Mallinckrodt US LLC

October 7, 2016

Mr. Chris Swain
Bureau of Remediation and Waste Management
Maine Department of Environmental Protection
17 State House Station
Augusta ME 04333

Subject: **Landfill 2 Corrective Measures Implementation Plan – Revision 1**
Orrington Remediation Site
Orrington, Maine

Dear Mr. Swain:

Please find enclosed the **Landfill 2 Corrective Measures Implementation (CMI) Plan – Revision 1** for the Orrington Remediation Site. This CMI Plan includes a summary of the pre-design activities and a comparison of results to the Media Protection Standards (MPS) in Sections 1 & 2. The Design Objectives are outlined in Section 3, and the Corrective Measures Implementation components are described in detail in Section 4. Permitting issues and the schedule are addressed in Sections 5 and 6. The pre-design data, including analytical reports, are included in Appendices A - E. Drawings and Specifications are included in Appendices F & G, the Construction Quality Assurance (CQA) Plan is in Appendix H, design calculations are in Appendix I and the Soil Use Plan is in Appendix J. The Remediation Contractor's Excavation and Restoration Plan and Construction Water Management Plan are included in Appendix K.

This CMI Plan, including the final Drawings and Contractor Work Plans, has been revised in accordance with the Maine DEP's written comments dated May 26, the Response to Comments submitted July 29, and the Maine DEP's final comments dated September 12, 2016. Various discussions with the Maine DEP regarding specific components of the CMI Plan were also held during this time.

The confirmation sampling plan included on Drawing 9 of this CMI Plan – Revision 1 is the result of collaborative discussions between Mallinckrodt and the Department and is consistent with the figure included in the Maine DEP's comment letter dated September 26. The Contractor Work Plans have also been revised to address Maine DEP's comments from the September 12 comment letter. The conditions in the Maine DEP letter have been met and incorporated into the revised CMI Plan. We appreciate your review of the draft documents and the collaborative discussions that have resulted in this final plan. As noted in the Section 6 of this CMI Plan – Revision 1, we would appreciate your approval of this revised CMI Plan by October 31. If you have questions or comments, please don't hesitate to contact me at 314-281-5947.

Sincerely,

Kathy Zeigler

Kathy Zeigler
Remediation Program Manager

cc: Chris Greene, Geosyntec
John Weston, CDM Smith
Pat Duft, Mallinckrodt US LLC
Susanne Miller, DEP-Bangor

PROFESSIONAL ENGINEER CERTIFICATION

The design set forth in the Landfill 2 Corrective Measures Implementation Plan (CMI Plan), Revision 1, dated October 7, 2016 was prepared under the direction of a Professional Engineer licensed in the State of Maine (i.e., a Maine PE). Work Plans prepared by the Remediation Contractor and included as attachments to the CMI Plan have been reviewed under the direction of a Maine PE for compliance with the design requirements set forth in the CMI Plan.

October 7 2016

Signature	Date	Stamp

CMI PLAN

Landfill 2
Corrective Measures Implementation (CMI) Plan

Revision 1

Orrington Remediation Site

Orrington, Maine

Prepared by:

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Mallinckrodt US LLC

October 2016

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Acronyms

ASTM	American Society of Testing Materials
BEP	Board of Environmental Protection
bgs	below ground surface
BMP	best management practice
CDM	Camp Dresser & McKee
CDM Smith	CDM Smith, Inc.
CMI	Corrective Measures Implementation
COC	Contaminant of Concern
CQA	Construction Quality Assurance
DEP	Department of Environmental Protection
DMA	Direct Mercury Analyzer
ESC	Erosion and Stormwater Control
ft	feet
Geosyntec	Geosyntec Consultants, Inc.
GWTP	Groundwater Treatment Plant
HASP	Health and Safety Plan
LF2	Landfill 2
Mallinckrodt	Mallinckrodt US LLC
MDIFW	Maine Department of Inland Fisheries and Wildlife
mg/kg	milligrams per kilogram
MPS	Media Protection Standard
NRPA	Natural Resources Protection Act
Order	Board of Environmental Protection Order
Oz	ounce
PCB	polychlorinated biphenyl
PM_{10}	Particulate Matter
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
RAGs	Remediation Action Guidelines
SB	Soil Boring
SC	clayey sand
Site	Orrington Remediation Site
SM	silty sand

SP-SM	poorly graded silty sand
SPT	standard penetration test
sq.	square
SY	square yard
SW-SM	well graded silty sand
SVOC	semivolatile organic compound
TCLP	toxicity characteristic leaching procedure
USCS	United Soil Classification System
USFWS	United States Fisheries and Wildlife Service
VOC	volatile organic compound
XRF	X-Ray Fluorescence

Section 1.
Introduction

1.1 Purpose

This Landfill 2 Area Corrective Measures Implementation (CMI) Plan was prepared by CDM Smith Inc. (CDM Smith) and Geosyntec Consultants, Inc. (Geosyntec) on behalf of Mallinckrodt US LLC (Mallinckrodt). The purpose of this CMI Plan is to present the corrective measures to support soil remediation of the Landfill 2 Area at the Orrington Remediation Site (Site) located at 99 Industrial Way, Orrington, Maine. **Figure 1-1** is a Site Plan. The CMI Plan presents the results of the pre-design investigation, a narrative description of the remedial objectives and planned implementation, design drawings, and specifications to implement the remedial activity.

The Landfill 2 Area will be remediated in accordance with the Board of Environmental Protection (BEP) Order (the Order) effective April 3, 2014 which incorporates, with modifications, the Compliance Order issued by the Maine Department of Environmental Protection (DEP) dated November 24, 2008. The Order states that corrective measures will include at a minimum excavation and removal of soil exceeding the Media Protection Standards (MPS). Note that the restoration of the Southerly Stream will be presented in the Southerly Stream CMI Plan.

Subsequent sections describe the results of the Landfill 2 Area pre-design study, objectives and components of the CMI. Additional details describing the field sampling methods, analytical methods, health and safety procedures, and quality assurance/quality control (QA/QC) procedures have been provided in the Health and Safety Plan (HASP) (CDM Smith 2014a) and Quality Assurance Project Plan (QAPP) (CDM Smith, 2015a).

1.2 Report Organization

The Landfill 2 CMI Plan presents the geotechnical and analytical data collected to support the remedial design, followed by a description of the remedial design process. Analytical and geotechnical data was collected to support remedial design in the Landfill 2 Area in accordance with the Landfills Phase I Pre-Design Work Plan (CDM Smith, 2014b) and the Landfills Phase II Pre-Design Work Plan (CDM Smith, 2015b). A summary of the collection and results of these supporting data sets are presented in Section 2.

The remedial design objectives, based on the Order, are described in Section 3. The components of the remedial design that will be implemented to meet the remedial design objectives as well as the material transportation and disposal logistics are included in Section 4. The permitting requirements are presented in Section 5, and the anticipated schedule of CMI activities is presented in Section 6.

Section 2.
Summary of the Landfill 2 Pre-Design Results

The following section presents a summary of the results of the Phase I and Phase II pre-design activities completed at Landfill 2 and the adjacent portion of the Southerly Stream. Analytical and geotechnical pre-design activities were completed in accordance with the Revised Landfills 1 & 2 Phase I Pre-Design Work Plan (Revised Phase I WP) (CDM Smith, 2014b), Revised Landfills 1 & 2 Phase II Pre-Design Work Plan (Revised Phase II WP) (CDM Smith, 2015b), and the Revised Plant Areas Pre-Design Work Plan (CDM Smith, 2015c). Letters of Conditional Approval for the Revised Phase I WP and Revised Phase II WP were received from Maine DEP on December 12, 2014 and June 16, 2015, respectively. An e-mail approving the initial Southerly Stream Pre-Design activities was received from Maine DEP on July 23, 2015. Numerous e-mails approving step-out borings associated with these pre-design investigations were sent to the Maine DEP for review and approval.

2.1 Analytical Results

A total of 71 soil borings were advanced at Landfill 2 during Phase I and Phase II pre-design activities. Eleven soil borings were advanced on December 17, 2014 and December 18, 2014, as part of Phase I pre-design activities. Sixty additional soil borings were advanced at Landfill 2 between June 16, 2015 and November 4, 2015 as part of the Phase II pre-design activities, eleven supplemental soil borings were advanced in April 2016, and one supplemental boring was advanced in September 2016. Additionally, nine transects in the Southerly Stream (TS-SS-A through TS-SS- I) comprised of 28 soil borings were advanced adjacent to the northwestern extent of Landfill 2 between August 3, 2015 and August 25, 2015. The soil borings at Landfill 2 were advanced using a track mounted Geoprobe/7822DT and the transect borings in the Southerly Stream were completed with the use of a hand probe. On December 15, 2014 and December 17, 2014, two test pits (TP-LF2-01 and TP-LF2-02) were also completed at Landfill 2 using a John Deere 75D excavator. The locations of the Geoprobe soil borings, test pits, and transects are shown on **Figure 2-1**. The Revised Phase II WP proposed 30 original soil borings (SB-LF2-12 through SB-LF2-41) with possible step-out soil borings where mercury concentrations in perimeter borings were above 2.2 milligrams per kilogram (mg/kg). Thirty step-out borings (SB-SMY-42 through SB-SMY-71) were performed with Maine DEP approval at the locations shown on **Figure 2-1.** Supplemental borings were performed adjacent to original boring locations when additional information or samples were needed. A letter (e.g. A, B, C, etc. in alphabetical order) was added to the end of the soil boring label to identify the supplemental borings (e.g. SB-LF2-24A). A list of the soil borings and the purpose of each supplemental boring is presented in **Table 2-1**.

Table 2-1: Supplemental Borings in Landfill 2 Area

Boring ID	A	B	C	D
SB-LF2-15	--	Hg[8]	Hg[7]	Hg[4]
SB-LF2-17	--	VOCs	--	--
SB-LF2-23	--	Hg[7]	Hg[4]	--
SB-LF2-24	VOCs[5]	Hg[7]/VOCs[5]	Hg[4]	--
SB-LF2-25	Hg[4]	--	--	--
SB-LF2-26	--	VOCs	Hg[4]	Hg[4]
SB-LF2-28	--	Hg[2]/VOCs	Hg[4]	--
SB-LF2-29	--	--	--	--

Boring ID	A	B	C	D
SB-LF2-30	--	VOCs	--	--
SB-LF2-32	--	VOCs	Hg[4]	--
SB-LF2-35	--	VOCs	Hg[4]	--
SB-LF2-36	Hg[4]	--	--	--
SB-LF2-41	VOCs	--	--	--
SB-LF2-43	Hg[4]	--	--	--
SB-LF2-48	VOCs[5]	--	--	--
SB-LF2-50	VOCs	--	--	--
SB-LF2-51	VOCs	--	--	--
SB-LF2-54	VOCs	--	--	--
SB-LF2-55	VOCs[5]	--	--	--
SB-LF2-56	VOCs	--	--	--
SB-LF2-57	Hg[2]	VOCs	Hg[4]	--
SB-LF2-58	VOCs	--	--	--
SB-LF2-59	VOCs	--	--	--
SB-LF2-60	VOCs[6]	VOCs[5]	--	--
SB-LF2-64	VOCs[5]	--	--	--
SB-LF2-65	VOCs[5]	--	--	--
SB-LF2-67	VOCs[5]	--	--	--
SB-LF2-68	VOCs[5]	--	--	--
SB-LF2-69	VOCs[5]	--	--	--
SB-LF2-70	VOCs[5]	--	--	--
TS-SS-I1	Hg[1]/VOCs	--	--	--

Notes:

1 Boring resampled deeper at original location to delineate Hg
2 Boring resampled for Hg at discrete interval due to insufficient recovery in original boring
3 Boring sampled for Hg next to original location due to refusal at original location
4 Boring sampled during 2016 resampling investigation
5 Boring Log is not presented
6 Resampled (original sample container not sealed properly)
7 Discrete Sample for Hg speciation
8 Resampled due to potential smearing of shallower material on original samples

-- Boring not performed
VOCs Discrete Sample for VOCs/Cd/PCBs

Analytical samples were collected from soil samples obtained from these borings, transect locations and test pits. **Appendix A** presents tabulated results of the analytical tests, **Appendix B** presents the boring and test pit logs from the investigation, and **Appendix C** presents the Alpha Analytical Laboratory Reports, Direct Mercury Analyzer (DMA) Laboratory Reports, and the Mercury Speciation Laboratory

Reports. The sections below present a summary of the data collected and key findings to support the design activities.

2.1.1 Nature and Extent

The major findings from the analysis of the nature and extent of contaminants of concern (COCs) exceeding soil MPS in Landfill 2 and the adjacent Southerly Stream are as follows:

- The maximum depth of material with mercury concentrations exceeding the MPS corresponds closely with the top of the underlying till. In the adjacent Southerly Stream, mercury concentrations above the MPS were limited mainly to the deposited material that was transported from upstream or eroded from the surrounding embankments. In a few locations the top samples of the peat and organics strata exceeded the MPS.
- Non-mercury COCs with MPS were not detected above their respective MPS in Landfill 2 or the portion of the Southerly Stream adjacent to Landfill 2. The results show that historical soil deposits in the Southerly Stream and Landfill 2 do not contain non-mercury COCs therefore additional sampling for these compounds is not required.
- Total volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) without MPS were not detected or were only detected at levels below Maine Remedial Action Guidelines (RAGs) for unrestricted use. The results show that historical soil deposits in the Southerly Stream and Landfill 2 do not contain VOCs therefore additional sampling for these compounds is not required.
- Elemental mercury was not observed in the borings or test pits.
- Mercury speciation samples were collected from SB-LF2-15, SB-LF2-23, and SB-LF2-24. The majority (e.g. greater than 85%) of mercury was present in F4 through F6 species which are the less soluble fractions.

Each boring was typically segregated into one-foot intervals and mercury concentrations were measured from these intervals. Where there was not enough material for analysis in a one foot segment, adjacent segments were combined. The sample intervals were first screened with the XRF; if the XRF measurement was below 15 mg/kg, the sample was analyzed using the Maine-Certified Direct Mercury Analyzer (DMA-80). Additionally, if the DMA-80 measurement of mercury was below 2.2 mg/kg, the sample was submitted for analysis at a Maine certified off-site laboratory. This was done because Maine DEP approval of the DMA and Alpha Comparison Memorandum submitted to Maine DEP on July 15, 2015 was not received until after completion of the field activities. The mercury concentrations measured using the XRF, DMA-80, and at the off-site Maine certified laboratory are provided in **Table A-1** of **Appendix A**. **Figure 2-2** illustrates the location of each of the soil borings, with an accompanying bar chart for each boring showing the ground surface elevation, bottom of boring elevation, and which one-foot intervals exceeded the MPS for mercury.

At Landfill 2, elevated mercury concentrations were typically limited to the fill and occasionally continued into the sand, silt and clay, peat, gravel strata, and till. Out of the 71 soil borings advanced at Landfill 2, only five boring locations (SB-LF2-25, SB-LF2-26, SB-LF2-43, SB-LF2-45 and SB-LF2-57) contained mercury concentrations above the MPS of 2.2 mg/kg at the top of the till.

Mercury concentrations greater than 2.2 mg/kg were found in soils within Landfill 2 and the adjacent Southerly Stream transects. Higher concentrations were observed near the western portion of Landfill 2 (SB-LF2-15 and SB-LF2-16). Borings with the deeper mercury concentrations above the MPS were typically found down to an elevation of 55 ft and were located near the center of Landfill 2 (SB-LF2-16, SB-LF2-24, SB-LF2-26, and SB-LF2-43). Elevated mercury concentrations across the Southerly Stream were confined to the surficial soils. Apart from TS-SS-I1 and TS-SS-I2, concentrations above the MPS

were limited to 0 to 1 ft bgs. Upstream of Landfill 2 (e.g. TS-SS-A and TS-SS-B), no mercury MPS exceedances were found.

Samples analyzed from soil borings and transects installed during the pre-design activities vertically delineated the extent of mercury above the MPS at each boring location. The lateral extent was delineated in the majority of location with the exception of 10 locations. TS-SS-D2 and TS-SS-F2 were near the northern edge of the Southerly Stream and final delineation will occur during the excavation activities. TS-SS-I1 and TS-SS-I2 had mercury concentrations above 2.2 mg/kg at select intervals however the Scrap Metal Yard area excavation extends to these points so no further delineation was required. SB-LF2-40 and SB-LF2-53 had mercury concentrations above 2.2 mg/kg in select intervals however step-out borings were not performed due to limited access and delineation will be completed during the excavation in these areas. At SB-LF2-49, SB-LF2-62, SB-LF2-63, and SB-LF2-67 potential step-out boring locations were limited due to the railroad tracks and access to the areas and delineation will be completed during the excavation in these areas. Post-excavation confirmation samples will be taken in each of these areas.

Ninety-five samples were collected from 38 borings and 28 transect locations and were sent to an off-site Maine certified laboratory for analysis of total VOCs and non-mercury COCs for which soil MPS are established. During Phase I pre-design activities, samples were collected at a frequency of approximately one sample every four vertical feet. During Phase II pre-design activities, samples were collected from the interval below the deepest mercury MPS exceedance. The results for the non-mercury COCs (e.g. chloropicrin, polychlorinated biphenyls (PCBs), cadmium, ethylbenzene, and total xylenes) in Landfill 2 and the adjacent Southerly Stream are presented in **Table A-2** of **Appendix A** and **Figures 2-3 through 2-7**. Other VOCs and SVOCs compounds without MPS were either not detected or were present at levels that were below the Maine unrestricted use soil standards therefore do not require additional delineation. The total VOC data are provided in **Table A-3** of **Appendix A**.

In accordance to the Revised Phase II WP, three samples collected from SB-LF2-15, SB-LF2-23, and SB-LF2-24 were analyzed for mercury speciation. The results from the mercury speciation analysis can be found in **Table A-6** of **Appendix A**. The results indicate that the majority of mercury was present in F4 through F6 species which are the less soluble fractions.

2.1.2 Preliminary Waste Characterization

According to historical documentation, approximately 1,500 tons of brine sludge was reportedly disposed of in Landfill 2 (CDM, 1998). To assess the presence of this brine sludge in Landfill 2, waste characterization information was obtained from 11 soil borings and two test pits during the Phase I pre-design activities. The major findings from the waste characterization activities were as follows:

- Brine sludge was not visually observed in the Landfill 2 material. The pre-design boring logs note the presence of black staining or sheen in some borings in Landfill 2; however, those observations alone are not indicative of the presence of brine sludge.
- The material tested does not exhibit the characteristics of a hazardous waste material.
- Elemental mercury was not observed in the test pits or within the soil borings completed at Landfill 2.

The material tested does not exhibit the characteristics of a hazardous waste material. A composite bulk sample was obtained from each test pit. The composite sample was compromised of samples collected over the entire depth interval of the test pit. The samples were placed in a 5 gallon plastic bucket (one per test pit) and sealed. The composite samples were analyzed to determine whether the material exhibited hazardous characteristics and to assist with identifying disposal facilities. The parameters analyzed included total metals, VOCs, TCLP VOCs, TCLP metals, TCLP SVOCs, TCLP herbicides, ignitability, corrosivity, and reactivity. The analytical data are provided in **Table A-4** of

Appendix A and the test pit logs are provided in **Appendix C**. The TCLP results from both test pits exhibit concentrations less than the corresponding TCLP limits for each compound analyzed.

The concentrations of the major constituents of the brine sludge were provided in reports of previous site investigations (CDM, 1998). To assess the presence of this brine sludge in Landfill 2, one soil sample was collected from every four vertical feet of the soil borings advanced during the Phase I pre-design activities and analyzed for the sludge's major constituents (e.g. barium, iron, nickel, zinc, strontium, sodium, calcium, magnesium sulfate, carbonate, and chloride). As discussed in the Revised Landfills 1 & 2 Phase II Pre-Design Work Plan, dated May 15, 2015, heavy black staining was observed in boring SB-LF2-02. Testing of other parameters found in brine sludge were also found to be elevated in this boring which would suggest that brine sludge or the remains of charcoal filters from the process were disposed in the area of this boring. Chemical analyses of the soils from other Phase I borings reveal concentrations that are not consistent with the brine sludge reported in previous site investigation reports. As a result, the presence of brine sludge cannot be verified. Results of these analyses can be found in **Table A-5** of **Appendix A**.

The excavated materials will be characterized for disposal in accordance with requirements of the off-site disposal facility. While brine sludge mixed with sand was reportedly disposed in Landfill 2, and such wastes would be considered listed waste, the actual TCLP data for the samples tested to date indicate that the soils are not a characteristically hazardous waste.

Mallinckrodt has evaluated EPA's Contained-In policy and believes it is applicable to the material to be excavated from Landfill 2. This Contained-In principle, which was issued as a policy in 1998[1], outlines EPA's interpretation regarding application of RCRA Subtitle C requirements to mixtures of media and hazardous wastes that result in contaminated media. A compilation of statements made by EPA regarding the contained-in policy was placed in the docket for the HWIR-Media Rule and is posted to the EPA website at http://www.epa.gov/osw/hazard/correctiveaction/resources/guidance/remwaste/refrnces/12cntdin.pdf. This posting includes references to the policy in various Federal Register notices as well as clarifications made in response to letter inquiries. In summary, the contained-in policy allows a generator to make a site-specific determination that concentrations of hazardous constituents in soil are low enough that the material does not "contain" hazardous waste. EPA provides additional guidance on making such "contained-out" determinations in *Management of Remediation Waste under RCRA* (Oct. 14, 1998).

Based on the analytical results, we believe the soils in Landfill 2 can be safely transported and disposed without considering them a listed hazardous waste. This is the type of management of remediation waste contemplated in the EPA Guidance. While Mallinckrodt believes that the characteristics of soils throughout Landfill 2 support a different classification in accordance with the EPA Guidance, the final disposal decision is still under discussion with the Maine DEP. One approach is to define a boundary based on the area where the maximum mercury concentration in pre-design borings was at least 100 mg/kg and transport and dispose of all soils within this boundary as listed hazardous waste. This contour is shown on **Drawing 10.** Soil excavated from outside this 100 mg/kg boundary will be transported and disposed of as non-hazardous waste. If the final waste management decision differs from this described approach and as shown in Drawing 10, an Addendum to this Final Landfill 2 CMI Plan will be issued. Regardless of the waste classification (listed or non-hazardous), none of the material excavated from Landfill 2 will be disposed in the State of Maine.

2.2 Geotechnical Investigation Results

Seven geotechnical borings were drilled in the Landfill 2 area between June 16 and 24, 2015. Geotechnical borings were advanced using a CME 850 drill rig with rotary wash and casing techniques. The geotechnical borings, shown on **Figure 2-1,** were advanced to evaluate the soil stratigraphy, soil

strength parameters and to obtain samples for geotechnical laboratory testing. Boring logs are provided in **Appendix B**.

The CME 850 drill rig was equipped with a 140 pound (lb) automatic hammer to advance split spoons and perform Standard Penetration Tests (SPTs). Split spoon sampling and SPTs were performed in the geotechnical borings continuously to 15 ft bgs at borings GB-LF2-01 and GB-LF2-02 , and at 5-ft increments thereafter until a depth of at least 50 ft below ground surface (bgs) was reached. GB-LF2-03 was sampled continuously until bedrock was encountered at a depth of 24 ft bgs. GB-LF2-04 and GB-LF2-07 were sampled continuously until the top of the till, and at 5 ft increments thereafter until a depth of at least 50 ft bgs was reached. GB-LF2-05 and GB-LF2-06 were sampled continuously for 30 ft and at 5 ft increments thereafter until a depth of at least 50 ft bgs was reached. Cement-bentonite grout was used to backfill each borehole.

Soil samples were collected during the SPT testing using standard split spoon samplers. Split spoon samples taken from the same stratum were combined at GB-LF2-01, GB-LF2-02, and GB-LF2-04. Individual samples were obtained for each split spoon at GB-LF2-03, GB-LF2-05, GB-LF2-06, and GB-LF2-07. Soil was placed in one gallon plastic zip-lock bags and labeled with the sample identification which included boring location, date and depth interval. A tabulated summary of the samples proposed for laboratory testing was provided to Maine DEP on July 18, 2015 for approval. After Maine DEP approved the samples and parameters to be analyzed, 15 samples from Landfill 2 were delivered to the CDM Smith GTS Laboratory, located in Somerville, Massachusetts, and tested in accordance with American Society for Testing and Materials (ASTM) D422 Standard Test Method for Particle Size Analysis of Soils (Grain Size Analysis), ASTM D4318 Standard Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils (Atterberg Limits)(as applicable), ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes (United Soil Classification System (USCS)), and ASTM D2216 Standard Test Method for Water Content.

2.2.1 Landfill 2 Stratigraphy

Based on data obtained from the geotechnical activities described above and historical information from previous Site investigations performed (CDM, 1998), the Landfill 2 stratigraphy can be described generally as an existing fill layer underlain by native soil of varying characteristics. Subsurface profiles of Landfill 2 are shown on **Drawings 7 and 8** in the Landfill 2 CMI Plan drawing set (**Appendix F**).

Seven subsurface strata have been identified in the Landfill 2 Area based on geotechnical laboratory soil test results, field SPT results, and visual observations made during field activities. The seven subsurface strata are defined as follows for Landfill 2 (generally in order of appearance from top to bottom):

- Stratum 1 (Fill) – Fill overlays naturally occurring materials, and ranges from loose to dense (SPT Navg = 12) silty sand and silty or clayey sand to silt or poorly graded sand with traces of medium to fine gravel. Within the Southerly Stream the fill is the deposited material that was transported from upstream or eroded from the surrounding embankments. The material generally is silt with varying amounts of sand and little to a trace gravel.

- Stratum 2 (Peat) – Peat and organics ranges from very soft to soft (SPT Navg = 2) peat with some to trace silt or clay. Stratum 2 is generally encountered along the Southerly Stream.

- Stratum 3 (Clay and Silt) – The Clay and Silt layer ranges from very soft to very stiff (SPT Navg = 23) silt or silt and clay often with some to trace gravel or sand and a few stratified gravel pockets. Stratum 3 is thickest in the central part of Landfill 2 and tapers out near the northern and eastern edges of Landfill 2.

- Stratum 4 (Sand) – The Sand layer ranges from very loose to very dense (SPT Navg = 43) silty sand to poorly graded sand or well graded sand, with some to trace gravel or clay present.

Stratum 4 is observed in pockets below Stratum 3 and Stratum 1 in the central, northern, and eastern parts of Landfill 2 area. In some area there was approximately 50 percent grey Gravel with the sand.

- Stratum 5 (Gravel) – The Gravel layer ranges from medium to dense (SPT Navg = 24) coarse to fine rounded and angular gravel with some sand and silt. The gravel layer was observed primarily on the eastern side of Landfill 2 beneath Stratum 1 and above Stratum 6, extending from the railroad tracks on the south side Landfill 2 and tapering out at the Southerly Stream to the north. A thin layer of gravel was also observed running parallel to the Southerly Stream beneath Stratum 2. Gravel on the eastern side of Landfill 2 is brown and generally free from significant quantities of sand and fines, consistent with gravel layers observed in the Landfill 1 geotechnical borings. This was a different strata than the layers of higher gravel percentages observed in Stratum 4 described above.

- Stratum 6 (Till) – Till consists of a very stiff to hard (SPT Navg = 54) clayey or silty sand with little to trace and, gravel, and cobbles. Stratum 6 was observed below Stratum 5 throughout Landfill 2.

- Stratum 7 (Bedrock) - Bedrock was observed as dark grey phyllite schist. Stratum 7 was observed at 22 ft bgs only in GB-LF2-03, and was not encountered in the other Landfill 2 pre-design borings.

2.2.2 Soil Classifications and Laboratory Test Results

A summary of soil samples obtained from the field, laboratory soil test results and corresponding USCS Classifications are provided in **Table 2-2**. Laboratory test results are provided in **Appendix E**. A total of 15 samples were tested and classified in accordance with the ASTM test methods described above.

Table 2-2: Laboratory Soil Test Results

TEST STANDARD			GRAIN SIZE (ASTM D422)							
SAMPLE No.	Depth Interval (ft)	Stratum	PASSING 3-in. (%)	PASSING 3/4-in. (%)	PASSING No. 4 (%)	PASSING No. 10 (%)	PASSING No. 20 (%)	PASSING No. 40 (%)	PASSING NO.100 (%)	PASSING NO.200 (%)
Landfill 2										
GB-LF2-01	0-10	1	100	95.9	92.2	88.1	81.7	65.1	34.5	27
GB-LF2-01	16-51.83	6	100	100	81	72.8	66.7	61.7	55.6	48.7
GB-LF2-02	0-4.5	1	100	100	69.8	51.2	37.4	27	15.1	11.7
GB-LF2-02	4.5-19	1	100	100	78.2	70.2	62.8	56.8	47.3	41.9
GB-LF2-02	19-44	6	100	100	82.8	74.3	67.6	61.9	53.1	47.9
GB-LF2-03	8-9.25	3	100	95.4	65.4	53.6	47.1	44	38.2	33.4
GB-LF2-03	12-13.4	4	100	100	92.2	86.6	77.6	55.8	19.9	9.7
GB-LF2-04	0-13.75	1	100	100	88.7	78.4	69.6	63.3	53.5	46.7
GB-LF2-04	13.75-51	3 and 6	100	100	89.9	82.9	77.1	72.3	63.9	58.2
GB-LF2-05	2.25-6	1	100	95.8	75.2	62.7	53.3	46.4	37.6	33.2
GB-LF2-05	8-9.75	3	100	85.3	61.5	52.8	46.1	40.8	33.1	29.2
GB-LF2-06	24-25.75	4	100	100	99.6	99.3	99	90	36.5	15.1
GB-LF2-06	6-7.7	1	100	100	99.9	99.3	97.7	95	74.6	47.8
GB-LF2-07	4.6-5.2	1	100	83.7	45.2	30	20.8	15.6	9.3	7
GB-LF2-07	12-13.5	3	100	100	79	68.2	59.5	52.9	44.3	39.5

TEST STANDARD			MOISTURE (ASTM D2216)	ATTERBERG LIMITS (ASTM D4318)			SOIL CLASS (ASTM D2487)
SAMPLE No.	Depth Interval (ft)	Stratum	(%)	LL	PL	PI	USCS
Landfill 2							
GB-LF2-01	0-10	1	19.6	21	15	6	SC-SM
GB-LF2-01	16-51.83	6	10.4	21	12	9	SC
GB-LF2-02	0-4.5	1	6.4	NV	NP	NP	SP-SM
GB-LF2-02	4.5-19	1	10.5	21	16	5	SC-SM
GB-LF2-02	19-44	6	8.3	22	15	7	SC-SM
GB-LF2-03	8-9.25	3	14.1	22	18	4	GC-GM
GB-LF2-03	12-13.4	4	20	NV	NP	NP	SW-SM
GB-LF2-04	0-13.75	1	17.5	30	22	8	SC
GB-LF2-04	13.75-51	3 and 6	9.6	22	13	9	CL
GB-LF2-05	2.25-6	1	9.7	5	8	NP	SM
GB-LF2-05	8-9.75	3	8.4	21	14	7	GC-GM
GB-LF2-06	24-25.75	4	21.7	NV	NP	NP	SM
GB-LF2-06	6-7.7	1	19.2	NV	NP	NP	SM
GB-LF2-07	4.6-5.2	1	1.3	NV	NP	NP	GW-GM
GB-LF2-07	12-13.5	3	12.1	22	14	8	SC

Notes:
1. Stratum designations include:
   Stratum 1 = Fill
   Stratum 2 = Peat/organics
   Stratum 3 = Clay and Silt
   Stratum 4 = Sand
   Stratum 5 = Gravel
   Stratum 6 = Till
   Stratum 7 = Bedrock
2. Abbreviations: ASTM= American Society for Testing and Materials; NV = No value; NP = not plastic.
3. USCS Symbols, based on ASTM D2487 method of classification for soils for engineering purposes: silty sand (SM); clayey sand (SC); well graded silty sand (SW-SM); poorly graded silty sand (SP-SM); clayey and silty sand (SC-SM); clayey silty sandy gravel (GC-GM); clay (CL); well graded silty gravel (GW-GM).
4. Samples listed correspond to those samples identified for laboratory testing as summarized in an email to Maine DEP on July 18, 2015. No changes were made to the proposed testing program submitted on that date.
5. Samples were a composite of the of the corresponding strata

2.2.3 Groundwater

There are two existing wells located on the south east side of Landfill 2, PZLF-2 and B-301-02. Water level measurements were taken at PZLF-2 and B-301-02 both in December of 2012 and the July and August of 2015. In December of 2012 PZLF-2 had a groundwater elevation of 73.35 ft and B-301-02 had a groundwater elevation of 70.55 ft. In the summer of 2015 PZLF-2 had a groundwater elevation of 69.47 and B-301-02 had a groundwater elevation of 67.98 ft.

There are also two existing well on the west side of Landfill 2 where groundwater measurements were taken, MW-409-01 and P-9. Groundwater elevations were measured in December of 2012 and July of 2015 for MW-409-01 and in July of 2015 for P-9. In 2012 groundwater was measured at an elevation of 68.85 ft at MW-409-01 and in 2015 groundwater was measured at an elevation of 63.52 ft at MW-409-01 and P-9.

Groundwater was observed in test pits that were excavated in December of 2014. TP-LF2-01 encountered groundwater at an elevation of 73.4 ft (2.8 ft bgs) and TP-LF2-01 encountered groundwater at an elevation of 68.5 ft (10 ft bgs).

Section 3.
Design Objectives

3.1 Corrective Measures Implementation Plan Objectives

The primary objective of the remedy for the Landfill 2 Area is to remove soil within the Landfill 2 Area with concentrations of COCs exceeding the MPS (presented in Section 3.2), and disposal of soil at an approved offsite disposal facility. Additional objectives of the CMI are to:

- Establish final grades to direct shed stormwater and re-vegetate the Landfill 2 area such that it blends in with surrounding areas including the Southerly Stream and minimizes the potential for future erosion; and
- Manage air quality conditions and be protective of on-site workers and the surrounding community.

Note that the restoration of the Southerly Stream will be presented in the Southerly Stream CMI Plan.

3.2 Contaminants of Concern and Media Protection Standards

COCs at the Site for which soil MPS have been established are summarized in **Table 3-1**, as presented in Attachment 2 of the Order. Mercury is the primary COC identified in previous investigations in the Landfill 2 Area.

Table 3-1: Soil Media Protection Standards – Numeric

	Soil
	(mg/kg)
Mercury	2.2
Chloropicrin	0.125
PCBs	1.0
Cadmium	8
Ethylbenzene	13
Xylene	190

NOTES:
Media Protection Standards as presented in the Order (Attachment 2).
mg/kg = milligrams per kilogram
PCBs = polychlorinated biphenyls

Section 4.
Corrective Measures Implementation Components

The Landfill 2 CMI will include the following primary components presented in the general order of execution.

- Pre-Construction Activities;
- Implement Perimeter Air Monitoring Program;
- Site preparation including establishment of access roads, staging areas, erosion and sediment controls, stockpile areas, etc.;
- Excavation and removal of material exceeding MPS from the Landfill 2 Area and adjacent Southerly Stream;
- Post-excavation confirmation sampling;
- Materials management including soil stockpiling and direct loading of rail cars;
- Backfilling the excavation and grading of the Landfill 2 Area to proposed final grades; and
- Surface stabilization of the final grading area with topsoil and vegetation.

Drawing 2 in **Appendix F** presents a detailed sequence of the remediation activities. Although listed as discrete tasks, portions of construction may be performed simultaneously. The remainder of Section 4 describes components of the CMI including pre-construction activities, site staging and layout, erosion and sediment control, excavation of soil above the MPS, post-excavation confirmation sampling, final grading plan, and re-vegetation. Some of the components of the CMI, including the Perimeter Air Monitoring Plan, Temporary Soil Stockpile Area, staging areas, and portions of the access roads in the Plant Area and Scrap Metal Yard, will have already been constructed and other corrective measures prior to the start of the Landfill 2 CMI.

The CMI Plan Drawings (Drawings) are presented in **Appendix F,** Specifications are presented in **Appendix G,** the Construction Quality Assurance (CQA) Plan is presented in **Appendix H**, design calculations are presented in **Appendix I**, and the Soil Use Plan is presented in **Appendix J**.

4.1 Confirmation Sampling

A combination of pre-excavation and post-excavation sidewall and bottom samples will be used to confirm that the materials exceeding the MPS criteria are removed from Landfill 2 and the adjacent Southerly Stream. Removal limits will be extended to the point where confirmation samples indicate that remaining soils are below the MPS criteria. A pre-excavation bottom sample is defined as the first clean (below 2.2 mg/kg) sample interval in a boring that vertically delineates the extent of mercury. A post-excavation bottom sample is a grab sample collected from the bottom of the open excavation. A pre-excavation sidewall sample defines the lateral extent of mercury exceedances located at the perimeter of excavation in which each sample interval in the boring has mercury concentrations below the MPS. Since each interval in these pre-excavation borings is below the MPS, each sample collected from these pre-excavation sidewall borings is considered a separate sidewall sample. A post-excavation sidewall sample is a grab sample collected from the exposed sidewall of an open excavation. Upon

completion of the confirmation sampling program, which includes both pre- and post-excavation samples, the following minimum sample frequencies will be achieved:

- One sidewall per 50 LF of excavation; and
- Bottom samples on a 50-foot grid spacing. This is equivalent to an approximate 25 foot radius sampling frequency or one sample per 2500 square feet of bottom excavation area.

Post-excavation confirmation samples will be analyzed for mercury. Based on the pre-excavation confirmation samples showing concentrations of non-mercury COCs of non-detect or below the respective MPS, post-excavation sampling for the non-mercury COCs is not required.

The excavation plan on **Drawing 10** indicates that the completed excavation will have a perimeter of approximately 1,502 LF and a bottom area of approximately 62,424 sq. ft. Based on the criteria above, this would result in a minimum of 30 sidewall samples and 25 bottom samples.

At the request of Maine DEP, 76 additional post-excavation bottom confirmation samples (BS-LF2-23 through BS-LF2-98) have been added to the portion of the Landfill 2 excavation area containing soil with mercury concentrations greater than or equal to 100 mg/kg. The locations of these samples are shown on the confirmation sampling plan on **Drawing 9**.

The actual number of confirmation samples and timeframe of collection are summarized in **Table 4-1**.

Table 4-1: Summary of Landfill 2 and Adjacent Southerly Stream Confirmation Samples

Sampling Time Frame	Bottom Samples		Side Wall Samples	
	Mercury	Other COCs	Mercury	Other COCs
Pre-Excavation (complete)	73	17	154	24
Post-Excavation	98	0	26	0
Total Confirmation Samples	171	17	180	24
Frequency	1 sample/365 ft^2	1 sample/3,674 ft^2	1 sample/ 9 linear feet	1 sample/ 63 linear feet

After completing removal activities, post-excavation bottom and sidewall confirmation samples will be collected. The sidewall confirmation sample locations will be biased towards the highest mercury concentration in the adjacent boring(s). The location of the post-excavation confirmation samples are shown on **Drawing 9**. An excavation area will be considered clean and available to be backfilled once the data from the Maine-certified DMA for the confirmation samples associated with that area have been validated and show the remaining soil is below the MPS.

4.1.1 Pre-Excavation Confirmation Samples

The locations and type of the pre-excavation confirmation sample are provided in **Table 4-2**. The coordinates of these pre-excavation confirmation samples are provided on **Drawing 9**.

Table 4-2: Landfill 2 and Adjacent Southerly Stream Pre-Excavation Confirmation Samples

Sampling Locations	Type of Confirmation Sample	Number of Samples	Depth Interval of Sample(s) (ft bgs)	Elevation Interval of Sample (ft)
SB-LF2-01	Bottom	1	6 – 7	62.6 - 63.6
SB-LF2-02	Bottom	1	11 – 12	64.6 - 65.6
SB-LF2-03	Bottom	1	7 – 8	63.8 - 64.8
SB-LF2-04	Bottom	1	17 – 18	60.3 - 61.3
SB-LF2-05	Bottom	1	5 – 6	66.2 - 67.2
SB-LF2-06	Bottom	1	7 – 8	70.7 - 71.7
SB-LF2-07	Bottom	1	10 – 11	66.6 - 67.6
SB-LF2-08	Bottom	1	8 – 9	67.2 - 68.2
SB-LF2-09	Bottom	1	4 – 5	67.5 - 68.5
SB-LF2-10	Bottom	1	9 – 10	66.2 - 67.2
SB-LF2-12	Bottom	1	7 – 8	64.4 - 65.4
SB-LF2-13	Bottom	1	10 – 11	65 - 66
SB-LF2-14	Bottom	1	3 – 4	65 - 66
SB-LF2-15	Bottom	1	14 – 15	61.1 - 62.1
SB-LF2-16	Bottom	1	19 – 20	55.5 - 56.5
SB-LF2-17	Bottom	1	16 – 17	59.3 - 60.3
SB-LF2-18	Bottom	1	5 – 6	71.2 - 72.2
SB-LF2-19	Bottom	1	6 – 7	61.9 - 62.9
SB-LF2-20	Bottom	1	5 – 6	71 - 72
SB-LF2-21	Bottom	1	5 – 6	63.4 - 64.4
SB-LF2-22	Bottom	1	9 – 10	66.5 - 67.5
SB-LF2-23	Bottom	1	7 – 8	69.3 - 70.3
SB-LF2-24	Bottom	1	11 – 12	61.3 - 62.3
SB-LF2-25	Bottom	1	10 – 11	67.3 - 68.3
SB-LF2-26	Bottom	1	6 – 8	70.8 - 72.8
SB-LF2-27	Bottom	1	2 – 3	67 - 68
SB-LF2-28	Bottom	1	12 – 13	65.7 - 66.7
SB-LF2-29	Bottom	1	3 – 4	72.8 - 73.8
SB-LF2-30	Bottom	1	11 – 12	63.8 - 64.8
SB-LF2-31	Bottom	1	4 – 5	66.2 - 67.2
SB-LF2-32	Bottom	1	11 – 12	66.6 - 67.6
SB-LF2-33	Bottom	1	3 – 4	72.3 - 73.3

Sampling Locations	Type of Confirmation Sample	Number of Samples	Depth Interval of Sample(s) (ft bgs)	Elevation Interval of Sample (ft)
SB-LF2-34	Bottom	1	6 – 7	65.2 - 66.2
SB-LF2-35	Bottom	1	9 – 10	65.2 - 66.2
SB-LF2-36	Bottom	1	9 – 10	67.9 - 68.9
SB-LF2-37	Bottom	1	6 – 7	63.8 - 64.8
SB-LF2-38	Bottom	1	6 – 7	68.9 - 69.9
SB-LF2-39	Bottom	1	3 – 4	71.1 - 72.1
SB-LF2-40	Bottom	1	4 – 5	65.1 - 66.1
SB-LF2-42	Bottom	1	2 – 3	64.9 - 65.9
SB-LF2-43	Bottom	1	7 – 8	63.4 - 64.4
SB-LF2-44	Bottom	1	14 – 15	60.4 - 61.4
SB-LF2-45	Bottom	1	11 – 12	65.9 - 66.9
SB-LF2-46	Bottom	1	7 – 8	69.8 - 70.8
SB-LF2-47	Bottom	1	5 – 6	71.8 - 72.8
SB-LF2-48	Bottom	1	4 – 5	72.4 - 73.4
SB-LF2-49	Bottom	1	2 – 3	74.2 - 75.2
SB-LF2-52	Bottom	1	4 – 5	69.6 - 70.6
SB-LF2-53	Bottom	1	1 – 2	65.7 - 66.7
SB-LF2-56	Bottom	1	0 – 1	67.9 - 68.9
SB-LF2-57	Bottom	1	7 – 8	67.8 - 68.8
SB-LF2-59	Bottom	1	5 – 6	70.9 - 71.9
SB-LF2-61	Bottom	1	4 – 5	73.4 - 74.4
SB-LF2-62	Bottom	1	1 – 2	73.6 - 74.6
SB-LF2-63	Bottom	1	9 – 10	63 - 64
SB-LF2-64	Bottom	1	6 – 7	69.1 - 70.1
SB-LF2-65	Bottom	1	0 – 1	65.8 - 66.8
SB-LF2-67	Bottom	1	2 – 3	68.8 - 69.8
TS-SS-C1	Bottom	1	1 – 2	63.8-64.8
TS-SS-C3	Bottom	1	0 – 1	65.6 - 66.6
TS-SS-D1	Bottom	1	0 – 1	65.1-66.1
TS-SS-D2	Bottom	1	1 – 2	64.1-65.1
TS-SS-D3	Bottom	1	0 – 1	65.2 - 66.2
TS-SS-E3	Bottom	1	1 – 2	63.8 - 64.8
TS-SS-F1	Bottom	1	1 – 2	63.3 - 64.3
TS-SS-F2	Bottom	1	1 – 2	63.4 - 64.4
TS-SS-F3	Bottom	1	0 – 1	65 - 66
TS-SS-G1	Bottom	1	1 – 2	63.1 - 64.1
TS-SS-G3	Bottom	1	1 – 2	63.1 - 64.1

Sampling Locations	Type of Confirmation Sample	Number of Samples	Depth Interval of Sample(s) (ft bgs)	Elevation Interval of Sample (ft)
TS-SS-H1	Bottom	1	1 – 2	62.8 - 63.8
TS-SS-H3	Bottom	1	1 – 2	62.8 - 63.8
TS-SS-I1	Bottom	1	3 – 4	59.7 - 60.7
TS-SS-I2	Bottom	1	3 – 4	61.3 - 62.3
SB-LF2-11	Sidewall	13	0 – 13	60.7 - 73.7
SB-LF2-41	Sidewall	11	0 – 11	61.1 - 72.1
SB-LF2-50	Sidewall	10	0 – 10	66.6 - 76.6
SB-LF2-51	Sidewall	15	0 – 15	60.6 - 75.6
SB-LF2-54	Sidewall	6	0 – 1	61.6 - 67.6
SB-LF2-55	Sidewall	8	0 – 1	61.3 - 69.3
SB-LF2-58	Sidewall	15	0 – 15	62.5 - 77.5
SB-LF2-60	Sidewall	10	0 – 10	67.8 - 77.8
SB-LF2-66	Sidewall	3	0 – 3	75.1 - 78.1
SB-LF2-68	Sidewall	7	0 – 7	70 - 77
SB-LF2-69	Sidewall	14	0 – 1	61.8 - 75.8
SB-LF2-70	Sidewall	10	0 – 10	68.1 - 78.1
SB-LF2-71	Sidewall	14	0 – 14	57.3 - 71.3
TS-SS-B1	Sidewall	3	0 – 3	63.9 - 66.9
TS-SS-C2	Sidewall	3	0 – 3	63.4 - 66.4
TS-SS-E1	Sidewall	3	0 – 3	62.4 - 65.4
TS-SS-G2	Sidewall	3	0 – 3	62.7 - 65.7
TS-SS-H2	Sidewall	3	0 – 3	62.1 - 65.1
TS-SS-I3	Sidewall	3	0 – 3	61.8 - 64.8

4.1.2 Post-Excavation Confirmation Samples

The locations and type of the post-excavation confirmation sampling point are provided in **Table 4-3**. The coordinates of these post-excavation confirmation samples are provided on **Drawing 9**.

Table 4-3: Landfill 2 and Adjacent Southerly Stream Post-Excavation Confirmation Samples

Sampling Locations	Type of Confirmation Sample	Elevation of Sample (ft)
BS-LF2-01	Bottom	68.9
BS-LF2-02	Bottom	64.8
BS-LF2-03	Bottom	61.3
BS-LF2-04	Bottom	58.3
BS-LF2-05	Bottom	63.8
BS-LF2-06	Bottom	63.8

Sampling Locations	Type of Confirmation Sample	Elevation of Sample (ft)
BS-LF2-07	Bottom	68.2
BS-LF2-08	Bottom	63.8
BS-LF2-09	Bottom	69.9
BS-LF2-10	Bottom	66.2
BS-LF2-11	Bottom	62.3
BS-LF2-12	Bottom	61.3
BS-LF2-13	Bottom	68.3
BS-LF2-14	Bottom	70.3
BS-LF2-15	Bottom	60.3
BS-LF2-16	Bottom	70.8
BS-LF2-17	Bottom	61.4
BS-LF2-18	Bottom	58.3
BS-LF2-19	Bottom	58.3
BS-LF2-20	Bottom	62.9
BS-LF2-21	Bottom	60.7
BS-LF2-22	Bottom	60.7
BS-LF2-23	Bottom	69.9
BS-LF2-24	Bottom	64.8
BS-LF2-25	Bottom	64.8
BS-LF2-26	Bottom	64.8
BS-LF2-27	Bottom	64.8
BS-LF2-28	Bottom	64.8
BS-LF2-29	Bottom	68.9
BS-LF2-30	Bottom	66.2
BS-LF2-31	Bottom	68.9
BS-LF2-32	Bottom	66.2
BS-LF2-33	Bottom	64.8
BS-LF2-34	Bottom	66.2
BS-LF2-35	Bottom	64.8
BS-LF2-36	Bottom	66.2
BS-LF2-37	Bottom	64.8
BS-LF2-38	Bottom	64.8
BS-LF2-39	Bottom	64.8
BS-LF2-40	Bottom	64.8
BS-LF2-41	Bottom	66.2
BS-LF2-42	Bottom	64.8
BS-LF2-43	Bottom	64.8
BS-LF2-44	Bottom	64.8
BS-LF2-45	Bottom	64.8
BS-LF2-46	Bottom	64.8
BS-LF2-47	Bottom	68.2

Sampling Locations	Type of Confirmation Sample	Elevation of Sample (ft)
BS-LF2-48	Bottom	64.8
BS-LF2-49	Bottom	62.9
BS-LF2-50	Bottom	61.3
BS-LF2-51	Bottom	61.3
BS-LF2-52	Bottom	64.8
BS-LF2-53	Bottom	68.2
BS-LF2-54	Bottom	61.3
BS-LF2-55	Bottom	61.3
BS-LF2-56	Bottom	61.3
BS-LF2-57	Bottom	61.3
BS-LF2-58	Bottom	62.9
BS-LF2-59	Bottom	68.3
BS-LF2-60	Bottom	61.3
BS-LF2-61	Bottom	70.3
BS-LF2-62	Bottom	61.3
BS-LF2-63	Bottom	61.3
BS-LF2-64	Bottom	61.3
BS-LF2-65	Bottom	62.9
BS-LF2-66	Bottom	58.3
BS-LF2-67	Bottom	58.3
BS-LF2-68	Bottom	62.9
BS-LF2-69	Bottom	58.3
BS-LF2-70	Bottom	62.9
BS-LF2-71	Bottom	58.3
BS-LF2-72	Bottom	58.3
BS-LF2-73	Bottom	58.3
BS-LF2-74	Bottom	62.9
BS-LF2-75	Bottom	58.3
BS-LF2-76	Bottom	58.3
BS-LF2-77	Bottom	58.3
BS-LF2-78	Bottom	65.6
BS-LF2-79	Bottom	70.8
BS-LF2-80	Bottom	58.3
BS-LF2-81	Bottom	62.9
BS-LF2-82	Bottom	60.3
BS-LF2-83	Bottom	60.3
BS-LF2-84	Bottom	58.3
BS-LF2-85	Bottom	58.3
BS-LF2-86	Bottom	66.9
BS-LF2-87	Bottom	58.3
BS-LF2-88	Bottom	60.3

Sampling Locations	Type of Confirmation Sample	Elevation of Sample (ft)
BS-LF2-89	Bottom	61.4
BS-LF2-90	Bottom	64.4
BS-LF2-91	Bottom	60.3
BS-LF2-92	Bottom	60.3
BS-LF2-93	Bottom	61.4
BS-LF2-94	Bottom	61.4
BS-LF2-95	Bottom	63.8
BS-LF2-96	Bottom	63.8
BS-LF2-97	Bottom	63.8
BS-LF2-98	Bottom	63.8
SW-LF2-01	Sidewall	66-67
SW-LF2-02	Sidewall	72-73
SW-LF2-03	Sidewall	74-75
SW-LF2-04	Sidewall	74-75
SW-LF2-05	Sidewall	74-75
SW-LF2-06	Sidewall	64-65
SW-LF2-07	Sidewall	64-65
SW-LF2-08	Sidewall	63-64
SW-LF2-09	Sidewall	63-64
SW-LF2-10	Sidewall	63-64
SW-LF2-11	Sidewall	63-64
SW-LF2-12	Sidewall	63-64
SW-LF2-13	Sidewall	63-64
SW-LF2-14	Sidewall	63-64
SW-LF2-15	Sidewall	63-64
SW-LF2-16	Sidewall	64-65
SW-LF2-17	Sidewall	65-66
SW-LF2-18	Sidewall	65-66
SW-LF2-19	Sidewall	65-66
SW-LF2-20	Sidewall	65-66
SW-LF2-21	Sidewall	65-66
SW-LF2-22	Sidewall	65-66
SW-LF2-23	Sidewall	65-66
SW-LF2-24	Sidewall	65-66
SW-LF2-25	Sidewall	65-66
SW-LF2-26	Sidewall	66-67

Note: The elevations of sidewall confirmation samples are biased to the highest mercury concentrations of the adjacent boring.

4.2 Perimeter Air Monitoring Stations

The perimeter air monitoring system implemented for the Landfill Ridge Area CMI (CDM Smith, 2015e) will be continued for the Landfill 2 CMI. Permanent stations are shown on **Drawing 3** and set up in accordance with the Perimeter Air Monitoring Plan (PAMP) (CDM Smith, 2015e). The objectives of the perimeter air monitoring system are to monitor air quality conditions during the CMI activities, provide real time data so that if action criteria are met corrective actions can be taken promptly and/or work can be stopped, and protect both on-site workers and the surrounding community.

The perimeter air monitoring system measures mercury vapors, PM10, and VOCs using both fixed (e.g. permanent) and mobile stations. Measurements are taken in real time to allow for modifications of work activities or mitigation measures to be implemented in the event the air quality conditions are impacted by the CMI activities. Additional details on implementation of the air monitoring program, including MPS, response levels, corrective actions, and reporting, are provided in the PAMP.

4.3 Site Staging and Layout

Site staging and layout is presented on **Drawings 5 and 6** in **Appendix F**. These drawings present features that will be implemented prior to removal of soils in the Landfill 2 Area including installation of site trailers, construction of access roads, and a decontamination pad. Other staging and layout components were already constructed for the Landfill Ridge Area CMI (CDM Smith, 2015c) approved by Maine DEP or will be constructed during implementation of the Scrap Metal Yard CMI (CDM Smith, 2015e), expected to take place Spring 2016. Erosion and sediment controls are also presented on these drawing sheets and discussed in Section 4.4.

4.3.1 Site Logistics

Site logistics are summarized in this section and described in detail in the Logistics Work Plan (CDM Smith, 2015g).

Primary site access will be through the main gate at the end of Industrial Way in Orrington, Maine. Access to the Site will be restricted; personnel and visitors will sign in at the security trailer (**Drawing 3**). Regular site workers will be signed in during the daily safety meeting and the sign-in record will be provided to the security personnel to ensure an accurate record of personnel on-site is available. Visitors will be required to check out at the security trailer when leaving the Site.

Typical work hours for the site will be Monday through Friday 7:00 AM to 5:00 PM. The hours may be adjusted as needed to accommodate construction schedules and inclement weather.

The remediation areas will be divided into three work zones: (i) support zones, (ii) contamination reduction zones, (iii) and exclusion zones. The support zone will be delineated using temporary construction fencing and will include the office trailer complex and supporting facilities. Signage will be used to identify work zones. The Remediation Contractor will establish the work zones in the Excavation and Restoration Plan, which will be submitted to Maine DEP for review in accordance with the schedule presented in Section 6. The location of the zones may change as preapproved by the Remediation Project Manager as construction progresses. The Maine DEP will also be notified of any changes to the Excavation and Restoration Plan.

The contamination reduction zone for access into the exclusion zone will be at the access point from the support zone into the exclusion zone. The contamination reduction zone for the Landfill 2 Area will include the decontamination pad for cleaning vehicle tires (**Drawing 5**) and personnel decontamination facilities established by the Remediation Contractor.

4.3.2 Site Trailers/Offices

Trailers for the Owner, Remediation Project Manager, Transportation and Disposal Contractor, Maine DEP, an on-site laboratory, and restroom facilities have been installed by the Remediation Project Manager. The Remediation Contractor will be responsible for providing their own trailers to be installed in the Contractor Trailer Area shown on **Drawing 6**.

4.3.3 Clearing and Grubbing

The Remediation Contractor will be responsible for clearing and grubbing areas necessary within the limit of work as required for access to the Site and execution of work. Clearing and grubbing will consist of removing trees and associated stumps, undergrowth, roots, deadwood and surficial debris. Cleared vegetation will be shredded or chipped prior to stockpiling and potential future use onsite. . Root material and associated soil removed from clean areas outside the work area will be segregated and stockpiled for re-use on Site. Root material and soil removed during grubbing from within the excavation areas will be considered waste material and transported to the Temporary Soil Stockpile Area or Rail Loading Area for off-site disposal. Clearing activities will be performed in a manner so as to minimize the extent of area cleared.

4.3.4 Access Roads

Access roads will be constructed as shown on the drawings and described in the Specifications (**Appendix G**) to provide access between the Landfill 2 Area, Temporary Soil Stockpile Area, and rail loading area. The access roads will be maintained clean (e.g. outside of the exclusion zones) during the Landfill 2 area corrective measures implementation. Vehicles leaving the exclusion zones will be cleaned at the decontamination pad shown on **Drawing 5** prior to traversing the access roads. The roads will be inspected daily by the Remediation Project Manager and documented in daily reports.

The access roads will consist of a base of 6 inches of structural fill and 6 inches of 1½ inch stone separated by a woven geotextile fabric as described in the Specifications (**Appendix G**) and shown on the Drawings (**Appendix F**). As shown in the detail on **Drawing 18**, the road surface will be pitched at approximately 1% to drain stormwater from the surface.

4.3.5 Staging Area

The staging area shown on **Drawing 6** will be constructed as part of the Scrap Metal Yard CMI and will provide an area for material staging during the Landfill 2 construction. The staging area will be made up of 12 inches of dense graded gravel placed over a 8 oz/SY nonwoven geotextile. It will not serve as a material storage or stockpile area for material that require off-site disposal.

4.3.6 Decontamination Pad

Vehicles exiting from the exclusion zones will pass through a decontamination pad to remove soil that may exceed the MPS parameters. The Landfill 2 area will have a decontamination pad as shown on the **Drawing 5**. The decontamination pad will include a geomembrane liner to collect water used in the decontamination process (**Drawing 18**). Calculations demonstrating the minimum puncture resistance of the geomembrane are presented in **Appendix I-1**. Water collected in the decontamination pad will be considered contact water and will be sent to the on-site groundwater treatment plant (GWTP). The Remediation Contractor will determine the actual location of the decontamination pad based on the proposed construction sequence, along with the method of conveyance of contact water to the GWTP. Both will be included in the Remediation Contractor's Construction Water Management Plan to be submitted to Maine DEP for review in accordance with the schedule presented in Section 6.

4.3.7 Rail Loading and Temporary Soil Stockpile Area

Vehicles transporting soil for off-site disposal will drive directly to the rail loading area or the Temporary Soil Stockpile Area (shown on **Drawing 6**). The rail loading area and Temporary Soil Stockpile Area were constructed as part of the Landfill Ridge Area remedial action and drawings and calculations associated with this structure are provided in Appendix F and I of the Landfill Ridge Area CMI Plan, Revision 1, respectively. However, the Remediation Contractor will have the option of directly loading material into rail cars located on the rail spur during the Phase 1 Excavation.

The Temporary Soil Stockpile Area is graded to drain towards a sump. Once use of the Temporary Soil Stockpile Area has begun, water collected in the sump will be considered contact water and treated at the on-site GWTP.

Materials in the Temporary Soil Stockpile Area will be segregated (e.g. clearing & grubbing material, soil excavated from the Landfill 2 area, and soils excavated from other areas on-site). Material in the Temporary Soil Stockpile Area will be covered with tarps daily prior to being loaded for off-site disposal.

Upon completion of the Landfill 2 CMI, some of the site staging and layout components may remain in place for use during other CMIs.

4.4 Temporary Erosion and Sediment Control

Areas disturbed during the corrective measures work described in this plan flow primarily towards the excavation area where stormwater will be collected for treatment, therefore erosion and sediment controls in the majority of the disturbed areas are not necessary. Erosion and sediment control measures will be installed in accordance with the Maine Erosion & Sediment Control Practices Field Guide for Contractors (Maine DEP, 2014) and Maine Stormwater Best Practices Manual (Maine DEP, 2015). Silt fence will be installed along a portion of the northern bank of the Southerly Stream adjacent to where it enters the existing culvert and north of the Landfill 2 area as shown on **Drawing 5**.

Prior to placement of topsoil and seeding in the Landfill 2 area, a fiber roll will be installed along the Southerly Stream to minimize sediment flow into the Southerly stream while the vegetation is becoming established. The location of the fiber roll is shown on **Drawing 15**. Additional erosion and sediment controls may be installed as needed throughout the excavation and restoration based on the Remediation Contractor's proposed Excavation and Restoration Work Plan

Throughout construction the Remediation Contractor will be required to provide sufficient temporary storage for contact water resulting from a 10-year 24-hour storm from within the excavation area. The reason for the temporary storage is that during precipitation events, the GWTP may have limited capacity since it may be receiving peak flows. Calculations demonstrating the required storage volume are presented in **Appendix I-2**. The Remediation Contractor's Construction Water Management Plan will describe the proposed approach for managing the water collected.

4.5 Southerly Stream Bypass

Prior to beginning excavation of the Scrap Metal Yard and Landfill 2, a bypass will be installed to divert water in the Southerly Stream, as shown on **Drawing 4**. The by-pass is designed to flow via gravity. The objectives of the bypass are:

- Minimize dewatering during excavation activities;
- Allow removal of soil/sediment exceeding the MPSs in the Southerly Stream "in the dry" ; and

- Prevent recontamination of the Southerly Stream.

The bypass will be installed upstream of the Landfill 2 area, and will be maintained through the CMIs for Landfill 2 and the Southerly Stream. An Inlet Bypass Structure will be installed at the outlet of the existing gravel pit northeast of Landfill 2. A bypass pipe will convey water from the gravel pit to the existing 30-inch culvert southwest of the Scrap Metal Yard, into which the Southerly Stream currently flows. The Southerly Stream Bypass will flow via gravity under normal conditions and a pump will be available should conveyance of additional by-pass flow be required. The by-pass will remain in place until the completion of the Landfill 2 excavations and restoration of the Southerly Stream north of the Plant Area.

4.6 Excavation Plan

The approximate limits of materials that require excavation and off-site disposal are shown on **Drawing 10** and tabulated on **Drawing 11**. The limits of the material to be removed are subdivided into excavation areas (e.g. LF2-1, LF2-2, etc.) with defined lateral limits and top and bottom elevations. The removal activities will extend, at a minimum, to these lateral limits and elevations unless bedrock is encountered at which point the excavation will be terminate. Additional excavation beyond the limits shown on the **Drawing 10** may be required to maintain safe excavation conditions (e.g. excavation slopes) and to establish final grades. Additional excavation may also be required if the confirmation sampling locations exhibit concentrations above the MPS. Excavated materials that exceed MPS criteria will be transported to the rail loading or Temporary Soil Stockpile Area. Excavated material that does not exceed the MPS will be stockpiled for reuse in accordance with the Soil Use Plan presented in **Appendix J**. This material includes boulders that may be encountered within the excavation limits. Boulders will be cleaned of soil prior to placement back within the excavation limits.

4.6.1 Excavation

The area to be excavated has been divided into excavation areas defined by the pre-design data as discussed in **Section 2**. The excavation bottom within each excavation area has a uniform elevation defined by the lowest sample interval in the borings within that excavation area at which COCs did not exceed MPS criteria. The Remediation Contractor will remove materials within these limits and either direct load them at the rail spur or transport them temporary soil stockpile area for rail car loading. Additional excavation may be required based on the results of post-excavation bottom and sidewall confirmation sampling described in Section 4.1.

Due to the locations of Site's main line track into the Temporary Soil Stockpile Area and and the rail spur at the western end of the Landfill 2 area, the excavation has been divided into the following three phases of work as indicated on **Drawing 12**:

- Phase 1: Soil removed from this area can be directly loaded into rail cars located on the rail spur. As the rail spur and surrounding soils will be removed as part of the Phase 2 excavation a loading area pad will not be constructed.

- Phase 2: Excavation in this area will require removal of portions and/or impact the structural integrity of the rail spur and therefore materials will need to be transported to the Temporary Soil Stockpile Area.

- Phase 3: Excavation in this area could impact the structural integrity of the Site's main rail line. This is the portion of the rail owned by Mallinckrodt which provides the access to the Temporary Soil Stockpile Area. Excavations in this area will need to occur when rail traffic is temporarily suspended to reduce loading on the excavation area. These activities will be coordinate by the Remediation Project Manager with other Site activities and Pan-Am. After

completion of the excavation activities the main line will be restored to allow access to the Temporary Soil Stockpile Area.

Additional notes regarding the excavation are provided below.

- Excavations will be completed in the dry. See Section 4.6.2 below.
- Care will be taken such that materials requiring off-site disposal will not be mixed with materials that are below the MPS (see Soil Use Plan in **Appendix J**).
- In order to minimize the over excavation of non-impacted material, it is anticipated that the excavation work will begin in those areas where the final bottom elevation is relatively shallow and progress towards the deeper excavation depths. Therefore, work will generally progress from south to north.
- Non-impacted material will be available for re-used for shoring and sloping as the excavation progresses to the deeper elevations.
- Throughout the excavation activities, the bottom and sides of each excavation area and the excavated materials will be visually inspected for elemental mercury. If observed, material containing elemental mercury will be segregated separately in the Temporary Soil Stockpile Area for disposal at an appropriate off-site facility.
- To the extent practical over-excavation will be minimized.

4.6.2 Excavation Dewatering

Water encountered within the excavations prior to obtaining the limits shown on **Drawing 10** will be considered contact water and will require treatment at the on-site GWTP. Based on groundwater level measurements observed from monitoring wells and piezometers located along the eastern and western perimeter of the landfill, the static groundwater elevation may be above the bottom of excavation. In addition, a gravel seam was detected in the northeast portion of the landfill which may be a conduit for groundwater flow into the excavation. To reduce the amount of groundwater which may infiltrate into the excavation a temporary sheet pile wall will be installed in the northeastern portion of the Landfill 2 area (labelled Sheet Pile Wall on **Drawing 12**). Incremental excavation and backfilling will also be conducted to reduce the volume of contact water that may occur at any given time.

Groundwater levels in the excavation area will be maintained at least one foot below the bottom of the excavation. Sumps and/or well points will be used to remove contact water from the excavation areas. Contact water generated from precipitation events and groundwater inflows will be transferred to the GWTP either in tanker trucks or via pipe. Calculations for the necessary storage capacity to manage the anticipated quantity of contact water are presented in **Appendix I-2**. The means and methods that the Remediation Contractor will use to dewater the excavations (e.g. sumps, well points) and transport the contact water to the on-site GWTP will be presented in the Remediation Contractor's Construction Water Management Plan.

4.6.3 Excavation Support/Stability

Stability of the excavation sidewalls will be maintained by sloping, benching and/or shoring (e.g. sheet piles, soldier pile and lagging, trench boxes, etc.) in compliance with applicable safety regulations and the Site HASP (CDM Smith, 2014a).. Slope stability analysis for the excavation work is presented in **Appendix I-3**. Excavated slopes through existing material shall be 2.5 horizontal to 1 vertical or shallower. Clean backfill may be placed at a slope of 2 horizontal to 1 vertical or shallower. Vertical 5 ft tall benches may be cut; however, they are to be buttressed at the end of every workday with sloped

clean backfill. The Remediation Contractor's Excavation and Restoration Plan will describe the proposed sloping and shoring approach.

4.6.4 Excavation As-Built Survey and Backfill

The limits of the excavation will be as-built surveyed at each control point location (e.g. confirmation sample location) and bottom elevations by a surveyor licensed in the State of Maine.

Backfilling will be incrementally performed once excavation has been completed in designated areas to the elevations shown on **Drawing 10** and post-excavation bottom and sidewall confirmation sampling has confirmed no material that will be left in place exceeds the MPS criteria. The excavation areas will be backfilled in accordance with the Specifications (**Appendix G**) and Soil Use Plan (**Appendix J**). The excavation and backfilling sequencing will be presented in the Remediation Contractor's Excavation and Restoration Work Plan.

4.6.5 Transportation and Disposal

Transportation and disposal activities will be completed in accordance with the Logistics Work Plan (CDM Smith, 2015d). The material will be disposed of based on the criteria outlined in Section 2.1.2. Waste profile samples will be collected at a rate determined by the disposal facility. A waste profile(s) will be developed for the material and sent to the appropriate disposal facility for acceptance.

It is anticipated that the majority of the material from the Landfill 2 area will be transported via rail car. In general, soils will be placed in the Temporary Soil Stockpile Area (**Drawing 6**) and then loaded into the rail cars. Direct loading into the rail cars may also be performed.

4.7 Stormwater Management

Calculations provided in **Appendix I-4** show that the post-remediation condition peak flow rates will be less than the pre-remediation peak flow rates under all evaluated design storms. The graded slope under the post-remediation condition is 5% to 10%, which satisfies the requirement of the Maine Erosion and Sediment (ESC) Manual (Maine DEP 2015). No additional stormwater diversions are required since the Landfill 2 area will be stabilized by permanent vegetation, and the length of graded slope is less than 100 feet (i.e. no concentrated flow is expect to happen). The calculations show that the final grading and stormwater management plans presented on **Drawings 13** and **15,** respectively are sufficient to handle stormwater under the requirements of Maine regulations.

4.8 Final Grading

Design objectives for the Landfill 2 area include stabilizing the area against erosion. As shown on **Drawings 13 and 15**, much of the backfilled Landfill 2 area will be final graded to slope at approximately 2 percent toward the Southerly Stream. Localized slopes adjacent to the rail line and the Southerly Stream will be steeper. The final grades will be achieved by backfilling the excavation with On-Site Reused Material and/or common fill from off-site. Six inches of topsoil will be placed over the area and seeded. The seed mix is designed for erosion control and vegetation restoration.

Excavations in the portion of the Southerly Stream adjacent to Landfill 2 will be restored as part of the Southerly Stream CMI and will be backfilled to within 2 feet of the existing elevations or left at the excavation bottom grades until that time.

Section 5.
Permitting

The Landfill 2 remediation requires the following permits:

- Natural Resources Protection Act Permit (NRPA); per NRPA there is a 75-foot setback measured horizontally of the normal high water line of a great pond, river, stream or brook or the upland edge of a coastal wetland or freshwater wetland (Protected Natural Resources). NRPA also applies to projects located within essential habitats of a threatened or endangered species. The overall remediation project qualifies for a Permit by Rule Category #13 – Habitat Creation or Enhancement and Water Quality Improvement Activities. A PBR Application was previously filed for the Landfill Ridge CMI and presumptive approval was received 14 calendar days thereafter (i.e., no comments received). NRPA rules allow PBR applications to be submitted for work to be completed in two-year increments. The Maine DEP (Jim Beyer) indicated that the Landfill Ridge PBR application applies to the entire project and that the only additional information required under the PBR is the CMI for each phase of work that occurs within the 75-foot setback and/or located within essential habitats, including the northern portion of the Southerly Stream. The application consists of a one-page NRPA notification form, a cover letter and additional project information, figures, project plans, and documentation of correspondence with USFWS and MDIFW, as applicable. Presumptive approval is granted if no response is issued within 14 days of submittal and the permit is valid for two years. Following completion of each phase, photographs of the affected area should be submitted to DEP.

- United States Fisheries and Wildlife Service (USFWS) and/or Maine Department of Inland Fisheries and Wildlife (MDIFW) Consultation; because the Northern Long-Eared Bat (NLEB) was listed as a federally threatened species since initial contact with USFWS, follow-up consultation is also required that will result in a determination of the precautions to be taken to reduce the risk of impact to potential NLEB habitat which may exist along the northern portion of the Southerly Stream.

- Maine Construction General Permit (CGP); Maine DEP has been delegated authority by the USEPA under the National Pollutant Discharge Elimination System (NPDES) permit program to issue stormwater permits for construction activities (which include excavation, dredging, and filling). This permit is required for construction activities that result in greater than one acre of land disturbance. To address this requirement, a Notice of Intent (NOI) will be submitted, consisting of a one-page notification form, a cover letter, an Erosion and Sedimentation Control Plan, and project figures and plans. Additionally, if work is to occur within an essential habitat of threatened or endangered species, documentation of approval from MDIFW must also be submitted. A Notice of Termination must be submitted at the completion of construction activities. Presumptive approval is granted if no response is issued within two weeks of submittal. The expiration of the permit is variable and it can be reissued.

- Maine State General Permit; per the Maine General Permit and overseen by the United States Army Corps of Engineers (USACE), either a USACE Category 1 Self-Verification Form or a USACE Category 2 Pre-Construction Notification must be filed for special activities including removal of hazardous or toxic materials within Inland and Navigable Waters of the United States. Landfill 2 is surrounded by jurisdictional wetlands that is within the limits of excavation for Landfill 2. The category determination is dependent on the square footage of direct wetland impact; based on the limits of excavation, more than 15,000 sf of direct wetland impact is anticipated and therefore a Category 2 Pre-Construction Notification must be filed. The

Category 2 Application consists of multi-page notification form (ENG Form 4345) and requires detailed information about the existing conditions, including natural resource areas and federal-listed threatened and endangered species on-site, in addition to project plans and project locus figures. For Category 2 Applications, work can only begin with the written consent from the Corps. For such special activities the wetlands altered must be restored in place.

Section 6.
Schedule

The anticipated schedule for the Landfill Ridge Area CMI Plan is included as **Table 6-1.**

Table 6-1: Proposed Schedule for Landfill 2 CMI Plan

Task	Anticipated Start Date	Anticipated End Date
Submit DRAFT Landfill 2 CMI Plan to Maine DEP	Jan 13, 2016	Jan 13, 2016
Maine DEP CMI Plan Meeting	Feb 23, 2016	Feb 23, 2016
Maine DEP Review	Jan 14, 2016	May 26, 2016
Procurement of Remedial Contractor	Jan 27, 2016	March 30, 2016
Submission of Remedial Contractor Work Plans	March 31, 2016	July 29, 2016
Maine DEP Review of Work Plan	July 29, 2016	September 12, 2016
Finalize CMI Plan	September 13, 2016	October 7, 2016
Maine DEP Final Review and Approval	October 8, 2016	October 31, 2016
Mobilize for Construction Activities	November 1, 2016	November 1, 2016

Section 7.
References

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by Mallinckrodt Inc., Proceeding Under 38 M.R.S.A. § 1365, Uncontrolled Hazardous Substance Sites Law; November 24.

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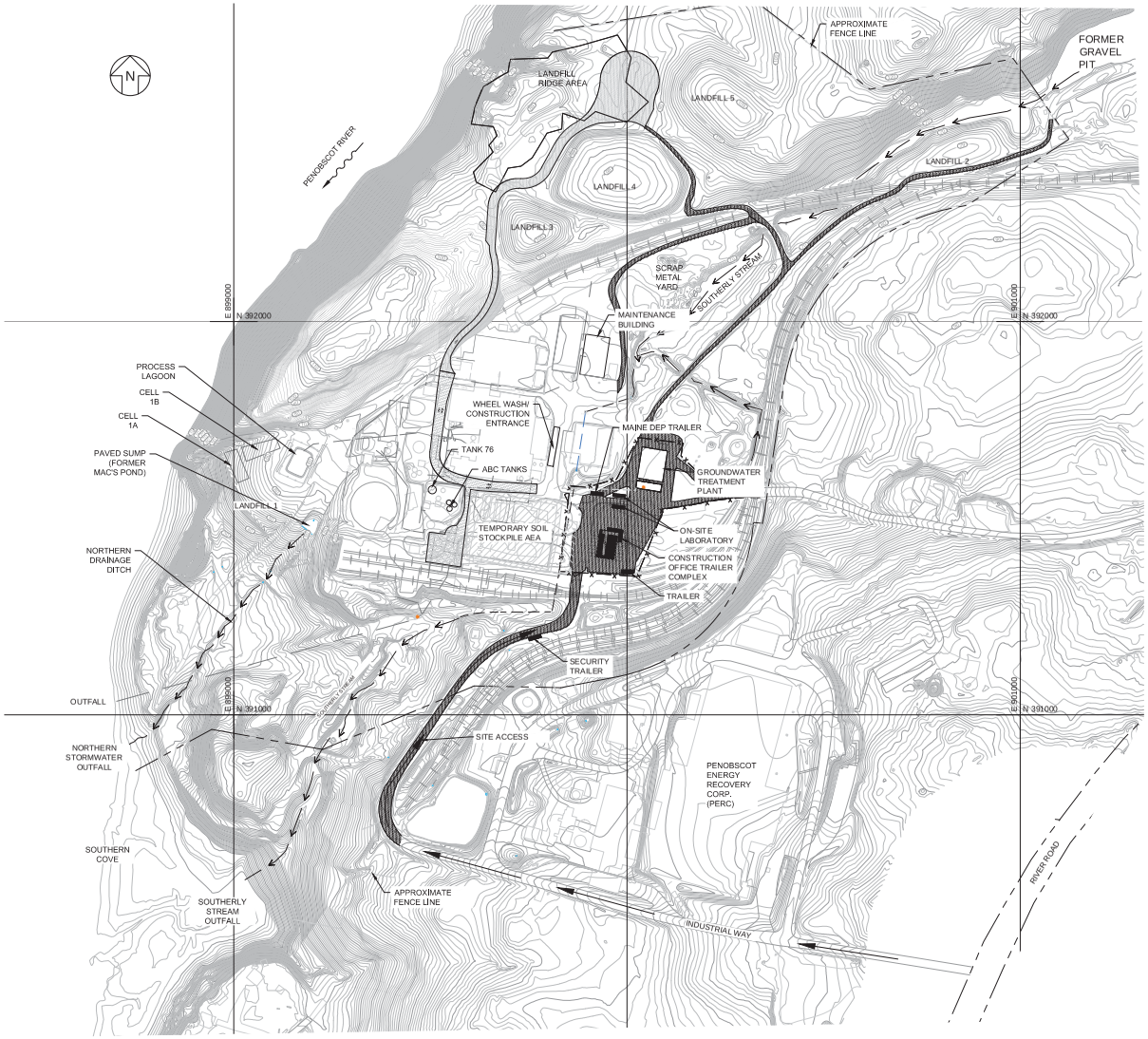

LEGEND

- PROPERTY LINE
- EXISTING GROUND ELEVATION (FT)
- FENCE LINE
- ROADWAY
- RAILROAD
- SOUTHERLY STREAM CULVERT
- SOUTHERLY STREAM / NORTHERN DITCH

0 150' 300'
SCALE IN FEET

NOTES:
1. THE SITE IS LOCATED AT 99 INDUSTRIAL WAY, ORRINGTON MAINE 04474.
2. EXISTING TOPOGRAPHY AND SITE FEATURES ARE BASED ON A SURVEY CONDUCTED BY THE JAMES W. SEWALL COMPANY IN 2003 AND PROVIDED IN CDMSMITH DRAWING "38410C_MASTER-SURVEY.DWG" AND ARE UPDATED BY CES, INC. OF BANGOR MAIN. THE HORIZONTAL DATUM IS NAD83 (NORTH AMERICAN DATUM 1983) MAINE STATE PLANE (EAST ZONE) AND THE VERTICAL DATUM IS NAVD 88 (NORTH AMERICAN VERTICAL DATUM 1988).
3. HISTORICAL INVESTIGATION LOCATIONS ARE APPROXIMATE AND HAVE BEEN OBTAINED FROM VARIOUS HISTORICAL DOCUMENTS.
4. STRUCTURES HAVE BEEN DEMOLISHED AND ONLY FOUNDATIONS REMAIN, WITH THE EXCEPTION OF IDENTIFIED WHICH REMAIN.

CMI PLAN

SITE PLAN

ORRINGTON REMEDIATION SITE
ORRINGTON, MAINE

CDM Smith | Geosyntec consultants

Acton, MA | OCTOBER 2015

Figure: 1-1

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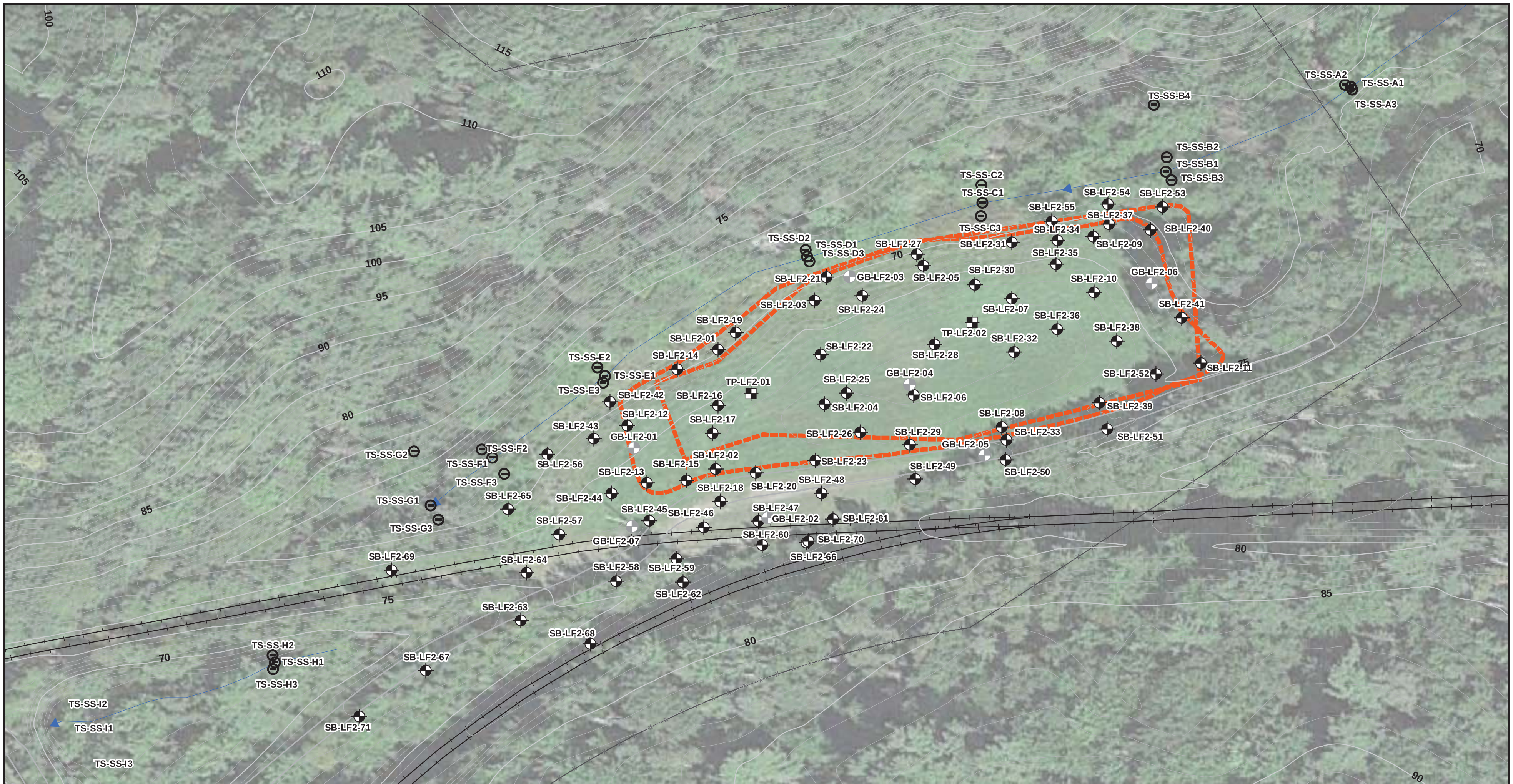


LEGEND

- HISTORIC SOIL BORING
- PRE-DESIGN SOIL BORING
- PRE-DESIGN TEST PIT
- PRE-DESIGN TRANSECT LOCATION
- EXISTING GROUND ELEVATION (FEET)
- SOUTHERLY STREAM
- APPROXIMATE LIMIT OF LANDFILL (FROM CMS REPORT)

NOTES:
1. EXISTING TOPOGRAPHY AND SITE FEATURES ARE BASED ON A SURVEY CONDUCTED BY THE JAMES W. SEWALL COMPANY IN 2003 AND PROVIDED IN CDMSMITH DRAWING "38410C_MASTER-SURVEY.DWG". THE HORIZONTAL DATUM IS NAD83 (NORTH AMERICAN DATUM 1983) MAINE STATE PLANE (EAST ZONE) AND THE VERTICAL DATUM IS NAVD 88 (NORTH AMERICAN VERTICAL DATUM 1988).
2. HISTORICAL INVESTIGATION LOCATIONS ARE APPROXIMATE AND HAVE BEEN OBTAINED FROM VARIOUS HISTORICAL DOCUMENTS.
3. PRE-DESIGN INVESTIGATION LOCATIONS WERE OBTAINED BY CES, INC OF BANGOR MAINE BETWEEN THE DATES OF JUNE 15, 2015 AND OCTOBER 15, 2015.

N

0 70'

SCALE IN FEET

LANDFILL 2
PRE-DESIGN INVESTIGATION LOCATIONS
ORRINGTON REMEDIATION SITE
ORRINGTON, MAINE

CDM Smith | Geosyntec consultants | Figure: 2-1
Acton, MA | SEPTEMBER 2016

(Q:\ = \\boston-01\GIS$\) Q:\GISProjects\8\R0292_Orrington\ME\MXD\Mercury_Figures\LF2\1006\Figure2_1_LF2_locations_w_historic.mxd; author: acarnes; 9/21/2016

LANDFILL 2 CORRECTIVE MEASURES IMPLEMENTATION PLAN
ORRINGTON REMEDIATION SITE
ORRINGTON, MAINE
FEBRUARY 2016

SOURCE: BY BING MAPS.

VICINITY MAP
NOT TO SCALE

LIST OF DRAWINGS		
DRAWING NO.	DRAWING TITLE	REV.
1	COVER SHEET	1
2	GENERAL NOTES AND LEGEND	1
3	SITE PLAN	1
4	EXISTING CONDITIONS	1
5	EROSION CONTROL AND SITE LAYOUT PLAN - SHEET 1	1
6	EROSION CONTROL AND SITE LAYOUT PLAN - SHEET 2	1
7	SUBSURFACE PROFILES - SHEET 1	1
8	SUBSURFACE PROFILES - SHEET 2	1
9	CONFIRMATION SAMPLING PLAN	1
10	EXCAVATION PLAN	1
11	EXCAVATION TABLES	1
12	EXCAVATION SEQUENCE AND MONITORING PLAN	0
13	FINAL GRADING PLAN	0
14	FINAL GRADE PROFILES	1
15	SITE RESTORATION AND STABILIZATION PLAN	0
16	SEDIMENT AND EROSION CONTROL DETAILS	0
17	SITE STABILIZATION DETAILS	0
18	MISCELLANEOUS DETAILS	0

MODIFICATIONS TO DRAWINGS ARE INDICATED BY A 1

SOURCE: Aerial photo provided by CDMSmith in image file named "aerial poster"

LOCATION MAP
NOT TO SCALE

PREPARED FOR:

MALLINCKRODT US LLC

REV	DATE	DESCRIPTION	DRN	APP
1	2016.10.04	EXCAVATION PLAN REVISIONS	JHT	CMG

CDM Smith

Geosyntec consultants

TITLE: COVER SHEET

PROJECT: LANDFILL 2 CORRECTIVE MEASURES IMPLEMENTATION PLAN
ORRINGTON REMEDIATION SITE

SITE: ORRINGTON, MAINE

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.

SIGNATURE

2016.10.04
DATE

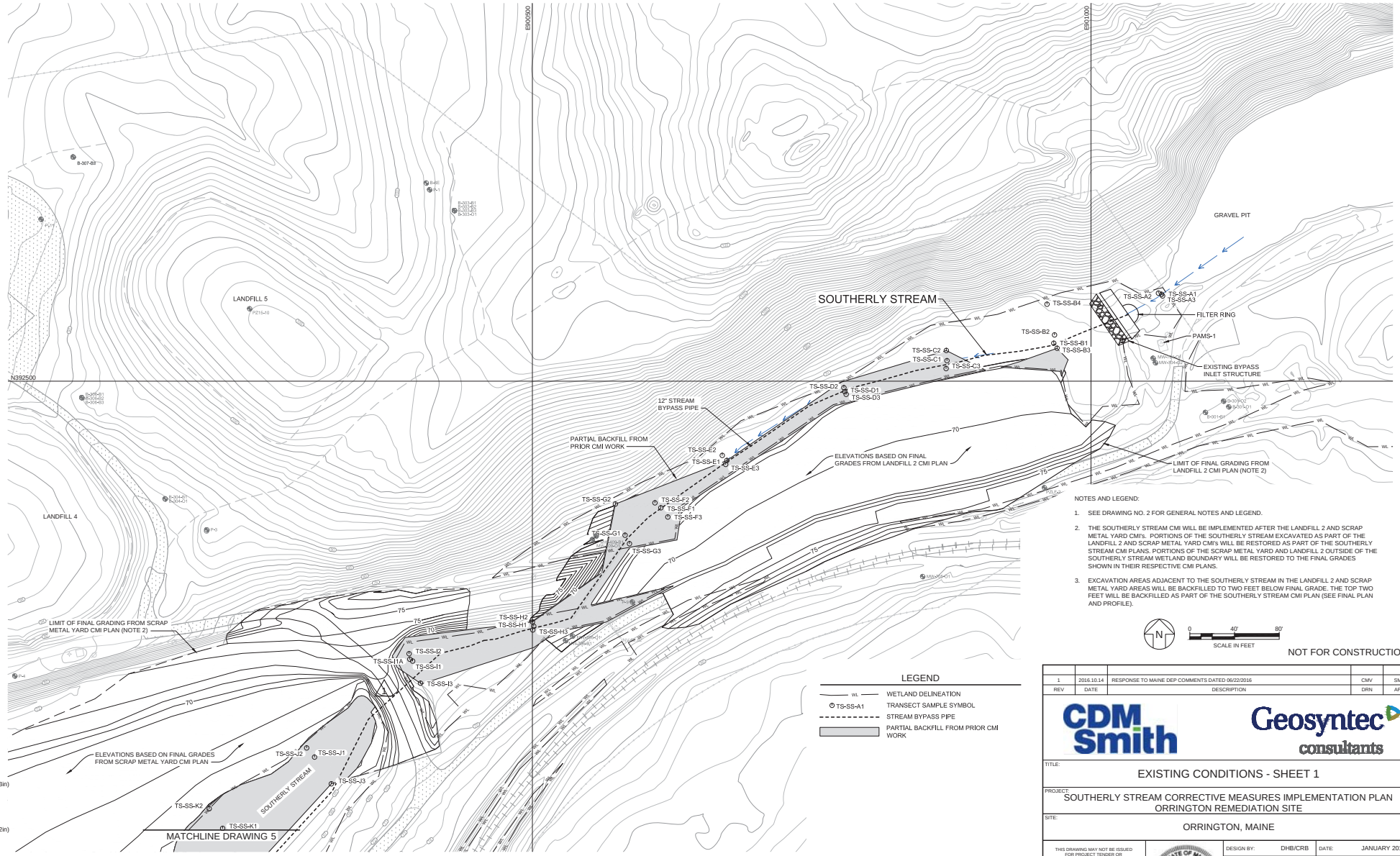
STATE OF MAINE
SCOTT M. LUETTICH
No. 7452
LICENSED
PROFESSIONAL ENGINEER

DESIGN BY:	JJB	DATE:	FEBRUARY 2016
DRAWN BY:	JHT	PROJECT NO.:	BR0292
CHECKED BY:	JJB	FILE:	
REVIEWED BY:	DTD/CMG	DRAWING NO.:	
APPROVED BY:	SML		1 OF 18

(3in)
(2in)
(1in)
(1in) (2in) (3in) (4in)
SCALE IS BASED ON 22" X 34" NON-REDUCED SHEET SIZE (BORDER = 21" X 32")

CMI PLAN REV 1

T:\Projects_CADD\O\ORRINGTON\ORRINGTON ME Remediation II\DES\GN\LANDFILL 2\DRAWINGS\BR0292-LF2_CMI-0001 (COVER).dwg Last Edited By:JHTAY LOR



NOTES AND LEGEND:

1. SEE DRAWING NO. 2 FOR GENERAL NOTES AND LEGEND.
2. THE SOUTHERLY STREAM CMI WILL BE IMPLEMENTED AFTER THE LANDFILL 2 AND SCRAP METAL YARD CMI's. PORTIONS OF THE SOUTHERLY STREAM EXCAVATED AS PART OF THE LANDFILL 2 AND SCRAP METAL YARD CMI's WILL BE RESTORED AS PART OF THE SOUTHERLY STREAM CMI PLANS. PORTIONS OF THE SCRAP METAL YARD AND LANDFILL 2 OUTSIDE OF THE SOUTHERLY STREAM WETLAND BOUNDARY WILL BE RESTORED TO THE FINAL GRADES SHOWN IN THEIR RESPECTIVE CMI PLANS.
3. EXCAVATION AREAS ADJACENT TO THE SOUTHERLY STREAM IN THE LANDFILL 2 AND SCRAP METAL YARD AREAS WILL BE BACKFILLED TO TWO FEET BELOW FINAL GRADE. THE TOP TWO FEET WILL BE BACKFILLED AS PART OF THE SOUTHERLY STREAM CMI PLAN (SEE FINAL PLAN AND PROFILE).

NOT FOR CONSTRUCTION

CMI PLAN REV 1

REV	DATE	DESCRIPTION	DRN	APP
1	2016.10.14	RESPONSE TO MAINE DEP COMMENTS DATED 06/22/2016	CMV	SML

CDM Smith

Geosyntec consultants

TITLE: EXISTING CONDITIONS - SHEET 1

PROJECT: SOUTHERLY STREAM CORRECTIVE MEASURES IMPLEMENTATION PLAN
ORRINGTON REMEDIATION SITE

SITE: ORRINGTON, MAINE

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.

SIGNATURE

2016.10.14
DATE

STATE OF MAINE SCOTT M. LUETTICH No. 7482 LICENSED PROFESSIONAL ENGINEER

DESIGN BY:	DHB/CRB	DATE:	JANUARY 2016
DRAWN BY:	JHT/CMV	PROJECT NO.:	BR0292.11.03
CHECKED BY:	DHB/JMJ/CRB	FILE:	
REVIEWED BY:	DTD/CMG	DRAWING NO.:	
APPROVED BY:	SML	4 OF 26	

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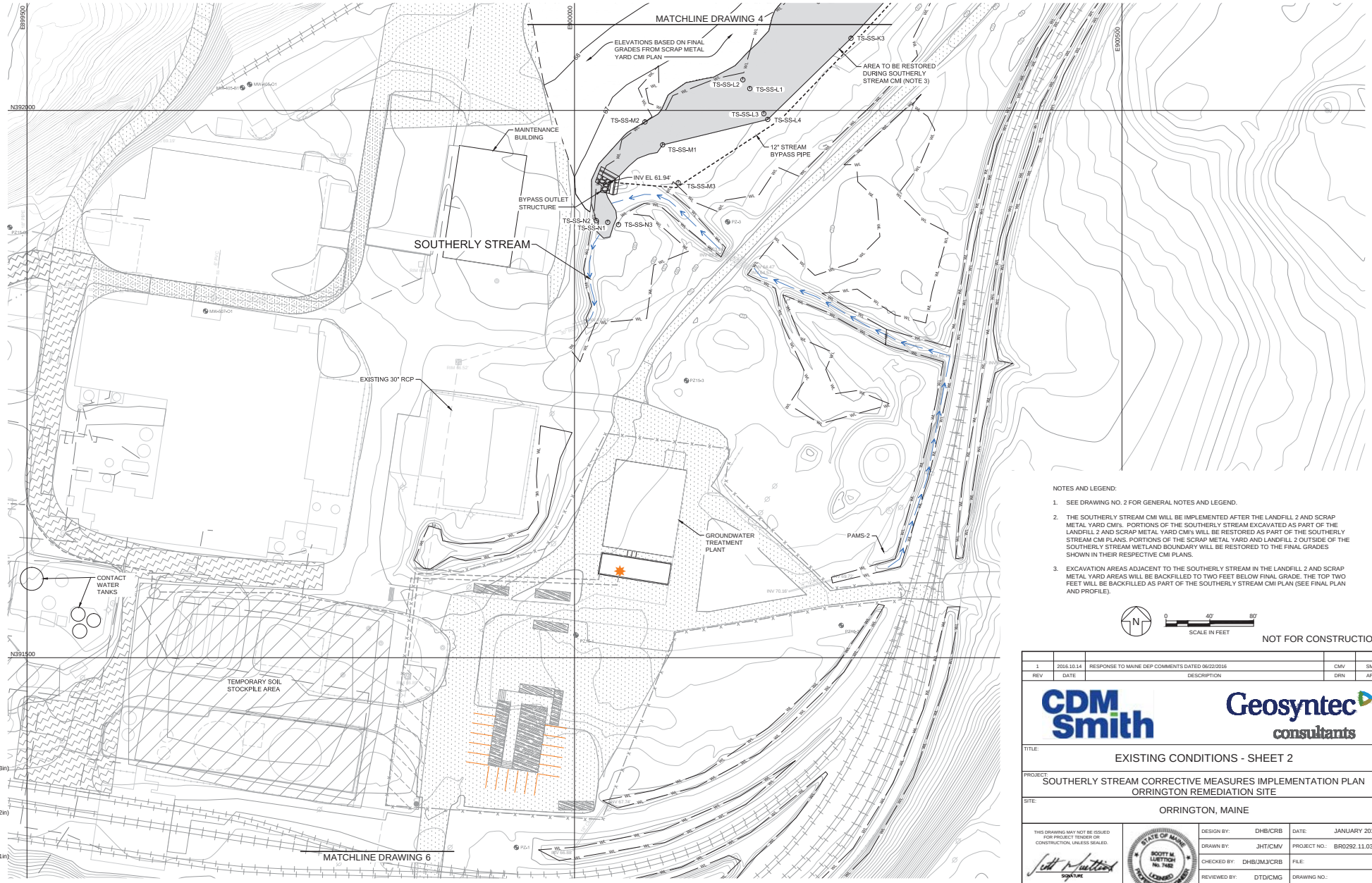

NOTES AND LEGEND:

1. SEE DRAWING NO. 2 FOR GENERAL NOTES AND LEGEND.
2. THE SOUTHERLY STREAM CMI WILL BE IMPLEMENTED AFTER THE LANDFILL 2 AND SCRAP METAL YARD CMI's. PORTIONS OF THE SOUTHERLY STREAM EXCAVATED AS PART OF THE LANDFILL 2 AND SCRAP METAL YARD CMI's WILL BE RESTORED AS PART OF THE SOUTHERLY STREAM CMI PLANS. PORTIONS OF THE SCRAP METAL YARD AND LANDFILL 2 OUTSIDE OF THE SOUTHERLY STREAM WETLAND BOUNDARY WILL BE RESTORED TO THE FINAL GRADES SHOWN IN THEIR RESPECTIVE CMI PLANS.
3. EXCAVATION AREAS ADJACENT TO THE SOUTHERLY STREAM IN THE LANDFILL 2 AND SCRAP METAL YARD AREAS WILL BE BACKFILLED TO TWO FEET BELOW FINAL GRADE. THE TOP TWO FEET WILL BE BACKFILLED AS PART OF THE SOUTHERLY STREAM CMI PLAN (SEE FINAL PLAN AND PROFILE).

N

0 40' 80'
SCALE IN FEET

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
1	2016.10.14	RESPONSE TO MAINE DEP COMMENTS DATED 06/22/2016	CMV	SML

CDM Smith

Geosyntec consultants

TITLE:

EXISTING CONDITIONS - SHEET 2

PROJECT:

SOUTHERLY STREAM CORRECTIVE MEASURES IMPLEMENTATION PLAN
ORRINGTON REMEDIATION SITE

SITE:

ORRINGTON, MAINE

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SIGNATURE

2016.10.14
DATE

STATE OF MAINE SCOTT M. LUETTICH No. 7482 LICENSED PROFESSIONAL ENGINEER

DESIGN BY:	DHB/CRB	DATE:	JANUARY 2016
DRAWN BY:	JHT/CMV	PROJECT NO.:	BR0292.11.03
CHECKED BY:	DHB/JMJ/CRB	FILE:	
REVIEWED BY:	DTD/CMG	DRAWING NO.:	
APPROVED BY:	SML		5 OF 26

(3in) (2in) (1in)

(1in) (2in) (3in) (4in)

SCALE IS BASED ON 22" X 34" NON-REDUCED SHEET SIZE (BORDER = 21" X 32")

CMI PLAN REV 1

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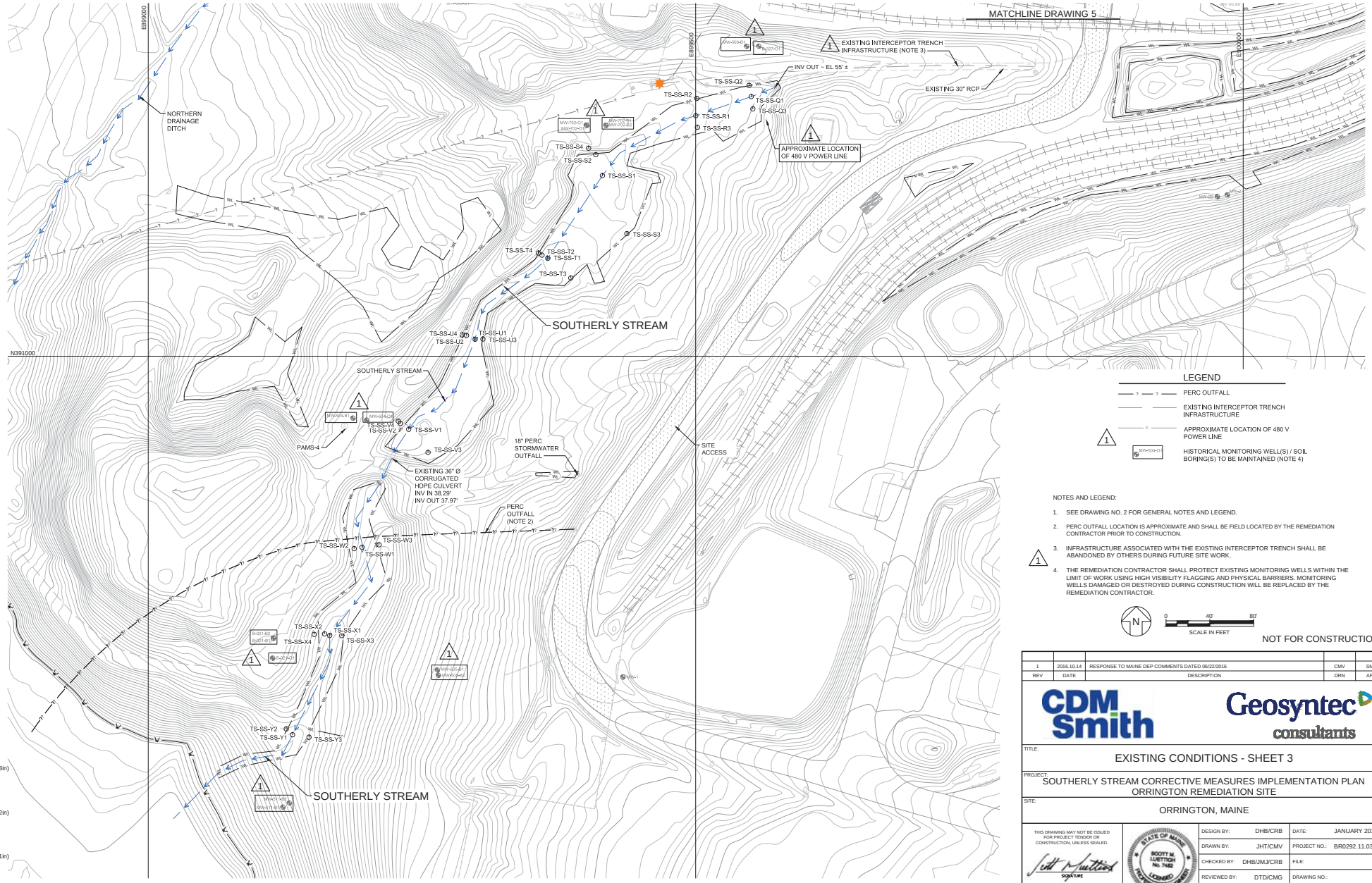

NOT FOR CONSTRUCTION

CMI PLAN REV 1

REV	DATE	DESCRIPTION	DRN	APP
1	2016.10.14	RESPONSE TO MAINE DEP COMMENTS DATED 06/22/2016	CMV	SML

CDM Smith

Geosyntec consultants

TITLE:

EXISTING CONDITIONS - SHEET 3

PROJECT:

SOUTHERLY STREAM CORRECTIVE MEASURES IMPLEMENTATION PLAN
ORRINGTON REMEDIATION SITE

SITE:

ORRINGTON, MAINE

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SIGNATURE

2016.10.14
DATE

STATE OF MAINE SCOTT M. LUETTICH No. 7482 LICENSED PROFESSIONAL ENGINEER

DESIGN BY:	DHB/CRB	DATE:	JANUARY 2016
DRAWN BY:	JHT/CMV	PROJECT NO.:	BR0292.11.03
CHECKED BY:	DHB/JMJ/CRB	FILE:	
REVIEWED BY:	DTD/CMG	DRAWING NO.:	
APPROVED BY:	SML		6 OF 26

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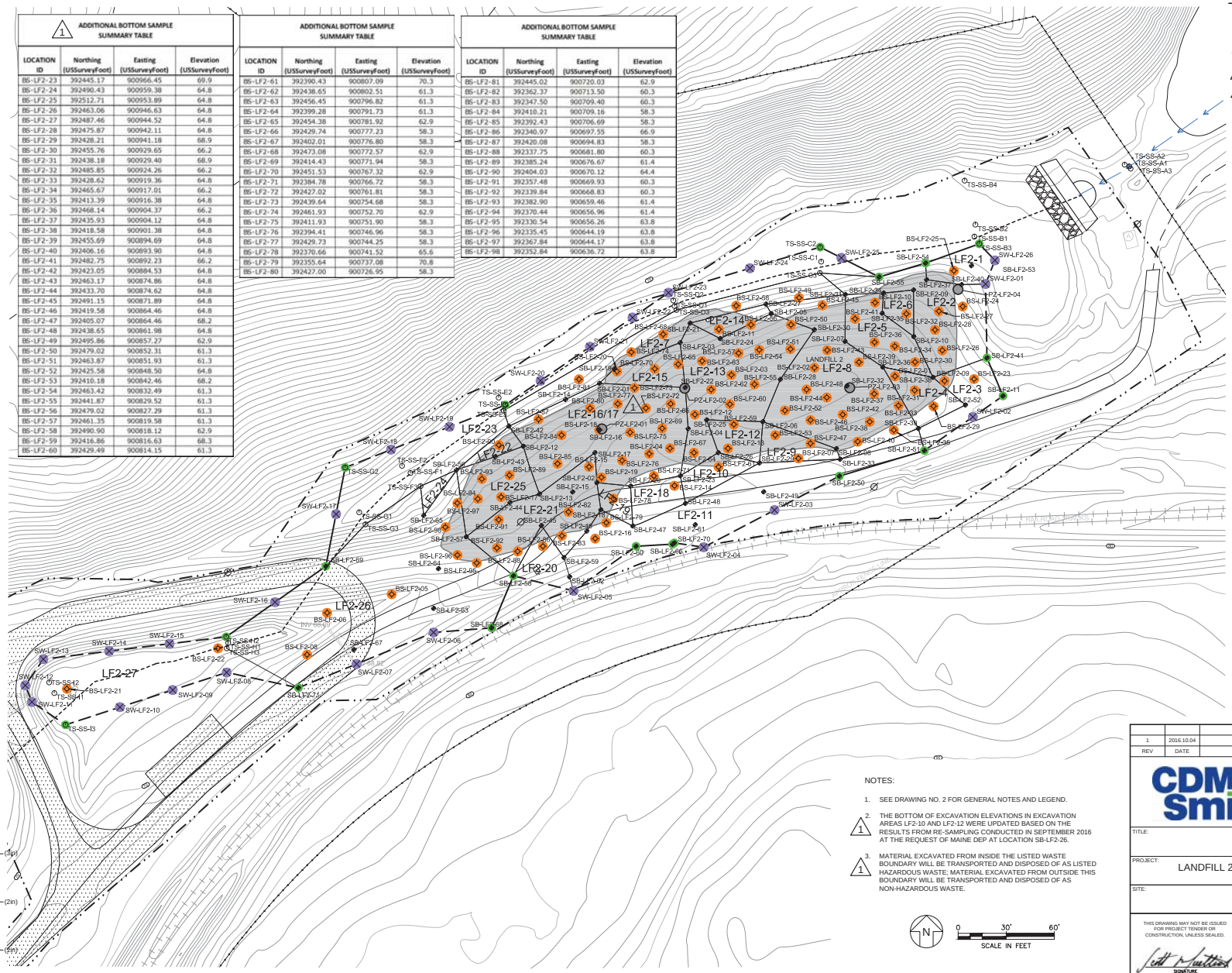


1 ADDITIONAL BOTTOM SAMPLE SUMMARY TABLE

LOCATION ID	Northing (USSurveyFoot)	Easting (USSurveyFoot)	Elevation (USSurveyFoot)
BS-LF2-23	392445.17	900966.45	69.9
BS-LF2-24	392490.43	900959.38	64.8
BS-LF2-25	392512.71	900953.89	64.8
BS-LF2-26	392463.06	900946.63	64.8
BS-LF2-27	392487.46	900944.52	64.8
BS-LF2-28	392475.87	900942.11	64.8
BS-LF2-29	392428.21	900941.18	68.9
BS-LF2-30	392455.76	900929.65	66.2
BS-LF2-31	392438.18	900929.40	68.9
BS-LF2-32	392485.85	900924.26	66.2
BS-LF2-33	392428.62	900919.36	64.8
BS-LF2-34	392465.67	900917.01	66.2
BS-LF2-35	392413.39	900916.38	64.8
BS-LF2-36	392468.14	900904.37	66.2
BS-LF2-37	392435.93	900904.12	64.8
BS-LF2-38	392418.58	900901.38	64.8
BS-LF2-39	392455.69	900894.69	64.8
BS-LF2-40	392406.16	900893.90	64.8
BS-LF2-41	392482.75	900892.23	66.2
BS-LF2-42	392423.05	900884.53	64.8
BS-LF2-43	392463.17	900874.86	64.8
BS-LF2-44	392433.70	900874.62	64.8
BS-LF2-45	392491.15	900871.89	64.8
BS-LF2-46	392419.58	900864.46	64.8
BS-LF2-47	392405.07	900864.46	68.2
BS-LF2-48	392438.65	900861.98	64.8
BS-LF2-49	392495.86	900857.27	62.9
BS-LF2-50	392479.02	900852.31	61.3
BS-LF2-51	392463.87	900851.93	61.3
BS-LF2-52	392425.58	900848.50	64.8
BS-LF2-53	392410.18	900842.46	68.2
BS-LF2-54	392463.42	900832.49	61.3
BS-LF2-55	392441.87	900829.52	61.3
BS-LF2-56	392479.02	900827.29	61.3
BS-LF2-57	392461.35	900819.58	61.3
BS-LF2-58	392490.90	900818.12	62.9
BS-LF2-59	392416.86	900816.63	68.3
BS-LF2-60	392429.49	900814.15	61.3

ADDITIONAL BOTTOM SAMPLE SUMMARY TABLE

LOCATION ID	Northing (USSurveyFoot)	Easting (USSurveyFoot)	Elevation (USSurveyFoot)
BS-LF2-61	392390.43	900807.09	70.3
BS-LF2-62	392438.65	900802.51	61.3
BS-LF2-63	392456.45	900796.82	61.3
BS-LF2-64	392399.28	900791.73	61.3
BS-LF2-65	392454.38	900781.92	62.9
BS-LF2-66	392429.74	900777.23	58.3
BS-LF2-67	392402.01	900776.80	58.3
BS-LF2-68	392473.08	900772.57	62.9
BS-LF2-69	392414.43	900771.94	58.3
BS-LF2-70	392451.53	900767.32	62.9
BS-LF2-71	392384.78	900766.72	58.3
BS-LF2-72	392427.02	900761.81	58.3
BS-LF2-73	392439.64	900754.68	58.3
BS-LF2-74	392461.93	900752.70	62.9
BS-LF2-75	392411.93	900751.90	58.3
BS-LF2-76	392394.41	900746.96	58.3
BS-LF2-77	392429.73	900744.25	58.3
BS-LF2-78	392370.66	900741.52	65.6
BS-LF2-79	392355.64	900737.08	70.8
BS-LF2-80	392427.00	900726.95	58.3

ADDITIONAL BOTTOM SAMPLE SUMMARY TABLE

LOCATION ID	Northing (USSurveyFoot)	Easting (USSurveyFoot)	Elevation (USSurveyFoot)
BS-LF2-81	392445.02	900720.03	62.9
BS-LF2-82	392362.37	900713.50	60.3
BS-LF2-83	392347.50	900709.40	60.3
BS-LF2-84	392410.21	900709.16	58.3
BS-LF2-85	392392.43	900706.69	58.3
BS-LF2-86	392340.97	900697.55	66.9
BS-LF2-87	392420.08	900694.83	58.3
BS-LF2-88	392337.75	900681.80	60.3
BS-LF2-89	392385.24	900676.67	61.4
BS-LF2-90	392404.03	900670.12	64.4
BS-LF2-91	392357.48	900669.93	60.3
BS-LF2-92	392339.84	900668.83	60.3
BS-LF2-93	392382.90	900659.46	61.4
BS-LF2-94	392370.44	900656.96	61.4
BS-LF2-95	392330.54	900656.26	63.8
BS-LF2-96	392335.45	900644.19	63.8
BS-LF2-97	392367.84	900644.17	63.8
BS-LF2-98	392352.84	900636.72	63.8

LEGEND

- PRE-EXCAVATION SIDEWALL SAMPLE (MERCURY CONCENTRATIONS ARE BELOW THE MPS AT EACH INTERVAL)
- PRE-EXCAVATION BOTTOM SAMPLE
- 1 POST-EXCAVATION BOTTOM SAMPLE
- POST-EXCAVATION SIDE WALL SAMPLE (1 INTERVAL)
- 1 PRE-EXCAVATION PIEZOMETER
- 1 LISTED WASTE AREA

BOTTOM SAMPLE AND SIDEWALL SAMPLE SUMMARY TABLE

LOCATION ID	Northing (USSurveyFoot)	Easting (USSurveyFoot)	Elevation (USSurveyFoot)
1 BS-LF2-01	392446.95	900917.14	68.9
BS-LF2-02	392452.24	900866.91	64.8
BS-LF2-03	392447.78	900815.09	61.3
BS-LF2-04	392398.65	900763.85	55.2
BS-LF2-05	392311.04	900603.25	63.8
BS-LF2-06	392299.44	900562.94	63.8
BS-LF2-07	392395.73	900856.91	68.2
BS-LF2-08	392273.35	900550.47	63.8
BS-LF2-09	392443.96	900948.04	69.9
BS-LF2-10	392492.89	900904.68	66.2
1 BS-LF2-11	392476.24	900807.29	62.3
BS-LF2-12	392423.01	900792.32	61.3
BS-LF2-13	392401.91	900812.98	68.3
BS-LF2-14	392378.66	900779.6	70.3
BS-LF2-15	392390.45	900726.3	60.3
BS-LF2-16	392345.72	900730.17	70.8
BS-LF2-17	392371.65	900671.48	61.4
BS-LF2-18	392413.497	900732.71	58.3
BS-LF2-19	392383.874	900734.043	58.3
BS-LF2-20	392449.926	900743.763	62.9
BS-LF2-21	392252.109	900400.615	60.7
1 BS-LF2-22	392277.35	900494.818	60.7
SW-LF2-01	392504.43	900973.62	66-67
SW-LF2-02	392421.62	900965.73	72-73
SW-LF2-03	392363.51	900842.02	74-75
SW-LF2-04	392340.34	900797.84	74-75
SW-LF2-05	392313.16	900716.7	74-75
SW-LF2-06	392287.24	900629.38	64-65
SW-LF2-07	392267.58	900581.35	64-65
SW-LF2-08	392262.29	900500.36	63-64
SW-LF2-09	392251.34	900466.69	63-64
SW-LF2-10	392240.64	900433.78	63-64
SW-LF2-11	392243.85	900378.89	63-64
SW-LF2-12	392254.23	900374.73	63-64
SW-LF2-13	392270.58	900386.01	63-64
SW-LF2-14	392275.59	900427.08	63-64
SW-LF2-15	392280.18	900464.71	63-64
SW-LF2-16	392306.1	900530.53	64-65
SW-LF2-17	392360.96	900568.56	65-66
SW-LF2-18	392401.2	900602.87	65-66
SW-LF2-19	392415.4	900639.27	65-66
SW-LF2-20	392444.15	900696.13	65-66
SW-LF2-21	392465.32	900726.93	65-66
SW-LF2-22	392483.56	900753.45	65-66
SW-LF2-23	392499	900775.9	65-66
SW-LF2-24	392514.26	900826.65	65-66
SW-LF2-25	392520.74	900883.72	65-66
SW-LF2-26	392519.18	900979.47	66-67

NOTES:

1. SEE DRAWING NO. 2 FOR GENERAL NOTES AND LEGEND.
2. 1 THE BOTTOM OF EXCAVATION ELEVATIONS IN EXCAVATION AREAS LF2-10 AND LF2-12 WERE UPDATED BASED ON THE RESULTS FROM RE-SAMPLING CONDUCTED IN SEPTEMBER 2016 AT THE REQUEST OF MAINE DEP AT LOCATION SB-LF2-26.
3. 1 MATERIAL EXCAVATED FROM INSIDE THE LISTED WASTE BOUNDARY WILL BE TRANSPORTED AND DISPOSED OF AS LISTED HAZARDOUS WASTE; MATERIAL EXCAVATED FROM OUTSIDE THIS BOUNDARY WILL BE TRANSPORTED AND DISPOSED OF AS NON-HAZARDOUS WASTE.

N

0 30' 60'

SCALE IN FEET

CMI PLAN REV 1

REV	DATE	DESCRIPTION	DRN	APP
1	2016.10.04	EXCAVATION PLAN REVISIONS	JHT	CMG

CDM Smith

Geosyntec consultants

TITLE: CONFIRMATION SAMPLING PLAN

PROJECT: LANDFILL 2 CORRECTIVE MEASURES IMPLEMENTATION PLAN ORRINGTON REMEDIATION SITE

SITE: ORRINGTON, MAINE

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.

SIGNATURE

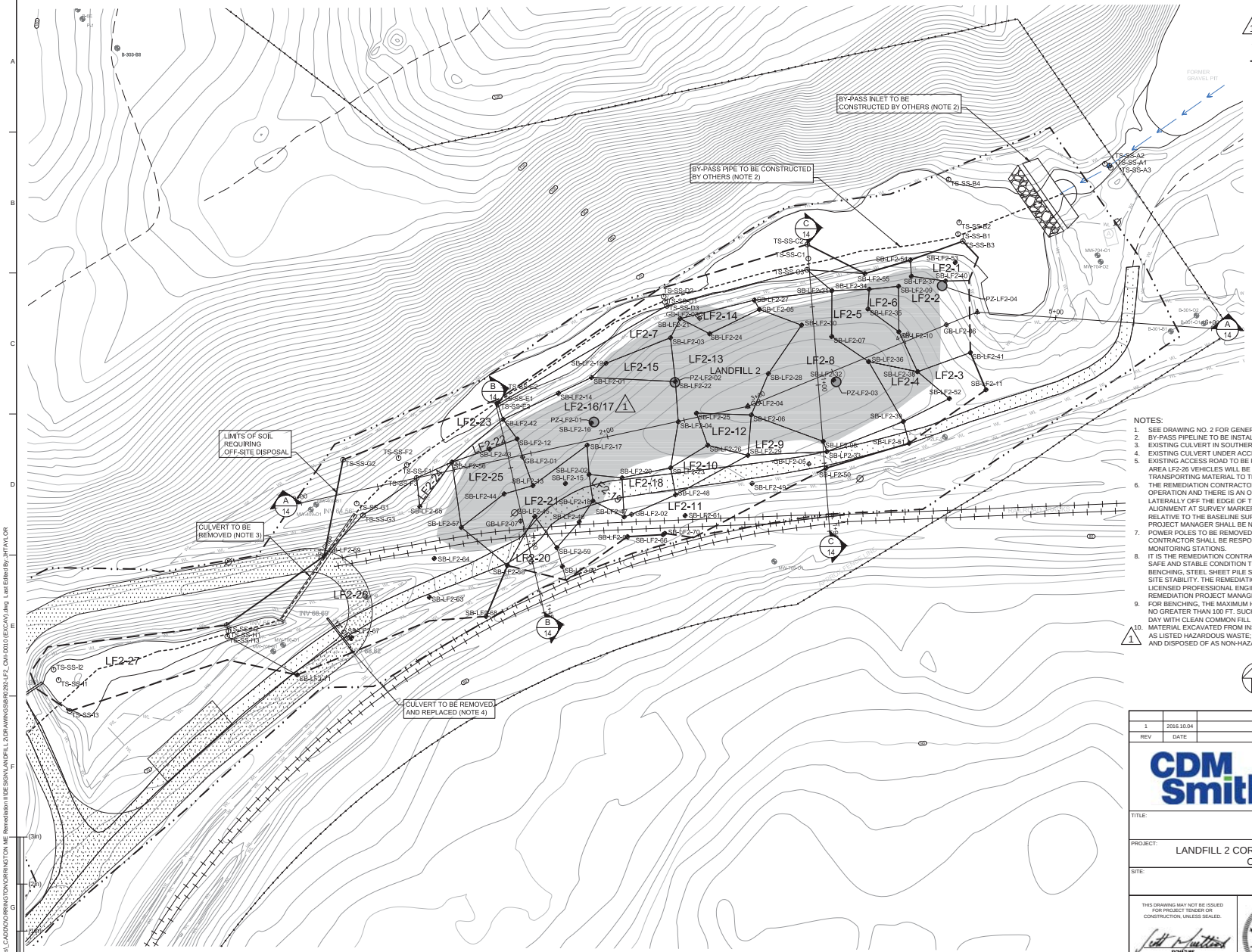
2016.10.04 DATE

SCOTT M. LUSTITECH No. 7482 LICENSED PROFESSIONAL ENGINEER

DESIGN BY:	JJB	DATE:	FEBRUARY 2016
DRAWN BY:	JHT	PROJECT NO.:	BR0292
CHECKED BY:	JJB	FILE:	
REVIEWED BY:	DTD/CMG	DRAWING NO.:	9 OF 18
APPROVED BY:	SML		

SCALE IS BASED ON 22" X 34" NON-REDUCED SHEET SIZE (BORDER = 21" X 32")

T:\Projects\...\ORRINGTON\ORRINGTON_ME Remediation II\DESIGN\LANDFILL 2\DRAWINGS\BR0292-LF2_CMI-0009 (CONFIRM).dwg Last Edited By: JHTAYLOR



NOTES:

1. SEE DRAWING NO. 2 FOR GENERAL NOTES AND LEGEND.
2. BY-PASS PIPELINE TO BE INSTALLED AS PART OF SCRAP METAL YARD CMI PLAN.
3. EXISTING CULVERT IN SOUTHERLY STREAM TO BE REMOVED AND NOT REPLACED.
4. EXISTING CULVERT UNDER ACCESS ROAD TO BE REMOVED AND REPLACED.
5. EXISTING ACCESS ROAD TO BE REMOVED AS REQUIRED DURING EXCAVATION. WHEN REMOVING EXCAVATION AREA LF2-26 VEHICLES WILL BE REQUIRED TO BACK IN FOR LOADING AND DECONTAMINATION PRIOR TO TRANSPORTING MATERIAL TO TEMPORARY SOIL STOCKPILE AREA.
6. THE REMEDIATION CONTRACTOR SHALL PERFORM DAILY SURVEYS OF THE RAILROAD LINES WHEN THEY ARE IN OPERATION AND THERE IS AN OPEN EXCAVATION WITHIN 5 HORIZONTAL TO 1 VERTICAL PROJECTION LATERALLY OFF THE EDGE OF TRACKS. SURVEYING SHALL BE PERFORMED EVERY 25 FT ALONG THE RAILROAD ALIGNMENT AT SURVEY MARKERS INDICATED. IF GREATER THAN 1/8-IN OF LATERAL MOVEMENT IS OBSERVED RELATIVE TO THE BASELINE SURVEY, NEARBY EXCAVATION WORK SHALL BE STOPPED AND THE REMEDIATION PROJECT MANAGER SHALL BE NOTIFIED.
7. POWER POLES TO BE REMOVED AND REPLACED AS REQUIRED TO SUPPORT EXCAVATION. REMEDIATION CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING AND MAINTAINING POWER TO PERIMETER AIR MONITORING STATIONS.
8. IT IS THE REMEDIATION CONTRACTOR'S RESPONSIBILITY TO MAINTAIN ALL SITE SLOPES AND EXCAVATIONS IN A SAFE AND STABLE CONDITION THROUGHOUT CONSTRUCTION. THE REMEDIATION CONTRACTOR MAY USE BENCHING, STEEL SHEET PILE SHORING, TRENCH BOX SHORING, OR OTHER SUITABLE METHODS TO ACHIEVE SITE STABILITY. THE REMEDIATION CONTRACTOR SHALL SUBMIT A SHORING DESIGN SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MAINE AND AN INSTALLATION PLAN TO THE REMEDIATION PROJECT MANAGER FOR REVIEW AND APPROVAL PRIOR TO COMMENCING THE WORK.
9. FOR BENCHING, THE MAXIMUM HEIGHT OF A BENCH SHALL BE 4 FT AND THE LENGTH OF THE BENCH SHALL BE NO GREATER THAN 100 FT. SUCH VERTICAL BENCHES SHALL BE BUTTRESSED PRIOR TO THE END OF THE WORK DAY WITH CLEAN COMMON FILL SLOPED AT 2 HORIZONTAL: 1 VERTICAL.
10. MATERIAL EXCAVATED FROM INSIDE THE LISTED WASTE BOUNDARY WILL BE TRANSPORTED AND DISPOSED OF AS LISTED HAZARDOUS WASTE; MATERIAL EXCAVATED FROM OUTSIDE THIS BOUNDARY WILL BE TRANSPORTED AND DISPOSED OF AS NON-HAZARDOUS WASTE.

1

N

0 30' 60'
SCALE IN FEET

CMI PLAN REV 1

SCALE IS BASED ON 22" X 34" NON-REDUCED SHEET SIZE (BORDER = 21" X 32")

REV	DATE	DESCRIPTION	DRN	APP
1	2016.10.04	EXCAVATION PLAN REVISIONS	JHT	CMG

CDM Smith

Geosyntec consultants

TITLE: EXCAVATION PLAN

PROJECT: LANDFILL 2 CORRECTIVE MEASURES IMPLEMENTATION PLAN
ORRINGTON REMEDIATION SITE

SITE: ORRINGTON, MAINE

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.

SIGNATURE

2016.10.04
DATE

SCOTT M. LUSTITCH No. 7482 LICENSED PROFESSIONAL ENGINEER STATE OF MAINE

DESIGN BY:	JSE	DATE:	FEBRUARY 2016
DRAWN BY:	JHT	PROJECT NO.:	BR0292
CHECKED BY:	ZBT	FILE:	
REVIEWED BY:	DTD/CMG	DRAWING NO.:	
APPROVED BY:	SML		10 OF 18

T:\Projects\...\DESIGN\LANDFILL 2\DRAWINGS\BR0292-LF2_CMI-0010.(EXCAV).dwg Last Edited By: JHTAYLOR

NOTES:

1. SEE DRAWING NO. 2 FOR GENERAL NOTES AND LEGEND.
2. SOUTHERLY STREAM WILL BE RESTORED AS PART OF THE SOUTHERLY STREAM CMI PLAN.

LEGEND

xxx — FIBER ROLL

AREA OF EROSION CONTROL BLANKET AND PERMANENT SEED MIX

Seed Mixture: New England Erosion Control/Restoration Mix for Dry Sites (New England Wetland Plants, Inc.)

Species:
Creeping Red Fescue (Festuca rubra),
Canada Wild Rye (*Elymus canadensis*)
Annual Ryegrass, (Lolium multiflorum)
Perennial Ryegrass (*Lolium perenne*)
Blue Grama, (*Bouteloua gracilis*)
Little Bluestem, (*Schizachyrium scoparium*)
Indian Grass, (*Sorghastrum nutans*)
Rough Bentgrass, (*Agrostis scabra*)
Upland Bentgrass, (*Agrostis perennans*)

MANAGEMENT AREA	MEASURE	APPLICATION
EROSION CONTROL BLANKET	EROSION CONTROL BLANKETS SHALL CONSIST OF A BIODEGRADABLE FIBER DOUBLE NET BLANKET SPECIFIED FOR 3H:1V SLOPES OR GREATER, OR USE IN AREAS OF CONCENTRATED FLOW (E.G., NORTH AMERICAN GREEN C125BN OR EQUIVALENT).	APPLY ON SLOPED AREAS WITH GRADES 3H:1V AND STEEPER AS SPECIFIED ON THE PLAN. BLANKETS SHOULD BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS AND DETAIL 2 ON DRAWING 17 OF THE DRAWING SET.
PERMANENT SEED MIX	PERMANENT SEED MIX SHALL CONSIST OF A NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DRY SITES (NEW ENGLAND WETLAND PLANTS, INC) APPLIED AT A RATE OF 35 LBS/ACRE OR 1 LB/1,250 SQ FT. RATE OF SEED SHALL BE TRIPLED IF SEED IS APPLIED AS DORMANT SEED BETWEEN THE DATES OF NOVEMBER 15 THROUGH APRIL 1.	PERMANENT SEED MIX SHALL BE APPLIED TO AREAS THAT HAVE BEEN FINAL GRADED AND ARE AT PERMANENT FINISH GRADE AT THE RATES SPECIFIED. THE CONTRACTOR SHALL COLLECT SOIL SAMPLES (A MINIMUM OF TWO SAMPLES PER ACRE) OF TOPSOIL USED FOR FINAL GRADING AND SUBMIT FOR A VEGETATION SUPPORT ANALYSIS. SAMPLING EQUIPMENT/INSTRUCTIONS AND SOIL SAMPLE ANALYSES ARE AVAILABLE FROM THE UNIVERSITY OF MAINE COOPERATIVE EXTENSION 5741 LIBBY HALL, ORONO, MAINE 04469–5741, (207–581–3591). THE CONTRACTOR SHALL APPLY FERTILIZER AND AMENDMENTS AS RECOMMENDED BY THE VEGETATION SUPPORT ANALYSIS RECOMMENDATIONS PRIOR TO SEEDING.

N

0 30' 60'
SCALE IN FEET

REV	DATE	DESCRIPTION	DRN	APP
1	2016.10.04	EXCAVATION PLAN REVISIONS	JHT	CMG

CDM Smith

Geosyntec consultants

TITLE:
SITE RESTORATION AND STABILIZATION PLAN

PROJECT:
LANDFILL 2 CORRECTIVE MEASURES IMPLEMENTATION PLAN
ORRINGTON REMEDIATION SITE

SITE:
ORRINGTON, MAINE

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STATE OF MAINE
SCOTT M. LUETTICH
No. 7482
LICENSED
PROFESSIONAL ENGINEER

DESIGN BY:	JJB	DATE:	FEBRUARY 2016
DRAWN BY:	JHT	PROJECT NO.:	BR0292
CHECKED BY:	JJB	FILE:	
REVIEWED BY:	DTD/CMG	DRAWING NO.:	
APPROVED BY:	SML		15 OF 18

(1in) (2in) (3in) (4in)
SCALE IS BASED ON 22" X 34" NON-REDUCED SHEET SIZE (BORDER = 21" X 32")

CMI PLAN REV 1

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