart D)

F. PERSON UNDERTAKING RAM:

1. Check all that apply: ☒ a. change in contact name ☐ b. change of address ☐ c. change in the person undertaking response actions
2. Name of Organization: **CITY OF SALEM**
3. Contact First Name: **TOM** 4. Last Name: **DEVINE**
5. Street: **120 WASHINGTON STREET 3RD FLOOR** 6. Title:
7. City/Town: **SALEM** 8. State: **MA** 9. ZIP Code: **01970-0000**
10. Telephone: **(978) 619-5682** 11. Ext.: 12. FAX: **(978) 740-0404**

G. RELATIONSHIP TO RELEASE OR THREAT OF RELEASE OF PERSON UNDERTAKING RAM:

- ☒ 1. RP or PRP ☐ a. Owner ☐ b. Operator ☐ c. Generator ☐ d. Transporter
- ☒ e. Other RP or PRP Specify: **NON-SPECIFIED PRP** +

- ☐ 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)
- ☐ 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))
- ☐ 4. Any Other Person Undertaking RAM Specify Relationship:

H. REQUIRED ATTACHMENT AND SUBMITTALS:

- ☐ 1. Check here if any Remediation Waste, generated as a result of this RAM, will be stored, treated, managed, recycled or reused at the site following submission of the RAM Completion Statement. You must submit a Phase IV Remedy Implementation Plan along with the appropriate transmittal form (BWSC108).
- ☐ 2. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.
- ☒ 3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the implementation of a Release Abatement Measure.
- ☐ 4. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to the DEP Regional Office.
- ☐ 5. If a RAM Compliance Fee is required for this RAM, check here to certify that a RAM Compliance Fee was submitted to DEP, P. O. Box 4062, Boston, MA 02211.
- ☒ 6. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC106

**RELEASE ABATEMENT MEASURE (RAM)
TRANSMITTAL FORM**

Release Tracking Number

3

-

31579

Pursuant to 310 CMR 40.0444 - 0446 (Subpart D)

I. CERTIFICATION OF PERSON UNDERTAKING RAM:

1. I, , attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By:

Signature

3. Title:

4. For:

CITY OF SALEM

(Name of person or entity recorded in Section F)

5. Date:

(mm/dd/yyyy)

☐ 6. Check here if the address of the person providing certification is different from address recorded in Section F.

7. Street:

8. City/Town:

9. State:

10. ZIP Code:

11. Telephone:

12. Ext.:

13. FAX:

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (DEP USE ONLY:)

APPENDIX F

Public Notification Letters

September 12, 2013

Mayor Kimberley Driscoll
Salem City Hall
93 Washington Street
Salem, MA 01970

Re: MCP Public Notice – Implementation of a Release Abatement Measure (RAM)
Bertram Field Renovation
Salem, Massachusetts
RTN 3-31579

Dear Ms. Driscoll:

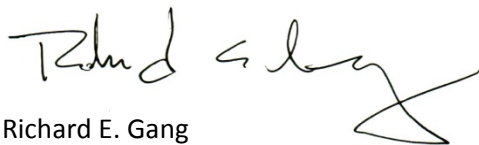
The Massachusetts Contingency Plan (MCP) at 310 CMR 40.1403(3)(f) requires that the Chief Municipal Officer and the Department of Public Health be notified of the availability of a Release Action Outcome (RAO) Statement for sites in their community, as well as of the results of the RAO Statement.

In accordance with those provisions, please be aware that the City of Salem has submitted a Class A-1 RAO Statement in relation to the referenced disposal site in Salem, and response actions have achieved a condition of No Significant Risk.

Should you wish to receive a copy of the RAO Statement, please contact the Massachusetts Department of Environmental Protection (DEP), Northeast Regional Office in Wilmington at (978) 694-3200. MassDEP also maintains an online File Viewer where all reports can be reviewed using the RTN listed above.

Please feel free to contact me at (978) 470-4755 if you would like to discuss this matter.

Very sincerely yours,
Cooperstown Environmental LLC



Richard E. Gang
Senior Vice President

CC: Tom Devine, City of Salem

September 12, 2013

Larry Ramdin, RS/REHS, CHO, CP-FS
Health Agent, City of Salem
120 Washington Street (4th Floor)
Salem, MA 01970

Re: MCP Public Notice – Release Action Outcome (RAO) Statement
Bertram Field Renovation
Salem, Massachusetts
RTN 3-31579

Dear Mr. Ramdin:

The Massachusetts Contingency Plan (MCP) at 310 CMR 40.1403(3)(f) requires that the Chief Municipal Officer and the Department of Public Health be notified of the availability of a Release Action Outcome (RAO) Statement for sites in their community, as well as of the results of the RAO Statement.


In accordance with those provisions, please be aware that the City of Salem has submitted a Class A-1 RAO Statement in relation to the referenced disposal site in Salem, and response actions have achieved a condition of No Significant Risk.

Should you wish to receive a copy of the RAO Statement, please contact the Massachusetts Department of Environmental Protection (DEP), Northeast Regional Office in Wilmington at (978) 694-3200. MassDEP also maintains an online File Viewer where all reports can be reviewed using the RTN listed above.

Please feel free to contact me at (978) 470-4755 if you would like to discuss this matter.

Very sincerely yours,

Cooperstown Environmental LLC



Richard E. Gang
Senior Vice President

CC: Tom Devine, City of Salem

APPENDIX G

Delegation of Signing Authority



CITY OF SALEM, MASSACHUSETTS

DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT

KIMBERLEY DRISCOLL
MAYOR

LYNN GOONIN DUNCAN, AICP
DIRECTOR

120 WASHINGTON STREET ♦ SALEM, MASSACHUSETTS 01970
TELE: 978-619-5685 ♦ FAX: 978-740-0404

June 5, 2013

Mr. James T. Curtis, P.E., LSP
President
Cooperstown Environmental LLC
23 Main Street
Andover, Massachusetts 01810

RE: Delegation of Signing Authority
MCP Submittals via eDEP
City of Salem Bertram Athletic Field, RTN 3-31579

Dear Mr. Curtis:

This letter documents the City of Salem's decision to allow you, as the Licensed Site Professional (LSP) of Record for the Bertram Field Renovation project, to submit electronic deliverables to the Massachusetts Department of Environmental Protection (DEP) using "eDEP" on the City's behalf.

Specifically, you are allowed to electronically "sign" these submittals on behalf of me (in addition to signing as the LSP) after being directed to do so following my review and approval of each document to be submitted.

You may rely on this letter and provide copy of it to DEP should you be asked to demonstrate our agreement with this arrangement.

Sincerely,

Tom Devine
Conservation Agent/Staff Planner