PHASE 14 SOLID WASTE PERMIT APPLICATION

VOLUME II OF VI

NRPA Permit Application

Crossroads Landfill

Norridgewock, Maine

Prepared for

Waste Management Disposal Services of Maine, Inc.

357 Mercer Road
Norridgewock, Maine

Prepared by

Normandeau Associates, Inc.
25 Nashua Road
Bedford, NH 03110

Project BE0232

October 2019

Executive Summary

The Crossroads Landfill (Crossroads), owned and operated by Waste Management Disposal Services of Maine, Inc. (WMDSM), is located in Somerset County in the Town of Norridgewock, Maine and currently provides disposal capacity for municipalities and businesses throughout the State of Maine. To ensure that the State's long-term disposal capacity needs are met without interruption of service to its customers, WMDSM has proposed the Phase 14 project, which is the subject of this Natural Resources Protection Act (NRPA) Tier 3 Permit Application.

Phase 14 will be located east of the current landfill facilities on land that is contiguous to the existing facility. Development of Phase 14 is anticipated to include the following aspects: (i) excavation of topsoil and designated amounts of underlying soils; (ii) construction of a liner system; (iii) construction of perimeter berms and an access road; (iv) construction of landfill gas and leachate transfer pipes to the existing site landfill gas and leachate management systems; and (v) construction of a stormwater management system including stormwater detention basins (Erosion Control Structures (ECS)). Phase 14 will be divided into five cells (Phases 14A, 14B, 14C, 14D, and 14E) and constructed incrementally beginning with Phase 14A/14B and critical access and stormwater containment infrastructure. The capacity of Phase 14 is estimated to be approximately 7.75 million cubic yards.

Natural resource impacts have been avoided and minimized throughout the project's siting and engineering design. Remaining impacts will be compensated for through the Maine In Lieu Fee Compensation Program (ILF) and/or acceptable permittee-responsible projects. A total of 10.273 acres of wetlands are proposed to be permanently impacted by the Phase 14 project, none of which are Wetlands of Special Significance (WoSS). A total of 0.005 acres of wetlands are proposed to be temporarily impacted with 0.004 acres of streams proposed to be impacted as well. There are no significant vernal pools within the Phase 14 project area as determined by MEDEP.

No significant wildlife habitat will be impacted by the Phase 14 project, and there will not be any impacts to rare, threatened, or endangered species, habitat or natural communities.

Department of Environmental Protection
Bureau of Land & Water Quality
17 State House Station
Augusta, Maine 04333
Telephone: 207-287-7688

FOR DEP USE
ATS #_____
L- _____
Total Fees: _____
Date: Received _____

APPLICATION FOR A NATURAL RESOURCES PROTECTION ACT PERMIT

➔PLEASE TYPE OR PRINT IN *BLACK INK ONLY*

1. Name of Applicant:	Jeffrey McGown, Waste Management Disposal Services of Maine, Inc.	**5.Name of Agent:**	Sarah Allen
2. Applicant's Mailing Address:	PO Box 629 Norridgewock, ME 04957	**6. Agent's Mailing Address:**	25 Nashua Road Bedford, NH 03110
3. Applicant's Daytime Phone #:	207-634-2714	**7. Agent's Daytime Phone #:**	603-637-1158
4. Applicant's Email Address (Required from *either* applicant or agent):	jmcgown@wm.com	**8. Agent's Email Address:**	sallen@normandeau.com

9. Location of Activity: (Nearest Road, Street, Rt.#)	357 Mercer Road, US Rt. 2	**10. Town:**	Norridgewock	**11. County:**	Somerset

12. Type of Resource: (Check all that apply)	☑ River, stream or brook ❑ Great Pond ❑ Coastal Wetland ☑ Freshwater Wetland ❑ Wetland Special Significance ❑ Significant Wildlife Habitat ❑ Fragile Mountain	**13. Name of Resource:**	Freshwater wetlands and streams
		14. Amount of Impact: (Sq.Ft.)	**Fill:** 447,812 SF **Dredging/Veg Removal/Other:**

15. Type of Wetland: (Check all that apply)	☑ Forested ☑ Scrub Shrub ❑ Emergent ☑ Wet Meadow ❑ Peatland ❑ Open Water ❑ Other_____	**FOR FRESHWATER WETLANDS**		
		Tier 1	*Tier 2*	*Tier 3*
		❑ 0 - 4,999 sq ft. ❑ 5,000-9,999 sq ft ❑ 10,000-14,999 sq ft	❑ 15,000 – 43,560 sq. ft.	☑ > 43,560 sq. ft. or ❑ smaller than 43,560 sq. ft., not eligible for Tier 1

16. Proposed Start Date and Brief Activity Description:	Proposed Phase 14 landfill development to commence in or about May 2022. See NRPA Attachment 1 for more detail.
17. Size of Lot or Parcel & UTM Locations:	❑ _____square feet, or ☑ 283.5 acres UTM Northing: 4951451.38_ UTM Easting: 433834.68
18. Title, Right or Interest:	☑ own ❑ lease ❑ purchase option ❑ written agreement

19. Deed Reference Numbers:	Book#: Page: Please see NRPA Appendix C	**20. Map and Lot Numbers:**	Map #: 14	Lot #: 16,16-1, 19 & 20	
21. DEP Staff Previously Contacted:	Dawn Hallowell	**22. Part of a larger project:**	❑ Yes ☑ No	**After-the-Fact:**	❑ Yes ☑ No
23. Resubmission of Application?:	❑ Yes➔ ☑ No	**If yes, previous application #**		**Previous project manager:**	
24. Written Notice of Violation?:	❑ Yes ➔ ☑ No	**If yes, name of DEP enforcement staff involved:**		**25. Previous Wetland Alteration:**	❑ Yes ☑ No
26. Detailed Directions to the Project Site:	From I-95 N take exit 130 for ME-104/Main St. Go North on ME-104. Continue North on to ME-139 to Main St./US HWY 2 in Norridgewock. Travel West on US HWY 2 for 1.5 miles. Turn right onto access road.				

27. TIER 1	**TIER 2/3 AND INDIVIDUAL PERMITS**	
❒ Title, right or interest documentation ❒ Topographic Map ❒ Narrative Project Description ❒ Plan or Drawing (8 1/2" x 11") ❒ Photos of Area ❒ Statement of Avoidance & Minimization ❒ Statement/Copy of cover letter to MHPC	☑ Title, right or interest documentation ☑ Topographic Map ☑ Copy of Public Notice/Public Information Meeting Documentation ☑ Wetlands Delineation Report (Attachment 1) that contains the Information listed under Site Conditions ☑ Alternatives Analysis (Attachment 2) including description of how wetland impacts were Avoided/Minimized	☑ Erosion Control/Construction Plan ☑ Functional Assessment (Attachment 3), if required ☑ Compensation Plan (Attachment 4), if required ☑ Appendix A and others, if required ☑ Statement/Copy of cover letter to MHPC ❒ Description of Previously Mined Peatland, if required

28. FEES Amount Enclosed:	**TG: $14,905.98**

CERTIFICATIONS AND SIGNATURES LOCATED ON PAGE 2

IMPORTANT: IF THE SIGNATURE BELOW IS NOT THE APPLICANT'S SIGNATURE, ATTACH LETTER OF AGENT AUTHORIZATION SIGNED BY THE APPLICANT.

By signing below the applicant (or authorized agent), certifies that he or she has read and understood the following :

DEP SIGNATORY REQUIREMENT

PRIVACY ACT STATEMENT

Authority: 33 USC 401, Section 10; 1413, Section 404. Principal Purpose: These laws require permits authorizing activities in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Disclosure: Disclosure of requested information is voluntary. If information is not provided, however, the permit application cannot be processed nor a permit be issued.

CORPS SIGNATORY REQUIREMENT

USC Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry shall be fines not more than $10,000 or imprisoned not more than five years or both. I authorize the Corps to enter the property that is subject to this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.

DEP SIGNATORY REQUIREMENT

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Further, I hereby authorize the DEP to send me an electronically signed decision on the license I am applying for with this application by emailing the decision to the address located on the front page of this application (see #4 for the applicant and #8 for the agent)."

SIGNATURE OF AGENT/APPLICANT

Date: 10/24/2019

NOTE: Any changes in activity plans must be submitted to the DEP and the Corps in writing and must be approved by both agencies prior to implementation. Failure to do so may result in enforcement action and/or the removal of the unapproved changes to the activity.

(pink)

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Attachment 1.

Activity Description

Attachment 1. Activity Description

Activity Description

The Crossroads Landfill (Crossroads) is located in Somerset County in the Town of Norridgewock, Maine as shown in Figure 1. The facility has operated as a solid waste facility continuously since the Board of Environmental Protection granted initial permits to Elizabeth Lappie on 28 April 1976 for a sanitary landfill per order 49-2696-25220. Waste Management Disposal Services of Maine, Inc. (WMDSM) acquired the facility in October 1990 and has operated the solid waste disposal facility since then in accordance with solid waste management permits issued by the Maine Department of Environmental Protection (MEDEP). WMDSM's property consists of approximately 933 acres of land adjacent to and to the north of Route 2. WMDSM has constructed and operated several expansion phases, and currently accepts waste for deposition in Phase 8.

Phase 14 will be located east of the current landfill facilities on land that is contiguous to the existing facility. Development of Phase 14 is anticipated to include the following aspects: (i) excavation of topsoil and designated amounts of underlying soils; (ii) construction of a liner system; (iii) construction of perimeter berms and an access road; (iv) construction of landfill gas and leachate transfer pipes to the existing site landfill gas and leachate management systems; and (v) construction of a stormwater management system including stormwater detention basins (Erosion Control Structures (ECS)).

Phase 14 will be constructed at the location shown in Attachment 3 of this NRPA Application and on Sheet 2 of the Phase 14 Engineering Drawings that are presented in Attachment 5 of this NRPA Application and also in Appendix IV(a) of Volume IV within the Landfill Engineering Report of the Solid Waste Permit Application. Access to Phase 14 will be provided by the current main entrance from US Route 2, upgrades to an existing road past the Tire Processing Facility, and a new portion of road as shown on Sheet 14 of the Permit Drawings. Earthwork for Phase 14 will involve excavating surficial soil stockpiles and the in-situ eolian sand stratum from the landfill footprint (see Sheet 4) and constructing a perimeter berm to establish a lined footprint area of 48.6 acres. As shown on Sheet 5, Phase 14 will be divided into five cells (Phases 14A, 14B, 14C, 14D, and 14E). The capacity of Phase 14 is estimated to be approximately 7.75 million cubic yards.

The liner and leachate collection system (LCS) for each cell will be placed directly atop in-situ clay or compacted clay subgrade that is placed (backfilled) where over-excavation of the eolian sand stratum is required. The base liner and LCS will slope downward from northeast to southwest, with the LCS sump for each cell located along the southwest perimeter portion of the base grades (Sheet 6). LCS pipes positioned through each cell will facilitate flow of leachate to the sumps (Sheet 7). The leachate will be pumped from each LCS sump through a buried double-containment forcemain pipe to the existing South-Central Pump Station, where it will be pumped with leachate from the other existing landfill units at Crossroads to the on-site leachate storage tanks (Sheet 23).

The perimeter berm surrounding the Phase 14 landfill will consists of a mechanically stabilized earth (MSE) berm in which reinforcing will be used to allow a steeper exterior slope than would be possible with unreinforced soil. The average height of the MSE berm will be 27.5 feet, and the total length will be approximately 6,000 linear feet. Details of the MSE berm are shown on Sheets 20, 21, and 22. A 24-foot wide road will be constructed atop the perimeter berm, and an MSE ramp will be constructed to provide access for the waste hauling trucks and operational vehicles up onto the perimeter berm (Sheets 14 and 21).

Stormwater from future covered (temporary and final) areas of the landfill and from the perimeter access road and ramp will be conveyed via drainage ditches and stormwater pipes around the landfill perimeter to one of four stormwater management basins (Sheet 15). Two of the basins will be newly developed and the other two will be upgrades to existing basins.

Initial cell construction of the proposed Phase 14 landfill will include Phases 14A and 14B. Phase 14A is the smallest landfill cell and will provide limited capacity. As such, Phase 14A and 14B will be constructed concurrently. The remaining cells will be constructed incrementally, with waste placement beginning in the initial cells constructed (Phase 14A/14B). As shown on Sheets 8 through 12, construction and filling of the subsequent cells will proceed as the disposal capacity is needed. The final cover system will be installed incrementally as final grades are achieved in portions of the landfill (conceptually shown on Sheets 10 through 13).

A total of 447,431 square feet (SF) (10.273 acres) of wetlands are proposed to be permanently impacted by the Phase 14 project. None of the wetland areas proposed to be impacted as a result of the project are classified as Wetlands of Special Significance (WoSS) as defined in Chapter 310(4)(A) of the Natural Resources Protection Act Wetlands and Waterbodies Protection Rules. The permanent wetland impacts are associated with the installation of fill material required to construct the facility and access road. A total of 196 SF (0.005 acres) of wetlands are proposed to be temporarily impacted by the Phase 14 project. The temporary impacts are associated with the installation of an underground stormwater conveyance pipe through a narrow portion of Wetland W11. The pipe will be installed via a temporary trench and the area will be restored following construction to the original grade and maintained as a narrow corridor for routine maintenance.

One stream will be permanently impacted due to the proposed installation of a new, 6-foot-wide culvert under the proposed access road. The stream (S06) is an intermittent stream with a maximum width of 5 feet at the reach proposed to be crossed with the culvert. The culvert has been designed based on the MEDEP and USACE guidelines pertaining to hydrologic capacity and aquatic organism passage. A total of 37 linear feet (LF) of intermittent stream will be impacted due to the culvert, totaling 185 SF or (0.004 acres).

There are no significant vernal pools within the Phase 14 project area as determined by MEDEP. Three non-significant vernal pools will be directly impacted by the proposed project. All other vernal pools have been avoided.

Project Purpose and Need

A detailed accounting of the purpose, need and other benefits of the proposed Phase 14 project at Crossroads is included in the *Waste Management Disposal Services of Maine, Inc. Crossroads Facility Phase 14 Secure Landfill Determination of Public Benefit Application*, dated July 13, 2018 and the findings of the MEDEP in its Phase 14 Public Benefit Determination, dated December 21, 2018. s. [1]. The public benefit application and determination are also located in Section 16 of Volume I of the Solid Waste permit application.

Project Purpose

Crossroads, owned and operated by WMDSM, currently provides disposal capacity for municipalities and businesses throughout the State of Maine. The vast majority of waste accepted at Crossroads is special waste, construction and demolition debris and materials or waste used as alternative daily cover. These wastes cannot be incinerated and have been processed, recycled or reduced to the maximum extent practicable. Crossroads Landfill provides a critical outlet for these wastes, which would otherwise have to be transported at significant economic and environmental cost to more distant locations.

The purpose of the proposed Phase 14 project is to ensure that the State's long-term disposal capacity needs are met without interruption of service to its customers. Existing capacity provided by the previously permitted Phase 8 landfill will be fully utilized by 2024. The Phase 14 landfill will provide an additional approximately 7.75 million cubic yards of capacity to Crossroads. Like Phase 8 before it, the Phase 14 project will provide a substantial public benefit to the State of Maine by providing disposal capacity and ancillary waste management services through 2040. Without this project, there will be a significant shortage of landfill capacity in the State.

The Crossroads facility complements other disposal options on the State's Waste Management Hierarchy, including incinerators and processing facilities. Although it constitutes less than 25% by volume, Crossroads also provides essential and cost-effective MSW disposal capacity for approximately 55 communities in western and central Maine. Crossroads is critical to providing needed capacity for a portion of the MSW generated in Maine and, importantly, many of the communities that utilize Crossroads for MSW disposal are distant from alternative sites and existing incinerators. For these communities, Crossroads provides a critical and cost-effective disposal option not provided by other facilities in the State.

The Crossroads facility is also critical to ensuring solid waste disposal services remain competitive within Maine. By 2026, more than 80% of the landfill capacity will be limited to three landfills, two of which are located in Aroostook County and none of which provide practicable options for the vast majority of customers served by Crossroads Landfill. Phase 14 will ensure competitive landfill disposal options exist within the State beyond 2024. The Phase

[1] https://www.maine.gov/dep/waste/crossroadslandfill/index.html

14 project will benefit customers serviced by the Crossroads facility along with consumers of all disposal services such as waste collection and transportation throughout the State.

Project Need

The need for the Phase 14 project is driven by current and long-term need for continued landfill capacity in Maine. Even as society moves toward more efficient use of material and seeks to reduce the total volume of waste generated, there will always be a need to manage solid waste, which typically increases in volume with economic growth[2]. There are also limitations on how much solid waste can be recycled and reused. As concluded by the MEDEP, "[w]hile land disposal occupies the lowest level of the [solid waste] hierarchy, the portion of the waste stream that cannot be recycled or reused in addition to residues resulting from processing and reduction efforts must be landfilled to meet the health, safety and environment of Maine's citizens consistent with 38 M.R.S. § 1302."[3]

To ensure Maine's municipalities and businesses can properly dispose of special wastes in both environmentally and economically responsible manners, it will be critical for special waste disposal capacity to exist within Maine beyond 2024.

The Crossroads Facility is the only commercial landfill operating in Maine. Moreover, due to a statutory ban on new commercial landfills, no new commercial landfills may be licensed absent a legislative change[4]. Maine law allows for expansions of existing commercial landfills, but only if the expansion is contiguous with the existing facility.[5] As MEDEP concluded in reviewing WMDSM's public benefit application, WMDSM's proposed expansion "(1) provides a critical role in maintaining competitive markets for solid waste services in Maine beyond the year 2024; (2) meets the capacity needs of the relevant local communities and the region; and (3) meets the State waste management infrastructure goals."[6]

[2] *See Maine Materials Mgmt. Plan: 2014 State Waste Mgmt. and Recycling Plan Update and 2012 Waste Generation and Disposal Capacity Report*, at 6-7.
[3] Public Benefit Determination at Section 4.C.(3), p. 8.
[4] 38 M.R.S.A. § 1310-X(1).
[5] 38 M.R.S.A. § 1310-X(3).
[6] Public Benefit Determination at Section 6.C, p. 20.

Attachment 2.

Alternatives Analysis

Attachment 2. Alternatives Analysis

ALTERNATIVES ANALYSIS

Maine Chapter 310 wetland and waterbody rules require an applicant to demonstrate that it has avoided and minimized impacts to wetlands and other protected natural resources to the maximum extent practicable. Specifically, the applicant must demonstrate that there is "no practicable alternative to the activity that is less damaging to the environment." 06-096 CMR 310.5.A. Practicable is defined as "available and feasible considering cost, existing technology and logistics based on the overall purpose of the project." 06-096 CMR 310.3.R. This attachment describes the process by which alternatives were identified and evaluated to determine the least damaging practicable alternative.

PROJECT PURPOSE

The purpose of the Phase 14 project is to ensure that the Crossroads Landfill (the "Facility") is able to provide an additional 7,750,000 cubic yards of disposal capacity (or approximately 17 years of site life based on anticipated annual disposal rates) of cost-effective solid waste disposal capacity for residents, businesses and institutional customers beyond about 2024, when existing site capacity is expected to be fully utilized. As demonstrated in WMDSM's public benefit application and as found by the MEDEP, there is a state and regional need for continued landfill capacity beyond 2024, when existing capacity at the Crossroads Landfill is expected to be fully utilized. *E.g.,* Public Benefit Application at § 2.2; Phase 14 Public Benefit Determination, ¶ 4.D. Specifically, the MEDEP found that the proposed expansion "(1) provides a critical role in maintaining competitive markets for solid waste services in Maine beyond 2024; (2) meets capacity needs of the relevant local communities and the region; and (3) meets the State waste management infrastructure goals . . .". Phase 14 Public Benefit Determination, ¶¶ 6.C and 4.D. Please refer to Appendix 15A, Volume I of the Solid Waste Permit Application and Appendix 16A, Volume I for the Public Benefit Application and Public Benefit Determination, respectively. Also see Exhibit A for the final Determination of Public Benefit for the Phase 14 project.

SELECTION OF ALTERNATIVES

The selection of alternatives is circumscribed by Maine law, which prohibits the approval of new commercial landfills, but allows an expansion of an existing facility subject to certain limitations. 38 M.R.S. § 1310-X. As a result, the only opportunity for WMDSM to provide future landfill capacity in Maine is to expand Crossroads Landfill and only on land that is within or contiguous with its existing facility. WMDSM sought and obtained an advisory ruling from the MEDEP on the scope of permissible expansion options under 38 M.R.S. § 1310-X. The parcels that were determined to be contiguous to the existing facility are shown on the attached Figure 0 and identified in the Advisory Opinion attached as Exhibit B. Parcels that are located on the opposite side of an existing roadway were determined by MEDEP not to be contiguous and therefore could not be considered, even if suitable.

Accordingly, this analysis identifies only the potential locations for siting a landfill that are within or on land that is contiguous to Crossroads Landfill as shown on Figure 0. The key criteria for identifying selection of alternatives included the amount of land available for development, if not already owned by WMDSM whether the land could be acquired, and compliance with minimum setbacks to property lines, residences, drinking water wells, roads, and classified surface waters. Based on these criteria, four alternative areas were selected for further evaluation: Area A, the Back Baker/Keating Property; Area B, the Front Baker Property; Area C, the Pion Road Property; and Area D, the Totman Property. These alternatives are shown on Figure 1. In addition to Alternatives A through D, the No Action Alternative was evaluated. Each alternative was assessed to determine whether it satisfied the project purpose and need, and then the key environmental impacts and other factors associated with each alternative was evaluated to identify the least damaging practicable alternative. A summary of this information is included in Table 1, below.

Other parcels that are contiguous to the existing facility were screened but not selected for further review because the land was either unavailable or there were other threshold determinations that prevented development of the property for the project purpose. For example, there is a large parcel located to the west of the existing facility (Tax Map [TM] 13, Lot 8), but the Central Maine Regional Airport is located there, which precludes development of that parcel. TM 17, Lot 12, located south and west of the existing facility, is a large mostly undeveloped parcel. However, it likely contains substantial wetlands, streams and other protected natural resource areas based on extrapolation from adjacent areas where previous wetland investigations have occurred and would present similar challenges to that described for Area C, below. Parcels located to the south of the existing facility (e.g. TM 17, Lot 19 and TM 14, Lot 6) are encumbered by Mill Stream and associated floodplains, forested floodplain wetlands, and other natural resource constraints; this area is also located in close proximity to Frederick Corner Road and Route 2 and associated residential properties. To the east of the existing facility (TM14, Lot 10) a parcel is present containing a large possibly perennial stream with smaller tributaries and riparian wetlands. This parcel is located very near residences and associated water wells, Airport Road and the more developed and populated portions of the center of Norridgewock. Also, to the east there is a large parcel (TM 14, Lot 4) located proximate to other landfill units but it is not available for purchase despite several previous attempts. This parcel also likely contains wetlands and streams based on the presence of these resources delineated adjacent to the property line. The parcels located to the northeast (TM 14, Lot 1; TM 10, Lot 19) are owned by WMDSM but contain expansive wetlands and headwater areas associated with important tributaries to Mill Stream.

NO ACTION ALTERNATIVE

The No Action Alternative would not accomplish the project purpose, which is to provide additional landfill capacity to meet regional and State needs. As reflected in the Public Benefit Application and concluded by the MEDEP, absent an expansion of the Crossroads Landfill there will be a significant unmet need for landfill disposal capacity beginning in about 2024, when existing site capacity is expected to be fully utilized. Accordingly, this alternative was rejected.

DESCRIPTION OF ALTERNATIVES A Through D

Area A: Back Baker / Keating Property

Natural Resource Considerations

Field delineations confirmed that no streams are located within the proposed Phase 14 solid waste boundary for Area A and that approximately 10.3 acres of wetlands, while present, are not above average in terms of functions and values. An unrated/candidate Deer Wintering Area is mapped within portions of Area A; however, a field investigation determined the area to be low quality. Vernal pools are also present however all are "non-significant" following Maine Department of Environmental Protection review. No significant wildlife habitat, FEMA-mapped floodplains, or threatened/endangered plant species are known within Area A.

Area A is located hydraulically upgradient of other landfill phases and environmental monitoring points and the presence of thick natural clays provide an optimal natural barrier to underlying water bearing units.

Design and Siting Considerations

Evaluation and conceptual design of Phase 14 on the Back Baker / Keating property (Area A) revealed that sufficient area is available for a 50-acre (±) landfill providing approximately 17 years of disposal capacity. Area A would allow for the use of existing infrastructure (truck scales, roads, landfill gas-to-energy plant, leachate tanks, etc.) without requiring significant re-engineering or re-siting of these important facilities.

Public Acceptance and Other Considerations

Area A generally maximizes setbacks from roads and residences and is situated in an area surrounded by existing forested land that provides good natural screening.

Area B: Front Baker

Natural Resource Considerations

Existing 16-acre and 0.9-acre wetland mitigation areas associated with Phases 9, 11 and 12 as well as Phase 8, respectively, were previously created by WMDSM in 1999 and 2002 within Area B. These mitigation areas are required to be protected in perpetuity as a condition of the Phase 9, 11, and 12 as well as Phase 8 landfill licenses, which significantly limits development of Area B. Available natural resources data suggest that substantial wetland areas and small streams are present within and in close proximity to Area B. Preliminary estimates indicate that more than 4 to 6 acres of wetland are located within or near the most suitable area for a landfill; and these estimates don't consider additional support infrastructure detailed below. Vernal pools are known to be present in this area as well. Area B is within a mapped area of potential upland sandpiper habitat and contains more of the open habitat these birds prefer; however, there are no records of any use of this area by upland sandpipers. Area B is located

outside of the mapped unrated/candidate Deer Wintering Area. No significant wildlife habitat, FEMA-mapped floodplains, or threatened/endangered plant species are known within Area B.

Area B is located within approximately 900 feet of a significant sand and gravel aquifer mapped by Maine Geological Survey.

Design and Siting Considerations

Evaluation and conceptual design of Phase 14 on the Front Baker site revealed that Area B would allow room for only a 28-acre (±) landfill providing less than 7 years of disposal capacity. Some modifications and additions/expansions to supporting infrastructure would have to be made to accommodate landfill development in Area B, likely increasing the impacts on natural resources.

Public Acceptance and Other Considerations

Development of Area B would present a visual impact concern and likely significant public opposition due to its close proximity to residents and vehicles traveling on US Route 2.

Area C: Pion Road

Natural Resource Considerations

Available natural resources data suggest that substantial wetland areas and streams, including Mill Stream, are present within and in close proximity to Area C. Preliminary estimates indicate that between 7 and 12 acres of wetland are located within or near the most suitable area for landfill development. These estimates don't consider additional support infrastructure, discussed below, that would be required to integrate this particular site with the remainder of the existing facility. It is expected that vernal pools would be present given the land use and types of wetland and upland habitat and existing topography. Unlike other alternative, Area C is located in close proximity to and partially within an area of flood hazard (100-year floodplain) as identified in the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for Mill Stream; portions of any wetlands located within the floodplain would be considered Wetland of Special Significance (WoSS).

Area C is located outside of the mapped unrated/candidate Deer Wintering Area. No significant wildlife habitat, or threatened/endangered plant species are known within Area C.

Existing data suggests that the Presumpscot clay is potentially absent in this Area C, which is a natural barrier to the underlying water bearing units.

Design and Siting Considerations

Evaluation and conceptual design of Phase 14 on the Pion Road site revealed that Area C would allow room for only a 14-acre (±) landfill providing less than 3 years of disposal capacity. Development at Area C may also require much of the existing site infrastructure to be relocated due to its excessive distance from relevant buildings/structures such as the site entrance, truck scales, leachate storage tanks, and office building, thereby further expanding the potential project area and natural resource impacts associated with this alternative. Alternatively, if

infrastructure facilities were not relocated, significant improvements to existing and construction of new roads, with attendant natural resource impacts, would be required.

Public Acceptance and Other Considerations

Development at Area C is unlikely to meet setback criteria for supply wells. Development of Area C would require elimination of the existing ball field and recreation area used by Norridgewock residents and surrounding communities, thus resulting in an enhanced impact to the local community.

Area D: Totman Property

Natural Resource Considerations

Available natural resources data suggest that substantial wetland areas, including many influenced by beaver, and streams, including Mill Stream, are present within or adjacent to Area D. Potential wetland impact scenarios indicate that approximately 3-6 acres of wetland resources would be impacted by a 17.5-acre (±) landfill (see below). It is expected that vernal pools would be present given the land use and types of wetland and upland habitat and existing topography. Area D is located outside, yet in close proximity to the mapped unrated/candidate Deer Wintering Area. No significant wildlife habitat, FEMA-mapped floodplains, or threatened/endangered plant species are known within Area D.

Design and Siting Considerations

Evaluation and conceptual design of Phase 14 revealed that Area D would allow room for a 17.5-acre (±) landfill providing less than 4 years of disposal capacity. The area cannot support a larger landfill due to restrictive siting criteria including proximity to drinking water wells associated with residences along and near Airport Road. In addition, linking a landfill in this location to existing facility infrastructure would be challenging given setbacks from non-WMDSM properties.

Public Acceptance and Other Considerations

Development at Area D would be undesirable because of the close proximity to and visibility from vehicles traveling and residents living on Airport Road and Childs Road, largely related to adjacent property being recently harvested along the Airport Road. Although Area D is currently forested, landfill development at this location would require further removal of the majority of the existing vegetative screening.

Table 1. Summary of Alternatives

Alternative	Meets Project Purpose/ Need	Wetlands/ Natural Resource Impacts	Design	Siting	Public Acceptance	Other
No Action	No	No effect	0 acres; 0 year life	n/a	n/a	n/a
Area A	Yes	10.3 acres wetland; vernal pools present*; low quality DWA	50 acre facility; 17 year life	Close proximity to existing infrastructure; meets setback requirements from supply wells and significant sand/gravel aquifers; allows for use of some existing stormwater infrastructure	Maximizes setbacks from roads/residences; significant vegetative screening present	Hydraulically upgradient of other landfill phases and monitoring points
Area B	No	4-6 acres wetland; vernal pools expected	28 acre facility; 7 year life	Removed from existing infrastructure; limited area for development; would impact existing protected wetland mitigation area	Very close to U.S. Route 2; not screened by existing forested areas	Closer proximity to significant sand and gravel aquifer mapped by Maine Geological Survey
Area C	No	7-12 acres wetland; vernal pools expected; floodplain; Mill Stream	14 acre facility; 3 year life	Remote from existing infrastructure; limited area for development; unlikely to meet setback criteria for supply wells	Would require removing public ballfield; very close to Frederick's Corner Road with limited screening opportunities	Existing data suggests the Presumpscot clay, which is a natural barrier to the underlying water bearing units, is absent in this area
Area D	No	3-6 acres wetland; vernal pools expected; Mill Stream impacts	17.5 acre facility; 4 year life	Some new support infrastructure needed; likely meets setback requirements from supply wells and significant sand/gravel aquifers	Closer to residences located along and adjacent to Airport Road & Childs Road; Visual screening is marginal	Hydraulically upgradient of other landfill phases and monitoring points

* No significant vernal pools identified

Selection of the Least Damaging Practicable Alternative

As reflected in Table 1 above, Area A is the only alternative that allows development of a landfill that can provide significant additional site life beyond about 2024 and thereby meet the project purpose and need. None of the remaining alternatives meets the project purpose or need. Even if they were viable and could be developed to provide long-term cost-effective waste disposal opportunity, Areas B and C would have unacceptable public impacts. Area D includes large wetlands and multiple streams and is more distant from the existing infrastructure than Area A. Area B would result in impacts to protected mitigation wetlands created for prior landfills associated with the Crossroads facility. Areas B, C and D present visual impact challenges and could not be adequately screened from nearby roads and residences. Further, Area C would require the elimination of a popular public ballfield and recreation area as well as require significant additional infrastructure, whereas Area A is able to utilize the existing facility infrastructure. Area A minimizes impacts to wetlands and other protected resources while still allowing for development of a landfill sufficiently sized to provide an additional approximately 17 years of site life and thereby meet state and regional needs for landfill capacity beyond about 2024. Additional benefits of Area A include use of existing infrastructure (access road, scale house, leachate storage tanks, leachate pump stations, etc.); use of existing previously disturbed and re-established borrow areas; disturbance minimization to forest habitats; and visual impacts minimization to residents and travelers on public roads.

MINIMIZATION OF IMPACTS

Maine Chapter 310 rules also require that impacts to wetlands and other protected resources be minimized. 06-096 CMR 310.5.B. WMDMS has taken several steps to minimize impacts to wetlands.

Minimization of the Disposal Area Footprint

To comply with Chapter 401.1.C of the Maine Solid Waste Management Rules (SWMR), the boundary of waste disposal areas must meet or exceed prescriptive setback requirements from property lines, residences, public roads, classified surface water, and water supply wells. Option 1, shown on Figure 2, is the landfill boundary that would have met the majority of the SWMR setback requirements, and the 58-acre Option 1 footprint would have provided the maximum disposal capacity for Site A. However, the Option 1 footprint would have impacted almost 15 acres of wetland resources, as well as the stream at the northwest corner of the landfill boundary. Although the economic benefits of this option were attractive, WMDSM reduced the size of the Phase 14 boundary to decrease the area of wetland impacts and to avoid disturbance to the stream. The resulting boundary (shown as Option 2 on Figure 2) reduced the area of the landfill by nearly 10 acres, and likewise, reduced the disposal capacity significantly. However, Option 2 will disturb only 10.3 acres of wetland resources, thereby reducing the area of wetland disturbance by approximately 4.7 acres (i.e., a 31.3% reduction).

WMDSM has further minimized impacts to wetlands through use of an engineered perimeter berm that will accommodate an access road around the landfill and provide positive containment of the waste and leachate. As currently designed, the Phase 14 perimeter berm will be approximately 20 to 30 feet high, 6,000 feet in length and will surround the entire waste disposal boundary. As illustrated in Figure 3a, the exterior slopes of conventional perimeter berms are typically inclined at 3 horizontal feet to 1 vertical foot (3H:1V). Use of such conventional perimeter berms would extend approximately 60 to 75 feet laterally, into an area that is predominantly wetland. Instead, the perimeter berm is designed to have a nearly vertical exterior face using mechanically stabilized earth (MSE), thereby reducing the area of disturbance as illustrated in Figure 3b. The cost of MSE berms is considerably higher than conventional berms, but as shown in Figure 4, use of this engineered solution will decrease the area of wetland disturbance by more than three acres. MSE berms have been successfully used along the Phase 8 landfill at the Crossroads facility.

Placement and Sizing of Stormwater Management Features

As shown on Figure 5, the initial design for Phase 14 included several basins to control stormwater flow and limit sediment transport off site. In refining the layout of the stormwater basins (aka Erosion Control Structures (ECS)), WMDSM reduced the number and size of new ECS basins, thereby minimizing the area of disturbance. The locations of the ECS basins were shifted and watershed divisions were refined to reduce the number of new basins. Furthermore, a decision was made to retrofit two existing basins (ECS-22/22A, and ECS-23), thereby minimizing disturbance to wetlands and other natural resources (e.g., vernal pools in the vicinity of ECS-22/22A and wetlands near the southeast and northeast perimeter of Phase 14). Alignments for the stormwater pipes leading to each ECS basin were positioned to minimize wetland disturbance, and the outlets from the basins were positioned to ensure the downstream areas maintain similar hydraulic conditions comparable to predevelopment conditions.

Alignment of the Access Road

As shown on Figure 6, several road alignments were considered for waste hauling trucks and operational vehicles to access the Phase 14 landfill disposal area. The advantages and disadvantages of these alternatives, identified as Road Alignments A through H on Figure 6, were evaluated based on many factors including avoidance and minimization of impacts to wetland resources. Inspection of the notes on Figure 6 reveals why Road Alignment A combined with Alignment H (highlighted in yellow on Figure 6) was selected as the best alternative to minimize wetland resource impacts as well as optimizing other important design criteria.

After selecting Road Alignment A combined with Road Alignment H, and performing a site walk with representatives of MEDEP and USACE in July of this year, a six foot-wide pipe arch culvert is being designed to span and further protect the stream at the road crossing location shown on Figure 6. This width meets the Maine Stream Crossing Guidelines.

Locations and Alignment of Other Infrastructure

In addition to the landfill footprint, stormwater basins, and access road, other infrastructure is needed for operation of the landfill. Specifically, leachate piping is needed to transfer leachate from the landfill to the on-site leachate storage tanks, a landfill gas transfer pipe is needed to convey gas from the landfill to the on-site gas-to-energy plant, and a parking area is needed for vehicles and operational equipment. In establishing the location and alignments of the infrastructure components, the following considerations were made to further minimize wetland impacts.

- For the leachate transmission header pipe alignment, the shortest route from Phase 14 to the existing leachate storage tanks is through wetlands between the landfill and the existing tanks. However, a longer, more serpentine route was selected to minimize disturbance to wetland resources and to allow future maintenance to the pipeline and associated manholes without impacting these features.

- For the landfill gas header pipe alignment, the shortest route from Phase 14 to the existing Landfill Gas-to-Energy facility would be through the previously known Keating and Totman properties. However, this route was not selected because of the amount of disturbance that would be required to existing wetland resources in that area. Instead, a much longer gas header pipe will be installed under the new and existing access roads to avoid any additional disturbance, and to allow future maintenance to the pipe and associated fittings, valves, etc., without requiring the wetland resources to be traversed by equipment.

- Parking for personal vehicles and operational equipment would be logistically optimal if located next to Phase 14. However, to minimize further disturbance of wetland resources, WMDSM will retrofit an existing area (identified as the Tire Processing Facility in Figure 6) to incorporate a designated parking area for Phase 14.

Figures 0 through 6

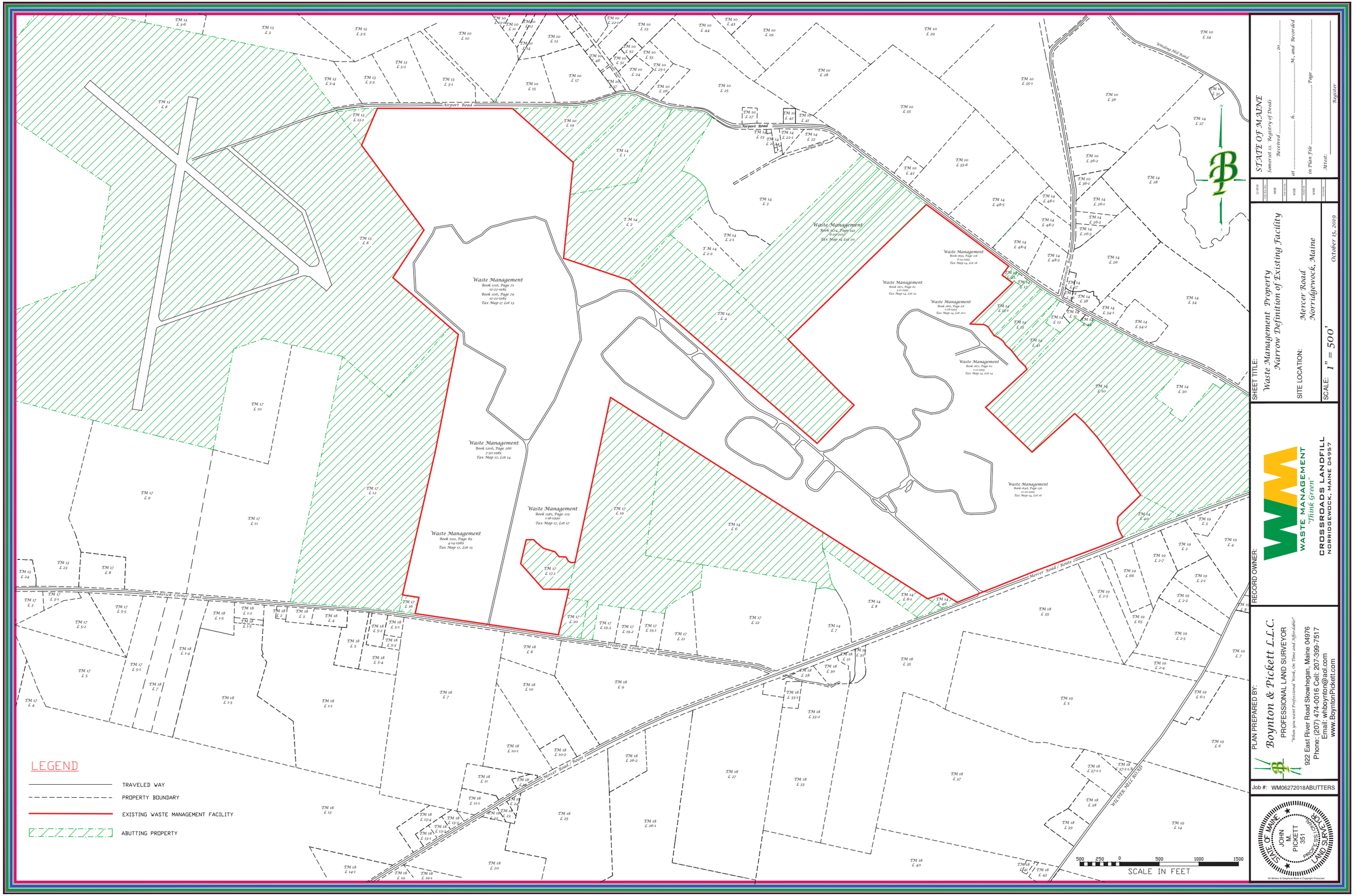

Figure 0. Parcels Contiguous to Existing WMDSM Facility

STATE OF MAINE
Somerset ss. Registry of Deeds
Received _____, 20____
at _____ h. _____ M. and Recorded
in Plan File _____, Page _____
Attest: _____ Register

SHEET TITLE:
Waste Management Property
Narrow Definition of Existing Facility

SITE LOCATION:
Mercer Road
Norridgewock, Maine

SCALE: 1" = 500'

October 15, 2019

RECORD OWNER:
WASTE MANAGEMENT
"Think Green"
CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE 04957

PLAN PREPARED BY:
Boynton & Pickett L.L.C.
PROFESSIONAL LAND SURVEYOR
"When you want Professional Work, On Time and Affordable!"
922 East River Road Skowhegan, Maine 04976
Phone: (207) 474-0016 Cell: 207-399-7517
Email: whboynton@aol.com
www.BoyntonPickett.com

Job #: WM06272018ABUTTERS

STATE OF MAINE
JOHN M. PICKETT
351
PROFESSIONAL LAND SURVEYOR

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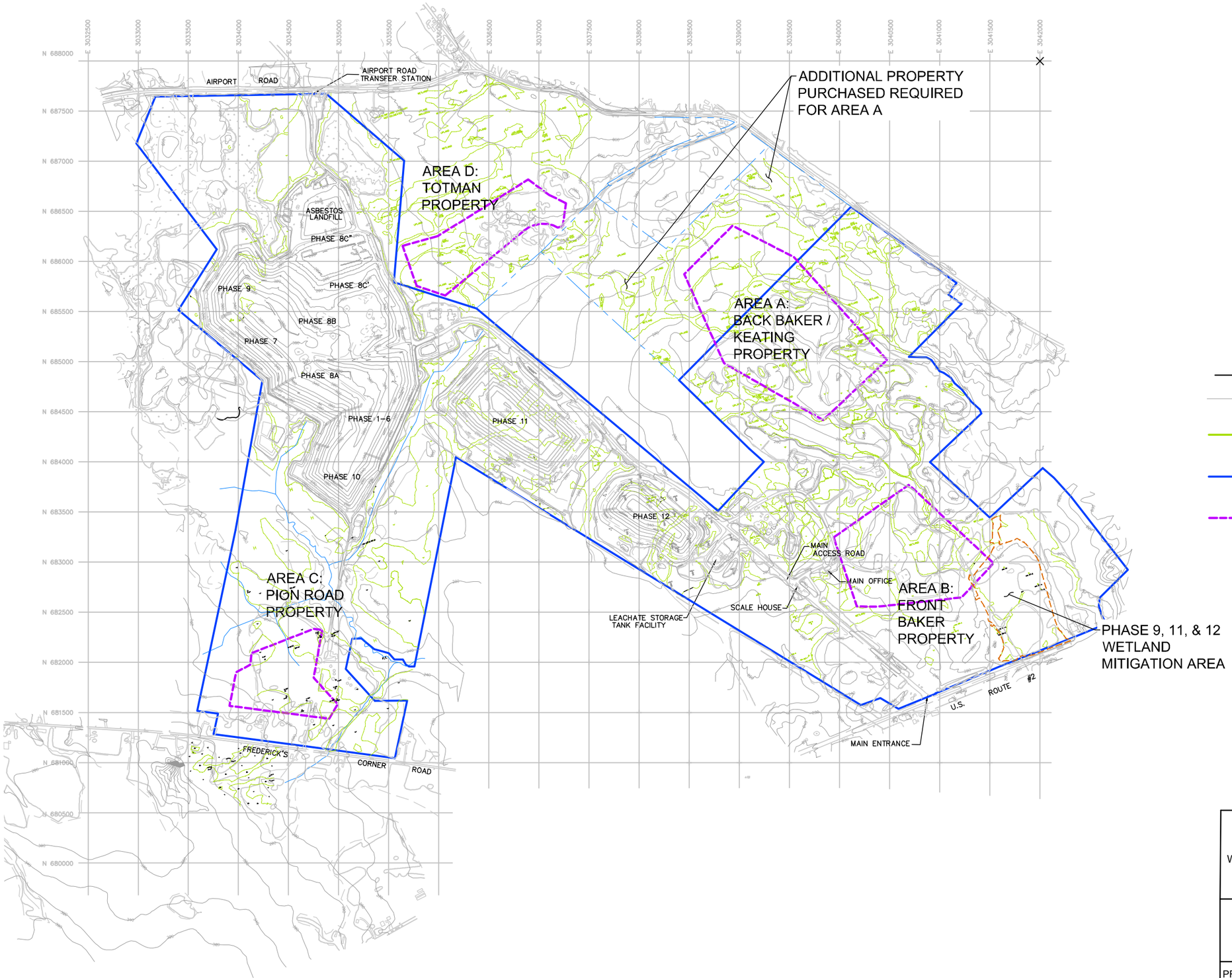
X:\Boynton Pickett\Waste Management 2019\Land Survey\Verrill Dana\Juliet Brown Info\CAD File\Waste Management Facility 2018 Abutters 10x7x2019.dwg, 10/21/2019 1:22:04 PM, ARCM full Hlred D (34.00 x 36.00 Inches), 1:500



LEGEND

- GROUND SURFACE ELEVATION CONTOUR
- EXISTING WETLANDS (NOTE 1)
- APPROXIMATE EXISTING FACILITY BOUNDARY
- LARGEST VIABLE DISPOSAL BOUNDARY FOR EACH ALTERNATIVE AREA

NOTES:

1. STREAM AND WETLANDS FROM FIGURE ENTITLED "DELINEATED WETLAND, WASTE MANAGEMENT LANDFILL" BY NORMANDEAU ENVIRONMENTAL CONSULTANTS DATED 25 OCTOBER 2012. PION ROAD WETLAND AREA FROM A CAD FILE RECEIVED FROM BOYNTON & PICKETT JULY 2019 NAMED "CR_WETLANDS (CONVERTED TO ME STATE PLANE).DWG".

0 500' 1000'
SCALE IN FEET

ALTERNATIVE ANALYSIS FOR PHASE 14 SITE SELECTION

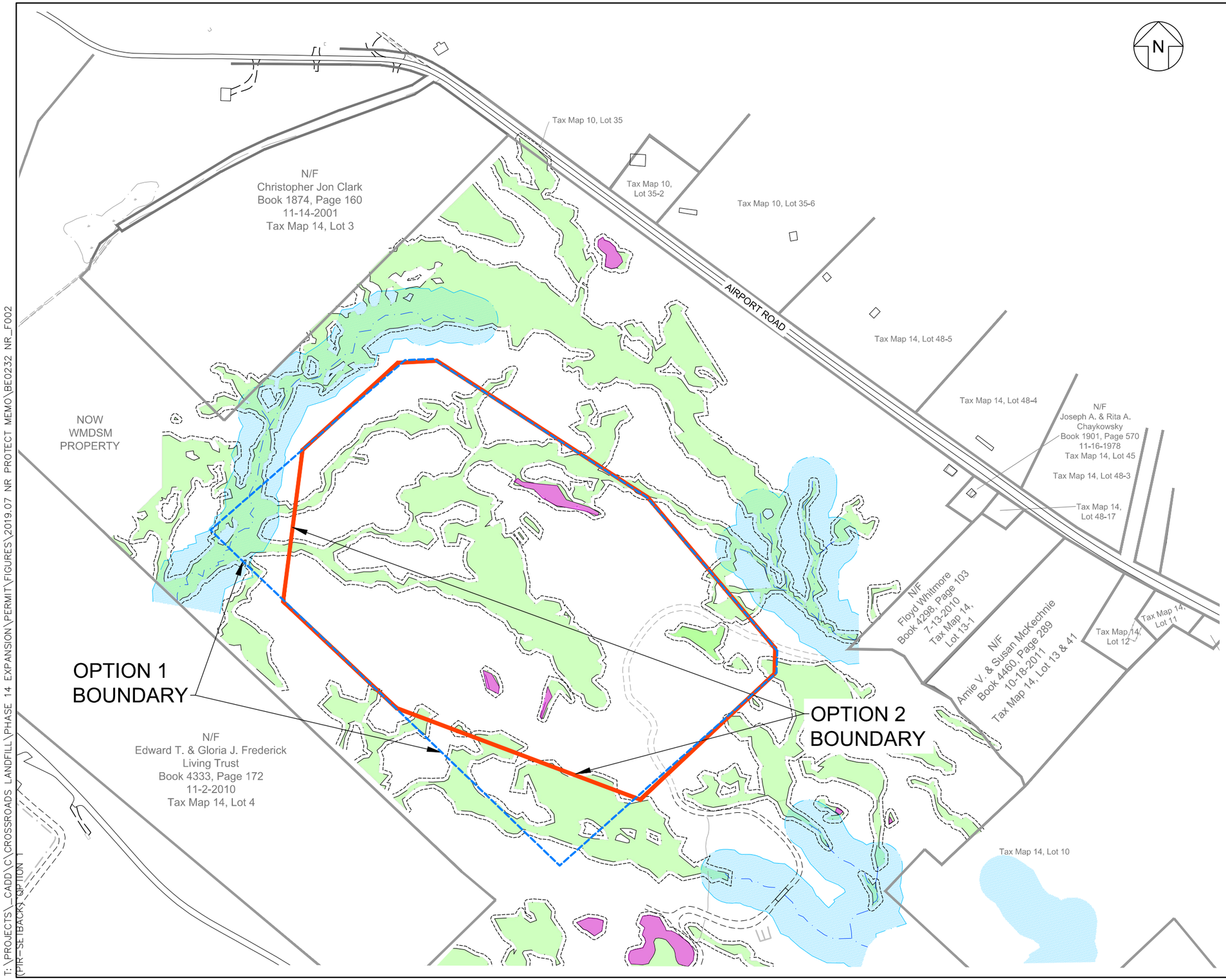
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

Geosyntec consultants

FIGURE 1

PROJECT NO: BE0232 | OCTOBER 2019

T:\PROJECTS_CADD\C\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\FIGURES\2019.07 NR PROTECT MEMO\BE0232 NR_F001 (FULL SITE)



REVISIONS OF BOUNDARY OF DISPOSAL AREA

WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

Geosyntec consultants

FIGURE 2

PROJECT NO: BE0232 | AUGUST 2019

T:\PROJECTS_CADD\C\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\FIGURES\2019.07 NR PROTECT MEMO\BE0232 NR_F002
(PIR-SETBACK) OPTION 1

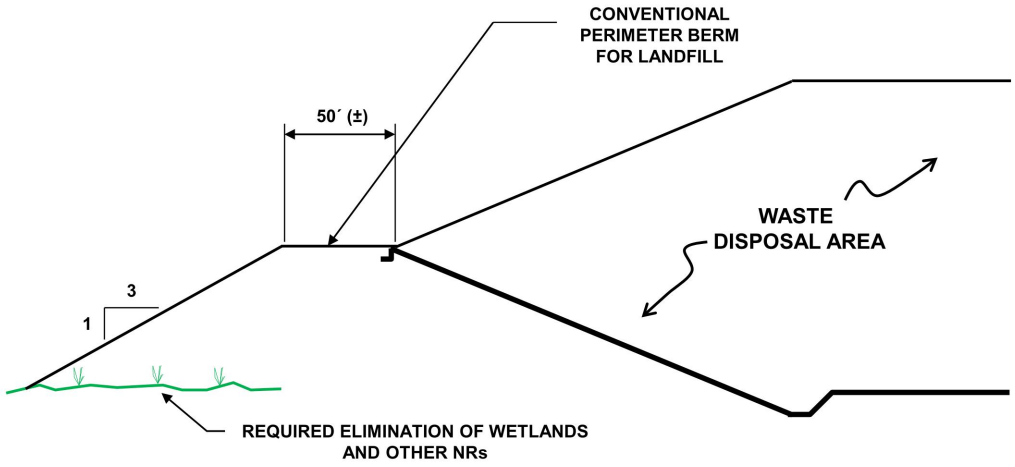


FIGURE 3a. CROSS SECTION OF CONVENTIONAL PERIMETER BERM

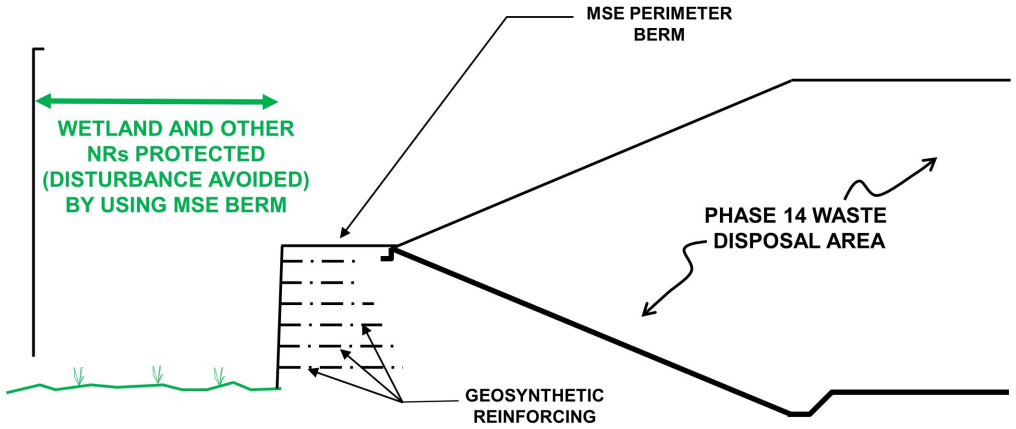


FIGURE 3b. CROSS SECTION OF MSE PERIMETER BERM

NOT TO SCALE

CROSS SECTION OF MSE BERM OPTIONS

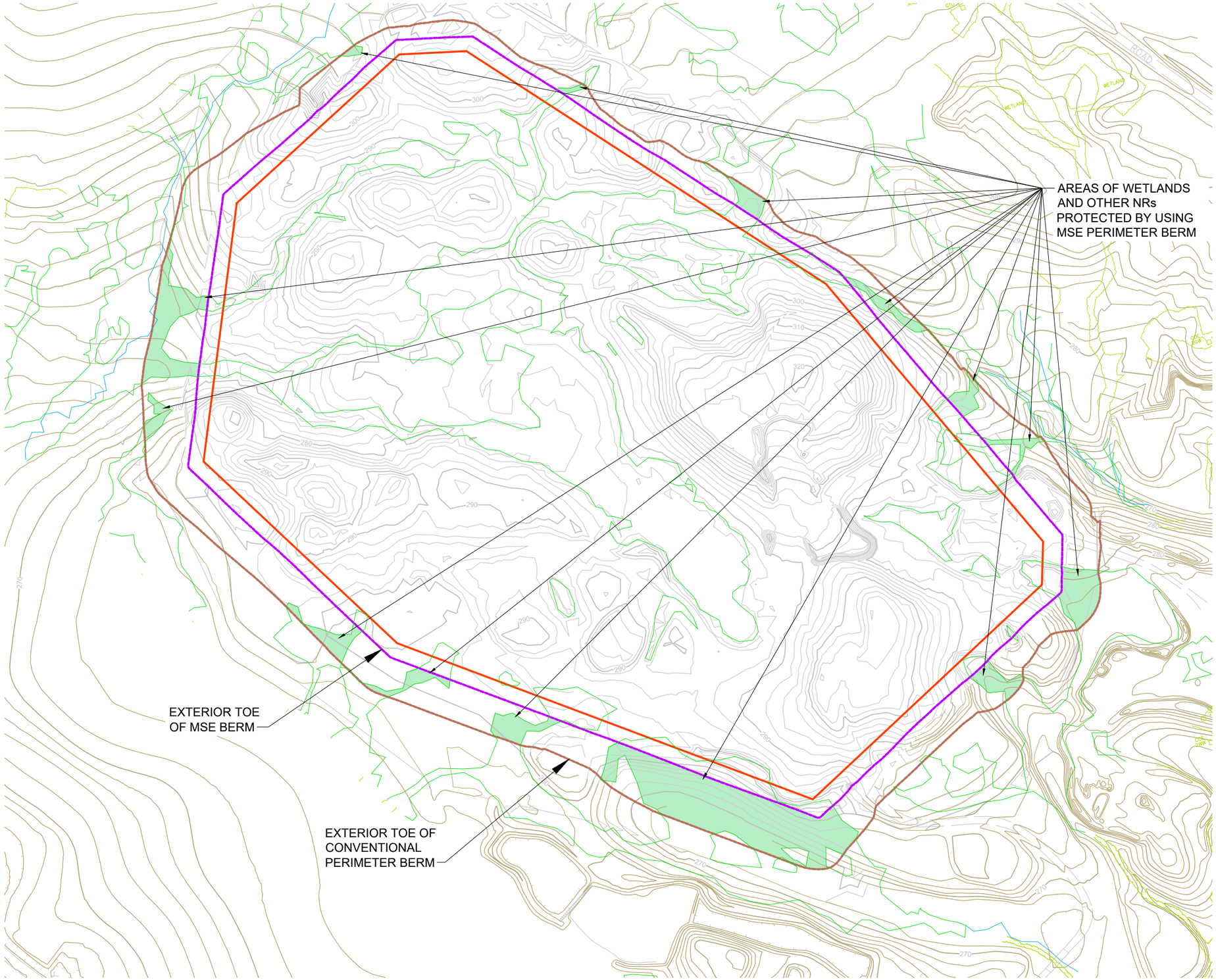
WASTE MANAGEMENT DISPOSAL
SERVICES OF MAINE, INC.
CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

Geosyntec consultants

PROJECT NO: ME1037C | AUGUST 2019

FIGURE 3

T:\PROJECTS_CADD\C\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\FIGURES\2019.07 NR PROTECT MEMO\BE0232 NR_F003 (MSE BERM SECT)



LEGEND

- GROUND SURFACE ELEVATION CONTOUR PHASE 14 AREA
- PROPOSED WASTE BOUNDARY
- STREAMS
- WETLANDS
- WETLANDS PROTECTED BY USING MSE BERM

0 120' 240'
SCALE IN FEET

DRAFT

PERIMETER BERM OPTIONS
PHASE 14

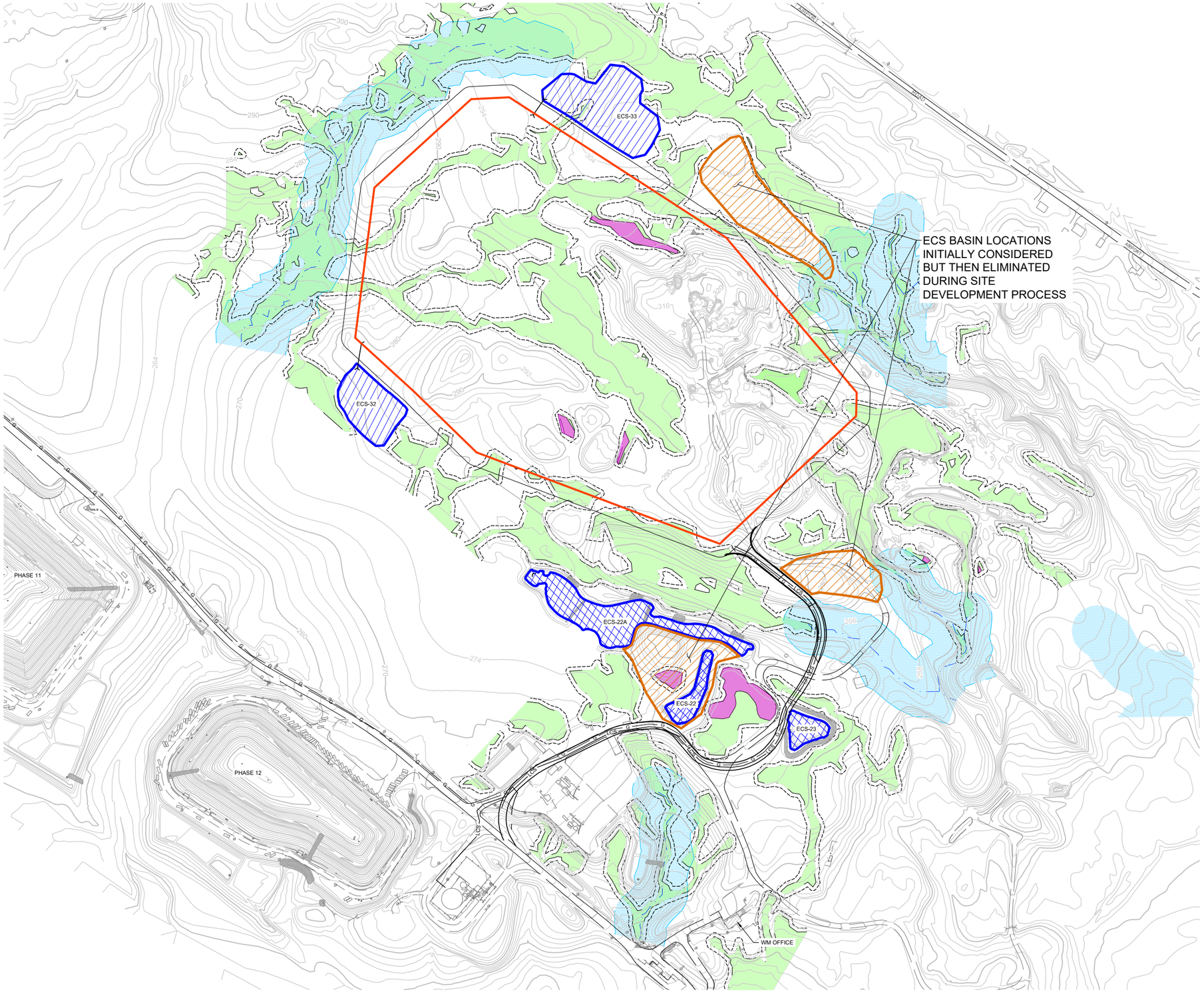
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

Geosyntec consultants

FIGURE 4

PROJECT NO: BE0232 | AUGUST 2019

T:\PROJECTS_CADD\C\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\FIGURES\2019.07 NR PROTECT MEMO\BE0232 NR_F004 (BERM LIMITS)



LEGEND

- 310 — MAJOR (10 FT) GROUND SURFACE ELEVATION CONTOUR PHASE 14 AREA (NOTE 1 & 2)
- 316 — MINOR (2 FT) GROUND SURFACE ELEVATION CONTOUR PHASE 14 AREA (NOTE 1 & 2)
- PROPOSED WASTE BOUNDARY
- EXISTING WETLANDS PHASE 14 AREA
- EXISTING STREAM
- 100-FT BUFFER FROM CLASS B STREAM
- EXISTING VERNAL POOLS
- NEW ECS BASIN TO BE CONSTRUCTED
- EXISTING ECS BASIN TO BE UPGRADED

0 200 400
SCALE IN FEET

DRAFT

REVISIONS OF STORMWATER MANAGEMENT STRUCTURE - PHASE 14

WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

Geosyntec consultants

FIGURE 5

PROJECT NO: BE0232 | OCTOBER 2019

T:\PROJECTS_CADD\C\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\FIGURES\2019.07 NR PROTECT MEMO\BE0232 NR_F005 (BASINS CONSIDERED)

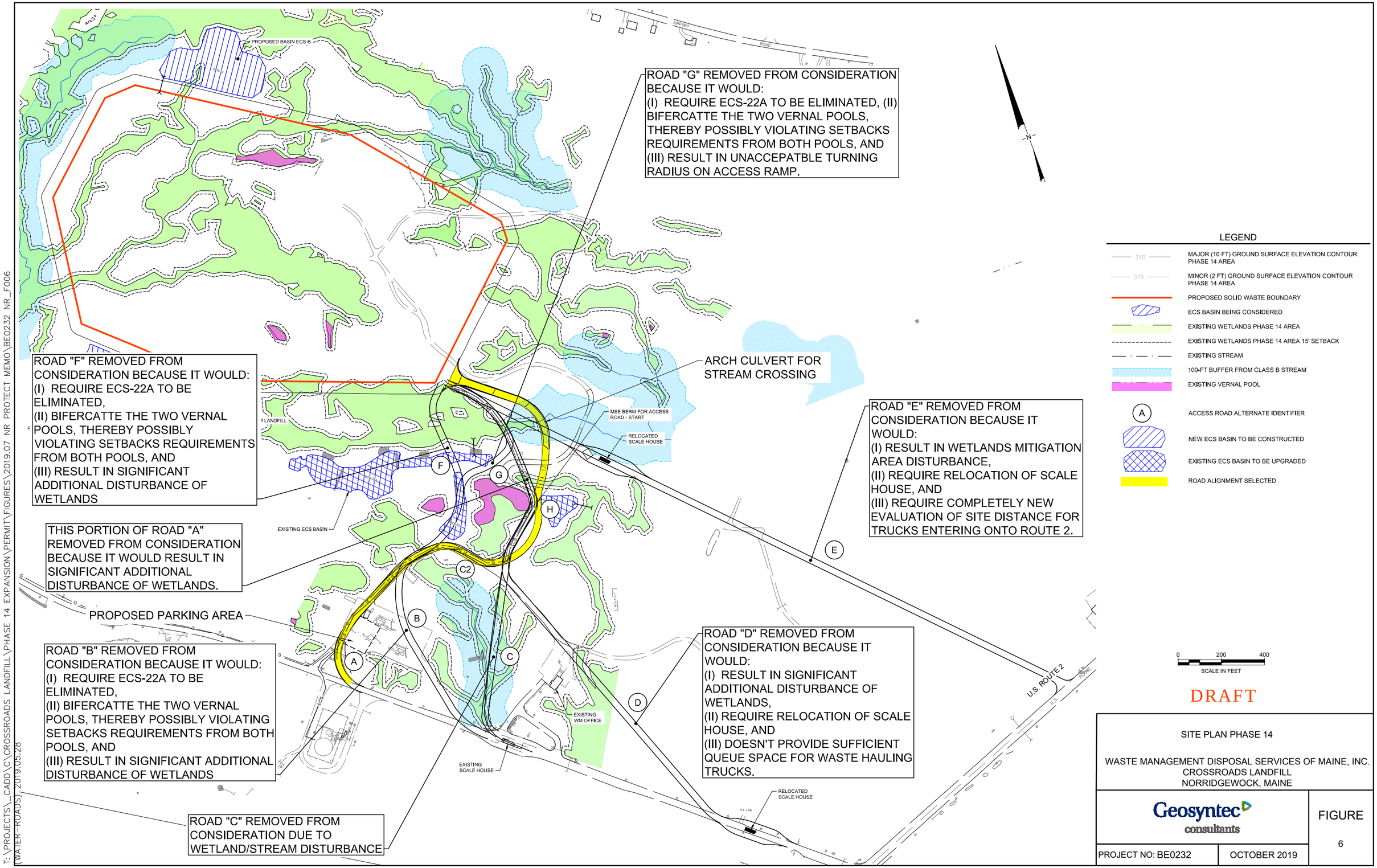

PROPOSED BASIN ECS-B
AIRPORT
ROAD
ROAD "G" REMOVED FROM CONSIDERATION BECAUSE IT WOULD:
(I) REQUIRE ECS-22A TO BE ELIMINATED, (II) BIFERCATTE THE TWO VERNAL POOLS, THEREBY POSSIBLY VIOLATING SETBACKS REQUIREMENTS FROM BOTH POOLS, AND
(III) RESULT IN UNACCEPATBLE TURNING RADIUS ON ACCESS RAMP.
ROAD "F" REMOVED FROM CONSIDERATION BECAUSE IT WOULD:
(I) REQUIRE ECS-22A TO BE ELIMINATED,
(II) BIFERCATTE THE TWO VERNAL POOLS, THEREBY POSSIBLY VIOLATING SETBACKS REQUIREMENTS FROM BOTH POOLS, AND
(III) RESULT IN SIGNIFICANT ADDITIONAL DISTURBANCE OF WETLANDS
ARCH CULVERT FOR STREAM CROSSING
MSE BERM FOR ACCESS ROAD - START
RELOCATED SCALE HOUSE
ROAD "E" REMOVED FROM CONSIDERATION BECAUSE IT WOULD:
(I) RESULT IN WETLANDS MITIGATION AREA DISTURBANCE,
(II) REQUIRE RELOCATION OF SCALE HOUSE, AND
(III) REQUIRE COMPLETELY NEW EVALUATION OF SITE DISTANCE FOR TRUCKS ENTERING ONTO ROUTE 2.
EXISTING ECS BASIN
THIS PORTION OF ROAD "A" REMOVED FROM CONSIDERATION BECAUSE IT WOULD RESULT IN SIGNIFICANT ADDITIONAL DISTURBANCE OF WETLANDS.
PROPOSED PARKING AREA
ROAD "B" REMOVED FROM CONSIDERATION BECAUSE IT WOULD:
(I) REQUIRE ECS-22A TO BE ELIMINATED,
(II) BIFERCATTE THE TWO VERNAL POOLS, THEREBY POSSIBLY VIOLATING SETBACKS REQUIREMENTS FROM BOTH POOLS, AND
(III) RESULT IN SIGNIFICANT ADDITIONAL DISTURBANCE OF WETLANDS
ROAD "D" REMOVED FROM CONSIDERATION BECAUSE IT WOULD:
(I) RESULT IN SIGNIFICANT ADDITIONAL DISTURBANCE OF WETLANDS,
(II) REQUIRE RELOCATION OF SCALE HOUSE, AND
(III) DOESN'T PROVIDE SUFFICIENT QUEUE SPACE FOR WASTE HAULING TRUCKS.
EXISTING WM OFFICE
EXISTING SCALE HOUSE
RELOCATED SCALE HOUSE
U.S. ROUTE 2
ROAD "C" REMOVED FROM CONSIDERATION DUE TO WETLAND/STREAM DISTURBANCE
A
B
C
C2
D
E
F
G
H
N
LEGEND
310 MAJOR (10 FT) GROUND SURFACE ELEVATION CONTOUR PHASE 14 AREA
316 MINOR (2 FT) GROUND SURFACE ELEVATION CONTOUR PHASE 14 AREA
PROPOSED SOLID WASTE BOUNDARY
ECS BASIN BEING CONSIDERED
EXISTING WETLANDS PHASE 14 AREA
EXISTING WETLANDS PHASE 14 AREA 15' SETBACK
EXISTING STREAM
100-FT BUFFER FROM CLASS B STREAM
EXISTING VERNAL POOL
A ACCESS ROAD ALTERNATE IDENTIFIER
NEW ECS BASIN TO BE CONSTRUCTED
EXISTING ECS BASIN TO BE UPGRADED
ROAD ALIGNMENT SELECTED
0 200 400
SCALE IN FEET
DRAFT
SITE PLAN PHASE 14
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE
Geosyntec consultants
FIGURE
6
PROJECT NO: BE0232
OCTOBER 2019
T:\PROJECTS_CADD\C\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\FIGURES\2019.07 NR PROTECT MEMO\BE0232 NR_F006
(WATER-ROADS) 2019.05.28

Exhibit A:

Final Determination of Public Benefit for the Phase 14 Project

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

MELANIE LOYZIM
ACTING COMMISSIONER

December 21, 2018

Mr. Jeffrey McGown
Waste Management Disposal Services of Maine, Inc.
Crossroads Landfill
P.O. Box 629
Norridgewock, Maine 04957

RE: Application for a Determination of Public Benefit, #S-010735-W5-XY-N

Dear Mr. McGown:

Enclosed, please find a copy of the final Determination of Public Benefit, #S-010735-W5-XY-N, for the Crossroads Landfill. This completes the processing of the application associated with the following Department tracking number: ATS #83350. Also enclosed, please find Appendix A, Standard Conditions To All Solid Waste Facility Licenses. Thank you for working with the Department to process this application. We trust that the process was informative and resulted in a satisfactory outcome.

If you have any questions, please contact me at 207-287-7166.

Sincerely,

Victoria Eleftheriou, P.E.
Director, Division of Technical Services
Bureau of Remediation and Waste Management

Ec: Juliet T. Browne, Esq. - Verrill Dana
Mathew J. Todaro, Esq. - Verrill Dana
Katherine Tierney, Esq. - Office of the Attorney General
Sherwood McKenney - WMDSM
David Burns, P.E. - MEDEP
Linda J. Butler - MEDEP
Kathy Tarbuck, P.E. - MEDEP
Gail Lipfert, C.G. - MEDEP

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

IN THE MATTER OF

WASTE MANAGEMENT DISPOSAL SERVICES	)	PHASE 14
OF MAINE, INC. - CROSSROADS LANDFILL	)	PUBLIC BENEFIT
SOMERSET COUNTY, MAINE	)	DETERMINATION
LANDFILL EXPANSION	)	
#S-010735-W5-XY-N	)	
(APPROVAL WITH CONDITIONS)	)	

Pursuant to the provisions of the *Maine Hazardous Waste, Septage and Solid Waste Management Act*, 38 M.R.S. §§ 1301 to 1319-Y, *Solid Waste Management and Recycling*, 38 M.R.S. §§ 2101 to 2236, the *Rule Concerning the Processing of Applications and Other Administrative Matters*, 06-096 C.M.R. ch. 2 (last amended June 9, 2018), and the *Solid Waste Management Rules: General Provisions*, 06-096 C.M.R. ch. 400 (last amended April 6, 2015), *Landfill Siting, Design and Operation*, 06-096 C.M.R. ch. 401 (last amended April 12, 2015), the Department of Environmental Protection ("Department") has considered the application of WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC. - CROSSROADS LANDFILL ("WMDSM"), with all supportive data, agency review comments, public comments and other related materials on file, and FINDS THE FOLLOWING FACTS:

1. APPLICATION SUMMARY

A. Application

WMDSM has applied for a determination of public benefit for a proposed expansion (Phase 14) at their Crossroads Landfill in Norridgewock for disposal of municipal solid wastes, construction and demolition debris and special wastes.

B. History

Several landfill phases have been developed over time on the same site (a composite of several parcels of land purchased at different times). Licensing actions relevant to this approval include:

(1) On July 24, 1985, then owner/operator Consolidated Waste Services ("CWS") received approval for the construction and operation of the first secure landfill for the disposal of special wastes (Phases 1-6) and a leachate storage pond (Board of Environmental Protection Order ("Board Order") #L-010735-07-A-N).

(2) On October 10, 1990, Waste Management, Inc. ("WMI"), the parent company of WMDSM, purchased all properties and assets of CWS and received approval for the transfer of all licenses (Board Order #S-010735-WR-EB-T).

(3) On May 5, 1993, WMDSM received approval for a Leachate Storage Tank facility to replace the leachate holding pond (Board Order #S-010735-WH-HU-N). Operation of the Leachate Storage Tank facility began in April 1994. The leachate holding pond was subsequently decommissioned.

(4) On May 10, 1995, WMDSM received approval for the construction and operation of a secure special waste landfill known as Phase 10 (Department Order #S-010735-WD-IF-N).

(5) On March 29, 1996, WMDSM received a public benefit determination for Phases 9, 11 and 12. This public benefit determination approved approximately 2,030,000 cubic yards of disposal capacity to be utilized over approximately 12 years.

(6) On October 16, 1997, WMDSM received approval for the construction and operation of a secure special waste landfill known as Phases 9, 11 and 12 (Department License #S-010735-WD-OK-N).

(7) On March 29, 2001, WMDSM received a modified public benefit determination for Phases 9, 11 and 12 and Phase 8 (Department License #S-010735-W5-UP-N). The modified public benefit determination approved approximately 4 million cubic yards of disposal capacity to be utilized over approximately 8 years.

(8) On August 31, 2002, WMDSM received approval for the construction and operation of the Phase 8 Expansion (Board Order #S-010735-WD-UW-N).

C. Summary of Proposal

The Application for a Determination of Public Benefit for a New or Expanded Solid Waste Disposal Facility ("Application"), dated July 2, 2018, was accepted as complete for processing on July 16, 2018. The proposed expansion (Phase 14) totals approximately 50 acres in size, with an estimated net capacity of 7 million cubic yards to be utilized over about 15 years, based upon a facility average waste placement rate of 450,000 tons per year. The Department commented on the Application in an August 9, 2018 review letter. On September 14, 2018, WMDSM submitted a response to comments. The Department provided follow-up comments in a letter dated October 3, 2018, and WMDSM responded to the follow-up comments on October 31, 2018. Supplemental information was provided by Verrill Dana LLP, on behalf of WMDSM, in a November 21, 2018 letter to the Department.

WMDSM intends to file its application for a landfill expansion during mid-2019. Project construction is proposed to commence in 2021, with filling operations transitioning to the new phase in 2024. It is expected that the current active phase, Phase 8, will be fully utilized by 2024.

2. PUBLIC PARTICPATION

A. Notice of Intent to File

A Notice of Intent to File an application was published in the Morning Sentinel on June 30, 2018, in addition to being mailed to the abutters and Town of Norridgewock municipal office. The notice and mailing of the notice fulfilled the public and local participation requirement of 38 M.R.S. § 1310-S(1) and the public notice requirements of 06-096 C.M.R. ch. 2, § 14.

B. Public Meeting and Comments Submitted

The Department held a public informational meeting on the Application on August 30, 2018 at the Mill Stream Elementary School in Norridgewock pursuant to 38 M.R.S. § 345-A and 06-096 C.M.R. ch. 2, § 8. The public meeting was noticed in the Morning Sentinel on August 20, 2018 and posted on the Department's website with interested persons being separately notified. Approximately 100 people attended the public meeting and approximately 24 total speakers commented on the Application. Additional written comments were received over the course of the licensing process. The Department received 54 written comments from a variety of people and entities including municipalities, businesses, organizations and public individuals.

Comments received included, but were not limited to: WMDSM serves a critical role in the regional management of waste materials; WMDSM provides instrumental support in the community; concern that Maine's solid waste management hierarchy ("hierarchy") will not be met; concern that WMDSM accepts out-of-state waste; concern that the projected fill rate does not match the existing customer base; and a statement that the projected landfill life should be reduced to 10 years.

3. APPLICABLE LAW

Determinations of substantial public benefit are governed by *Public Benefit Determination*, 38 M.R.S. § 1310-AA, which establishes the process and standards to be used in determining whether proposed new solid waste disposal capacity provides a substantial public benefit. 38 M.R.S. § 1310-AA, in relevant part, states:

3. **Standards for determination**. The Commissioner shall find that the proposed facility under subsection 1 or the acceptance of waste that is not generated within the State under subsection 1-A provides a substantial public benefit if the applicant demonstrates to the commissioner that the proposed facility or the acceptance of waste that is not generated within the State:

(1) Meets immediate, short-term, or long-term capacity needs of the State. For purposes of this paragraph, "immediate" means within the next 3 years, "short-term" means within the next 5 years and "long-term" means within the next 10 years. When evaluating whether a proposed facility meets the capacity needs of the State, the commissioner shall consider relevant local and regional needs as appropriate and the regional nature of the development and use of disposal capacity due to transportation distances and other factors;

(2) Except for expansion of a commercial solid waste disposal facility that accepts only special waste for landfilling, is consistent with the state waste management and recycling plan and promotes the solid waste management hierarchy as set out in section 2101;

(3) Is not inconsistent with local, regional, or state waste collection, storage, transportation, processing or disposal.

4. CAPACITY NEEDS

A. Applicable Law

Pursuant to *Solid Waste Generation and Disposal Capacity Report*, 38 M.R.S. § 2124-A "the department shall submit a report to the joint standing committee of the Legislature having jurisdiction over environmental and natural resources matters and the Governor setting forth information on statewide generation of solid waste, statewide recycling rates and available disposal capacity for solid waste." Further, "when the department determines that a decline in available landfill capacity has generated or has the potential to generate supra-competitive prices, the department shall include this finding in its report and shall include recommendations for legislative or regulatory changes as necessary. The report submitted under this section must include an analysis of how the rate of fill at each solid waste landfill has affected the expected lifespan of that solid waste landfill and an analysis of consolidation of ownership in the disposal, collection, recycling and hauling of solid waste."

Capacity needs of the State are projected in the most recent update of the Maine Materials Management Plan ("State Plan"), dated January 2014 and the Maine Solid Waste Generation and Disposal Capacity Report for Calendar Year 2016 ("Capacity Report"), dated January 2018.

B. WMDSM's Requested Capacity

If approved, the proposed expansion to the Crossroads Landfill will provide an additional 7 million cubic yards and approximately 15 years of disposal capacity based on an average waste placement rate of 450,000 tons per year. WMDSM serves as the primary disposal option for 55 of Maine's municipalities and supports more limited disposal needs for 16 others, several unincorporated communities, more than two dozen business entities, regional waste haulers, one of Maine's incinerators, a municipal solid waste processing facility, and several special waste contractors who provide clean-up services statewide.

In its Application, WMDSM states that the wastes proposed to be disposed in the proposed expansion are similar to the waste types currently received for disposal at WMDSM. In its September 14, 2018 response (page 2), WMDSM states that these waste types "did not include out-of-state MSW" and "[s]hould exceptional circumstances arise requiring out-of-state MSW to be disposed of in Phase 14, WMDSM is willing to notify the Department in advance." Wastes currently received for disposal include: (1) special wastes including asbestos-containing waste and other wastes that require special handling, transportation and disposal procedures ("Special Waste"); (2) alternate daily cover including approved special waste streams and chipped utility poles ("ADC"); (3) municipal solid waste sourced from Maine households and commercial businesses ("MSW"), and (4) construction and demolition debris ("CDD"). All wastes accepted at the landfill must be non-hazardous.

In its Application (page 11), WMDSM states that since 2004, on average, the following percentages of ADC, CDD, MSW and Special Waste out of its total waste stream were managed at the Crossroads Landfill.

Table 1 – Type of Solid Waste Managed at Crossroads Landfill

Type of Solid Waste Managed	Percentage of Total Waste Stream
ADC	25.2
CDD	23.8
MSW	24.1
Special Waste	26.9

WMDSM estimates that these percentages will generally continue during the proposed Phase 14 project. Semi-annual capacity reports submitted by WMDSM to the Department, in accordance with license #S-010735-W5-UP-N (Phases 9, 11 and 12 and Phase 8) indicate that WMDSM's disposal rate has fluctuated from a low of 239,273 tons in 2012 to a high of 447,097 tons in 2017.

In its Application (page 21), WMDSM states that "Phase 14 is important to ensuring disposal costs within the State remain competitive beyond 2024." Further, WMDSM notes that "[w]ithout Phase 14, by 2026, more than 50% of landfill capacity within the State will be concentrated at one facility, the Juniper Ridge Landfill" (page 22).

C. Department Analysis

In determining whether a facility achieves a substantial public benefit, the facility must meet the immediate (3 years), short-term (5 years) or long-term (10 years) needs of the State. Immediate and short-term needs of the State are currently being met with the operation of Phase 8 which will reach its full capacity by 2024.

While the percentages of waste types are expected to remain relatively consistent, actual disposal rates at the Crossroads Landfill fluctuate over time and are dependent upon a variety of factors, including economic well-being and growth rates, emergence of new technologies, solid waste disposal capacity in Maine, support provided to Maine's incinerators and processing facilities, and amount of out-of-state waste accepted.

(1) Economic Well-being and Growth Rates

In general, waste disposal rates fluctuate with the economy. The Maine Consensus Economic Forecasting Commission ("CEFC") stated in its March 1, 2010 Report[1] that the "Maine Coincident Economic Activity Index, an economic indicator that is a proxy for State GDP ("Gross Domestic Product"), which measures the value of economic activity within the State, decreased 4.5% in November 2009 over November 2008. Maine's year over year change has been negative since June 2008" (page 1). In its consensus forecast, the CEFC found in 2010 a "continued stabilization of the decline in economic activity that began in the fall of 2008" at the onset on the recession (page 4). Coincident with economic activity, WMDSM's disposal rate was 307,265 tons during 2008 and 258,376 tons during 2010.

[1] http://legislature.maine.gov/legis/ofpr/revenue_forecasting_committee/reports/rfc_2010mar_prelim_summary.pdf

In its April 1, 2017 Report[2], the CEFC found that "Maine's real GDP increased 1.2% in the third quarter of 2016. This was the sixth consecutive quarter of real GDP growth" (page 2). WMDSM's disposal rate was 245,803 tons in 2015, 351,342 tons in 2016, and 447,097 tons in 2017. However, the report noted that "the primary source of concern for the CEFC continues to be Maine's demographic situation, with an aging population and little to no population growth" (page 6). The CEFC projects that "employment reaches a 0.0 percent growth level in 2019 and stays at that point through 2020 and 2021" (page 5). Thus, during the previous 10-year period economic growth slowed and stagnated, has since largely recovered, but economic growth remains uncertain. The Department concludes that this uncertainty is likely to cause disposal rates to continue to fluctuate.

(2) Emergence of New Technologies

In July 2016, the Department licensed a proposed MSW processing facility in Hampden, consisting of technology new to Maine's solid waste management industry. The Fiberight LLC ("Fiberight") facility is currently under construction and will include the sorting of recyclables and conversion of organic material to certain byproducts including bio-methane. While construction of Fiberight is underway, some uncertainty exists regarding its schedule for full-scale operations and reaching its optimum throughput capacity.

WMDSM currently serves the needs of the Municipal Review Committee, Inc. ("MRC") and Fiberight in accepting MSW bridge capacity waste for disposal, and upon full-scale operation will provide disposal services for MSW process residue and bypass. WMDSM has executed an exclusive Solid Waste Disposal Agreement ("Agreement"), dated August 24, 2015, with the MRC for the disposal of MSW bridge capacity waste, process residues and bypass from the Fiberight facility at WMDSM's Crossroads Landfill. WMDSM is expected to landfill up to 40,000 tons per year of process residue from the Fiberight facility. The amount of MSW bypass requiring landfilling is uncertain and is dependent upon the frequency of time when Fiberight is unable to process MSW including during scheduled maintenance events and unscheduled outages. WMDSM is currently accepting bridge capacity waste from MRC-contracted communities for disposal. Bridge capacity waste is defined as MSW collected within MRC-contracted communities requiring disposal from April 1, 2018 to the start of

[2] http://www.maine.gov/dafs/economist/sites/maine.gov.dafs.economist/files/inline-files/Report%20of%20the%20CEFC%20Meeting%20Apr2017.pdf

commercial operations of the Fiberight facility. MRC expects to generate approximately 10,000 to 18,000 tons per month of MSW during the bridge period. The MRC and Fiberight may also accept MSW from in-state non-MRC communities that decide to contract with the MRC and Fiberight. The Department states that capacity needed for MSW including process residues and bypass from Fiberight is uncertain and is dependent on certain factors such as Fiberight's commercial start-up schedule, scheduled maintenance events and unscheduled outages, and schedule to reach its optimum throughput capacity.

(3) Solid Waste Landfill Disposal Capacity in Maine

Solid Waste Management and Recycling, 38 M.R.S. § 2123-A provides that "the state plan must identify existing solid waste disposal and management capacity within the State and the potential for expansion of that capacity." Disposal capacity includes incineration and landfilling. Table 1 of the Capacity Report presents the amount and disposition of Maine-generated MSW and CDD. During 2016, 63% of MSW including ash resulting from incineration and 89% of Maine-generated CDD was landfilled. At the Crossroads Landfill, approximately 75% of the total waste stream disposed since 2004 was CDD and special wastes. While land disposal occupies the lowest level of the hierarchy, the portion of the waste stream that cannot be recycled or reused in addition to residues resulting from processing and reduction efforts must be landfilled to maintain the health, safety and environment of Maine's citizens consistent with 38 M.R.S. § 1302.

The completion of the Fiberight facility will help to promote solid waste management at a level higher on the solid waste management hierarchy. However, even with Fiberight, Maine does not have enough processing and incineration capacity for all the MSW it produces. The Capacity Report states that Maine's generation rate for MSW during 2016 was approximately 760,000 tons per year. Beginning sometime in 2019, Maine will have 595,000 tons per year of MSW incineration and processing facility capacity. In addition, Maine's regional landfills provide disposal capacity for another 87,000 tons per year of MSW, and WMDSM provides disposal capacity for approximately 85,000 tons per year of MSW based on 2016 annual report data. Collectively, these facilities provide sufficient capacity to manage Maine's MSW based on current generation rates.

Other than the State-owned Juniper Ridge Landfill, the active landfills remaining for MSW disposal include seven municipally-owned landfills serving local needs, located in the southern, central and coastal regions of

the State, or in Aroostook County. One of these is scheduled to close before 2021, one has approximately 10 years of remaining capacity, and two primarily serve incinerators located in the southern and coastal regions of the State, by landfilling incinerator ash. The incinerators depend upon either the State landfill or WMDSM for disposal of wastes that cannot be incinerated. The landfills proposed to remain active have adequate capacity to serve a long-term demand for capacity in their respective regions, but do not have capacity to accept waste from other regions of the State.

In 2016, 1,235,592 cubic yards[3] of landfill capacity were utilized statewide (page 9 of Capacity Report). Crossroads Landfill represented approximately 32% of that capacity, largely serving the central and western regions of the State, where other capacity is not readily available. Thus, WMDSM serves to meet a State and regional need for landfill capacity and without the proposed expansion, WMDSM's capacity will cease as of 2024.

Future Commercial Waste Disposal Facilities, 38 M.R.S. § 1310-X prohibits the Department from approving an application for a new commercial solid waste disposal facility. Based on Table 4 of the Capacity Report, without the development of Phase 14, more than 50% of potentially needed landfill capacity within the State will be concentrated at one facility having the potential to create supra-competitive pricing.

(4) Support Provided to Maine's Incinerators and Processing Facilities

WMDSM states on page 16 of the Application that it supports the Mid-Maine Waste Action Corporation ("MMWAC") incinerator, which provides disposal for 27 communities, by accepting MSW during times of limited capacity at MMWAC such as the summer months. Additionally, WMDSM provides MSW to MMWAC during downturns in volume such as during the winter months. WMDSM also accepts oversized waste and CDD and other bypass waste from MMWAC that cannot be incinerated and must be landfilled. As described in Section 4(B)(2) above, WMDSM also provides disposal services to Fiberight for bridge capacity waste and upon full scale operation will provide disposal services for process residues and bypass from Fiberight.

[3] This capacity does not include special wastes disposed in generator-owned landfills affiliated with specific industrial facilities and operations.

(5) Amount of Out-of-State Waste Accepted

WMDSM operates the only commercial landfill within Maine and may accept solid waste generated out-of-state for disposal. In accordance with its modified public benefit determination for Phases 9, 11, and 12 and Phase 8 (Conditions 2 and 3 of license #S-010735-W5-UP-N), WMDSM is required, in part, to submit an analysis of waste received at the Crossroads Landfill on a semi-annual basis from both in-state and out-of-state generators. Beginning with the reporting period July 1, 2016 through December 31, 2016, WMDSM has been reporting to the Department that more than 35% of the annual total of waste received at the facility has been out-of-state waste.

WMDSM states in its March 20, 2018 semi-annual report that this data "is not representative of historical operations and is not expected to continue for a significant period of time." In addition, WMDSM notes that there are disposal constraints at other landfills in New England and WMI is seeking authorization to increase disposal capacity at its facility in New Hampshire. Further, WMDSM specifies that there is a current effort to develop rail transfer capacity to transport waste to more distant disposal sites with excess capacity. In the supplemental response to Department comments submitted on October 31, 2018 by Verrill Dana, LLP on behalf of WMDSM it was stated that several things served to increase the quantity of out-of-state waste accepted: (1) increased amounts of ADC were needed to manage active operations in both Phases 8 and 11 and a sufficient quantity of material was not available in-state; (2) additional ADC was needed to bring waste to finish grades to facilitate final capping of Phase 11 in 2018, based upon a schedule approved by the Department and (3) asbestos waste accepted under a single contract was four times that generated by typical remediation activities. Regarding the acceptance of ADC, WMDSM states that the "use of out-of-state waste material does not reduce airspace that would otherwise be available for disposal of Maine wastes" since daily cover is required by the solid waste management regulations.

D. Department Findings

The Department finds that in consideration of the State Plan and Capacity Report, expansion of the Crossroads Landfill as proposed by WMDSM, meets immediate, short-term, or long-term capacity needs of the State. The Department further finds that the 7-million cubic yards of capacity, as proposed by WMDSM, is reasonable as a basis for design given that actual disposal rates fluctuate over time depending on a variety of factors, including economic well-being and growth rates, emergence

of new waste technologies, solid waste landfill disposal capacity in Maine, support provided to Maine's incinerators and processing facilities, and amount of out-of-state waste accepted. However, the Department also finds that if exceptional circumstances arise requiring out-of-state MSW to be disposed of in Phase 14, WMDSM must notify the Department in advance. As part of the notification, alternatives to landfilling that are higher on the hierarchy must be identified and evaluated.

5. CONSISTENCY WITH STATE WASTE MANAGEMENT PLAN AND HIERARCHY

A. Applicable Law

Solid Waste Management and Recycling Plan, 38 M.R.S. § 2122 requires the Department to "prepare an analysis of, and a plan for, the management, reduction and recycling of solid waste for the State. The plan must be based upon the [established] priorities and recycling goals." Ensuring that the State has adequate disposal capacity for Maine solid wastes is part of the State Plan.

Solid Waste Management Hierarchy, 38 M.R.S. § 2101 requires that waste generated in and imported into the State should be managed in accordance with the following priority:

A. Reduction of waste generated at the source, including both amount and toxicity of the waste;
B. Reuse of waste;
C. Recycling of waste;
D. Composting of biodegradable waste;
E. Waste processing that reduces the volume of waste needing land disposal, including incineration; and
F. Land disposal of waste.

Waste Reduction and Recycling, 38 M.R.S. § 2132 states that "[i]t is goal of the State to recycle or compost, by January 1, 2021, 50% of the municipal solid waste tonnage generated each year within the State." The State's recycling rate continues to fall short of its goal for recycling or composting. Based on the Capacity Report, Maine's recycling rate for MSW, exclusive of CDD[4], was 37%. The recycling rate for CDD was 11%.

[4]For the purposes of the State Plan, Maine calculates the MSW recycling rate consistent with U.S. Environmental Protection Agency procedures which excludes CDD from the calculation. In Maine, MSW has historically been defined as solid waste typically managed by municipalities including CDD.

B. State Waste Management Plan Priorities

The priorities for sustainable materials management under the current State Plan are to:

(1) Encourage the development of new infrastructure for separation from the waste stream and utilization of organics, including composting and technologies such as anaerobic digestion ("Priority 1");

(2) Encourage increased beneficial use and recycling of materials, including identification of incentives and removal of unnecessary barriers ("Priority 2");

(3) Provide tools and assistance to municipalities and businesses to support waste reduction and diversion efforts ("Priority 3"); and

(4) Continue refinement of data sources and data management systems to more accurately and consistently assess progress toward statewide reduction and recycling goals, and to evaluate the effectiveness of programs and strategies ("Priority 4").

C. WMDSM's Existing Programs

WMDSM provides recycling services to 23 of the 55 communities utilizing the Crossroads Landfill for disposal of MSW (Table 10, page 31 of Application). While recycling rates vary, all of the communities it directly serves, have recycling programs in place. WMDSM describes ongoing programs to reduce waste and encourage recycling among its customers in its Application including:

(1) Battery Diversion. WMDSM operates a battery diversion program to collect rechargeable, button and single-use batteries from its nine-member communities for recycling. A central receptacle for battery collection is provided at WMDSM's Airport Road Transfer Station.

(2) Electronic Waste Diversion. WMDSM operates an electronic waste diversion program that allows residents from its nine-member communities to deliver electronic items such as cathode ray tubes, computer equipment, fluorescent light bulbs, smoke detectors and cell phones for recycling. Based on WMDSM's annual report for 2017, WMDSM collected approximately 45 tons of electronic waste that was diverted from landfilling.

(3) Waste Evaluations. WMDSM in conjunction with its parent company, WMI, actively performs waste evaluations for its customers. Waste evaluations serve to analyze inputs, raw materials, individual waste streams and provide recommendations for reducing the amount of waste generated and increasing the amount of materials reused or recycled. In its Application, WMDSM states that "[s]uccessful waste evaluations have been performed for a variety of customers, including Bath Iron Works, Fisher Engineering, Sappi and Colby College" (page 29).

(4) Tire Processing. WMDSM facilitates the operation of a tire processing facility by BDS Waste Disposal, Inc., which in 2017, processed approximately 33,600 tons of scrap whole tires and managed approximately 28,200 tons of tire shreds sourced from within Maine. By-products of the processing, including steel and aluminum, were shipped off-site for recycling. The facility shipped off-site approximately 53,000 tons of tire derived fuel to Maine paper mills and 192 reusable tires in 2017. Shredded and chipped tires are also used as components of the Crossroads Landfill leachate and gas collection and control systems. Since 2016, recycling of blasting mats has been added to this program.

(5) Single-sort Recycling. WMDSM in conjunction with its parent company, WMI, implements a single-sort recycling program for municipalities and businesses to encourage and maximize the amount of material recycled and reused. Glass, metal, cans, plastics, office paper, newspaper, boxboard, and corrugated carboard are collected in single-sort containers. Working directly with participants, WMDSM educates users about appropriate handling and preparation of materials for collection. For the years 2015 through 2017, more than 17,000 tons of recyclables have been removed from WMDSM's regional waste stream.

(6) Cardboard Recycling. WMDSM operates a cardboard recycling program in conjunction with its single-sort recycling program. Separated cardboard is baled by WMDSM and subsequently shipped to end users or recyclers. In 2017, WMDSM collected and diverted 4,047 tons of cardboard from landfilling.

(7) Woodwaste Recycling. Approximately 640 tons of woodwaste including utility poles, pallets, brush and other pre-sorted woodwaste was chipped and reused as daily cover or shipped off site for other uses in 2017. WMDSM reported in its 2017 Annual Report to the Department that it reused approximately 118,300 tons of treated utility poles chipped on-site, boiler ash, auto shredder residue, and contaminated soil as alternative daily cover

in substitution for clean soil materials to meet Rule requirements for daily cover of waste.

(8) Landfill Gas-to-Energy. WMDSM operates a gas-to-energy plant at the Crossroads Landfill to recover gas from the anaerobic decomposition of the waste disposed within the landfill. On an annual basis, WMDSM collects and combusts approximately 470,000 cubic feet of landfill gas creating 21,685,000 kilowatt hours of electricity per year. The gas-to-energy plant will serve the proposed Phase 14, as well as the existing landfill.

D. WMDSM's Proposed Programs

WMDSM proposes to expand its waste reuse, reduction, recycling and composting efforts, in conjunction with the operation of the proposed Phase 14, to include:

(1) Expansion of Airport Road Transfer Station[5]. WMDSM proposes to expand recycling services at its on-site transfer station serving local communities to collect organic materials, household hazardous wastes, textiles, electronic wastes, single-use batteries, clean woodwastes and unwanted or expired medicines. WMDSM notes that this initiative has the potential to have a significant effect on reducing the toxicity of MSW landfilled from the nine-member communities. As part of the transfer station upgrade, WMDSM will establish a new traffic circulation pattern and will position recycling containers and composting bins prior to trash containers to further emphasize and promote Maine's priority regarding waste management.

Enhancing its educational programs, WMDSM proposes to develop "best-practice" materials for its customers to minimize contamination of recyclable materials.

(2) Organics Diversion and Reuse. WMDSM proposes, in its Application (page 34), to construct a composting facility on site at the Crossroads Landfill facility. Residents from the nine-member communities will collect food scraps and other biodegradable waste (i.e., unbleached paper plates, napkins and food-soiled paper products) in 5 to 30 gallon containers and take to a central repository at the Airport Road Transfer Station. WMDSM will subsequently transport the material to the compost operation where the

[5]In its Application, WMDSM originally proposed to collect waste oil (page 32); however, WMDSM noted in a December 18, 2018 letter to the Department that "waste oil is better managed by authorized collection centers or vendors focused on management and recycling of waste oil." Therefore, the proposed collection of waste oil at WMDSM's Airport Road Transfer Station has been removed from the Application.

material will be handled, composted and stored. Participants in the program will be offered finished compost throughout the year. To enhance its educational programs, tours of the facility will be offered to local students, citizens and State and municipal officials.

Further, WMDSM will be assisting the Farmington Compost Cooperative to address a short-term space need by offering a location for a temporary compost operation at the Crossroads Landfill facility. While the location is temporary, WMDSM states that the pilot program will be an important building block in preparation for WMDSM's future full-scale operation (page 2 of the November 21, 2018 letter). The pilot program will occur during December 2018 through April 2019.

(3) Textile Diversion and Reuse. WMDSM proposes to develop and implement a textile diversion and reuse program. Reusable textiles will be donated to charitable organizations. Those that cannot be reused will be transported to a recycling facility. This program is proposed to begin with the nine-member communities and may be expanded based on the effectiveness of the program.

(4) Household Hazardous Materials Collection and Reuse Program. WMDSM proposes to host a one-day annual household hazardous materials collection event in Norridgewock starting in 2019. The event will serve the nine-member communities. A licensed hazardous materials management company, with experience in planning and implementing these type of collection events, will assist with the proposed program. WMDSM will collect and tabulate data derived from each event to evaluate the effectiveness of the proposed program.

(5) Informational Meetings. WMDSM proposes, in a November 21, 2018 supplement to the application, to "host a series of informational meetings for its municipal and commercial customers to (i) gather data on measures its customers are taking to recycle, (ii) identify barriers to recycling, and (iii) explore steps that would facilitate increased recycling."

E. Market Availability for Recyclables

Market availability for recyclables is uncertain. In its Application, WMDSM notes that "recycling costs have increased and markets have seen an upturn in volatility" (page 15). Further, WMDSM states that "China's actions to limit and ban certain types of plastic and paper over the course of two years, while also imposing limits on contamination, has had a major impact on recycling markets across the United

States" (page 38). While WMDSM has plans to improve the quality of collected recyclables, and has a proven outlet for most of its collected materials at ecomaine, recycling capacity will take time to recover. WMDSM states that "[m]unicipalities and businesses faced with such a sharp increase in recycling costs may be forced to make difficult decisions about the viability of their recycling programs. These tough decisions may require a temporary greater reliance on disposal locations in Maine until alternative markets can be secured, putting increased pressure on the State's overall projected disposal capacity." In its September 14, 2018 response to Department review comments, WMDSM further clarified that, "[it] does not intend to landfill potential recyclables and is utilizing efforts described in Section 3 of its Application and the responses provided to comment 5(a) [waste reduction programs] to avoid this scenario."

F. Department Analysis

Maine's Solid Waste Management Rules ("Rules"), *General Provisions,* 06-096 C.M.R. ch. 400, § 6 provides that, in order to receive a license to expand a solid waste disposal facility, the applicant must receive a determination by the Department that the volume of the waste has been reduced to the maximum extent practicable by recycling and source reduction prior to being landfilled or incinerated. For purposes of this rule section, reducing, reusing, recycling, composting and/or processing waste to the "maximum extent practicable" prior to disposal means handling the greatest amount of waste possible through means as high on the solid waste management hierarchy as possible, resulting in maximizing waste diversion and minimizing the amount of waste disposed, without causing unreasonable increases in facility operating costs or unreasonable impacts on other aspects of the facility's operation.

Determination of the "maximum extent practicable" includes consideration of the availability and cost of technologies and services, transportation and handling logistics, and overall costs that may be associated with various waste handling methods. Where waste has been subjected to reduction or recycling programs, voluntary or otherwise, that waste may only be accepted for final disposal, if the standards of those programs are at least as effective as those imposed by state law[6].

(1) WMDSM's Existing Programs. The Department concludes that WMDSM has existing programs in-place to reduce and reuse waste and encourage recycling including battery diversion, electronic waste diversion, waste evaluations, tire processing, single-sort recycling, cardboard recycling, woodwaste recycling, and landfill gas-to-energy. The Department further

[6]*Solid Waste Facility Licenses,* 38 M.R.S. § 1310-N(5-A)(A).

concludes that WMDSM's existing beneficial use and recycling programs, and waste evaluations serve to meet two of the four priorities (Priority 2 and 3) outlined in the State Plan.

On page 31 of the Application, WMDSM notes that their single-sort program has been highly successful to date; however, WMDSM additionally notes that recycling data for the communities it serves is limited and incomplete. The Department concludes that for communities utilizing landfilling as their primary means of disposal, more effort needs to be made to track and report this data. Better tracking of the data will serve to meet Priority 4 of the State Plan.

(2) WMDSM's Proposed Programs. As part of the Application, WMDSM proposes to expand and reconfigure its Airport Road Transfer Station; construct and operate a compost facility; develop and implement a textile diversion and reuse program; host an annual household hazardous materials collection event; and host a series of informational meetings to gather recycling data, identify barriers and explore steps to increase recycling. The Department concludes that for all communities utilizing landfilling as their primary means of disposal, more effort to divert recyclable and compostable materials needs to be made and is being proposed. With the implementation and operation of these programs, WMDSM will meet Priority 1, 2, 3 and 4 of the State Plan.

(3) Market Availability for Recyclables. The Capacity Report specifies that beginning January 1, 2018, China intends to prohibit the import of certain solid wastes and scrap into their country, including mixed paper and mixed plastics. Based on this, worldwide recycling capacity diminished in 2018 and contamination by the public of collected recyclables has increased rejection of loads at recycling facilities and caused municipalities to limit recycling efforts. WMDSM notes in its Application that it "is dedicated to the success of its Single-Sort Recycling Program in Maine" (page 39). The Department concludes that WMDSM does not intend to landfill potential recyclables and "plans to enhance its Airport Road Transfer Station to maximize the amount of materials reused and recycled at the facility and to minimize contamination and disposal" (page 39 of Application) thereby meeting Priority 2 of the State Plan. The Department concludes that Phase 14 should not be used for the disposal of marketable recyclables. For the purposes of this public benefit determination, "marketable recyclables" are defined as solid waste that has undergone collection, separation, processing or recovery with the intent of recovering and recycling the solid waste.

G. Department Findings

The Department finds that the expansion of the Crossroads Landfill as proposed by WMDSM, is consistent with the State Plan and promotes the solid waste management hierarchy as set forth in 38 M.R.S. § 2101, in that the volume of waste proposed to be accepted at WMDSM will be reduced to the maximum extent practicable by recycling and source reduction prior to being landfilled, provided that:

(1) WMDSM's proposed reuse, reduction, recycling and composting programs begin on or before the commencement of operations in Phase 14;

(2) All municipalities and communities utilizing the Crossroads Landfill as their primary option for disposal of MSW continue to be provided with the infrastructure and services necessary to reduce the waste landfilled to the maximum extent practicable;

(3) Marketable recyclables are not disposed in Phase 14. For the purposes of this public benefit determination, "marketable recyclables" are defined as solid waste that has undergone collection, separation, processing or recovery with the intent of recovering and recycling the solid waste. WMDSM may request approval from the Department to accept marketable recyclables if the need is based on a catastrophic event such as a fire or an extreme weather event, and other options higher on the hierarchy are not viable. Recycling market pricing is not a valid reason to seek approval from the Department for disposal of these marketable recyclables; and

(4) WMDSM collects and reports in each Annual Report to the Department data on the amount of waste received, the sources of the wastes, and estimated recycling rates associated with waste received for each of the nine-member communities that utilize WMDSM's Airport Road Transfer Station.

6. CONSISTENCY WITH LOCAL, REGIONAL, OR STATE WASTE MANAGEMENT

A. Local and Regional Provision of Services

WMDSM operates a local residential transfer station serving nine surrounding communities. During 2017, approximately 6,400 tons of waste materials were recycled and diverted from disposal. WMDSM is proposing to make retrofits to the transfer station to maximize the diversion of materials that may be reused, recycled, or composted as described in Section 5(D) above.

Cost associated with the transportation of waste is a significant issue in a large rural state such as Maine. WMDSM's service region extends to a total of 71 communities[7] and several Maine businesses, in addition to supporting other regional waste facilities such as the MMWAC incinerator and the anticipated acceptance of process residues and bypass from Fiberight. These facilities do not provide disposal services for the MSW or special waste that is currently sent to WMDSM. Without WMDSM, the transportation distances, and costs to haul to other facilities would increase. The Department received a total of 37 letters of support from municipalities and waste haulers served by the facility, suggesting the continuance of service for waste disposal at the Crossroads Landfill will minimize the impact of waste management expense on strained budgets. More significantly, while other facilities in the region accept MSW, they cannot accept special wastes. To this extent, WMDSM does not compete with other regional facilities, but partners with and compliments them. The Department also received comments from numerous business entities engaged in the handling, processing, recycling, or beneficial use of waste streams stating that a regional disposal option for residues, largely special wastes, resulting from their processes is an essential asset for their business operations.

WMDSM states in its Application that less than 25% of the total volume of waste received at the Crossroads Landfill for the past 10-year period comes from out-of-state. This is substantially below the 35% reporting threshold imposed by the WMDSM Phase 8 public benefit determination. All of this out-of-state waste has been special waste, not MSW. A significant part of this out-of-state waste is used as alternative daily cover, which does not reduce airspace that would otherwise be available for Maine generated waste. In its Application, WMDSM asserts that "[t]o remain viable, it is critical that WMDSM continue to accept out-of-state special waste" (page 13). In its September 14, 2018 response to Department comments, WMDSM states that, "the same reporting threshold would be an acceptable condition for the life of the proposed Project."

B. State Waste Management Considerations

As stated in Department license #S-010735-W5-UP-N, to further ensure a benefit to the State of Maine, WMDSM accepts for disposal any Maine generated solid waste provided that the waste meets the facility's acceptance criteria as approved by the Department and that the waste conforms to WMDSM's established business, administrative, and safety requirements. In addition, if Maine waste disposal volumes at the facility remain consistent with recent experience, then WMDSM

[7]This number includes the nine-member communities that utilize WMDSM's Airport Road Transfer Station. See Table 2 in the Application.

anticipates that over the life of the expansion, the percentage of out-of-state waste would not exceed 35%, resulting in an estimated 65% of Phase 14 disposal capacity being available to Maine-generated solid wastes.

To ensure that the capacity of Phase 14 will consistently provide a substantial public benefit to the citizens of Maine, WMDSM will collect data on the amount of waste received from both in-state and out-of-state generators, the in-place density of the landfilled waste, the volume of airspace utilized during the reporting period and the estimated remaining permitted disposal capacity expressed in cubic yards. This information will be submitted to the Department on an annual basis in the Annual Report.

If the amount of special waste unrelated to environmental clean-up and remediation projects accepted from out-of-state generators is more than 25% of the annual total of waste disposed at the facility, or that the amount of all wastes accepted from out-of-state generators is more than 35% of the annual total of waste disposed in Phase 14, WMDSM will notify the Department of this in the Annual Report. Based upon an ongoing review of the variations in life expectancy, disposal rate, ratio of in-state to out-of-state wastes and other relevant information, the Department may require WMDSM to make adjustments to ensure that Phase 14 will continue to be operated to provide a substantial public benefit as evidenced by the life expectancy of Phase 14 and the disposal capacity available for the disposal of Maine generated wastes. Actions or modifications proposed by the Department would be subject to, and carried out under, the provisions 38 M.R.S. § 1310-AA(5) and based upon any findings of fact as determined by the Department.

C. Department Findings

The Department finds that the expansion of the Crossroads Landfill as proposed by WMDSM, meets capacity needs of the relevant local communities and the region. Further, the Department finds that expansion of the landfill facility as proposed by WMDSM: (1) provides a critical role in maintaining competitive markets for solid waste services in Maine beyond the year 2024; (2) meets capacity needs of the relevant local communities and the region; and (3) meets the State waste management infrastructure goals, provided that WMDSM:

(1) Submits in each Annual Report documentation of the amount of and type of waste received from both in-state and out-of-state generators, the in-place density of the landfilled waste, the volume of airspace utilized during the reporting period and the estimated remaining permitted disposal capacity expressed in cubic yards;

(2) Notifies the Department if the amount of non-remediation special waste accepted from out-of-state generators is more than 25% of the annual total of waste disposed in Phase 14, or that the amount of all wastes accepted from out-of-state generators is more than 35% of the annual total of waste disposed at the facility. Based on an ongoing review of this data, the Department may require WMDSM to make adjustments to ensure it continues to provide a substantial public benefit for the disposal of Maine-generated wastes; and

(3) Prioritizes for disposal at WMDSM's Crossroad's Landfill Maine generated solid waste provided that the waste meets the facility's acceptance criteria as approved by the Department and that the waste conforms to WMDSM's established business, administrative, and safety requirements.

BASED on the above Findings of Fact, and subject to the Conditions listed below, the Department makes the following CONCLUSIONS:

1. Posting of the public notice in a local newspaper and mailing of the notice to abutters fulfilled the public and local participation requirement of 38 M.R.S. § 1310-S(1) and the public notice requirements of 06-096 C.M.R. ch. 2, § 14.

2. In consideration of the State Plan and Capacity Report, expansion of the Crossroads Landfill as proposed by WMDSM, meets immediate, short-term, or long-term capacity needs of the State provided that, if exceptional circumstances arise requiring out-of-state MSW to be disposed of in Phase 14, WMDSM notifies the Department in advance to identify and evaluate alternatives to landfilling.

3. Expansion of the Crossroads Landfill as proposed by WMDSM, is consistent with the State Plan and promotes the solid waste management hierarchy as set forth in 38 M.R.S. § 2101, in that the volume of waste proposed to be accepted at WMDSM will be reduced to the maximum extent practicable by recycling and source reduction prior to being landfilled, provided that:

   A. WMDSM's proposed reuse, reduction, recycling and composting programs begin on or before the commencement of operations in Phase 14;

   B. All municipalities and communities utilizing the Crossroads Landfill as their primary option for disposal of MSW continue to be provided with the infrastructure and services necessary to reduce the waste landfilled to the maximum extent practicable;

C. Marketable recyclables are not disposed in Phase 14. For the purposes of this public benefit determination, "marketable recyclables" are defined as solid waste that has undergone collection, separation, processing or recovery with the intent of recovering and recycling the solid waste. WMDSM may request approval from the Department to accept marketable recyclables if the need is based on a catastrophic event such as a fire or an extreme weather event, and other options higher on the hierarchy are not viable. Recycling market pricing is not a valid reason to seek approval from the Department for disposal of these marketable recyclables; and

D. WMDSM collects and reports in each Annual Report to the Department data on the amount of waste received, the sources of the wastes, and estimated recycling rates associated with waste received for each of the nine-member communities that utilize WMDSM's Airport Road Transfer Station.

4. Expansion of the landfill facility as proposed by WMDSM meets capacity needs of the relevant local communities and the region.

5. The Department finds that the expansion of the Crossroads Landfill as proposed by WMDSM provides: (1) a critical role in maintaining competitive markets for solid waste services in Maine beyond the year 2024; (2) meets capacity needs of the relevant local communities and the region; and (3) meets the State waste management infrastructure goals, provided that WMDSM:

A. Submits in each Annual Report documentation of the amount and type of waste received from both in-state and out-of-state generators, the in-place density of the landfilled waste, the volume of airspace utilized during the reporting period, and the estimated remaining permitted disposal capacity expressed in cubic yards;

B. Notifies the Department if the amount of non-remediation special waste accepted from out-of-state generators is more than 25% of the annual total of waste disposed in Phase 14, or that the amount of all wastes accepted from out-of-state generators is more than 35% of the annual total of waste disposed at the facility. Based on an ongoing review of this data, the Department may require WMDSM to implement measures to make adjustments to ensure it continues to provide a substantial public benefit for the disposal of Maine-generated wastes; and

C. Prioritizes for disposal at WMDSM's Crossroad's Landfill Maine generated solid waste provided that the waste meets the facility's acceptance criteria as approved by the Department and that the waste conforms to WMDSM's established business, administrative, and safety requirements.

WASTE MANAGEMENT DISPOSAL SERVICES	23	PHASE 14
OF MAINE, INC. - CROSSROADS LANDFILL	)	PUBLIC BENEFIT
SOMERSET COUNTY, MAINE	)	DETERMINATION
LANDFILL EXPANSION	)	
#S-010735-W5-XY-N	)	
(APPROVAL WITH CONDITIONS)	)	

THEREFORE, the Department APPROVES the noted application of WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC. - CROSSROADS LANDFILL, SUBJECT TO THE ATTACHED CONDITIONS and all applicable standards and regulations:

1. The Standard Conditions of Approval, a copy attached as Appendix A.

2. The invalidity or unenforceability of any provision, or part thereof, of this determination shall not affect the remainder of the provision or any other provisions. This determination shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

3. WMDSM shall:

   A. Notify the Department in advance to identify and evaluate alternatives to landfilling if exceptional circumstances arise requiring out-of-state MSW to be disposed of in Phase 14;

   B. Not dispose of marketable recyclables in Phase 14. For the purposes of this public benefit determination, "marketable recyclables" are defined as solid waste that has undergone collection, separation, processing or recovery with the intent of recovering and recycling the solid waste. WMDSM may request approval from the Department to accept marketable recyclables if the need is based on a catastrophic event such as a fire or an extreme weather event, and other options higher on the hierarchy are not viable. Recycling market pricing is not a valid reason to seek approval from the Department for disposal of these marketable recyclables;

   C. Implement all proposed reuse, reduction, recycling and composting programs described in Section 5(D) of this License, on or before the commencement of operations in Phase 14;

   D. For all municipalities and communities utilizing landfilling at the Crossroads Landfill as their primary option for disposal of MSW, continue to provide the infrastructure and services necessary to reduce the waste landfilled to the maximum extent practicable; and

   E. Collect and report in each Annual Report to the Department, data on the amount of waste received, the sources of the wastes, and estimated recycling rates associated with waste received for each of the nine-member communities that utilize WMDSM's Airport Road Transfer Station.

WASTE MANAGEMENT DISPOSAL SERVICES	24	PHASE 14
OF MAINE, INC. - CROSSROADS LANDFILL	)	PUBLIC BENEFIT
SOMERSET COUNTY, MAINE	)	DETERMINATION
LANDFILL EXPANSION	)	
#S-010735-W5-XY-N	)	
(APPROVAL WITH CONDITIONS)	)	

4. WMDSM shall:

A. Submit in each Annual Report documentation of the amount and type of waste received from both in-state and out-of-state generators, the in-place density of the landfilled waste, the volume of airspace utilized during the reporting period, and the estimated remaining permitted disposal capacity expressed in cubic yards;

B. Notify the Department if the amount of non-remediation special waste accepted from out-of-state generators is more than 25% of the annual total of waste disposed in Phase 14, or that the amount of all wastes accepted from out-of-state generators is more than 35% of the annual total of waste disposed at the facility. Based on an ongoing review of this data, the Department may require WMDSM to make adjustments to ensure it continues to provide a substantial public benefit for the disposal of Maine-generated wastes; and

C. Prioritize for disposal at WMDSM's Crossroad's landfill Maine generated solid waste provided that the waste meets the facility's acceptance criteria as approved by the Department and that the waste conforms to WMDSM's established business, administrative, and safety requirements.

DONE AND DATED AT AUGUSTA, MAINE, THIS 21st DAY OF December, 2018.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Melanie Loyzim

Melanie Loyzim, Acting Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES.

Date of initial receipt of application: July 2, 2018
Date of application acceptance: July 16, 2018

Date filed with Board of Environmental Protection:

Filed
DEC 21 2018
State of Maine
Board of Environmental Protection

XLB83350

Appendix A

STANDARD CONDITIONS TO ALL SOLID WASTE LANDFILL LICENSES

STRICT CONFORMANCE WITH THE STANDARD AND SPECIAL CONDITIONS OF THIS APPROVAL IS NECESSARY FOR THE PROJECT TO MEET THE STATUTORY CRITERIA FOR APPROVAL. VIOLATIONS OF THE CONDITIONS UNDER WHICH A LICENSE IS ISSUED SHALL CONSTITUTE A VIOLATION OF THAT LICENSE AGAINST WHICH ENFORCEMENT ACTION MAY BE TAKEN, INCLUDING REVOCATION.

1. **Approval of Variations from Plans.** The granting of this approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed by the license. Any consequential variation from these plans, proposals, and supporting documents is subject to review and approval prior to implementation.

2. **Compliance with All Applicable Laws.** The licensee shall secure and comply with all applicable federal, state, and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation, as appropriate.

3. **Compliance with All Terms and Conditions of Approval.** The licensee shall submit all reports and information requested by the Department demonstrating that the licensee has complied or will comply with all terms and conditions of this approval. All preconstruction terms and conditions must be met before construction begins.

4. **Transfer of License.** The licensee may not transfer the solid waste facility license or any portion thereof without approval of the Department.

5. **Initiation of Construction or Development Within Two Years.** If the construction or operation of the solid waste facility is not begun within two years of issuance of within 2 years after any administrative and judicial appeals have been resolved, the license lapses and the licensee must reapply to the Department for a new license unless otherwise approved by the Department.

6. **Approval Included in Contract Bids.** A copy of the approval must be included in or attached to all contract bid specifications for the solid waste facility.

7. **Approval Shown to Contractors.** Contractors must be shown the license by the licensee before commencing work on the solid waste facility.

8. **Background of key individuals.** A licensee may not knowingly hire as an officer, director or key solid waste facility employee, or knowingly acquire an equity interest or

debt interest in, any person convicted of a felony or found to have violated a State or federal environmental law or rule without first obtaining the approval of the Department.

9. **Fees.** The licensee must comply with annual license and annual reporting fee requirements of the Department's rules.

10. **Recycling and Source Reduction Determination for Solid Waste Disposal Facilities.** This condition does not apply to the expansion of a commercial solid waste disposal facility that accepts only special waste for landfilling.

    The solid waste disposal facility shall only accept solid waste that is subject to recycling and source reduction programs, voluntary or otherwise, at least as effective as those imposed by 38 M.R.S. Ch. 13.

11. **Deed Requirements for Solid Waste Disposal Facilities.** Whenever any lot of land on which an active, inactive, or closed solid waste disposal facility is located is being transferred by deed, the following must be expressly stated in the deed:

    A. The type of facility located on the lot and the dates of its establishment and closure.

    B. A description of the location and the composition, extent, and depth of the waste deposited.

    C. The disposal location coordinates of asbestos wastes must be identified.

Exhibit B:

MEDEP Advisory Opinion on the Scope of Permissible Expansion Options under 38 M.R.S. § 1310-X

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

PAUL MERCER
COMMISSIONER

March 14, 2017

Juliet Browne, Esq.
Verrill Dana, LLP
One Portland Square
Portland, Maine 04112-0586

Re: Advisory Opinion for WMDSM Expansion

Dear Juliet:

Thank you for your request for an advisory opinion on behalf of your client, Waste Management Disposal Services of Maine, Inc. – Crossroads (WMDSM) regarding the interpretation of 38 M.R.S. § 1310-X(3) and its applicability to the WMDSM landfill located in Norridgewock, Maine. This advisory opinion is based on the information you provided to the Department in your December 23, 2016 letter as well as Department records. As you know, this opinion is not a formal legal determination, is not binding on the Department, and is not appealable to the Board of Environmental Protection. 5 M.R.S. § 9001(3) and 06-096 C.M.R. Ch. 2, § 4(c).

Background Information:

WMDSM currently owns and operates a landfill in Norridgewock, Maine. The facility has been licensed by the Department since 1976 and now seeks this advisory opinion regarding the interpretation of 38 M.R.S. § 1310-X(3). Title 38 M.R.S. § 1310-X(3) allows for the expansion of a commercial solid waste disposal facility if the proposed expansion is "contiguous with the existing facility."[1]

As your letter pointed out, "contiguous with existing facility" is not specifically defined in the statute or the regulations. The regulations define "facility site" as "any developed land area of a solid waste facility including roads … structures …parking lots, and waste handling areas, or any areas thereof approved by the Department for development, but excluding wells." 06-C.M.R ch.400, § 1(XX). The statute defines "site" as the "same geographically contiguous property which may be divided by a public or private right away …" 38 M.R.S. § 1303-C (28).

In light of these two definitions, you have requested an opinion on (1) what constitutes the "existing facility" as that term is used in 38 M.R.S. § 1310-X(3) and (2) which parcels of land are contiguous to the existing facility at the WMDSM facility in Norridgewock. You have

[1] There are a number of other requirements in 38 M.R.S. § 1310 X(3) but this opinion assumes all other requirements are, or will be met.

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826

BANGOR
106 HOGAN ROAD, SUITE 6
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769
(207) 764-0477 FAX: (207) 760-3143

website: www.maine.gov/dep

also requested confirmation that new landfill disposal units are not required to be physically connected to the existing landfill disposal unit.

Interpretation

In this circumstance, the Department considers the narrower definition of "facility site" in 06-C.M.R. ch. 400, §1(XX) to control. More specifically, the Department defines WMDSM's existing facility as the Phase 8 license #S010735-WD-UW-N, dated August 31, 2002 and borrow pit licenses issued by the Department including L-17176-80-A-N, dated Mach 28, 1991; L-17176-80-B-N, dated August 24, 1992; L-17176-80-C-T, dated April 1, 1993; L-17176-80-E-M, dated May 18, 1993; L-20537-31-A-N, dated August 15, 2001; and L-18323-TG-J-M, dated April 21, 2005. This definition does include the area referred to as the "Baker Parcel."

The Department agrees with your assessment that "contiguous" as that term is used in 38 M.R.S. § 1310-X(3) should be given the meaning "touching at a point or along a boundary" as defined by Black's Law Dictionary (7th Edition 1999). Against this background, the Department considers the following parcels contiguous to the existing facility:

Tax Map 10, Lot 19;
Tax Map 13, Lots 13-1 and 8;
Tax Map 17, Lots 12, 16, 17-1, 19, and 20; and
Tax Map 14, Lots 1, 2, 4, 6, 8-1, 10, 13, 13-1, 18, 20, 40, 41, 45, and 46.

Lastly, there is no requirement that a new landfill disposal unit be physically connected to or touching an existing landfill disposal unit. Please feel free to contact me with any additional questions.

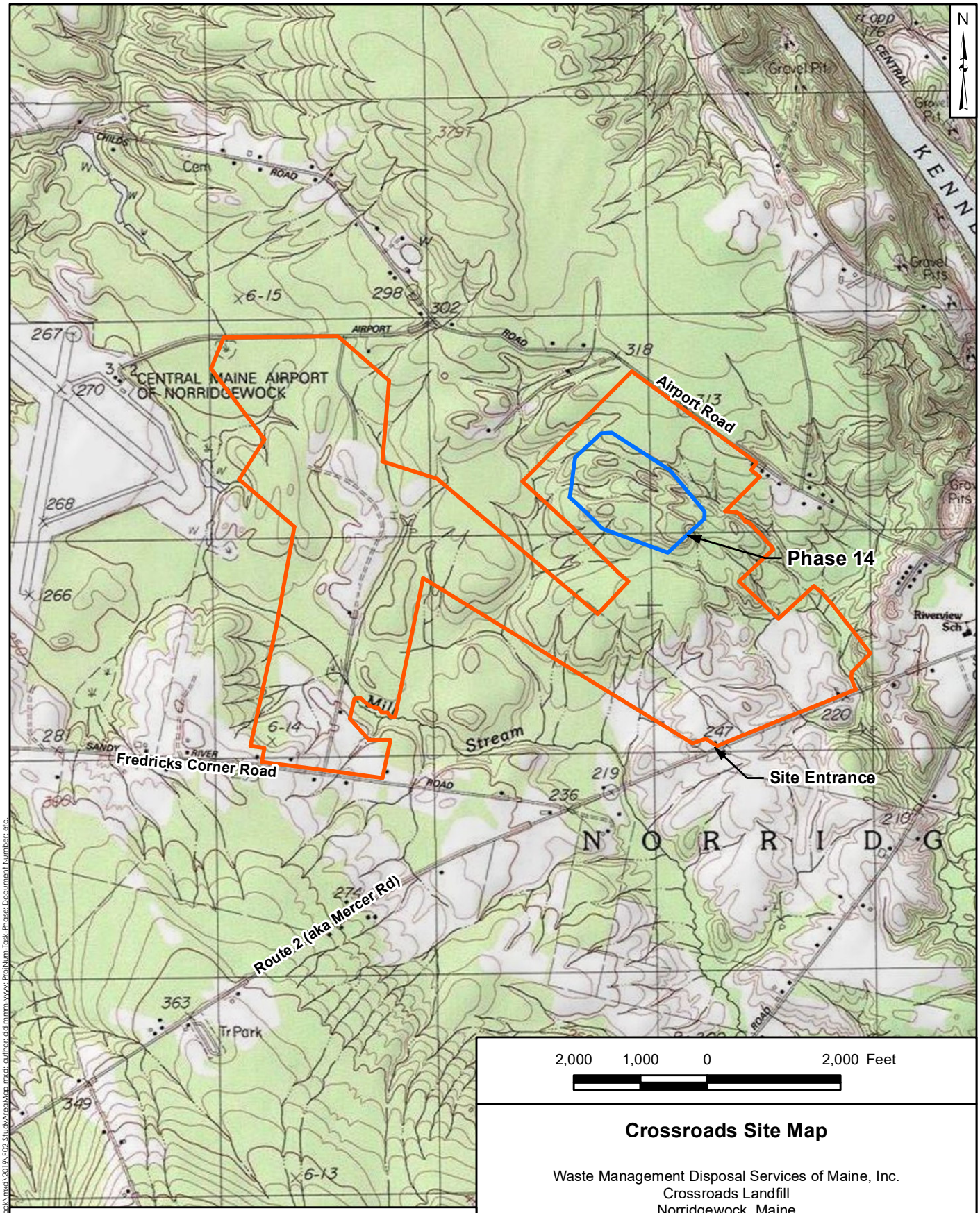
Sincerely,

David Burns, P.E.
Director, BRWM - MEDEP
17 SHS
Augusta, ME 04333-0017

cc: Sherwood McKenney, WMDSM
Linda Butler, MEDEP

Attachment 3.

Site Location Map



Legend

WMDSM Facility Site Boundary

Source: USGS Norridgewock 7.5 Minute Quadrangle, 2018.

Crossroads Site Map

Waste Management Disposal Services of Maine, Inc.
Crossroads Landfill
Norridgewock, Maine

Geosyntec consultants

Acton, Massachusetts | October 2019

Attachment 3

Q:\GIS\Projects\B6214_Norridgewock\mxd\2019\F02_StudyAreaMap.mxd; author: dd-mmm-yyyy; ProjNum-Task-Phase; Document Number; etc.

Attachment 4.

Photographs

Attachment 4. Photographs.

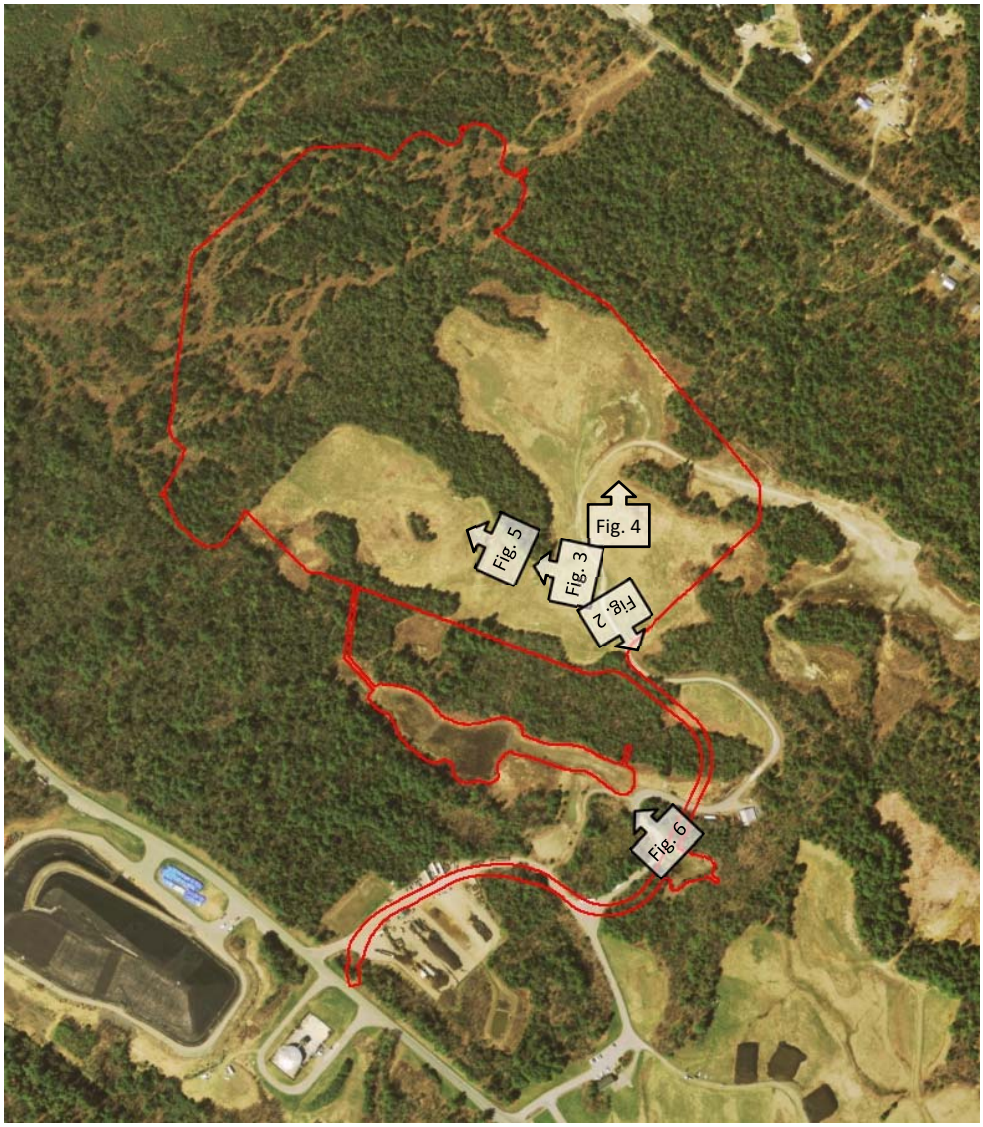


Figure 1. Aerial overview of Phase 14 site using Maine GeoLibrary Imagery (2016)

Figure 2. Overview of existing access road within limit of disturbance for Phase 14 (5/23-24)

Figure 3. Overview of fields looking northwest within limit of disturbance for Phase 14 (5/23-24)

Figure 4. Overview of existing cleared land within Phase 14 limit of disturbance looking north (5/23-24)

Figure 5. Wetland W23 & Non-Significant Vernal Pool (VP) 1 within Phase 14 limit of disturbance, view northwest 5/23-24

Figure 6. Wetland W10 & Non-Significant Vernal Pool 5 just north of proposed Phase 14 access road 5/23-24

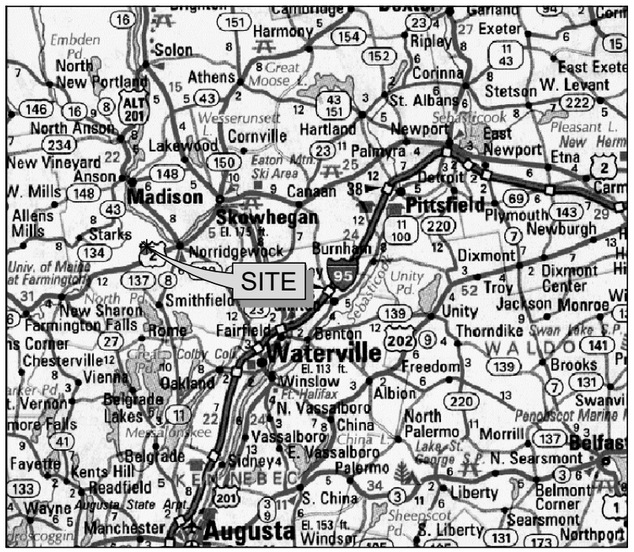
Attachment 5.

Overhead and Side View Plans

PHASE 14 PERMIT APPLICATION
PERMIT LEVEL ENGINEERING DRAWINGS
CROSSROADS LANDFILL

NORRIDGEWOCK, MAINE

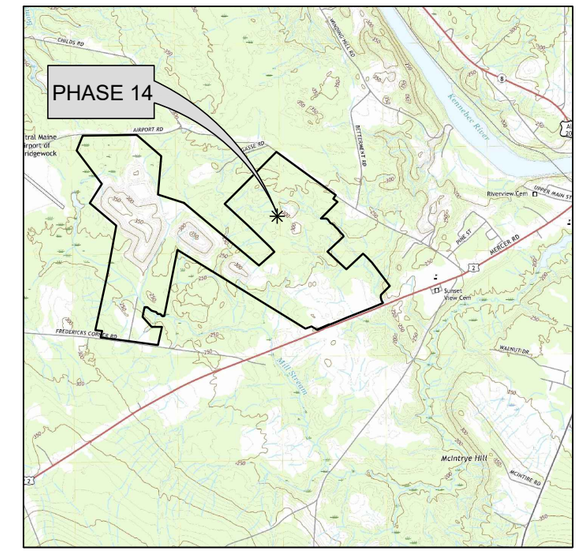
OCTOBER 2019



VICINITY MAP

0 5
SCALE IN MILES

LIST OF DRAWINGS	
DRAWING NUMBER	DRAWING TITLE
1	TITLE SHEET
2	SITE PLAN
3	EXISTING CONDITIONS PLAN
4	EXCAVATION GRADING PLAN
5	BASE GRADING PLAN
6	GEOMEMBRANE GRADING PLAN
7	LEACHATE COLLECTION PLAN
8	FILL SEQUENCE PLAN FOR PHASE 14A
9	FILL SEQUENCE PLAN FOR PHASE 14A & B
10	FILL SEQUENCE PLAN FOR PHASES 14A, B, & C
11	FILL SEQUENCE PLAN FOR PHASES 14A, B, C, & D
12	FILL SEQUENCE PLAN FOR PHASES 14A, B, C, D & E
13	TOP OF FINAL COVER GRADING PLAN
14	LANDFILL ACCESS ROAD AND MSE RAMP PLAN
15	SURFACE WATER MANAGEMENT PLAN
16	PROFILES I
17	PROFILES II
18	PROFILES III
19	LINER SYSTEM DETAILS
20	MSE BERM DETAILS I
21	MSE BERM DETAILS II
22	MSE BERM DETAILS III
23	LEACHATE TRANSMISSION PLAN
24	LEACHATE TRANSMISSION SYSTEM DETAILS
25	LEACHATE VAULT - STRUCTURAL DETAILS I
26	LEACHATE VAULT - STRUCTURAL DETAILS II
27	LEACHATE VAULT PIPING DETAILS
28	LEACHATE VAULT MECHANICAL -ELECTRICAL DETAILS
29	MISCELLANEOUS DETAILS
30	FINAL COVER SYSTEM DETAILS
31	SURFACE WATER MANAGEMENT DETAILS I
32	SURFACE WATER MANAGEMENT DETAILS II
33	SURFACE WATER MANAGEMENT DETAILS III
34	SURFACE WATER MANAGEMENT DETAILS IV
35	ECS BASIN PLAN
36	ECS BASIN DETAILS
37	ACCESS ROAD STREAM CROSSING DETAILS
38	EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS



LOCATION MAP

0 6,000
SCALE IN FEET

PREPARED FOR:

WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
PHONE: (207) 634-2714

PREPARED BY:

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

GEOSYNTHETIC LEGEND

- GEOCOMPOSITE DRAINAGE LAYER
- GEOMEMBRANE
- GEOSYNTHETIC CLAY LINER
- GEOTEXTILE SEPARATION, FILTER, OR CUSHION LAYER

NOTE:

1. DETAILS ARE NOT SHOWN TO SCALE. GEOSYNTHETICS ARE SHOWN AT AN EXAGGERATED SCALE FOR CLARITY. MATERIAL TOLERANCES SHALL BE WITHIN THE LIMITS GIVEN IN THE SPECIFICATIONS.

DETAIL IDENTIFICATION LEGEND

DETAIL NUMBER (4) / SHEET ON WHICH ABOVE DETAIL IS PRESENTED (6)

DETAIL NUMBER 4 — DETAIL
SHEET ON WHICH ABOVE DETAIL WAS FIRST REFERENCED 3 — TITLE OF DETAIL
SCALE: 1"=2'

EXAMPLE: DETAIL NUMBER 4 PRESENTED ON SHEET NO. 6 WAS REFERENCED FOR THE FIRST TIME ON SHEET NO.3.

ABOVE SYSTEM ALSO APPLIES TO SECTION IDENTIFICATIONS.

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE — SCOTT M. LUTTICH No. 7482 — PROFESSIONAL ENGINEER

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDERING OR CONSTRUCTION UNLESS SEALED.
SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

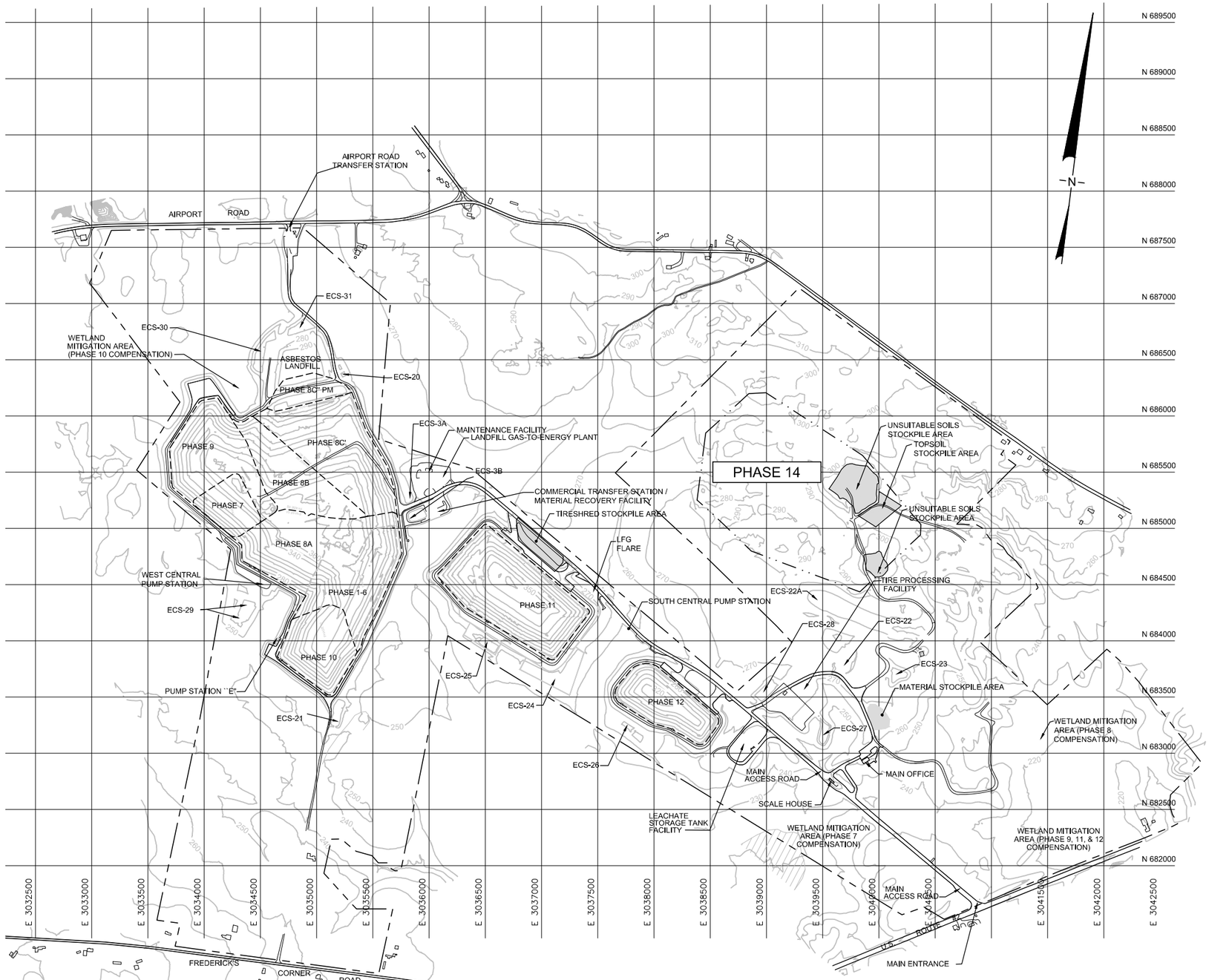
Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

TITLE: TITLE SHEET
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 1 OF 38

T:\PROJECTS_CAD\DC\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT DRAWINGS\BE0232 D001 (COVER).DWG Last Edited by: jtaylor on 10/17/19

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



LEGEND

- GROUND SURFACE ELEVATION CONTOUR
- EXISTING BUILDINGS
- EXISTING WASTE MANAGEMENT FACILITY
- STOCKPILE AREAS
- PHASE 14 DESIGN LIMIT OF WASTE
- ACCESS ROAD

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM TOPOGRAPHIC SURVEYS, DATED NOV 2017, AND SEPT 2018, PROVIDED BY BOYNTON & PICKETT.
2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83) MAINE WEST STATE PLAN. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). PROPERTY BOUNDARY SURVEYED IN UTM SCALED TO NAD 83.

0 500' 1000'
SCALE IN FEET

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUETTICH
No. 7462
LICENSED
PROFESSIONAL ENGINEER

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

SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

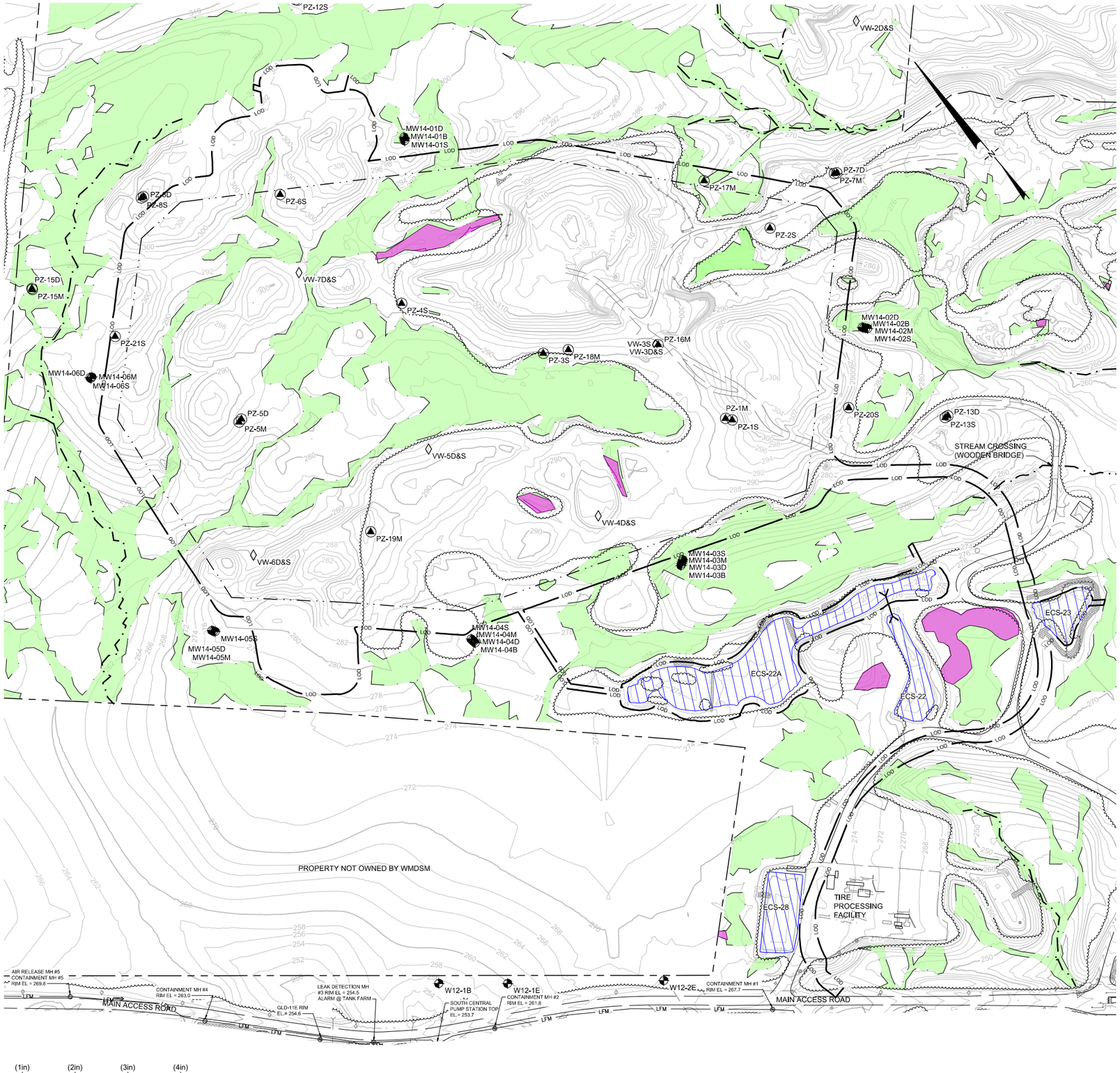
TITLE: SITE PLAN

PROJECT: PHASE 14 PERMIT APPLICATION

SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 2 OF 38

T:\PROJECTS_CADD\C\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D002 (SITE).DWG Last Edited by: jhaylor on 10/10/19



LEGEND

- 310 — MAJOR (10 FT) GROUND SURFACE ELEVATION CONTOUR
- 316 — MINOR (2 FT) GROUND SURFACE ELEVATION CONTOUR
- EXISTING WASTE MANAGEMENT FACILITY
- PHASE 14 DESIGN LIMIT OF WASTE
- ECS BASIN
- WETLANDS (NOTE 3)
- STREAM (NOTE 3)
- VERNAL POOL (NOTE 3)
- STORMWATER CULVERT
- TREELINE
- BUILDING/STRUCTURE
- ACCESS ROAD
- OVERHEAD ELECTRIC
- MONITORING WELL
- PIEZOMETER
- VIBRATING WIRE PIEZOMETER
- LFM — EXISTING LEACHATE FORCE MAIN
- EXISTING LEACHATE MANHOLE
- LOD — LIMIT OF DISTURBANCE

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM TOPOGRAPHIC SURVEYS, DATED NOV 2017, AND SEPT 2018, PROVIDED BY BOYNTON & PICKETT.
2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83) MAINE WEST STATE PLAN. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). PROPERTY BOUNDARY SURVEYED IN UTM SCALED TO NAD 83.
3. STREAM, WETLAND, AND VERNAL POOL DELINEATIONS PROVIDED BY NORMANDEAU ENVIRONMENTAL CONSULTANTS ON 19 MAY 2019 AND 14 JUNE 2019.

0 150' 300'
SCALE IN FEET

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE — SCOTT M. LUTTRICH No. 7162 — LICENSED PROFESSIONAL ENGINEER

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.
SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

TITLE: EXISTING CONDITIONS PLAN
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 3 OF 38

T:\PROJECTS_CADD\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D003 (EX COND).DWG Last Edited by: jtaylor on 10/22/19

LEGEND

- 310 — MAJOR (10 FT) GROUND SURFACE ELEVATION CONTOUR
- 316 — MINOR (2 FT) GROUND SURFACE ELEVATION CONTOUR
- 340 — PROPOSED EXCAVATION ELEVATION CONTOUR (NOTE 3)
- EXISTING WASTE MANAGEMENT FACILITY
- PHASE 14 DESIGN LIMIT OF WASTE
- SUB CELL BOUNDARY
- OVER EXCAVATION FOR SAND REMOVAL (NOTE 3)

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM TOPOGRAPHIC SURVEYS, DATED NOV 2017, AND SEPT 2018, PROVIDED BY BOYNTON & PICKETT.
2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83) MAINE WEST STATE PLAN. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). PROPERTY BOUNDARY SURVEYED IN UTM SCALED TO NAD 83.
3. EXCAVATION GRADES IN SHADED AREAS REPRESENT BOTTOM OF IN-SITU SAND TO BE OVER EXCAVATED AND REPLACED WITH COMPACTED CLAY TO ACHIEVE THE BOTTOM OF LINER GRADES SHOWN ON DRAWING 5. GRADES IN UNSHADED AREAS CORRESPOND TO THE BOTTOM OF LINER GRADES SHOWN ON DRAWING 5.
4. GROUNDWATER ELEVATIONS MEASURED DURING THE PHASE 14 PERMITTING ACTIVITIES INDICATE AREAS WHERE THE POTENTIOMETRIC SURFACE MAY BE HIGHER THAN THE EXCAVATION GRADES SHOWN ON THIS DRAWING AND LINER SYSTEM GRADES SHOWN ON DRAWING 6. GROUNDWATER LEVELS WILL BE RE-EVALUATED DURING DEVELOPMENT OF THE CONSTRUCTION DOCUMENTS TO ESTABLISH THE POSSIBLE NEED FOR DEWATERING DURING CONSTRUCTION, AND PROMPT LOADING OF THE LINER WITH LCS SAND AND SELECT-LIFT WASTE TO OFFSET BUOYANCY (UPLIFT) FORCES.

0 100' 200'
SCALE IN FEET

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUETTICH
No. 7462
LICENSED
PROFESSIONAL ENGINEER

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

SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

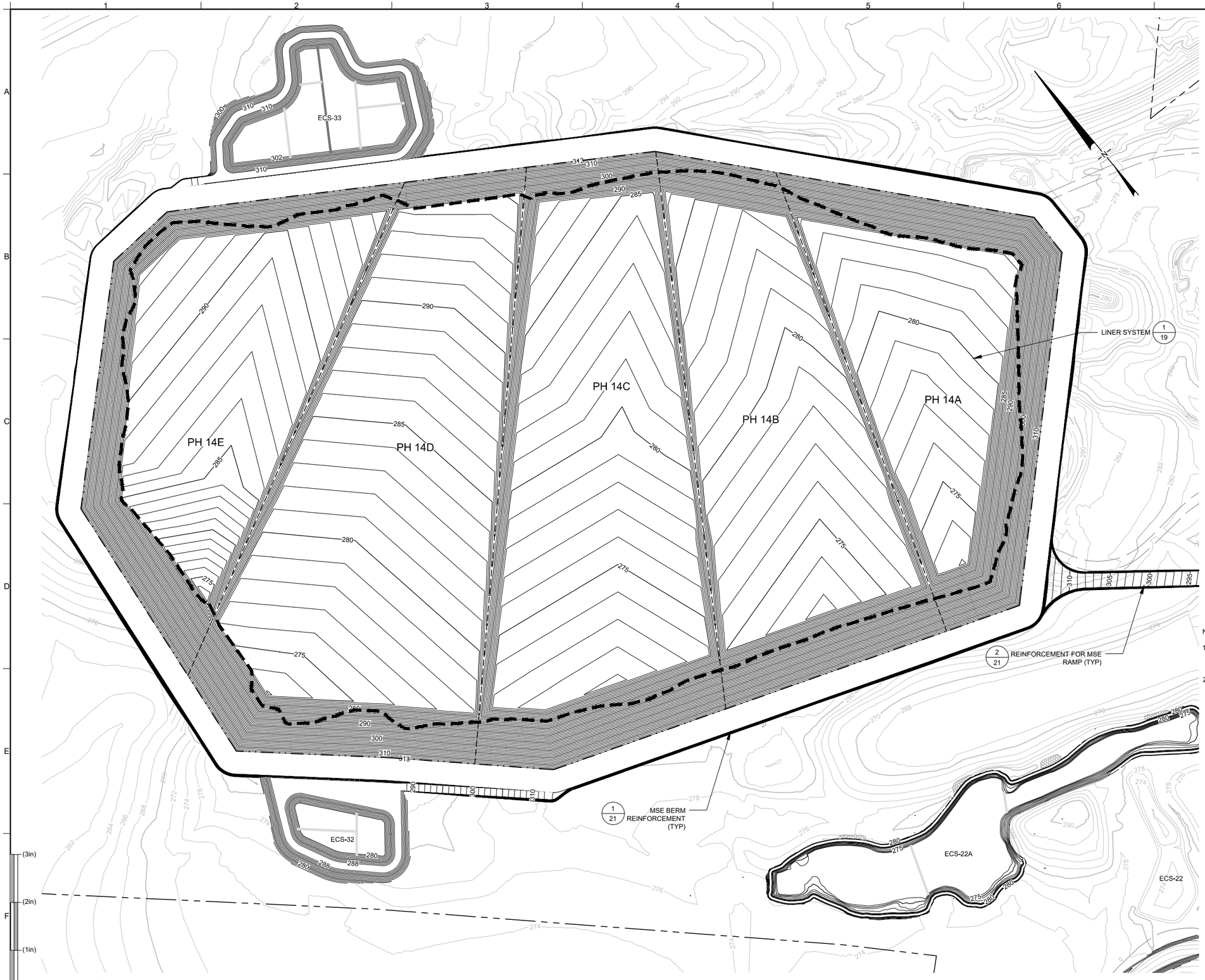
TITLE: EXCAVATION GRADING PLAN

PROJECT: PHASE 14 PERMIT APPLICATION

SITE: CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 4 OF 38

T:\PROJECTS_CADD\C\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D004 (EXCAV GRD).DWG Last Edited by: jtaylor on 10/16/19



LEGEND

- 310 — MAJOR (10 FT) GROUND SURFACE ELEVATION CONTOUR
- 316 — MINOR (2 FT) GROUND SURFACE ELEVATION CONTOUR
- 340 — PROPOSED EXCAVATION AND BASE GRADE ELEVATION CONTOUR
- EXISTING WASTE MANAGEMENT FACILITY
- PHASE 14 DESIGN LIMIT OF WASTE
- SUB CELL BOUNDARY
- LIMIT OF EXCAVATION

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM TOPOGRAPHIC SURVEYS, DATED NOV 2017, AND SEPT 2018, PROVIDED BY BOYNTON & PICKETT.
2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83) MAINE WEST STATE PLAN. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). PROPERTY BOUNDARY SURVEYED IN UTM SCALED TO NAD 83.

0 100' 200'
SCALE IN FEET

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

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

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

SIGNATURE

24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WM WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

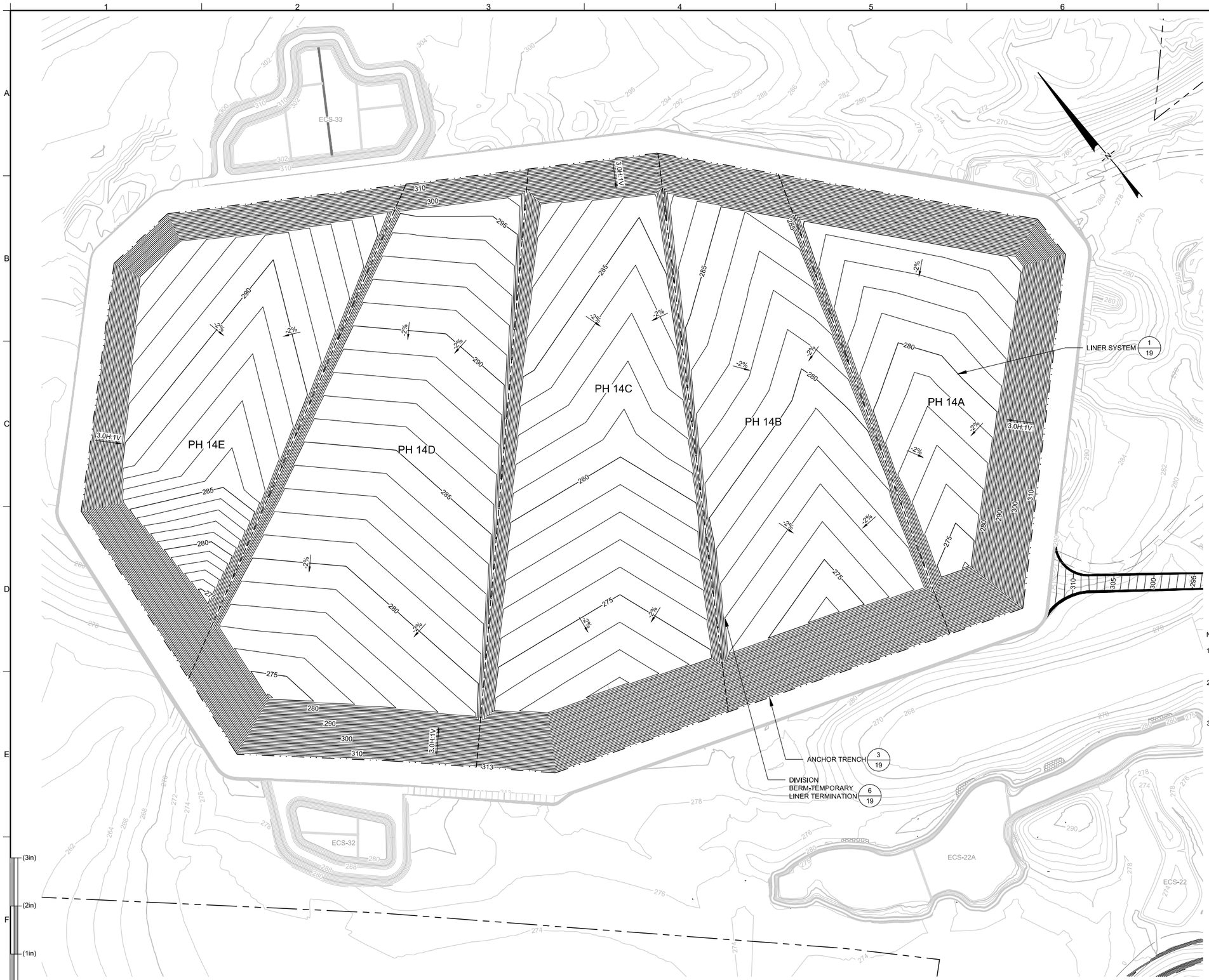
TITLE: BASE GRADING PLAN

PROJECT: PHASE 14 PERMIT APPLICATION

SITE: CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 5 OF 38

T:\PROJECTS_CADD\C\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D005 (BASE GRD).DWG Last Edited by: jhaylor on 10/16/19



LEGEND

310	MAJOR (10 FT) GROUND SURFACE ELEVATION CONTOUR
316	MINOR (2 FT) GROUND SURFACE ELEVATION CONTOUR
340	PROPOSED GEOMEMBRANE GRADE ELEVATION CONTOUR
	EXISTING WASTE MANAGEMENT FACILITY
	PHASE 14 DESIGN LIMIT OF WASTE
	SUB CELL BOUNDARY

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM TOPOGRAPHIC SURVEYS, DATED NOV 2017, AND SEPT 2018, PROVIDED BY BOYNTON & PICKETT.
2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83) MAINE WEST STATE PLAN. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). PROPERTY BOUNDARY SURVEYED IN UTM SCALED TO NAD 83.
3. GROUNDWATER ELEVATIONS MEASURED DURING THE PHASE 14 PERMITTING ACTIVITIES INDICATE AREAS WHERE THE POTENTIOMETRIC SURFACE MAY BE HIGHER THAN THE EXCAVATION GRADES SHOWN ON DRAWING 4 AND LINER SYSTEM GRADES SHOWN ON THIS DRAWING. GROUNDWATER LEVELS WILL BE RE-EVALUATED DURING DEVELOPMENT OF THE CONSTRUCTION DOCUMENTS TO ESTABLISH THE POSSIBLE NEED FOR DEWATERING DURING CONSTRUCTION, AND PROMPT LOADING OF THE LINER WITH LCS SAND AND SELECT-LIFT WASTE TO OFFSET BUOYANCY (UPLIFT) FORCES

0 100' 200'
SCALE IN FEET

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUETTICH
No. 7462
LICENSED
PROFESSIONAL ENGINEER

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

SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

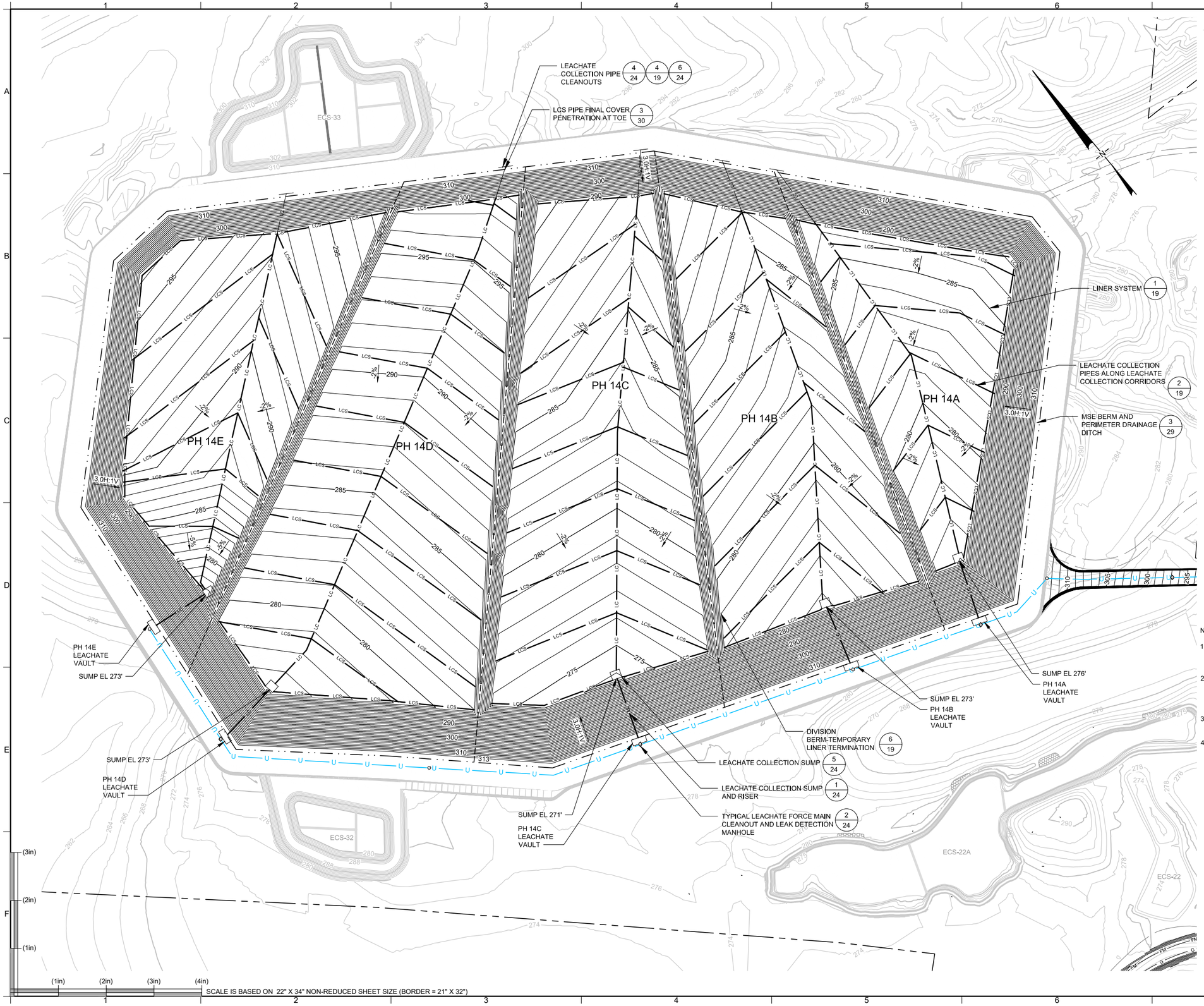
TITLE: GEOMEMBRANE GRADING PLAN

PROJECT: PHASE 14 PERMIT APPLICATION

SITE: CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 6 OF 38

T:\PROJECTS_CADD\C\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D006 (GEOMEMBRN GRD).DWG Last Edited by: jhaylor on 10/16/19



LEGEND

310	MAJOR (10 FT) GROUND SURFACE ELEVATION CONTOUR
316	MINOR (2 FT) GROUND SURFACE ELEVATION CONTOUR
340	PROPOSED LEACHATE COLLECTION GRADE ELEVATION CONTOUR (TOP OF DRAINAGE SAND)
	EXISTING WASTE MANAGEMENT FACILITY
	PHASE 14 DESIGN LIMIT OF WASTE
	SUB CELL BOUNDARY
LC	SUMP WITH LEACHATE COLLECTION PIPE
	LEACHATE VAULT
U	UTILITY CORRIDOR (NOTE 3)
LCS	LEACHATE COLLECTION PIPE LATERAL
	LEACHATE FORCE MAIN CLEANOUT MANHOLE
	LEACHATE FORCE MAIN CLEANOUT AND LEAK DETECTION MANHOLE
	LEACHATE COLLECTION SYSTEM CLEANOUT

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM TOPOGRAPHIC SURVEYS, DATED NOV 2017, AND SEPT 2018, PROVIDED BY BOYNTON & PICKETT.
2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83) MAINE WEST STATE PLAN. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). PROPERTY BOUNDARY SURVEYED IN UTM SCALED TO NAD 83.
3. UTILITY CORRIDOR FOR UNDERGROUND LEACHATE FORCE MAIN, GAS TRANSMISSION PIPE AND THREE-PHASE POWER CONDUIT.
4. REFER TO DRAWINGS 24 THROUGH 28 FOR LEACHATE VAULT AND TRANSMISSION SYSTEM DETAILS.

0 100' 200'
SCALE IN FEET

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUETTICH
No. 7462
LICENSED PROFESSIONAL ENGINEER

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

SIGNATURE

21 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

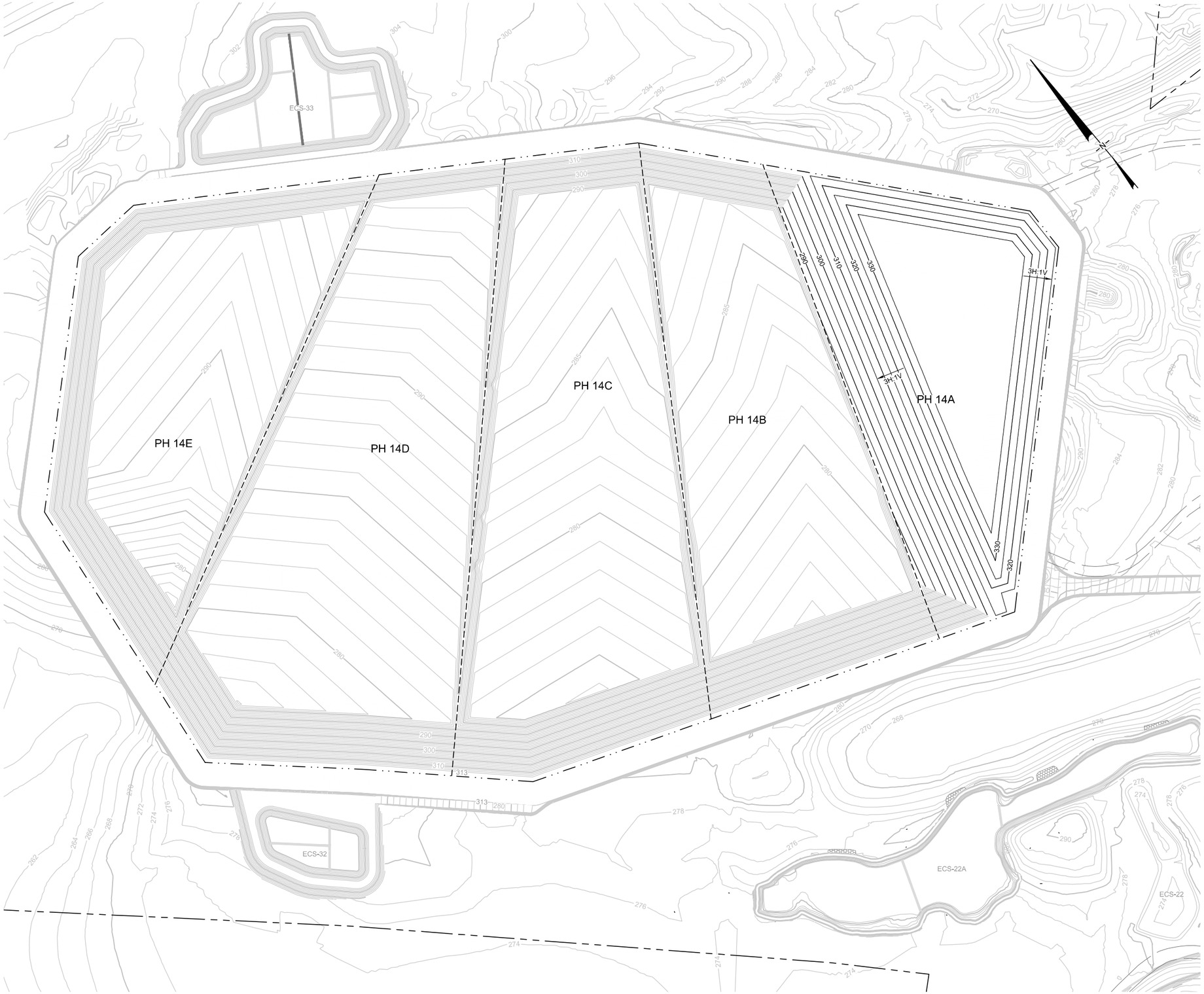
WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

TITLE: LEACHATE COLLECTION PLAN
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 7 OF 38

T:\PROJECTS_CADD\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT DRAWINGS\BE0232 0007 (LEACH COLL).DWG Last Edited by: jhaylor on 10/23/19



LEGEND

310	MAJOR (10 FT) GROUND SURFACE ELEVATION CONTOUR
316	MINOR (2 FT) GROUND SURFACE ELEVATION CONTOUR
340	PROPOSED INTERIM WASTE GRADE ELEVATION CONTOUR
	EXISTING WASTE MANAGEMENT FACILITY
	PHASE 14 DESIGN LIMIT OF WASTE
	SUB CELL BOUNDARY

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM TOPOGRAPHIC SURVEYS, DATED NOV 2017, AND SEPT 2018, PROVIDED BY BOYNTON & PICKETT.
2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83) MAINE WEST STATE PLAN. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). PROPERTY BOUNDARY SURVEYED IN UTM SCALED TO NAD 83.
3. LOCATIONS OF TEMPORARY INTERNAL ACCESS ROADS WILL BE DEVELOPED BY WMDSM PERSONNEL IN CONSULTATION WITH LANDFILL DESIGNER AS WASTE PLACEMENT PROGRESSES.
4. FUTURE CELLS OF PHASE 14 ARE SHOWN FOR CLARITY, AND WILL NOT NECESSARILY BE CONSTRUCTED WHEN INTERIM FILLING IS OCCURRING AS SHOWN.
5. APPROXIMATE DISPOSAL CAPACITY GAINED BY CONSTRUCTING PHASE 14A: 376,000 Cu. Yd.

0 100' 200'
SCALE IN FEET

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUTTRELL
No. 7162
LICENSED PROFESSIONAL ENGINEER

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.
SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

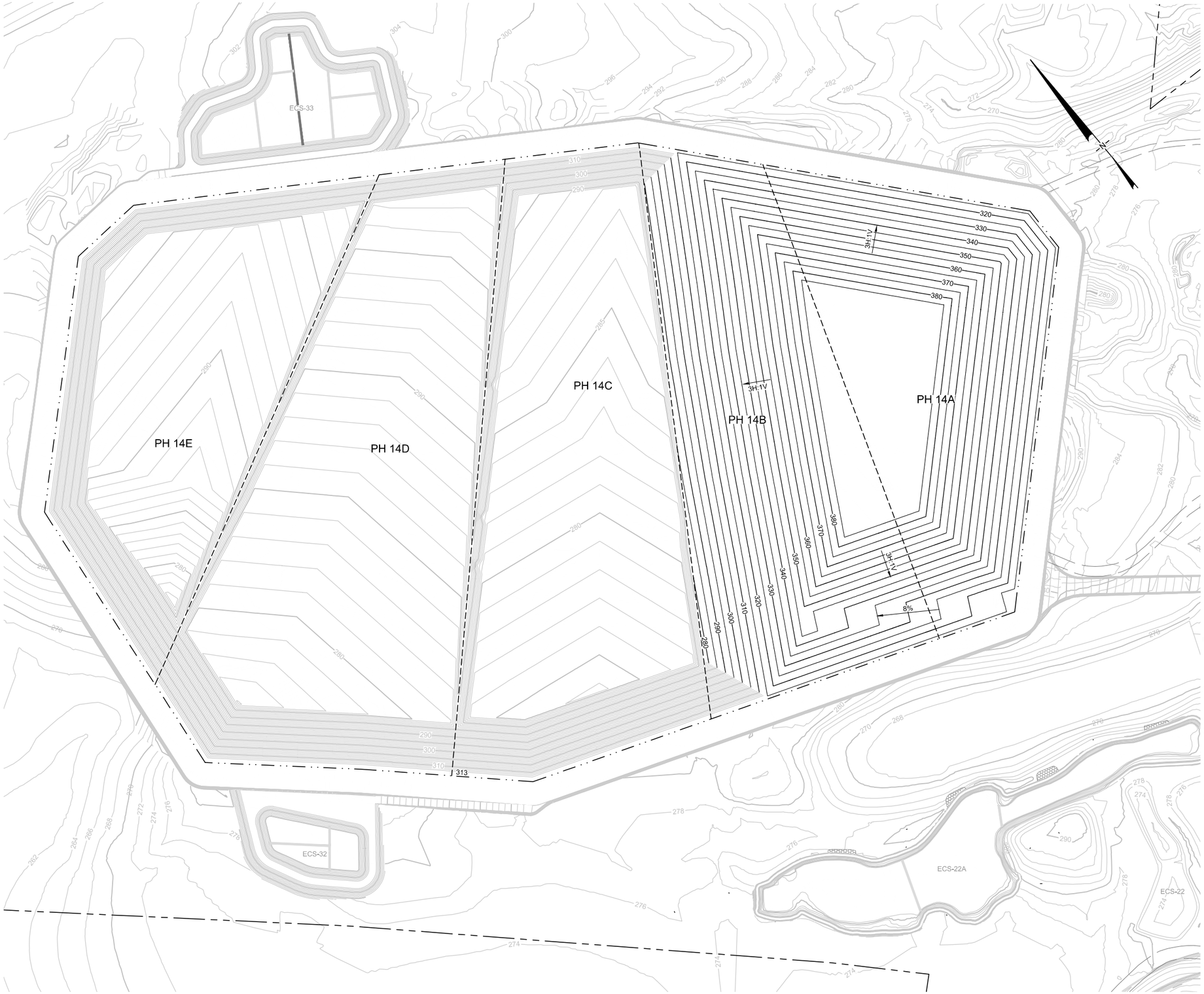
TITLE: FILL SEQUENCE PLAN FOR PHASE 14A

PROJECT: PHASE 14 PERMIT APPLICATION

SITE: CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 8 OF 38

T:\PROJECTS_CADD\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D008 (FILL SEQ 14A).DWG Last Edited by: jtaylor on 10/10/19



LEGEND

310	MAJOR (10 FT) GROUND SURFACE ELEVATION CONTOUR
316	MINOR (2 FT) GROUND SURFACE ELEVATION CONTOUR
340	PROPOSED INTERIM WASTE GRADE ELEVATION CONTOUR
	EXISTING WASTE MANAGEMENT FACILITY
	PHASE 14 DESIGN LIMIT OF WASTE
	SUB CELL BOUNDARY

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM TOPOGRAPHIC SURVEYS, DATED NOV 2017, AND SEPT 2018, PROVIDED BY BOYNTON & PICKETT.
2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83) MAINE WEST STATE PLAN. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). PROPERTY BOUNDARY SURVEYED IN UTM SCALED TO NAD 83.
3. LOCATIONS OF TEMPORARY INTERNAL ACCESS ROADS WILL BE DEVELOPED BY WMDSM PERSONNEL IN CONSULTATION WITH LANDFILL DESIGNER AS WASTE PLACEMENT PROGRESSES.
4. FUTURE CELLS OF PHASE 14 ARE SHOWN FOR CLARITY, AND WILL NOT NECESSARILY BE CONSTRUCTED WHEN INTERIM FILLING IS OCCURRING AS SHOWN.
5. APPROXIMATE DISPOSAL CAPACITY GAINED BY CONSTRUCTING PHASE 14B: 1,116,500 Cu. Yd., CUMULATIVE DISPOSAL CAPACITY 1,492,500 Cu. Yd.

0 100' 200'
SCALE IN FEET

PERMIT DRAWINGS

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

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUTTICH
No. 7142
LICENSED PROFESSIONAL ENGINEER

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.
SIGNATURE
14 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

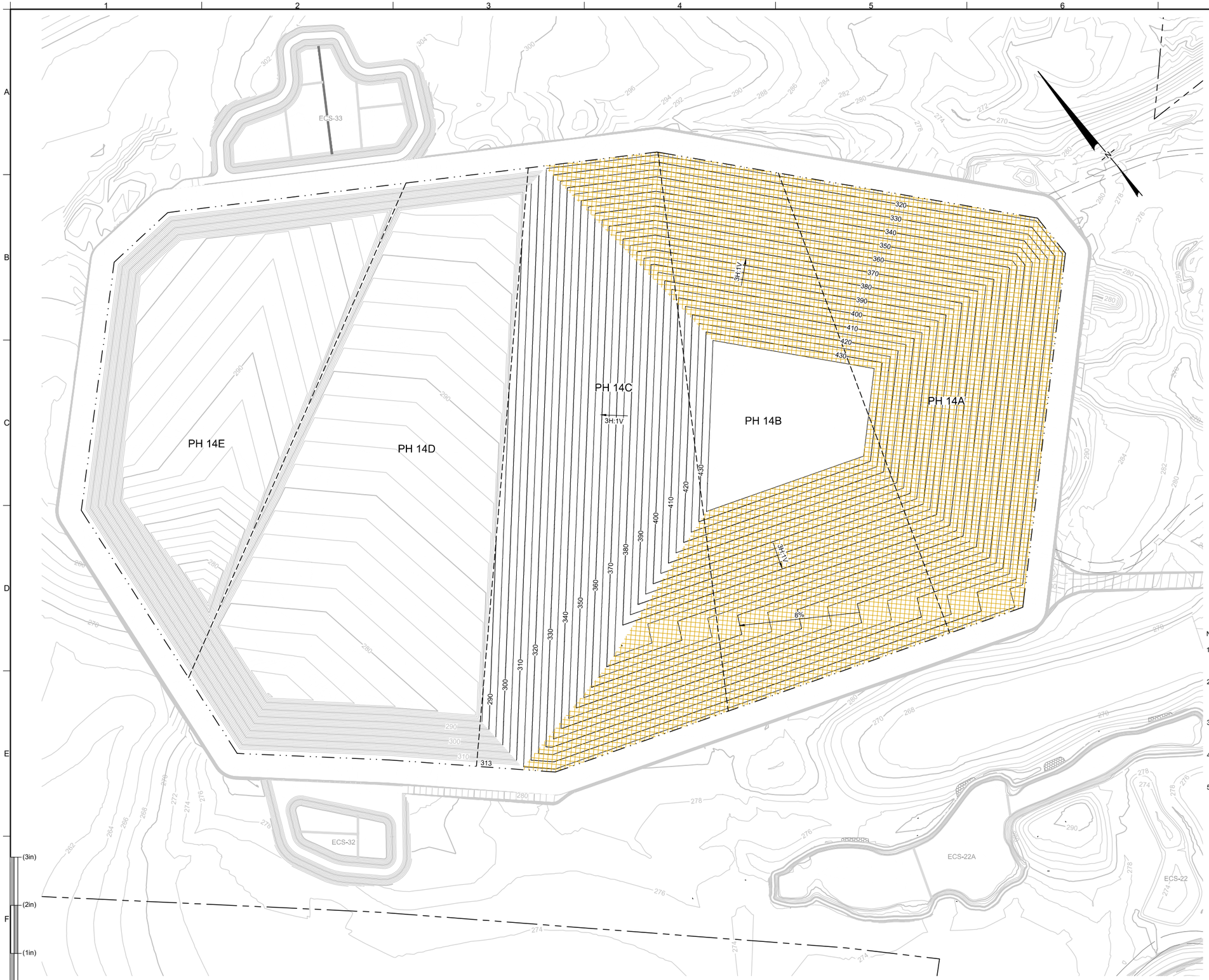
WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
288 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9589

TITLE: FILL SEQUENCE PLAN FOR PHASE 14A & B
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 9 OF 38

T:\PROJECTS_CADD\CICROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D009 (FILL SEQ 14B).DWG Last Edited by: jhaynr on 10/10/19



LEGEND

310	MAJOR (10 FT) GROUND SURFACE ELEVATION CONTOUR
316	MINOR (2 FT) GROUND SURFACE ELEVATION CONTOUR
340	PROPOSED INTERIM WASTE GRADE ELEVATION CONTOUR
	EXISTING WASTE MANAGEMENT FACILITY
	PHASE 14 DESIGN LIMIT OF WASTE
	SUB CELL BOUNDARY
	LIMIT OF FINAL CLOSURE AND/OR INTERIM GEOMEMBRANE COVER

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM TOPOGRAPHIC SURVEYS, DATED NOV 2017, AND SEPT 2018, PROVIDED BY BOYNTON & PICKETT.
2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83) MAINE WEST STATE PLAN. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). PROPERTY BOUNDARY SURVEYED IN UTM SCALED TO NAD 83.
3. LOCATIONS OF TEMPORARY INTERNAL ACCESS ROADS WILL BE DEVELOPED BY WMDSM PERSONNEL IN CONSULTATION WITH LANDFILL DESIGNER AS WASTE PLACEMENT PROGRESSES.
4. FUTURE CELLS OF PHASE 14 ARE SHOWN FOR CLARITY, AND WILL NOT NECESSARILY BE CONSTRUCTED WHEN INTERIM FILLING IS OCCURRING AS SHOWN.
5. APPROXIMATE DISPOSAL CAPACITY GAINED BY CONSTRUCTING PHASE 14C: 1,965,000 Cu. Yd., CUMULATIVE DISPOSAL CAPACITY 3,457,500 Cu. Yd.

0 100' 200'
SCALE IN FEET

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUTTRELL
No. 7162
LICENSED PROFESSIONAL ENGINEER

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.
SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WASTE MANAGEMENT
DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

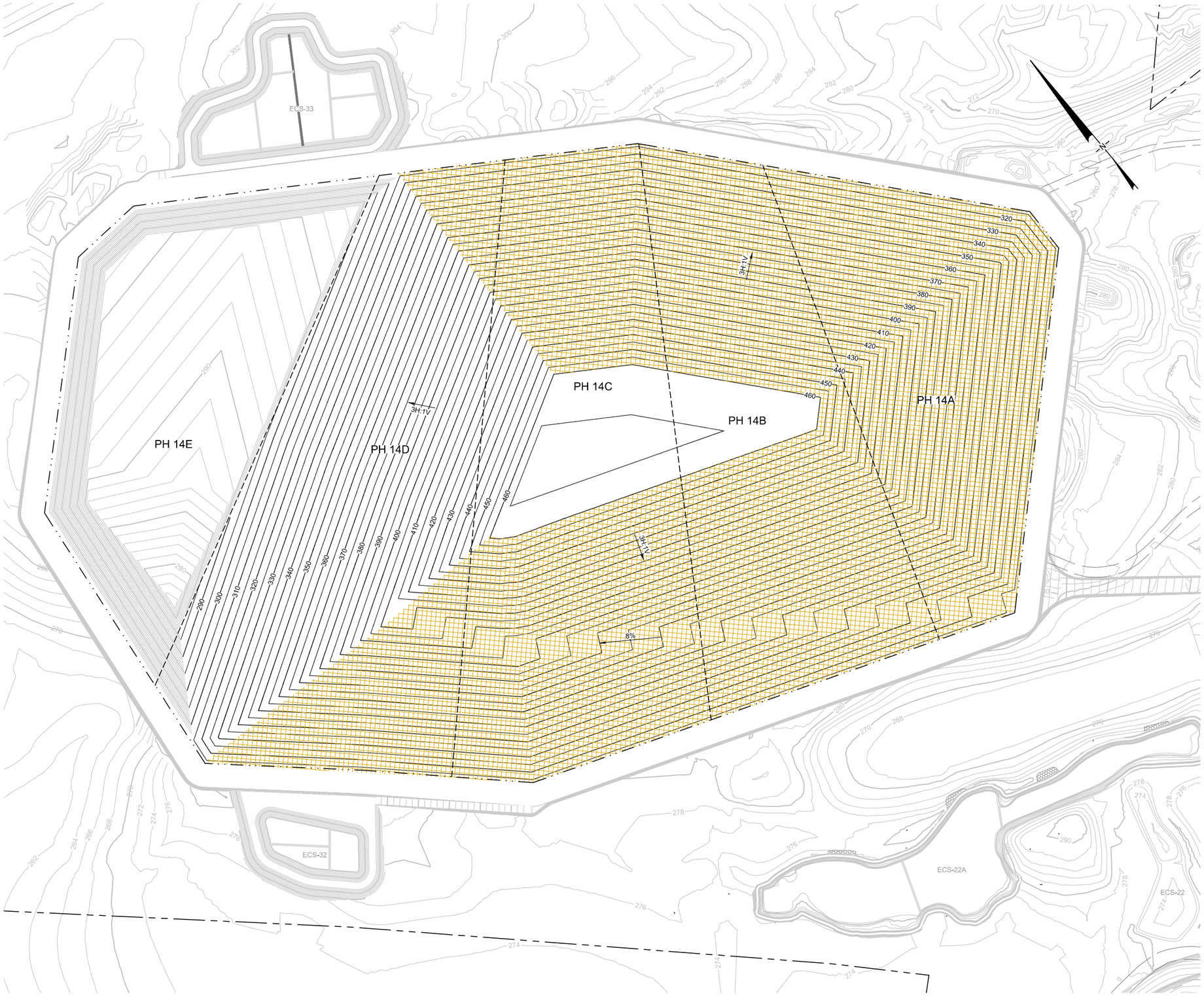
TITLE: FILL SEQUENCE PLAN FOR PHASES 14A, B, & C

PROJECT: PHASE 14 PERMIT APPLICATION

SITE: CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 10 OF 38

T:\PROJECTS_CADD\CORC\BS\ROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D010 (FILL SEQ 14A&C).DWG Last Edited by: jtaylor on 10/10/19



LEGEND

- 310 — MAJOR (10 FT) GROUND SURFACE ELEVATION CONTOUR
- 316 — MINOR (2 FT) GROUND SURFACE ELEVATION CONTOUR
- 340 — PROPOSED INTERIM WASTE GRADE ELEVATION CONTOUR
- EXISTING WASTE MANAGEMENT FACILITY
- PHASE 14 DESIGN LIMIT OF WASTE
- SUB CELL BOUNDARY
- LIMIT OF FINAL CLOSURE AND/OR INTERIM GEOMEMBRANE COVER

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM TOPOGRAPHIC SURVEYS, DATED NOV 2017, AND SEPT 2018, PROVIDED BY BOYNTON & PICKETT.
2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83) MAINE WEST STATE PLAN. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). PROPERTY BOUNDARY SURVEYED IN UTM SCALED TO NAD 83.
3. LOCATIONS OF TEMPORARY INTERNAL ACCESS ROADS WILL BE DEVELOPED BY WMDSM PERSONNEL IN CONSULTATION WITH LANDFILL DESIGNER AS WASTE PLACEMENT PROGRESSES.
4. FUTURE CELLS OF PHASE 14 ARE SHOWN FOR CLARITY, AND WILL NOT NECESSARILY BE CONSTRUCTED WHEN INTERIM FILLING IS OCCURRING AS SHOWN.
5. APPROXIMATE DISPOSAL CAPACITY GAINED BY CONSTRUCTING PHASE 14D: 2,374,000 Cu. Yd., CUMULATIVE DISPOSAL CAPACITY 5,831,500 Cu. Yd.

0 100' 200'
SCALE IN FEET

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

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

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

SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

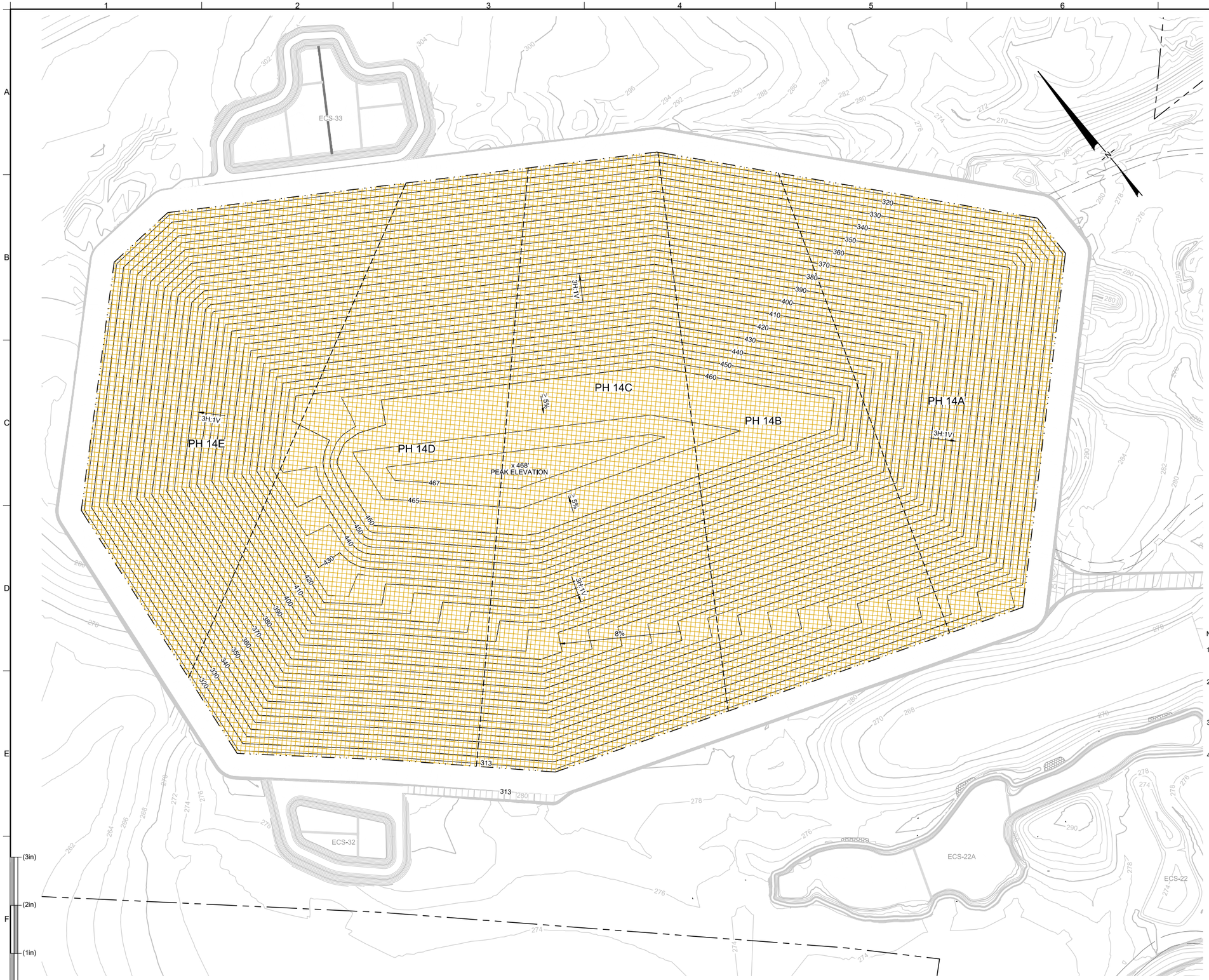
TITLE: FILL SEQUENCE PLAN FOR PHASES 14A, B, C, & D

PROJECT: PHASE 14 PERMIT APPLICATION

SITE: CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 11 OF 38

T:\PROJECTS_CADD\C\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D011 (FILL SEQ 14ABCD).DWG Last Edited by: jhtaylor on 10/10/19



LEGEND

310	MAJOR (10 FT) GROUND SURFACE ELEVATION CONTOUR
316	MINOR (2 FT) GROUND SURFACE ELEVATION CONTOUR
340	PROPOSED INTERIM WASTE GRADE ELEVATION CONTOUR
	EXISTING WASTE MANAGEMENT FACILITY
	PHASE 14 DESIGN LIMIT OF WASTE
	SUB CELL BOUNDARY
	LIMIT OF FINAL CLOSURE

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM TOPOGRAPHIC SURVEYS, DATED NOV 2017, AND SEPT 2018, PROVIDED BY BOYNTON & PICKETT.
2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83) MAINE WEST STATE PLAN. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). PROPERTY BOUNDARY SURVEYED IN UTM SCALED TO NAD 83.
3. LOCATIONS OF TEMPORARY INTERNAL ACCESS ROADS WILL BE DEVELOPED BY WMDSM PERSONNEL IN CONSULTATION WITH LANDFILL DESIGNER AS WASTE PLACEMENT PROGRESSES.
4. APPROXIMATE DISPOSAL CAPACITY GAINED BY CONSTRUCTING PHASE 14E: 1,925,500 Cu. Yd., CUMULATIVE DISPOSAL CAPACITY 7,757,000 Cu. Yd.

0 100' 200'
SCALE IN FEET

PERMIT DRAWINGS

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

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUTTRELL
No. 7162
LICENSED PROFESSIONAL ENGINEER

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDERING OR CONSTRUCTION, UNLESS SEALED.
SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

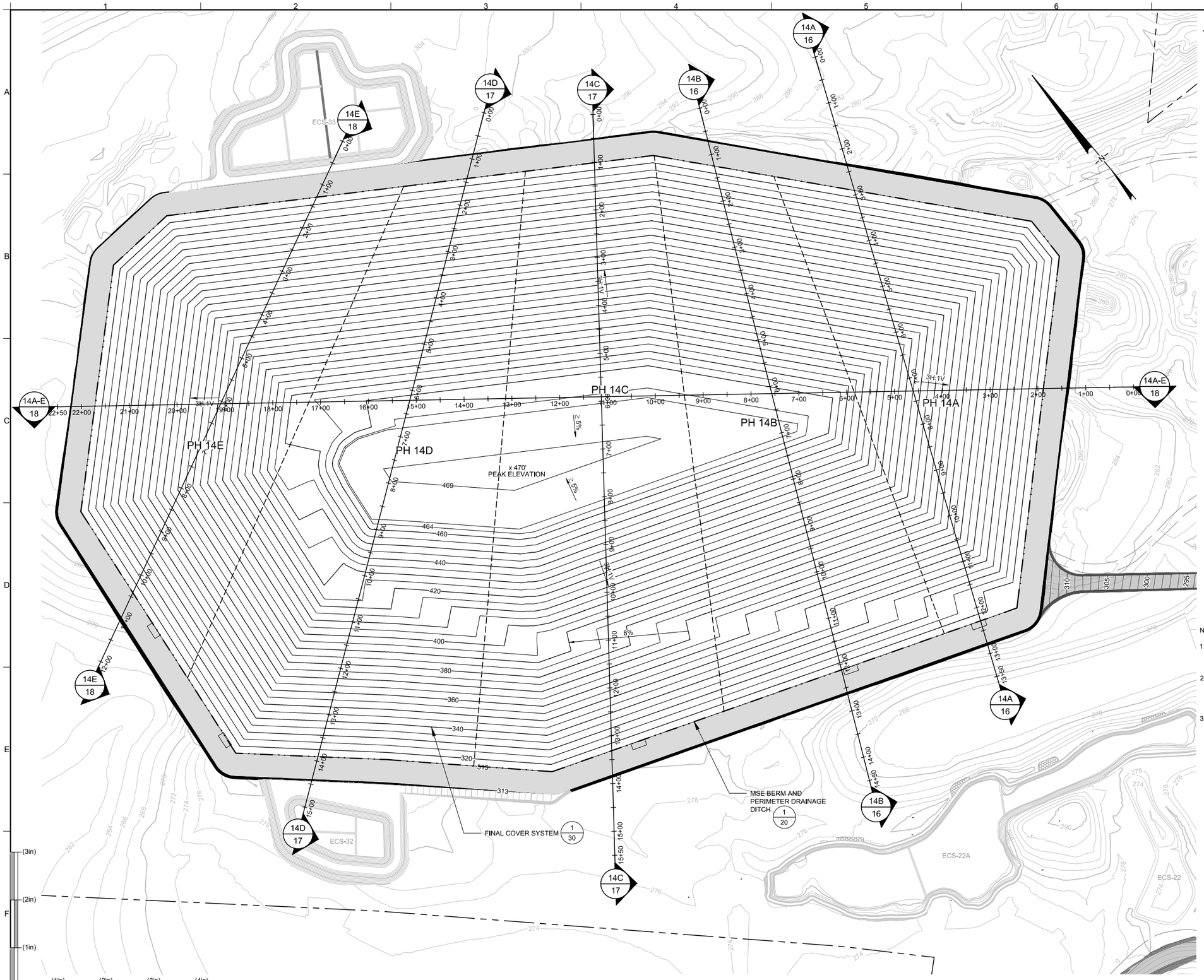
TITLE: FILL SEQUENCE PLAN FOR PHASES 14A, B, C, D & E

PROJECT: PHASE 14 PERMIT APPLICATION

SITE: CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 12 OF 38

T:\PROJECTS_CADD\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D012 (FILL SEQ 14ABCDE).DWG Last Edited by jhaynor on 10/10/19



LEGEND

310	MAJOR (10 FT) GROUND SURFACE ELEVATION CONTOUR
316	MINOR (2 FT) GROUND SURFACE ELEVATION CONTOUR
340	PROPOSED TOP OF FINAL COVER GRADE ELEVATION CONTOUR
	EXISTING WASTE MANAGEMENT FACILITY
	PHASE 14 DESIGN LIMIT OF WASTE
	SUB CELL BOUNDARY
14A / 16	PROFILE LOCATION (NOTE 3)
	PAVED LANDFILL ACCESS ROAD
	LEACHATE VAULTS

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM TOPOGRAPHIC SURVEYS, DATED NOV 2017, AND SEPT 2018, PROVIDED BY BOYNTON & PICKETT.
2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83) MAINE WEST STATE PLAN. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). PROPERTY BOUNDARY SURVEYED IN UTM SCALED TO NAD 83.
3. PROFILES PRESENTED ON DRAWINGS 16 THROUGH DRAWING 18.

0 100' 200'
SCALE IN FEET

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

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

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SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY:	NJY
DRAWN BY:	JT / RK
CHECKED BY:	NJY
REVIEWED BY:	SML
APPROVED BY:	SML

WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

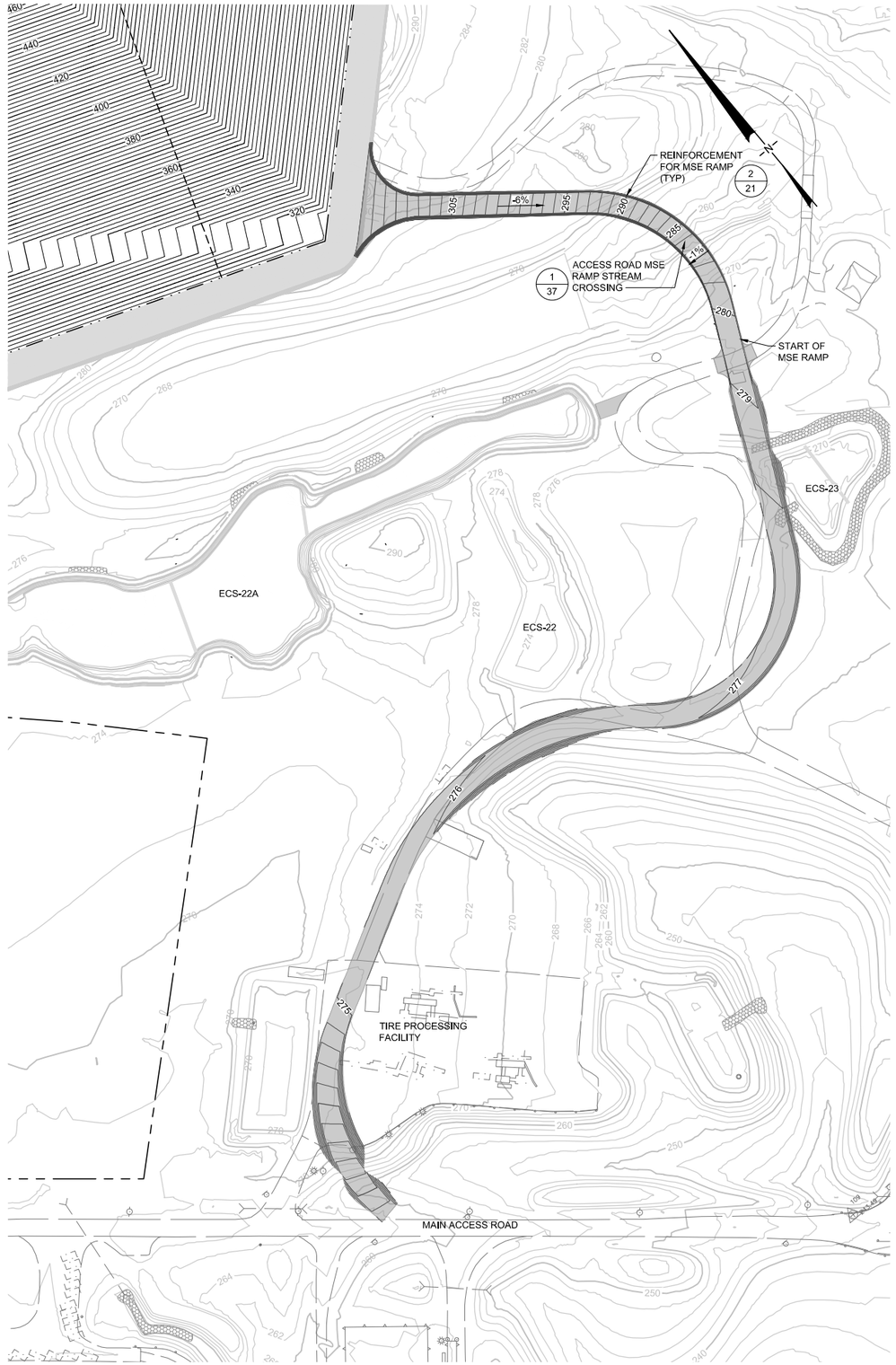
TITLE: TOP OF FINAL COVER GRADING PLAN

PROJECT: PHASE 14 PERMIT APPLICATION

SITE: CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 13 OF 38

T:\PROJECTS_CADD\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT DRAWINGS\BE0232 D013 (FINAL GRD) DWG Last Edited by: jtaylor on 10/10/19



LEGEND

310	MAJOR (10 FT) GROUND SURFACE ELEVATION CONTOUR
316	MINOR (2 FT) GROUND SURFACE ELEVATION CONTOUR
340	PROPOSED TOP OF FINAL COVER GRADE ELEVATION CONTOUR
	EXISTING WASTE MANAGEMENT FACILITY
	SUB CELL BOUNDARY
	PAVED LANDFILL ACCESS ROAD

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM TOPOGRAPHIC SURVEYS, DATED NOV 2017, AND SEPT 2018, PROVIDED BY BOYNTON & PICKETT.
2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83) MAINE WEST STATE PLAN. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). PROPERTY BOUNDARY SURVEYED IN UTM SCALED TO NAD 83.
3. AN ON THE GROUND SURVEY SHALL BE PERFORMED ALONG THE ACCESS ROAD ALIGNMENT PRIOR TO DEVELOPMENT OF CONSTRUCTION LEVEL DRAWINGS.

0 100' 200'
SCALE IN FEET

PERMIT DRAWINGS

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

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUTTICH
No. 7162
LICENSED PROFESSIONAL ENGINEER

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.
SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

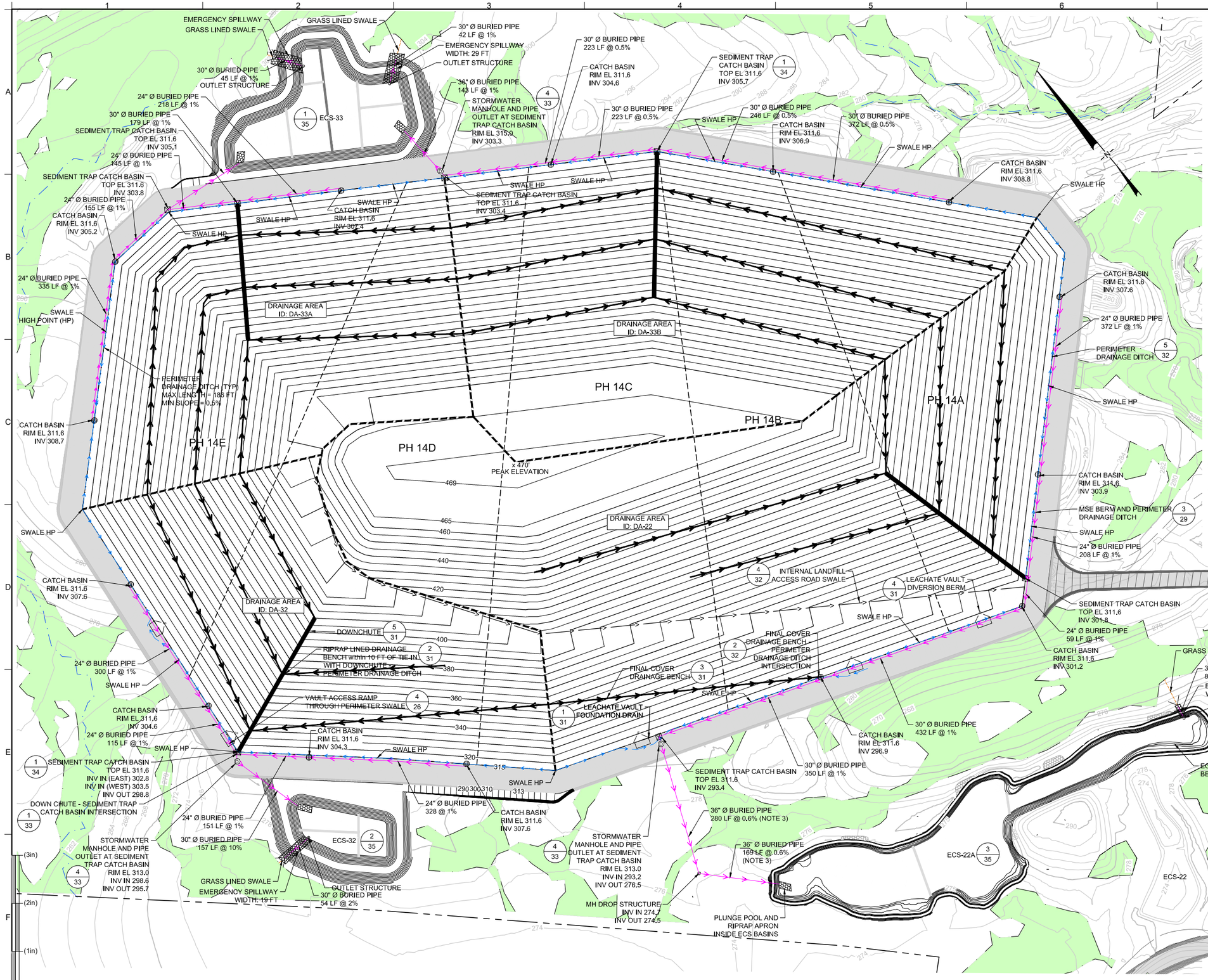
WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

TITLE: LANDFILL ACCESS ROAD AND MSE RAMP PLAN
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 14 OF 38

T:\PROJECTS_CADD\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT DRAWINGS\BE0232 D014 (LF ACCESS RD).DWG Last Edited by: jtaylor on 10/10/19



LEGEND

310	MAJOR (10 FT) GROUND SURFACE ELEVATION CONTOUR
316	MINOR (2 FT) GROUND SURFACE ELEVATION CONTOUR
340	PROPOSED TOP OF FINAL COVER GRADE ELEVATION CONTOUR
	EXISTING WASTE MANAGEMENT FACILITY
	DRAINAGE BENCH
	DOWNCHUTE
	STORMWATER CATCHMENT AREA
	STORMWATER PIPE
	PERIMETER DRAINAGE DITCH
	GRASS LINED SWALE
	LEACHATE VAULT DIVERSION BERM
	RIP RAP SPLASH PAD, EMERGENCY SPILL WAY, OR STILLING BASIN
	WETLANDS
	STORMWATER CATCH BASIN
	SEDIMENT TRAP CATCH BASIN
	STORMWATER MANHOLE
	INTERNAL LANDFILL ACCESS ROAD SWALE

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM TOPOGRAPHIC SURVEYS, DATED NOV 2017, AND SEPT 2018, PROVIDED BY BOYNTON & PICKETT.
2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83) MAINE WEST STATE PLAN. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). PROPERTY BOUNDARY SURVEYED IN UTM SCALED TO NAD 83.
3. COMMON BORROW WILL BE MOUNDED OVER PIPE TO ECS-22A TO ENSURE MINIMUM 2 FT OF COVER.
4. REFER TO DRAWING 35 FOR ECS BASIN RELATED DETAILS.

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUTTICH
No. 7482
PROFESSIONAL ENGINEER

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SIGNATURE

24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9580

TITLE: SURFACE WATER MANAGEMENT PLAN

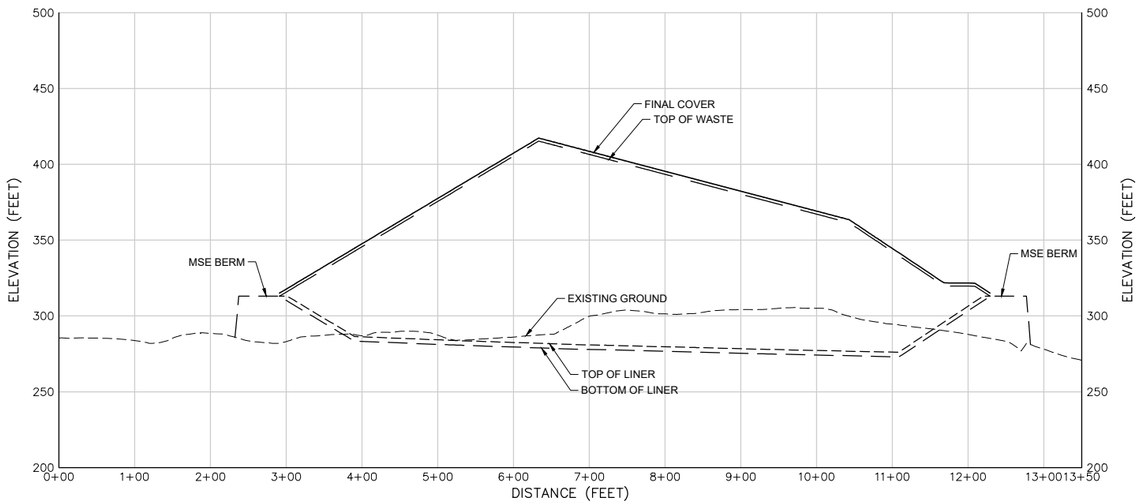
PROJECT: PHASE 14 PERMIT APPLICATION

SITE: CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

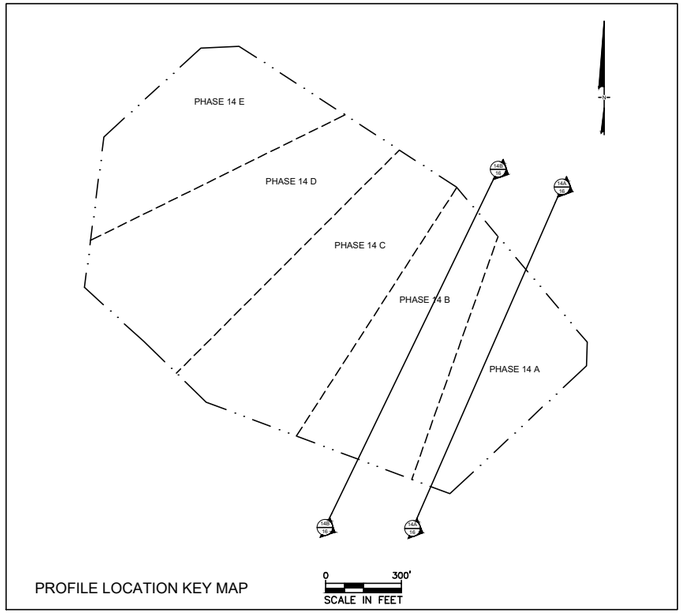
DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 15 OF 38

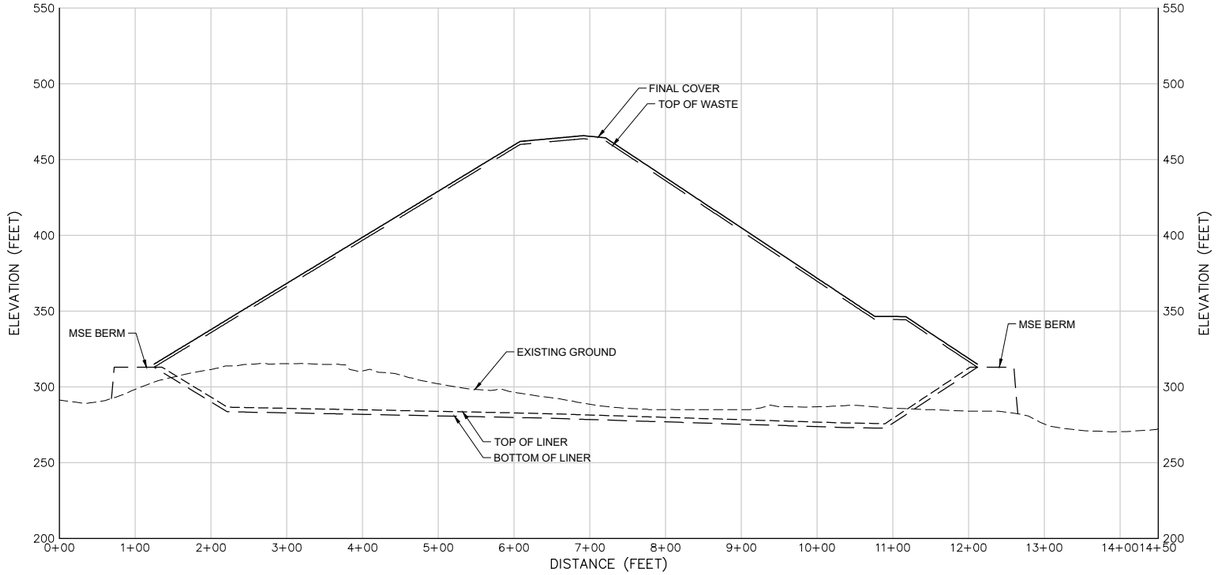
PERMIT DRAWINGS

T:\PROJECTS_CADD\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT DRAWINGS\BE0232 D015 (SURF WATER MN\DWG\Last Edited by: jhayes on 10/23/19



PROFILE 14A





PROFILE 14B

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUTTRELL
No. 7162
LICENSED PROFESSIONAL ENGINEER

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDERING OR CONSTRUCTION, UNLESS SEALED.
SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

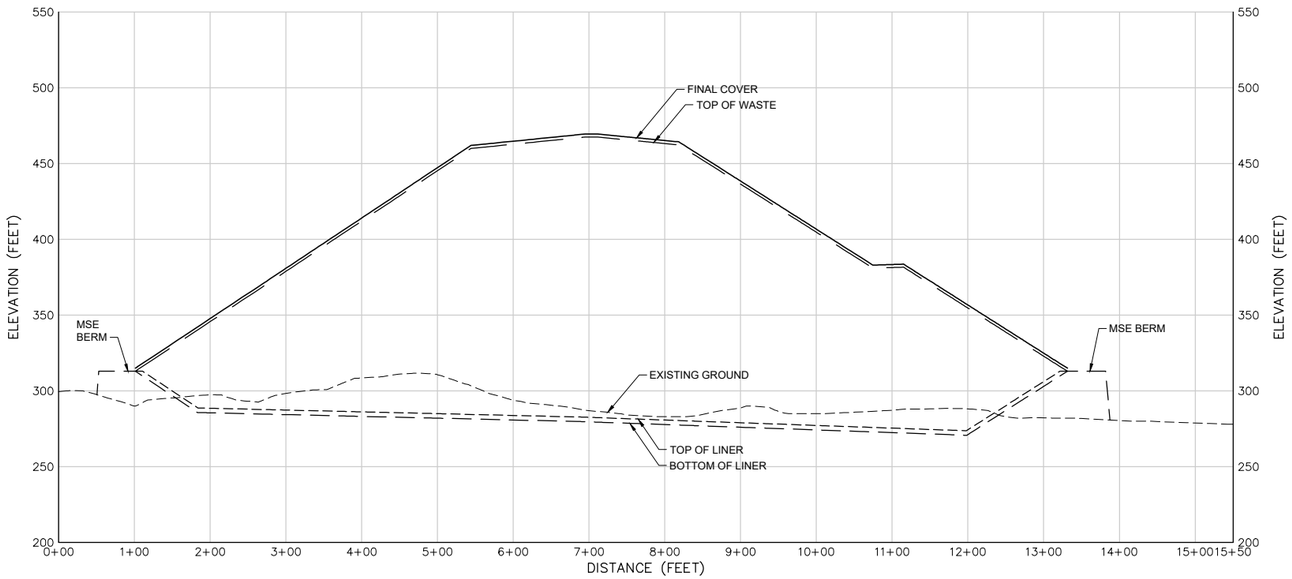
WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

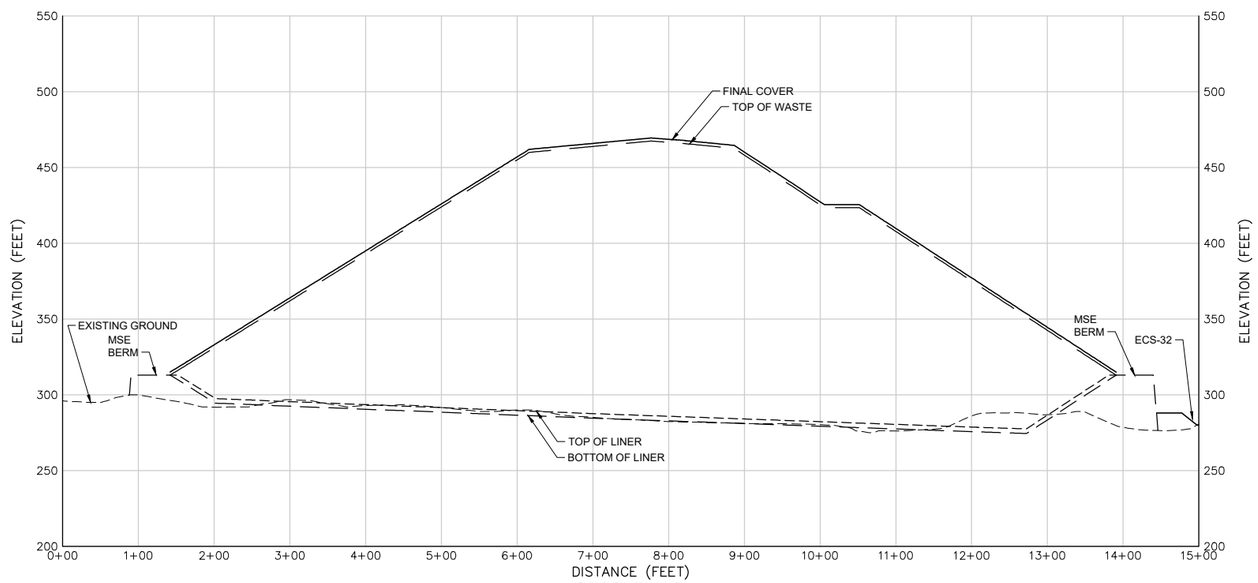
TITLE: PROFILES I
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 16 OF 38

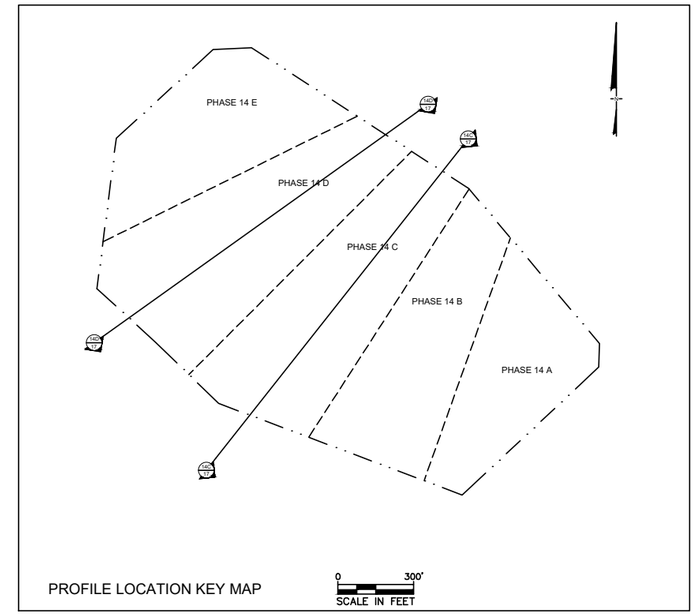
T:\PROJECTS_CADD\CCR\CBS\ROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D016-18 (PROFILES).DWG Last Edited by: jhaylor on 9/30/19



PROFILE 14C



PROFILE 14D



REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUTTICH
No. 7162
LICENSED PROFESSIONAL ENGINEER

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SIGNATURE

24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

TITLE: PROFILES II

PROJECT: PHASE 14 PERMIT APPLICATION

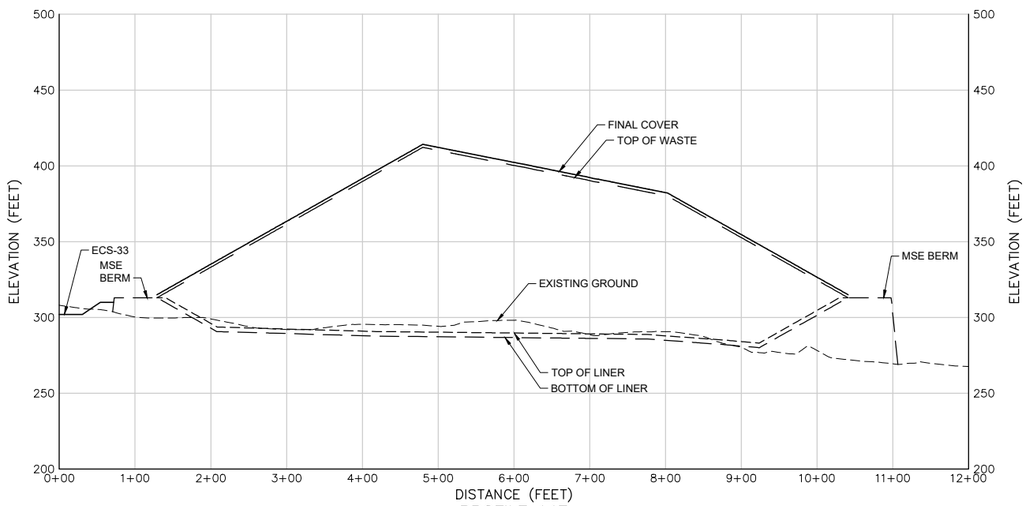
SITE: CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 17 OF 38

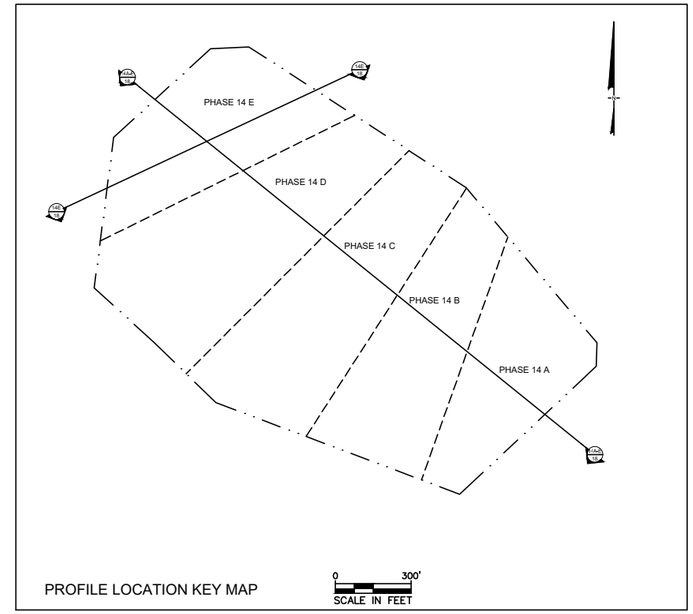
PERMIT DRAWINGS

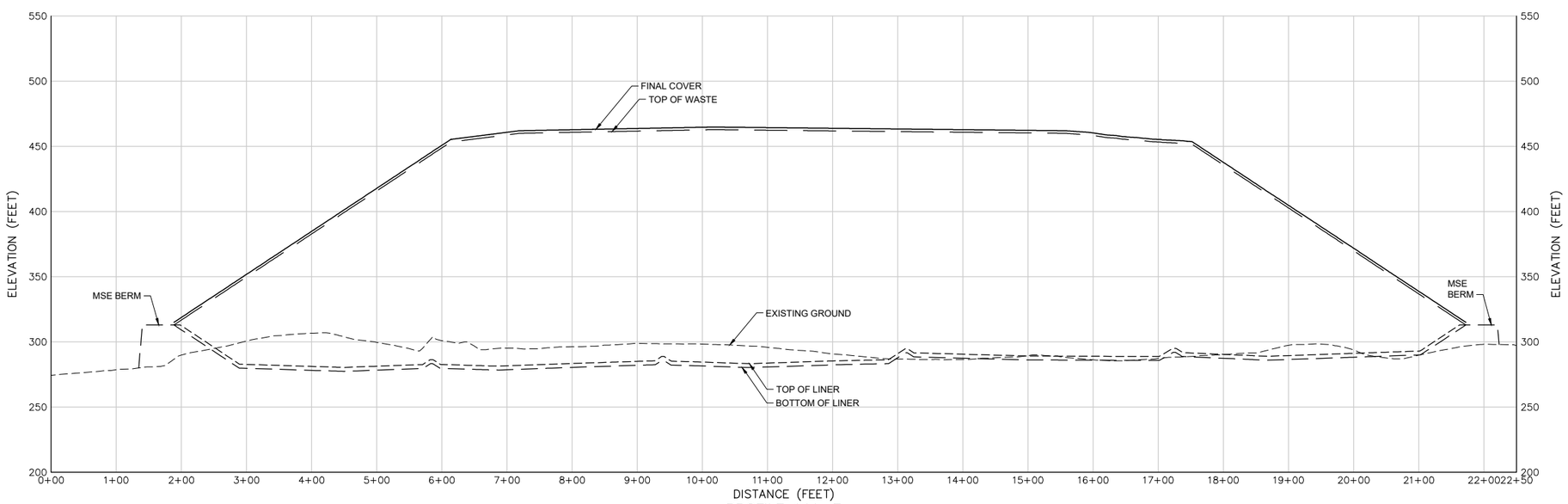
(1in) (2in) (3in) (4in)
SCALE IS BASED ON 22" X 34" NON-REDUCED SHEET SIZE (BORDER = 21" X 32")

T:\PROJECTS_CADD\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D016-18 (PROFILES).DWG Last Edited by: jtaylor on 9/30/19



PROFILE 14E





PROFILE 14A–E

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

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUTTICH
No. 7162
LICENSED PROFESSIONAL ENGINEER

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

SIGNATURE

14 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

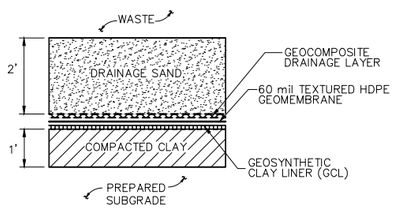
TITLE: PROFILES III

PROJECT: PHASE 14 PERMIT APPLICATION

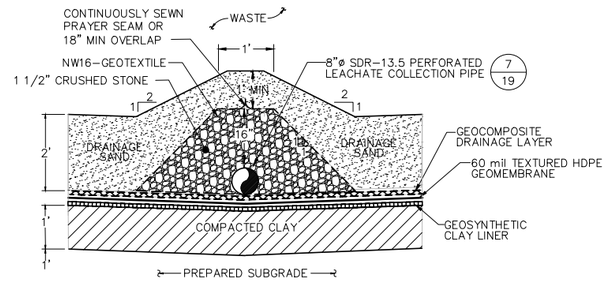
SITE: CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 18 OF 38

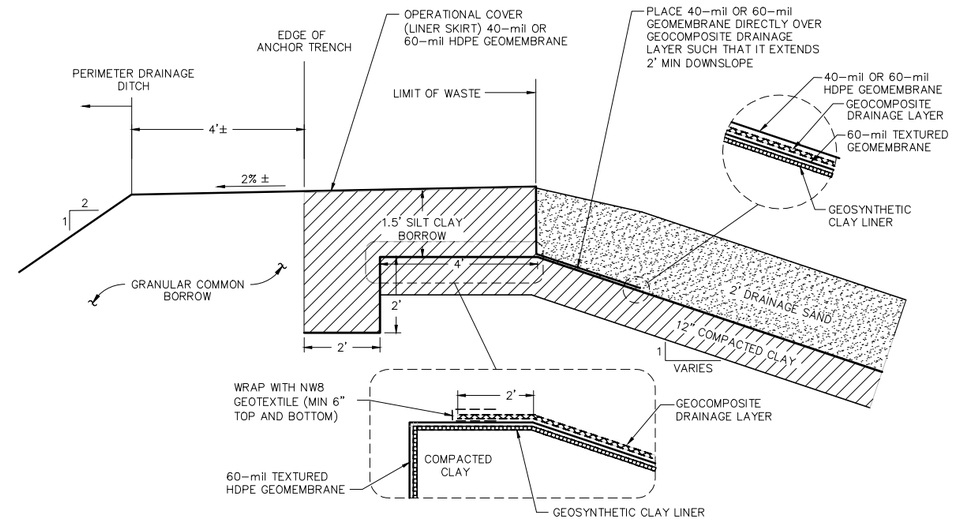
T:\PROJECTS_CADD\CCR\CBS\ROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D016-18 (PROFILES).DWG Last Edited by: jhaylor on 9/30/19



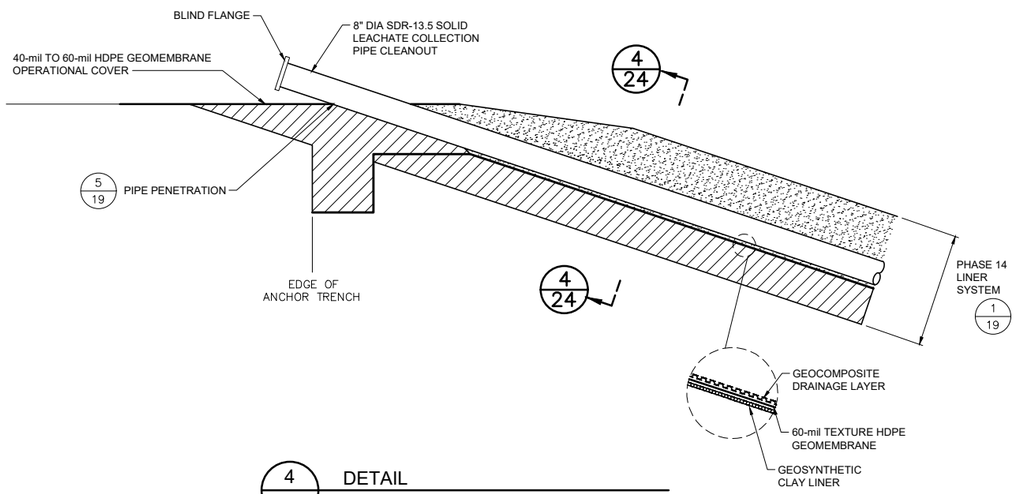
1/5 DETAIL
LINER SYSTEM
N.T.S.



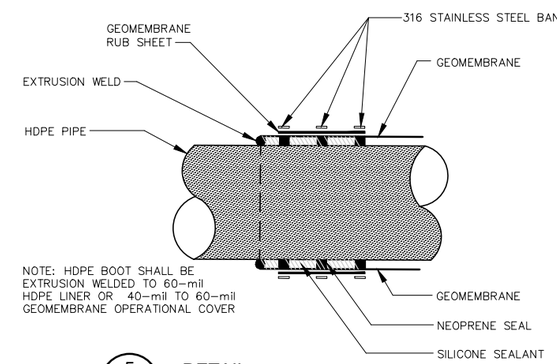
2/7 DETAIL
LEACHATE COLLECTION PIPES ALONG LEACHATE COLLECTION CORRIDORS
N.T.S.



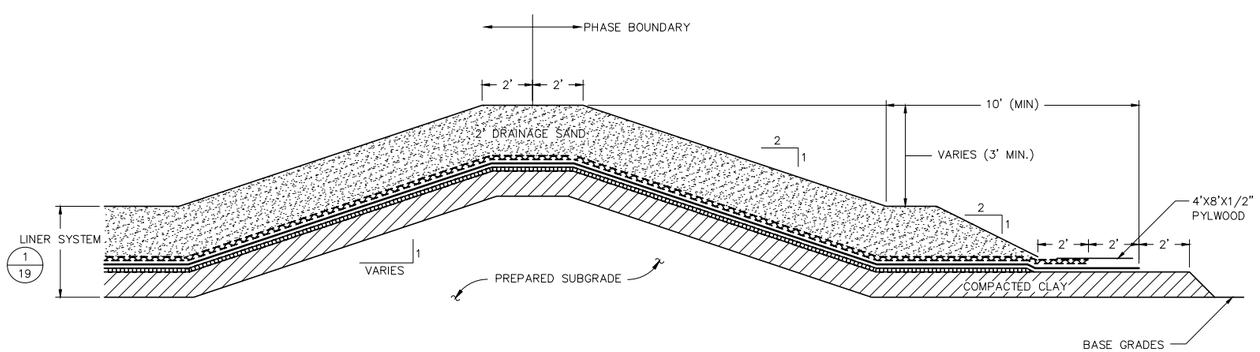
3/6 DETAIL
ANCHOR TRENCH
N.T.S.



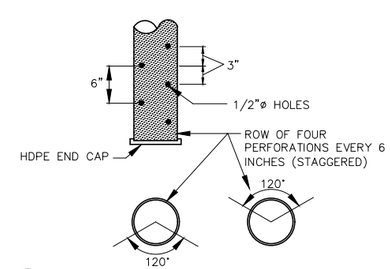
4/7 DETAIL
LEACHATE COLLECTION PIPE AND CLEANOUTS
N.T.S.



5/19 DETAIL
HDPE PIPE CONNECTION TO HDPE BOOT
N.T.S.



6/6 DETAIL
DIVISION BERM-TEMPORARY LINER TERMINATION
N.T.S.



7/19 DETAIL
LEACHATE COLLECTION AND SUMP PIPE PERFORATIONS
N.T.S.

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE — SCOTT M. LUTTICH No. 7162 — PROFESSIONAL ENGINEER

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24 OCTOBER 2019
DATE

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DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WASTE MANAGEMENT
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357 MERCER ROAD
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Geosyntec consultants
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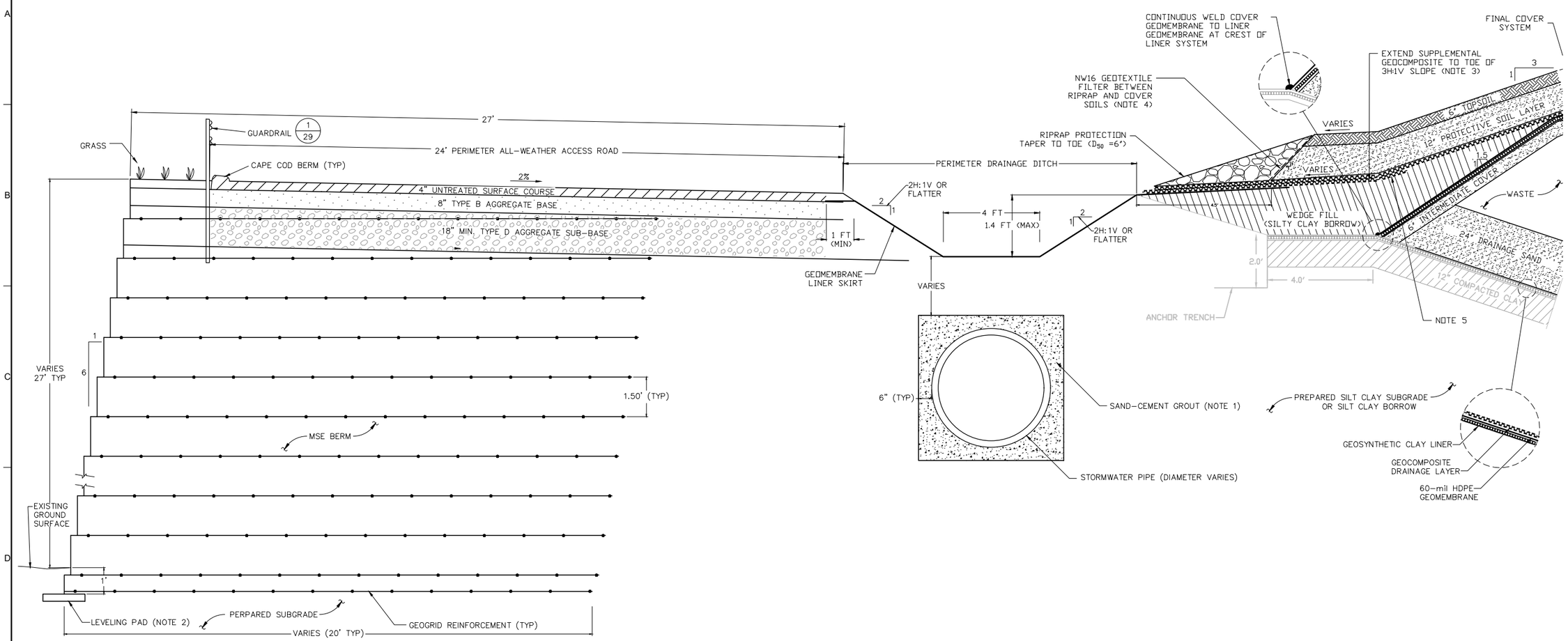
PHONE: 978.263.9589

TITLE: LINER SYSTEM DETAILS
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 19 OF 38

T:\PROJECTS_CADD\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D019 (LINER SYS DET).DWG Last Edited by: Rkotstrom on 9/30/19



1/13 DETAIL
MSE BERM AND PERIMETER DRAINAGE DITCH
N.T.S.

NOTES:

1. SAND-CEMENT GROUT USED FOR PIPES WITH MECHANICAL CONNECTIONS. HDPE BUTT-FUSED PIPE DOES NOT REQUIRE SAND-CEMENT GROUT.
2. LEVELING PAD MAY BE INSTALLED BY CONTRACTOR TO ASSIST IN INITIAL BERM ALIGNMENT. PAD SHALL CONSIST OF COMPACTED STRUCTURAL FILL OR POURED CONCRETE.
3. CONTRACTOR SHALL GRADE SO GEOCOMPOSITE DRAINS FREELY INTO PERIMETER SWALE.
4. DOUBLE LAYER OF 8 OZ/SYD GEOXTEXTILE MAY BE USED IN LIEU OF SINGLE LAYER OF 16 OZ/SYD (NW16) GEOTEXTILE.
5. WRAP GEOTEXTILE FLAPS UNDER SUPPLEMENTAL GEOCOMPOSITE.

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

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

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE SCOTT M. LUETTICH No. 7462 LICENSED PROFESSIONAL ENGINEER

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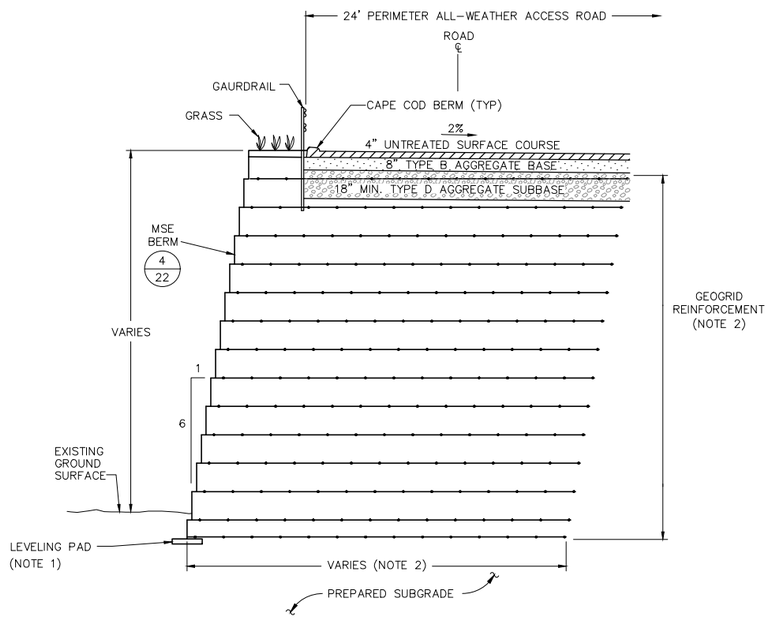
TITLE: MSE BERM DETAILS I

PROJECT: PHASE 14 PERMIT APPLICATION

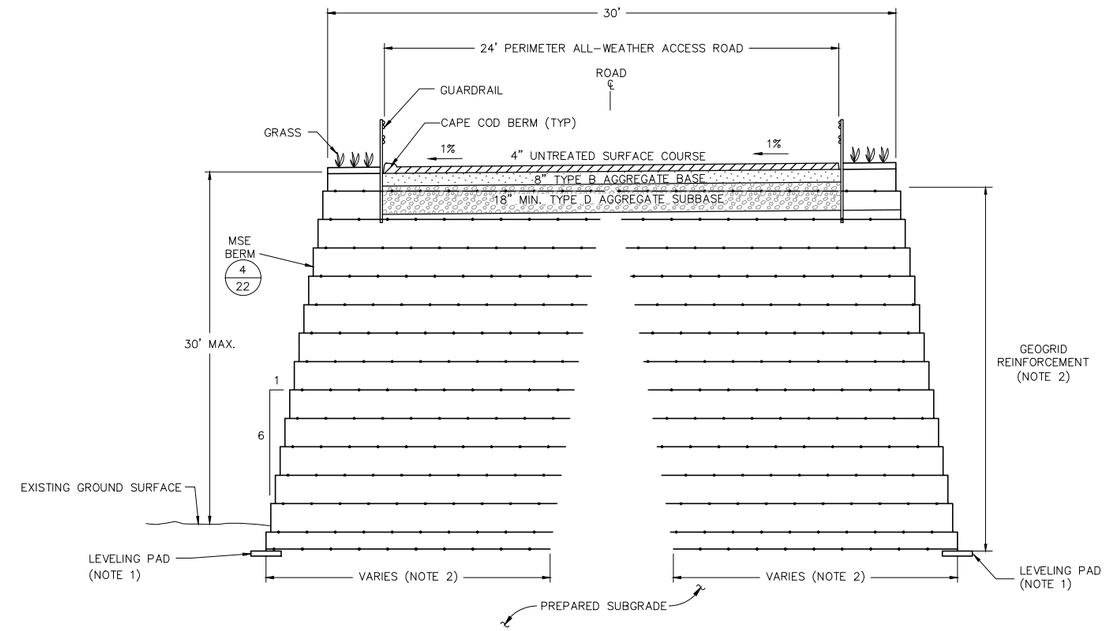
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 20 OF 38

T:\PROJECTS_CADD\C\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D020-21 (MSE BERM DET1).DWG Last Edited by: jhaylor on 10/16/19



1/5 DETAIL
MSE BERM REINFORCEMENT (TYP)
N.T.S.



2/5 DETAIL
REINFORCEMENT FOR MSE RAMP (TYP)
N.T.S.

NOTE:
1. LEVELING PAD MAY BE INSTALLED BY CONTRACTOR TO ASSIST IN INITIAL BERM ALIGNMENT. PAD SHALL CONSIST OF COMPACTED STRUCTURAL FILL OR POURED CONCRETE.
2. GEOGRID STRENGTH AND LENGTH TO BE DETERMINED DURING PREPARATION OF CONSTRUCTION DOCUMENTS BASED ON SLOPE STABILITY AND PUNCHING SHEAR CALCULATIONS TO ACHIEVE THE REQUIRED FACTOR OF SAFETY.

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUETTICH
No. 7162
LICENSED PROFESSIONAL ENGINEER

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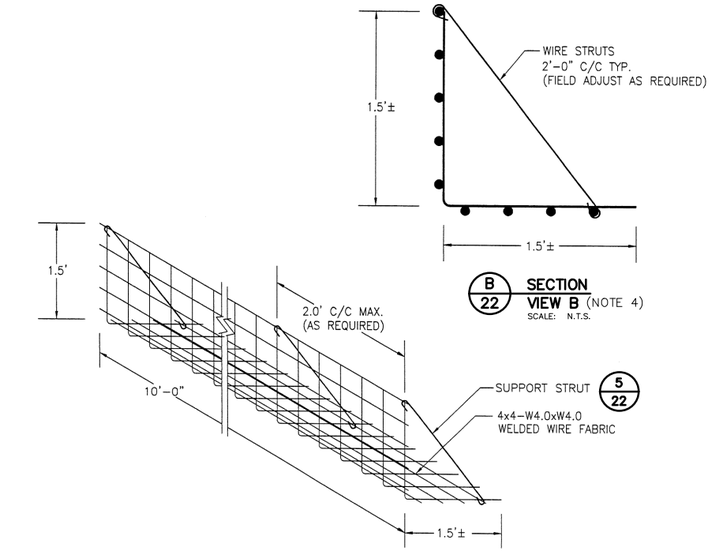
TITLE: MSE BERM DETAILS II
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 21 OF 38

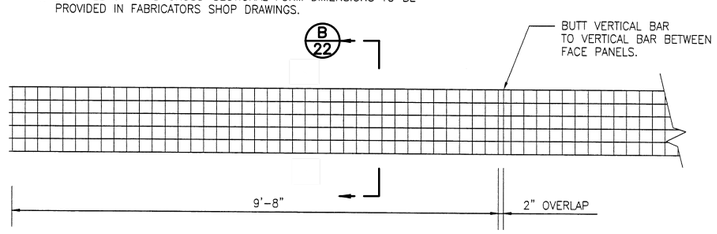
T:\PROJECTS_CADD\CJ\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 DX20-21 (MSE BERM DET I).DWG Last Edited by: jhaylor on: 10/16/19



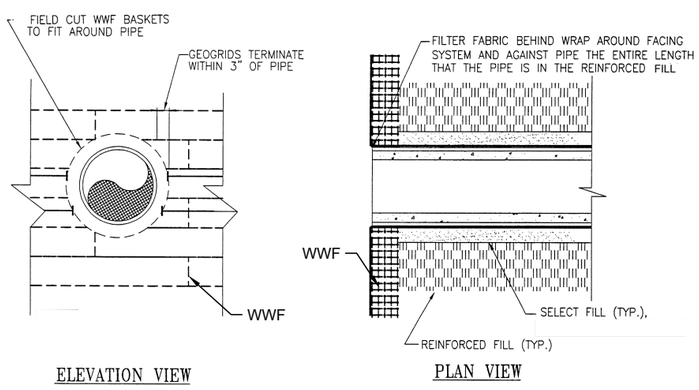
B/22 SECTION VIEW B (NOTE 4)
SCALE: N.T.S.

NOTES:

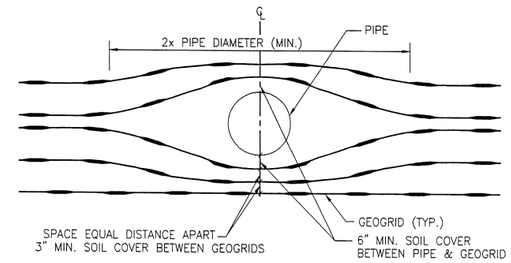
1. FACING TO CONSIST OF PREFABRICATED WWF 4x4-W4.0xW4.0 FORMS.
2. ALL FORMS AND STRUTS WILL BE FABRICATED WITH BLACK WIRE.
3. OVERALL LENGTH OF WIRE FORMS IS 10'-0". EFFECTIVE CONSTRUCTED WIDTH IS 9'-8" WITH 2" OVER LAPPING AT ENDS.
4. STRUT LENGTH AND CROSS-SECTIONAL FORM DIMENSIONS TO BE PROVIDED IN FABRICATORS SHOP DRAWINGS.



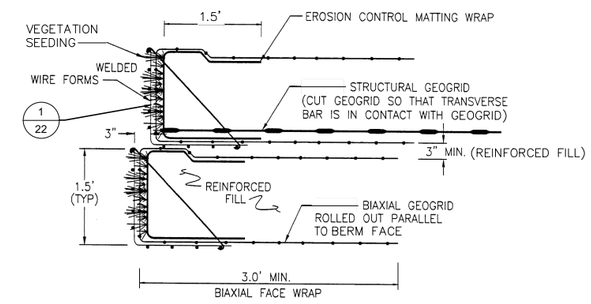
1/22 DETAIL
WELDED WIRE FORM (WWF)
N.T.S.



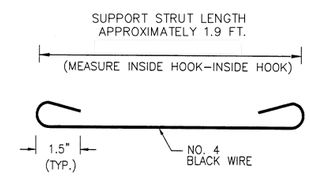
3/- DETAIL
PIPE PENETRATION AT WELDED WIRE FACING SYSTEM
N.T.S.



2/- DETAIL
PIPE PLACEMENT ON GEOGRID
N.T.S.



4/21 DETAIL
MSE BERM FACE
N.T.S.



5/22 DETAIL
SUPPORT STRUT
N.T.S.

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUTTICH
No. 7162
LICENSED PROFESSIONAL ENGINEER

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24 OCTOBER 2019
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DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

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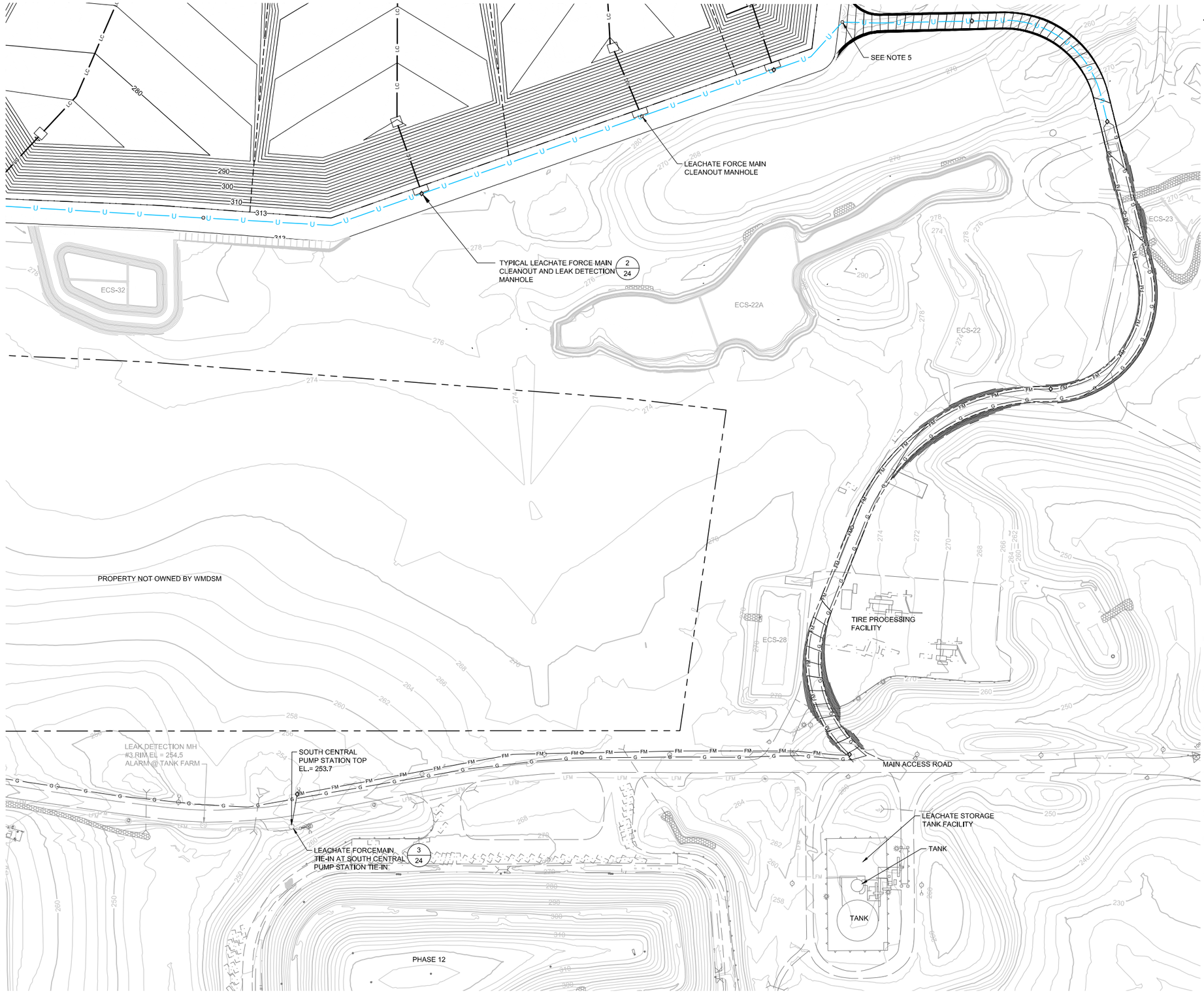
TITLE: MSE BERM DETAILS III
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 22 OF 38

T:\PROJECTS_CADD\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D022 (MSE BERM) DET III.DWG Last Edited by: RKolstaron on 9/26/19



LEGEND

310	MAJOR (10 FT) GROUND SURFACE ELEVATION CONTOUR
316	MINOR (2 FT) GROUND SURFACE ELEVATION CONTOUR
300	PROPOSED LEACHATE ELEVATION CONTOUR
	EXISTING WASTE MANAGEMENT FACILITY
	PHASE 14 DESIGN LIMIT OF WASTE
	BUILDING/STRUCTURE
	ACCESS ROAD
	OVERHEAD ELECTRIC
LFM	EXISTING LEACHATE FORCE MAIN
	EXISTING LEACHATE MANHOLE
U	UTILITY CORRIDOR
G	LANDFILL GAS MAIN
FM	LEACHATE FORCE MAIN (NOTE 6 & 7)
	LEACHATE FORCE MAIN CLEANOUT MANHOLE
	LEACHATE FORCE MAIN CLEANOUT AND LEAK DETECTION MANHOLE
LC	SUMP WITH LEACHATE COLLECTION PIPE
	LEACHATE VAULT

NOTES:

1. EXISTING GROUND SURFACE AND FEATURES OBTAINED FROM TOPOGRAPHIC SURVEYS, DATED NOV 2017, AND SEPT 2018, PROVIDED BY BOYNTON & PICKETT.
2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83) MAINE WEST STATE PLAN. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). PROPERTY BOUNDARY SURVEYED IN UTM SCALED TO NAD 83.
3. UTILITY CORRIDOR FOR UNDERGROUND LEACHATE FORCE MAIN, LANDFILL GAS TRANSMISSION PIPE, THREE-PHASE POWER CABLE CONDUIT, AND LEACHATE MANAGEMENT COMMUNICATION CABLE CONDUIT.
4. LEACHATE FORCE MAIN AND LANDFILL GAS TRANSMISSION PIPE SHOWN IN SEPARATE TRENCHES IN ACCESS ROAD TO LANDFILL. LOCATION OF PIPES WILL BE EVALUATED FOR THE CONSTRUCTION DOCUMENTS.
5. MANHOLE AT TOP OF MSE RAMP TO INCLUDE VACUUM RELIEF VALVE.
6. LEACHATE FORCE MAIN SHALL BE DUAL CONTAINMENT PIPE WITH INNER 8-INCH DIAMETER CARRIER PIPE AND OUTER 14-INCH DIAMETER CONTAINMENT PIPE.
7. LEACHATE FORCE MAIN PIPE SHALL HAVE A MINIMUM 0.5% SLOPE.

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LICENSED PROFESSIONAL ENGINEER

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TITLE: LEACHATE TRANSMISSION PLAN
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 23 OF 38

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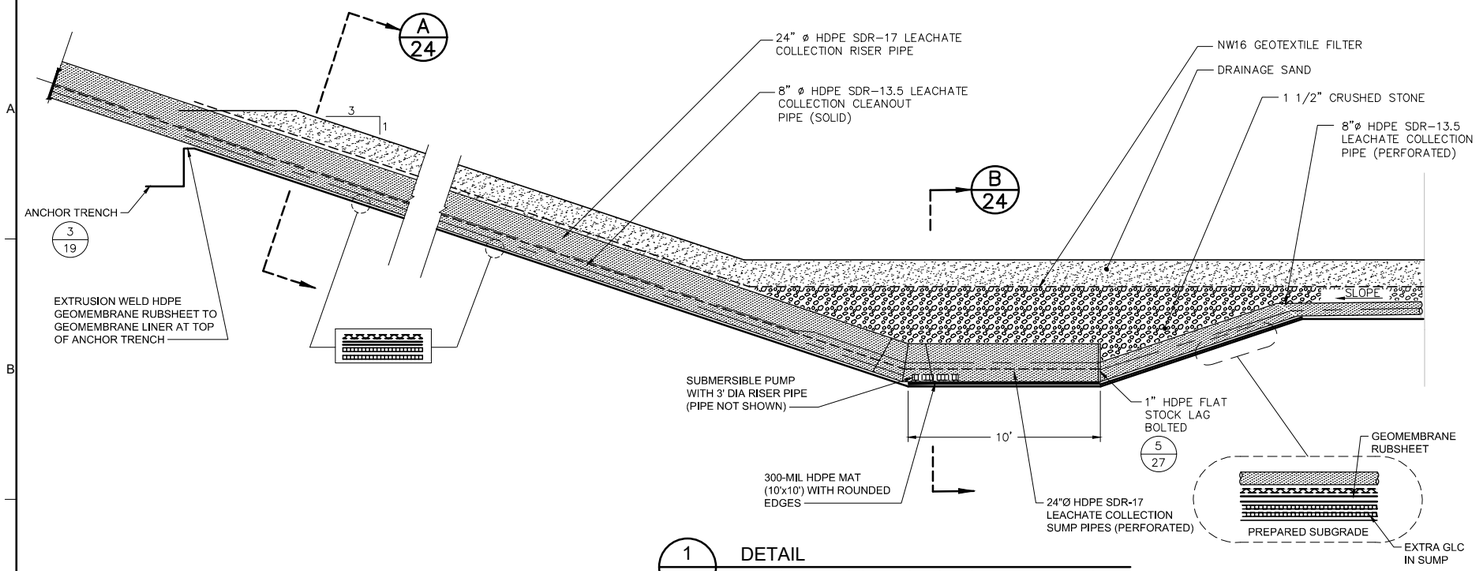
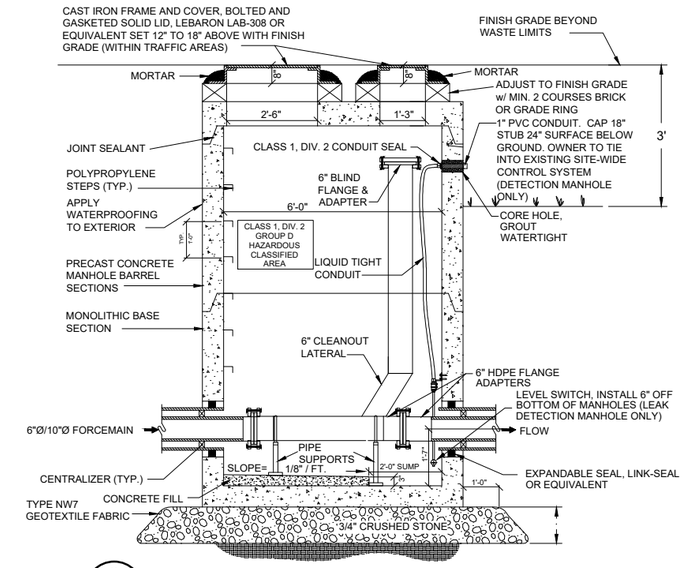
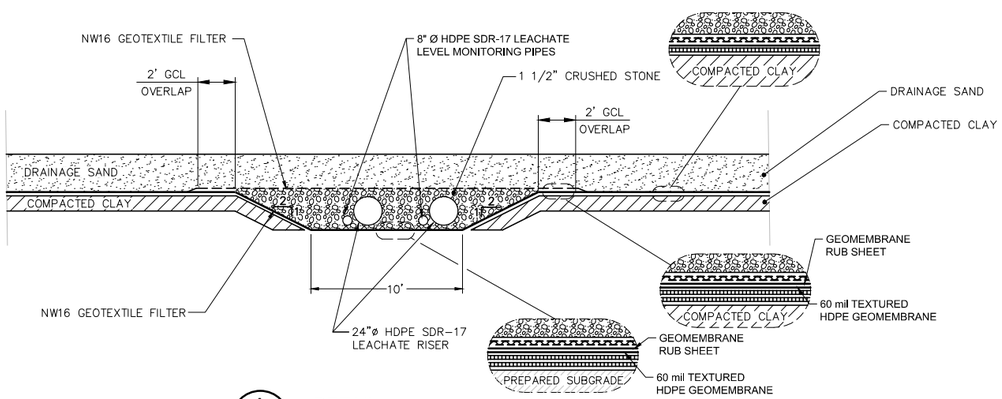


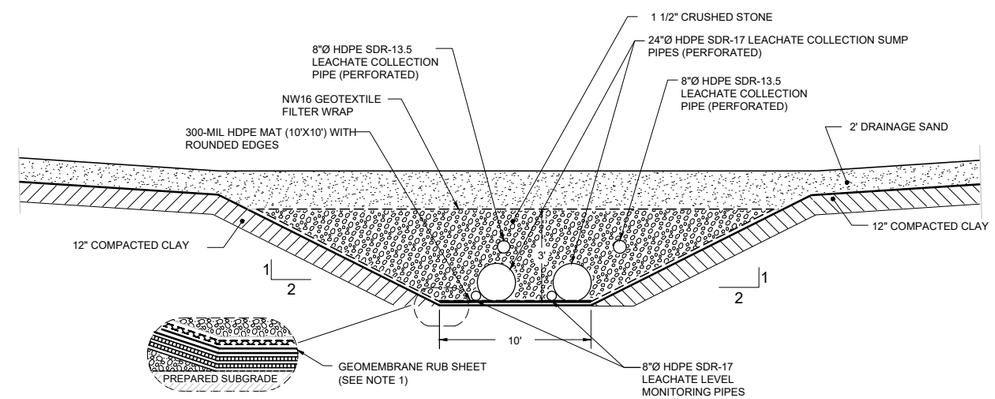
1 / 7 DETAIL
LEACHATE COLLECTION SUMP AND RISER
N.T.S.



2 / 23 DETAIL
TYPICAL LEACHATE FORCE MAIN CLEANOUT AND LEAK DETECTION MANHOLE
N.T.S.

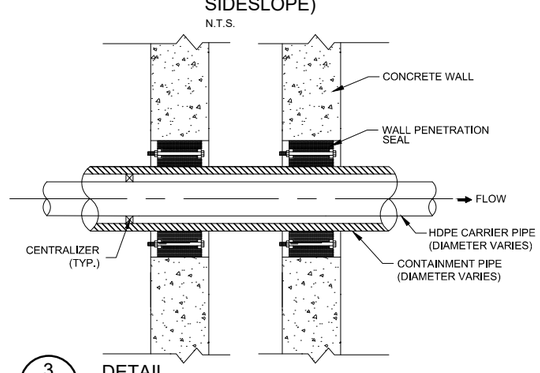


A / 24 DETAIL
LEACHATE COLLECTION RISERS (ON SIDESLOPE)
N.T.S.

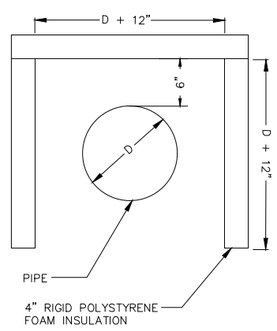


NOTE:
1. AN EXTRA GEOMEMBRANE (RUB SHEET) SHALL BE INSTALLED DIRECTLY OVER THE GEOMEMBRANE LINER THROUGHOUT THE SUMP AND EXTEND 3 FT UP THE SIDES OF THE SUMP.

B / 24 DETAIL
LEACHATE COLLECTION SUMP
N.T.S.

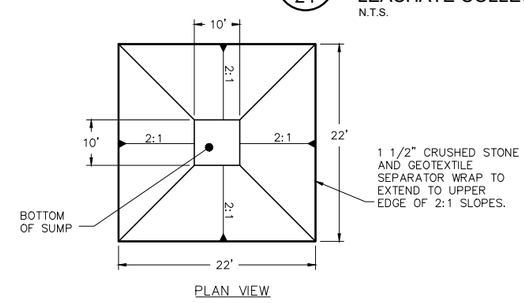


3 / 23 DETAIL
LEACHATE FORCEMAIN TIE-IN AT SOUTH CENTRAL PUMP STATION TIE-IN
N.T.S.

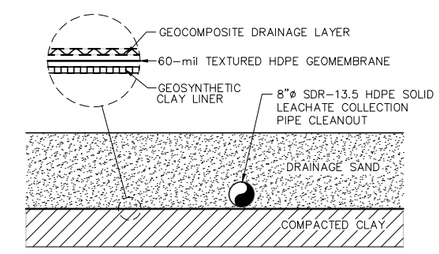


NOTE: INSULATION PROVIDED FOR ALL PIPE WITH LESS THAN 5 FEET BURIAL DEPTH

4 / 7 DETAIL
LEACHATE FORCE MAIN PIPE INSULATION
N.T.S.



5 / 7 DETAIL
LEACHATE COLLECTION SUMP
N.T.S.



6 / 7 DETAIL
LEACHATE COLLECTION PIPE CLEANOUTS
N.T.S.

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

PERMIT DRAWINGS

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STATE OF MAINE — SCOTT M. LUTTICH No. 7162 — LICENSED PROFESSIONAL ENGINEER

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APPROVED BY: SML

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PHONE: 978.263.9589

TITLE: LEACHATE TRANSMISSION SYSTEM DETAILS
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 24 OF 38

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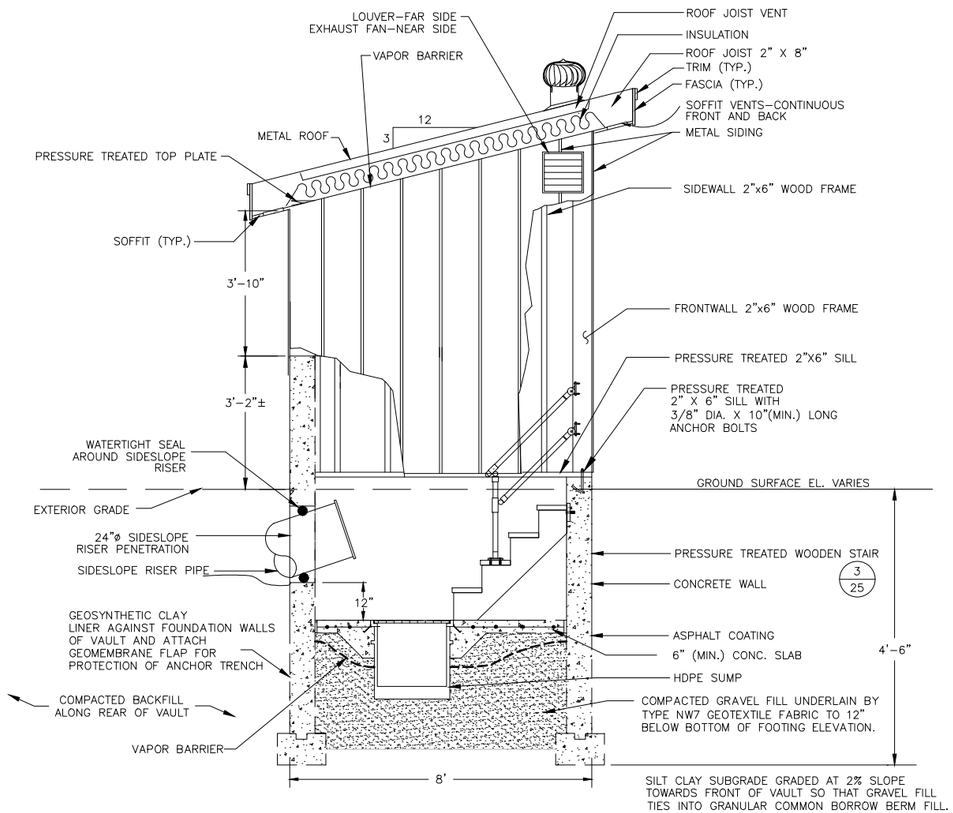
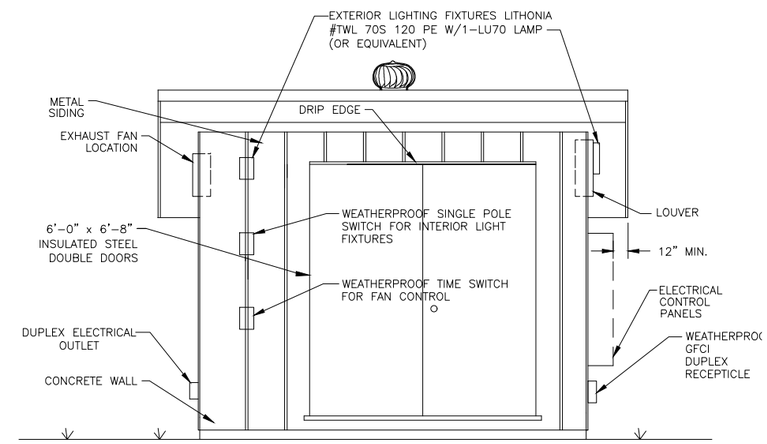
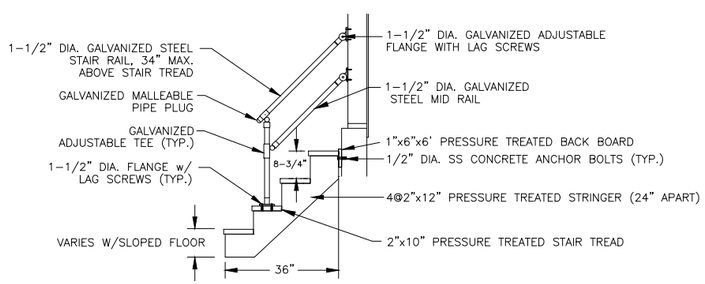


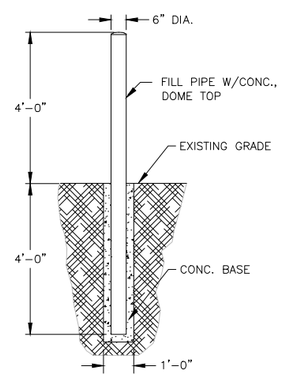
1/7 DETAIL
LEACHATE VAULT SECTION - SIDE VIEW
SCALE: NTS
XREF: BE0232 XD 200



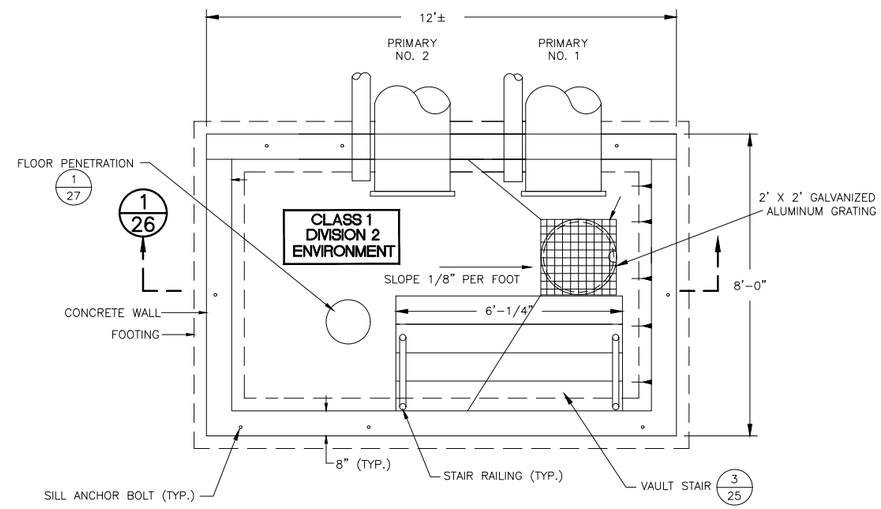
2/7 DETAIL
LEACHATE VAULT ELEVATION - FRONT VIEW
SCALE: NTS
XREF: BE0232 XD 200A



3/25 DETAIL
LEACHATE VAULT STAIR
SCALE: NTS
XREF: BE0232 XD 200B



4/- DETAIL
BOLLARD POST
SCALE: NTS
XREF: BE0232 XD 200D



5/7 DETAIL
LEACHATE VAULT FLOOR PLAN
SCALE: NTS
XREF: BE0232 XD 200C

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

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

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.
SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

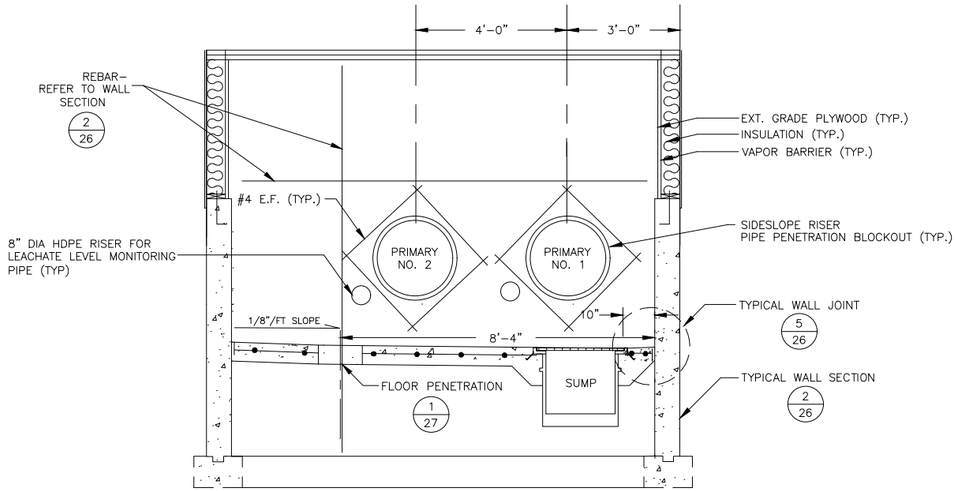
WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

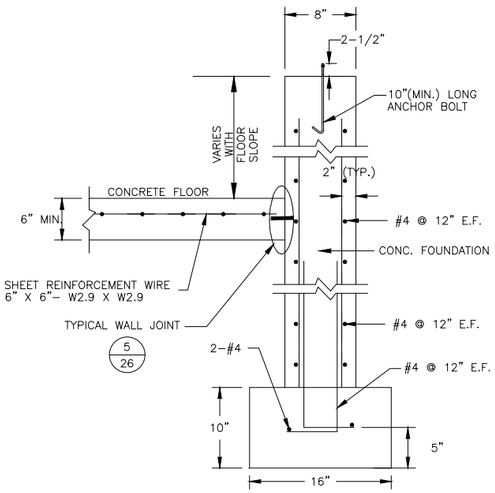
TITLE: LEACHATE VAULT - STRUCTURAL DETAILS I
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 25 OF 38

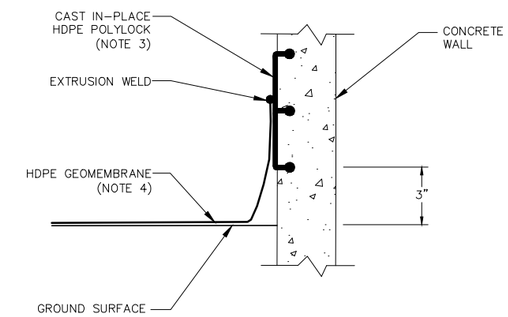
T:\PROJECTS_CADD\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D025 (LEACH VAULT STRUCT DET 1).DWG Last Edited by: jbayre on 9/30/19



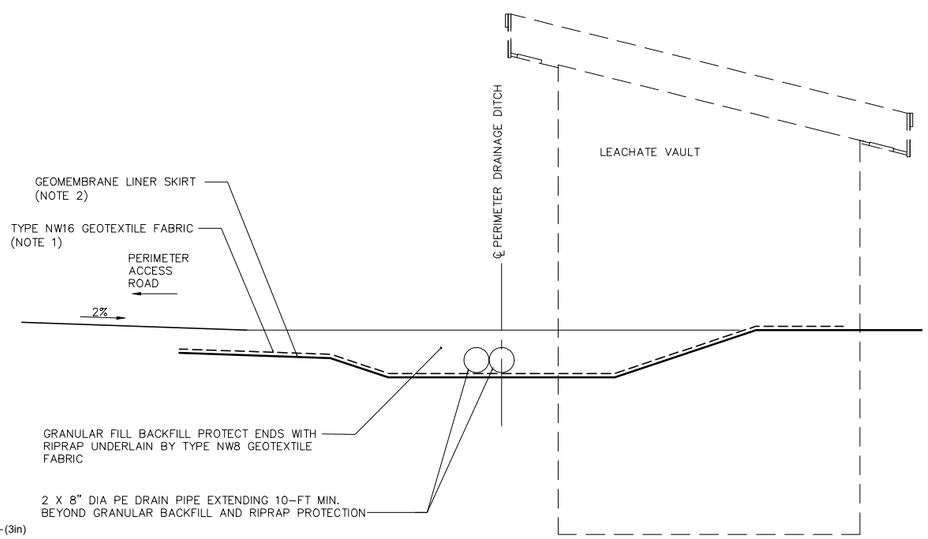
1 / 7 DETAIL
LEACHATE VAULT
SCALE: NTS
XREF: BE0232 XD202



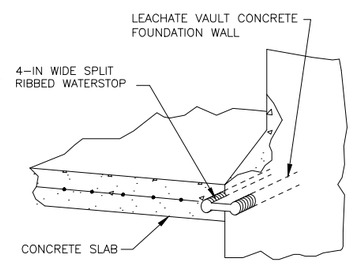
2 / 26 DETAIL
TYPICAL WALL SECTION
SCALE: NTS
XREF: BE0232 XD202A



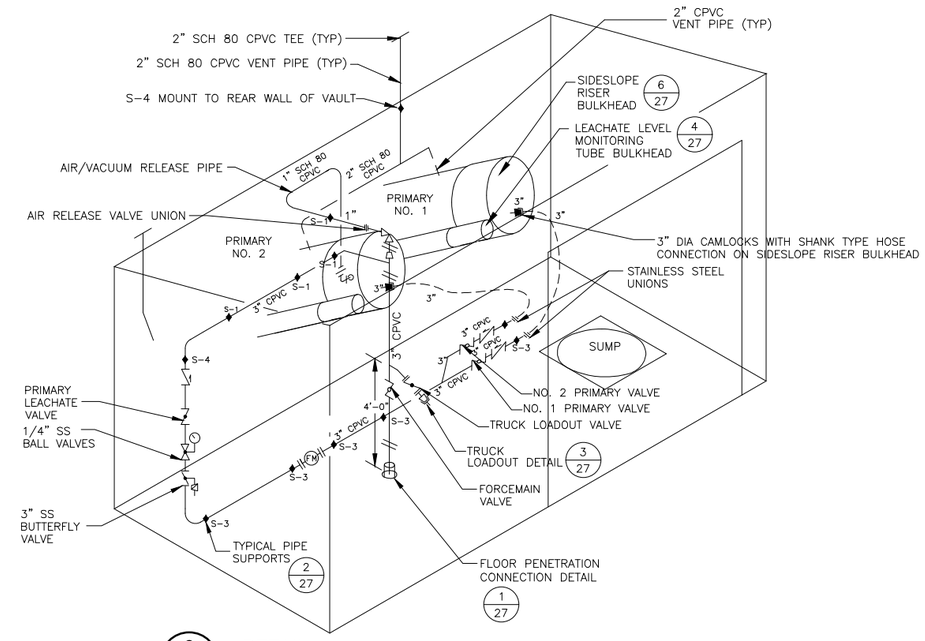
3 / 7 DETAIL
CONNECTION OF LINER SKIRT TO LEACHATE VAULT
SCALE: NTS
XREF: BE0232 XD202B



4 / 15 DETAIL
VAULT ACCESS RAMP THROUGH PERIMETER SWALE
SCALE: NTS
XREF: BE0232 XD202C



5 / 26 DETAIL
TYPICAL WALL JOINT
SCALE: NTS
XREF: BE0232 XD202D



6 / 7 DETAIL
LEACHATE VAULT PIPING ISOMETRIC
SCALE: NTS
XREF: BE0232 XD213

NOTES:

1. EXTEND WIDTH OF RAMP 4 FT BEYOND EITHER SIDE OF VAULT.
2. WHERE A CULVERT AND GRANULAR FILL IS TO BE PLACED IN THE PERIMETER DRAINAGE SWALE TO PROVIDE ACCESS TO THE LEACHATE VAULTS, THE LINER SKIRT SHALL BE OVERLAIN BY TYPE NW16 GEOTEXTILE FABRIC AS DEPICTED.
3. THE LINER SKIRT SHALL BE ATTACHED TO THE LEACHATE VAULT STRUCTURES BY WELDING TO AN HDPE CAST IN-PLACE BAR IN THE VAULT FOUNDATION. THE LINER SKIRT SHALL EXTEND UP THE LEACHATE VAULT STRUCTURES TO ABOUT 10 INCHES ABOVE FINISHED GRADE AROUND THE REAR AND SIDES OF THE STRUCTURE, AND SHALL BE TERMINATED IMMEDIATELY BELOW THE THRESHOLD ON THE FRONT OF THE STRUCTURES.
4. BOOTS SHALL BE PROVIDED AROUND ALL PENETRATIONS OF THE LINER SKIRT.

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUTTRELL
LIC. 7762
No. 7762
PROFESSIONAL ENGINEER

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDERING OR CONSTRUCTION, UNLESS SEALED.
SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WASTE MANAGEMENT
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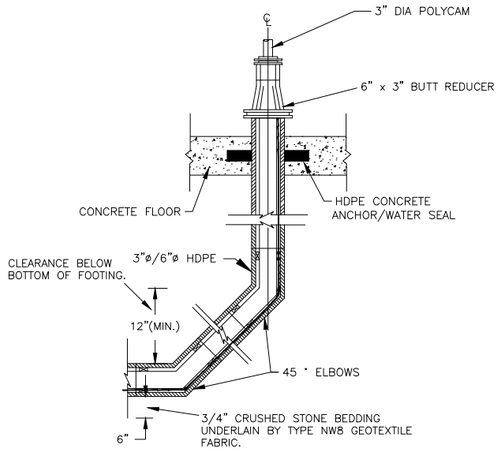
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

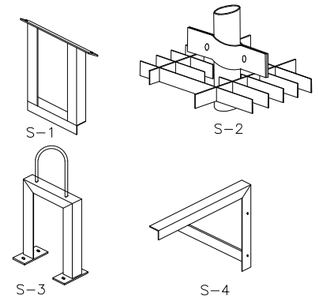
TITLE: LEACHATE VAULT - STRUCTURAL DETAILS II
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 26 OF 38

T:\PROJECTS_CADD\CORO\BSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D026 (LEACH VAULT STRUCT DET II).DWG Last Edited by: RKoslatron
09/26/2019

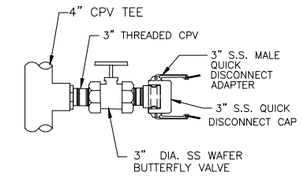


1 / 25 DETAIL
FLOOR PENETRATION CONNECTION
N.T.S.

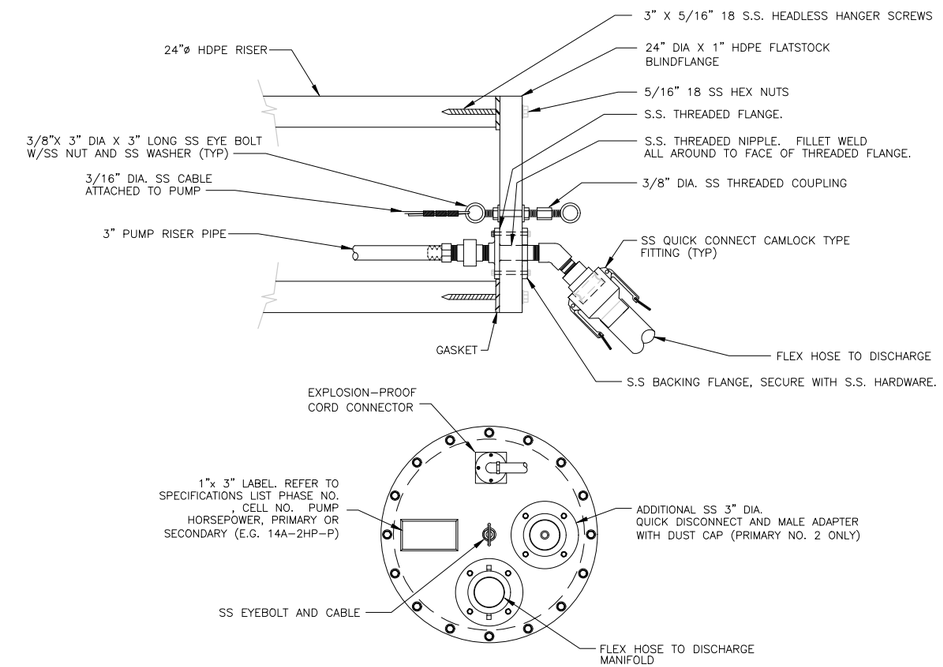


NOTE:
1) PIPE SUPPORTS CONSTRUCTED USING 2" X 1/8" S.S. ANGLE, AND 2" X 1/4" S.S. FLATSTOCK. SUPPORTS SHOWN ARE INTENDED TO ILLUSTRATE GENERAL DESIGN. DESIGN AND LOCATIONS MODIFIED AS REQUIRED TO MEET SPECIFIC REQUIREMENTS AND CONFORM TO SPECIFICATIONS.

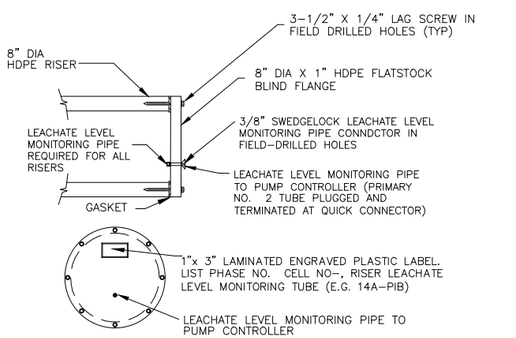
2 / 26 DETAIL
TYPICAL PIPE SUPPORTS
N.T.S.



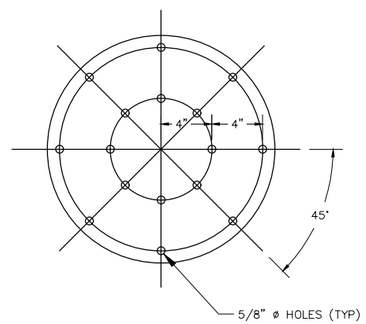
3 / 26 DETAIL
TRUCK LOADOUT
N.T.S.



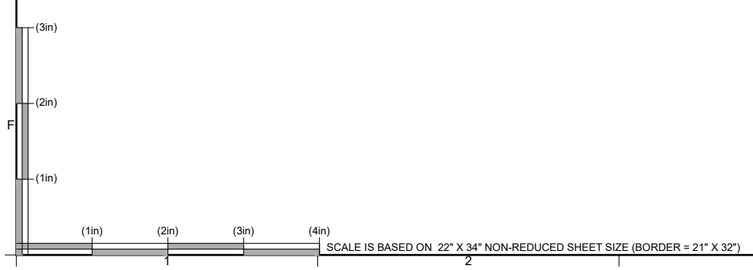
6 / 26 DETAIL
SIDESLOPE RISER BULKHEAD
N.T.S.



4 / 26 DETAIL
LEACHATE LEVEL MONITORING TUBE BULKHEAD
N.T.S.



5 / 24 DETAIL
1 in HDPE FLAT STOCK FOR 24 in DIA. HDPE LEACHATE SUMP PIPES
N.T.S.



PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE — SCOTT M. LUTTICH No. 7482 — PROFESSIONAL ENGINEER

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SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

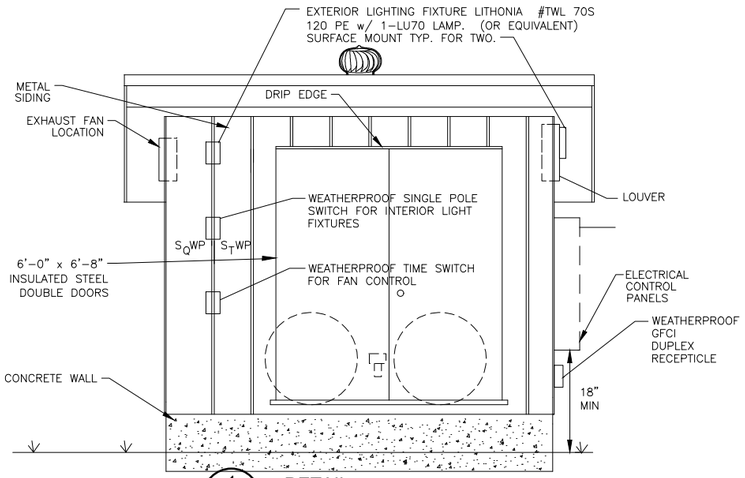
WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

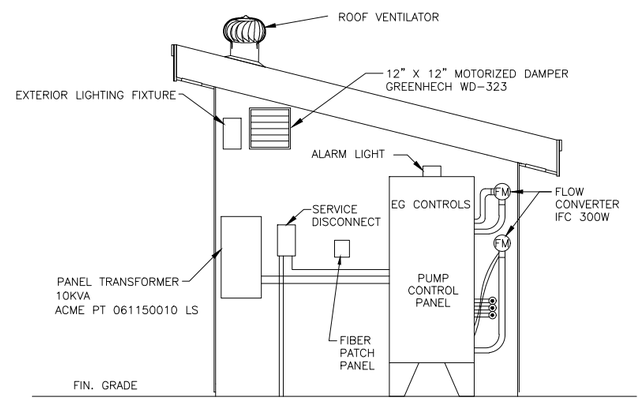
TITLE: LEACHATE VAULT PIPING DETAILS
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 27 OF 38

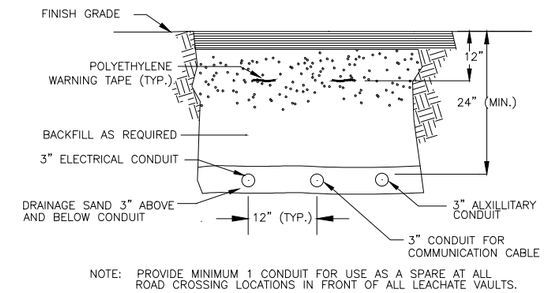
T:\PROJECTS_CADD\CORC\BS\ROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D027 (LEACH VAULT PIPE DET) (DWG Last Edited by: RKirkstrom on 9/26/19)



1 / 7 DETAIL
LEACHATE VAULT ELEVATION FRONT VIEW
N.T.S.

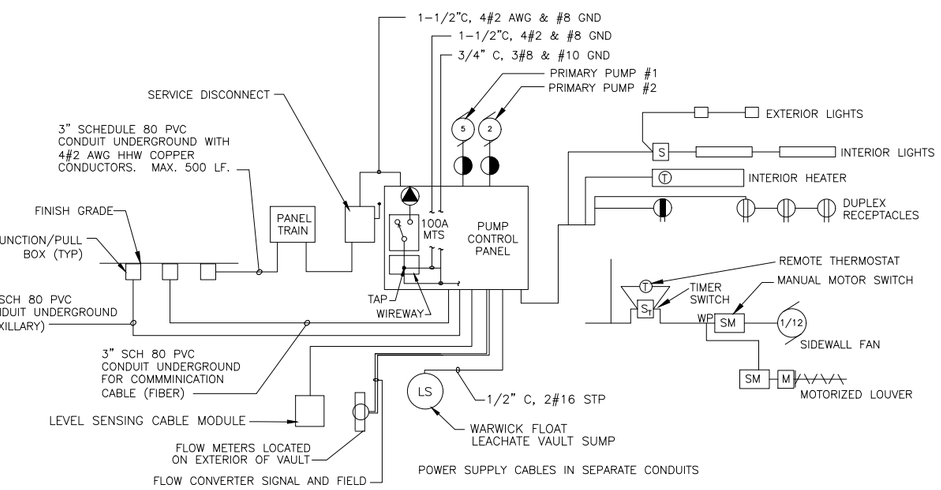


2 / 7 DETAIL
LEACHATE VAULT ELEVATION
N.T.S.

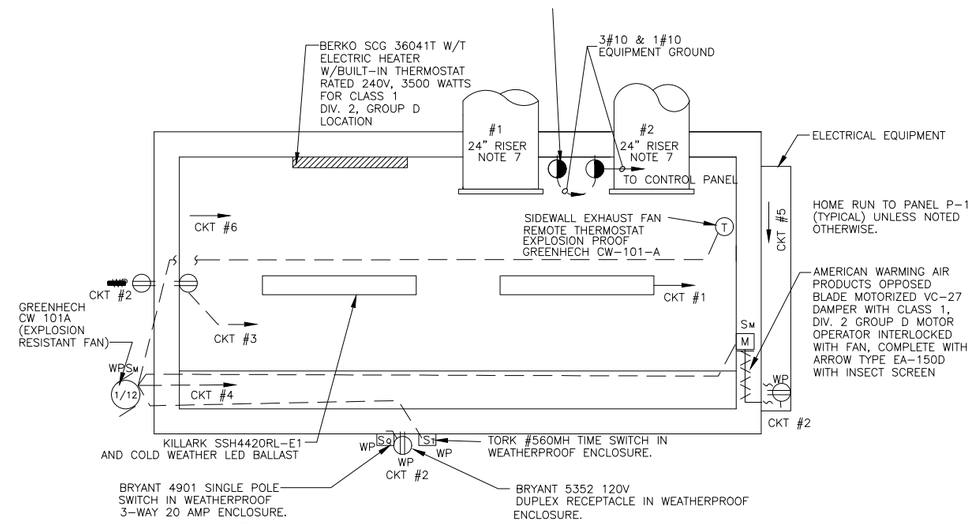


NOTE: PROVIDE MINIMUM 1 CONDUIT FOR USE AS A SPARE AT ALL ROAD CROSSING LOCATIONS IN FRONT OF ALL LEACHATE VAULTS.

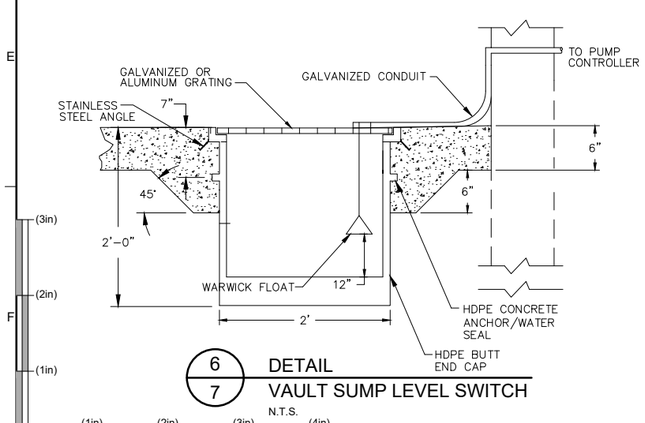
3 / 7 DETAIL
SECTION - UNDERGROUND CONDUIT
N.T.S.



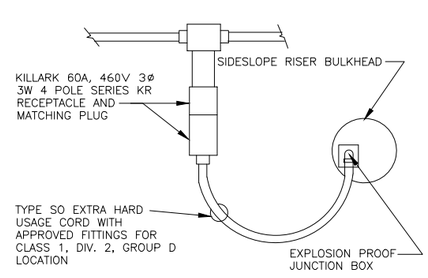
4 / 7 DETAIL
PUMP VAULT ELECTRICAL SCHEMATIC
N.T.S.



5 / 7 DETAIL
LEACHATE VAULT BUILDING ELECTRICAL PLAN VIEW
N.T.S.



6 / 7 DETAIL
VAULT SUMP LEVEL SWITCH
N.T.S.



7 / 7 DETAIL
BULKHEAD ELECTRICAL CONNECTION
N.T.S.

LEGEND

- FLOW METERS
- CKT #4 — HOMERUN TO PANELBOARD. 2#12 AWG AND #12 GND UNLESS OTHERWISE NOTED. NUMERALS INDICATE CIRCUIT NUMBER.
- M — MOTORIZED DAMPER
- WP — DENOTES WEATHERPROOF ENCLOSURE
- 1/12 — MOTOR NUMERAL DENOTES HORESPOWER. MOTOR SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR.
- 30 3P — DISCONNECT SWITCH—HEAVY DUTY TYPE—RATED 600V. 30 DENOTES 30 AMP SWITCH, 20 DENOTES FUSE RATING AMPS, 3P DENOTES 3 POLE SWITCH. ENCLOSURE SHALL BE NEMA 4X.
- PANEL P-1 — PANELBOARD "P-1" DENOTES PANEL DESIGNATION. SEE PANELBOARD DESCRIPTION ON PLAN.
- MANUAL TRANSFER SWITCH, SQUARE D CLASS 3140, NEMA 4X
- S — SINGLE POLE TOGGLE SWITCH 20A, 120V.
- POWER RECEPTACLE 60A, 480V FOR HAZARDOUS LOCATION.
- DUPLEX RECEPTACLE 20A 120V, GFCI INDICATES GROUND FAULT CIRCUIT INTERRUPTER.
- DUPLEX RECEPTACLE 20A, 120V FOR HAZARDOUS LOCATION.
- GENERATOR RECEPTACLE, CROUSE-HINDS AR642 M3 60 AMP 3W, 4P
- SM — MANUAL MOTOR SWITCH WITHOUT THERMAL OVERLOAD DEVICE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR MOUNT ADJACENT TO MOTOR.
- NOTE: 4-FT. LONG — FLUORESCENT LIGHTING FIXTURE. LOWER CASE LETTER DENOTES SWITCH CONTROL OF FIXTURE.
- ELECTRIC BASEBOARD HEATER
- T — REMOTE THERMOSTAT FOR CONTROL SWITCH.

NOTE:

1. REFER TO SECTION 16900 FOR PUMP CONTROLLER SPECIFICATIONS, INCLUDING ALARM AND CONTROL LOGIC.
2. ALL CONDUIT SHALL BE FIBERGLASS.
3. ALL CONDUIT LEAVING THE VAULT (CLASS 1 DIVISION 2 AREA) SHALL BE PROVIDED WITH A CONDUIT SEAL IN ACCORDANCE WITH NECK ART 501-5(b). THERE SHALL BE NO UNION, COUPLING, BOX OR FITTING IN THE CONDUIT BETWEEN THE SEALING FITTING THE POINT AT WHICH THE CONDUIT LEAVES THE DIVISION 2 LOCATION.
4. ACME PANEL CAT. NO. PT-BA-3150015L, 10 OVA, 208Y/120V SECONDARY WITH 12 20A-1P BREAKERS. CAT #3 TO BE GFCI TYPE.
5. FLOW METER, LEVEL SWITCH AND LEAK DETECTION WIRING IS INTRINSICALLY SAFE AND SHALL BE INSTALLED IN ACCORDANCE WITH NECK ART 504.
6. LEACHATE VAULT WILL HAVE TWO LEACHATE RISER PIPES.
7. RISERS #1 AND #2 ARE FOR LEACHATE COLLECTION AND AUXILIARY LEACHATE COLLECTION SUMP PIPES RESPECTIVELY.
8. ELECTRICAL DESIGN PROVIDED BY ECONO ELECTRIC FOR PHASE 8 AND ADAPTED FOR PHASE 14..

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE — SCOTT M. LUTTICH No. 7482 — LICENSED PROFESSIONAL ENGINEER

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24 OCTOBER 2019
DATE

DESIGN BY:	NJY
DRAWN BY:	JT / RK
CHECKED BY:	NJY
REVIEWED BY:	SML
APPROVED BY:	SML

WASTE MANAGEMENT
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Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

TITLE: LEACHATE VAULT MECHANICAL -ELECTRICAL DETAILS

PROJECT: PHASE 14 PERMIT APPLICATION

SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019

PROJECT NO.: BE0232C

DRAWING NO.: 28 OF 38

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

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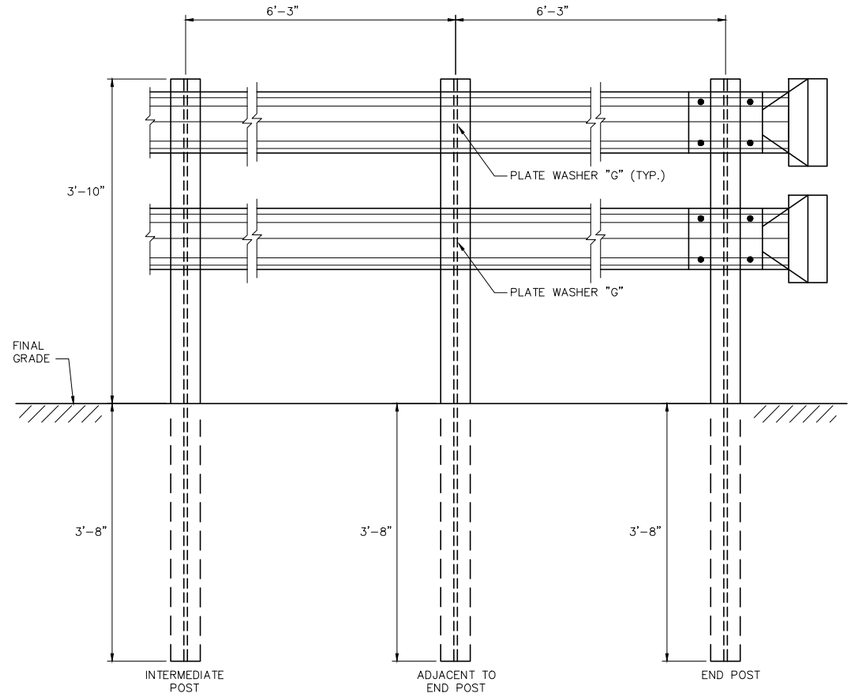
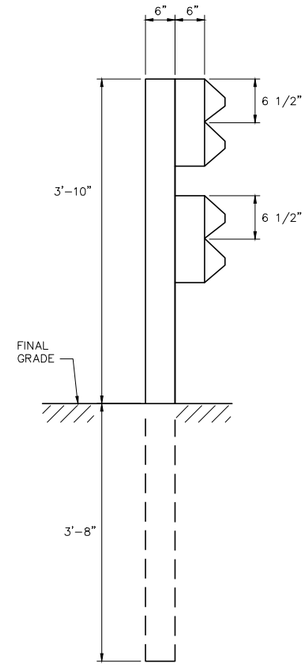


PROFILE VIEW

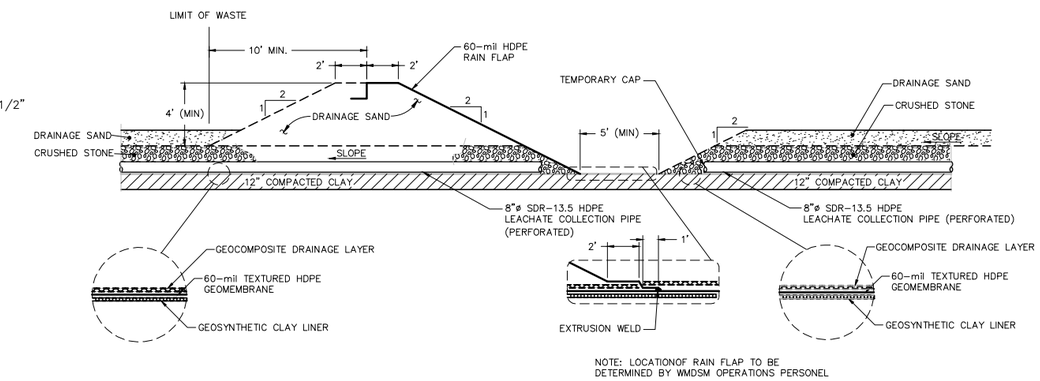


SIDE VIEW

NOTES:

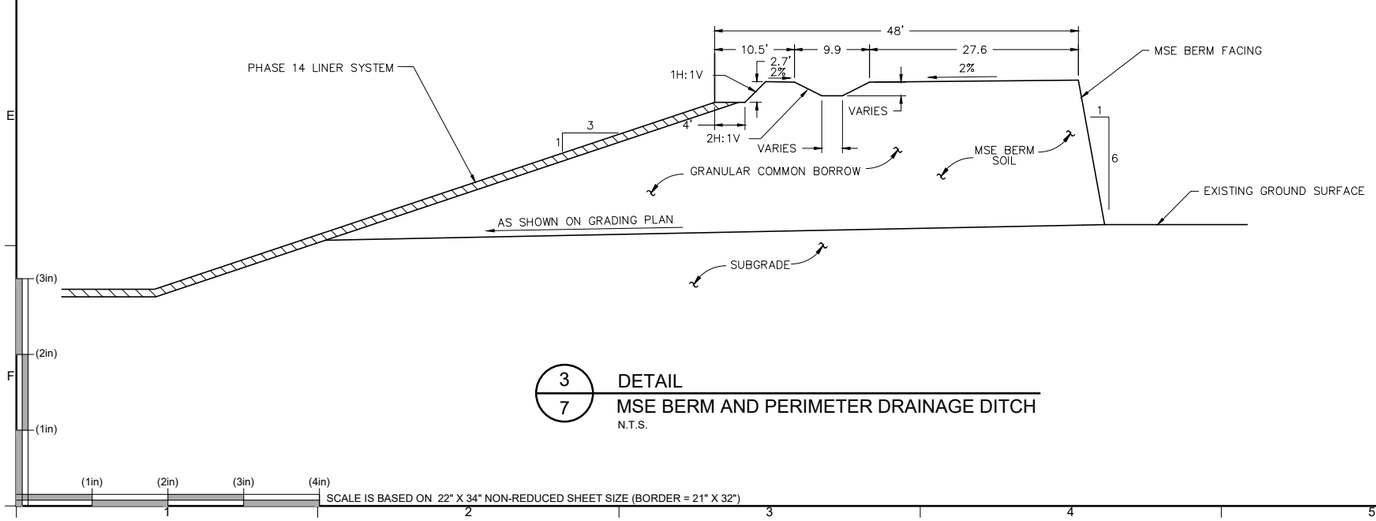
1. ALL POST SPACING SHALL BE 6'-3" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. GUARDRAIL SHALL BE MDOT SPECIFICATION TYPE "b" POSTS AND SHALL CONFORM TO MDOT SPECIFICATION SECTION 710.07(b).
3. ALL HOLES IN BEAM SHALL BE SHOP-PUNCHED BEFORE GALVANIZING.

1/20 DETAIL GUARDRAIL
N.T.S.



NOTE: LOCATIONOF RAIN FLAP TO BE DETERMINED BY WMDSM OPERATIONS PERSONEL

2/- DETAIL TEMPORARY RAIN FLAP
N.T.S.



3/7 DETAIL MSE BERM AND PERIMETER DRAINAGE DITCH
N.T.S.

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE SCOTT M. LUTTRELL No. 7162 LICENSED PROFESSIONAL ENGINEER

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

SIGNATURE

24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

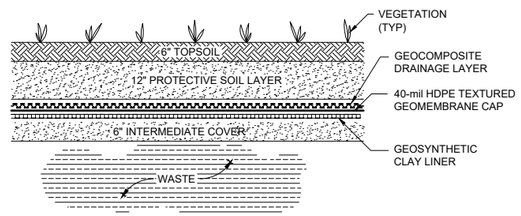
TITLE: MISCELLANEOUS DETAILS

PROJECT: PHASE 14 PERMIT APPLICATION

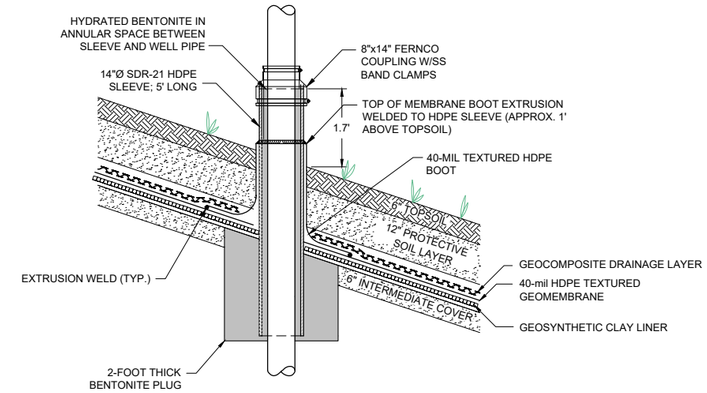
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 29 OF 38

T:\PROJECTS_CADD\CORC\BS\ROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D029 (MISC DET).DWG Last Edited by: Rkolstrom on 9/30/19

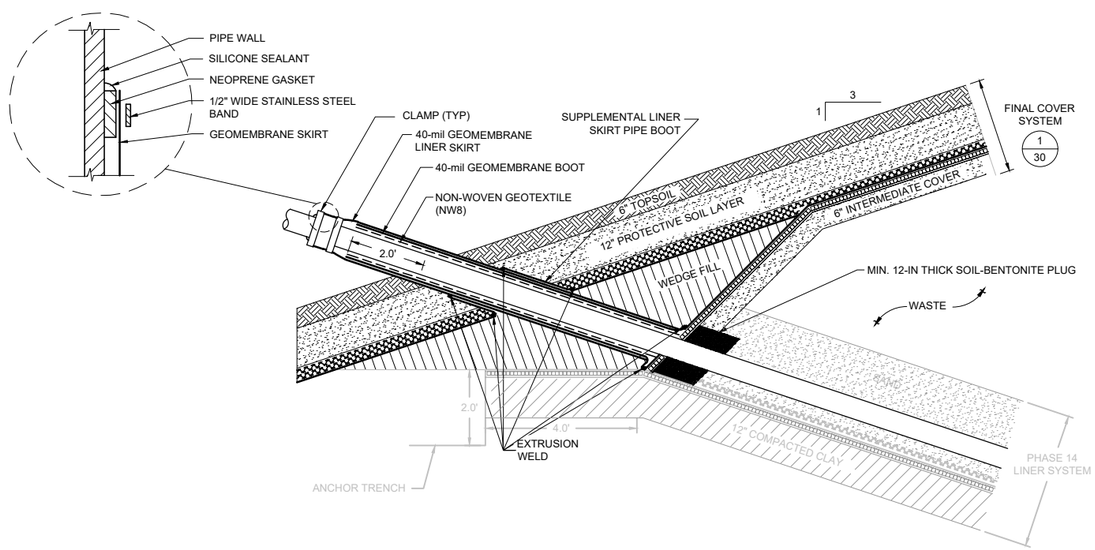


1/13 DETAIL
FINAL COVER SYSTEM
N.T.S.



NOTE:
1. COUPLINGS TO BE INSTALLED AT SAME TIME AS BENTONITE IS PLACED IN ANNULAR SPACE.

2/- DETAIL - LANDFILL GAS WELL
PIPE FINAL COVER SYSTEM PENETRATION
N.T.S.



3/7 DETAIL
LCS PIPE FINAL COVER PENETRATION AT TOE
N.T.S.

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUETTICH
No. 7462
LICENSED
PROFESSIONAL ENGINEER

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.
SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

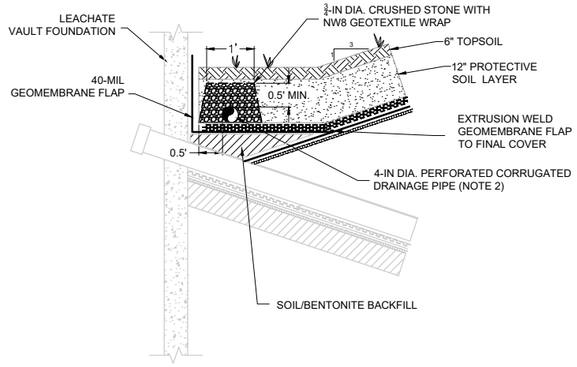
WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

TITLE: FINAL COVER SYSTEM DETAILS
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

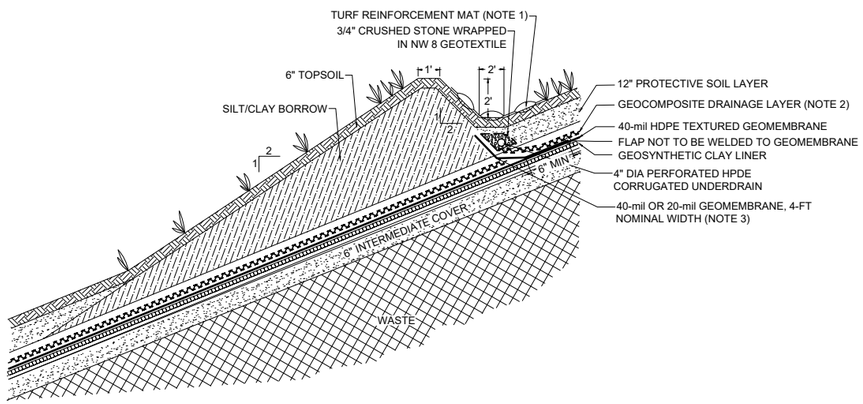
DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 30 OF 38

T:\PROJECTS_CADD\C\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D030 (FINAL CVR SYS DET).DWG Last Edited by: RKohlstrom on 10/1/19



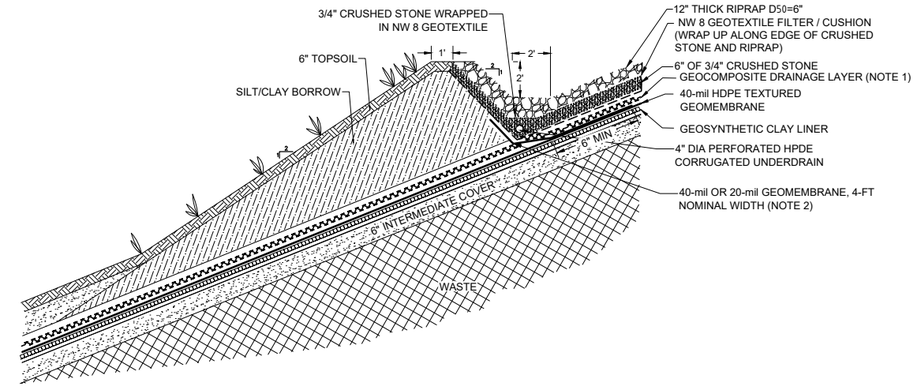
NOTES:
1. LEACHATE VAULT DRAIN TO BE INSTALLED ALONG EXTERIOR BACK WALL AND WRAPPED AROUND SIDE WALLS OF LEACHATE VAULT.
2. AT FRONT ENDS OF DRAIN (NEAR FRONT CORNERS OF THE LEACHATE VAULT) THE 4-IN DIA. PERFORATED PIPE TO BE TRANSITIONED TO SOLID PIPE AND EXTENDED LATERALLY TO DAYLIGHT IN THE PERIMETER DRAINAGE DITCH.
3. CONTRACTOR TO GRADE SOIL BEHIND LEACHATE VAULTS TO SHED WATER AROUND BACK OF VAULTS AND TOWARDS THE PERIMETER DRAINAGE DITCH.

1/15 DETAIL
LEACHATE VAULT FOUNDATION DRAIN
N.T.S.



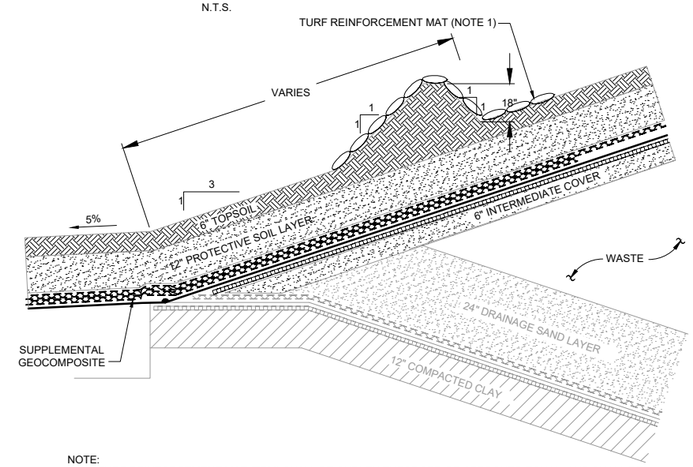
NOTES:
1. TURF REINFORCEMENT MAT (TRM) SHALL BE CURLEX ENFORCER OR APPROVED EQUAL, AND SHALL BE INSTALLED A MINIMUM OF 2-FT HIGH ALONG THE DRAINAGE BENCH AND PER THE MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.
2. DAYLIGHT GEOCOMPOSITE INTO CRUSHED STONE.
3. SHINGLE GEOMEMBRANE UPSLOPE UNDER GEOCOMPOSITE SO THAT THERE IS INTIMATE CONTACT WITH THE GEOMEMBRANE COMPONENT OF THE CLOSURE.

3/15 DETAIL
FINAL COVER DRAINAGE BENCH
N.T.S.



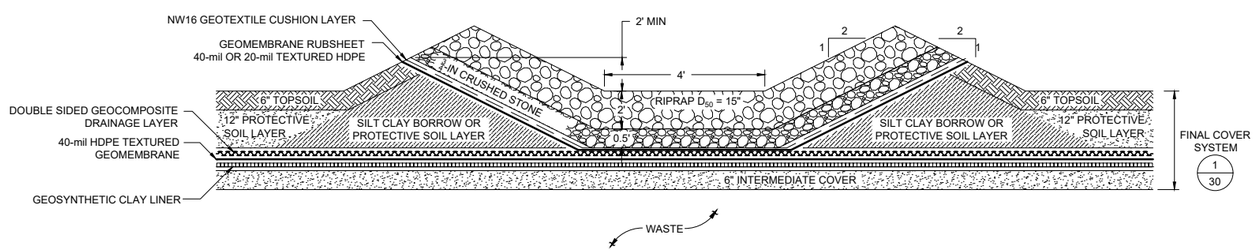
NOTES:
1. DAYLIGHT GEOCOMPOSITE INTO CRUSHED STONE.
3. SHINGLE GEOMEMBRANE UPSLOPE UNDER GEOCOMPOSITE SO THAT THERE IS INTIMATE CONTACT WITH THE GEOMEMBRANE COMPONENT OF THE CLOSURE.

2/15 DETAIL
RIPRAP LINED DRAINAGE BENCH within 10 FT OF TIE-IN WITH DOWNCHUTE - PERIMETER DRAINAGE DITCH
N.T.S.



NOTE:
1. TURF REINFORCEMENT MAT (TRM) SHALL BE CURLEX ENFORCER OR APPROVED EQUAL, AND SHALL BE INSTALLED A MINIMUM OF 2-FT HIGH ALONG THE DRAINAGE BENCH PER THE MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.

4/15 DETAIL
LEACHATE VAULT DIVERSION BERM
N.T.S.



5/15 DETAIL
DOWNCHUTE
N.T.S.

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN | APP

STATE OF MAINE SCOTT M. LUTTICH No. 7762 LICENSED PROFESSIONAL ENGINEER

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SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

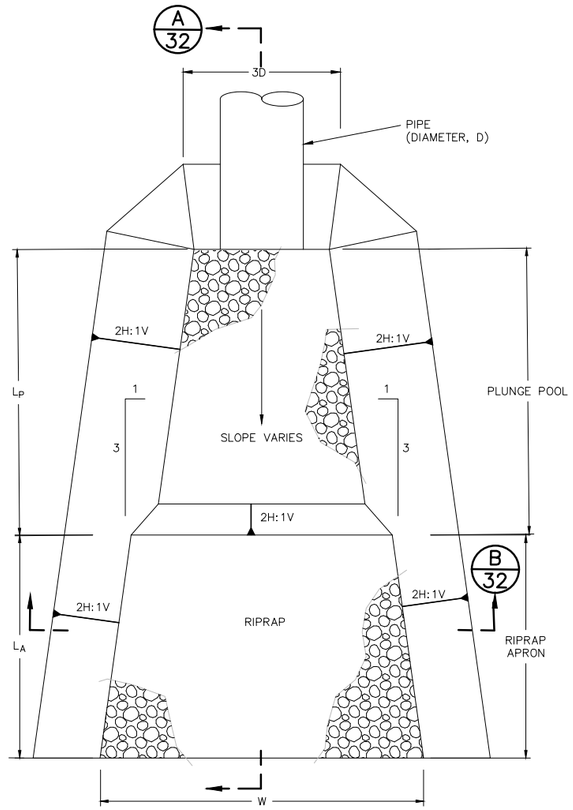
WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978 263 9588

TITLE: SURFACE WATER MANAGEMENT DETAILS I
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 31 OF 38

T:\PROJECTS_CADD\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D031-33 (SURF WATER MNGMT DET).DWG Last Edited by: jhaynor on 10/23/19

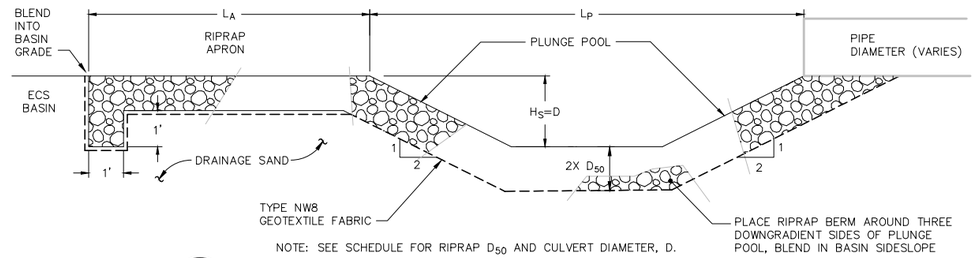


NOTES:

1. SEE SCHEDULE FOR DIMENSIONS AND RIPRAP D_{50}.

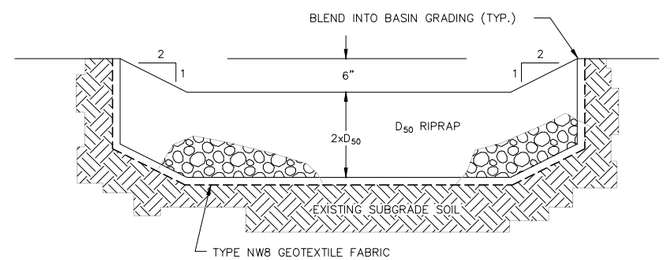
PLUNGE POOL AND RIPRAP APRON SCHEDULE					
BASIN ID	PIPE DIA, D (FT)	LENGTH POOL, L_P (FT)	LENGTH APRON, L_A(FT)	APRON WIDTH, W (FT)	RIPRAP D50 (INCHES)
22A	2.5	6	22	24	15
32	2.5	6	22	24	15
33A	2.5	6	22	24	15
33B	2.5	6	22	24	15
23	1	6	12	13	15

1/35 DETAIL
PLUNGE POOL AND RIPRAP APRON INSIDE ECS BASINS
N.T.S



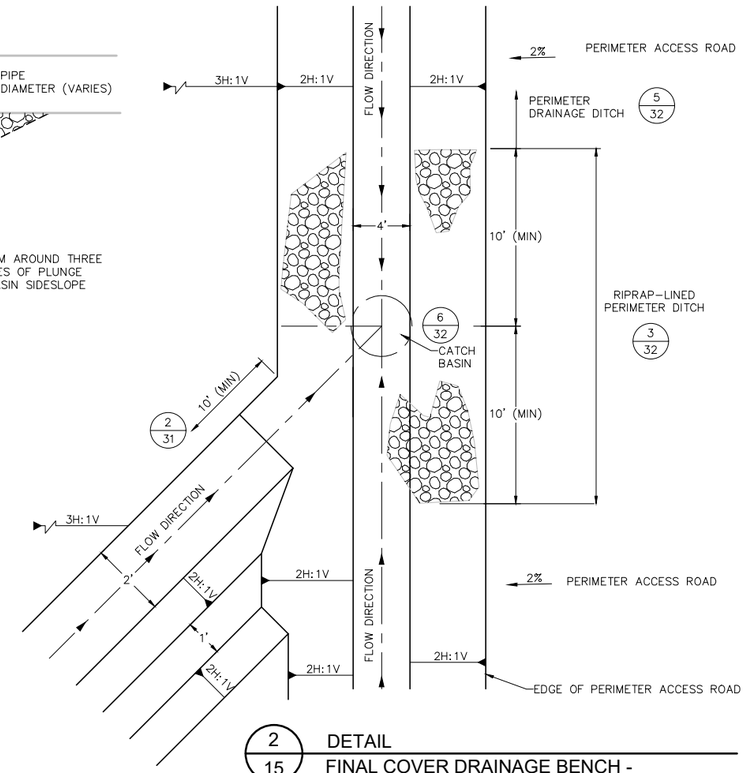
NOTE: SEE SCHEDULE FOR RIPRAP D_{50} AND CULVERT DIAMETER, D.

A/32 SECTION
PLUNGE POOL AND RIPRAP APRON INSIDE ECS BASINS
N.T.S

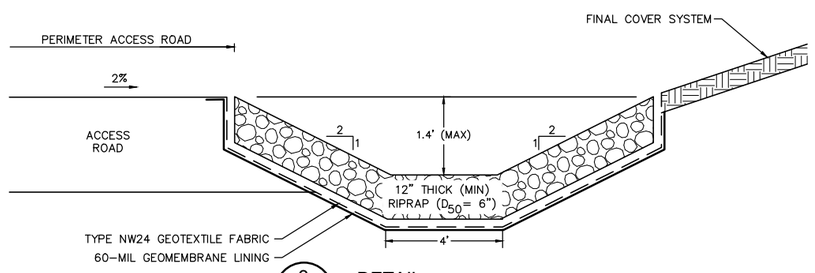


NOTE: SEE SCHEDULE FOR RIPRAP D_{50} AND CULVERT DIAMETER, D.

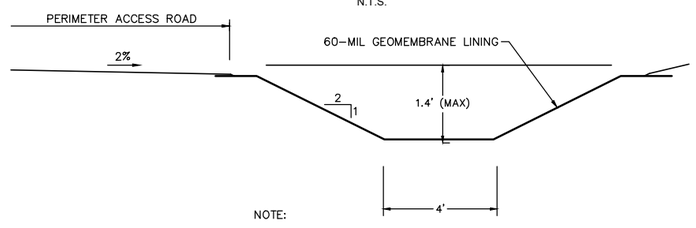
B/32 SECTION
RIPRAP APRON INSIDE ECS BASINS
N.T.S.



2/15 DETAIL
FINAL COVER DRAINAGE BENCH -
PERIMETER DRAINAGE DITCH INTERSECTION
N.T.S.



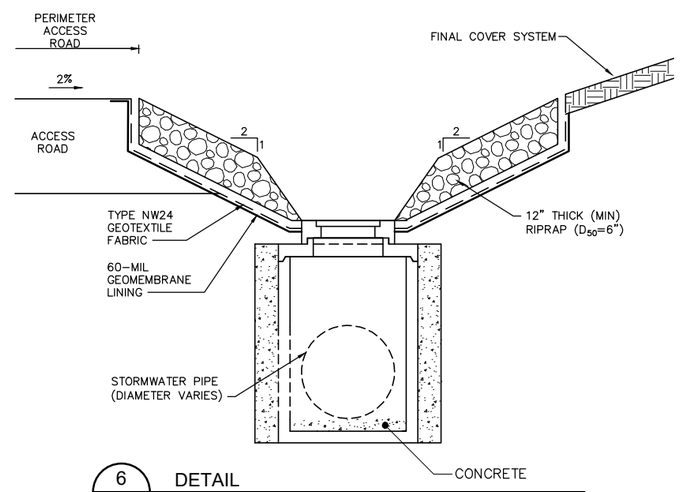
3/32 DETAIL
RIPRAP-LINED (PERIMETER) DITCH
N.T.S.



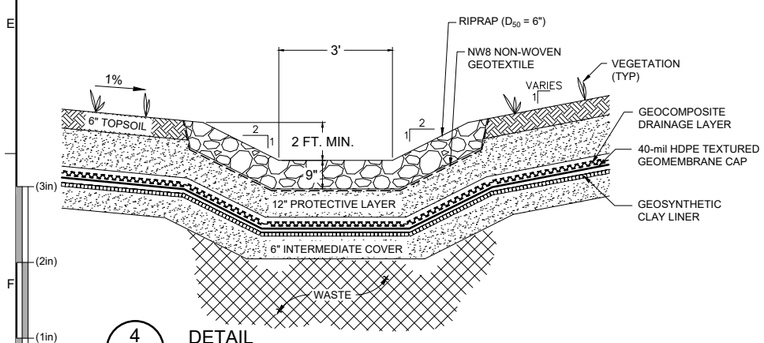
NOTE:

1. SWALE WIDTH AND DEPTH VARY AS NEEDED TO ACHIEVE REQUIRED SLOPE.

5/15 DETAIL
PERIMETER DRAINAGE DITCH
N.T.S.



6/15 DETAIL
RIPRAP-LINED (PERIMETER) DITCH
with CATCH BASIN
N.T.S.



4/15 DETAIL
INTERNAL LANDFILL ACCESS ROAD SWALE
N.T.S.

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

REV	DATE	DESCRIPTION	DRN	APP

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

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SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY:	NJY
DRAWN BY:	JT / RK
CHECKED BY:	NJY
REVIEWED BY:	SML
APPROVED BY:	SML

WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

TITLE: SURFACE WATER MANAGEMENT DETAILS II

PROJECT: PHASE 14 PERMIT APPLICATION

SITE: CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

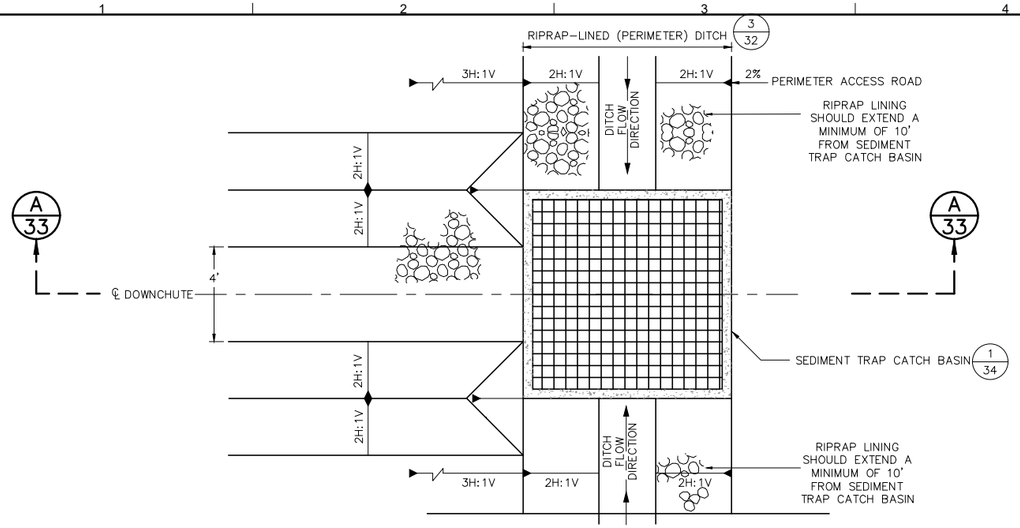
DATE: OCTOBER 2019

PROJECT NO.: BE0232C

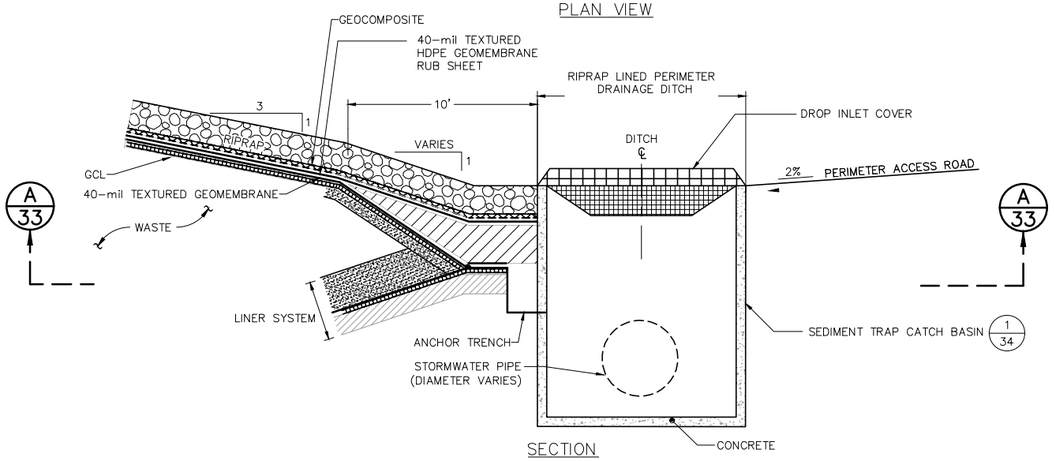
DRAWING NO.: 32 OF 38

PERMIT DRAWINGS

T:\PROJECTS_CADD\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D031-33 (SURF WATER MNGMT DET).DWG Last Edited by jtaylor on 10/22/2019



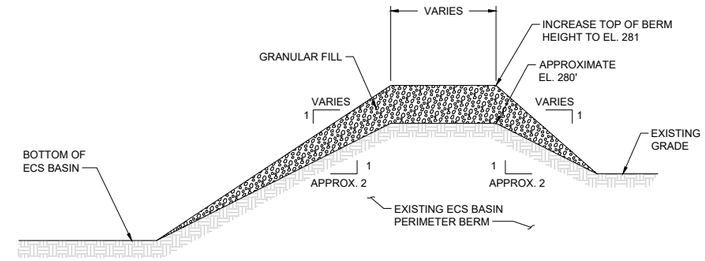
PLAN VIEW



SECTION

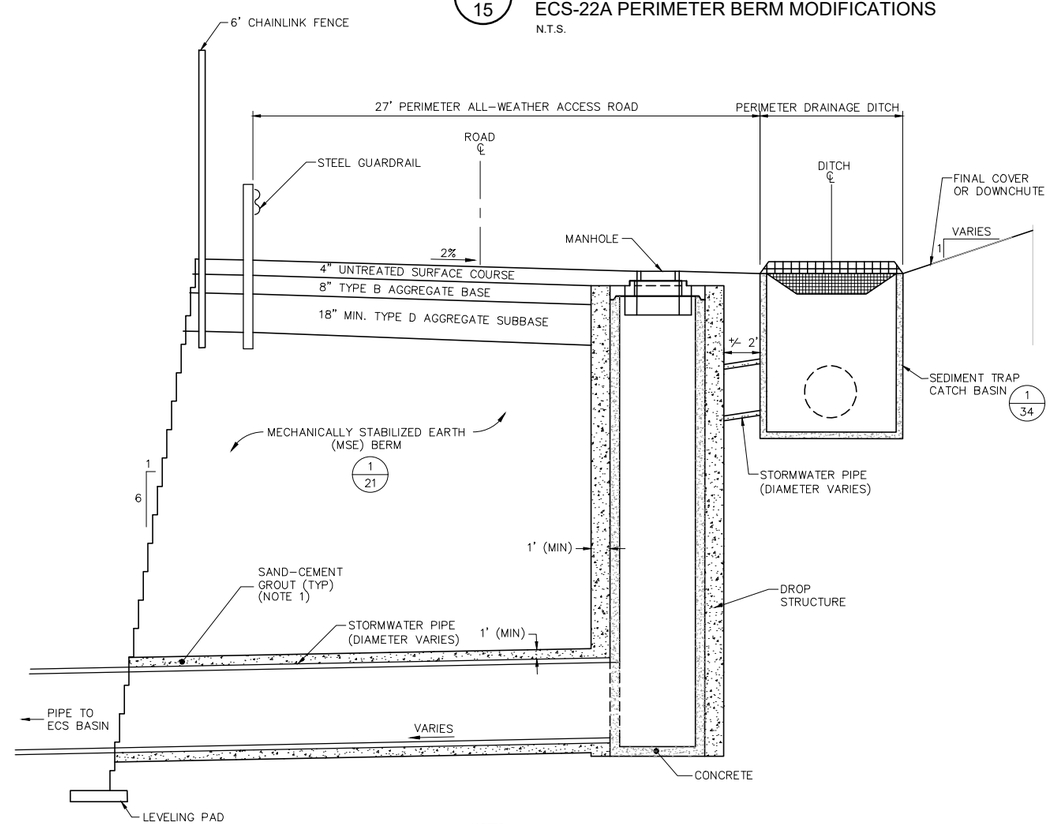
NOTE:
1. RIPRAP LINING IN PERIMETER DITCH EXTENDS 10' FROM SEDIMENT TRAP CATCH BASIN.

1/15 DETAIL
DOWN CHUTE - SEDIMENT TRAP CATCH BASIN INTERSECTION
N.T.S.



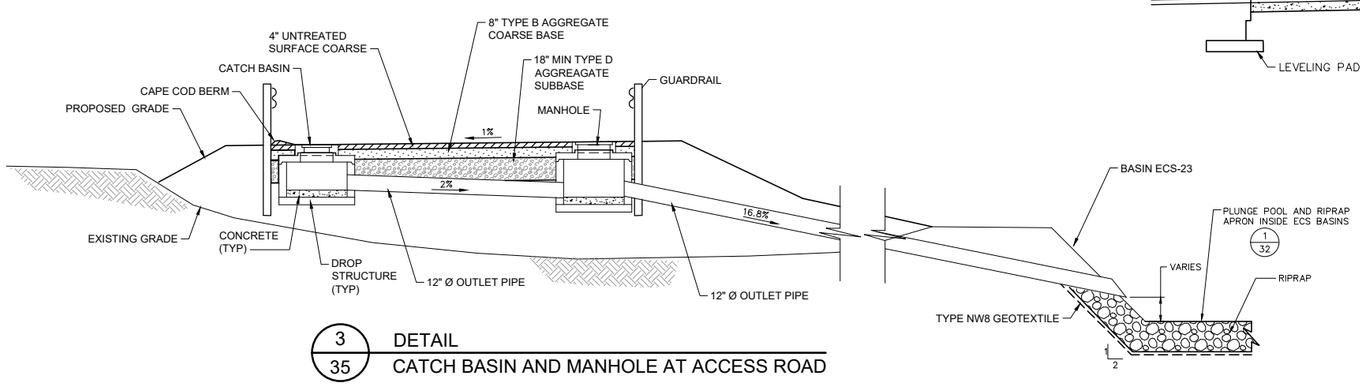
NOTE:
1. 1 - 3/4" STONE SHALL BE USED TO INCREASES ECS BASIN HEIGHT AT FILTER OUTLET LOCATIONS.
2. VEGETATION ON EXISTING ECS BASIN PERIMETER BERM WILL BE REMOVED PRIOR TO PLACEMENT OF GRANULAR FILL.

2/15 DETAIL
ECS-22A PERIMETER BERM MODIFICATIONS
N.T.S.



NOTES:
1. SAND-CEMENT GROUT USED FOR PIPES WITH MECHANICAL CONNECTIONS. HDPE BUTT-FUSED PIPE DOES NOT REQUIRE SAND-CEMENT GROUT.

4/15 DETAIL
STORMWATER MANHOLE AND PIPE OUTLET AT SEDIMENT TRAP CATCH BASIN
N.T.S.



3/35 DETAIL
CATCH BASIN AND MANHOLE AT ACCESS ROAD
N.T.S.

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE — SCOTT M. LUETTICH No. 7162 — LICENSED PROFESSIONAL ENGINEER

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SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY:	NJY
DRAWN BY:	JT / RK
CHECKED BY:	NJY
REVIEWED BY:	SML
APPROVED BY:	SML

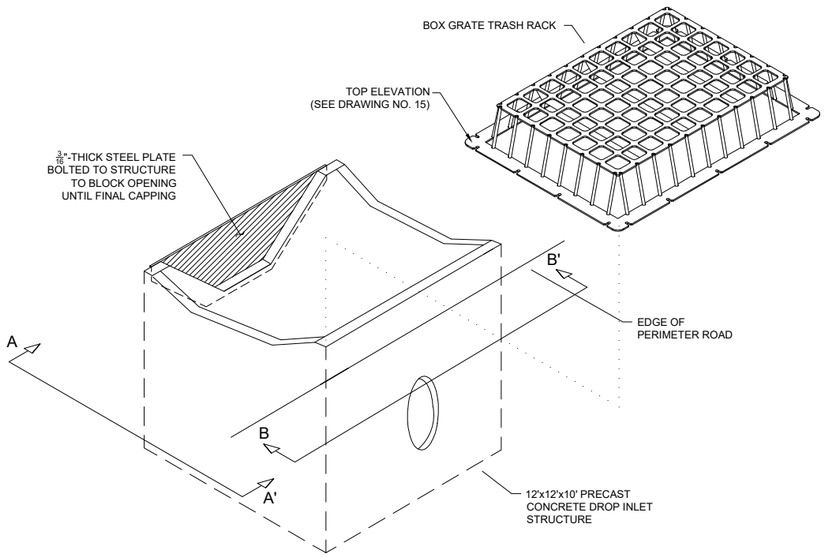
WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

TITLE: SURFACE WATER MANAGEMENT DETAILS III
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 33 OF 38

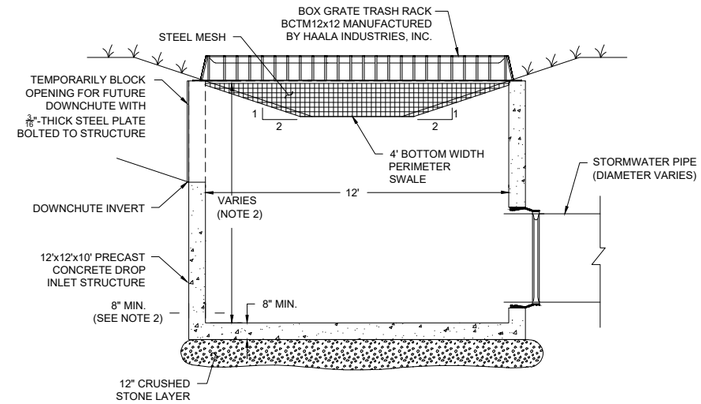
T:\PROJECTS_CADD\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D033-33 (SURF WATER MNGMT DET).DWG Last Edited by: jtaylor on 10/02/19



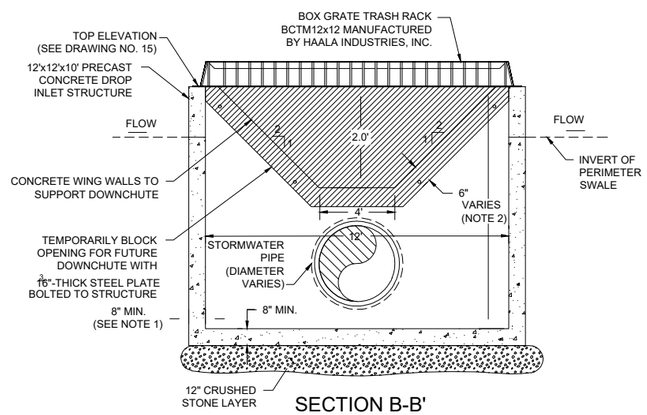
ISOMETRIC VIEW

NOTE:

1. WALL THICKNESSES SHOWN ARE FOR REFERENCE ONLY. ACTUAL WALL THICKNESSES SHALL BE DETERMINED BY THE PRECAST CONCRETE MANUFACTURER AT TIME OF CONSTRUCTION.
2. REFER TO DRAWING 15 FOR ELEVATIONS.
3. DETAIL ADAPTED FROM "TLR-III PHASE 13 CELL CONSTRUCTION RECORD DRAWINGS" PREPARED BY SANBORN HEAD ASSOCIATES FOR WASTE MANAGMENT, INC.



SECTION A-A
ELEVATION VIEW'



SECTION B-B'
ELEVATION VIEW

1/15 DETAIL
SEDIMENT TRAP CATCH BASIN
N.T.S.

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LUTTICH
No. 7162
LICENSED PROFESSIONAL ENGINEER

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CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

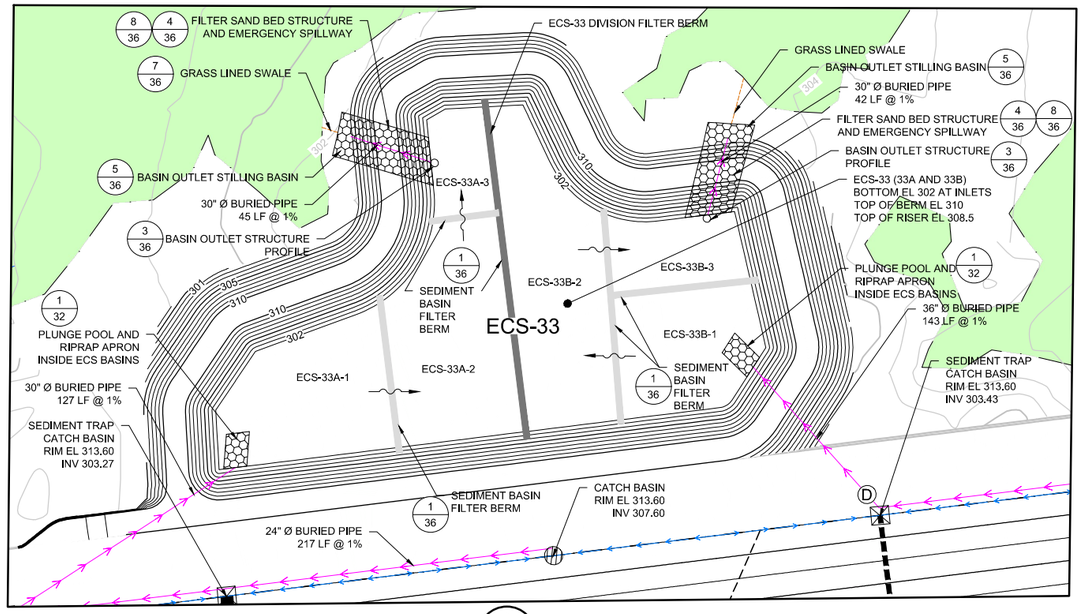
WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

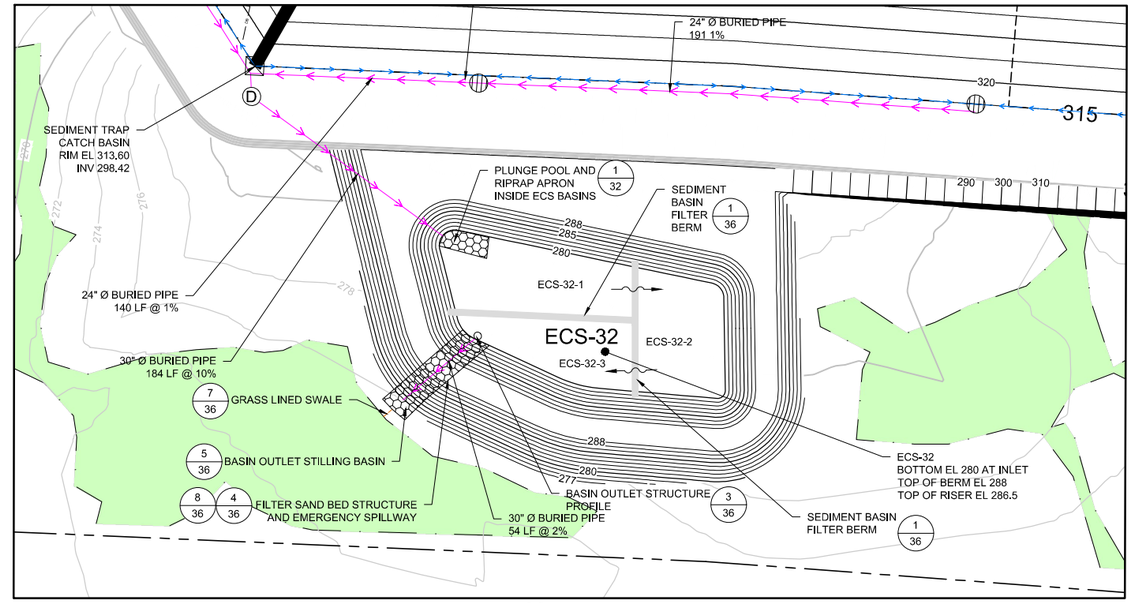
TITLE: SURFACE WATER MANAGEMENT DETAILS IV
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 34 OF 38

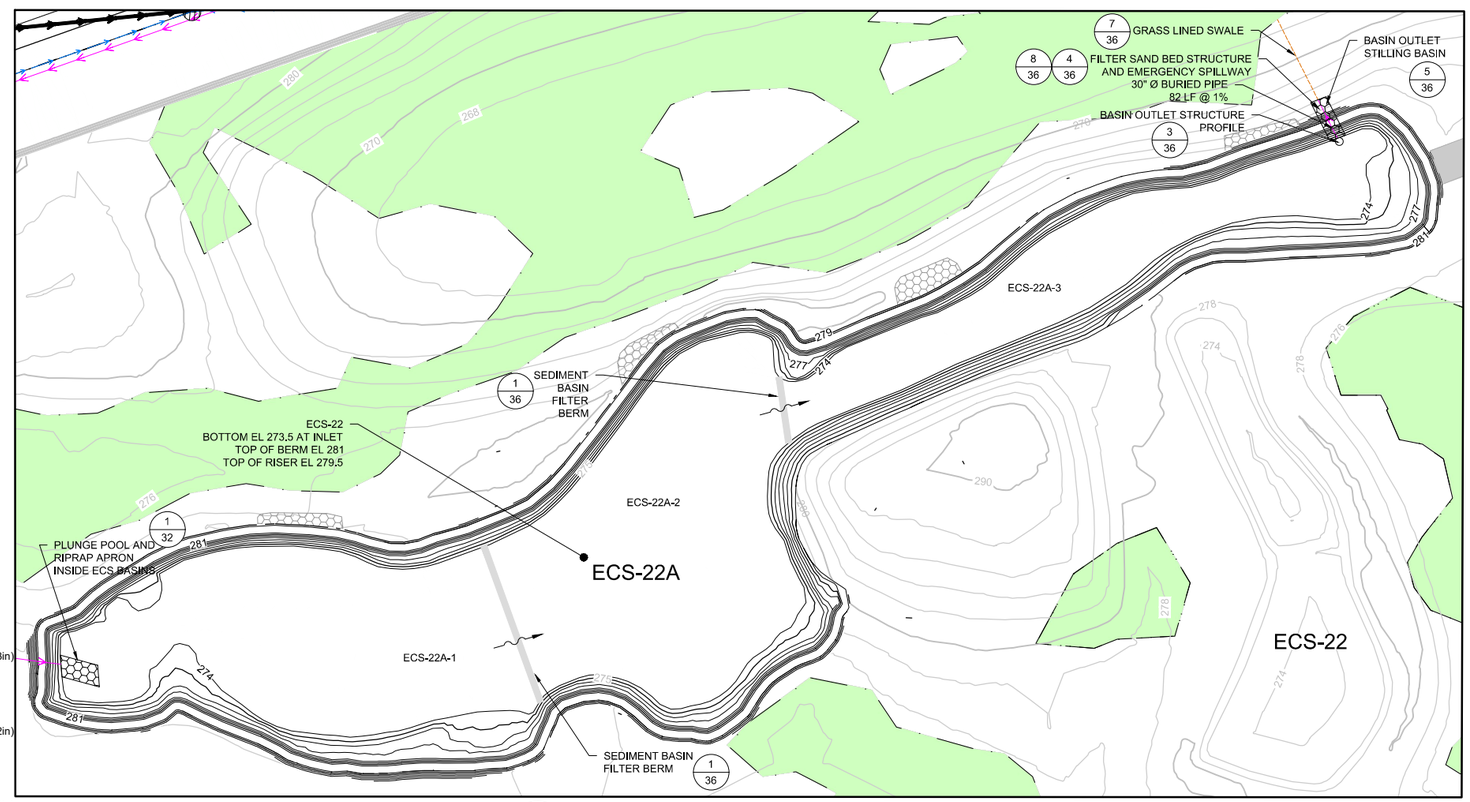
T:\PROJECTS_CADD\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D034 (DROP INLET STRUCTURE DET).DWG Last Edited by: jhaylor on 10/22/19



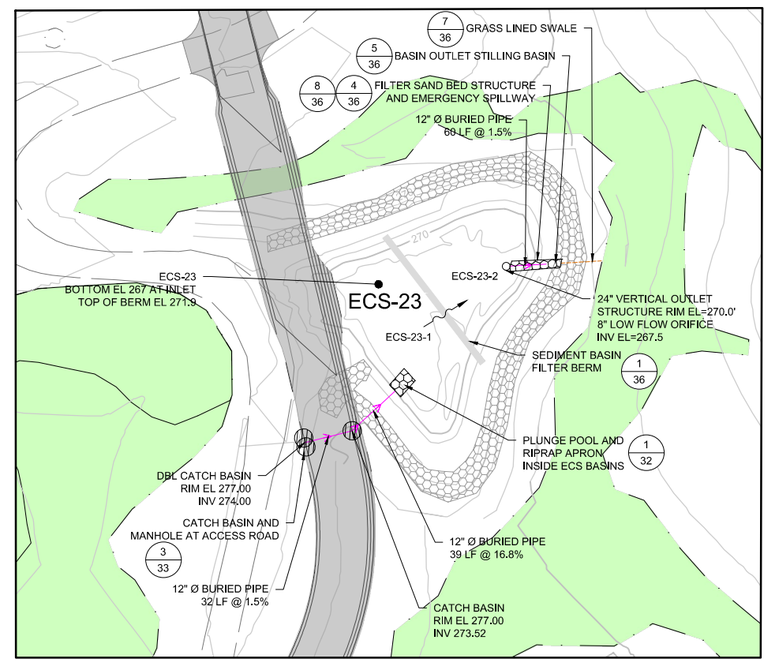
1 / 15 PLAN
ECS BASIN 33



2 / 15 PLAN
ECS BASIN 32



3 / 15 PLAN
ECS BASIN 22A



4 / 15 PLAN
ECS BASIN 23

NOTE:

1. REFER TO LEGEND ON DRAWING SHEET 15

0 50' 100'
SCALE IN FEET

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE — SCOTT M. LUTTRELL No. 7762 — PROFESSIONAL ENGINEER

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SIGNATURE — 24 OCTOBER 2019 DATE

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DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

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Geosyntec consultants
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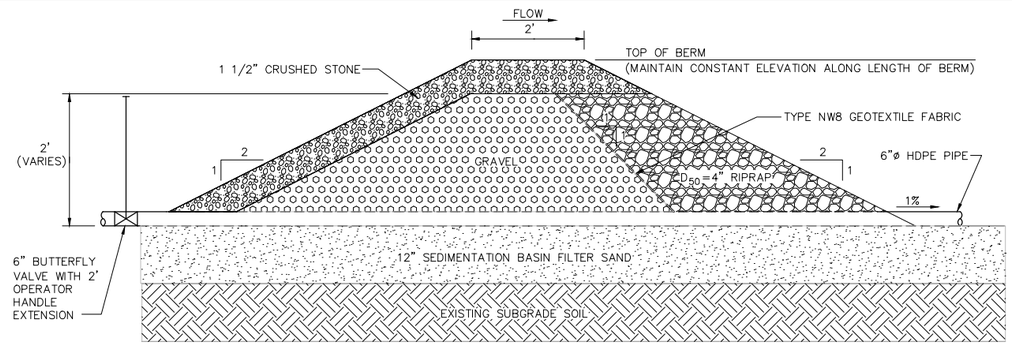
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

TITLE: ECS BASIN PLAN
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 35 OF 38

T:\PROJECTS_CADD\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D035 (ECS BASIN PLAN).DWG Last Edited by: jtaylor on 10/21/19



1/35 DETAIL
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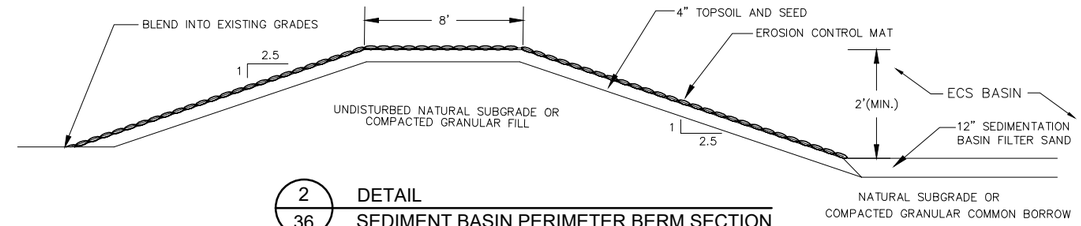
N.T.S.



2/36 DETAIL
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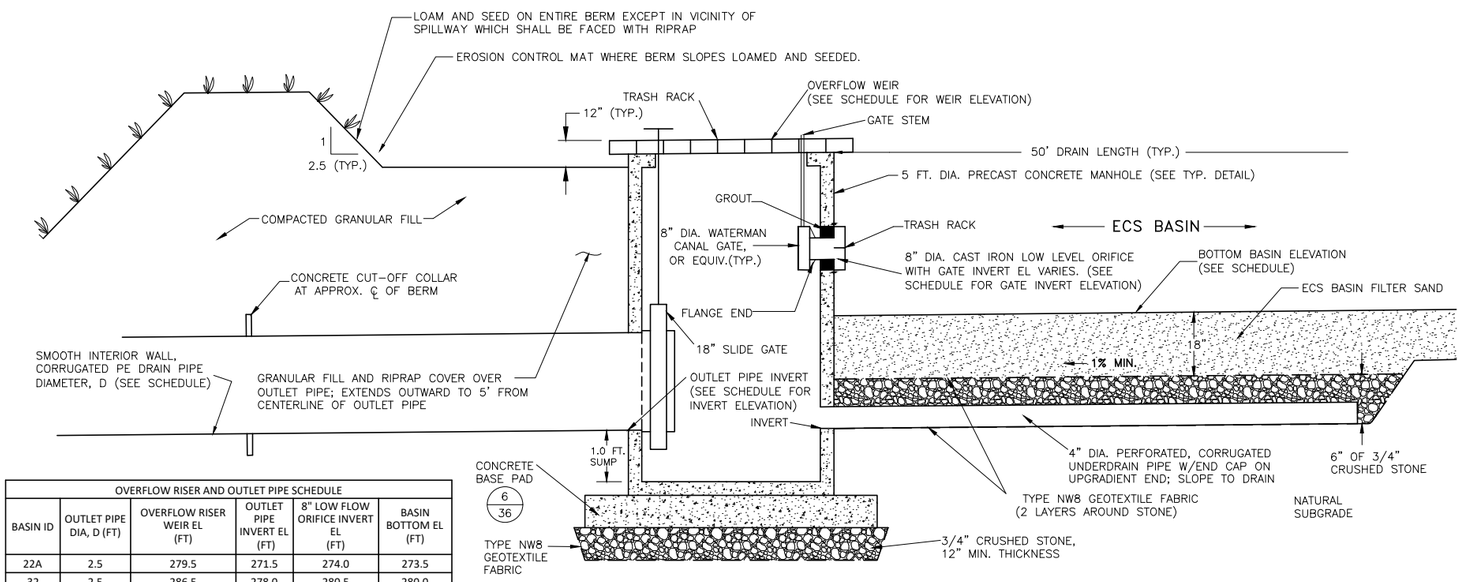
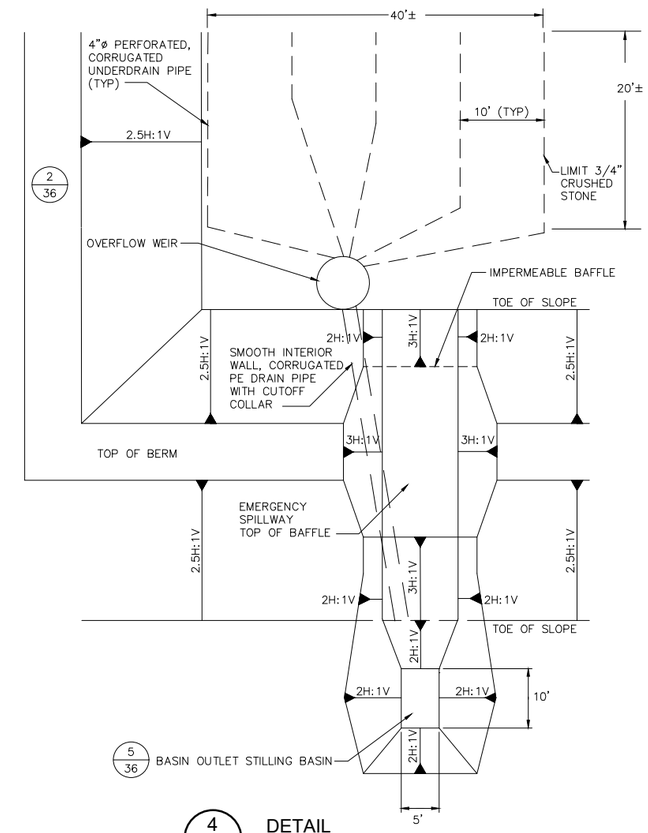
N.T.S.

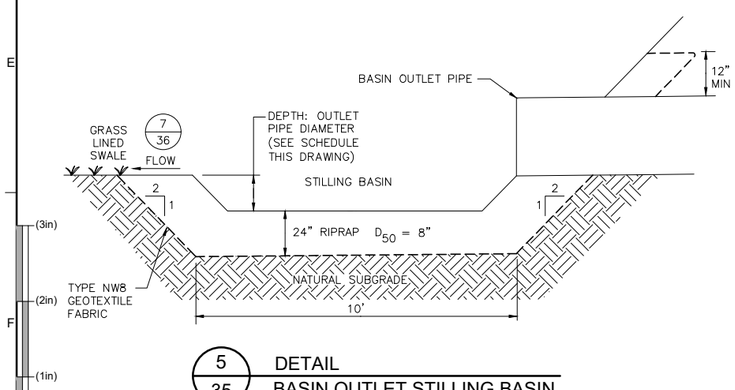


OVERFLOW RISER AND OUTLET PIPE SCHEDULE					
BASIN ID	OUTLET PIPE DIA, D (FT)	OVERFLOW RISER WEIR EL (FT)	OUTLET PIPE INVERT EL (FT)	8" LOW FLOW ORIFICE INVERT EL (FT)	BASIN BOTTOM EL (FT)
22A	2.5	279.5	271.5	274.0	273.5
32	2.5	286.5	278.0	280.5	280.0
33A	2.5	308.5	300.0	302.5	302.0
33B	2.5	308.5	300.0	302.5	302.0

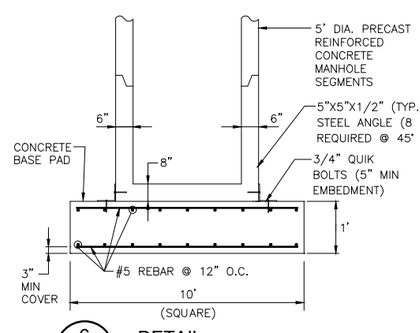
3/35 DETAIL
BASIN OUTLET STRUCTURE PROFILE
N.T.S.



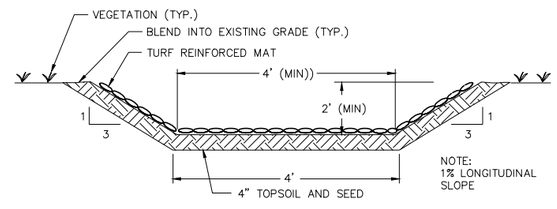
4/35 DETAIL
FILTER SAND BED STRUCTURE AND EMERGENCY SPILLWAY
N.T.S.



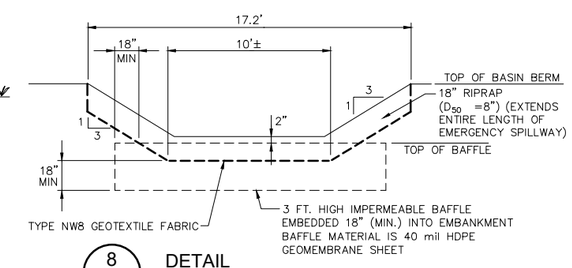
5/35 DETAIL
BASIN OUTLET STILLING BASIN
N.T.S.



6/36 DETAIL
RCP BASIN OUTLET STRUCTURE BASE PAD
N.T.S.



7/35 DETAIL
GRASS LINED SWALE
N.T.S.



8/35 DETAIL
CROSS-SECTION EMERGENCY SPILLWAY
N.T.S.

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE SCOTT M. LUTTICH No. 7162 LICENSED PROFESSIONAL ENGINEER

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDERING OR CONSTRUCTION UNLESS SEALED
SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY:	NJY
DRAWN BY:	JT / RK
CHECKED BY:	NJY
REVIEWED BY:	SML
APPROVED BY:	SML

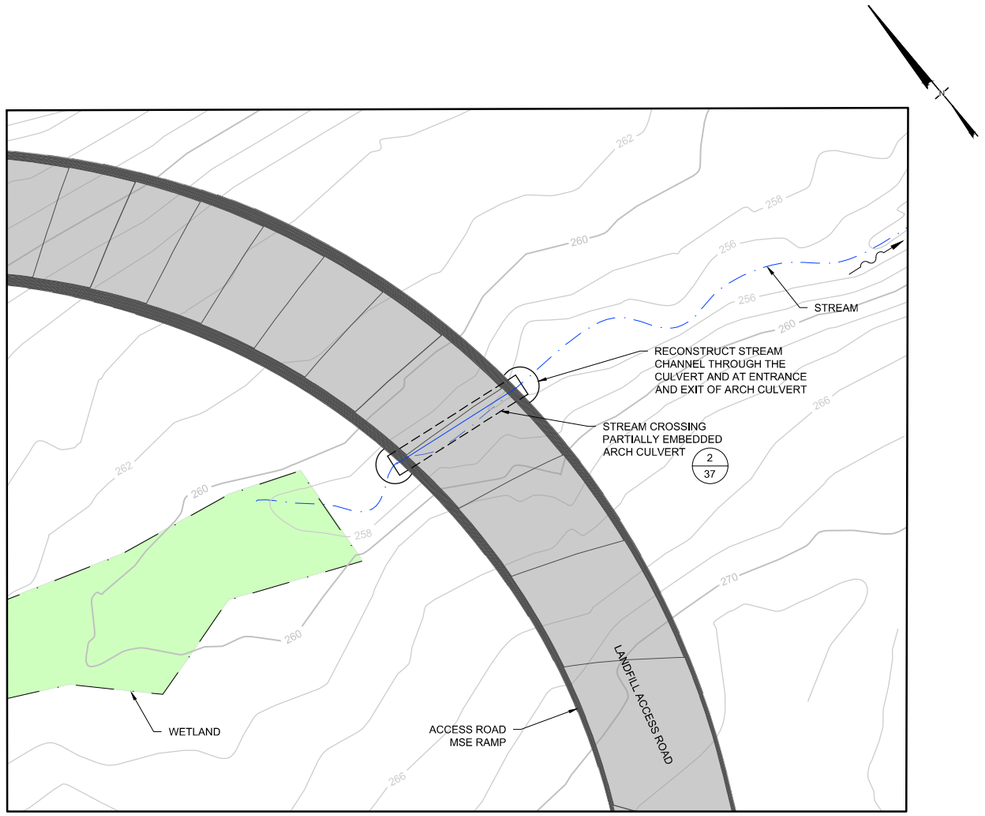
WM WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

TITLE: ECS BASIN DETAILS
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 36 OF 38

T:\PROJECTS_CADD\CI\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D036 (ECS BASIN DET) DWG Last Edited by: jtaylor on 10/22/19

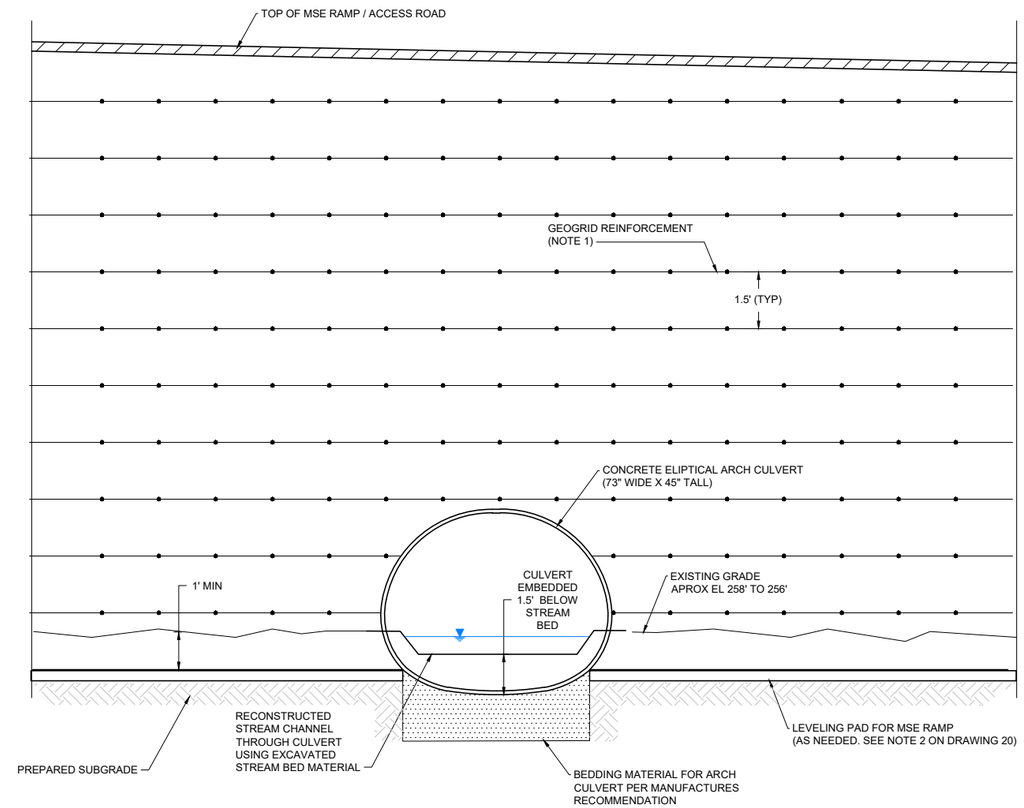


NOTE:

1. REFER TO LEGEND ON DRAWING SHEET 3.

0 20' 40'
SCALE IN FEET

1 / 14 PLAN
ACCESS ROAD MSE RAMP STREAM CROSSING



NOTE:

1. DETAIL OF REINFORCEMENT AROUND/OVER ARCH CULVERT TO BE SUBMITTED WITH SHOP DRAWINGS PRIOR TO CONSTRUCTION.

2 / 15 DETAIL
STREAM CROSSING PARTIALLY EMBEDDED ARCH CULVERT
NTS

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

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

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24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

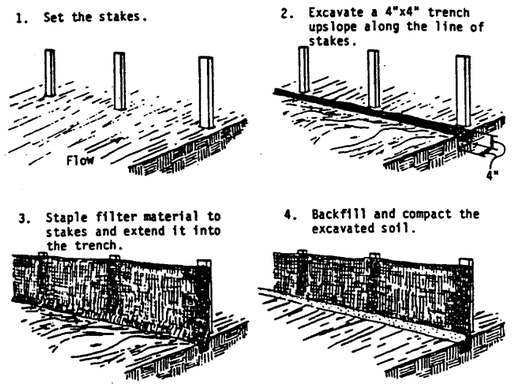
WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
357 MERCER ROAD
NORRIDGEWOCK, MAINE 04957
TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

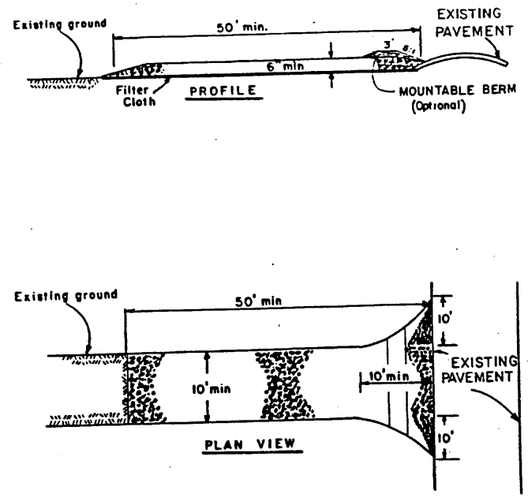
TITLE: ACCESS ROAD STREAM CROSSING DETAILS
PROJECT: PHASE 14 PERMIT APPLICATION
SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 37 OF 38

T:\PROJECTS_CADD\C\CROSSROADS LANDFILL\PHASE 14 EXPANSION\PERMIT\DRAWINGS\BE0232 D037 (ACCESS RD CULVERT CROSS).DWG Last Edited by: jhaylor on 10/23/19



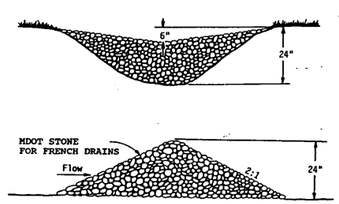
1 DETAIL
SILT FENCE



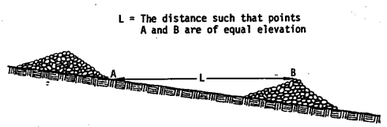
2 DETAIL
STABILIZATION CONSTRUCTION ENTRANCE

NOTES:

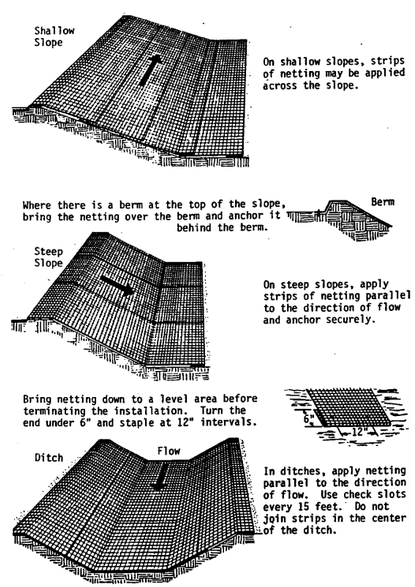
1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL AND MAINTAIN, THROUGHOUT THE LIFE OF THE PROJECT, ALL EROSION AND SEDIMENT CONTROL MEASURES AS NECESSARY SO THAT NO SEDIMENTATION AND/OR EROSION OCCURS DOWNGRADIENT OF THE WORK AREA.
2. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THESE PLANS, THE PROJECT SPECIFICATIONS, AND THE PROJECT EROSION AND SEDIMENT CONTROL PLAN.
3. THE SMALLEST PRACTICAL LAND AREA SHALL BE EXPOSED AT ANY ONE TIME.
4. WHEREVER POSSIBLE, DISTURBED AREAS SHALL BE SLOPED BY THE CONTRACTOR TO DRAIN INTO THE WORK AREA. TEMPORARY DITCHES SHALL DIRECT RUNOFF FROM SUCH AREAS TO TEMPORARY SUMPS, THAT SHALL BE LOCATED WITHIN THE WORK AREA AT LOCATIONS SELECTED BY THE CONTRACTOR. RUNOFF COLLECTED IN THE SUMPS SHALL BE PUMPED BY THE CONTRACTOR TO THE UPGRADIENT BAY OF A SEDIMENTATION (ECS) BASIN, INTO TANKER TRUCKS FOR DISPOSAL IN THE SITE INFILTRATION BASINS, OR AS DIRECTED BY SITE PERSONNEL.
5. AT A MINIMUM, SILT FENCE EROSION CONTROL STRUCTURES SHALL BE INSTALLED BY THE CONTRACTOR ALONG THE DOWNGRADIENT LIMITS OF WORK, INSTALLED AS SHOWN ON THIS SHEET, AND IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND STATE OF MAINE BMP'S.
6. ADDITIONAL TEMPORARY SILT FENCE SHALL BE INSTALLED BY THE CONTRACTOR AS WORK PROGRESSES TO LIMIT UNPROTECTED/UNCHECKED RUNOFF LENGTHS TO LIMIT SEDIMENTATION CAUSED BY EROSION OF BERM EMBANKMENTS UNDER CONSTRUCTION AS PART OF THE WORK.
7. SILT FENCE SHALL BE REGULARLY INSPECTED BY THE CONTRACTOR AND CQA PERSONNEL DURING THE LIFE OF THE PROJECT AND AFTER EACH STORM EVENT. ALL DAMAGED SILT FENCE SHALL BE REPAIRED AND SEDIMENT DEPOSITS SHALL BE REMOVED BY THE CONTRACTOR ON A REGULAR BASIS.
8. SEDIMENTATION (ECS) BASINS SHALL BE CLEANED BY THE CONTRACTOR AS NEEDED THROUGHOUT THE LIFE OF THE PROJECT, WITH THE ACCUMULATED SEDIMENT REMOVED TO A DESIGNATED LOCATION, SO AS TO PREVENT SILTATION OF NATURAL WATERWAYS DURING CONSTRUCTION.
9. THE CONTRACTOR SHALL REVEGETATE DISTURBED AREAS AS RAPIDLY AS POSSIBLE. ALL AREAS SHALL BE PERMANENTLY STABILIZED BY THE CONTRACTOR WITHIN 15 DAYS OF FINAL GRADING OR WITHIN 15 DAYS AFTER COMPLETING THE ROUGH GRADING OPERATIONS. AREAS WITHIN 100 FEET OF ANY WETLAND BOUNDARY SHALL BE TEMPORARILY OR PERMANENTLY STABILIZED BY THE CONTRACTOR WITHIN 7 DAYS OF FINAL GRADING.
10. BALED HAY AND MULCH SHALL BE MOWINGS OF ACCEPTABLE HERBACEOUS GROWTH, FREE FROM NOXIOUS WEEDS OR WOODY STEMS, AND SHALL BE DRY. IF HAYBALE BARRIERS ARE CONSTRUCTED, HAY SHALL BE CHINKED BETWEEN ADJACENT BALES.
11. THE CONTRACTOR SHALL INSTALL AND MAINTAIN ADDITIONAL TEMPORARY EROSION AND SEDIMENT CONTROL STRUCTURES AS CONSTRUCTION PROGRESSES, AS NECESSARY AND IN ACCORDANCE WITH STATE OF MAINE BMP'S, THROUGHOUT THE LIFE OF THE PROJECT. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO TEMPORARY SEEDING AND MULCHING, THE CONSTRUCTION OF TEMPORARY STONE CHECK DAMS IN TEMPORARY AND/OR PERMANENT DRAINAGE SWALES PRIOR TO THE ESTABLISHMENT OF THE PERMANENT LINING, AND THE USE OF HAYBALE BARRIERS TO REDUCE EROSION AND SEDIMENTATION OF SLOPES.
12. ALL DISTURBED AREAS SHALL HAVE A MINIMUM OF 4 INCHES OF TOPSOIL PLACED BEFORE BEING SEEDED AND MULCHED, UNLESS AN ALTERNATIVE SURFACE TREATMENT IS SPECIFIED.
13. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, AND WITH THE APPROVAL OF THE OWNER, THE TEMPORARY EROSION CONTROL STRUCTURES SHALL BE REMOVED AND ACCUMULATED SEDIMENT SHALL BE DISPOSED OF IN A LOCATION DESIGNATED BY THE OWNER. ANY DISTURBED SOIL RESULTING FROM THIS WORK SHALL BE SEEDED AND MULCHED BY THE CONTRACTOR AS REMOVAL WORK PROGRESSES.



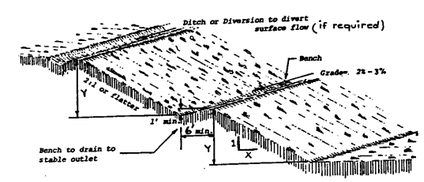
SLOPE (ft./ft)	LENGTH (ft./ft.)
0.020	100
0.030	66
0.040	50
0.050	40
0.080	25
0.100	20
0.120	17
0.150	13



3 DETAIL
ROCK CHECK DAM



4 DETAIL
EROSION MAT INSTALLATION



SLOPE DETAIL (WITH BENCH)

X	Y (MAX.)
2	20
3	30
4	40

5 DETAIL
TEMPORARY BENCHES

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

PERMIT DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP

STATE OF MAINE
SCOTT M. LITTLEFIELD
No. 7162
LICENSED PROFESSIONAL ENGINEER

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDERING OR CONSTRUCTION UNLESS SEALED.
SIGNATURE
24 OCTOBER 2019
DATE

DESIGN BY: NJY
DRAWN BY: JT / RK
CHECKED BY: NJY
REVIEWED BY: SML
APPROVED BY: SML

WASTE MANAGEMENT
WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.
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TELEPHONE: (207) 634-2714

Geosyntec consultants
289 GREAT ROAD, SUITE 202
ACTON, MASSACHUSETTS 01720 USA
PHONE: 978.263.9588

TITLE: EROSION AND SEDIMENTATION CONTROL STANDARD DETAILS

PROJECT: PHASE 14 PERMIT APPLICATION

SITE: CROSSROADS LANDFILL NORRIDGEWOCK, MAINE

DATE: OCTOBER 2019
PROJECT NO.: BE0232C
DRAWING NO.: 38 OF 38

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Attachment 6.

Additional Plans

No additional plans have been included in the Phase 14 NRPA Permit Application. Please refer to Attachments 5, 9 and 12 for additional mapping.

Attachment 7.

Construction Plan

Attachment 7. Construction Plan

Construction Plan

The proposed Phase 14 project will be constructed in phases over the course of approximately 17 years, beginning with initial cell construction occurring in 2022 and continuing into approximately 2039, depending on the volume of waste deposited at the site during this time period. Overall site development will begin by installing supporting infrastructure, such as the access road, mechanically stabilized earth (MSE) ramp, culvert/road stream crossing, landfill gas main, leachate transfer pipe, and upgrades to stormwater basins ECS-22 and ECS-23. Much of this work is projected to commence in 2021.

As shown on Sheet 7 of the Permit Drawings presented in NRPA Attachment 5 (above), as well as in Appendix IV(a) of the Landfill Engineering Report within Volume IV of the Solid Waste Permit Application, Phase 14 will consist of five cells, referred to as Phases 14A through 14E. The cells will essentially be constructed sequentially, starting with the initial construction of Phases 14A and 14B. These cells are being constructed concurrently due to the limited size associated with Phase 14A that if constructed solely would yield minimal initial capacity (i.e. less than one year). Construction of the Phase 14 landfill will begin by excavating the existing in-situ soils to the required subgrade elevations. In some locations this will require over excavation of an existing silty sand layer and placement of a silt clay layer to designed subgrade. This effort will be followed by building the perimeter berm, as shown on Sheets 4 and 5. The liner and leachate collection system will then be installed at the grades shown on Sheets 6 and 7. Two new stormwater basins (ECS-32 and ECS-33 shown on Sheet 15) will be constructed during development of the landfill cells to manage stormwater during construction, landfill operations and post-closure.

Solid waste will be placed in the Phase 14 landfill incrementally as shown on Sheets 8 through 12, starting with Phase 14A and progressing through 14E, until approved final waste grades have been achieved. Installation of the final cover system will then be sequentially completed once waste placement to the desired grades are accomplished over portions of the landfill as depicted on Sheets 10, 11, and 12, until Phase 14 no longer accepts waste and is completely closed.

Attachment 8.

Erosion Control Plan

Attachment 8. Erosion Control Plan

Erosion Control Plan

WMDSM and the contractors selected to work on the proposed Phase 14 project are committed to controlling erosion and sediment throughout all construction and operational phases. Site-wide erosion and sediment control measures that are implemented by WMDSM during and after the landfill cell construction are described in Section IX of WMDSM's Site Operations Manual which is included in Attachment 8A (also provided in Volume V of the Solid Waste Permit Application). Additionally, a temporary erosion control construction specification describing the required erosion and sediment controls for landfill construction at Crossroads is included in Attachment 8B (also provided in Volume VI of the Solid Waste Permit Application). Other erosion and sediment control details are provided on Sheet 38 of the Engineering Design drawing in NRPA Attachment 5.

Detailed erosion prevention and sediment control (EPSC) plans and drawings will be developed in advance of construction activities and presented to MEDEP for review and comment. These plans will be utilized by the selected contractors to prevent erosion and sedimentation during and following construction. These plans will be provided to MEDEP as part of the Landfill Cell Construction Package for Phase 14A/14B, 14C, 14D and 14E.

Attachment 8A:

Section IX of WMDSM's Site Operations Manual

SECTION IX

EROSION CONTROL PLAN

REVISION BLOCK				
REV. NO.	DATE	PAGES AFFECTED	DESCRIPTION	BY
0	April 99	All	1999 annual update w/ Dec 96 Erosion Control Plan	n/a
1	April 00	Rev. block only	Annual review; no changes	WMDSM/GZA
2	Dec. 01	All	2001 annual update	WMDSM/GZA
3	Dec. 02	Section 3.0	2002 annual update	WMDSM
4	Dec. 03	Section 3.0 (edits tracked)	2003 annual update	WMDSM
5	Dec. 04	Edits tracked	2004 annual update	WMDSM
6	Dec. 05	Edits tracked	Accepted 2003 and 2004 edits, 2005 annual update	WMDSM
7	Feb. 08	Edits tracked	Accept 2005 edits; annual update	WMDSM
8	Dec 16	Edits tracked	Accepted 2008 and 2010 edits; 2016 annual update	WMDSM
* "TOC" refers to the Table of Contents				

SECTION IX
EROSION CONTROL PLAN

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2.2 SITE OPERATIONS REQUIRING EROSION AND SEDIMENTATION CONTROLS 3

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TABLE 1

GENERAL EROSION CONTROL MEASURES FOR CONSTRUCTION

1.0 GENERAL

Erosion and sediment control is the proper planning, implementation, and stabilization of all activities that involve or result in the disturbance of soils in order to avoid significant movement of the soil materials to downgradient receptors or its release as fugitive dust. This Erosion Control Plan (ECP), together with construction-project-specific Erosion and Sedimentation Control Plans and the WMDSM Storm Water Pollution Prevention Plan (SWPPP), set forth the strategy by which erosion and sediment control is accomplished for all activities at the Crossroads facility.

Specifically, this ECP relates to the day-to-day maintenance and non-industrial operations of the Crossroads facility. Non-industrial operations would be those operations that do not involve the handling or disposal of solid waste. Maintenance and non-industrial operations activities at the Crossroads facility often involves disturbing and/or moving soil material. Fine-grained soil material underlies much of the site and is easily eroded and difficult to remove from suspension once in stormwater runoff.

In addition to this ECP, each major construction project (those projects completed by outside contractors) will be required to have a project-specific Erosion and Sedimentation Control Plan. Federal regulations require a SWPPP be developed and implemented for all industrial sites, such as the Crossroads facility. The WMDSM SWPPP is included as Section V of this Site Operations Manual. The SWPPP is intended to cover all industrial activities that are undertaken at the facility, primarily the secure landfill operation. Although the provisions of the ECP and the SWPPP are intended to be comprehensive (cover all activities on the facility) and to complement each other, the requirements of the SWPPP take precedence over the ECP where there are conflicts.

1.1 OBJECTIVES

The objectives of this ECP are to:

- Outline the temporary erosion and sedimentation control measures to be implemented by site personnel while completing on-site activities;
- Provide an overview of the permanent erosion control devices established at the facility;
- Provide guidelines for implementing, monitoring, and maintaining the temporary and permanent erosion control measures; and
- Outline the parties responsible for implementing the ECP.

1.2 NECESSITY FOR STRICT EROSION AND SEDIMENT CONTROLS

The necessity for controlling erosion and sediment across the site is to avoid impairment of the receiving areas (wetlands or uplands) and waters (drainageways, intermittent streams, tributaries of Mill Stream). Many developed areas of the site are located immediately adjacent to wetland areas. The Crossroads facility lies within the Mill Stream watershed; with tributaries to Mill Stream running through or adjacent to portions of the site. Mill Stream flows into the Kennebec River in

Norridgewock. Neither Mill Stream nor the Kennebec River at Norridgewock are considered "waterbodies most at risk from development" (06-096 CMR 502). Further, WMDSM's operating permits require strict erosion control and prohibits the discharge of turbid water from the facility.

1.3 RESPONSIBILITIES AND AUTHORIZATIONS

All WMDSM personnel share responsibility for properly implementing and monitoring the erosion and sediment control strategy outlined in this ECP. However, erosion and sediment control is ultimately the responsibility of the District Manager. The Operations Supervisor has responsibility for operation and maintenance of the erosion control devices, with the District Engineer responsible for compliance issues.

2.0 EROSION AND SEDIMENT CONTROL FOR SITE OPERATIONS

This section of the plan outlines: key erosion and sedimentation control concerns for this facility, typical operations activities that have the potential to result in erosion and sedimentation, control strategies to consider prior to undertaking operations activities that result in the disturbance of site soils (advanced planning), and the use and application of best management practices (BMPs) for controlling erosion and sedimentation for site operations. The BMPs are based upon the Maine Department of Environmental Protection's March 2015 manual entitled "Maine Erosion and Sediment Control Practices Field Guide for Contractors: Best Management Practices" (BMP Manual). The BMP Manual is incorporated by reference into this ECP. Note, site BMP's installed and established prior to 2015 may be different than BMP's described and suggested in the BMP Manual.

2.1 KEY CONCERNS - NATURE OF SITE SOILS

The predominant soil types underlying the Crossroads facility are a fine-grained silt and clay and uniform fine sand. The silt and clay soil is highly susceptible to erosion and, once in suspension, difficult to remove. Once the fine-grained material is suspended, standard BMPs to remove the material have limited effectiveness due to the material being colloidal in nature and, therefore, the excessive time that is required for the fine-grained particles to settle out. These soils typically have a high runoff potential and low infiltration rates. This means that a small amount of rain can result in substantial runoff. Other soils that can be transported in stormwater runoff are the uniform fine sand that also exists at the facility and is sometimes used as a construction material and unstabilized topsoil.

In many cases, it is not possible to eliminate the source of turbidity. Therefore, this ECP recognizes the characteristics of these materials and includes provisions to remove the materials from the runoff. However, it is important to remember that THE MOST EFFECTIVE CONTROL IS TO PREVENT AND MINIMIZE the suspension of this material by stabilizing work sites as soon as practicable.

2.2 SITE OPERATIONS REQUIRING EROSION AND SEDIMENTATION CONTROLS

All site activities should be completed in a manner that controls erosion and sedimentation. In many respects, the design of the facility, specifically the permanent BMP infrastructure, is such that runoff from developed portions of the facility is collected and conveyed via swales and culverts to erosion control structures (sedimentation basins and infiltration basins) for treatment prior to discharge to receiving areas/waters. Specific maintenance and non-industrial operations activities that require special attention to erosion and sedimentation control include, but are not limited to:

- Access road cleaning, dust control, and maintenance;
- Hauling and stockpiling daily and intermediate cover materials;
- Litter control; specifically with regard to potential for fouling erosion control structure outlets;
- Maintenance of erosion control structures; particularly the outlet structures;
- Small construction activities completed by site operations personnel; and
- Any activity that results in the disturbance of soils in undeveloped portions of the site.

2.3 MAINE BMPs AND APPLICATION TO FACILITY OPERATIONS

Standard and accepted BMPs have been established for controlling erosion and sedimentation. Detailed discussion of the BMPs is provided in the BMP Manual. Table 1 provides a general summary of temporary and permanent BMPs that are typically implemented for construction projects at the Crossroads facility. Most of the temporary and permanent BMPs identified are designed for and constructed as part of larger construction projects typically performed by outside contractors. Some of the temporary BMPs shown in the table can be implemented as part of facility operations, as necessary.

During the operation of the facility, certain activities may occur outside of the watershed tributary to the erosion control structures. For these activities, the BMPs for erosion and sediment control are of particular importance. Key BMPs for operational activities include:

- ***Straw or hay mulch*** is used to provide cover for disturbed or seeded areas until revegetation is established. Mulch placed on slopes greater than 15% will likely be anchored by applying a soil binder (tackifier) and use of an approved netting. Mulch on slopes of less than 15 percent may be anchored by applying a soil binder (tackifier) without the use of netting. Water alone may be used to anchor mulch on slopes less than 8 percent if construction occurs during the growing season, but 3 percent or less if construction occurs during the dormant season. Mulch application rates are provided in the BMP Manual and the Technical Specifications (Section 02800, "Placement of Topsoil and Hydroseeding").

- ***Silt fence*** is used to trap sediments within runoff water until disturbed areas are stabilized with riprap or grass cover. Silt fence is installed along the downgradient side of all construction and maintenance projects. Multiple rows of silt fence should be used to reduce the runoff length between silt fence barriers and in locations adjacent to sensitive areas.

- ***Hay bales*** are used to trap sediments and reduce runoff velocities. Hay bales are often used at key locations to supplement the silt fence. Hay bales should not be placed in channels (ditches) as excessive erosion and undermining often results.

- ***Stone or bark mulch (erosion control mix) check dams*** are temporary erosion/sedimentation control devices intended to reduce runoff velocities within drainage ditches by creating small dikes across the drainage ditch which act as plunge pools or sediment traps.

- All ditches not receiving riprap lining or interim geomembrane cover should be temporarily stabilized with a biodegradable ***erosion control mat*** until grass is established.

- Conditions may warrant the installation of a ***temporary sump*** where runoff can be collected and pumped to one of the erosion control structures.

2.4 SEQUENCING OF BMPs

- Provide for erosion control and have control measures, such as silt fence, in place before areas are disturbed.
- Limit the amount of exposed area.
- Revegetate disturbed areas as rapidly as possible. All areas should be permanently stabilized within 15 days of final grading or within 15 days after completing rough grading. Areas within 100 feet of any wetland boundary should be temporarily or permanently stabilized within 7 days of final grading.
- Additionally, if construction is planned between October 15 and May 1 of any calendar year, then once final grade has been established, place dormant seed within the disturbed areas prior to mulching as outlined in the BMP Manual. If dormant seeding is used for the site, all disturbed areas shall receive adequate topsoil and seed at a depth and rate, respectively, outlined in the BMP Manual.

2.5 ADVANCED PLANNING TO AVOID EROSION AND SEDIMENTATION ISSUES

At a minimum, evaluate the following items prior to undertaking any maintenance, investigative, and/or limited construction work that requires or results in the disturbance of soils:

- Protection afforded by existing BMPs;
- Nature and proximity of sensitive receptors, such as wetlands;
- Topography and existing cover (gravel, pavement, topsoil) of work area; and
- Time of year and recent weather conditions with respect to probable type and potential intensity of precipitation, saturation of surface soils, infiltration capacity of surface soils, and ability to stabilize disturbed areas.

Based on the evaluation, select an appropriate time to complete the work and determine which BMPs should be implemented.

The following rules of thumb should be considered when planning work activities:

- Periods of lowest runoff historically occur during summer months and major work should be scheduled accordingly. Note, however, that short but intense storm events can occur with little warning during summer months.
- Runoff rates are significantly higher after precipitation events have raised the soil moisture content. Schedules need to have enough flexibility such that work can be suspended during periods of wet soil conditions, if necessary, without jeopardizing the work or surrounding areas.
- Establishment of permanent vegetative cover is more challenging after mid-September/ early-October. Therefore, activities should be planned to allow large disturbed areas to have permanent cover placed and mulched by mid-September. If this is not possible, temporary seeds (or modified seed mixes with faster growing species) and mulches will be needed. However, these are generally less successful than the permanent covers and can result in a large area being susceptible to erosion during winter conditions and spring runoff.
- Frozen ground and snow pack can provide protection from disturbance due to moving equipment and can allow limited types of work to be completed without substantial risk, such as road or berm construction, as long as any fill is properly placed and appropriate BMPs are utilized to protect the fill surface.

3.0 PERMANENT BMP INFRASTRUCTURE

This section of the ECP provides an overview of the existing permanent BMP infrastructure at the site. The permanent BMP infrastructure includes a conveyance system consisting of swales and culverts that collect and convey stormwater runoff from most developed portions of the site to a network of sedimentation (detention) basins and infiltration basins. Additionally, the access road network at the facility is graded to shed runoff into the conveyance system and selected (high traffic) portions of the access road network are paved to control fugitive dust and promote runoff into the conveyance system. Refer to Appendix IA in Section IA (General) for a site plan that depicts the operations areas on the site as well as the network of basins that are referred to as Erosion Control Structures (ECSs).

The design and construction of the conveyance and ECS network is the responsibility of outside consultants and contractors. However, because site operations personnel are responsible for operating and maintaining the conveyance and ECS network, an overview of the permanent BMP infrastructure established at the facility is provided in this ECP.

3.1 SEDIMENTATION AND INFILTRATION BASIN SYSTEM DESCRIPTION

, The current ECS network consists of four infiltration basins (ECS 22, 22A, 23, and 28) and 11 sedimentation (detention) basins (refer to the site plan). Record drawings of the basins are maintained at WMDSM's main office.

The infiltration basins are located in the vicinity of the Tire Processing Facility and on-site sand borrow area. Please note that ECS 22A is a northeasterly extension of ECS 22 and is not shown on the site plan. The infiltration basins are underlain by natural sand deposits and are typically equipped with riprap-lined emergency spillways to accommodate high flow conditions. Riprap stilling basins or plunge pools are provided at the discharge points of the emergency spillways to dissipate outlet velocities prior to discharging into a grass treatment swale that blends into the natural topography.

The 11 sedimentation basins include ECS 3A, 3B, 20, 21, 24, 25, 26, 27, 29, 30, and 31. Flows into ECS 3A are predominately from off-site areas and the basin outlet allows the flow to be diverted around downgradient basin ECS 3B that treats flows from active portions of the site. Commencing in 1994, the overall design of most of the sedimentation basins on the site was standardized; these basins include all the existing sedimentation basins except ECS-3A.

ECS 17 was decommissioned as part of Phase 9 construction in 2001. ECS 10, 12, and 13 were decommissioned and ECS 26 constructed as part of Phase 12 construction in 2002. ECS 29 was constructed in late 2002 as part of Phase 8A construction. ECS 29 replaced ECS 9, 15, and 16 that were all within the Phase 8A construction area, as such ECS 9, 15, and 16 were decommissioned. ECS-18 was decommissioned in 2004 as part of Phase 8B construction. ECS-19 was

decommissioned and replaced with ECS-30 in 2005 as part of Phase 8C' construction.

Typically, the ECS berms have 3H:1V or 2H:1V slopes. The 3H:1V berm slopes are loamed and seeded, with erosion control mat. The 2H:1V berm slopes received riprap underlain by a nonwoven geotextile fabric. Berm heights are typically less than about 6 to 8 feet above surrounding grades. Berm top widths are maintained at about six feet. Filter berms are provided in each basin to aid in the settlement and partial removal of sediment from stormwater. The filter berms typically have a constant crest elevation and are armored along their length with 1-1/2-inch crushed stone on the upstream side and riprap on the downstream side, and are equipped with overflow notches and valved by-pass pipes. Most of the basins are also equipped with a filter bed and/or underdrain system to further filter fine soil particles and reduce total suspended solids concentrations from basin outflows. The systems consist of filter sand, 4-inch-diameter ADS perforated pipes, geotextile fabric, and crushed stone. The underdrain systems connect to the primary outlet structure, allowing for positive drainage and cleaning. The filter bed/underdrain systems have been effective at removing suspended sediment prior to discharge of stored stormwater under most operating conditions.

The primary outlet structure for most of the basins consists of a 5-foot-diameter reinforced concrete riser (manhole) and outlet pipe (RCP or, preferably, corrugated exterior, smooth interior, ADS N-12 pipe) fitted with an anti-seep collar. The underdrain pipes discharge into the riser structure. The riser is equipped with two inlets: (1) a small-diameter, gated low-level orifice; and (2) an overflow weir at the top of the riser. The overflow weirs are fitted with trash racks. The gated, low-level outlet allows for manual control of outflows when water levels are below the primary overflow weir. The design elevations of the gated low-level orifice and the overflow weir have been set, to the extent practicable, to eliminate discharge through the overflow weir during a 25-year design storm event, thereby increasing storage capacity and retention time, and providing a redundant emergency outlet. These provisions increase the quiescent settling of particulate matter and provide the ability to throttle basin discharges, thereby allowing WMDSM personnel to partially control the quantity and quality of stormwater discharge from the site. The outlet pipes from most of the primary outlet structures are also gated for additional operating flexibility.

Most of the basins are equipped with riprap-lined emergency spillways to accommodate flows from a 25-year design storm. Riprap stilling basins or plunge pools are provided at the discharge points of the basin outlet pipes and emergency spillways to dissipate outlet velocities prior to discharging into grass treatment swale(s) that blend into the natural topography.

To allow WMDSM greater control of stormwater discharges, stormwater forcemains run from ECS 29 to ECS 21, and from ECS 21 to infiltration basins ECS 28, 22, and 22A. This allows WMDSM to pump water that is too turbid to

discharge into an infiltration basin. Tanker trucks have also been used to transfer turbid water from the sedimentation basins to the infiltration basins.

3.2 SEDIMENTATION BASIN OPERATION

As discussed above, the sedimentation basins located on the Crossroads site are intended to trap and store sediment that may be present in runoff from developed portions of the facility. These basins have multi-stage outlets that 1) can prevent water other than the water that passed through the filter bed/underdrain system from discharging from a basin by closing the valve on the low-level orifice or 2) can prevent discharge from the basin by closing the valve on the basin outlet pipe.

Note the following basin does not have a gated outlet pipe:

BASINS	COMMENTS
ECS 20	basin handles runoff from the southeast portion of the Asbestos landfill that was closed and stabilized in 1994.

To take advantage of the increased storage volume and to provide additional settling time, it is recommended that prior to forecasted large storm events, the valves at the stormwater basins be closed. During a storm event, a decision on whether to open a valve should be made by the Operations Supervisor using the following guidelines:

- If the water entering the basin's filter bed bay is not visibly turbid and the discharge from the underdrain is not visibly turbid, the valve on the low-level orifice and the valve on the basin outlet pipe may be opened. Prior to opening a valve, consideration should be given to the condition of the tributary area to the basin (i.e., are there any open/disturbed areas in the tributary area). Inflow into the basin, the water level relative to the low-level orifice, and discharge from the underdrain system should be monitored frequently during the storm.

- If the runoff entering the basin's filter bed bay becomes turbid, the valve on the low-level orifice should be closed.

- If the water level in the basin approaches the invert of the low-level orifice, closing the valve should be considered in light of the anticipated intensity and duration of the storm event.

- If the underdrain discharge becomes visibly turbid, the valve on the basin outlet pipe should be closed. Pumping operations to transfer the water to an infiltration basin should be considered in light of the anticipated intensity and duration of the storm event.

- If there is initial turbidity observed in the water entering the basin or being released from the underdrain, keep the valves closed. Commence the pumping operation if storage volume is insufficient to manage storm event and any predicted weather.

The pump and/or haul operations at the Crossroads facility are intended to reduce the amount of turbid water stored in the erosion control structures. The pumps for the stormwater forcemain should be readily available for mobilization when significant rainfall events are predicted. The pump and/or haul operation is initiated if the runoff discharging from the underdrains is visibly turbid and the water level in the basin is such that additional precipitation may result in overtopping the 5-foot diameter overflow weir. Pumping should continue until the storm event subsides and the water level within the basin is well below the top of the 5-foot diameter overflow weir and/or the turbidity of the water existing in the basin is eliminated.

Use of the forcemain to transfer stored water from the sedimentation basins to the infiltration basins may also be used as a management strategy between storm events.

4.0 INSPECTION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES

4.1 GENERAL

Inspections and maintenance of temporary and permanent erosion and sediment control measures will be performed in accordance with CYCLE discussed within the Environmental Compliance Program (Section IC) of this Site Operations Manual. Typical inspection and maintenance tasks include, but are not limited to:

- Ensure the valves in each basin are functioning properly;
- Remove accumulated sediment from sand filter beds as needed;
- Inspect and repair filter berms as needed, ensuring that an approximately constant crest elevation is maintained;
- Clean stormwater manholes, catch basins, and culverts as needed;
- Maintain swales free of debris;
- Clear debris from inlet grates and trash racks as needed;
- Grade gravel access roads on a routine basis, ensuring design cross-slopes are maintained and loose debris is not windrowed along the edge of the road.

The CYCLE Coordinator will distribute the CYCLE tasks regularly. If an emergency condition exists; repairs, servicing, and replacement of the erosion control measures should be completed immediately. The facility should maintain sufficient quantities of certain erosion and sedimentation control materials on-site; to include, but not be limited to silt fence, hay bales, and erosion control mix to initiate emergency repairs and install emergency measures.

4.2 INSPECTIONS

4.2.1 Inspecting Facility During/After a Storm Event

Drive throughout the facility with particular emphasis on a travel route that will allow observation of the stormwater conveyance system and the sedimentation and infiltration basins, as well as recent haul routes and any recent construction projects. Your route will not always be the same. Especially during rain, your observations should focus on runoff patterns and surface water quality.

If turbidity is observed, you should attempt to follow the runoff upstream far enough to identify the source. Note the source and see if corrective action can be taken. It may be either a point source (attributed to a definite erosion problem) or a non-point source where the source is less easily identified. Examples of a point source would be an eroding ditch. (Non-turbid water enters the ditch and exits the channel with high turbidity due to erosion). A non-point source might be a gravel roadway that is currently being used. (Non-turbid water enters the area but a considerable distance downstream it is turbid.) An exact source cannot be identified but it is apparent that it is due to small amounts of runoff with some turbidity over the entire length of the road.

Mill Stream and its primary tributaries should be observed to the extent practicable. The Crossroads facility contains many wetlands and receives runoff from off-site areas. It is possible that you might observe turbidity in drainageways that is not the result of activities at Crossroads, but come from an upstream source or wildlife activity in the wetlands. (The activity of beavers in the wetlands is an example). Use the same procedure to identify the source as you use for on-site activities and report it to the Operations Supervisor.

4.2.2 Inspecting Sedimentation Basins During a Storm Event

During a major storm event operations personnel need to closely monitor the basins. The term "major storm event" is defined as one that will yield large runoff volumes. Basin operations are discussed in Subsection 3.2. The daily (24-hour) rainfall amounts listed in the following table would typically be expected to yield high runoff volumes. Other factors that should be considered include amount of water retained in the basins at the start of the storm; ice conditions in the basins; season, snow pack, and temperature conditions.

GROUND CONDITION	24-HOUR RAINFALL CLASSIFIED AS A MAJOR RAINFALL (INCHES)
Dry (near drought)	1½
Normal	¾
Wet (periods of rain have occurred during the past 3 days or during spring runoff)	½
Frozen (without snow cover or with saturated snow)	½
Frozen (with dry snow cover)	¾

4.2.3 Inspection of Recently Completed Operational Construction Projects

Leave silt fence in place until vegetation is established. Check surface materials on a routine basis. Check the site during and after rainfalls that occur just after construction to see if the site is secure and not eroding. If erosion is observed, repair the damage immediately. If there are concerns that erosion may occur, review with Operations Supervisor.

5.0 TRAINING AND EMPLOYEE/NEW CONTRACTOR ORIENTATION

5.1 WMDSM PERSONNEL

Crossroads personnel should receive formal documented training on this ECP, as well as annual refresher training. It is intended that this training be covered as part of the NPDES MSGP (SWPPP) training program. The Operations Supervisor shall be responsible for all training requirements.

5.2 OUTSIDE CONTRACTORS AND CONSULTANTS

All outside contractors and consultants that come onto the site and that are completing, designing, or overseeing work that results in the disturbance of soil at the Crossroads site shall be introduced to the ECP prior to the start of any work. Contractors shall be required to obtain a copy of the applicable erosion and sediment control plan and follow all aspects of the plan as it relates to their work at the Crossroads facility. The Operations Supervisor and/or Project Manager shall be responsible for the acclimation of new contractors. All new contractors will be required to review this section of the operations manual prior to completing work that results in soil disturbance. For larger construction projects, a project-specific erosion and sedimentation control plan is typically made part of the contract documents and requires the contractor to complete an acknowledgement form prior to conducting any work.

TABLE 1
GENERAL EROSION CONTROL MEASURES FOR CONSTRUCTION

TEMPORARY MEASURE	PERMANENT MEASURE	APPLICATION	COMMENTS
Mulching		Place temporary mulch on all disturbed areas that cannot be seeded typically within 7 days.	Refer to BMP Manual for text about anchoring.
Seeding		Use if long delay (i.e., >21 days)	Seed mix to be pre-approved by Operations Supervisor and/or Project Manager. Stabilize with temporary mulch.
	Seeding and Mulching (Hydroseeding)	Use for permanent vegetation in specified areas.	Seed and mulch should be typically placed by mid-Sept. to establish permanent vegetative cover. Otherwise apply dormant seed. Refer to Technical Specifications, Section 02800 for topsoil and seeding requirements.
	Topsoil Placement	Use as a medium for permanent vegetative cover.	
Silt Fence		Place temporary silt fence to limit unprotected/unchecked runoff lengths to minimize sedimentation caused by erosion of soil surfaces, particularly silt clay.	Install silt fence along downgradient limit of work prior to commencement of construction, and additional as needed as work progresses.
Stone Check Dams	Stone Check Dams	Use in temporary diversions, and permanent swales as needed, to reduce runoff velocities.	Have in place prior to accepting stormwater.
Erosion Control Mix Check Dams		Use in temporary diversions to reduce runoff velocities and trap sediment.	Have in place prior to directing stormwater to diversion/swale.
Inlet Protection		Use to reduce sediment accumulation in permanent stormwater conveyance system.	Provide around catch basins, at a minimum.
Dust Control		Use water to prevent the blowing of dust from exposed gravel access soil surfaces.	Use on site water truck as needed.
Nonwoven/Woven Geotextile Tarps		Use to temporarily protect slopes from erosion, as necessary.	Use on new fill areas as appropriate. Material to be lightweight. Anchor as necessary.
	Riprap Stilling Basin or Plunge Pool	Construct and stabilize at outlets of pipes and emergency spillways. Use where significant energy dissipation is needed.	Rehabilitate any/all areas disturbed by the work. Remove accumulated sediment as needed and at the completion of the work.
	Riprap Apron	Construct at outlets of pipes and swales. Use to slow and spread flow.	Remove accumulated sediment as needed.
	Grass-Lined Swale	Construct and stabilize with loam and seed. Use erosion control mat for temporary protection.	Rehabilitate any/all areas disturbed by the work. Remove accumulated sediment as needed.
Temporary Swale/Diversion		Construct as needed to divert/convey stormwater runoff to temporary sump(s) within work area.	Check dams should be in place prior to directing stormwater through diversion.
Temporary Sump		Use to temporarily contain runoff within work area.	
	Sedimentation Basins (Erosion Control Structures)	Construct in accordance with project design drawings and specifications.	Remove accumulated sediment and replenish filter sand as needed. Ensure all elements are functioning as intended.

Attachment 8B:

Temporary Erosion Control Construction Specification

SECTION 02120

TEMPORARY EROSION CONTROL

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Due to the nature of the work and site soils, the Contractor shall implement strict erosion and sedimentation control measures throughout the duration of the work. A preventative approach to sedimentation control shall be implemented by the Contractor in that multiple measures shall be installed and maintained to prevent sedimentation and/or erosion of exposed soils. The Contractor shall furnish all labor, materials, tools, and equipment, and perform all operations necessary to provide, monitor, and maintain erosion control devices to limit erosion, control sedimentation that occurs during construction operations, and contain runoff within the work area. This shall include all stockpile, laydown, and borrow areas. Such controls shall be implemented and maintained throughout the construction until the stabilization of permanent erosion control devices.

B. The Contractor shall implement the project-specific Erosion and Sedimentation Control Plan (ESCP), which is attached to these specifications as an appendix and made part of these Contract Documents by reference.

C. Regardless of any minimum requirements set forth in this section, it is the Contractor's sole responsibility to select, implement, and maintain proper and fully adequate erosion and sediment controls at all times (24 hours a day on all days) throughout the project. Repair of any damage and all restitution for liabilities resulting from improper erosion and sediment control shall be at the Contractor's expense.

1.02 APPLICABLE SECTIONS

A. Section 02130 - Clearing, Grubbing, and Stripping

B. Section 02140 - Excavation and Storage of Silt Clay

C. Section 02190 - Contingency Asbestos Waste Excavation/Relocation

D. Section 02200 - Earthwork

1.03 REFERENCES

A. Project-specific Erosion and Sedimentation Control Plan (ESCP).

B. "Maine Erosion and Sediment Control Best Management Practices (BMPs)" Department of Environmental Protection; hereinafter referred to as the BMPs.

1.04 QUALITY ASSURANCE

A. Work Plan Outline: Prior to the start of construction, the Contractor shall meet with the Project Manager to discuss erosion control requirements as set forth in the project-specific ESCP, and, at the request of the Project Manager, to develop a written work plan that outlines the materials and methods that will be used to implement the ESCP. The Contractor shall complete the work plan outline and submit it to the Project Manager for review and approval at least one week prior to the start of construction. As a minimum, the temporary erosion control structures specified herein and required in accordance with the ESCP shall be installed prior to the start of construction.

1.05 SUBMITTALS

A. Upon request, the Contractor shall provide to the Project Manager copies of BMPs, test results, and/or manufacturer's data to verify that proposed materials and methods are in compliance with these specifications.

PART 2 - PRODUCTS

2.01 MATERIALS.

A. The Contractor shall use the following materials in construction of temporary erosion control devices in accordance with the BMPs; other materials require approval of the Owner, unless specifically allowed per the BMPs.

1. Seed:
   a. Type and use as specified in the Vegetation BMP.
   b. Seed mixture as approved by the Project Manager or Designer.

2. Mulches and Mats:
   a. Type and use as specified in the Mulching BMPs, inclusive of Erosion Control Mix (ECM).
   b. Materials as approved by the Project Manager or Designer.

3. Silt Fence: Woven polypropylene and/or polyester material that meets the following minimum average roll values:

FABRIC PROPERTY	TEST METHOD	FABRIC REQUIREMENT
Grab Tensile Strength (lbs.)	ASTM D4632	100
Burst Strength (psi)	ASTM D3787	175
Apparent Opening Size (U.S. Standard Sieve)	ASTM D4751	30 max.

4. Hay Bales: Rectangular shaped bales of hay weighing at least 40 pounds per bale. Hay bales shall be free of primary noxious weed seeds.

5. Sand Bags: Heavy-duty textile bags of approximately 1 cubic foot capacity filled with sand or gravel.

6. Crushed Stone: Type and use as specified in the Stone Check Dams BMP.

PART 3 - EXECUTION

3.01 TEMPORARY DEVICES

A. The Contractor shall use the following devices to limit erosion and control sedimentation. Other devices may be used in accordance with the BMPs and with the approval of the Project Manager.

1. Silt Fence Barriers: As a minimum, provide as shown on the Drawings. Type and use as specified in the Sediment Barriers BMP.
2. Temporary Check Dams: As a minimum, provide as shown on and in accordance with the Drawings. Type and use as specified in the Temporary Check Dams BMP.
3. Temporary Sumps and Sediment Traps: Type and use as specified in the Sediment Trap BMP. Sediment traps shall pond sediment-laden water until outletted via pumping. Sediment-laden runoff collected in sediment traps shall be pumped to an on-site location designated by the Owner.
4. Temporary Diversions: Provide as needed to prevent clean stormwater from outside the limits of work from entering the work area. Temporary diversions shall not result in erosion or sedimentation, or cause flooding outside the limits of work.
5. Geotextile: Use lightweight fabric (e.g., 6 oz/syd) to provide temporary erosion control.
6. Erosion Control Mix (ECM): Use bark mulch to direct and divert stormwater.

3.02 APPLICATION RATES

A. Seed: As specified in the Temporary Vegetation BMP.

B. Mulches: As specified in the Mulching BMP.

3.03 MAINTENANCE

A. All temporary erosion control measures shall be maintained by the Contractor throughout the course of site construction activities until final acceptance of the site vegetation by the Project Manager.

B. The Contractor shall provide personnel on a round-the-clock (overnight) basis whenever necessary to monitor and maintain all temporary erosion and sediment control devices.

3.04 REMOVAL OF TEMPORARY EROSION CONTROL

A. Temporary materials and devices shall be removed by the Contractor when permanent soil stabilization has been achieved and as approved by the Project Manager. Materials in good condition may be reused on the site if approved by the Project Manager. Materials unsuitable for reuse become the property of the Contractor and shall be disposed of at the Contractor's expense.

[END OF SECTION]

Attachment 9.

Site Condition Report

Site Condition Report

WMDSM Phase 14 Project

Prepared For
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1 Introduction

1.1 Facility Description

Waste Management Disposal Services of Maine, Inc. (WMDSM) contracted Normandeau to perform wetland, stream and vernal pool surveys in support of the proposed Phase 14 landfill associated with their Crossroads Landfill (Crossroads) facility located in Somerset County in the Town of Norridgewock, Maine. This includes areas known as the Baker Borrow Area and Keating Parcel as well as and WMDSM owned property within approximately 500 feet of the proposed Phase 14 landfill facility limits. The existing site has operated as a solid waste facility continuously since the Board of Environmental Protection granted initial permits to Elizabeth Lappie on 28 April 1976 for a sanitary landfill per order 49-2696-25220. WMDSM acquired the facility in October 1990 and has operated the solid waste disposal facility since then in accordance with solid waste management permits issued by the Maine Department of Environmental Protection (MEDEP). WMDSM's property consists of approximately 933 acres of land adjacent to, and to the north of Route 2. WMDSM has constructed and operated several expansion phases, and currently accepts waste for deposition in Phase 8. See Figure 1 for the Phase 14 Site Location Map.

Proposed impacts to natural resources are addressed in detail in Attachment 12 of the NRPA Permit Application, including Detailed Natural Resource Impact Plans, location in Appendix B of the *Wetland Functions/Values and Natural Resources Impacts Assessment Report: WMDSM Phase 14 Project*.

2 Methodology

2.1 Wetlands and Streams

Qualified wetland scientists from Normandeau Associates, Inc. (Normandeau) performed wetland delineations on approximately 195 acres in the vicinity of the proposed Phase 14 project area in 2017, 2018 and 2019.

Wetland boundaries were delineated according to the 1987 Corps of Engineers Wetland Delineation Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), which utilize the three- parameter approach (i.e., evaluating the site for the presence of hydric soils, hydrophytic vegetation and

wetland hydrology) for identifying wetlands and determining their jurisdictional limits[1,2]. Wetlands and streams were classified according to the Cowardin wetland classification system[3].

All wetland boundaries were marked with sequentially numbered, pink "Wetland Delineation" flagging, and all streams were marked with blue flagging. All features identified were located using Global Positioning System (GPS) units capable of submeter accuracy.

Two site visits have been with the MEDEP and/or U.S. Army Corps of Engineers (USACE) at the site to review delineated natural resources. A site walk was completed on November 16, 2017 with Lucien Langlois, a MEDEP Environmental Specialist, to confirm the status and location of field delineated streams and verify that National Hydrography Dataset (NHD)-mapped streams are not present as mapped within the site. Mr. Langlois determined that the field delineated streams are Class B, intermittent streams. A site visit was also conducted on June 25, 2019 with representatives of MEDEP and the USACE, including Dawn Hallowell (MEDEP) and Jay Clement (USACE). Delineated wetlands, streams and vernal pools within and adjacent to the proposed project limits were spot-checked and the representatives concurred with the delineations that were reviewed.

Detailed field delineation data sheets based on the USACE Highway Methodology Workbook Supplement were completed for all wetlands, paired USACE data plots were collected for representative wetlands, and Normandeau field datasheets were collected for all streams on-site.

[1] U.S. Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1,U.S. Army Engineer Waterways Experiments Station.

[2] U.S. Army Corps of Engineers. 2011. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

[3] Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Online. http://www.npwrc.usgs.gov/resource/wetlands/classwet/index.htm (Version 04DEC1998).

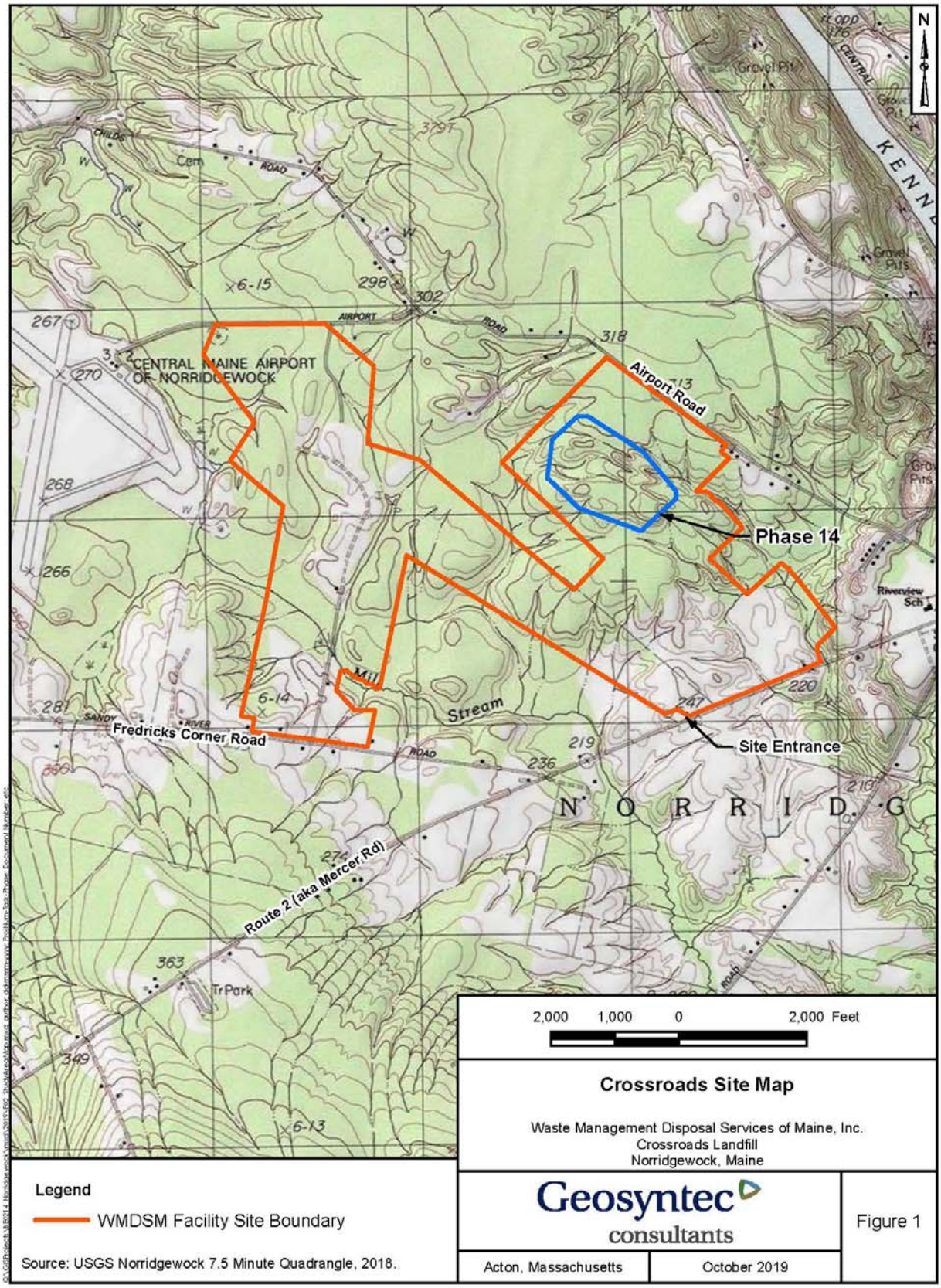


Figure 1. Phase 14 Site Location Map

2.2 Vernal Pools

Vernal pool surveys were completed within the Phase 14 project area on May 4 and 16, 2017; May 2 and 15, 2018; and May 5 and 23, 2019. These surveys were performed within the appropriate survey windows to identify obligate vernal pool breeding species according to MEDEP guidelines. Confirmed vernal pools (VP) were documented and data forms were sent to the Maine Department of Inland Fisheries and Wildlife (MDIFW) and MEDEP for certification of significance as described and promulgated under the Natural Resources Protection Act (NRPA). MEDEP determined that none of the identified vernal pools were significant. USACE New England District DRAFT Vernal Pool Characterization Forms were also completed for all confirmed vernal pools.

MEDEP regulates vernal pools determined to meet "abundance" criteria as outlined in Chapter 335 of the Maine NRPA, which details regulations pertaining to Significant Wildlife Habitat. Determination of a vernal pool as "significant" is based on the ability of the pool to provide high value habitat for obligate vernal pool species, as measured by the number of wood frog (*Lithobates sylvaticus*), spotted salamander (*Abystoma maculatum*), and/or blue-spotted salamander (*Abystoma laterale*) egg masses, or the presence of fairy shrimp (*Anostraca* spp.) in any life stage. The abundance criteria for these species are displayed in Table 2-1, below.

Table 2–1. NRPA Abundance Criteria for Significant Vernal Pools

Species	Abundance Criteria
Wood frogs	40 or more egg masses
Spotted salamanders	20 or more egg masses
Blue-spotted salamanders	10 or more egg masses

The USACE does not require that an abundance criteria be met to trigger regulation under the USACE General Permit (GP) for the State of Maine[4]. According to the Maine GP, a vernal pool or seasonal forest pool is:

> "*a temporary to semi-permanent body of water occurring in a shallow depression that typically fills during the spring or fall and may dry during the summer. Vernal pools have no permanent inlet or outlet and no viable populations of predatory fish. A vernal pool may provide the primary breeding habitat for wood frogs (Rana sylvatica), spotted salamanders (Ambystoma maculatum), blue-spotted salamanders (Ambystoma laterale), and fairy shrimp (Eubranchipus sp.), as well*

[4] The New England District of the U.S. Army Corps of Engineers issues a General Permit (GP) for activities subject to Corps jurisdiction in waters of the U.S. within the boundaries of the State of Maine. This GP is issued in accordance with Corps regulations at 33 CFR 320 - 332 [see 33 CFR 325.2(e)(2)]. Effective Date: October 13, 2015 Expiration Date: October 13, 2020.

> *as valuable habitat for other plants and wildlife, including several rare, threatened, and endangered species. A vernal pool intentionally created for the purposes of compensatory mitigation is included in this definition. For the purposes of this GP, the presence of any of the following species in any life stage in any abundance level/quantity would designate the waterbody as a vernal pool: fairy shrimp, blue spotted salamanders, spotted salamanders or wood frogs…For the purposes of this GP, the VP Management Areas are the: Vernal Pool Depression (includes the vernal pool depression up to the spring or fall high water mark, and includes any vegetation growing within the depression), Vernal Pool Envelope (area within 100 FT of the VP Depression's edge) and Critical Terrestrial Habitat (area within 100-750 FT of the Vernal Pool Depression's edge).*"

Vernal pools that have been determined to be "Not Significant" by MEDEP could still be regulated by the USACE if impacts are proposed and have therefore also been assessed according to the methods described in the USACE Draft Vernal Pool Characterization methodology[5] on a pre and post-construction basis.

The seasonal high water limits of identified vernal pools were GPS-located and added to project mapping.

2.3 Wildlife Habitat

The proposed Crossroads Landfill Phase 14 project site was evaluated for wildlife and habitat resources via a desktop review of existing information, including reviewing aerial photography (Google Earth), and publically available data regarding species distributions from the MDIFW and MEDEP. Formal data requests were submitted to the MDIFW which responded on April 10, 2019, and the Maine Natural Areas Program (MNAP) which responded on April 8, 2019. The U.S. Fish and Wildlife Service (USFWS) IPaC system database was queried in April 2019.

Site visits focused on the Deer Wintering Area (DWA) as described below, were conducted on March 12 and May 15, 2018, and the observations made during these visits are also used to inform the evaluation of general wildlife habitat value and potential for other species to be present.

3 Wetland, Stream and Vernal Pool Survey Results

3.1 Wetlands

Normandeau wetland scientists identified thirty-nine wetlands within the Phase 14 project area. Detailed descriptions of the identified wetland resources are included below and in Table 3-1. Information regarding wetland functions and values are included in the *Wetland Functions/Values and Natural Resource Impacts Assessment Report*. See Figure 2 for a Water

[5] US Army Corps of Engineers – New England District DRAFT Vernal Pool Characterization Form. Dated 9-6-2016. Accessed online: https://www.nae.usace.army.mil/Missions/Regulatory/Vernal-Pools/. Date accessed: 10/11/19.

Resource Map. Photos of wetlands are included in Appendix A. Paired data plots of representative wetlands are included in Appendix B.

Wetlands of Special Significance (WoSS) are defined in Chapter 310(4)(A) of the Natural Resources Protection Act Wetlands and Waterbodies Protection Rules. In the Phase 14 project area, the only WoSS are the portions of delineated wetlands that are within 25 feet of a delineated intermittent stream.

Wetlands W01, W02, W04, W05, and W06:

These wetlands are part of a large forested (PFO) wetland complex that spans the Phase 14 project area. All of these wetlands almost certainly connect outside of the parcel boundaries, but within the study area, W2 occupies the greatest area. These wetlands are characterized by low seasonally flooded basins connected by narrow swales, and with uplands between the basins. Some of these upland areas are large, up to approximately 30 feet in elevation higher than the surrounding wetland, and collectively occupy approximately 27 acres within the wetland complex.

The overstory of this wetland is dominated by a mix of coniferous species such as northern white cedar (*Thuja canadensis*), balsam fir (*Abies balsamea*), eastern hemlock (*Tsuga canadensis*), and red spruce (*Picea rubens*) as well asdeciduous species such as red maple (Acer rubrum) and yellow birch (*Betula aleghaniensis*). Understory shrubs included highbush blueberry (*Vaccinium corymbosum*), winterberry (*Ilex verticillata*), mountain holly (*Ilex mucronata*), and withe-rod (*Viburnum nudum*) in addition to overstory species. The herbaceous layer is dominated by common wetland plants of the region, including cinnamon fern (*Osmundastrum cinnamomeum*), sensitive fern (*Onoclea sensibilis*), bunchberry (*Cornus canadensis*), and velvet-leaved blueberry (*Vaccinium myrtilloides*).

Additionally, there are two intermittent streams (S1 and S2) and an ephemeral stream (S3) within the wetland. The presence of intermittent streams within the wetland would qualify those portions within 25 feet of the stream as Wetlands of Special Significance under the Natural Resources Protection Act (NRPA).

Figure 2. Wetlands, streams and vernal pools in proximity to the Phase 14 site.

Wetlands W03, W20, and W24:

These wetlands consist of small, ponded depressions. W20 and W24 are surrounded by isolated patches of trees in the Baker Borrow Area, while the W03 is surrounded by forest. These three wetlands are small seasonally flooded areas with no observed surface water inlets or outlets. All of these wetlands were reviewed for the presence of vernal pool species given their characteristics and setting. Although it is seasonally flooded, W20 was determined to not support vernal pool species. However, W24 and W03 both contained obligate vernal pool indicators during a spring 2017 review; W24 includes Vernal Pool 2 and W03 includes Vernal Pool 4. Vegetation differed between wetlands, but the herbaceous layer was typically dominated by obligates such as star sedge (*Carex echinata*) and bulrushes (*Scirpus spp.*) with northern water-plantain (*Alisma triviale*) found in W34. Wild calla (*Calla palustris)* was a dominant species in W24.

Wetlands W38, W08, W18, and W19:

These wetlands are located in a forested area on the south side of the study area, separated by narrow topographic rises. These wetlands are generally similar in character to the W02 wetland complex, but generally smaller and less contiguous. For example, W18 and W02 are separated by a gravel road. Wetland W08 is drained by stream S31 and therefore the portion of W08 within 25 feet of the stream would qualify as Wetland of Special Significance. They area dominated primarily by conifers, including red spruce and balsam fir, as well as red maple, with an understory dominated by winterberry and mountain holly and an herbaceous layer dominated by cinnamon fern, sensitive fern, interrupted fern (*Osmunda claytoniana*), and Canada-mayflower (*Maianthemum canadense*).

Wetland W10:

This forested wetland is located within a matrix of previously developed areas including access roads and sedimentation basins; however prior direct impacts appear to be minimal. It is dominated by red maple with scattered white pines, with an understory of mountain holly and winterberry and a well-developed herbaceous layer with common wetland species such as cinnamon fern, sensitive fern, sallow sedge (*Carex lurida*), swamp candles (*Lysimachia terrestris*). This wetland includes Vernal Pool 5 which supported wood frogs and spotted salamanders; this vernal pool did not meet Maine significance criteria based on the number of egg masses.

Wetland W11:

Wetland W11 is a large coniferous dominated wetland with sparse herbaceous vegetation. It serves as a headwater for a deeply incised intermittent stream (S6) that runs south across the existing access road. The portion of W11 within 25 feet of the stream would qualify as Wetland of Special Significance. This wetland contains deep organic soils (histosols) that suggest a long water retention time, although the vegetation is more typical of wetland edges. Dominant trees include balsam fir, red maple, red spruce, northern white cedar, eastern hemlock, and gray birch (*Betula populifolia*). The understory is limited, but includes highbush

and velvet-leaved blueberry, and winterberry. Small patches of cinnamon and interrupted fern are found throughout the wetland contrasting with an otherwise sparse herbaceous layer.

Wetland W12:

This wetland is a small depression dominated by red maple and balsam fir at the edge of the forest. Although it is relatively undisturbed, its small size limits its functions and values.

Wetlands W13, W14, W15, and W16:

These wetlands are located along the proposed access road corridor north of a current operational facility. These forested wetlands have a similar vegetative community to the other forested wetlands on the property, including a mixed red maple, balsam fir, and eastern hemlock overstory and a relatively sparse understory of highbush blueberry and winterberry. Wetland W15 includes Vernal Pool 7.

Wetland W17 and W39:

Wetlands W17 and W39 are located in a sandy borrow area near the eastern corner of the study area. The soils and vegetation have been altered (excavated and cleared) such that the area now exhibits wetland characteristics, including a high water table in the spring. Vegetation is sparse and includes some purple loosestrife, boneset (*Eupatorium perfoliatum*), long-beaked willow (*Salix bebbiana*), scattered alder, gray birch, white pine and balsam poplar seedlings. Although the soils in this area are well drained, water is retained for a sufficient duration to support wetland conditions.

Wetland 25:

Wetland 25 is an isolated forested depression that is dominated by an overstory of red maple with birches around the perimeter and scattered wetland shrubs such as winterberry. Herbs were sparse and the wetland was ponded at the time of review. The wetland includes Vernal Pool 6.

Wetlands W21, W22, W23, W30 and W37:

These wetlands consist primarily of herbaceous vegetation and were likely created as a result of clearing and borrow activities that took place previously on the site. These wetlands are generally of low quality, functioning primarily for groundwater recharge and discharge. W22, W23, W30 and W37 contained vernal pool indicator species, but the hydroperiod for W22 is too short in typical years to support an amphibian breeding population given that it has no canopy cover. Vernal Pool 1 is located within W23, Vernal Pool 30 is within W30 and Vernal Pool 31 is located with W37. Typical vegetation in these wetlands included woolgrass (*Scirpus cyperinus*) and sedges (*Carex spp.*).

Wetlands W31, W32 and W33:

These wetlands are located in the vicinity of the Tire Processing Facility at Crossroads and have been impacted somewhat in the past based on current observations. These wetlands are forested and generally located in topographic depressions that gently slope to the south. An

intermittent stream, S30, is associated with W31 and therefore the portion within 25 feet of the stream would qualify as Wetland of Special Significance. Common tree species within the wetland include red maple, balsam fir, gray birch and red spruce. W32 is located adjacent to a sedimentation basin and discharges surface water via a rip-rap channel into S30/W31. W33 is located on a slope downgradient of the tire facility.

Wetlands W34, W38, W41, W43 and W44:

These wetlands are generally located along the eastern edge of the Phase 14 project area and drain/continue in the easterly or southeasterly direction out of the wetland survey/project area. These wetlands are forested and dominated by a combination of broad-leaved deciduous trees such as red maple, balsam poplar, and yellow birch and coniferous species such as red spruce, balsam fir, white pine and eastern hemlock; the white pine and eastern hemlock exhibited raised roots and there were plentiful tip-ups owing to shallow, seasonally saturated soils. All of these wetlands included pit-and-mound micro-topography within relatively narrow topographic swales and small valleys. Other plants associated with these wetlands; while generally sparse given the dense canopy cover, included ferns (*Osmunda sp.*), Canada mayflower (*Maianthemum canadense*), gold thread (*Coptis trifolia*), and pockets of *Sphagnum* mosses in deeper pits and wetter areas. These wetlands all discharged groundwater and were suitable to general wildlife habitat/use, however no robust signs of frequent wildlife use were observed. All but W41 would be suitable to retain sediment if there was disturbance in close proximity. W44 and W41 continued east of the project's property boundary and eventually were associated with channelized streams (off-site) and therefore are also suitable for shoreline stabilization.

Wetland W35:

Wetland 35 is a small, riparian wetland associated with streams S31 and S32. The wetland is located in a deep, forested ravine and contained sparse sedges and other herbs at the time of the delineation. The portion of W35 within 25 feet of the stream would qualify as Wetland of Special Significance. The wetland functions principally to stabilize the shorelines of the small streams it's associated with; however some groundwater seepages were observed at the edges and it is suitable for minor attenuation of floodflows, sediment retention and wildlife habitat.

Wetland W42:

Wetland 42 is primarily an emergent, wet-meadow wetland located at the southeastern limits of the project/study area. The wetland drains in a southerly direction and discharges under the main access road via a culvert. It is hydrologically connected to W34 under a work road, however there is no culvert. The wetland has dense herbaceous vegetation including bluejoint (*Calamagrostis canadensis*), sensitive fern, soft rush, reed canary grass and meadowsweet, red osier dogwood and gray birches. The wetland is mowed seasonally to limit the growth of woody species.

Wetland W40:

Wetland 40 is a forested wetland that is hydrologically connected to the Wetland W02 wetland complex via an ephemeral drainage (S33). The wetland has some disturbance due to logging activities and is a pit and mound system dominated by red maple, northern white cedar, balsam fir, eastern hemlock and white pine.

Wetland W46:

Wetland 46 is a very small isolated depression. No vernal pools indicators were observed. The wetland is dominated by balsam fir, *Viburnum sp.* and ferns (*Osumunda sp.*).

Table 3–1. Summary of wetland cover classification, functions and values

Wetland ID	Cowardin Class	Wetland ID	Cowardin Class	Wetland ID	Cowardin Class
W01	PFO1,4E	W16	PFO1E	W33	PFO1,4E (80%) PEM1E (20%)
W02	PFO1,4E (80%) PEM1E (20%)	W17	PEM1Jx	W34	PFO1,4E
W03	PFO1,4E (50%) PEM1E (50%)	W18	PFO4E	W35	PFO1,4E
W04	PFO1,4E	W19	PFO1,4E	W37	PEM1B
W05	PFO1,4E (70%) PEM1E (30%)	W20	PFO1,4E	W38	PFO1,4E
W06	PFO1,4E	W21	PEM1E	W39	PEM1Bx
W08	PFO1,4E	W22	PEM1E	W40	PFO1,4B
W12	PFO1E	W23	PEM1Ex	W41	PFO1,4B
W11	PFO1,4E	W24	PEM1F	W42	PEM1B(90%), PSS1B (10%)
W10	PFO1E	W25	PFO1E	W43	PFO1,4B
W13	PFO1,4E (40%) PSS1E (60%)	W30	PEM1B	W44	PFO1,4B
W14	PFO4E	W31	PFO4E	W45	PSS1E
W15	PFO1,4E	W32	PFO4	W46	PFO1,4B

3.2 Streams

Normandeau wetland scientists identified ten streams and drainages within the Phase 14 project area. Detailed descriptions of the identified stream resources are included below and in Table 3-2. Photos of streams are included in Appendix A.

Streams S01, S02, S03, S04, and S05:

These streams originate in wetland W02 and run outside of the study area. Stream S1 runs along the northern edge of the wetland before flowing across the property boundary to the northwest, while Streams S3 and S5 run along the western edge of the wetland before flowing off the southwest side of the study area on the Back Baker Area parcel. Stream S02 is a small tributary to S01 while S04 and S05 flow into S03. With the exception of S04, these streams are intermittent streams and meet the criteria for protection under NRPA. S04 is an ephemeral stream and is not regulated by the state, but is regulated by the USACE. Wetland areas within 25 feet of S01, S02, S03, and S05 would be regulated as wetlands of special significance.

Stream S06:

This stream originates as the outlet of W11 and flows south across the existing access road before exiting the study area. Although this stream has a deeply incised channel, and well scoured bed, it had dried nearly completely at the time of the survey (May 24, 2019), and thus is classified as intermittent. After leaving the study area, this stream drains into a large wetland complex to the southeast. Wetland areas within 25 feet of S06 would be regulated as wetlands of special significance.

Stream S30:

This stream originates within Wetland W31 and collected surface and groundwater associated with the area downslope and south of the Tire Processing Facility. The stream is also the receiving water for a constructed stormwater control feature located in the area. The stream is culverted under the main access road associated with the Crossroads facility and continues to the south outside of the Phase 14 project area. The stream has a sandy substrate, low 1 foot high banks and averages approximately 2 feet wide at the ordinary high water (OHW) marks. Flow was high at the time of observation given recent, persistent heavy rains; and the stream was classified as intermittent. The stream meets the criteria for regulation under NRPA.

Stream S31:

This stream is a tributary to S06 (see above) and originates within Wetland W08. The stream is associated with W35, which is a small riparian wetland located adjacent to the drainage. The stream is located in a deep, stable, forested ravine. S31 has a sandy substrate, low 1 to 2 foot high banks and averages approximately 4 feet wide at the ordinary high water (OHW) marks. Flow was high at the time of observation given recent, persistent heavy rains; and the stream was classified as intermittent. The stream (S31) meets the criteria for regulation under NRPA while drainage S32 does not.

Streams S32 and S33:

These drainages are small, ephemeral drainages that do not meet the criteria for regulation under NRPA; however they do contain sufficient evidence of periodic flow and faint OHW marks and therefore would qualify as a USACE jurisdictional water under Section 404 of the Clean Water Act. Both drainages are small, ephemeral drainages (dry when observed; but with evidence of ephemeral flow). S32 drains W38 into S31 and S33 drains W40 into S05. Both drainages were approximately 1 foot wide and had substrates dominated by leaf/needle duff and small areas of sand and gravel.

Table 3–2. Summary of stream characteristics

Stream ID	Flow Regime	Cowardin Class	Bed Composition	Average Width (feet)	Average Depth (inches)	NRPA Stream?
S01	Intermittent	R4SB4	Sand	1	2	Yes
S02	Intermittent	R4SB5	Silt/Clay, Organic	1	4	Yes
S03	Intermittent	R4SB4	Sand	1	3	Yes
S04	Ephemeral	R6	Sand	2	0	No
S05	Intermittent	R4SB5	Sand	3	3	Yes
S06	Intermittent	R4SB4	Sand	4	2	Yes
S30	Intermittent	R4SB3	Sand	2	3	Yes
S31	Intermittent	R4SB3	Sand	4	4	Yes
S32	Ephemeral	R6	Organic, Sand	2	1	No
S33	Ephemeral	R6	Organic	1	0	No

3.3 Vernal Pools

Normandeau wetland scientists identified nine vernal pools within the Phase 14 project area. Seven of the nine pools, those identified in 2017 and 2018, were submitted to MEDEP for determination of significance; MEDEP reviewed the data forms and determined that none of vernal pools were “significant” and are therefore not regulated under NRPA. The two pools identified in 2019 have been submitted to MDIFW/MEDEP (July, 2019) and are pending a determination of significance; however neither pool is expected to be significant based on documented levels of indicator species and disturbance. MDIFW has recommended to MEDEP that the two pools be classified as “not significant”; however to date Normandeau has not received a final letter from MEDEP. Detailed descriptions of the identified vernal pool resources are included below. Photos of vernal pools are included in Appendix A. USACE VP Characterization Forms are included in Appendix C, along with MEDEP Vernal Pool Significance

Determination for the vernal pools identified in 2017 and 2018. MDIFW's recommendations for the two pools identified in 2019 are also included in Appendix C.

Vernal Pool 1:

This pool is a shallow swale within a cleared field. The cleared field corresponds to an area of excavation/earth-moving that was undertaken by WMDSM in the past. The pool has little canopy cover of tall herbaceous species, and is therefore exposed to a significant amount of sunlight. No salamander species were observed in this pool on either visit; however 31 wood frog egg masses were counted during the May 4th 2017 visit. A cursory survey on May 2nd, 2018 indicated that this pool was utilized again, with 16 wood frog egg masses observed. No egg masses remained visible in the pool upon the second visit in 2017, and no larvae were observed either. This may be evidence that, despite hydrology, the pool acted as a sync due to exposure and depth resulting in the mortality of the wood frog larvae observed during the May 4, 2017 visit. VP1 was determined to be "Not Significant" by MEDEP because it did not meet the vernal pool definition.

Vernal Pool 2:

This pool possessed 63 spotted salamander egg masses upon the first visit in 2017. Fewer egg masses were observed during the second visit, which was attributed to a high tannin content that obscured vision through the water column. Approximately 24 spotted salamander egg masses were observed during the 2018 site visits, although this survey was cursory in nature and visibility was again poor. An additional cursory visit in 2019, an extremely wet spring, revealed 23 spotted salamander egg masses located up to 16 inches above elevation of the water indicating that spotted salamanders laid eggs during high water which receded significantly in the interim time period; an additional 15 spotted salamander egg masses were observed within the vernal pool at or below the water level. The number of spotted salamander egg masses exceeds the NRPA abundance criteria for designation as a "significant" vernal pool; however MEDEP determined that the pool was "Not Significant" because it did not meet the vernal pool definition. MEDIFW comments indicate that the "pool provides significant habitat for spotted salamanders, but suspect unnatural origin (former borrow area)." VP2 is located in a forested "island" within an otherwise cleared field created by WMDSM after completion of borrowing activities. It is likely that the depression in which the pool occurs was augmented by the surrounding excavation and fill activities which may have led to a longer duration of water impoundment.

Vernal Pool 3:

This is a forested pool in the northern portion of the Phase 14 project area. It is a large, well-defined pool with a diverse plant assemblage. The pool has many features that indicate high quality vernal pool habitat, although only 3 egg masses, all spotted salamander, were found during the surveys. Only a single spotted salamander egg mass was identified during the May 2, 2018 site visit. An informal visit was conducted on May 24, 2019 during which 8 spotted salamander egg masses were observed. This pool was determined to be "Not Significant" by MEDEP because it didn't meet the biological criteria.

Vernal Pool 4:

This is a forested pool that occupies the majority of Wetland W03, in the northern portion of the survey area, which was surveyed only in 2018. This pool is currently not located within an area of potential development for the proposed waste area. One wood frog egg mass and one spotted salamander egg mass were observed during the first visit, while only the single salamander egg mass was detected upon the return visit. The wood frog egg mass appeared to have hatched in the interim, although no wood frog larvae were observed. This pool was determined to be "Not Significant" by MEDEP because it didn't meet the biological criteria.

Vernal Pool 5:

Vernal Pool 5 is located in a portion of Wetland W10 adjacent to the existing access road. This wetland is dominated by scrub-shrub species, including common winterberry (*Ilex verticillata*) and mountain holly (*Ilex mucronata*). The pool consists of a series of inundated hollows interspersed by hummocks within the shrub swamp. A total of one fresh spotted salamander and 23 mature wood frog and egg masses were observed during the first visit in 2018. The wood frog egg masses had hatched by the second visit, and several hundred larvae were observed. Two additional (three in total) spotted salamander egg masses were also observed during this visit. A follow-up review in May 2019 indicated an expanded high water area, likely due to April and May 2019 being exceptionally wet, and two spotted salamander egg masses and 32 wood frog egg masses; very similar to what was observed in 2018. This pool was determined to be "Not Significant" by MEDEP because it didn't meet the biological criteria.

Vernal Pool 6:

This vernal pool composes the majority of Wetland W25, in the southern portion of the survey area. The wetland is dominated by a red maple (*Acer rubrum*) overstory and contains little shrub or herbaceous vegetation. The first visit recorded 4 spotted salamander egg masses which were again observed upon the second visit. No additional egg masses were observed. A follow-up review in May 2019 was completed and eight spotted salamander egg masses were observed with no sign of wood frogs. This pool was determined to be "Not Significant" by MEDEP because it didn't meet the biological criteria.

Vernal Pool 7:

This small pool occurs near the property boundary adjacent to the existing Tire Processing Facility in the southwest portion of the survey area. It is a small inundated portion of Wetland W15 that contained no egg masses during the first visit, and four spotted salamander egg masses upon the second. It is entirely within a mixed forest dominated by hemlock (Tsuga canadensis), red maple, and red spruce (*Picea rubens*). The pool averaged less than 6-inches in depth, and may not have a sufficiently long enough hydroperiod in some years to support full maturation of amphibian species. This pool was determined to be "Not Significant" by MEDEP because it didn't meet the biological criteria.

Vernal Pool 30:

This small pool occurs near the property boundary in the eastern part of the project area. This pool was identified in May 2019 and visited twice. The depression is in a previously disturbed borrow pit and contained one wood frog egg mass. The pool was very shallow and the wood frog eggs had hatched by the second visit. It is unlikely that this pool retains water long enough to allow for success of the wood frog tadpoles. This pool has not been classified by MEDEP and MDIFW has recommended that it be considered "not significant"; given its manmade nature and low levels of biological utilization it is anticipated that this pool will be considered "Not Significant" by MEDEP because it does not meet the biological criteria or the definition of a vernal pool.

Vernal Pool 31:

This small pool occurs in a borrow area and is manmade and includes a pit and rutting. This pool was identified in May 2019 and visited twice. The maximum depth of the pool was less than 12 inches and thirteen wood frog egg masses were observed during the first visit. The wood frog eggs had hatched by the second visit. It is unlikely that this pool retains water long enough to allow for success of the wood frog tadpoles. This pool has not been classified by MEDEP and MDIFW has recommended that it be considered "not significant"; given its manmade nature and low levels of biological utilization it is anticipated that this pool will be considered "Not Significant" by MEDEP because it does not meet the biological criteria or the definition of a vernal pool.

3.4 Significant Wildlife Habitat

3.4.1 Deer Wintering Areas

As defined by MDIFW, Deer Wintering Areas (DWAs) are forested areas that meet a softwood component criteria, and are used by deer when snow depths in open and hardwood areas exceeds 12 inches, deer sinking depth in open/hardwood areas exceeds eight inches, and the mean daily temperature is below 32°f. The project area footprint lies largely within candidate DWA 060087, which was mapped by MDIFW in 1993 through aerial survey (see Figure 3). This DWA remains classified as "candidate" as it has not been ground surveyed by MDIFW to determine its rating. The mapped extent of the DWA is 483.5 acres, and it overlaps with portions of the Crossroads Landfill and also extends beyond the property boundaries to the north and the south.

A qualitative assessment of the deer wintering habitat in the vicinity of the proposed Phase 14 landfill was conducted in March 2018, using the criteria and methods described in the 1993 MDIFW DWA survey guidelines. Shelter quality across the 43 plots surveyed averaged 1.4 on a scale of 0 (not suitable) to 3 (highly suitable). There were no areas within the surveyed portion of the DWA where higher or lower quality plots were concentrated. This is likely the result of historical selective cutting in the area. . No qualifying current deer sign of any sort was observed during the survey. According to the 1993 MDIFW guidelines, these results indicate the portion of the DWA surveyed would receive a quality rating of "low." The complete methods

and results of the assessment are available in Appendix E. This mapped but unrated DWA is not significant wildlife habitat under NRPA.

3.4.2 Other Significant Wildlife Habitat

No other significant wildlife habitats are known to be present within the Phase 14 project area.

3.5 Potential or Known Endangered, Threatened or Special Concern Species

For the purposes of this discussion, special status species include those listed by the State of Maine as Species of Special Concern (SC), threatened (ST), or endangered (SE), as well as species federally listed as threatened or endangered (FT, FE).

The MNAP determined that according to the information currently in the MNAP Biological and Conservation Data System files, there are no rare state or federally listed botanical features documented specifically within the project area. No unique or unusual natural communities were observed during comprehensive wetland, stream and vernal pool delineations. Review of the federal IPAC system did not identify any plant species.

<u>Invertebrates</u>

Based on known distribution and habitat preferences of Maine's special status invertebrate species, none of these species are expected to be present within the project site.

<u>Reptiles and Amphibians</u>

Based on known distribution and habitat preferences of Maine's special status reptile and amphibian species, none of these species are expected to be present within the project site.

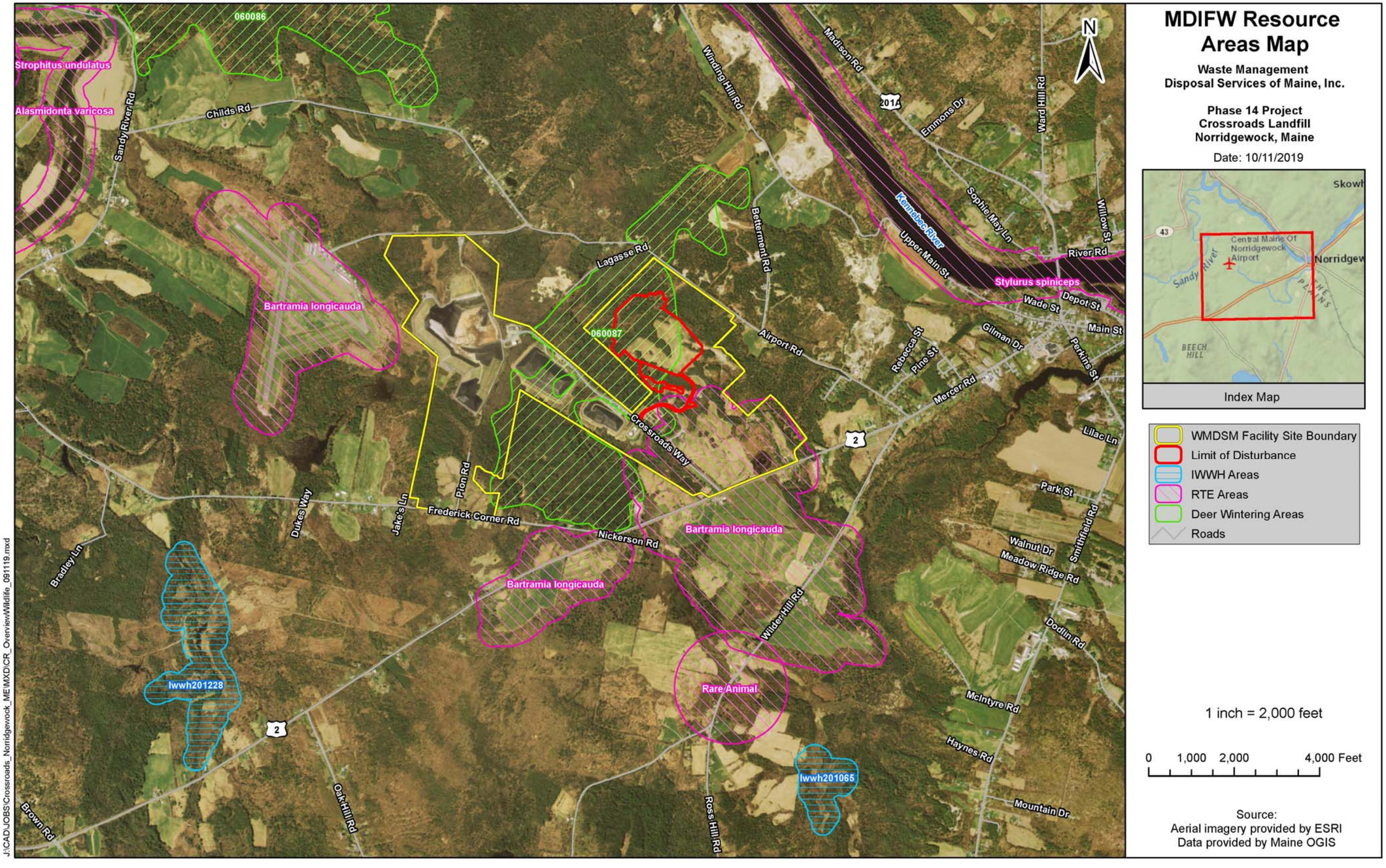


Figure 3. MDIFW Resource Areas Map

Mammals

All of Maine's eight bat species are listed, and based on known distribution and the habitat available, all have some potential to be present on-site during the summer. The forest cover provides ample summer roosting habitat for the foliage-roosting species (eastern red, hoary, and silver-haired bat, all listed as Special Concern (SC)) as well as a small amount of summer roosting habitat for the northern long-eared bat (State-Endangered (SE), Federally-Threatened (FT)), which roosts under loose bark and tree trunk crevices and hollows. Forest edges and nearby semi-open wetlands also provide foraging habitat for these four species as well as little brown (SE) eastern small-footed (State-Threatened (ST)), tri-colored (SC), and big brown bats (SC). However, there are no known maternity roosts or hibernacula on or in the vicinity of the Crossroads property. No other listed mammals are expected to be present.

Birds/Avian Species

An area of mapped upland sandpiper habitat lies to south of the proposed project location, and overlaps very minimally with a southeastern portion of the project footprint. However, upland sandpiper require large areas of unbroken, open field habitat and generally do not occur in fields less than 50 hectares (ha) in size. The Cornell Lab of Ornithology "eBird" database does not include any records of upland sandpiper in Norridgewock, with the nearest records located to the east of the project area in Canaan and Fairfield, Maine. The mapped areas of potential upland sandpiper habitat that overlap with the proposed Phase 14 project footprint are a mix of forested land, old field, existing access roads, offices and paved areas that do not provide suitable breeding or foraging habitat. In addition, upland sandpiper have not been observed within the Crossroads facility by Normandeau biologists.

Based on their known distribution and habitat preferences, 23 species of birds listed as SC have some potential to be present in the project area, either during migration or during the breeding season. These species are listed in Table 3-3. Note that because of the high mobility of avian species, other SC species are also potentially present, especially during migration.

Table 3-3. Avian Species of Special Concern with Potential to be Present in the Project Area

Status	Species	Habitat*	Season
SC	American Redstart (*Setophaga ruticilla*)	Sh/F	Breeding
SC	Bald Eagle (*Haliaeetus leucocephalus*)	**	Non-breeding
SC	Black-and-white Warbler (*Mniotilta varia*)	F	Breeding
SC	Brown Thrasher (*Toxostoma rufum*)	Sh/F	Breeding
SC	Canada Warbler (*Wilsonia canadensis*)	F	Breeding
SC	Chestnut-sided Warbler (*Dendroica pensylvanica*)	Sh/F	Breeding
SC	Eastern Kingbird (*Tyrannus tyrannus*)	Sh/F	Breeding
SC	Eastern Meadowlark (*Sturnella magna*)	O	Breeding
SC	Eastern Wood-Pewee (*Contopus virens*)	F	Breeding
SC	Evening Grosbeak (*Coccothraustes vespertinus*)	F	Year round
SC	Fox Sparrow (*Passerella iliaca*)	Sh/F	Migration
SC	Least Flycatcher (*Empidonax minimus*)	F	Breeding
SC	Northern Harrier (*Circus cyaneus*)	O	Migration
SC	Olive-sided Flycatcher (*Contopus borealis*)	F	Breeding
SC	Prairie Warbler (*Dendroica discolor*)	Sh	Breeding

Status	Species	Habitat*	Season
SC	Tennessee Warbler (*Vermivora peregrina*)	Sh/F	Breeding
SC	Tree Swallow (*Tachycineta bicolor*)	O	Breeding
SC	Veery (*Catharus fuscescens*)	Wet Forest	Breeding
SC	Whip-poor-will (*Caprimulgus vociferous*)	Sh/F	Breeding
SC	White-throated sparrow (*Zonotrichia albicollis*)	Sh/F	Breeding
SC	Wood Thrush (*Hylocichla mustelina*)	F	Breeding
SC	Yellow Warbler (*Dendroica petechia*)	Sh/F	Breeding
SC	Yellow-billed Cuckoo (*Coccyzus americanus*)	Sh/F	Breeding

*F = Forested; O = Open; Sh = Shrubby/early successional

**Bald eagles roost on large trees overlooking open areas in a variety of settings, and are regularly observed on the Crossroads property

Fisheries Habitat

MDIFW recommends that vegetated buffer strips of at least 100-feet in width be maintained around intermittent and perennial streams. The Phase 14 project remains more than 100 feet from all streams and drainages on the site, with the exception of one unavoidable intermittent stream crossing. This crossing will comply with MEDEP and USACE requirements for aquatic organism passage and hydraulic passage as recommended by the MDIFW (see Attachment 5, Sheet 36 of 37). An existing stream crossing that is not suitable for the proposed project will be removed and the banks restored and stabilized.

Appendices

Appendix A. Wetland, Stream and Vernal Pool Photos

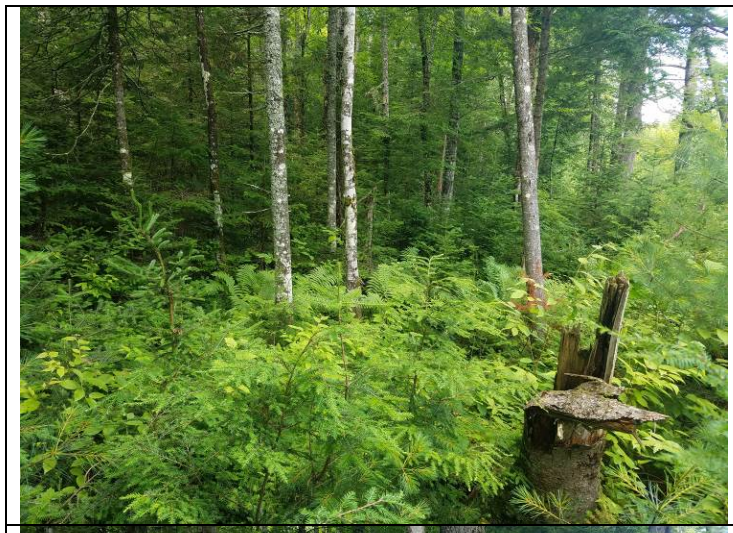
	**Photo #: 1** **Wetland:** W01 **Date Taken: 7/17/2017** From flag 8 facing north
	Photo #: 2 **Wetland:** W01 **Date Taken: 7/17/2017** From flag 6 facing west
	Photo #: 3 **Wetland:** W02 **Date Taken: 7/17/2017** From flag 2 facing south

	Photo #: 4 **Wetland:** W02 **Date Taken: 7/18/2017** Flag 45Y facing south
	Photo #: 5 **Wetland:** W02 **Date Taken: 7/18/2017** From flag UPI4-4 facing south
	Photo #: 6 **Wetland:** W02 **Date Taken: 7/19/2017** From flag 156Y facing north

	Photo #: 7 **Wetland:** W03 **Date Taken: 7/18/2017** From flag 21 facing south
	Photo #: 8 **Wetland:** W03 **Date Taken: 7/18/2017** From flag 17 facing west
	Photo #: 9 **Wetland:** W03 **Date Taken: 7/18/2017** From flag 16 facing west, showing pool

	Photo #: 10 **Wetland:** W04 **Date Taken: 7/25/2017** From flag 22 facing east
	Photo #: 11 **Wetland:** W04 **Date Taken: 7/25/2017** From flag 18 facing east
	Photo #: 12 **Wetland:** W05 **Date Taken: 7/25/2017** From flag 26 facing north

	Photo #: 14 **Wetland:** W07 **Date Taken: 7/26/2017** Facing west
	Photo #: 15 **Wetland:** W07 **Date Taken: 7/26/2017** Facing east
	Photo #: 16 **Wetland:** W06 **Date Taken: 7/25/2017** Flag 22 facing east

	Photo #: 17 **Wetland:** W06 **Date Taken: 7/26/2017** From flag 11 facing north
	Photo #: 18 **Wetland:** W08 **Date Taken: 7/27/2017** Facing east
	Photo #: 19 **Wetland:** W08 **Date Taken: 7/27/2017** Facing west to road

	Photo #: 20 **Wetland:** W09 **Date Taken: 7/27/2017** From flag 4 facing southeast
	Photo #: 21 **Wetland:** W09 **Date Taken: 7/27/2017** From flag 4 facing north
	Photo #: 22 **Wetland:** ELW10-OLD **Date Taken: 7/27/2017** Facing northwest

	Photo #: 23 **Wetland:** W11 **Date Taken: 7/27/2017** Facing southeast toward stream S06
	Photo #: 24 **Wetland:** W12 **Date Taken: 7/27/2017** Facing northwest
	Photo #: 25 **Wetland:** W12 **Date Taken: 7/27/2017** Facing southeast

	Photo #: 26 **Wetland:** W11 **Date Taken: 7/27/2017** From flag 131 facing south
	Photo #: 27 **Wetland:** W11 **Date Taken: 7/28/2017** Facing north from upland island 4
	Photo #: 28 **Wetland:** W10 **Date Taken: 7/28/2017** Facing southeast

	Photo #: 29 **Wetland:** W10 **Date Taken: 7/28/2017** Facing northwest
	Photo #: 30 **Wetland:** W13 **Date Taken: 7/28/2017** From flag 36 facing northwest
	Photo #: 31 **Wetland:** W13 **Date Taken: 7/28/2017** Flag 36 northeast

	Photo #: 32 **Wetland:** W14 **Date Taken: 7/28/2017** From flag 8 facing south
	Photo #: 33 **Wetland:** W14 **Date Taken: 7/28/2017** From flag 21 facing north
	Photo #: 34 **Wetland:** W15 **Date Taken: 7/28/2017** Flag 16 facing east

	Photo #: 35 **Wetland:** W15 **Date Taken: 7/28/2017** From flag 16 facing southwest
	Photo #: 36 **Wetland:** W16 **Date Taken: 7/28/2017** From flag 7 facing north
	Photo #: 37 **Wetland:** W16 **Date Taken: 7/28/2017** Flag 7 facing east

	Photo #: 38 **Wetland:** W17 **Date Taken: 7/28/2017** Facing east
	Photo #: 39 **Wetland:** W17 **Date Taken: 7/28/2017** Facing north
	Photo #: 40 **Wetland:** W18 **Date Taken: 7/28/2017** Flag 2 facing north

	Photo #: 41 **Wetland:** W18 **Date Taken: 7/28/2017** From flag 3 facing northwest
	Photo #: 42 **Wetland:** W19 **Date Taken: 7/28/2017** From flag 10 facing southeast
	Photo #: 43 **Wetland:** W19 **Date Taken: 7/28/2017** Flag 10 facing northeast

	Photo #: 44 **Wetland:** W20 **Date Taken: 7/28/2017** Facing south
	Photo #: 45 **Wetland:** W20 **Date Taken:** Facing north
	Photo #: 46 **Wetland:** W21 **Date Taken: 7/28/2017** Facing northwest

	Photo #: 47 **Wetland:** W21 **Date Taken: 7/28/2017** Facing west
	Photo #: 50 **Wetland:** W23 **Date Taken: 7/28/2017** From flag 12 facing southwest
	Photo #: 48 **Wetland:** W22 **Date Taken: 7/28/2017** Facing south

	Photo #: 49 **Wetland:** W22 **Date Taken:** Facing west
	Photo #: 51 **Wetland:** W23 **Date Taken: 7/28/2017** From flag 12 facing east
	Photo #: 52 **Wetland:** W24 **Date Taken: 7/28/2017** Flag 9 facing southwest

	Photo #: 53 **Wetland:** W24 **Date Taken: 7/28/2017** From flag 9 facing north
	Photo #: 54 **Stream:** S01 **Date Taken: 7/26/2017** Flag 10 downstream
	Photo #: 55 **Stream:** S01 **Date Taken: 7/26/2017** Flag 13 downstream

	Photo #: 56 **Stream:** S01 **Date Taken: 7/26/2017** Flag 19 upstream
	Photo #: 57 **Stream:** S02 **Date Taken: 7/26/2017** Downstream
	Photo #: 58 **Stream:** S02 **Date Taken: 7/26/2017** Upstream

	Photo #: 59 **Stream:** S04 **Date Taken: 7/26/2017** Upstream
	Photo #: 60 **Stream:** S04 **Date Taken: 7/26/2017** Downstream
	Photo #: 61 **Stream:** S05 **Date Taken: 7/26/2017** Upstream

	Photo #: 62 **Stream:** S05 **Date Taken: 7/26/2017** Downstream
	Photo #: 63 **Stream:** S06 **Date Taken: 7/27/2017** downstream
	Photo #: 64 **Stream:** S06 **Date Taken: 7/27/2017** Upstream

	Photo #: 1 **Wetland:** W30 **Date Taken: 5/1/19** Overview of small wetland
	Photo #: 2 **Wetland:** W31 **Date Taken: 5/2/19** W31 @ F6 with Stream S30
	Photo #: 3 **Wetland:** W31 **Date Taken: 5/2/19** W31 @ F100, PFO4 Area of Wetland

	Photo #: 4 **Wetland:** W32 **Date Taken: 5/2/19** W32 @ F12 looking towards tire recycling facility
	Photo #: 5 **Wetland:** W32 **Date Taken: 5/2/19** W32 outlet in riprap to Stream S30 – looking downslope
	Photo #: 6 **Wetland:** W33 **Date Taken: 5/2/19** W33 @ F44 view towards tire recycling facility

	Photo #: 7 **Wetland:** W33 **Date Taken: 5/2/19** W33 @ F36 outlet – CMP at main site access road
	Photo #: 8 **Wetland:** W34 **Date Taken: 5/2/19** W24 @ F93 near southern end of wetland
	Photo #: 9 **Wetland:** W34 **Date Taken: 5/2/19** W24 @ F99 near showing forested swale with standing water/saturated soils

	Photo #: 10 **Wetland:** W35 **Date Taken: 5/2/19** W35 with Stream S31 looking downslope/stream
	Photo #: 11 **Wetland:** W35 **Date Taken: 5/2/19** W35 with Streams S31 and S32
	Photo #: 12 **Wetland:** W08 **Date Taken: 5/3/19** Wetland W08 @ F4 with some flow from S31

	Photo #: 14 **Wetland:** W37 **Date Taken: 5/3/19** W37/VP31 VIEW ALONG LONG AXIS OF WETLAND
	Photo #: 15 **Wetland:** W38 **Date Taken: 5/3/19** W38 @ F4 looking towards outlet of wetland (S32)
	Photo #: 16 **Wetland:** W38 **Date Taken: 5/3/19** W38 with interior portion of forested wetland; several tip-ups from saturated soils

	Photo #: 17 **Wetland:** W39 **Date Taken: 5/3/19** View of wetland in highly disturbed sandy area; standing water
	Photo #: 18 **Wetland:** W40 **Date Taken: 5/3/19** Forested wetland W40 with rutting (@ F22)
	Photo #: 19 **Wetland:** W40 **Date Taken: 5/3/19** Forested wetland @ F30

	Photo #: 20 **Wetland:** W41 **Date Taken: 5/3/19** Narrow forested swale with seep and water visible (@ F6A); wetland extends beyond property boundary
	Photo #: 21 **Wetland:** W42 **Date Taken: 5/23/19** View downslope across PEM portion of wetland
	Photo #: 22 **Wetland:** W42 **Date Taken: 5/23/19** W42 adjacent to main access road, emergent and scrub-shrub with some trees in this area

	Photo #: 23 **Wetland:** W43 **Date Taken: 5/23/19** W43 @ F4, view upslope with water stained leaves in depression
	Photo #: 24 **Wetland:** W44 **Date Taken: 5/23/19** Uppermost area of wetland near F1/23
	Photo #: 25 **Wetland:** W45 **Date Taken: 5/23/19** Pooled portion of wetland; no vernal pool species present with no overstory and very shallow depth; old borrow area

	Photo #: 26 **Wetland:** W45 **Date Taken: 5/23/19** Overview of very small W46 in forested depression
	Photo #: 27 **Wetland:** S06 **Date Taken: 5/3/19** Stream S06 @ F2 looking downstream
	Photo #: 28 **Wetland:** S06 **Date Taken: 5/3/19** Stream S06 @ F10 looking downstream past edge of study area

	Photo #: 29 **Wetland:** S30 **Date Taken: 5/3/19** Stream S30 within Wetland W31; upper portion of stream
	Photo #: 30 **Wetland:** S31 **Date Taken: 5/3/19** Stream S31 @ F3 looking downstream
	Photo #: 31 **Wetland:** S32 **Date Taken: 5/3/19** Stream S32 (drainage) with narrow leafy swale; ephemeral flow only

	Photo #: 32 **Wetland:** S33 **Date Taken: 5/3/19** Stream S33 (drainage) with narrow leafy swale; some evidence of very ephemeral flow

Photo #: 1

Surveyor: E. Lema

Date Taken: 5/4/17

VP1 – First visit, narrow swale in field.

Photo #: 2

Surveyor: E. Lema

Date Taken: 5/4/17

VP1 – Wood frog egg mass

Photo #: 3

Surveyor: E. Lema

Date Taken: 5/16/17

VP1 – Green algal mat of old wood frog egg masses, hatched.

Photo #: 4
Surveyor: E. Lema
Date Taken: 5/4/17
VP2 from south end

Photo #: 5
Surveyor: E. Lema
Date Taken: 5/4/17
VP2 – Spotted salamander egg masses

Photo #: 6
Surveyor: E. Lema
Date Taken: 5/4/17
VP2 – view from a distance in “island” of trees

Photo #: 7

Surveyor: E. Lema

Date Taken: 5/4/17

VP3, interior

Photo #: 8

Surveyor: E. Lema

Date Taken: 5/4/17

VP3 – Spotted salamander egg mass.

Photo #: 9

Surveyor: E. Lema

Date Taken: 5/16/17

VP3 – view from south of vernal pool habitat.

Photo #: 10

Surveyor: E. Lema

Date Taken: 5/2/18

VP4 – Forested pool

Photo #: 11

Surveyor: E. Lema

Date Taken: 5/2/18

VP4 – Wood frog egg mass

Photo #: 12

Surveyor: E. Lema

Date Taken: 5/2/18

VP4 – Spotted salamander egg mass

Photo #: 13
Surveyor: E. Lema
Date Taken: 5/2/18
VP5 – inundated portion of wetland

Photo #: 14
Surveyor: E. Lema
Date Taken: 5/2/18
VP5 – Spotted salamander egg mass

Photo #: 15
Surveyor: E. Lema
Date Taken: 5/2/18
VP5 – Mature wood frog egg mass

Photo #: 16

Surveyor: E. Lema

Date Taken: 5/2/18

VP6 – Forested pool in localized depression

Photo #: 17

Surveyor: E. Lema

Date Taken: 5/2/18

VP6 – Spotted salamander egg mass in VP6

Photo #: 18

Surveyor: E. Lema

Date Taken: 5/15/18

VP7 – inundated portion of wetland area

	Photo #: 19
	Surveyor: E. Lema
	Date Taken: 5/2/18
	VP7 – Spotted salamander egg masses

Photo #: 1

Surveyor: W. McCloy

Date Taken: 5/1/19

VP30 – First visit, re-naturalizing borrow area; disturbed; first visit

Photo #: 2

Surveyor: W. McCloy

Date Taken: 5/1/19

VP30 – Wood frog egg mass; first visit

Photo #: 3

Surveyor: W. McCloy

Date Taken: 5/23/19

VP1 – Few wood frog tadpoles visible; hatched; pool very shallow; second visit

Photo #: 4

Surveyor: W. McCloy

Date Taken: 5/1/19

VP31 overview from southern end; context of site as old borrow area depicted; subtle rutting in pool; first visit

Photo #: 5

Surveyor: W. McCloy

Date Taken: 5/1/19

VP31 – Wood frog egg mass in pool; first visit

Photo #: 6

Surveyor: W. McCloy

Date Taken: 5/23/19

VP31 – view of hatched wood frog tadpoles in VP31; second visit

Appendix B. Paired USACE Data Plots of Representative Wetlands

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Crossroads City/County: Norridgewock Sampling Date: 7/28/17
Applicant/Owner: Waste Management Disposal Services of Maine, Inc State: Maine Sampling Point: W02-A Wet
Investigator(s): B. Griffith Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Ravine Local relief (concave, convex, none): Concave
Slope (%): 2 Lat.: 44.712988 Long.: -69.835696 Datum: NAD83
Soil Map Unit Name: Buxton silt loam, 8 to 15 percent slopes (BuC2) NWI Classification: PFO14B
Are climatic/hydrologic conditions of the site typical for this time of the year? ____ (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	X	No	____	Depth (inches):	16
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	10

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: W02-A Wet

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer rubrum*	30	Y	FAC
2	*Tsuga canadensis*	20	Y	FACU
3	*Picea rubens*	10	N	FACU
4	*Abies balsamea*	5	N	FAC
5				
6				
7				
8				
9				
10				
		65	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	*Tsuga canadensis*	10	Y	FACU
2	*Acer rubrum*	2	N	FAC
3				
4				
5				
6				
7				
8				
9				
10				
		12	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		0	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	13	33
Sapling/Shrub Stratum	2	6
Herb Stratum	0	0
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	37	x 3 =	111	
FACU species	40	x 4 =	160	
UPL species	0	x 5 =	0	
Column totals	77	(A)	271	(B)

Prevalence Index = B/A = 3.52

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- X Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Early season conditions, raised roots and altered morphology on Picea rubens and Tsuga canadensis due to soil wetness, therefore these should be considered as hydrophytes

SOIL

Sampling Point: W02-A Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-6	10YR 2/1	100					Loamy Fine Sand	Organic coated
2-12	10YR 3/1	50						
	10YR 4/1	40	10YR 6/1	10	D	M		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
X Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Crossroads City/County: Norridgewock Sampling Date: 7/28/17
Applicant/Owner: Waste Management Disposal Services of Maine, Inc State: Maine Sampling Point: W02-B Up
Investigator(s): E. Lema Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Mound Local relief (concave, convex, none): Convex
Slope (%): 5 Lat.: 44.713041 Long.: -69.835633 Datum: NAD83
Soil Map Unit Name Buxton silt loam, 8 to 15 percent slopes (BuC2) NWI Classification: _____
Are climatic/hydrologic conditions of the site typical for this time of the year? _____ (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal
Are vegetation _____, soil _____, or hydrology _____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	_____

Remarks: (Explain alternative procedures here or in a separate report.)

Generally a wet spring, site undisturbed

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	_____	No	X	Depth (inches): _____
Water table present?	Yes	_____	No	X	Depth (inches): _____
Saturation present? (includes capillary fringe)	Yes	_____	No	X	Depth (inches): _____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

No primary or secondary indicators

VEGETATION - Use scientific names of plants

Sampling Point: W02-B Up

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	*Tsuga canadensis*	40	Y	FACU
2	*Quercus rubra*	20	Y	FACU
3	*Acer rubrum*	20	Y	FAC
4				
5				
6				
7				
8				
9				
10				
		80	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	*Abies balsamea*	5	Y	FAC
2				
3				
4				
5				
6				
7				
8				
9				
10				
		5	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1	*Aralia nudicaulis*	10	Y	FACU
2	*Lycopodium clavatum*	5	Y	FAC
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		15	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*None in Plot*			-
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	16	40
Sapling/Shrub Stratum	1	3
Herb Stratum	3	8
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	30	x 3 =	90	
FACU species	70	x 4 =	280	
UPL species	0	x 5 =	0	
Column totals	100	(A)	370	(B)

Prevalence Index = B/A = 3.70

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

Early season conditions

SOIL **Sampling Point:** W02-B Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-2	7.5YR2.5/1	100					Loam	
2-4	10YR5/1	100					Loam	
4-12	7.5YR3/4	100					Loam	
12-18	10YR4/4	100						

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Crossroads City/County: Norridgewock Sampling Date: 5/24/19
Applicant/Owner: Waste Management Disposal Services of Maine, Inc State: Maine Sampling Point: W02-A Wet
Investigator(s): W. McCloy Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): Concave
Slope (%): 1 Lat.: 44.713972 Long.: -69.829989 Datum: NAD83
Soil Map Unit Name: Skowhegan loamy fine sand (Sk) NWI Classification: PFO14B
Are climatic/hydrologic conditions of the site typical for this time of the year? _____ (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal
Are vegetation _____, soil _____, or hydrology _____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Forested wetland in broad depression; wet spring but not abnormal

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):
Water table present?	Yes	X	No		Depth (inches): 1
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches): 0 - Surf

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

Saturated at surface; water at 1" depth; drainage flows/patterns nearby

VEGETATION - Use scientific names of plants

Sampling Point: W02-A Wet

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	40	Y	FAC
2	*Pinus strobus*	40	Y	FACU
3	*Tsuga canadensis*	30	Y	FACU
4	*Acer rubrum*	15	N	FAC
5	*Abies balsamea*	5	N	FAC
6				
7				
8				
9				
10				
		130	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	5	Y	FAC
2				
3				
4				
5				
6				
7				
8				
9				
10				
		5	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1	*Onoclea sensibilis*	10	Y	FACW
2	*Coptis trifolia*	10	Y	FACW
3	*Nabalus albus*	5	N	FACU
4	*Oxalis montana*	5	N	FACU
5	*Trientalis borealis*	5	N	FAC
6	*Betula alleghaniensis*	2	N	FAC
7	*Impatiens capensis*	1	N	FACW
8				
9				
10				
11				
12				
13				
14				
15				
		38	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*None in Plot*			-
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	26	65
Sapling/Shrub Stratum	1	3
Herb Stratum	8	19
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	21	x 2 =	42	
FAC species	72	x 3 =	216	
FACU species	80	x 4 =	320	
UPL species	0	x 5 =	0	
Column totals	173	(A)	578	(B)

Prevalence Index = B/A = 3.34

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- X Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Early season conditions; Pinus strobus and Tsuga canadensis had raised roots due to soil wetness - should be considered hydrophytes at this site/within similar circumstances.

SOIL **Sampling Point:** W02-A Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-10	5YR/2.5/1	100					Mucky, organic	O/A Horizon
10-18	Gley 1/5/N	100					Sandy	B Horizon

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
_X_ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Crossroads City/County: Norridgewock Sampling Date: 5/24/19
Applicant/Owner: Waste Management Disposal Services of Maine, Inc State: Maine Sampling Point: W02-B Up
Investigator(s): W. McCloy Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 5-8 Lat.: 44.714171 Long.: -69.829657 Datum: NAD83
Soil Map Unit Name Skowhegan loamy fine sand (Sk) NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? _____ (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal
Are vegetation _____, soil _____, or hydrology _____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

Generally a wet spring, site undisturbed

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	_____	No	X	Depth (inches): _____
Water table present?	Yes	_____	No	X	Depth (inches): _____
Saturation present? (includes capillary fringe)	Yes	_____	No	X	Depth (inches): _____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

No primary or secondary indicators

VEGETATION - Use scientific names of plants

Sampling Point: W02-B Up

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer rubrum*	20	Y	FAC
2	*Pinus strobus*	20	Y	FACU
3	*Tsuga canadensis*	20	Y	FACU
4	*Betula papyrifera*	10	N	FACU
5	*Quercus rubra*	10	N	FACU
6				
7				
8				
9				
10				
		80	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	*Pinus strobus*	20	Y	FACU
2	*Tsuga canadensis*	20	Y	FACU
3	*Abies balsamea*	20	Y	FAC
4				
5				
6				
7				
8				
9				
10				
		60	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1	*Maianthemum canadense*	15	Y	FACU
2	*Medeola virginiana*	8	Y	FACU
3	*Pinus strobus*	0	N	FACU
4	*Tsuga canadensis*	0	N	FACU
5	*Trillium undulatum*	0	N	FACU
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		23	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*None in Plot*			-
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	16	40
Sapling/Shrub Stratum	12	30
Herb Stratum	5	12
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 8 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 25.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	123	x 4 =	492
UPL species	0	x 5 =	0
Column totals	163 (A)		612 (B)

Prevalence Index = B/A = 3.75

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

Early season conditions

SOIL **Sampling Point:** W02-B Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-3	10YR/2/1	100					Sandy Loam	A Horizon
3-5	10YR/5/1	100					Sandy	E Horizon
5-18	7.5YR/4/6	100					Sandy	B Horizon

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
Upland spodosol

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Crossroads Landfill Expansion City/County: Norridgewock Sampling Date: 7/26/17
Applicant/Owner: Waste Management Disposal Services of Maine State: ME Sampling Point: W11-wet
Investigator(s): E. Lema Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave
Slope (%): 2 Lat.: 44.710267 Long.: -69.83226 Datum: NAD83
Soil Map Unit Name Scantic silt loam, 0 to 3 percent slopes (Sc) NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	____	No	X	Depth (inches):	____
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	6

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hydrology possibly altered due to past grading/filling of adjacent area. Appears potentially drained.

VEGETATION - Use scientific names of plants

Sampling Point: W11-wet

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer rubrum*	45	Y	FAC
2	*Abies balsamea*	30	Y	FAC
3	*Betula populifolia*	10	N	FAC
4				
5				
6				
7				
8				
9				
10				
		85	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Abies balsamea*	15	Y	FAC
2				
3				
4				
5				
6				
7				
8				
9				
10				
		15	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1	*Osmundastrum cinnamomeum*	15	Y	FACW
2	*Maianthemum canadense*	5	Y	FACU
3	*Dryopteris intermedia*	2	N	FAC
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		22	= Total Cover	

Woody Vine Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	17	43
Sapling/Shrub Stratum	3	8
Herb Stratum	4	11
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 80.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	15	x 2 =	30	
FAC species	102	x 3 =	306	
FACU species	5	x 4 =	20	
UPL species	0	x 5 =	0	
Column totals	122	(A)	356	(B)

Prevalence Index = B/A = 2.92

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Sparse understory vegetation.

SOIL **Sampling Point:** W11-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-30	7.5YR 2.5/1	100	-	-			Muck	
30+	Gley1 5/5GY	100	-	-			Very Fine Sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
X Black Histic (A3)
X Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: None
Depth (inches): _____

Hydric soil present? Y

Remarks:
Deep muck, not obvious based on surface characteristics

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Crossroads City/County: Norridgewock Sampling Date: 7/28/17
Applicant/Owner: Waste Management Disposal Services of Maine, Inc State: Maine Sampling Point: W11- Up
Investigator(s): B. Griffith Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Mound Local relief (concave, convex, none): Convex
Slope (%): 3 Lat.: 44.7101 Long.: -69.8324 Datum: NAD83
Soil Map Unit Name Scantic silt loam, 0 to 3 percent slopes (Sc) NWI Classification: _____
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal
Are vegetation _____, soil _____, or hydrology _____ naturally problematic? circumstances" present? No
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	_____	No	X	Depth (inches): _____
Water table present?	Yes	_____	No	X	Depth (inches): _____
Saturation present? (includes capillary fringe)	Yes	_____	No	X	Depth (inches): _____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: W11- Up

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	*Pinus strobus*	25	Y	FACU
2	*Acer rubrum*	15	Y	FAC
3	*Betula populifolia*	15	Y	FAC
4	*Betula papyrifera*	10	N	FACU
5				
6				
7				
8				
9				
10				
		65	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	*Pinus strobus*	5	Y	FACU
2	*Acer rubrum*	3	Y	FAC
3				
4				
5				
6				
7				
8				
9				
10				
		8	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1	*Maianthemum canadense*	5	Y	FACU
2	*Trientalis borealis*	1	N	FAC
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		6	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*None in Plot*			-
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	13	33
Sapling/Shrub Stratum	2	4
Herb Stratum	1	3
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	34	x 3 =	102	
FACU species	45	x 4 =	180	
UPL species	0	x 5 =	0	
Column totals	79	(A)	282	(B)

Prevalence Index = B/A = 3.57

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** W11- Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-3	10YR 6/1	100					Loamy fine sand	
3-14	10YR 4/6	100					Loamy fine sand	
14-20	2.5Y 6/4	100					Loamy fine sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___N___

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Crossroads Landfill Expansion City/County: Norridgewock Sampling Date: 7/26/17
Applicant/Owner: Waste Management Disposal Services of Maine State: ME Sampling Point: W13-wet
Investigator(s): E. Lema Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave
Slope (%): 0 Lat.: 44.708781 Long.: -69.833077 Datum: NAD83
Soil Map Unit Name: Suffield silt loam, 8 to 15 percent slopes, eroded (SuC2) NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches):	____
Water table present?	Yes	X	No	____	Depth (inches):	7
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	0

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Obvious wetland hydrology throughout

VEGETATION - Use scientific names of plants

Sampling Point: W13-wet

Tree Stratum	Plot Size (30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer rubrum*	60	Y	FAC
2				
3				
4				
5				
6				
7				
8				
9				
10				
		60	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15')	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer rubrum*	20	Y	FAC
2	*Ilex verticillata*	15	Y	FACW
3	*Corylus cornuta*	2	N	FACU
4				
5				
6				
7				
8				
9				
10				
		37	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1	*Onoclea sensibilis*	35	Y	FACW
2	*Acer rubrum*	15	Y	FAC
3	*Osmundastrum cinnamomeum*	15	Y	FACW
4	*Ilex verticillata*	10	N	FACW
5	*Dryopteris intermedia*	5	N	FAC
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		80	= Total Cover	

Woody Vine Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	12	30
Sapling/Shrub Stratum	7	19
Herb Stratum	16	40
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	75	x 2 =	150	
FAC species	100	x 3 =	300	
FACU species	2	x 4 =	8	
UPL species	0	x 5 =	0	
Column totals	177	(A)	458	(B)

Prevalence Index = B/A = 2.59

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Sphagnum dominated groundcover.

SOIL **Sampling Point:** W13-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-20	7.5YR 2.5/1	100	-	-			Mucky mineral	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
X Black Histic (A3)
X Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: None
Depth (inches): _____

Hydric soil present? Y

Remarks:
Muck soil, could not retrieve sample below 20"

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Crossroads City/County: Norridgewock Sampling Date: 7/28/17
Applicant/Owner: Waste Management Disposal Services of Maine, Inc State: Maine Sampling Point: W13- Up
Investigator(s): B. Griffith Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 5 Lat.: 44.708814 Long.: -69.832883 Datum: NAD83
Soil Map Unit Name Suffield silt loam, 8 to 15 percent slopes, eroded (SuC2) NWI Classification: _____
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal
Are vegetation _____, soil _____, or hydrology _____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	_____	No	X	Depth (inches): _____
Water table present?	Yes	_____	No	X	Depth (inches): _____
Saturation present? (includes capillary fringe)	Yes	_____	No	X	Depth (inches): _____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: W13- Up

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	*Pinus strobus*	40	Y	FACU
2	*Tsuga canadensis*	15	Y	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		55	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer rubrum*	10	Y	FAC
2	*Tsuga canadensis*	10	Y	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		20	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1	*Maianthemum canadense*	5	Y	FACU
2	*Cornus canadensis*	2	Y	FAC
3	*Gaultheria procumbens*	2	Y	FACU
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		9	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*None in Plot*			-
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	11	28
Sapling/Shrub Stratum	4	10
Herb Stratum	2	5
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 28.57% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	12	x 3 =	36	
FACU species	72	x 4 =	288	
UPL species	0	x 5 =	0	
Column totals	84	(A)	324	(B)

Prevalence Index = B/A = 3.86

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: W13- Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-2	10YR 6/1	100					Loamy fine sand	
2-10	10YR 5/6	100					Loamy fine sand	
10-16	2.5YR 5/6	100					Loamy fine sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Crossroads City/County: Norridgewock Sampling Date: 5/24/19
Applicant/Owner: Waste Management Disposal Services of Maine, Inc State: Maine Sampling Point: W17 - A Wet
Investigator(s): W. McCloy Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None
Slope (%): 0-1 Lat.: 44.711169 Long.: -69.827819 Datum: NAD83
Soil Map Unit Name Buxton silt loam, 8 to 15 percent slopes (BuC2) NWI Classification: PEM1B
Are climatic/hydrologic conditions of the site typical for this time of the year? _____ (If no, explain in remarks)
Are vegetation X, soil X, or hydrology X significantly disturbed? Are "normal circumstances" present? No
Are vegetation _____, soil _____, or hydrology _____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Site located in sand borrow pit area; likely excavated to or just below the normal water table; topsoil and all normal vegetation removed

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):
Water table present?	Yes	X	No		Depth (inches): 2
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches): 0 - Surf

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

Saturated at surface; water at 2" depth after 15 minutes

VEGETATION - Use scientific names of plants

Sampling Point: W17 - A Wet

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	*None in Wetland*			-
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula populifolia*	35	Y	FAC
2	*Alnus incana*	5	N	FACW
3	*Salix bebbiana*	5	N	FACW
4	*Populus tremuloides*	3	N	FACU
5	*Pinus strobus*	3	N	FACU
6	*Picea rubens*	0	N	FACU
7				
8				
9				
10				
		51	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex sp.*	30	Y	FACW
2	*Salix bebbiana*	10	N	FACW
3	*Betula populifolia*	10	N	FAC
4	*Aster sp.*	5	N	FAC
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		55	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*None in Plot*			-
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	10	26
Herb Stratum	11	28
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	50	x 2 =	100	
FAC species	50	x 3 =	150	
FACU species	6	x 4 =	24	
UPL species	0	x 5 =	0	
Column totals	106	(A)	274	(B)

Prevalence Index = B/A = 2.58

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Early season conditions; haircap moss probably most dominant; whole area a borrow/sand put so vegetation highly disturbed and removed, regenerating

SOIL **Sampling Point:** W17 - A Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-14+	5Y/4/2	100	10YR/4/4	7	C	M	Sand	A/B Horizon, disturbed

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
X Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Soils very disturbed, all topsoil stripped and only sand removes; likely excavated below the water table

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Crossroads City/County: Norridgewock Sampling Date: 5/24/19
Applicant/Owner: Waste Management Disposal Services of Maine, Inc State: Maine Sampling Point: W17 - B Up
Investigator(s): W. McCloy Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None
Slope (%): 0-1 Lat.: 44.711123 Long.: -69.827626 Datum: NAD83
Soil Map Unit Name Buxton silt loam, 8 to 15 percent slopes (BuC2) NWI Classification: PEM1B
Are climatic/hydrologic conditions of the site typical for this time of the year? _____ (If no, explain in remarks)
Are vegetation X, soil X, or hydrology X significantly disturbed? Are "normal circumstances" present? No
Are vegetation _____, soil _____, or hydrology _____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

Site located in sand borrow pit area;topsoil and all normal vegetation removed

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	_____	No	X	Depth (inches): _____
Water table present?	Yes	_____	No	X	Depth (inches): _____
Saturation present? (includes capillary fringe)	Yes	_____	No	X	Depth (inches): _____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

Disturbed; upland plot on small rise in sandy area

VEGETATION - Use scientific names of plants

Sampling Point: W17 - B Up

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	*None in Wetland*			-
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	*None in Plot*			-
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1	*Unknown herb*	1		UNK
2	*Pinus Strobus*	0		FACU
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		1	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*None in Plot*			-
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	0	1
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 0 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	0	(A)	0	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

Early season conditions; whole area a borrow/sand put so vegetation highly disturbed and removed, regenerating

SOIL **Sampling Point:** W17 - B Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-3	4Y/4/2	100					Sand	A/B Horizon, disturbed
3-16+	2.5Y/4/2	100					Sand	B Horizon

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
Soils very disturbed, all topsoil stripped and only sand removed;

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Crossroads City/County: Norridgewock Sampling Date: 5/24/19
Applicant/Owner: Waste Management Disposal Services of Maine, Inc State: Maine Sampling Point: W42-A Wet
Investigator(s): W. McCloy Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 1-4 Lat.: 44.705979 Long.: -69.830948 Datum: NAD83
Soil Map Unit Name Suffield silt loam, 8 to 15 percent slopes, eroded (SuC2) NWI Classification: PEM1E
Are climatic/hydrologic conditions of the site typical for this time of the year? _____ (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal
Are vegetation _____, soil _____, or hydrology _____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Wetland located in field area; mowed at least once per year to maintain as open, emergent wetland

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	0 - Surf
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	0 - Surf

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

Saturated at surface; watertable at 0" depth after 15 minutes

VEGETATION - Use scientific names of plants

Sampling Point: W42-A Wet

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	*None in Wetland*			-
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	*None in Plot*			-
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	40	Y	OBL
2	*Onoclea sensibilis*	40	Y	FACW
3	*Juncus effusus*	15	N	OBL
4	*Rumex crispus*	5	N	FAC
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		100	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*None in Plot*			-
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	20	50
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	55	x 1 =	55	
FACW species	40	x 2 =	80	
FAC species	5	x 3 =	15	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	100	(A)	150	(B)

Prevalence Index = B/A = 1.50

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Early season conditions but good growth amongst dominant species; Carex species ID unsure given early season but definitely an OBL or FACW species

SOIL **Sampling Point:** W42-A Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-1	2.5Y/3/2	100					Clay Loam	O/A Horizon
2-14+	5Y/4/2	100	7.5YR/4/6	12	C	M	Clay Loam	B Horizon

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
_X_ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
Minor disturbance likely in past given proximity to office area and other development.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Crossroads City/County: Norridgewock Sampling Date: 5/24/19
Applicant/Owner: Waste Management Disposal Services of Maine, Inc State: Maine Sampling Point: W42-B Up
Investigator(s): W. McCloy Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Slight Convex
Slope (%): 2-4 Lat.: 44.706103 Long.: -69.831085 Datum: NAD83
Soil Map Unit Name Suffield silt loam, 8 to 15 percent slopes, eroded (SuC2) NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? _____ (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal
Are vegetation _____, soil _____, or hydrology _____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

Site located in field area; mowed at least once per year

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	15
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	13

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:
None

VEGETATION - Use scientific names of plants

Sampling Point: W42-B Up

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	*None in Plot*			-
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	*None in Plot*			-
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1	*Poa pratensis*	60	Y	FACU
2	*Phalaris arundinacea*	25	Y	FACW
3	*Galium mollugo*	15	N	FACU
4	*Daucus carota*	5	N	UPL
5	*Fragaria virginiana*	5	N	FACU
6	*Potentilla simplex*	2	N	FACU
7	*Vicia americana*	2	N	FACU
8				
9				
10				
11				
12				
13				
14				
15				
		114	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*None in Plot*			-
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	23	57
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	0	x 3 =	0
FACU species	84	x 4 =	336
UPL species	5	x 5 =	25
Column totals	114 (A)		411 (B)

Prevalence Index = B/A = 3.61

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- ___ Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

Early season conditions but good growth amongst dominant species

SOIL **Sampling Point:** W42-B Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-9	2.5Y/4/3	100					Clay Loam	A Horizon
9-16+	5Y/5/3	70	7.5YR/4/6	12	C	M	Clay Loam	B Horizon
	5Y/5/2	30	10YR/5/6	8	C	M	Clay Loam	B Horizon

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:
Minor disturbance likely in past given proximity to office area and other development.

Appendix C. USACE VP Characterization Forms and MEDEP Vernal Pool Significance Determination (2018)

US Army Corps of Engineers - New England District
DRAFT Vernal Pool Characterization Form

Project File #_____ Project Name Crossroads Phase 14 Pool ID 1
Observer Erik Lema - Normandeau Associates, Inc. Phone or E-mail elema@normandeau.com
Landowner/Applicant Waste Management Disposal Services of Maine Phone or E-mail 207-634-2714
Address 357 Mercer Road City Norridgewock State ME Zip 04957
Location of vernal pool: City/State Norridgewock, ME
Survey date(s) 5/4/2017, 5/6/2017, 5/2/2018
Longitude/Latitude (in decimal degrees) __.°, -.°

A. VERNAL POOL CHARACTERISTICS (fill in all information known):

1. Landscape setting (check all that apply):

- [x] Upland depression (4 pts; if this is also in a floodplain, use 2 pts)
- [ ] Pool part of wildlife corridor (4 pts)
- [ ] Pool part of a pool complex (within 1000 feet of one or more other vernal pools) (NA)
- [ ] Pool within larger wetland system (4 pts; if this is also in a floodplain, use 2 pts)
- [ ] Other:_____(variable pts)

2. Vernal pool condition:

Describe any recent modifications to the pool and associated landscape: _____

3. Parent material:

- [ ] Glacial fluvial ("outwash")
- [ ] Loose till
- [ ] Peat
- [ ] Dense till
- [ ] Alluvium
- [ ] Coastal marine sediments

4. Aquatic resource type that best applies to this pool (choose dominant):

- [ ] Forested wetland (4 pts)
- [x] Herbaceous wetland (4 pts)
- [ ] Floodplain (overflow/oxbow) (3 pts)
- [ ] Shrub wetland (4 pts)
- [ ] Open water (2 pts)
- [x] Other: former borrow area (variable points)
- [ ] Peatland (acidic fen or bog) (4 pts)
- [ ] Intermittent stream reach (2 pts)

5. Pool canopy cover (%): _____

6. Predominant substrate:

- [ ] Mineral soil
- [x] Organic matter (peat/muck) Depth_____ Sampling location (e.g., deepest zone, edge, etc.)_____

7. Pool size:

a. Approximate dimensions of pool (at maximum capacity; include units): Length 65 ft Width 10 ft
Area: 1650 sq ft

b. Maximum depth at deepest point at time of survey (include units): 0-1 ft

8. Hydrology:

a. Estimated hydroperiod (unless actual, observed hydroperiod value(s) is(are) known, use the presence of these example indicator species to best predict the expected hydroperiod of the pool):

- [x] Dries between early March and early July (e.g., *Thelypteris palustris, Carex stricta, Impatiens capensis, Ilex verticillata*) (6 pts)
- [ ] Dries between early July and early September (e.g., *Sagittaria latifolia, Scirpus cyperinus, Dulichium arund., Cephalanthus occ.*) (8 pts)
- [ ] Dries between early September and early November (e.g., *Eleocharis palustris, Glyceria cana., Utricularia* spp., *Decodon vert.*) (8 pts)
- [ ] Dries between early November and late December, or intermittently exposed (e.g., *Nuphar* spp., *Potamogeton* spp.) (2 pts)

b. Inlet/outlet (pick one):

- [x] No inlet/outlet (8 pts)
- [ ] Permanent inlet or outlet (channel with well-defined banks and permanent flow) (2 pts)
- [ ] Temporary inlet/outlet (6 pts)

9. Water quality:

- [ ] Clear
- [ ] High turbidity
- [ ] High algae content
- [ ] Tannic

22 **TOTAL for Pool Characteristics (out of 28 max.)**

B. VERNAL POOL ENVELOPE (100 ft) AND CRITICAL HABITAT AREA (100-750 ft) CHARACTERISTICS (fill in all information known):

1. Landuse type and approximate percentage within the 100-ft vernal pool envelope:

[x] Forested 7 % (16 pts) [ ] Open (e.g., meadow, agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [x] Developed 93 % (0 pts)

2. **Landuse type and approximate percentage within the 100 - 750-ft vernal pool critical terrestrial habitat:**

[x] Forested 45 % (16 pts) [ ] Open (e.g., agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [x] Developed 55 % (0 pts)

[ ] Are there one or more barriers to vernal pool fauna movement within the envelope and/or critical terrestrial habitat? If so, check here and see directions for explanation of how to incorporate this information.

Based on: [ ] Field estimate [ ] GIS [x] Aerial photo estimate

8.32 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area (out of 32 max.)**

C. SPECIES PRESENT IN VERNAL POOL

INDICATOR SPECIES	DATE	EGG MASSES (#)	TADPOLES/LARVAE
Wood Frog (*Lithobates sylvaticus*)	5/4/2017 5/2/2018	31 16	
Spotted Salamander (*Ambystoma maculatum*)			
Blue-spotted Salamander (*Ambystoma laterale*)			
Jefferson's Salamander (*Ambystoma jeffersonianum*)			
Marbled Salamander (*Ambystoma opacum*)			
Fairy Shrimp (*Eubranchipus* spp.)		**PRESENT/ABSENT**	**ABUNDANCE:**
OTHER SPECIES	**DATE**	**PRESENCE/ABSENCE**	**FEW/COMMON/MANY**
Facultative Species (e.g., Spring Peeper (*Pseudacris crucifer*), Gray Tree Frog (*Hyla versicolor*), Caddisflies (Limnephilidae, Phryganeidae), American Toad (*Anaxyrus americanus*), Eastern Spadefoot Toad (*Scaphiopus holbrookii*), Fowler's Toad (*Anaxyrus fowleri*), Fingernail Clams (Sphaeriidae, Pisidiidae))(list):			
Rare Species (list):			
Predator Species (e.g., Bullfrog/Green frog tadpoles, Fish) (list):			
Other species (e.g., Ducks, Turtles, etc.)(list):			

Presence of Indicator Species [x] Yes [ ] No

SUMMARY:

22 **TOTAL for Pool Characteristics** 8.32 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area**

Other comments (append photographs, additional notes, sketch of pool and surrounding landscape):

US Army Corps of Engineers - New England District
DRAFT Vernal Pool Characterization Form

Project File #_____ Project Name Crossroads Phase 14 Pool ID 2
Observer Erik Lema - Normandeau Associates, Inc. Phone or E-mail elema@normandeau.com
Landowner/Applicant Waste Management Disposal Services of Maine Phone or E-mail 207-634-2714
Address 357 Mercer Road City Norridgewock State ME Zip 04957
Location of vernal pool: City/State Norridgewock, ME
Survey date(s) 5/4/2017, 5/16/2017, 5/2/2018
Longitude/Latitude (in decimal degrees) ___.°, -.°

A. VERNAL POOL CHARACTERISTICS (fill in all information known):

1. Landscape setting (check all that apply):

[X] Upland depression (4 pts; if this is also in a floodplain, use 2 pts)
[ ] Pool part of wildlife corridor (4 pts)
[ ] Pool part of a pool complex (within 1000 feet of one or more other vernal pools) (NA)
[ ] Pool within larger wetland system (4 pts; if this is also in a floodplain, use 2 pts)
[ ] Other:_____(variable pts)

2. Vernal pool condition:

Describe any recent modifications to the pool and associated landscape: _____

3. Parent material:

[ ] Glacial fluvial ("outwash")
[ ] Loose till
[ ] Peat
[ ] Dense till
[ ] Alluvium
[ ] Coastal marine sediments

4. Aquatic resource type that best applies to this pool (choose dominant):

[X] Forested wetland (4 pts)
[ ] Herbaceous wetland (4 pts)
[ ] Floodplain (overflow/oxbow) (3 pts)
[ ] Shrub wetland (4 pts)
[ ] Open water (2 pts)
[ ] Other:_____(variable points)
[ ] Peatland (acidic fen or bog) (4 pts)
[ ] Intermittent stream reach (2 pts)

5. Pool canopy cover (%): _____

6. Predominant substrate:

[ ] Mineral soil
[X] Organic matter (peat/muck) Depth_____Sampling location (e.g., deepest zone, edge, etc.)_____

7. Pool size:

a. Approximate dimensions of pool (at maximum capacity; include units): Length 50 ft Width 25 ft
Area: 1250 sq ft

b. Maximum depth at deepest point at time of survey (include units): 3-5 ft

8. Hydrology:

a. Estimated hydroperiod (unless actual, observed hydroperiod value(s) is(are) known, use the presence of these example indicator species to best predict the expected hydroperiod of the pool):

[ ] Dries between early March and early July (e.g., *Thelypteris palustris, Carex stricta, Impatiens capensis, Ilex verticillata*) (6 pts)
[ ] Dries between early July and early September (e.g., *Sagittaria latifolia, Scirpus cyperinus, Dulichium arund., Cephalanthus occ.*) (8 pts)
[ ] Dries between early September and early November (e.g., *Eleocharis palustris, Glyceria cana., Utricularia* spp., *Decodon vert.*) (8 pts)
[X] Dries between early November and late December, or intermittently exposed (e.g., *Nuphar* spp., *Potamogeton* spp.) (2 pts)

b. Inlet/outlet (pick one):

[X] No inlet/outlet (8 pts)
[ ] Permanent inlet or outlet (channel with well-defined banks and permanent flow) (2 pts)
[ ] Temporary inlet/outlet (6 pts)

9. Water quality:

[ ] Clear
[ ] High turbidity
[ ] High algae content
[ ] Tannic

18 **TOTAL for Pool Characteristics (out of 28 max.)**

B. VERNAL POOL ENVELOPE (100 ft) AND CRITICAL HABITAT AREA (100-750 ft) CHARACTERISTICS (fill in all information known):

1. Landuse type and approximate percentage within the 100-ft vernal pool envelope:

[x] Forested 5 % (16 pts) [ ] Open (e.g., meadow, agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [x] Developed 95 % (0 pts)

2. **Landuse type and approximate percentage within the 100 - 750-ft vernal pool critical terrestrial habitat:**

[x] Forested 55 % (16 pts) [ ] Open (e.g., agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [x] Developed 45 % (0 pts)

[ ] Are there one or more barriers to vernal pool fauna movement within the envelope and/or critical terrestrial habitat? If so, check here and see directions for explanation of how to incorporate this information.

Based on: [ ] Field estimate [ ] GIS [x] Aerial photo estimate

9.6 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area (out of 32 max.)**

C. SPECIES PRESENT IN VERNAL POOL

INDICATOR SPECIES	DATE	EGG MASSES (#)	TADPOLES/LARVAE
Wood Frog (*Lithobates sylvaticus*)			
Spotted Salamander (*Ambystoma maculatum*)	5/4/2017 5/16/2017 5/2/2018	63 31 24+	
Blue-spotted Salamander (*Ambystoma laterale*)			
Jefferson's Salamander (*Ambystoma jeffersonianum*)			
Marbled Salamander (*Ambystoma opacum*)			
Fairy Shrimp (*Eubranchipus* spp.)		**PRESENT/ABSENT**	**ABUNDANCE:**
OTHER SPECIES	**DATE**	**PRESENCE/ABSENCE**	**FEW/COMMON/MANY**
Facultative Species (e.g., Spring Peeper (*Pseudacris crucifer*), Gray Tree Frog (*Hyla versicolor*), Caddisflies (Limnephilidae, Phryganeidae), American Toad (*Anaxyrus americanus*), Eastern Spadefoot Toad (*Scaphiopus holbrookii*), Fowler's Toad (*Anaxyrus fowleri*), Fingernail Clams (Sphaeriidae, Pisidiidae))(list):			
Rare Species (list):			
Predator Species (e.g., Bullfrog/Green frog tadpoles, Fish) (list):			
Other species (e.g., Ducks, Turtles, etc.)(list):			

Presence of Indicator Species [x] Yes [ ] No

SUMMARY:

18 **TOTAL for Pool Characteristics** 9.6 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area**

Other comments (append photographs, additional notes, sketch of pool and surrounding landscape):

US Army Corps of Engineers - New England District
DRAFT Vernal Pool Characterization Form

Project File #_____ Project Name Crossroads Phase 14 Pool ID 3
Observer Erik Lema - Normandeau Associates, Inc. Phone or E-mail elema@normandeau.com
Landowner/Applicant Waste Management Disposal Services of Maine Phone or E-mail 207-634-2714
Address 357 Mercer Road City Norridgewock State ME Zip 04957
Location of vernal pool: City/State Norridgewock, ME
Survey date(s) 5/4/2017, 5/16/2017, 5/2/2018
Longitude/Latitude (in decimal degrees) ___.°, -.°

A. VERNAL POOL CHARACTERISTICS (fill in all information known):

1. Landscape setting (check all that apply):

[X] Upland depression (4 pts; if this is also in a floodplain, use 2 pts)
[ ] Pool part of wildlife corridor (4 pts)
[ ] Pool part of a pool complex (within 1000 feet of one or more other vernal pools) (NA)
[ ] Pool within larger wetland system (4 pts; if this is also in a floodplain, use 2 pts)
[ ] Other:_____(variable pts)

2. Vernal pool condition:

Describe any recent modifications to the pool and associated landscape: _____

3. Parent material:

[ ] Glacial fluvial ("outwash")
[ ] Loose till
[ ] Peat
[ ] Dense till
[ ] Alluvium
[ ] Coastal marine sediments

4. Aquatic resource type that best applies to this pool (choose dominant):

[X] Forested wetland (4 pts)
[ ] Herbaceous wetland (4 pts)
[ ] Floodplain (overflow/oxbow) (3 pts)
[X] Shrub wetland (4 pts)
[ ] Open water (2 pts)
[ ] Other:_____(variable points)
[ ] Peatland (acidic fen or bog) (4 pts)
[ ] Intermittent stream reach (2 pts)

5. Pool canopy cover (%): _____

6. Predominant substrate:

[X] Mineral soil
[ ] Organic matter (peat/muck) Depth_____Sampling location (e.g., deepest zone, edge, etc.)_____

7. Pool size:

a. Approximate dimensions of pool (at maximum capacity; include units): Length 200 ft Width 30 ft
Area: 6000 sq ft

b. Maximum depth at deepest point at time of survey (include units): 1-3 ft

8. Hydrology:

a. Estimated hydroperiod (unless actual, observed hydroperiod value(s) is(are) known, use the presence of these example indicator species to best predict the expected hydroperiod of the pool):

[ ] Dries between early March and early July (e.g., *Thelypteris palustris, Carex stricta, Impatiens capensis, Ilex verticillata*) (6 pts)
[X] Dries between early July and early September (e.g., *Sagittaria latifolia, Scirpus cyperinus, Dulichium arund., Cephalanthus occ.*) (8 pts)
[ ] Dries between early September and early November (e.g., *Eleocharis palustris, Glyceria cana., Utricularia* spp., *Decodon vert.*) (8 pts)
[ ] Dries between early November and late December, or intermittently exposed (e.g., *Nuphar* spp., *Potamogeton* spp.) (2 pts)

b. Inlet/outlet (pick one):

[X] No inlet/outlet (8 pts)
[ ] Permanent inlet or outlet (channel with well-defined banks and permanent flow) (2 pts)
[ ] Temporary inlet/outlet (6 pts)

9. Water quality:

[ ] Clear
[ ] High turbidity
[ ] High algae content
[ ] Tannic

24 **TOTAL for Pool Characteristics (out of 28 max.)**

B. VERNAL POOL ENVELOPE (100 ft) AND CRITICAL HABITAT AREA (100-750 ft) CHARACTERISTICS (fill in all information known):

1. Landuse type and approximate percentage within the 100-ft vernal pool envelope:

[X] Forested 35 % (16 pts) [ ] Open (e.g., meadow, agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [X] Developed 65 % (0 pts)

2. **Landuse type and approximate percentage within the 100 - 750-ft vernal pool critical terrestrial habitat:**

[X] Forested 65 % (16 pts) [ ] Open (e.g., agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [X] Developed 35 % (0 pts)

[ ] Are there one or more barriers to vernal pool fauna movement within the envelope and/or critical terrestrial habitat? If so, check here and see directions for explanation of how to incorporate this information.

Based on: [ ] Field estimate [ ] GIS [X] Aerial photo estimate

16 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area (out of 32 max.)**

C. SPECIES PRESENT IN VERNAL POOL

INDICATOR SPECIES	DATE	EGG MASSES (#)	TADPOLES/LARVAE
Wood Frog (*Lithobates sylvaticus*)			
Spotted Salamander (*Ambystoma maculatum*)	5/4/2017 5/16/2017 5/2/2018	3 3 1	
Blue-spotted Salamander (*Ambystoma laterale*)			
Jefferson's Salamander (*Ambystoma jeffersonianum*)			
Marbled Salamander (*Ambystoma opacum*)			
Fairy Shrimp (*Eubranchipus* spp.)		**PRESENT/ABSENT**	**ABUNDANCE:**
OTHER SPECIES	**DATE**	**PRESENCE/ABSENCE**	**FEW/COMMON/MANY**
Facultative Species (e.g., Spring Peeper (*Pseudacris crucifer*), Gray Tree Frog (*Hyla versicolor*), Caddisflies (Limnephilidae, Phryganeidae), American Toad (*Anaxyrus americanus*), Eastern Spadefoot Toad (*Scaphiopus holbrookii*), Fowler's Toad (*Anaxyrus fowleri*), Fingernail Clams (Sphaeriidae, Pisidiidae))(list):			
Rare Species (list):			
Predator Species (e.g., Bullfrog/Green frog tadpoles, Fish) (list):			
Other species (e.g., Ducks, Turtles, etc.)(list):			

Presence of Indicator Species [X] Yes [ ] No

SUMMARY:

24 **TOTAL for Pool Characteristics** 16 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area**

Other comments (append photographs, additional notes, sketch of pool and surrounding landscape):

US Army Corps of Engineers - New England District
DRAFT Vernal Pool Characterization Form

Project File #_____ Project Name Crossroads Phase 14 Pool ID 4
Observer Erik Lema - Normandeau Associates, Inc. Phone or E-mail elema@normandeau.com
Landowner/Applicant Waste Management Disposal Services of Maine Phone or E-mail 207-634-2714
Address 357 Mercer Road City Norridgewock State ME Zip 04957
Location of vernal pool: City/State Norridgewock, ME
Survey date(s) 5/2/2018, 5/15/2018
Longitude/Latitude (in decimal degrees) ,°, -,°

A. VERNAL POOL CHARACTERISTICS (fill in all information known):

1. Landscape setting (check all that apply):

☐ Upland depression (4 pts; if this is also in a floodplain, use 2 pts)
☐ Pool part of wildlife corridor (4 pts)
☐ Pool part of a pool complex (within 1000 feet of one or more other vernal pools) (NA)
☒ Pool within larger wetland system (4 pts; if this is also in a floodplain, use 2 pts)
☐ Other:_____(variable pts)

2. Vernal pool condition:

Describe any recent modifications to the pool and associated landscape: _____

3. Parent material:

☐ Glacial fluvial ("outwash")
☐ Loose till
☐ Peat
☐ Dense till
☐ Alluvium
☐ Coastal marine sediments

4. Aquatic resource type that best applies to this pool (choose dominant):

☒ Forested wetland (4 pts)
☐ Herbaceous wetland (4 pts)
☐ Floodplain (overflow/oxbow) (3 pts)
☐ Shrub wetland (4 pts)
☐ Open water (2 pts)
☐ Other:_____(variable points)
☐ Peatland (acidic fen or bog) (4 pts)
☐ Intermittent stream reach (2 pts)

5. Pool canopy cover (%): _____

6. Predominant substrate:

☒ Mineral soil
☐ Organic matter (peat/muck) Depth_____Sampling location (e.g., deepest zone, edge, etc.)_____

7. Pool size:

a. Approximate dimensions of pool (at maximum capacity; include units): Length 120 ft Width 40 ft
Area: 4800 sq ft

b. Maximum depth at deepest point at time of survey (include units): 1-3 ft

8. Hydrology:

a. Estimated hydroperiod (unless actual, observed hydroperiod value(s) is(are) known, use the presence of these example indicator species to best predict the expected hydroperiod of the pool):

☐ Dries between early March and early July (e.g., *Thelypteris palustris, Carex stricta, Impatiens capensis, Ilex verticillata*) (6 pts)
☒ Dries between early July and early September (e.g., *Sagittaria latifolia, Scirpus cyperinus, Dulichium arund., Cephalanthus occ.*) (8 pts)
☐ Dries between early September and early November (e.g., *Eleocharis palustris, Glyceria cana., Utricularia* spp., *Decodon vert.*) (8 pts)
☐ Dries between early November and late December, or intermittently exposed (e.g., *Nuphar* spp., *Potamogeton* spp.) (2 pts)

b. Inlet/outlet (pick one):

☒ No inlet/outlet (8 pts)
☐ Permanent inlet or outlet (channel with well-defined banks and permanent flow) (2 pts)
☐ Temporary inlet/outlet (6 pts)

9. Water quality:

☐ Clear
☐ High turbidity
☐ High algae content
☐ Tannic

24 **TOTAL for Pool Characteristics (out of 28 max.)**

B. VERNAL POOL ENVELOPE (100 ft) AND CRITICAL HABITAT AREA (100-750 ft) CHARACTERISTICS (fill in all information known):

1. Landuse type and approximate percentage within the 100-ft vernal pool envelope:

[x] Forested 100 % (16 pts) [ ] Open (e.g., meadow, agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [ ] Developed ____ % (0 pts)

2. **Landuse type and approximate percentage within the 100 - 750-ft vernal pool critical terrestrial habitat:**

[x] Forested 85 % (16 pts) [ ] Open (e.g., agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [x] Developed 15 % (0 pts)

[ ] Are there one or more barriers to vernal pool fauna movement within the envelope and/or critical terrestrial habitat? If so, check here and see directions for explanation of how to incorporate this information.

Based on: [ ] Field estimate [ ] GIS [x] Aerial photo estimate

29 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area (out of 32 max.)**

C. SPECIES PRESENT IN VERNAL POOL

INDICATOR SPECIES	DATE	EGG MASSES (#)	TADPOLES/LARVAE
Wood Frog (*Lithobates sylvaticus*)	5/2/2018	1	
Spotted Salamander (*Ambystoma maculatum*)	5/2/2018 5/15/2018	1 1	
Blue-spotted Salamander (*Ambystoma laterale*)			
Jefferson's Salamander (*Ambystoma jeffersonianum*)			
Marbled Salamander (*Ambystoma opacum*)			
Fairy Shrimp (*Eubranchipus* spp.)		**PRESENT/ABSENT**	**ABUNDANCE:**
OTHER SPECIES	**DATE**	**PRESENCE/ABSENCE**	**FEW/COMMON/MANY**
Facultative Species (e.g., Spring Peeper (*Pseudacris crucifer*), Gray Tree Frog (*Hyla versicolor*), Caddisflies (Limnephilidae, Phryganeidae), American Toad (*Anaxyrus americanus*), Eastern Spadefoot Toad (*Scaphiopus holbrookii*), Fowler's Toad (*Anaxyrus fowleri*), Fingernail Clams (Sphaeriidae, Pisidiidae))(list):			
Rare Species (list):			
Predator Species (e.g., Bullfrog/Green frog tadpoles, Fish) (list):			
Other species (e.g., Ducks, Turtles, etc.)(list):			

Presence of Indicator Species [x] Yes [ ] No

SUMMARY:

24 **TOTAL for Pool Characteristics** 29 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area**

Other comments (append photographs, additional notes, sketch of pool and surrounding landscape):

US Army Corps of Engineers - New England District
DRAFT Vernal Pool Characterization Form

Project File #_____ Project Name Crossroads Phase 14 Pool ID 5
Observer William McCloy - Normandeau Associates, Inc. Phone or E-mail wmccloy@normandeau.com
Landowner/Applicant Waste Management Disposal Services of Maine Phone or E-mail 207-634-2714
Address 357 Mercer Road City Norridgewock State ME Zip 04957
Location of vernal pool: City/State Norridgewock, ME
Survey date(s) 5/1/2019, 5/23/2019
Longitude/Latitude (in decimal degrees) ,°, -,°

A. VERNAL POOL CHARACTERISTICS (fill in all information known):

1. Landscape setting (check all that apply):

☐ Upland depression (4 pts; if this is also in a floodplain, use 2 pts)
☐ Pool part of wildlife corridor (4 pts)
☐ Pool part of a pool complex (within 1000 feet of one or more other vernal pools) (NA)
☐ Pool within larger wetland system (4 pts; if this is also in a floodplain, use 2 pts)
☒ Other: isolated wetland surrounded by developed areas (variable pts)

2. Vernal pool condition:

Describe any recent modifications to the pool and associated landscape: _____

3. Parent material:

☐ Glacial fluvial ("outwash")
☐ Loose till
☐ Peat
☐ Dense till
☐ Alluvium
☐ Coastal marine sediments

4. Aquatic resource type that best applies to this pool (choose dominant):

☒ Forested wetland (4 pts)
☐ Herbaceous wetland (4 pts)
☐ Floodplain (overflow/oxbow) (3 pts)
☒ Shrub wetland (4 pts)
☐ Open water (2 pts)
☐ Other:_____(variable points)
☐ Peatland (acidic fen or bog) (4 pts)
☐ Intermittent stream reach (2 pts)

5. Pool canopy cover (%): _____

6. Predominant substrate:

☐ Mineral soil
☒ Organic matter (peat/muck) Depth_____ Sampling location (e.g., deepest zone, edge, etc.)_____

7. Pool size:

a. Approximate dimensions of pool (at maximum capacity; include units): Length 300 ft Width 180 ft
Area: 48,000 sq ft

b. Maximum depth at deepest point at time of survey (include units): 2-3 ft

8. Hydrology:

a. Estimated hydroperiod (unless actual, observed hydroperiod value(s) is(are) known, use the presence of these example indicator species to best predict the expected hydroperiod of the pool):

☐ Dries between early March and early July (e.g., *Thelypteris palustris, Carex stricta, Impatiens capensis, Ilex verticillata*) (6 pts)
☐ Dries between early July and early September (e.g., *Sagittaria latifolia, Scirpus cyperinus, Dulichium arund., Cephalanthus occ.*) (8 pts)
☐ Dries between early September and early November (e.g., *Eleocharis palustris, Glyceria cana., Utricularia* spp., *Decodon vert.*) (8 pts)
☒ Dries between early November and late December, or intermittently exposed (e.g., *Nuphar* spp., *Potamogeton* spp.) (2 pts)

b. Inlet/outlet (pick one):

☒ No inlet/outlet (8 pts)
☐ Permanent inlet or outlet (channel with well-defined banks and permanent flow) (2 pts)
☐ Temporary inlet/outlet (6 pts)

9. Water quality:

☐ Clear
☐ High turbidity
☐ High algae content
☐ Tannic

16 **TOTAL for Pool Characteristics (out of 28 max.)**

B. VERNAL POOL ENVELOPE (100 ft) AND CRITICAL HABITAT AREA (100-750 ft) CHARACTERISTICS (fill in all information known):

1. Landuse type and approximate percentage within the 100-ft vernal pool envelope:

[x] Forested 65 % (16 pts) [ ] Open (e.g., meadow, agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [x] Developed 35 % (0 pts)

2. **Landuse type and approximate percentage within the 100 - 750-ft vernal pool critical terrestrial habitat:**

[x] Forested 55 % (16 pts) [ ] Open (e.g., agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [x] Developed 45 % (0 pts)

[ ] Are there one or more barriers to vernal pool fauna movement within the envelope and/or critical terrestrial habitat? If so, check here and see directions for explanation of how to incorporate this information.

Based on: [ ] Field estimate [ ] GIS [x] Aerial photo estimate

19.2 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area (out of 32 max.)**

C. SPECIES PRESENT IN VERNAL POOL

INDICATOR SPECIES	DATE	EGG MASSES (#)	TADPOLES/LARVAE
Wood Frog (*Lithobates sylvaticus*)	5/1/2019	32	present
Spotted Salamander (*Ambystoma maculatum*)	5/1/2018	2	
Blue-spotted Salamander (*Ambystoma laterale*)			
Jefferson's Salamander (*Ambystoma jeffersonianum*)			
Marbled Salamander (*Ambystoma opacum*)			
Fairy Shrimp (*Eubranchipus* spp.)		**PRESENT/ABSENT**	**ABUNDANCE:**
OTHER SPECIES	**DATE**	**PRESENCE/ABSENCE**	**FEW/COMMON/MANY**
Facultative Species (e.g., Spring Peeper (*Pseudacris crucifer*), Gray Tree Frog (*Hyla versicolor*), Caddisflies (Limnephilidae, Phryganeidae), American Toad (*Anaxyrus americanus*), Eastern Spadefoot Toad (*Scaphiopus holbrookii*), Fowler's Toad (*Anaxyrus fowleri*), Fingernail Clams (Sphaeriidae, Pisidiidae))(list):			
Rare Species (list):			
Predator Species (e.g., Bullfrog/Green frog tadpoles, Fish) (list):			
Other species (e.g., Ducks, Turtles, etc.)(list):			

Presence of Indicator Species [x] Yes [ ] No

SUMMARY:

16 **TOTAL for Pool Characteristics** 19.2 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area**

Other comments (append photographs, additional notes, sketch of pool and surrounding landscape):

US Army Corps of Engineers - New England District
DRAFT Vernal Pool Characterization Form

Project File #_____ Project Name Crossroads Phase 14 Pool ID 6
Observer Erik Lema - Normandeau Associates, Inc. Phone or E-mail elema@normandeau.com
Landowner/Applicant Waste Management Disposal Services of Maine Phone or E-mail 207-634-2714
Address 357 Mercer Road City Norridgewock State ME Zip 04957
Location of vernal pool: City/State Norridgewock, ME
Survey date(s) 5/2/2018, 5/15/2018
Longitude/Latitude (in decimal degrees) ,°, -,°

A. VERNAL POOL CHARACTERISTICS (fill in all information known):

1. Landscape setting (check all that apply):

[X] Upland depression (4 pts; if this is also in a floodplain, use 2 pts)
[ ] Pool part of wildlife corridor (4 pts)
[ ] Pool part of a pool complex (within 1000 feet of one or more other vernal pools) (NA)
[ ] Pool within larger wetland system (4 pts; if this is also in a floodplain, use 2 pts)
[ ] Other:_____(variable pts)

2. Vernal pool condition:

Describe any recent modifications to the pool and associated landscape: _____

3. Parent material:

[ ] Glacial fluvial ("outwash")
[ ] Loose till
[ ] Peat
[ ] Dense till
[ ] Alluvium
[ ] Coastal marine sediments

4. Aquatic resource type that best applies to this pool (choose dominant):

[X] Forested wetland (4 pts)
[ ] Herbaceous wetland (4 pts)
[ ] Floodplain (overflow/oxbow) (3 pts)
[ ] Shrub wetland (4 pts)
[ ] Open water (2 pts)
[ ] Other:_____(variable points)
[ ] Peatland (acidic fen or bog) (4 pts)
[ ] Intermittent stream reach (2 pts)

5. Pool canopy cover (%): _____

6. Predominant substrate:

[X] Mineral soil
[ ] Organic matter (peat/muck) Depth_____Sampling location (e.g., deepest zone, edge, etc.)_____

7. Pool size:

a. Approximate dimensions of pool (at maximum capacity; include units): Length 80 ft Width 80 ft
Area: 6400 sq ft

b. Maximum depth at deepest point at time of survey (include units): 1-3 ft

8. Hydrology:

a. Estimated hydroperiod (unless actual, observed hydroperiod value(s) is(are) known, use the presence of these example indicator species to best predict the expected hydroperiod of the pool):

[ ] Dries between early March and early July (e.g., *Thelypteris palustris, Carex stricta, Impatiens capensis, Ilex verticillata*) (6 pts)
[ ] Dries between early July and early September (e.g., *Sagittaria latifolia, Scirpus cyperinus, Dulichium arund., Cephalanthus occ.*) (8 pts)
[X] Dries between early September and early November (e.g., *Eleocharis palustris, Glyceria cana., Utricularia* spp., *Decodon vert.*) (8 pts)
[ ] Dries between early November and late December, or intermittently exposed (e.g., *Nuphar* spp., *Potamogeton* spp.) (2 pts)

b. Inlet/outlet (pick one):

[X] No inlet/outlet (8 pts)
[ ] Permanent inlet or outlet (channel with well-defined banks and permanent flow) (2 pts)
[ ] Temporary inlet/outlet (6 pts)

9. Water quality:

[ ] Clear
[ ] High turbidity
[ ] High algae content
[ ] Tannic

24 **TOTAL for Pool Characteristics (out of 28 max.)**

B. VERNAL POOL ENVELOPE (100 ft) AND CRITICAL HABITAT AREA (100-750 ft) CHARACTERISTICS (fill in all information known):

1. Landuse type and approximate percentage within the 100-ft vernal pool envelope:

[x] Forested 50 % (16 pts) [ ] Open (e.g., meadow, agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [x] Developed 50 % (0 pts)

2. **Landuse type and approximate percentage within the 100 - 750-ft vernal pool critical terrestrial habitat:**

[x] Forested 40 % (16 pts) [ ] Open (e.g., agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [x] Developed 60 % (0 pts)

[ ] Are there one or more barriers to vernal pool fauna movement within the envelope and/or critical terrestrial habitat? If so, check here and see directions for explanation of how to incorporate this information.

Based on: [ ] Field estimate [ ] GIS [x] Aerial photo estimate

14.4 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area (out of 32 max.)**

C. SPECIES PRESENT IN VERNAL POOL

INDICATOR SPECIES	DATE	EGG MASSES (#)	TADPOLES/LARVAE
Wood Frog (*Lithobates sylvaticus*)			
Spotted Salamander (*Ambystoma maculatum*)	5/2/2018 5/15/2018	4 4	
Blue-spotted Salamander (*Ambystoma laterale*)			
Jefferson's Salamander (*Ambystoma jeffersonianum*)			
Marbled Salamander (*Ambystoma opacum*)			
Fairy Shrimp (*Eubranchipus* spp.)		**PRESENT/ABSENT**	**ABUNDANCE:**
OTHER SPECIES	**DATE**	**PRESENCE/ABSENCE**	**FEW/COMMON/MANY**
Facultative Species (e.g., Spring Peeper (*Pseudacris crucifer*), Gray Tree Frog (*Hyla versicolor*), Caddisflies (Limnephilidae, Phryganeidae), American Toad (*Anaxyrus americanus*), Eastern Spadefoot Toad (*Scaphiopus holbrookii*), Fowler's Toad (*Anaxyrus fowleri*), Fingernail Clams (Sphaeriidae, Pisidiidae))(list):			
Rare Species (list):			
Predator Species (e.g., Bullfrog/Green frog tadpoles, Fish) (list):			
Other species (e.g., Ducks, Turtles, etc.)(list):			

Presence of Indicator Species [x] Yes [ ] No

SUMMARY:

24 **TOTAL for Pool Characteristics** 14.4 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area**

Other comments (append photographs, additional notes, sketch of pool and surrounding landscape):

US Army Corps of Engineers - New England District
DRAFT Vernal Pool Characterization Form

Project File #_____ Project Name Crossroads Phase 14 Pool ID 7
Observer Erik Lema - Normandeau Associates, Inc. Phone or E-mail elema@normandeau.com
Landowner/Applicant Waste Management Disposal Services of Maine Phone or E-mail 207-634-2714
Address 357 Mercer Road City Norridgewock State ME Zip 04957
Location of vernal pool: City/State Norridgewock, ME
Survey date(s) 5/2/2018, 5/15/2018
Longitude/Latitude (in decimal degrees) ___.°, -.°

A. VERNAL POOL CHARACTERISTICS (fill in all information known):

1. Landscape setting (check all that apply):

☐ Upland depression (4 pts; if this is also in a floodplain, use 2 pts)
☐ Pool part of wildlife corridor (4 pts)
☐ Pool part of a pool complex (within 1000 feet of one or more other vernal pools) (NA)
☒ Pool within larger wetland system (4 pts; if this is also in a floodplain, use 2 pts)
☐ Other:_____(variable pts)

2. Vernal pool condition:

Describe any recent modifications to the pool and associated landscape: _____

3. Parent material:

☐ Glacial fluvial ("outwash")
☐ Loose till
☐ Peat
☐ Dense till
☐ Alluvium
☐ Coastal marine sediments

4. Aquatic resource type that best applies to this pool (choose dominant):

☒ Forested wetland (4 pts)
☐ Herbaceous wetland (4 pts)
☐ Floodplain (overflow/oxbow) (3 pts)
☒ Shrub wetland (4 pts)
☐ Open water (2 pts)
☐ Other:_____(variable points)
☐ Peatland (acidic fen or bog) (4 pts)
☐ Intermittent stream reach (2 pts)

5. Pool canopy cover (%): _____

6. Predominant substrate:

☐ Mineral soil
☒ Organic matter (peat/muck) Depth_____Sampling location (e.g., deepest zone, edge, etc.)_____

7. Pool size:

a. Approximate dimensions of pool (at maximum capacity; include units): Length 30 ft Width 20 ft
Area: 600 sq ft

b. Maximum depth at deepest point at time of survey (include units): 1-3 ft

8. Hydrology:

a. Estimated hydroperiod (unless actual, observed hydroperiod value(s) is(are) known, use the presence of these example indicator species to best predict the expected hydroperiod of the pool):

☒ Dries between early March and early July (e.g., *Thelypteris palustris, Carex stricta, Impatiens capensis, Ilex verticillata*) (6 pts)
☐ Dries between early July and early September (e.g., *Sagittaria latifolia, Scirpus cyperinus, Dulichium arund., Cephalanthus occ.*) (8 pts)
☐ Dries between early September and early November (e.g., *Eleocharis palustris, Glyceria cana., Utricularia* spp., *Decodon vert.*) (8 pts)
☐ Dries between early November and late December, or intermittently exposed (e.g., *Nuphar* spp., *Potamogeton* spp.) (2 pts)

b. Inlet/outlet (pick one):

☒ No inlet/outlet (8 pts)
☐ Permanent inlet or outlet (channel with well-defined banks and permanent flow) (2 pts)
☐ Temporary inlet/outlet (6 pts)

9. Water quality:

☐ Clear
☐ High turbidity
☐ High algae content
☐ Tannic

22 **TOTAL for Pool Characteristics (out of 28 max.)**

B. VERNAL POOL ENVELOPE (100 ft) AND CRITICAL HABITAT AREA (100-750 ft) CHARACTERISTICS (fill in all information known):

1. Landuse type and approximate percentage within the 100-ft vernal pool envelope:

[x] Forested 95 % (16 pts) [ ] Open (e.g., meadow, agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [x] Developed 5 % (0 pts)

2. **Landuse type and approximate percentage within the 100 - 750-ft vernal pool critical terrestrial habitat:**

[x] Forested 35 % (16 pts) [ ] Open (e.g., agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [x] Developed 65 % (0 pts)

[ ] Are there one or more barriers to vernal pool fauna movement within the envelope and/or critical terrestrial habitat? If so, check here and see directions for explanation of how to incorporate this information.

Based on: [ ] Field estimate [ ] GIS [x] Aerial photo estimate

20.8 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area (out of 32 max.)**

C. SPECIES PRESENT IN VERNAL POOL

INDICATOR SPECIES	DATE	EGG MASSES (#)	TADPOLES/LARVAE
Wood Frog (*Lithobates sylvaticus*)			
Spotted Salamander (*Ambystoma maculatum*)	5/15/2018	4	
Blue-spotted Salamander (*Ambystoma laterale*)			
Jefferson's Salamander (*Ambystoma jeffersonianum*)			
Marbled Salamander (*Ambystoma opacum*)			
Fairy Shrimp (*Eubranchipus* spp.)		**PRESENT/ABSENT**	**ABUNDANCE:**
OTHER SPECIES	**DATE**	**PRESENCE/ABSENCE**	**FEW/COMMON/MANY**
Facultative Species (e.g., Spring Peeper (*Pseudacris crucifer*), Gray Tree Frog (*Hyla versicolor*), Caddisflies (Limnephilidae, Phryganeidae), American Toad (*Anaxyrus americanus*), Eastern Spadefoot Toad (*Scaphiopus holbrookii*), Fowler's Toad (*Anaxyrus fowleri*), Fingernail Clams (Sphaeriidae, Pisidiidae))(list):			
Rare Species (list):			
Predator Species (e.g., Bullfrog/Green frog tadpoles, Fish) (list):			
Other species (e.g., Ducks, Turtles, etc.)(list):			

Presence of Indicator Species [x] Yes [ ] No

SUMMARY:

22 **TOTAL for Pool Characteristics** 20.8 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area**

Other comments (append photographs, additional notes, sketch of pool and surrounding landscape):

US Army Corps of Engineers - New England District
DRAFT Vernal Pool Characterization Form

Project File #_____ Project Name Crossroads Phase 14 Pool ID 30
Observer William McCloy - Normandeau Associates, Inc. Phone or E-mail wmccloy@normandeau.com
Landowner/Applicant Waste Management Disposal Services of Maine Phone or E-mail 207-634-2714
Address 357 Mercer Road City Norridgewock State ME Zip 04957
Location of vernal pool: City/State Norridgewock, ME
Survey date(s) 5/1/2019, 5/23/2019
Longitude/Latitude (in decimal degrees) ,°, -,°

A. VERNAL POOL CHARACTERISTICS (fill in all information known):

1. Landscape setting (check all that apply):

[x] Upland depression (4 pts; if this is also in a floodplain, use 2 pts)
[ ] Pool part of wildlife corridor (4 pts)
[ ] Pool part of a pool complex (within 1000 feet of one or more other vernal pools) (NA)
[ ] Pool within larger wetland system (4 pts; if this is also in a floodplain, use 2 pts)
[ ] Other:_____(variable pts)

2. Vernal pool condition:

Describe any recent modifications to the pool and associated landscape: _____

3. Parent material:

[ ] Glacial fluvial ("outwash")
[ ] Loose till
[ ] Peat
[ ] Dense till
[ ] Alluvium
[ ] Coastal marine sediments

4. Aquatic resource type that best applies to this pool (choose dominant):

[ ] Forested wetland (4 pts)
[x] Herbaceous wetland (4 pts)
[ ] Floodplain (overflow/oxbow) (3 pts)
[ ] Shrub wetland (4 pts)
[ ] Open water (2 pts)
[x] Other: dug pond/borrow pit (variable points)
[ ] Peatland (acidic fen or bog) (4 pts)
[ ] Intermittent stream reach (2 pts)

5. Pool canopy cover (%): _____

6. Predominant substrate:

[x] Mineral soil
[ ] Organic matter (peat/muck) Depth_____ Sampling location (e.g., deepest zone, edge, etc.)_____

7. Pool size:

a. Approximate dimensions of pool (at maximum capacity; include units): Length 7 ft Width 18 ft
Area: 126 sq ft

b. Maximum depth at deepest point at time of survey (include units): 0-1 ft

8. Hydrology:

a. Estimated hydroperiod (unless actual, observed hydroperiod value(s) is(are) known, use the presence of these example indicator species to best predict the expected hydroperiod of the pool):

[x] Dries between early March and early July (e.g., *Thelypteris palustris, Carex stricta, Impatiens capensis, Ilex verticillata*) (6 pts)
[ ] Dries between early July and early September (e.g., *Sagittaria latifolia, Scirpus cyperinus, Dulichium arund., Cephalanthus occ.*) (8 pts)
[ ] Dries between early September and early November (e.g., *Eleocharis palustris, Glyceria cana., Utricularia* spp., *Decodon vert.*) (8 pts)
[ ] Dries between early November and late December, or intermittently exposed (e.g., *Nuphar* spp., *Potamogeton* spp.) (2 pts)

b. Inlet/outlet (pick one):

[x] No inlet/outlet (8 pts)
[ ] Permanent inlet or outlet (channel with well-defined banks and permanent flow) (2 pts)
[ ] Temporary inlet/outlet (6 pts)

9. Water quality:

[ ] Clear
[ ] High turbidity
[ ] High algae content
[ ] Tannic

22 **TOTAL for Pool Characteristics (out of 28 max.)**

B. VERNAL POOL ENVELOPE (100 ft) AND CRITICAL HABITAT AREA (100-750 ft) CHARACTERISTICS (fill in all information known):

1. Landuse type and approximate percentage within the 100-ft vernal pool envelope:

[x] Forested 20 % (16 pts) [ ] Open (e.g., meadow, agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [x] Developed 80 % (0 pts)

2. **Landuse type and approximate percentage within the 100 - 750-ft vernal pool critical terrestrial habitat:**

[x] Forested 75 % (16 pts) [ ] Open (e.g., agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [x] Developed 25 % (0 pts)

[x] Are there one or more barriers to vernal pool fauna movement within the envelope and/or critical terrestrial habitat? If so, check here and see directions for explanation of how to incorporate this information.

Based on: [ ] Field estimate [ ] GIS [ ] Aerial photo estimate

15.2 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area (out of 32 max.)**

C. SPECIES PRESENT IN VERNAL POOL

INDICATOR SPECIES	DATE	EGG MASSES (#)	TADPOLES/LARVAE
Wood Frog (*Lithobates sylvaticus*)	5/01/2019 5/23/2019	1 1	present
Spotted Salamander (*Ambystoma maculatum*)			
Blue-spotted Salamander (*Ambystoma laterale*)			
Jefferson's Salamander (*Ambystoma jeffersonianum*)			
Marbled Salamander (*Ambystoma opacum*)			
Fairy Shrimp (*Eubranchipus* spp.)		**PRESENT/ABSENT**	**ABUNDANCE:**
OTHER SPECIES	**DATE**	**PRESENCE/ABSENCE**	**FEW/COMMON/MANY**
Facultative Species (e.g., Spring Peeper (*Pseudacris crucifer*), Gray Tree Frog (*Hyla versicolor*), Caddisflies (Limnephilidae, Phryganeidae), American Toad (*Anaxyrus americanus*), Eastern Spadefoot Toad (*Scaphiopus holbrookii*), Fowler's Toad (*Anaxyrus fowleri*), Fingernail Clams (Sphaeriidae, Pisidiidae))(list):			
Rare Species (list):			
Predator Species (e.g., Bullfrog/Green frog tadpoles, Fish) (list):			
Other species (e.g., Ducks, Turtles, etc.)(list):			

Presence of Indicator Species [x] Yes [ ] No

SUMMARY:

22 **TOTAL for Pool Characteristics** 15.2 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area**

Other comments (append photographs, additional notes, sketch of pool and surrounding landscape):

US Army Corps of Engineers - New England District
DRAFT Vernal Pool Characterization Form

Project File #_____ Project Name Crossroads Phase 14 Pool ID 31
Observer William McCloy - Normandeau Associates, Inc. Phone or E-mail wmccloy@normandeau.com
Landowner/Applicant Waste Management Disposal Services of Maine Phone or E-mail 207-634-2714
Address 357 Mercer Road City Norridgewock State ME Zip 04957
Location of vernal pool: City/State Norridgewock, ME
Survey date(s) 5/1/2019, 5/23/2019
Longitude/Latitude (in decimal degrees) ,°, -,°

A. VERNAL POOL CHARACTERISTICS (fill in all information known):

1. Landscape setting (check all that apply):

[x] Upland depression (4 pts; if this is also in a floodplain, use 2 pts)
[ ] Pool part of wildlife corridor (4 pts)
[ ] Pool part of a pool complex (within 1000 feet of one or more other vernal pools) (NA)
[ ] Pool within larger wetland system (4 pts; if this is also in a floodplain, use 2 pts)
[ ] Other:_____(variable pts)

2. Vernal pool condition:

Describe any recent modifications to the pool and associated landscape: _____

3. Parent material:

[ ] Glacial fluvial ("outwash")
[ ] Loose till
[ ] Peat
[ ] Dense till
[ ] Alluvium
[ ] Coastal marine sediments

4. Aquatic resource type that best applies to this pool (choose dominant):

[ ] Forested wetland (4 pts)
[x] Herbaceous wetland (4 pts)
[ ] Floodplain (overflow/oxbow) (3 pts)
[ ] Shrub wetland (4 pts)
[ ] Open water (2 pts)
[x] Other: dug pond/borrow pit (variable points)
[ ] Peatland (acidic fen or bog) (4 pts)
[ ] Intermittent stream reach (2 pts)

5. Pool canopy cover (%): _____

6. Predominant substrate:

[X] Mineral soil
[ ] Organic matter (peat/muck) Depth_____ Sampling location (e.g., deepest zone, edge, etc.)_____

7. Pool size:

a. Approximate dimensions of pool (at maximum capacity; include units): Length 20 ft Width 20 ft
Area: 400 sq ft

b. Maximum depth at deepest point at time of survey (include units): 0-1 ft

8. Hydrology:

a. Estimated hydroperiod (unless actual, observed hydroperiod value(s) is(are) known, use the presence of these example indicator species to best predict the expected hydroperiod of the pool):

[x] Dries between early March and early July (e.g., *Thelypteris palustris, Carex stricta, Impatiens capensis, Ilex verticillata*) (6 pts)
[ ] Dries between early July and early September (e.g., *Sagittaria latifolia, Scirpus cyperinus, Dulichium arund., Cephalanthus occ.*) (8 pts)
[ ] Dries between early September and early November (e.g., *Eleocharis palustris, Glyceria cana., Utricularia* spp., *Decodon vert.*) (8 pts)
[ ] Dries between early November and late December, or intermittently exposed (e.g., *Nuphar* spp., *Potamogeton* spp.) (2 pts)

b. Inlet/outlet (pick one):

[x] No inlet/outlet (8 pts)
[ ] Permanent inlet or outlet (channel with well-defined banks and permanent flow) (2 pts)
[ ] Temporary inlet/outlet (6 pts)

9. Water quality:

[ ] Clear
[ ] High turbidity
[ ] High algae content
[ ] Tannic

22 **TOTAL for Pool Characteristics (out of 28 max.)**

B. VERNAL POOL ENVELOPE (100 ft) AND CRITICAL HABITAT AREA (100-750 ft) CHARACTERISTICS (fill in all information known):

1. Landuse type and approximate percentage within the 100-ft vernal pool envelope:

[x] Forested 10 % (16 pts) [ ] Open (e.g., meadow, agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [x] Developed 90 % (0 pts)

2. **Landuse type and approximate percentage within the 100 - 750-ft vernal pool critical terrestrial habitat:**

[x] Forested 50 % (16 pts) [ ] Open (e.g., agriculture, golf course) ____ % (4 pts)

[ ] Shrub ____ % (10 pts) [x] Developed 50 % (0 pts)

[ ] Are there one or more barriers to vernal pool fauna movement within the envelope and/or critical terrestrial habitat? If so, check here and see directions for explanation of how to incorporate this information.

Based on: [ ] Field estimate [ ] GIS [x] Aerial photo estimate

9.6 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area (out of 32 max.)**

C. SPECIES PRESENT IN VERNAL POOL

INDICATOR SPECIES	DATE	EGG MASSES (#)	TADPOLES/LARVAE
Wood Frog (*Lithobates sylvaticus*)	5/01/2019 5/23/2019	13 0	present
Spotted Salamander (*Ambystoma maculatum*)			
Blue-spotted Salamander (*Ambystoma laterale*)			
Jefferson's Salamander (*Ambystoma jeffersonianum*)			
Marbled Salamander (*Ambystoma opacum*)			
Fairy Shrimp (*Eubranchipus* spp.)		**PRESENT/ABSENT**	**ABUNDANCE:**
OTHER SPECIES	**DATE**	**PRESENCE/ABSENCE**	**FEW/COMMON/MANY**
Facultative Species (e.g., Spring Peeper (*Pseudacris crucifer*), Gray Tree Frog (*Hyla versicolor*), Caddisflies (Limnephilidae, Phryganeidae), American Toad (*Anaxyrus americanus*), Eastern Spadefoot Toad (*Scaphiopus holbrookii*), Fowler's Toad (*Anaxyrus fowleri*), Fingernail Clams (Sphaeriidae, Pisidiidae))(list):			
Rare Species (list):			
Predator Species (e.g., Bullfrog/Green frog tadpoles, Fish) (list):			
Other species (e.g., Ducks, Turtles, etc.)(list):			

Presence of Indicator Species [x] Yes [ ] No

SUMMARY:

22 **TOTAL for Pool Characteristics** 9.6 **TOTAL for Pool Envelope and Critical Terrestrial Habitat Area**

Other comments (append photographs, additional notes, sketch of pool and surrounding landscape):

PAUL R. LEPAGE
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
ENVIRONMENTAL PROTECTION

PAUL MERCER
COMMISSIONER

August 29, 2018

Sarah Allen
Normandeau Associates, Inc.
25 Nashua Road
Bedford, NH 03110

Re: Vernal Pool Significance Determination, Pool ID #s 3565, 3566, 3567, 3568, 3569, 3570, 3571– Norridgewock

Dear Sarah Allen,

Vernal pools are temporary to semi-permanent wetlands occurring in shallow depressions that typically fill during the spring and dry during the summer or in drought years. They provide important breeding and foraging habitat for a wide variety of specialized wildlife species including several rare, threatened, and endangered species.

Based on your field surveys, it has been determined that the vernal pools identified above on the property of Waste Management Disposal Services of Maine are NOT SIGNIFICANT because either: 1. the features do not meet the definition of a vernal pool under the Significant Wildlife Habitat rules, 06-096 CMR 335(9) or 2. the vernal pools do not meet the biological standards for exceptional wildlife use of the Significant Wildlife Habitat rules, 06-096 CMR 335(9)(B). Therefore, activities within 250 feet of the pools are not regulated under the Natural Resources Protection Act (NRPA) unless there are other protected natural resources nearby such as streams or freshwater wetlands. I have attached a copy of the database printout that verifies the State's findings with respect to your surveys.

I want to also advise you that the pool areas on the property can be considered freshwater wetlands and therefore direct pool alterations may require permitting under the NRPA.

The Department will notify the landowner of the pool status under separate cover. If you have any questions or need further clarification, please contact me at (207) 215-4397 or email at: Mark.Bergeron@maine.gov

Sincerely,

Mark R Bergeron

Mark Bergeron, P.E.
Bureau of Land Resources

cc. town file

IFW Recommendations for Significant Vernal Pool Determinations

The following is a list of pools and IFW's recommendations for whether or not they qualify as Significant Vernal Pools, one of Maine's Significant Wildlife Habitats.

Data current as of: Wednesday, August 29, 2018

IFW's Pool ID: 3565 Twp: Norridgewock
Observer's ID: VP1

UTM Coordinates of Pool Center: 434004 E, 4951247 N
ProjectType: Crossroads - Phase 14 Expansion

Landowner:	Waste Management Disposal Services of Maine	Contact:	Sarah Allen - Normandeau Associates, Inc.
	357 Mercer Road		25 Nashua Road
	Norridgewock, ME 04957		Bedford, NH 03110
	(207) 634-2714		(603) 472-5191 sallen@normandeau.com

Survey Date: 5/4/2017 Additional Survey Dates: 05/16/2017, 05/02/2018
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the vernal pool definition
IFW Comments:

IFW's Pool ID: 3566 Twp: Norridgewock
Observer's ID: VP2

UTM Coordinates of Pool Center: 433936 E, 4951273 N
ProjectType: Crossroads - Phase 14 Expansion

Landowner:	Waste Management Disposal Services of Maine	Contact:	Sarah Allen - Normandeau Associates, Inc.
	357 Mercer Road		25 Nashua Road
	Norridgewock, ME 04957		Bedford, NH 03110
	(207) 634-2714		(603) 472-5191 sallen@normandeau.com

Survey Date: 5/4/2017 Additional Survey Dates: 05/16/2017, 05/02/2018
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the vernal pool definition
IFW Comments: Pool provides significant habitat for spotted salamanders, but suspect unnatural origin (former borrow area).

IFW's Pool ID: 3567 Twp: Norridgewock
Observer's ID: VP3

UTM Coordinates of Pool Center: 434022 E, 4951504 N
ProjectType: Crossroads - Phase 14 Expansion

Landowner:	Waste Management Disposal Services of Maine	Contact:	Sarah Allen - Normandeau Associates, Inc.
	357 Mercer Road		25 Nashua Road
	Norridgewock, ME 04957		Bedford, NH 03110
	(207) 634-2714		(603) 472-5191 sallen@normandeau.com

Survey Date: 5/4/2017 Additional Survey Dates: 05/16/2017, 05/02/2018
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:

IFW's Pool ID: 3568 Twp: Norridgewock
Observer's ID: VP4

UTM Coordinates of Pool Center: 434093 E, 4951808 N
ProjectType: Crossroads - Phase 14 Expansion

Landowner:	Waste Management Disposal Services of Maine	Contact:	Sarah Allen - Normandeau Associates, Inc.
	357 Mercer Road		25 Nashua Road
	Norridgewock, ME 04957		Bedford, NH 03110
	(207) 634-2714		(603) 472-5191 sallen@normandeau.com

Survey Date: 5/2/2018 Additional Survey Dates: 05/15/2018
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:

IFW Recommendations for Significant Vernal Pool Determinations

The following is a list of pools and IFW's recommendations for whether or not they qualify as Significant Vernal Pools, one of Maine's Significant Wildlife Habitats.

Data current as of: Wednesday, August 29, 2018

IFW's Pool ID: 3569 Twp: Norridgewock
Observer's ID: VP5

UTM Coordinates of Pool Center: 434130 E, 4950976 N
ProjectType: Crossroads - Phase 14 Expansion

Landowner: Waste Management Disposal Services of Maine
357 Mercer Road
Norridgewock, ME 04957
(207) 634-2714

Contact: Sarah Allen - Normandeau Associates, Inc.
25 Nashua Road
Bedford, NH 03110
(603) 472-5191 sallen@normandeau.com

Survey Date: 5/2/2018 Additional Survey Dates: 05/15/2018
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:

IFW's Pool ID: 3570 Twp: Norridgewock
Observer's ID: Vp6

UTM Coordinates of Pool Center: 434059 E, 4950967 N
ProjectType: Crossroads - Phase 14 Expansion

Landowner: Waste Management Disposal Services of Maine
357 Mercer Road
Norridgewock, ME 04957
(207) 634-2714

Contact: Sarah Allen - Normandeau Associates, Inc.
25 Nashua Road
Bedford, NH 03110
(603) 472-5191 sallen@normandeau.com

Survey Date: 5/2/2018 Additional Survey Dates: 05/15/2018
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:

IFW's Pool ID: 3571 Twp: Norridgewock
Observer's ID: VP7

UTM Coordinates of Pool Center: 433813 E, 4950884 N
ProjectType: Crossroads - Phase 14 Expansion

Landowner: Waste Management Disposal Services of Maine
357 Mercer Road
Norridgewock, ME 04957
(207) 634-2714

Contact: Sarah Allen - Normandeau Associates, Inc.
25 Nashua Road
Bedford, NH 03110
(603) 472-5191 sallen@normandeau.com

Survey Date: 5/2/2018 Additional Survey Dates: 05/15/2018
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:

IFW Recommendations for Significant Vernal Pool Determinations

The following is a list of pools and IFW's recommendations for whether or not they qualify as Significant Vernal Pools, one of Maine's Significant Wildlife Habitats.

Data current as of: Friday, August 23, 2019

IFW's Pool ID: 3759 Twp: Norridgewock UTM Coordinates of Pool Center: 434433 E, 4951092 N
Observer's ID: VP30 ProjectType: Crossroads - Phase 14 Expansion

Landowner:	Waste Management Disposal Services of Maine	Contact:	William McCloy - Normandeau Associates, Inc.
	357 Mercer Road		25 Nashua Road
	Norridgewock, ME 04957		Bedford, NH 03110
	(207) 634-2714		(802) 855-1246 wmccloy@normandeau.c

Survey Date: 5/1/2019 Additional Survey Dates: 05/23/2019
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:

IFW's Pool ID: 3760 Twp: Norridgewock UTM Coordinates of Pool Center: 434369 E, 4951106 N
Observer's ID: VP31 ProjectType: Crossroads - Phase 14 Expansion

Landowner:	Waste Management Disposal Services of Maine	Contact:	William McCloy - Normandeau Associates, Inc.
	357 Mercer Road		25 Nashua Road
	Norridgewock, ME 04957		Bedford, NH 03110
	(207) 634-2714		(802) 855-1246 wmccloy@normandeau.c

Survey Date: 5/1/2019 Additional Survey Dates: 05/23/2019
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the vernal pool definition
IFW Comments:

Appendix D. MDIFW and MNAP Correspondence

JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

JUDITH CAMUSO
COMMISSIONER

April 10, 2019

Jamie O'Brien
Normandeau Associates
25 Nashua Road
Bedford, NH 03110

RE: Information Request - Crossroads Landfill Expansion, Norridgewock

Dear Jamie:

Per your request received April 03, 2019, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and fisheries habitat concerns within the vicinity of the *Crossroads Landfill Expansion Project* in Norridgewock.

Our Department has not mapped any Essential Habitats that would be directly affected by your project.

Endangered, Threatened, and Special Concern Species

Upland sandpiper

Upland sandpipers, a State Threatened species, have been documented within the project area. Upland sandpipers nest only on the ground and use both native and cultivated vegetation for nesting sites. Upland sandpipers are protected under Maine's Endangered Species Act (MESA) and, as such, are afforded special protection against activities that may cause "Take" (kill or cause death), "harassment" (create injury or significantly disrupt normal behavior patterns), and other adverse actions.

Bats

Of the eight species of bats that occur in Maine, the three *Myotis* species are protected under MESA and, as such, are afforded special protection against activities that may cause "Take" (kill or cause death), "harassment" (create injury or significantly disrupt normal behavior patterns), and other adverse actions. The three *Myotis* species include little brown bat (State Endangered), northern long-eared bat (State Endangered), and eastern small-footed bat (State Threatened). The five remaining bat species are listed as Special Concern: big brown bat, red bat, hoary bat, silver-haired bat, and tri-colored bat.

While a comprehensive statewide inventory for bats has not been completed, based on historical evidence it is likely that several of these species occur within the project area during migration and/or the breeding season. We recommend that you contact the U.S. Fish and Wildlife Service--Maine Fish and Wildlife Complex (Wende Mahaney, 207-902-1569) for further guidance, as the northern long-

eared bat is also listed as a Threatened Species under the Federal Endangered Species Act. Otherwise, our Agency does not anticipate significant impacts to any of the bat species as a result of this project.

Significant Wildlife Habitat

Deer Wintering Areas

The project search area appears to intersect with a Deer Winter Area (DWA). DWAs contain habitat cover components that provide conditions where deer find protection from deep snow and cold wind, which is important for overwinter survival. MDIFW recommends that development projects be designed to avoid losses or impacts to the continued availability of coniferous winter shelter. Any removal of vegetation should be conducted in such a way that improves the quality and vigor of the coniferous species providing this winter shelter.

Significant Vernal Pools

At this time, MDIFW Significant Wildlife Habitat maps indicate no known presence of Significant Vernal Pools in the project search area; however, a comprehensive statewide inventory for Significant Vernal Pools has not been completed. It's unclear if vernal pools were surveyed during the wetland delineations; if not we recommend that surveys for vernal pools be conducted within the project boundary by qualified wetland scientists prior to final project design to determine whether there are Significant Vernal Pools present in the area. These surveys should extend up to 250 feet beyond the anticipated project footprint because of potential performance standard requirements for off-site Significant Vernal Pools, assuming such pools are located on land owned or controlled by the applicant. Once surveys are completed, survey forms should be submitted to our Agency for review well before to the submission of any necessary permits. Our Department will need to review and verify any vernal pool data prior to final determination of significance.

Fisheries Habitat

We recommend that 100-foot undisturbed vegetated buffers be maintained along streams. Buffers should be measured from the edge of stream or associated fringe and floodplain wetlands. Maintaining and enhancing buffers along streams that support coldwater fisheries is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support conditions required by many fish species. Stream crossings should be avoided, but if a stream crossing is necessary, or an existing crossing needs to be modified, it should be designed to provide full fish passage. Small streams, including intermittent streams, can provide crucial rearing habitat, cold water for thermal refugia, and abundant food for juvenile salmonids on a seasonal basis and undersized crossings may inhibit these functions. Generally, MDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bankfull width of the stream. In addition, we generally recommend that stream crossings be open bottomed (i.e. natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be effective in not only providing habitat connectivity for fish but also for other aquatic organisms. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils from construction activities can travel significant distances as well as transport other pollutants resulting in direct impacts to fish and

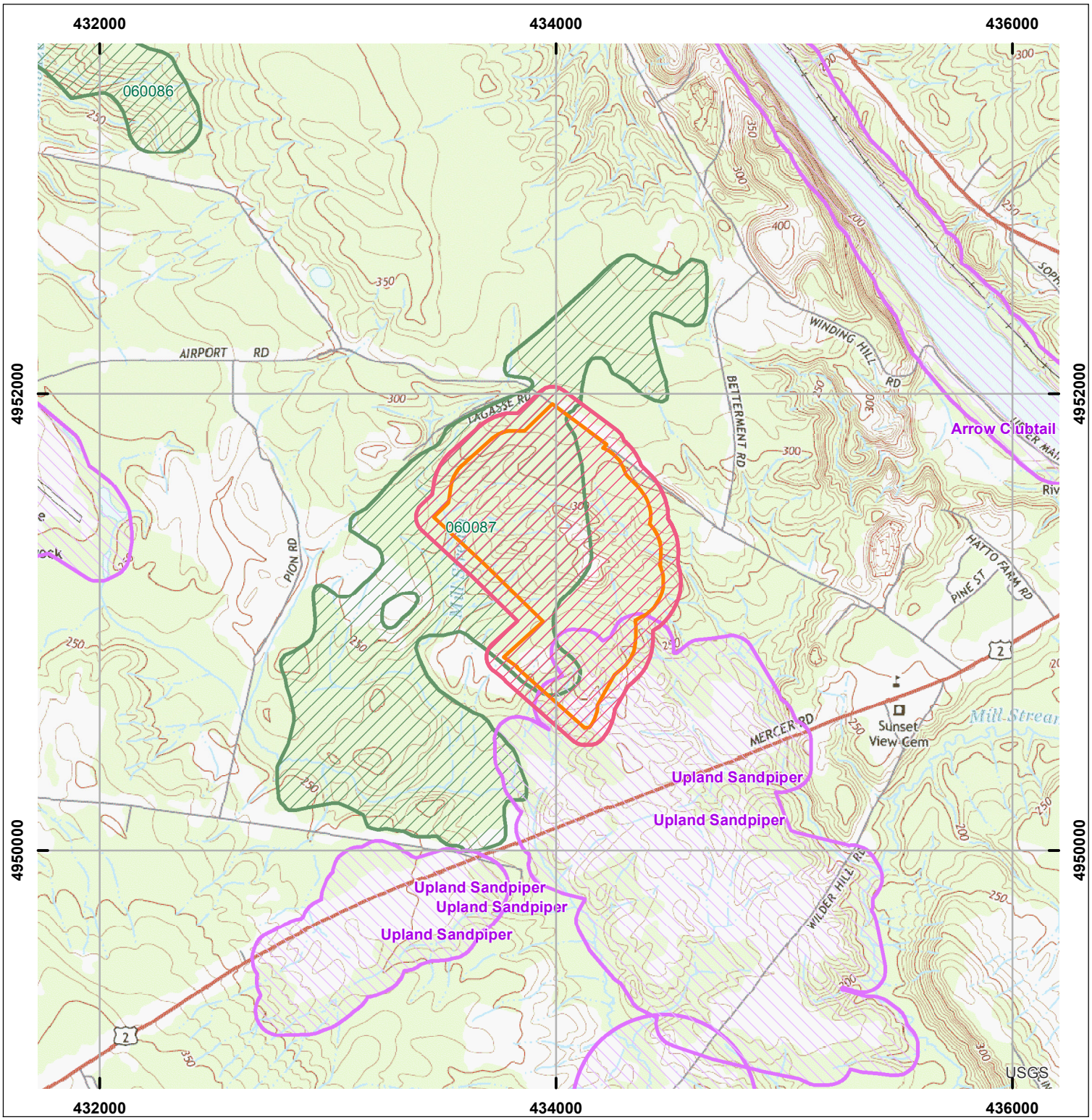
fisheries habitat. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

Becca Settele
Wildlife Biologist



Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: Norridgewock, Crossroads Landfill Expansion (Version 1)

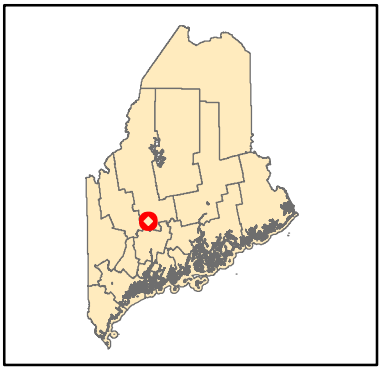
Maine Department of Inland Fisheries and Wildlife

0 0.1250.25 0.5 0.75 1 Miles

Projection: UTM, NAD83, Zone 19N

Date: 4/5/2019

ProjectPolys
ProjectSearchAreas
Deer Winter Area
ETSc Environmental Review Polygons



STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

April 8, 2019

Jamie O'Brien
Normandeau Associates
25 Nashua Road
Bedford, NH 03110

Via email: jobrien@normandeau.com

Re: Rare and exemplary botanical features in proximity to: Crossroads Landfill Expansion, Norridgewock, Maine

Dear Ms. O'Brien:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request received April 3, 2019 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Norridgewock, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-8044
FAX: (207) 287-8040
WWW.MAINE.GOV/DACF/MNAP

The Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

The Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for our services.

Thank you for using the Natural Areas Program in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Kristen Puryear | Ecologist | Maine Natural Areas Program
207-287-8043 | kristen.puryear@maine.gov

Rare and Exemplary Botanical Features within 4 miles of
Project: #112117, Crossroads Landfill Expansion, Norridgewock, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
American Lopseed						
	PE	SH	G5	1913-07	2	Non-tidal rivershore (non-forested, seasonally wet),Hardwood to mixed forest (forest, upland)
Bottlebrush Grass						
	SC	S3	G5	1913-07-11	8	Hardwood to mixed forest (forest, upland)
Broad Beech Fern						
	SC	S2	G5	1953-08-21	2	Hardwood to mixed forest (forest, upland)
Hairy Wood Brome-grass						
	SC	S2	G5	1909-08-25	3	Hardwood to mixed forest (forest, upland),Non-tidal rivershore (non-forested, seasonally wet)
Long-leaved Bluet						
	SC	S2S3	G5TNR	1909-06-13	11	Non-tidal rivershore (non-forested, seasonally wet)
Pale Green Orchis						
	SC	S2	G4?T4Q	1913-08-06	12	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland)
Ram's-head Lady's-slipper						
	E	S1	G3	2006-06-12	1	Forested wetland,Hardwood to mixed forest (forest, upland)
Red-stemmed Gentian						
	T	S1	G4?	1923-09-14	1	Open wetland, not coastal nor rivershore (non-forested, wetland),Old field/roadside (non-forested, wetland or upland)
Shining Ladies'-tresses						
	T	S1	G4	1941	14	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland)
Showy Orchis						
	E	S1	G5	2002-06-02	2	Hardwood to mixed forest (forest, upland)
	E	S1	G5	2006-06-12	1	Hardwood to mixed forest (forest, upland)

Rare and Exemplary Botanical Features within 4 miles of
Project: #112117, Crossroads Landfill Expansion, Norridgewock, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Slippery Elm						
	PE	SH	G5	1922-05	1	Hardwood to mixed forest (forest, upland)
Spotted Wintergreen						
	E	S2	G5	2006-06-12	3	Conifer forest (forest, upland),Hardwood to mixed forest (forest, upland)
Wild Chervil						
	PE	SH	G5	1909-08-28	1	Hardwood to mixed forest (forest, upland)

STATE RARITY RANKS

S1 Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.
S2 Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
S3 Rare in Maine (20-100 occurrences).
S4 Apparently secure in Maine.
S5 Demonstrably secure in Maine.
SU Under consideration for assigning rarity status; more information needed on threats or distribution.
SNR Not yet ranked.
SNA Rank not applicable.
S#? Current occurrence data suggests assigned rank, but lack of survey effort along with amount of potential habitat create uncertainty (e.g. S3?).

Note: **State Rarity Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines State Rarity Ranks for animals.

GLOBAL RARITY RANKS

G1 Critically imperiled globally because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extinction.
G2 Globally imperiled because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
G3 Globally rare (20-100 occurrences).
G4 Apparently secure globally.
G5 Demonstrably secure globally.
GNR Not yet ranked.

Note: **Global Ranks** are determined by NatureServe.

STATE LEGAL STATUS

Note: State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's **Endangered** and **Threatened** plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.

E ENDANGERED; Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered.
T THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.

NON-LEGAL STATUS

SC SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.
PE Potentially Extirpated; Species has not been documented in Maine in past 20 years or loss of last known occurrence has been documented.

Visit our website for more information on rare, threatened, and endangered species!
http://www.maine.gov/dacf/mnap

ELEMENT OCCURRENCE RANKS - EO RANKS

Element Occurrence ranks are used to describe the quality of a rare plant population or natural community based on three factors:

- **Size**: Size of community or population relative to other known examples in Maine. Community or population's viability, capability to maintain itself.
- **Condition**: For communities, condition includes presence of representative species, maturity of species, and evidence of human-caused disturbance. For plants, factors include species vigor and evidence of human-caused disturbance.
- **Landscape context**: Land uses and/or condition of natural communities surrounding the observed area. Ability of the observed community or population to be protected from effects of adjacent land uses.

These three factors are combined into an overall ranking of the feature of **A**, **B**, **C**, or **D**, where **A** indicates an **excellent** example of the community or population and **D** indicates a **poor** example of the community or population. A rank of **E** indicates that the community or population is **extant** but there is not enough data to assign a quality rank. The Maine Natural Areas Program tracks all occurrences of rare (S1-S3) plants and natural communities as well as A and B ranked common (S4-S5) natural communities.

Note: **Element Occurrence Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines Element Occurrence ranks for animals.

Visit our website for more information on rare, threatened, and endangered species!
http://www.maine.gov/dacf/mnap

Appendix E. Keating and Baker Parcels Deer Wintering Area Assessment

NORMANDEAU ASSOCIATES
Environmental Consultants

March 21, 2017

Sherwood McKenney, District Engineer
Waste Management Disposal Services of Maine, Inc.
357 Mercer Rd., P.O. Box 629
Norridgewock, ME 04957

Re: Keating and Baker Parcels Deer Wintering Area Assessment

Dear Mr. McKenney:

Dr. Sarah Barnum, a Certified Wildlife Biologist® from Normandeau Associates, Inc., with experience assessing deer wintering areas (DWAs) and substantial snow tracking experience conducted an assessment of about 80 acres on the Keating and Baker parcels at Crossroads Landfill (Crossroads) in Norridgewock, Maine on March 12, 2018. The purpose of the assessment was to estimate the habitat quality of the area as deer wintering habitat, based on the methods described in the Maine Department of Inland Fisheries and Wildlife (MDIFW) survey guidelines, "*Deer Wintering Area and Travel Corridor 12/22/93*". This document defines the survey procedure, mapping criteria, evaluation procedure, and snow conditions required to evaluate DWAs.

As defined by MDIFW, DWAs are forested areas that meet a softwood component criteria, and are used by deer when snow depths in open and hardwood areas exceeds 12 inches, deer sinking depth in open/hardwood areas exceeds eight inches, and the mean daily temperature is below 32°f. The 1993 MDIFW document specifies that assessments of DWA quality must be conducted under the same snow and temperature conditions to be valid.

Survey Area and Survey Conditions

The surveyed area lies within candidate DWA 060087, which was mapped by MDIFW in 1993 through aerial survey. This DWA remains a candidate as it has not been ground surveyed by MDIFW to determine its rating. The mapped extent of the DWA overlaps with portions of the Crossroads Landfill and extends beyond the property boundaries to the north and the south.

Vegetation

The overstory throughout the survey area is a mix of hard- and softwood species and various age classes. Selective logging in the northwest portions of the site within the past 10-20 years has resulted in early-successional pockets of sapling tree and shrub species intermixed with an intermediate aged forest dominated by various softwood species. The eastern portion of the site does not appear to have been logged as recently, and exhibits a more mature forest with both hard and softwood species codominant in the overstory. Common softwoods throughout the site include eastern white pine (*Pinus strobus*), eastern hemlock (*Tsuga canadensis*), balsam fir (*Abies balsamea*), northern white cedar (*Thuja canadensis*), and red spruce (*Picea rubens*). Hardwood species are primarily red maple (*Acer*

rubrum), but also include yellow birch (*Betula aleghaniensis*), gray birch (*Betula populifolia*), paper birch (*Betula papyrifera*) and northern red oak (*Quercus rubra*). Understory shrubs include overstory regeneration, and in wetland areas also highbush blueberry (*Vaccinium corymbosum*), winterberry (*Ilex verticillata*), mountain holly (*Ilex mucronata*), and withe-rod (*Viburnum nudum*).

Snow and Weather Conditions

On the day of the survey, temperatures were in the mid-30s, skies were predominantly sunny, and there was no wind. The most recent significant snowfall event had concluded three days earlier on March 9, followed by daytime temperatures in the mid-30s, and nights in the mid-20s. In general, snow depths throughout the survey area totaled about 18 inches, consisting of 12 inches of unconsolidated snow, overlying a six inch layer of dense, highly consolidated snow. The variations in temperature since the March 9 storm had created substantial crust on the surface of the snow in many locations, although the sun and warm temperatures at the time of the visit had softened the crust. The crust was strongest in open and hardwood areas, where it was capable of fully supporting small (e.g., squirrels, snowshoe hare) and potentially medium-sized (e.g. coyote) animals. Under softwood cover, the crust was not substantial, or absent. Under the observed conditions, deer would be expected to sink at least 8 inches, if not entirely through the unconsolidated layer to the consolidated snow layer below. The crust in hardwood and open areas would not have supported deer and would have created a substantial impediment to movement, in addition to the sinking depths.

Although snow depths were adequate for a valid DWA assessment, temperatures were not. Based on weather data from Augusta State Airport, the mean daily temperature from March 1 to March 12 were below 32° F on March 7, 8, 9, and 10. All other days were above freezing, with March 1 having an average daily temperature of 40° F.

Methods

Field Survey

The 1993 MDIFW document survey methods require five chains (1 chain = 66 ft, 5 chains = 330 ft or 100m) of survey transect per 10 acres of DWA and survey lines no further apart than 20 chains (1320 ft or 412m). The methods call for taking data on shelter quality (forest type, height, and canopy closure) and current deer use (amount of current deer browse, beds, tracks, and trails) for every two chains of transect surveyed, and refer to this data unit as a "plot". In addition to forest type and deer use data, the 1993 MDIFW document recommends collecting information on historic deer browse and sign from other species to add context to the DWA quality assessment. Four transects totaling 2,100 m (6888 ft, 104 chains) were surveyed, resulting about 13 chains surveyed per every 10 acres of the roughly 80 acre survey area, exceeding the distance requirement by over two fold. Data was recorded every 50 m (2.5 chains), but because the transect distance exceeded the requirement, data from a sufficient number of plots to cover 80 acres were collected, complying with the prescribed methodology. Transect locations are depicted in Figure 1. Data was recorded digitally. The variables measured and the value classes for each variable are described in Appendix A.

Assessment

Following the methods in the 1993 MDIFW document, forest type, height, and canopy closure values at each plot were used to determine shelter quality, with higher proportions of softwoods, taller trees, and higher canopy closure resulting in higher scores for that plot. Any record of current deer browse, beds, tracks, or trails within a plot designated that plot as "used" by deer (see Appendix A). Note that based on the 1993 MDIFW document, four out of five available stems, and 50% or more of available buds/coniferous leaves have to be browsed within the current season to qualify as "current deer browse".

Results

Data was recorded at a total of 43 plots (Appendix B). Shelter quality across all 43 plots averaged 1.4 on a scale of 0 (not suitable) to 3 (highly suitable), with 20 plots scoring 0 or 1, and 23 plots scoring 2 or 3. Plots of different values were intermixed throughout the survey area. No deer beds, tracks, or trails were observed during the survey. Although a minor amount of recent browse was observed on a few hardwood saplings, it did not meet the 1993 MDIFW abundance standard to be recorded. In one limited area (Plots 1-6 and 4-6) browsing on hemlock saplings meet the abundance standard, but this browse was a year old, and did not meet the "current" standard. Based on these results, using the criteria described in the 1993 MDIFW document, the portion of the DWA surveyed would receive a quality rating of "low."

Just over half (24) of the plots surveyed had some historic browse. These plots were distributed essentially throughout the survey area, but the amount of historic browse was mostly rated as "low" (with the two exceptions noted above), and most was at least 5 years old, or older. Tracks of other species observed consisted of three sets of snowshoe hare tracks, and a set of weasel tracks. Snow conditions likely contributed to the low number of tracks of smaller animals. The snow crust was too dense to take track impressions of smaller animals, and in softwood areas where a crust did not form, snowfall from branches was sufficient to obliterate tracks of smaller animals. These snow conditions would not however, have precluded deer and other larger species (moose) from leaving tracks. If deer had been present since the March 9 storm, fresh tracks, trails, beds, and/or pellet groups would have been present and observable. Additionally, if deer had been present earlier in the winter or in recent years, more evidence of browse would also have been observable.

Conclusion

A qualitative assessment of the deer wintering habitat in the vicinity of the proposed Phase 14 expansion was conducted using the criteria described in the 1993 MDIFW DWA survey guidelines. Shelter quality across the 43 plots averaged 1.4 on a scale of 0 (not suitable) to 3 (highly suitable); plots of different values were intermixed throughout the survey area. No qualifying current deer sign of any sort was observed during the survey. According to the 1993 MDIFW guidelines, these results indicate the portion of the DWA surveyed would receive a quality rating of "low."

Appendix A – Variables Measured

Following the methods in the 1993 MDIFW DWA guidelines, forest type, height, and canopy closure values were used to determine shelter quality, and any records of current browse, beds, tracks, or trails within a plot designated that plot as "used" by deer. In addition to forest type and deer use data, the 1993 MDIFW document recommend collecting information on historic deer browse and sign from other species to add context to the DWA quality assessment.

Variables and variable values required by the 1993 MDIFW document to calculate shelter quality and deer use:

Forest Type
S = 75% softwood
H = 75% hardwood
SH = 50-74% softwood,
HS = 50-74% hardwood

Forest Height
1 = 0-34'
2 = 35 - 50'
3 = 50'+

Crown Closure
A = 0-50%
B = 51-80%
C = 81-100%

Current Deer Browse: yes or no; where yes = 4 out of 5 available stems are browsed and 50% or more of available buds/coniferous leaves are browsed

Other Signs of Use: Beds – number; Pellet groups – number; Tracks – none, few, many; Trails – none, few, many

Additional variables recorded to provide DWA context, values defined by Normandeau

Historic Browse: none, light, heavy
Other Species: Species name; Sign type - tracks, scat; Amount – few, many, abundant

The **Shelter Quality** score, based on Forest type + Forest Height + Crown Closure was calculated as follows:

S3A, S3B, S2A, or S2B = 3,
SH3A, SH3B, SH2A, or SH2B = 2,
HS3A, HS3B, HS2A, or HS2B = 1,
all others = 0

The **Deer Use** score was calculated as follows:

Deer use = 1 if current browse or any number of deer tracks, trails or beads were observed
Deer use = 0 is no current browse, deer tracks, trails, or beds were observed.

Appendix B. Data Collected

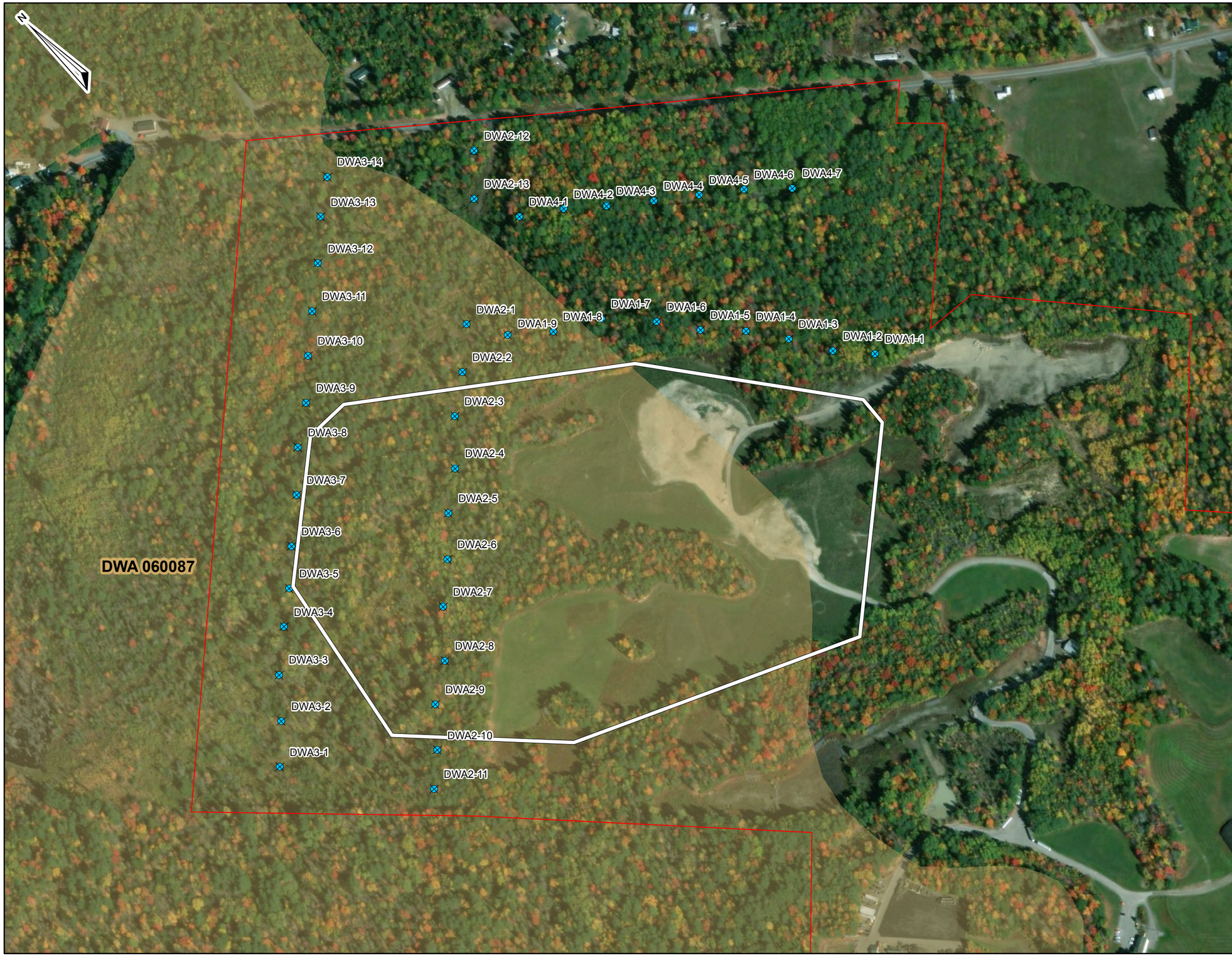
Table 1. Data Collected, definition of data values follows on next page

Plot Number	Forest Type	Forest Height	Crown Closure	Current Deer Browse	Historic Deer Browse	Deer Pellet Groups	Deer Beds	Deer Tracks	Deer Trails	Shelter Quality	Deer Use
1 - 1	HS	2	A	no	None	0	0	None	None	1	0
1 - 2	SH	2	B	no	Light	0	0	None	None	2	0
1-3	HS	2	A	no	Light	0	0	None	None	1	0
1-4	SH	2	A	no	None	0	0	None	None	2	0
1-5	SH	3	B	no	Light	0	0	None	None	2	0
1-6	SH	3	A	no	Light	0	0	None	None	2	0
1-7	S	3	C	no	Light	0	0	None	None	0	0
1-8	S	3	C	no	None	0	0	None	None	0	0
1-9	S	2	A	no	None	0	0	None	None	3	0
2-1	H	1	A	no	None	0	0	None	None	0	0
2-2	H	1	A	no	Light	0	0	None	None	0	0
2-3	S	1	B	no	Light	0	0	None	None	0	0
2-4	SH	1	B	no	Light	0	0	None	None	0	0
2-5	S	3	C	no	Light	0	0	None	None	0	0
2-6	SH	3	B	no	None	0	0	None	None	2	0
2-7	H	1	A	no	None	0	0	None	None	0	0
2-8	SH	2	B	no	None	0	0	None	None	2	0
2-9	SH	3	A	no	None	0	0	None	None	2	0
2-10	S	2	B	no	None	0	0	None	None	3	0
2-11	S	2	B	no	None	0	0	None	None	3	0
2-12	SH	2	A	no	Light	0	0	None	None	2	0
2-13	H	1	A	no	Light	0	0	None	None	0	0
3-1	H	1	A	no	Light	0	0	None	None	0	0
3-2	HS	1	A	no	Light	0	0	None	None	0	0
3-3	HS	1	A	no	None	0	0	None	None	0	0
3-4	S	3	A	no	Light	0	0	None	None	3	0
3-5	S	3	A	no	Light	0	0	None	None	3	0
3-6	H	1	A	no	None	0	0	None	None	0	0
3-7	S	3	A	no	Light	0	0	None	None	3	0
3-8	S	3	B	no	Light	0	0	None	None	3	0

Plot Number	Forest Type	Forest Height	Crown Closure	Current Deer Browse	Historic Deer Browse	Deer Pellet Groups	Deer Beds	Deer Tracks	Deer Trails	Shelter Quality	Deer Use
3-9	S	2	B	no	None	0	0	None	None	3	0
3-10	SH	3	A	no	None	0	0	None	None	2	0
3-11	S	3	B	no	Light	0	0	None	None	3	0
3-12	S	3	A	no	Light	0	0	None	None	3	0
3-13	HS	1	A	no	Light	0	0	None	None	0	0
3-14	SH	1	A	no	Light	0	0	None	None	0	0
4-1	SH	2	A	no	None	0	0	None	None	2	0
4-2	SH	3	B	no	Light	0	0	None	None	2	0
4-3	SH	3	B	no	Light	0	0	None	None	2	0
4-4	SH	3	A	no	None	0	0	None	None	2	0
4-5	HS	3	A	no	None	0	0	None	None	1	0
4-6	HS	3	A	no	Heavy	0	0	None	None	1	0
4-7	H	3	A	no	None	0	0	None	None	0	0
										Average = 1.4	**% w/ Deer Use = 0.0**

Data Values

Forest Type - S = 75% softwood, H = 75% hardwood, SH = 50-74% softwood, HS = 50-74% hardwood
Forest Height - 1 = 0-34', 2 = 35 - 50', 3 = 50'+
Crown Closure - A = 0-50%, B = 51-80%, C = 81-100%
Current Deer Browse - yes, no, where yes = where 4 out of 5 available stems are browsed and 50% or more of available buds/coniferous leaves are browsed
Historic Browse - none, light heavy
Shelter Quality score: S3A, S3B, S2A, or S2B = 3, SH3A, SH3B, SH2A, or SH2B = 2, HS3A, HS3B, HS2A, or HS2B = 1, all others = 0
Deer Use = 1 if current browse, beds, trails or tracks are recorded

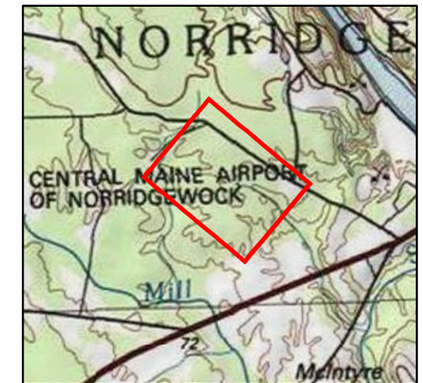


G:\Projects\GIS_Projects_2017\Norridgewock_CR\MXD\DWA_031318.mxd

Figure 1: Deer Wintering Area Field Survey Locations

Waste Management
Disposal Services of Maine, Inc.

Crossroads Landfill
Norridgewock, Maine



Index Map

Site Features

- Proposed Waste Boundary
- WMDSM Parcel Boundary (approximate)
- Data Collection Points
- Candidate Unrated Deer Wintering Area 060087

Sources:
Aerial imagery provided by ESRI

Deer Wintering Area obtained from the Maine Office of GIS Data Catalog

0 200 400 800 Feet

NORMANDEAU ASSOCIATES
Environmental Consultants

Attachment 10.

Notice of Intent to File

Attachment 10. Notice of Intent

Public Notices

On September 7, 2019, WMDSM published a Notice of Intent to File a solid waste permit application and a Natural Resources Protection Act (NRPA) permit application in the Morning Sentinel. In connection with the applications, the notice also included information regarding WMDSM's upcoming Public Informational Meeting. A copy of the notice was sent to Crossroads abutters and Town officials by certified mail. A copy of the published notification can be found in Attachment 10A, below.

On September 19, 2019, WMDSM held a Public Informational Meeting from 6 P.M. to 8 P.M. at the Mill Stream Elementary School in Norridgewock, Maine. At the meeting, WMDSM and its technical consultants provided information to the public about the Phase 14 project. Information was separated into four content-related areas focusing on landfill design, hydrogeology, natural resources and facility operations, including Phase 14 initiatives. Copies of the 17 informational posters presented at the meeting are available in Attachment 10A (Informational Posters). In addition to the informational posters, the public was provided a summary of the project, a list of necessary state, local and federal licenses, and a fact sheet obtained from MEDEP explaining public participation in the licensing processes. A copy of each document is also available in Attachment 10A (Additional Documents).

In total, 14 members of the public attended the informational meeting, excluding individuals associated with the project. A copy of the sign-in sheet is available in Attachment 10A (Sign-in Sheet). Throughout the meeting, the public was provided an opportunity to ask questions directly of WMDSM personnel and members of its technical team. Questions raised were general in nature concerning groundwater, liner design, water quality, leachate control and treatment, composting, wetland mitigation and odor control. Members of WMDSM's technical team provided responses to each question and referenced the informational materials prepared for the meeting for background. Additional photographs from the meeting are available in Attachment 10A (Meeting Photos).

On October 16, 2019, WMDSM published an updated Notice of Intent to File for the solid waste and NRPA applications in the Morning Sentinel (October 16, 2019 Notice). A copy of the notice was sent to Crossroads abutters and Town officials by certified mail and can be found in Attachment 10A (October 16, 2019 Notice Documents).

Attachment 10A.

Notice of Intent Documentation

SEPTEMBER 7, 2019 NOTICE

PUBLIC NOTICE
INTENT TO FILE APPLICATIONS
PUBLIC INFORMATIONAL MEETING

Please take notice that Waste Management Disposal Services of Maine, Inc. ("WMDSM"), with its principal office at 357 Mercer Road, Norridgewock, Maine 04957, Attention Jeffrey McGown, (207) 634-2714 ext. 6, intends to file a solid waste permit application with the Maine Department of Environmental Protection ("DEP") on or about October 4, 2019 pursuant to the provisions of Title 38 M.R.S. Section 1301, et seq. and Maine's Solid Waste Management rules. At the same time, WMDSM will also file a Natural Resources Protection Act permit application pursuant to the provisions of Title 38 M.R.S. Sections 480-A through 480-HH and Maine's Natural Resource Protection Act rules, and an accompanying request for Water Quality Certification pursuant to 401 of the Clean Water Act.

The solid waste application is for a new lined solid waste disposal unit at the solid waste landfill located in Norridgewock, Maine (the "Crossroads Landfill") owned and operated by WMDSM. The project, referred to as Phase 14, will provide an estimated 17 years of additional disposal capacity at the Crossroads Landfill. In addition to construction of the new lined waste disposal unit, the Phase 14 project will include new infrastructure to manage leachate, landfill gas, and stormwater, as well as access roads and environmental monitoring system. The Natural Resources Protection Act application addresses how construction and operation of the Phase 14 project could affect natural resources.

In connection with the applications, WMDSM will hold a public informational meeting at the Mill Stream Elementary School, 26 Mercer Road, Norridgewock, Maine, on Thursday, September 19, 2019, from 6:00 P.M. to 8:00 P.M. The purpose of the meeting is for WMDSM to inform the public about the Phase 14 project and opportunities for public comment on the project.

According to Department regulations, interested parties must be publicly notified, written comments invited, and if justified, an opportunity for public hearing given on an application. A request for a public hearing, or that the Board of Environmental Protection assume jurisdiction of an application, must be received by the Department, in writing, no later than 20 days after the application is accepted by the Department as complete for processing.

The applications and supporting documentation will be available for review at the Bureau of Remediation and Waste Management (BRWM) at the DEP office in Augusta, during normal working hours. Copies of the applications and supporting documentation also will be provided to and may be seen at the municipal office in Norridgewock, Maine.

Send all correspondence to: Maine Department of Environmental Protection, Bureau of Remediation and Waste Management, 17 State House Station, Augusta, Maine 04333-0017 Attention: Linda Butler or contact Linda Butler at (207) 287-7885 or Linda.J.Butler@maine.gov

CLASSIFIED

Public Notices

Public Notices are a permanent and independent record of government and court actions. These include state and local government meetings, rule making, available contracts, zoning changes, and many more, as required by law. In addition, parties to some court proceedings, such as foreclosures, probate, and estate actions are required to publish notices to ensure notification of affected parties, as well as the general public. These notices also alert business owners, large and small, to potential government contractual jobs, helping to ensure economic activity across a level playing field. Public notices have existed to ensure transparency in all levels of government since the founding of the United States.

State and local notices are published in Maine newspapers and are also recorded at mainenotices.com, where anyone can browse or search notices, and sign up to receive email alerts when relevant notices appear.

ANNOUNCEMENTS

Public Notices

Public Notice

PUBLIC NOTICE INTENT TO FILE APPLICATIONS PUBLIC INFORMATIONAL MEETING

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MERCHANDISE

Flea Markets

QUEENS COURT FLEA MARKET
102 Bangor St., Augusta
OPEN 7 DAYS
Year Round 9AM -5PM

Food & Seafood Products

CERTIFIED ORGANIC sweet corn, $6/dozen, large order discount, available Sept 5-14. A&L organics, 696 Main St., Pittsfield. Farm stand open 8 am-7:30 pm. Closed Sunday's

CORN, TOMATOES, SQUASH, AND OTHER VEGETABLES.
Open 10a.m. daily
Closed Mon.'s & Thurs.'s
Golden Acres
Center Rd Fairfield

UNDERWOOD FARM BENTON (BUSHELLS)
Tomatoes, Beets, Carrots
Onions/FMI 453-6800

EARN CASH.
Deliver this Newspaper.
Call 207-791-6001

SEEKING STORE MANAGER

Troy General Store is looking for an individual to manage its store. This is a full time position with benefits.

Please send resume to:
Troy General Store
P.O. Box 2, Troy, ME 04987
Fax : 948-2698
E-mail:ddianne@uninets.net
No phone calls please.

Huhtamaki

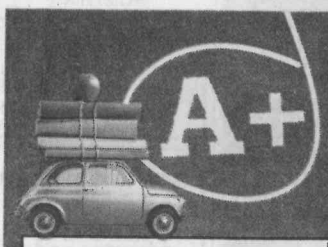
Huhtamaki is currently accepting resumes for the following position.

Huhtamaki is a premium manufacturer of disposable paper products and offers competitive salary and comprehensive benefit package.

Asst. Power Plant Operator

- Graduate of Technical School
- Must hold a minimum of a Current 4th Class Stationary Steam Engineer Level license for operation of boilers.

If you possess the qualifications listed and would like to be considered, please visit our website at www.huhtamaki.



UNITS ALL ON SALE!

2014 CHEVROLET EQUINOX LT
Stock# 9648-1

2017 CHEVRO EQUINOX L
ONLY $14,875 Stock#

2015 DODGE JOURNEY CROSSROAD
Stock# 9688-1

2015 DODG JOURNEY SX
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2008 HONDA ODYSSEY EX-L
ONLY $8,990 Stock# 9620-1

2010 HONDA P EX-L
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2015 FORD TAURUS SEL
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2012 HONDA CIVIC EX
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2016 JEEP CHER LATITUDE
Stock# 9646-1, V-6, 4

2016 TOYOTA CAMRY LE
Stock# 9637

2015 TOYOTA CAMRY XSE
Stock# 9616

2015 CHEVROLET EQUINOX
Stock# 9647-1

2013 FORD EDGE SPORT
Stock# 9701-1, Leather!

2011 PI
Stoc

The Humane Society Waterville

SEPTEMBER 7, 2019 NOTICE DOCUMENTS

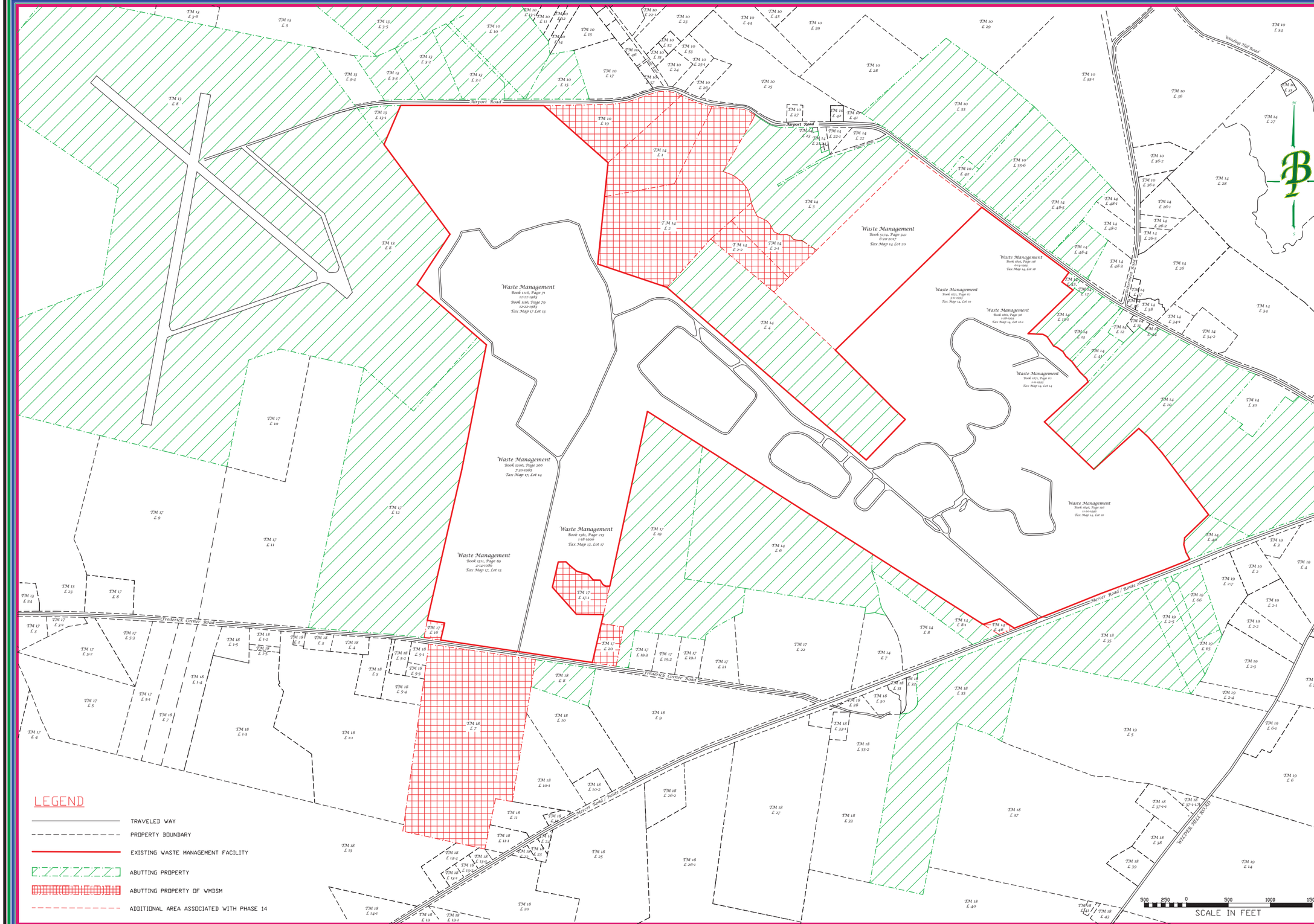
Waste Management Abutters List 2019

Tax Map	Lot #	Name	Mailing Address
10	35-6	Glenn A. Jones	232 Airport Rd. Norridgewock, ME 04957
10	10	Joseph D. & Susan M. Cloutier	P.O. Box 369 Norridgewock, ME 04957
10	15	Winston L. & Linda J. Ford	251 Haynes Way Cambridge, NY 12816
10	35	Linda S. Roderick	275 Airport Rd. Norridgewock, ME 04957
10	42	Pamela L. Whitten	317 Airport Rd. Norridgewock, ME 04957
10	19	Waste Management Disposal Services of Maine, Inc.	P.O. Box 1450 Chicago, IL 60690-1450
10	24	Daren Turner*	P.O. Box 865 Skowhegan, ME 04976
13	3-1 & 3-3	Heidi Chamberland Trustee	9 Tracy Cove Circle Rome, ME 04963
13	3-5	Paul & Rebecca Alves	P.O. Box 2547 Orleans, MA 02653-6547
13	8	Norridgewock Municipal Airport	603 Airport Rd. Norridgewock, ME 04957
13	13-1	Forrest & Wilma Stevens & Julie S. McCarthy	P.O. Box 659 Norridgewock, ME 04957
13	3-2	Tammy J. Ferland	511 Airport Rd. Norridgewock, ME 04957
14	1, 2, 2-1, 2-2, 46	Waste Management Disposal Services of Maine, Inc.	P.O. Box 1450 Chicago, IL 60690-1450
14	3	Christopher J. Clark	P.O. Box 793 Norridgewock, ME 04957
14	17	Carol Decker*	180 Airport Rd. Norridgewock, ME 04957
14	13-1	Floyd Whitmore	P.O. Box 877 Norridgewock, ME 04957
14	13 & 41	Letty N. Brann	156 Airport Rd. Norridgewock, ME 04957
14	45	Rita Chaykowsky	P.O. Box 658 Norridgewock, ME 04957
14	48-4 & 48-5	Elizabeth A. Skidgell	P.O. Box 93 Smithfield, ME 04978
14	4, 6, 8-1	Edward & Gloria Frederick	362 Mercer Rd. Norridgewock, ME 04957
14	40	Lebanon Masonic Lodge	251 Mercer Rd. Norridgewock, ME 04957
14	10	Northern NE Conference of 7th Day Adventists	P.O. Box 689 Norridgewock, ME 04957
17	17-1, 20, 16	Waste Management Disposal Services of Maine, Inc.	P.O. Box 1450 Chicago, IL 60690-1450
17	12	Avis & Alice E. Emery	229 Frederick Corner Rd. Norridgewock, Me 04957
17	19	Edward & Gloria Frederick Trustee	362 Mercer Rd. Norridgewock, ME 04957

*Not an abutter but being notified with abutters.

18	7	Waste Management Disposal Services of Maine, Inc.	P.O. Box 1450 Chicago, IL 60690-1450
18	35	Edward & Gloria Frederick Trustee	362 Mercer Rd. Norridgewock, ME 04957
18	8	Parker & Rachel Parsons	134 Frederick Corner Rd. Norridgewock, ME 04957
19	66	Lois & Scott Von Husen	9415 99th Avenue #1013 Peoria, AZ 85345
19	2-5	Krista L. Bowman	290 Mercer Rd. Norridgewock, ME 04957
19	65	Richard & Lelia Von Husen	282 Mercer Rd. Norridgewock, ME 04957

*Not an abutter but being notified with abutters.



STATE OF MAINE
Somerset ss. Registry of Deeds
Received _____, 20____
at _____ h. _____ M. and Recorded
in Plan File _____, Page _____
Attest: _____ Register

12.2016	REVISED PER NEW PLAN	MBB	
9.3.19	REVISED PER COMMENTS	MBB	

SHEET TITLE:
Waste Management Property
Narrow Definition of Existing Facility

SITE LOCATION:
Mercer Road
Norridgewock, Maine

SCALE: 1" = 500'

September 3, 2019

RECORD OWNER:
WASTE MANAGEMENT
"Think Green"
CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE 04957

PLAN PREPARED BY:
Boynton & Pickett L.L.C.
PROFESSIONAL LAND SURVEYOR
"Where you want Professional Work, On Time and Affordable!"
922 East River Road Skowhegan, Maine 04976
Phone: (207) 474-0016 Cell: 207-399-7517
Email: whboynton@aol.com
www.BoyntonPickett.com

Job #: WM06272018ABUTTERS

STATE OF MAINE
JOHN M. PICKETT
351
PROFESSIONAL LAND SURVEYOR

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INFORMATIONAL POSTERS

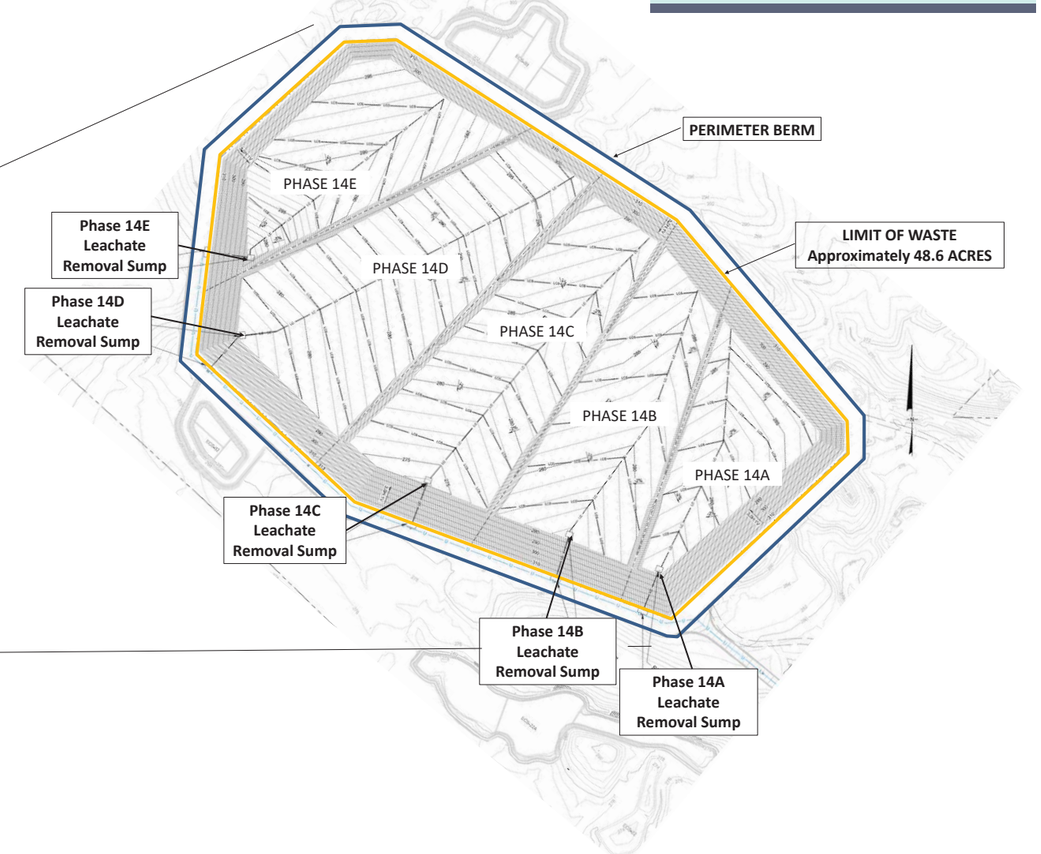
Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Phase 14 Site Layout

Geosyntec consultants
engineers | scientists | innovators

WASTE MANAGEMENT

Crossroads Facility Map

Phase 14 Lined Area



KEY POINTS

Phase 14 will:

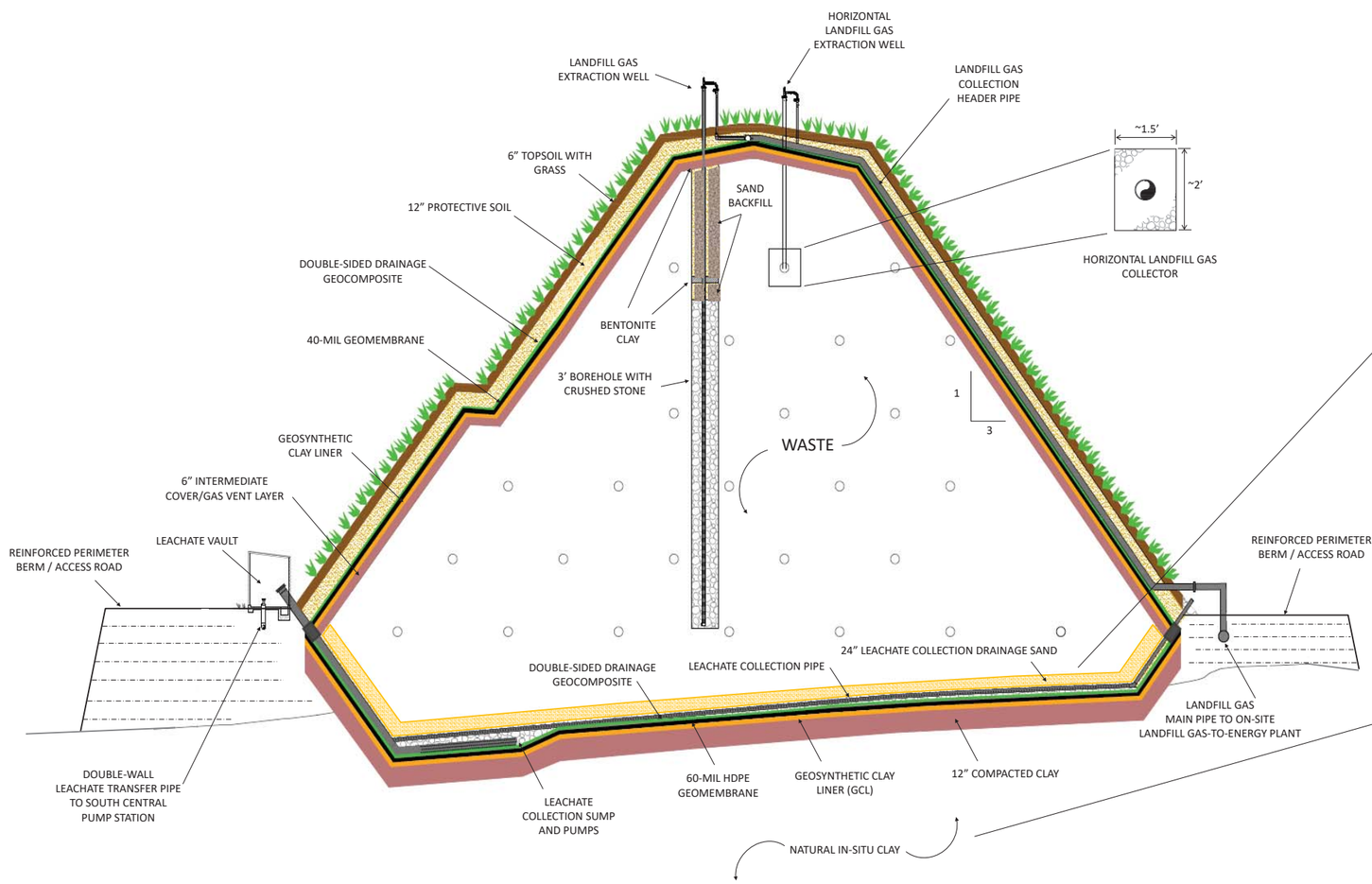
- **have a lined area of approximately 48 acres**
- **consist of five disposal cells: Phases 14A, 14B, 14C, 14D, and 14E**
- **require minimal changes to site infrastructure**

Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Liner and Final Cover Systems, Leachate and Gas Collection

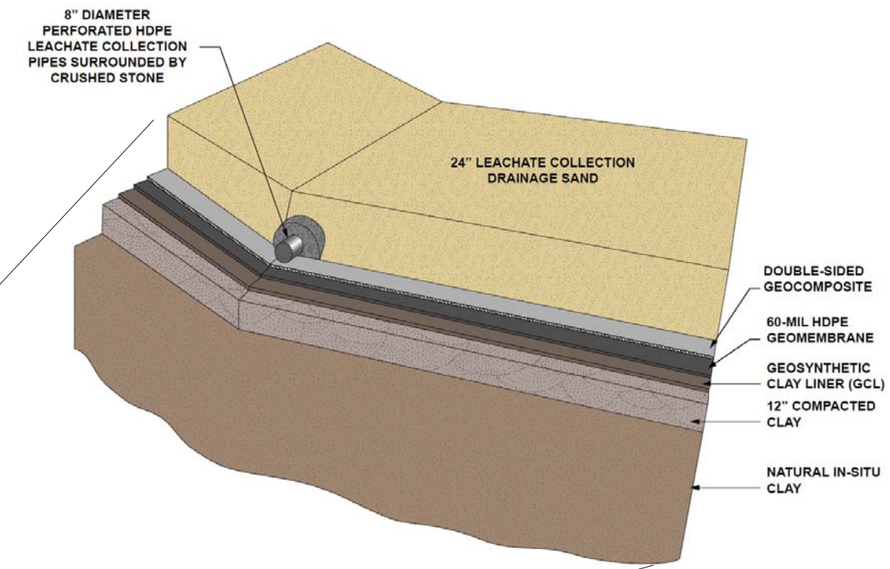
Geosyntec consultants
engineers | scientists | innovators

WASTE MANAGEMENT

Waste Containment System



Phase 14 Multi-Layered Liner System



KEY POINTS

- The Phase 14 liner system will be constructed on a thick layer of natural in-situ clay
- The multi-layered liner system will consist of:
  - Sand & Geocomposite Drainage Layer
  - High Density Polyethylene (HDPE) Geomembrane
  - Geosynthetic Clay Liner (GCL)
  - Compacted Clay
- Leachate will continue to be removed and treated at Sappi North America and/or Anson-Madison Sanitary District Wastewater Treatment facilities

Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Stormwater Management

Geosyntec consultants
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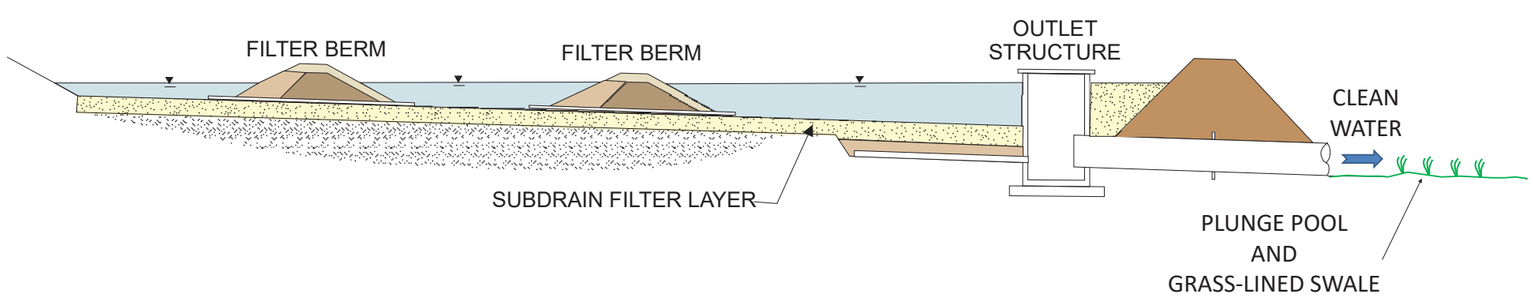
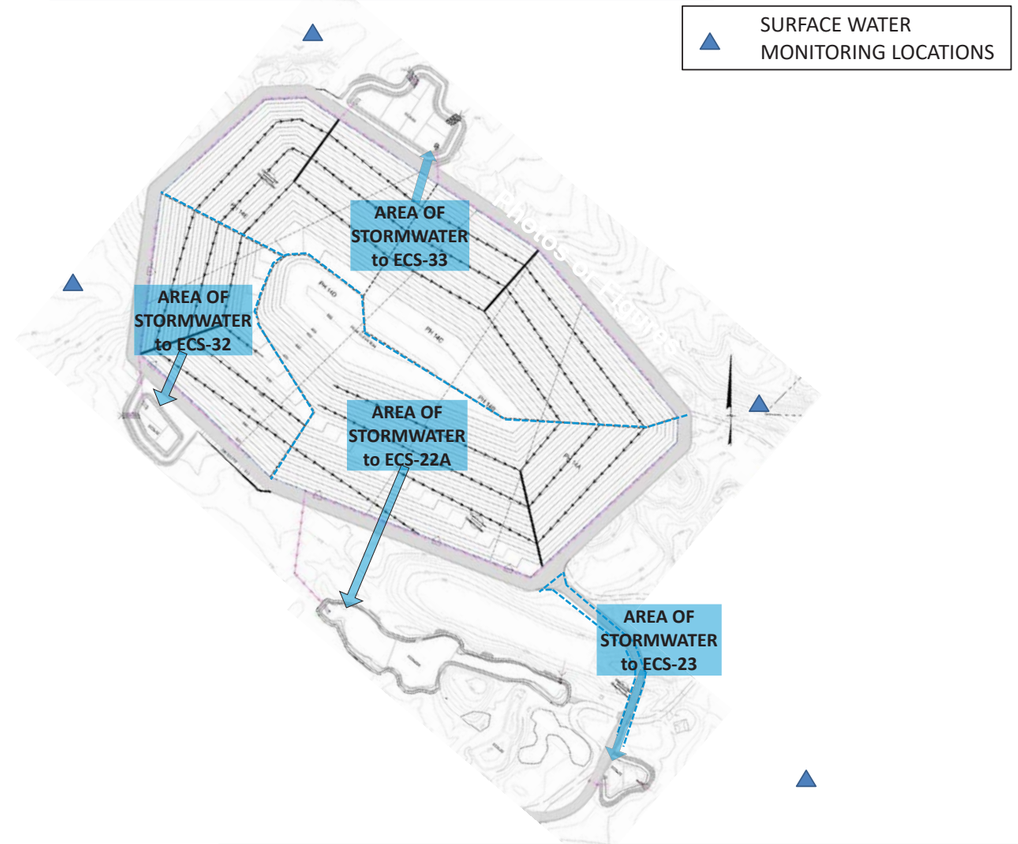
WASTE MANAGEMENT

Erosion Control Structure (ECS) Basins



Stormwater Management System



KEY POINTS

- Stormwater from the Phase 14 area will be managed by a system of four retention/detention basins
- These basins, termed Erosion Control Structures (ECS), will ensure:
  - only clean stormwater leaves the project area
  - control / management of stormwater flow
- Water quality monitoring will be performed throughout Phase 14 construction and operation

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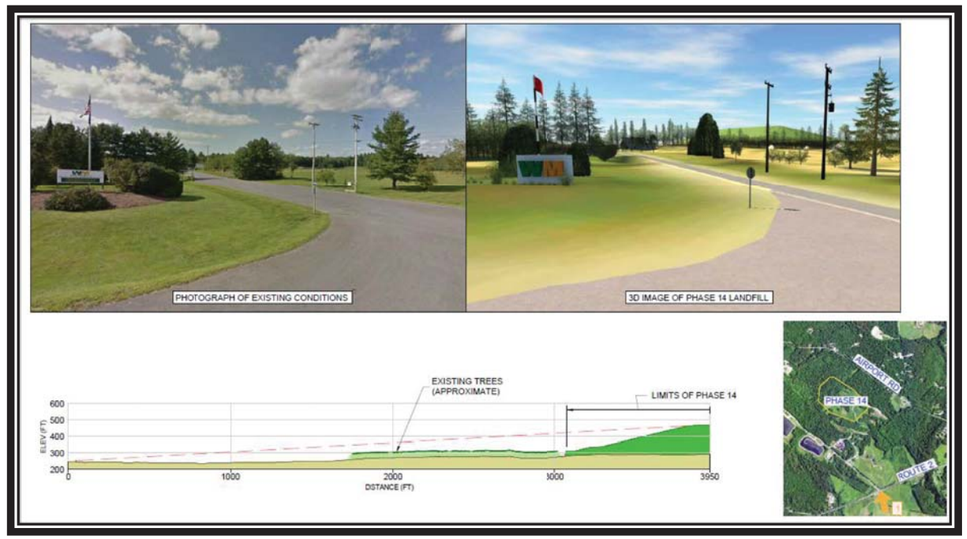
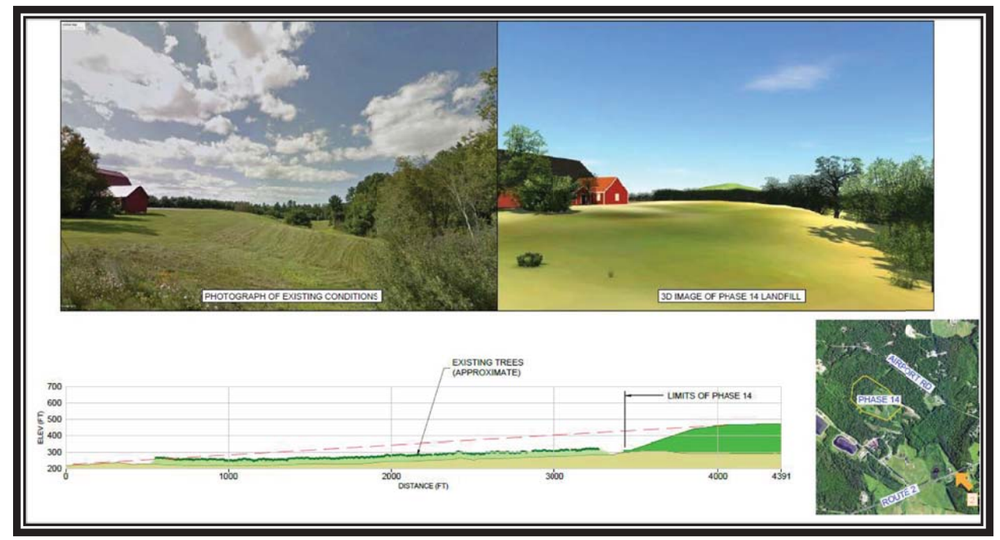
Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Visual Assessment

WASTE MANAGEMENT

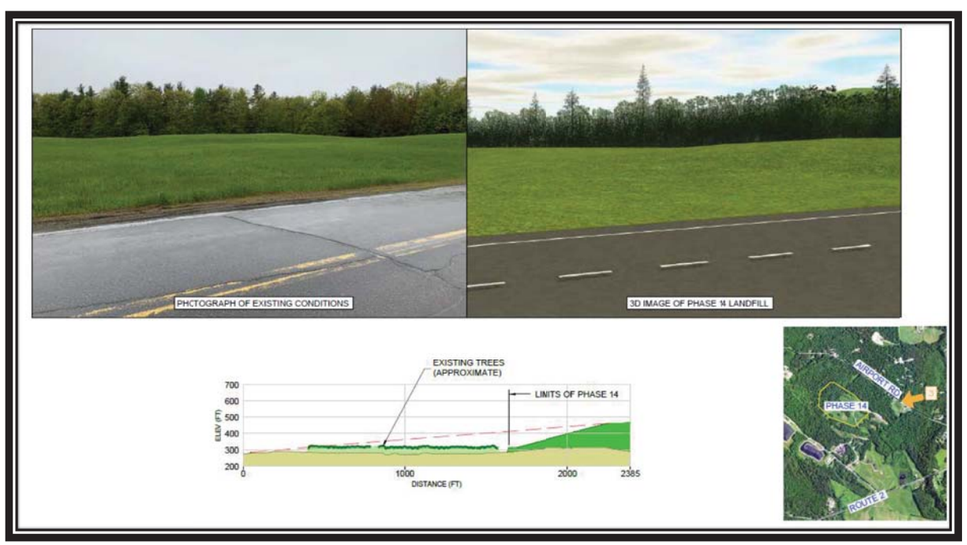
Projected View of Phase 14 Landfill - from Vantage Point #1 along Route 2



Projected View of Phase 14 Landfill - from Vantage Point #2 along Route 2



Projected View of Phase 14 Landfill - from Vantage Point #3 along Airport Rd



Existing Visual Screening (Buffer) constructed along Route 2

KEY POINTS

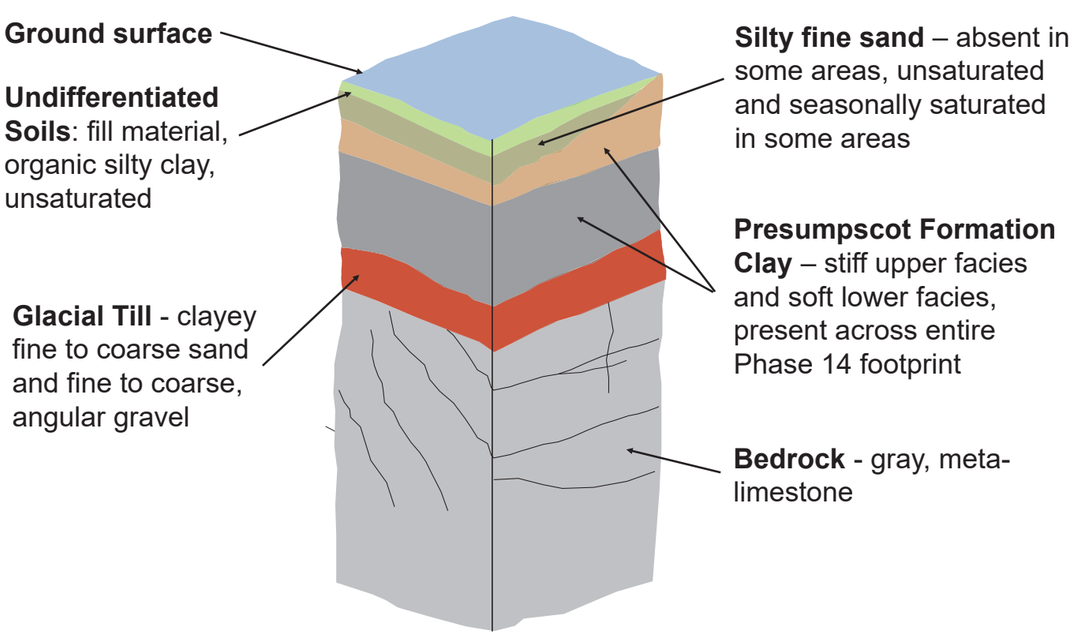
- Large setback distances and existing vegetation / trees will be maintained to obscure visibility of Phase 14
- Visual Screens (for example, earthen embankments with planted trees) will be constructed as necessary to further buffer visibility.

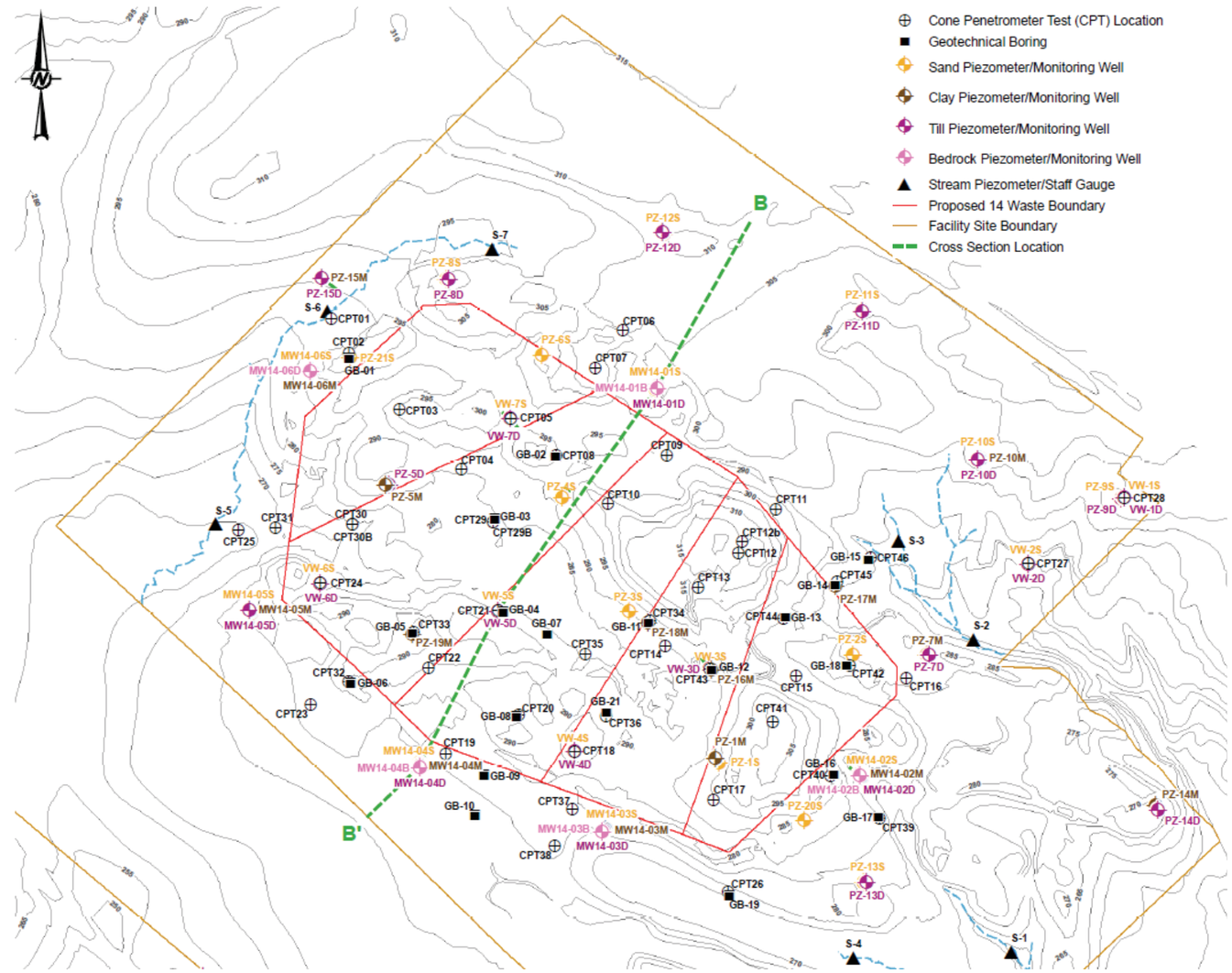
Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Geology and Hydrogeology

Data Collection

- 50+ soil borings
- 64 overburden monitoring wells and piezometers
- 4 bedrock monitoring wells
- 7 stream gauges/ piezometers
- 25 soil samples for laboratory testing of grain size, Atterberg limits and/or permeability
- 40 monitoring well/piezometer slug tests (i.e., hydraulic testing)
- 29 rounds of water level measurements

Geologic Profile

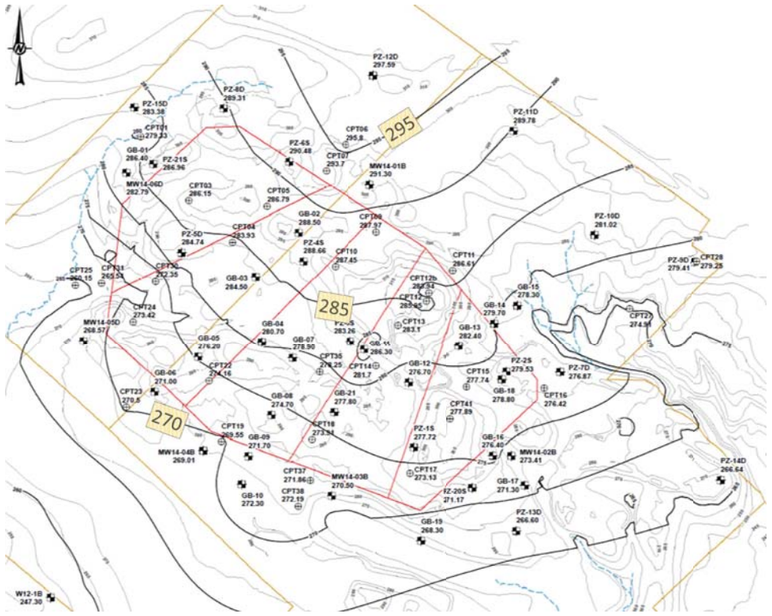




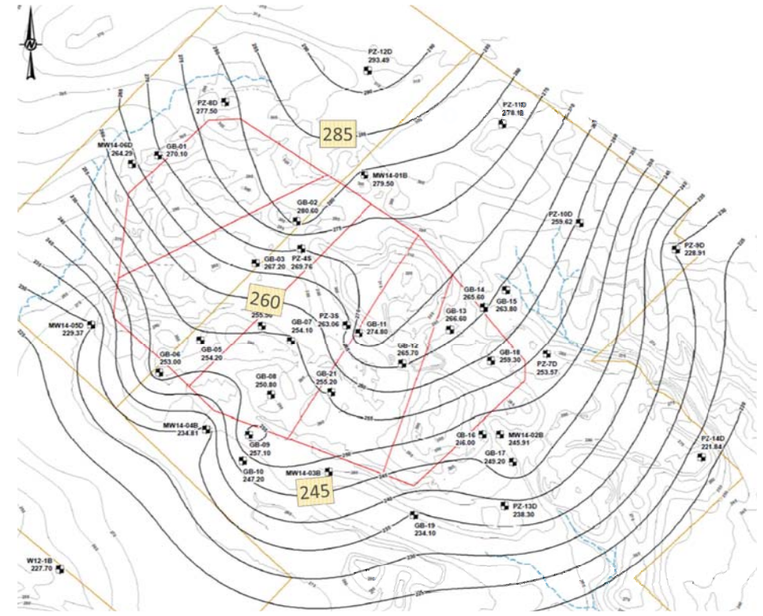
Borings, Piezometers and Well Locations

Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Geology and Hydrogeology

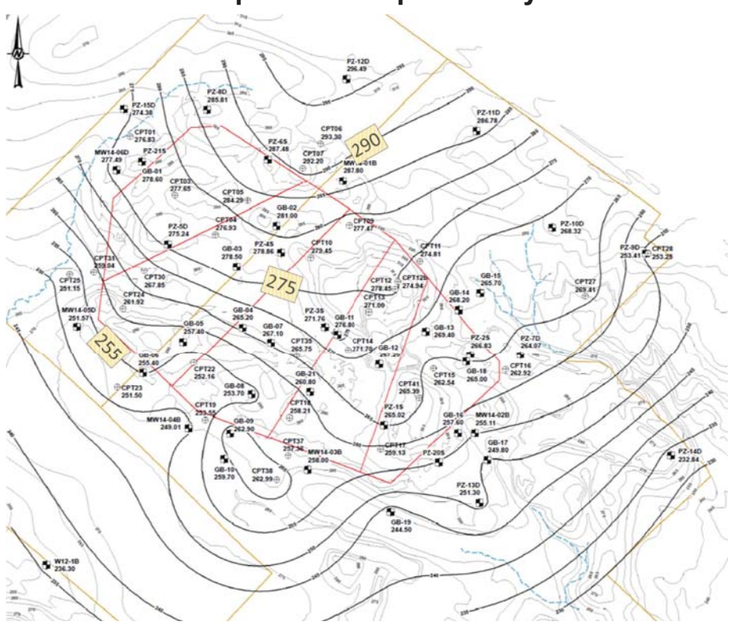
Geologic Surfaces



Top of Presumpscot Clay

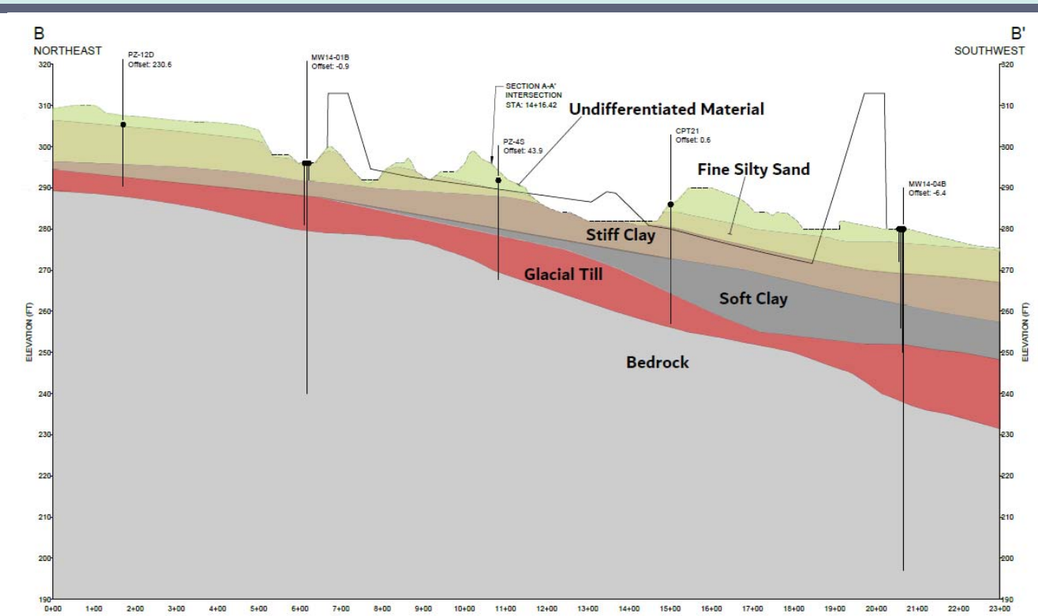


Top of Bedrock



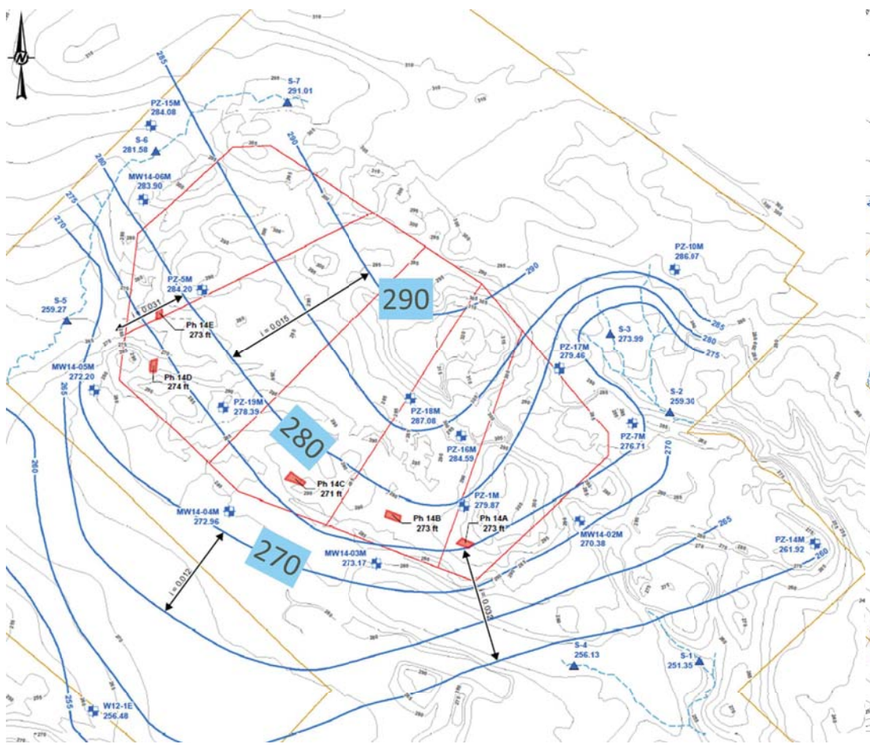
Top of Glacial Till

Geologic Profile

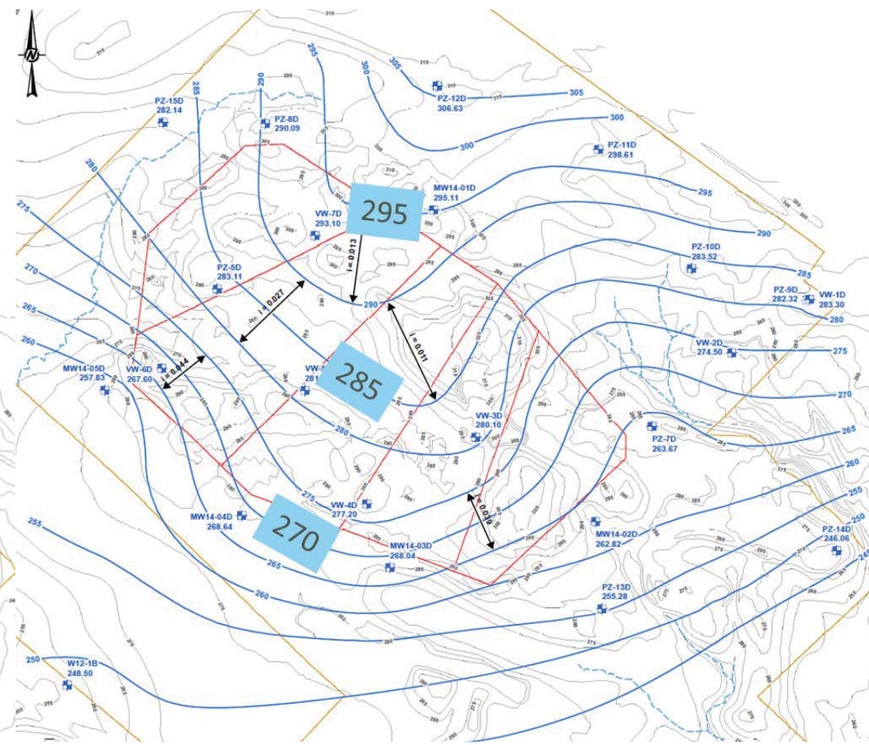


Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Geology and Hydrogeology

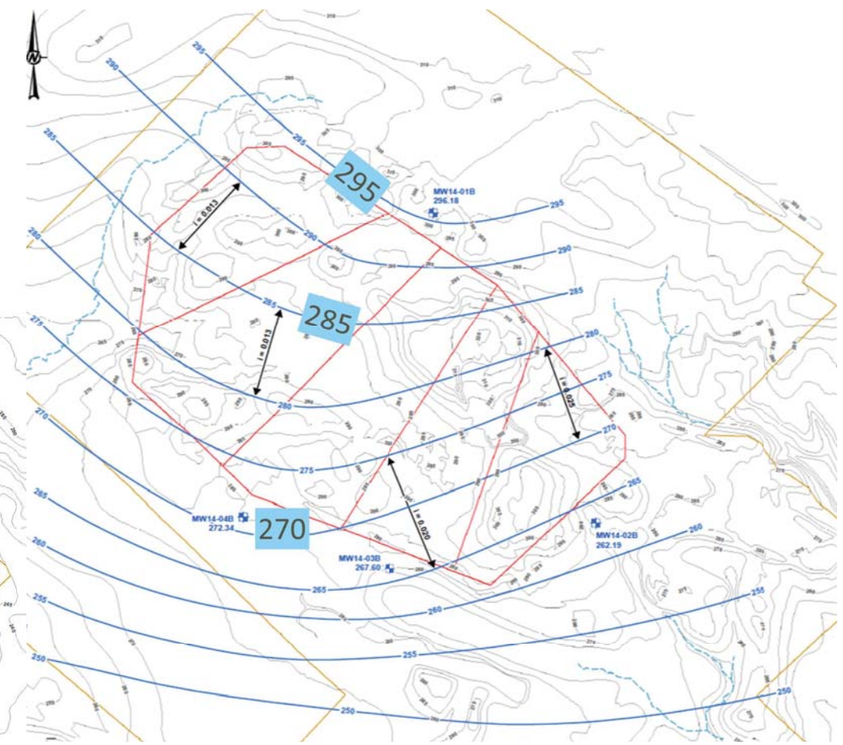
Groundwater Surfaces



Shallow Groundwater



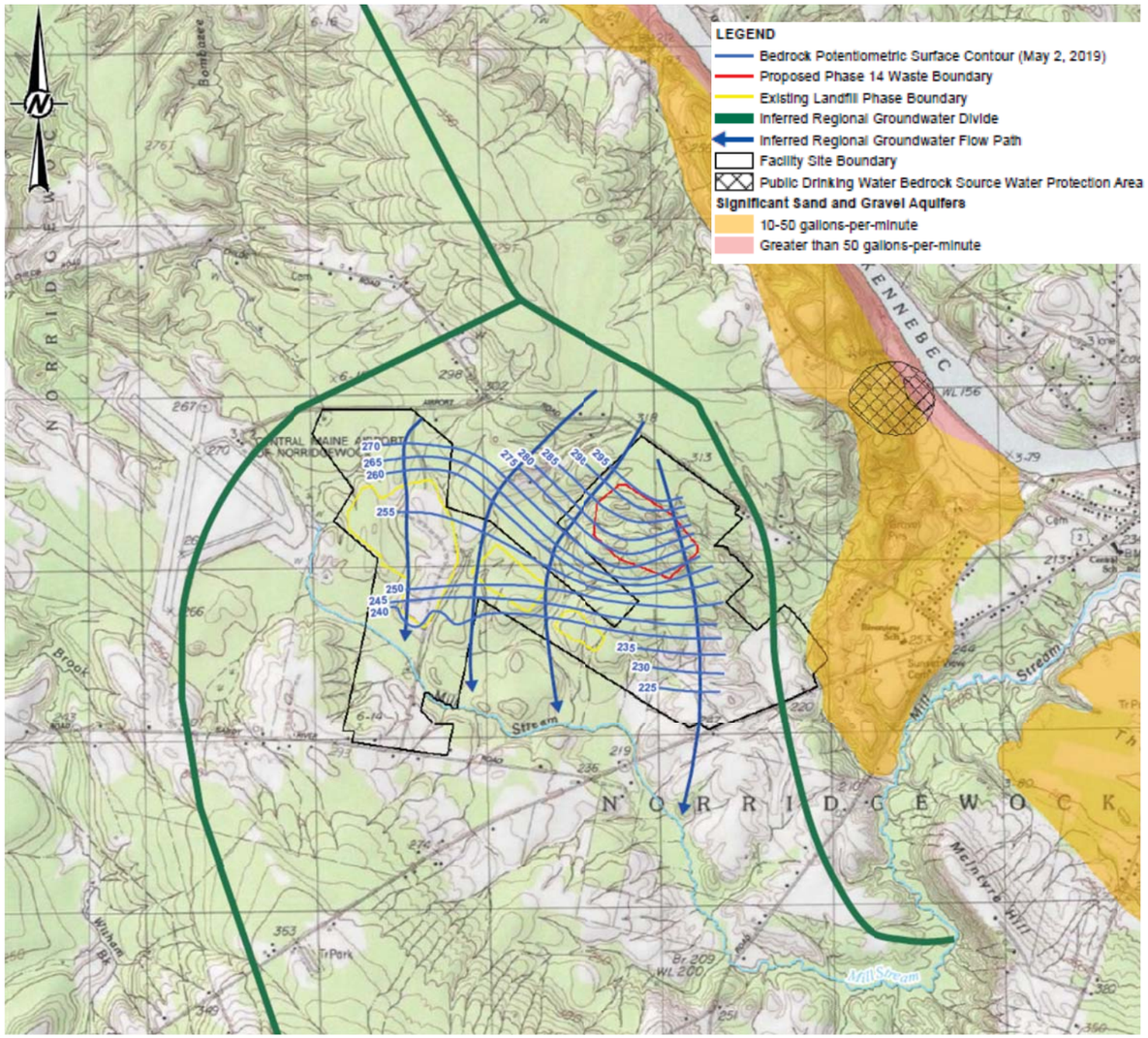
Glacial Till Groundwater Surface



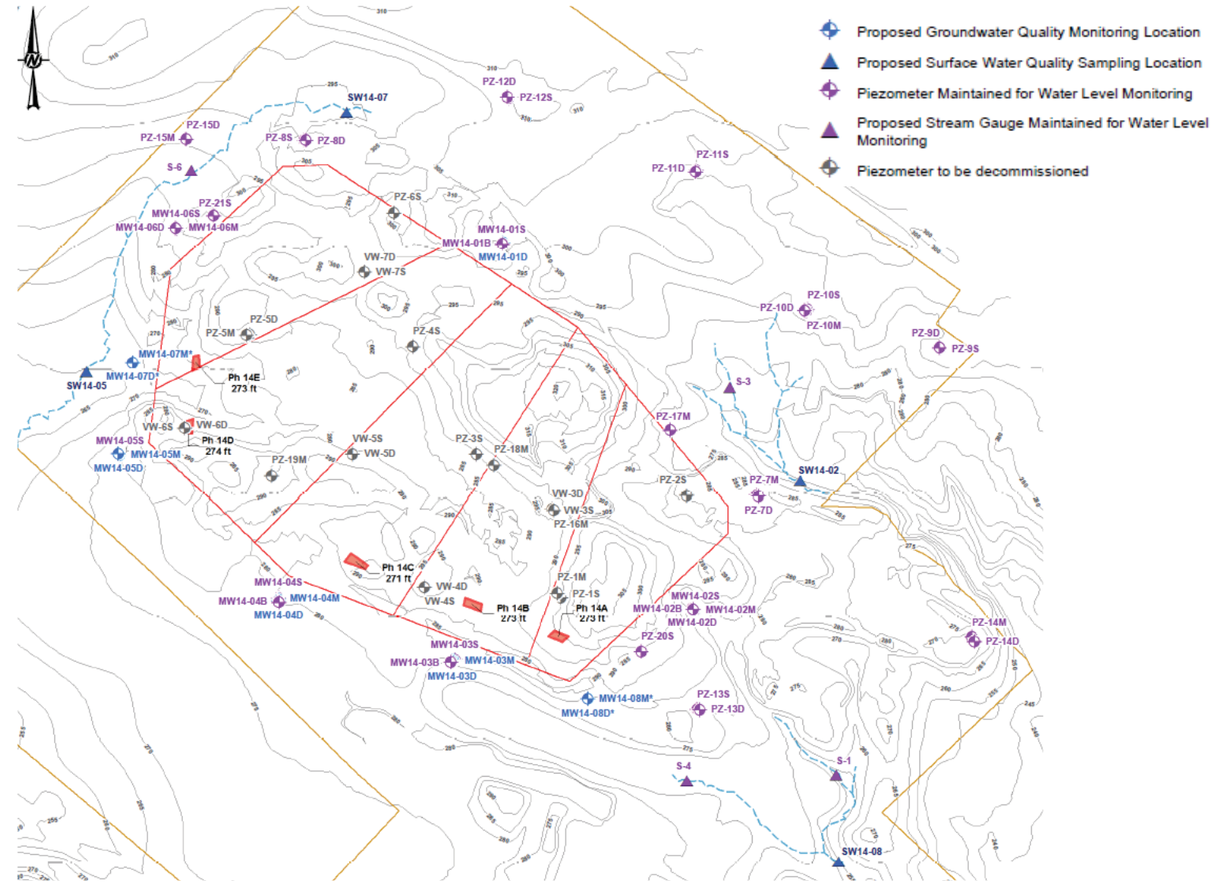
Bedrock Groundwater Surface

Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Geology and Hydrogeology

Regional Bedrock Groundwater Flow



Groundwater and Surface Water Monitoring Network



Key Points

- Geologic and hydrogeologic conditions are consistent with previously permitted landfills at the WMDSM facility
- Presumpscot clay provides a natural barrier to underlying water bearing units
- Overburden geologic units generally thicken and dip to the south-southwest
- Groundwater flows to the south-southwest, towards previously permitted landfill units and away from the Town of Norridgewock water supply and the Kennebec River
- Groundwater and surface water in the area of Phase 14 will be routinely monitored at a network of monitoring wells to ensure that any changes in water quality are quickly identified.

Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Natural Resources

Natural Resource Investigations

Water Resource Map

Field Data Collection and Resource Characterizations

Field assessments were completed to map natural resources in 2017, 2018 and 2019:

- **WETLANDS**
- **STREAMS**
- **VERNAL POOLS**

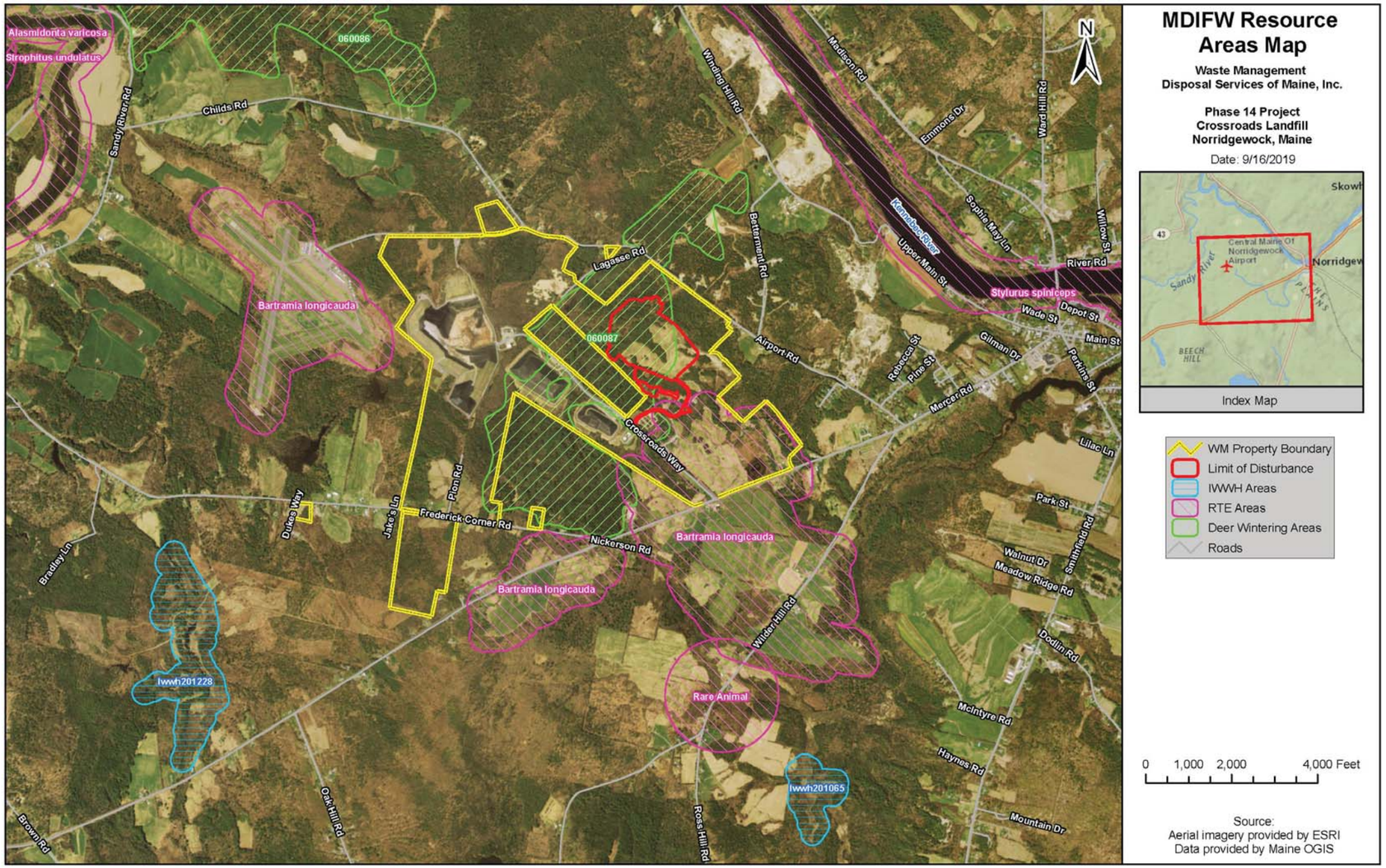
Natural Resources

Key Points

- **All streams intermittent or ephemeral; no perennial streams**
- **No Significant Vernal Pools as determined by Maine Department of Environmental Protection (MEDEP)**
- **Greater than 100 foot setback to all streams from limit of waste**
- **Proposed impacts include direct wetland and vernal pool impacts and one new stream crossing**
- **Proposed wetland, stream, and vernal pool impacts will be offset via mitigation plan**
- **Mitigation plan developed in coordination with MEDEP, US Army Corps of Engineers (USACE) and others**

Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Natural Resources

Natural Resource Investigations



MDIFW Resource Areas Map

Wildlife Habitat Assessments

Field assessments were completed to investigate the presence or absence of:

- **Deer Wintering Area (DWA)**
- **Rare, threatened, or endangered (RTE) species or habitat**
- **Significant Wildlife Habitat**

Natural Resources
Key Points

- **Normandeau has coordinated with MEDEP, Maine Dept. Inland Fish & Wildlife (MDIFW), and Maine Natural Areas Program (MNAP) to identify known and potential wildlife habitat and rare species**
- **Mapped Deer Wintering Area is a candidate/unrated DWA that has been field verified as low quality**
- **No impacts to Significant Wildlife Habitat within or in close proximity to the Phase 14 Project Area**
- **No impacts to rare, threatened, or endangered species or habitat within or in close proximity to the Phase 14 Project Area**
- **MDIFW-mapped *Bartramia longicauda* (upland sandpiper) habitat not suitable within project area and no individuals observed**

Crossroads Landfill - Phase 14

Public Information Meeting – September 19, 2019

Household Hazardous Material Diversion Program

Local Collection Event

- The Phase 14 Project will include a Household Hazardous Materials Collection and Reuse Program to keep potentially hazardous materials out of residential waste.
- Local communities and residents will be encouraged to participate free of charge.
- The three adjacent pictures were taken at a collection event held at the Crossroads facility on August 24, 2019.
- Collection events for the local community will continue throughout the life of the Phase 14 Project.

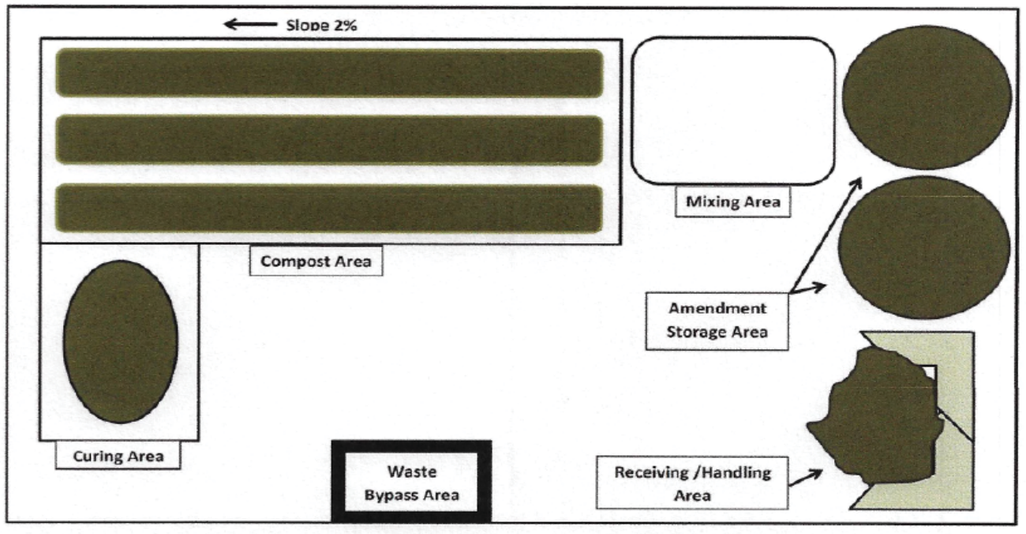
Crossroads Landfill - Phase 14

Public Information Meeting – September 19, 2019

Organics Diversion and Composting Program

Composting at Crossroads

- The Phase 14 Project will include an Organics Diversion and Composting Program.
- A facility will be developed at Crossroads to accept and process organic material.
- The goal of the program will be to keep organic materials out of wastes, thereby saving landfill capacity.
- Local residents, schools, and businesses will be encouraged to participate.
- Organic materials will be dropped off at the upgraded Airport Road Transfer Station.
- Compost produced by the program will be made available to local residents free of charge.



Conceptual layout for Crossroads Organics Diversion and Composting Program

WMDSM provided critical assistance to the development of a composting program in Farmington, Maine in 2019.
Photo by Mark King, Maine DEP, *Food Scraps Composting Pilot Program Report, 10,* (January 2019).

Crossroads Landfill - Phase 14

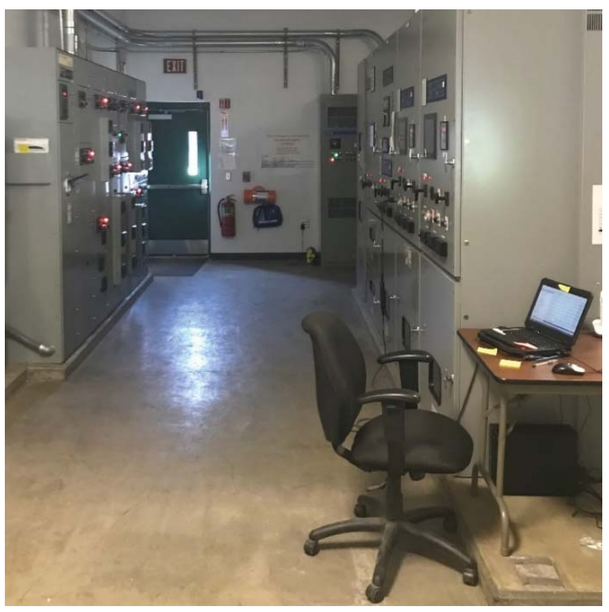
Public Information Meeting – September 19, 2019

Airport Road Transfer Station Upgrade

The general conceptual design for the upgraded Airport Road Transfer Station will be similar to this facility.

Crossroads Renewable Energy

- The Crossroads' Renewable Landfill Gas-to-Energy Plant has been capturing gas since March 9, 2009.
- The system collects gas from the waste decomposition process and uses it to generate electricity.
- On an annual basis, the system collects and combusts 470 million standard cubic feet of landfill gas.
- The system powers two, 20 cylinder, Caterpillar engines that are rated at 2,380 horsepower each.
- The engines generate 21,684,958 kilowatt hours of electricity per year – that is the equivalent of 13,330 barrels of oil.
- The Renewable Landfill Gas-to-Energy Plant will continue operation throughout Phase 14.



Crossroads Landfill Gas-to-Energy Plant Control Room

Caterpillar 3520 Engines

Current Opportunities: 2004 - 2018

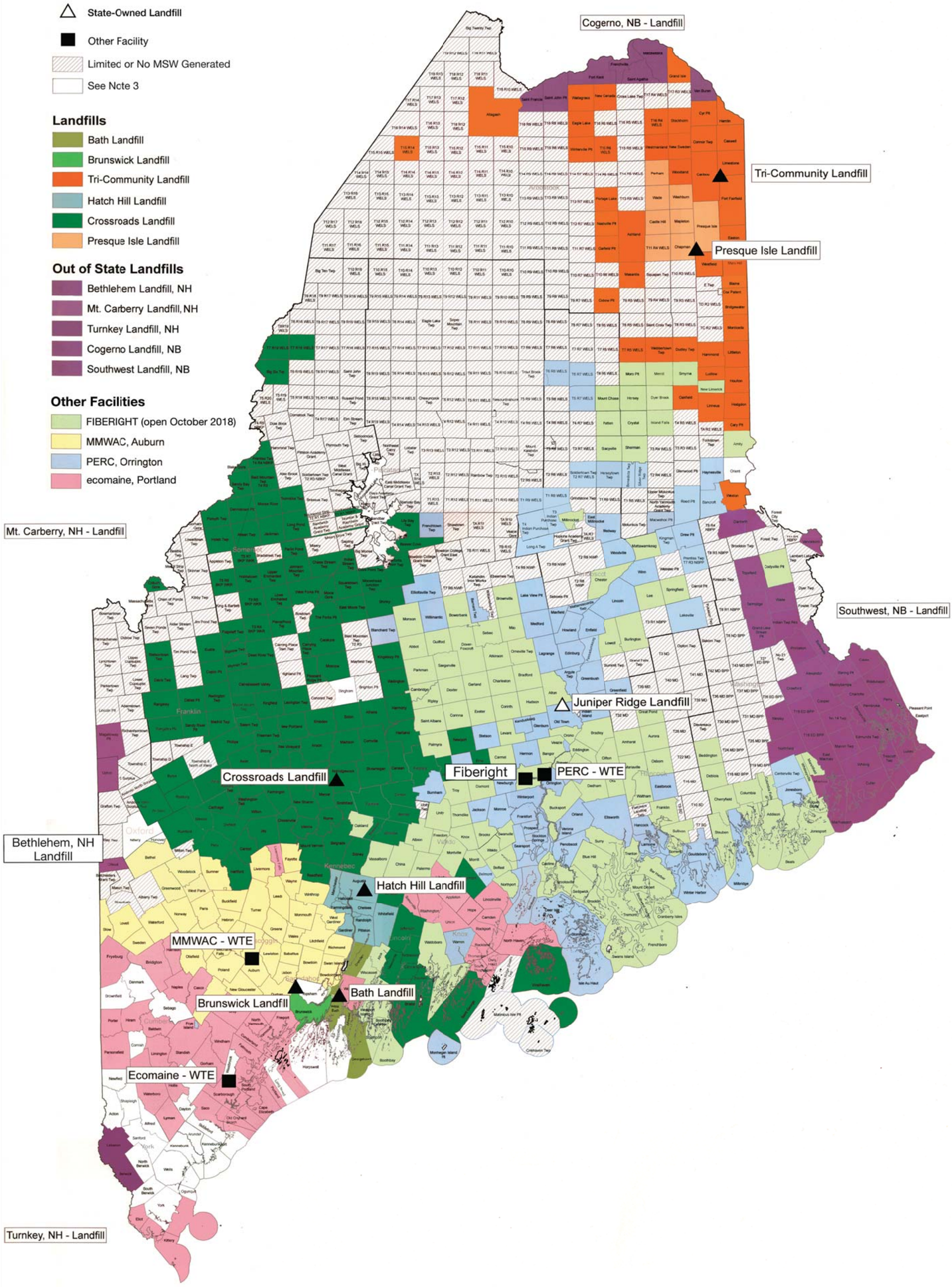
- Employment of 30 individuals at the facility.
- Payment of property taxes
  - Annual average: $254,000
- Payment of host community benefit
  - Annual average: $353,000
- Waste and recycling services at no cost
  - Annual value: $350,000
- Additional no cost benefits:
  - Sand shed construction
  - Road maintenance - ongoing
- Disposal fees paid to State of Maine
  - Annual average: $733,000

Phase 14 Estimated Opportunities: 2020 - 2041

- Employ approximately 30 individuals at the facility.
- Maine Chamber of Commerce estimates the Phase 14 Project will contribute $298.2 million to the region over its lifetime.
- Payment of property taxes
  - Annual average: Consistent with current figures
- Payment of host community benefit
  - Annual average: Pending
- Waste and recycling services at no cost
  - Annual value: $350,000
- Disposal fees paid to State of Maine
  - Annual average: Consistent with current figures

Municipal Solid Waste Disposal

This map shows the municipal origin of MSW and the facility or landfill where the MSW is shipped.
Last Updated June 2018



NOTES:

(1) The disposal locations are variable. The map is based on information provided by the following sources: Maine Department of Environmental Protection, landfill or disposal facility websites and/or conversations with representatives of ecomaine, Waste Management Disposal Services of Maine, Inc. - Crossroads Landfill, Juniper Ridge Landfill, Tri-Community Landfill, Presque Isle Landfill, PERC, MRC, Hatch Hill Landfill, Brunswick Landfill, Bath Landfill and MMWAC.

(2) The communities identified as sending their waste to Fiberight is based on commitments to do so once Fiberight becomes operational. Fiberight is currently under construction and therefore waste from the Fiberight communities is temporarily being disposed of at Crossroads Landfill, Juniper Ridge Landfill and PERC.

(3) The MSW in these towns is hauled by contractors primarily to Juniper Ridge Landfill and secondarily to ecomaine via privately owned MSW transfer stations in Eliot, Wells, Westbrook, South Portland, Waterville, and West Bath.

(4) Map prepared by Scott D. Collins for Waste Management Disposal Services of Maine, Inc. - Crossroads Landfill.

1:633,600

1 inch = 10 miles

Miles

0 10 20 30

Welcome

Sign in here, please.

ADDITIONAL DOCUMENTS

Phase 14 - PROJECT SUMMARY
Waste Management Disposal Services of Maine, Inc. - Crossroads Landfill
Norridgewock, Maine

The Crossroads Landfill facility, owned and operated by Waste Management Disposal Services of Maine, Inc. (WMDSM), currently provides essential and cost-effective disposal capacity for residents, municipalities, and businesses throughout the State of Maine. More than 50 communities in central and western Maine are served by Crossroads, many of which have no other feasible alternatives for managing their waste and recyclables.

Existing disposal capacity at Crossroads will be fully utilized by early 2024. To ensure the facility can continue to serve the needs of Maine communities and businesses, WMDSM is seeking a permit to construct and operate a new waste disposal unit (Phase 14) at Crossroads. Like previously permitted disposal units, Phase 14 will provide substantial benefit to the State of Maine by providing disposal capacity and other additional waste management services through approximately the year 2041. Key environmental features of the project are listed below.

- The Phase 14 waste disposal unit will occupy approximately 48.6 acres within the 933-acre Crossroads Landfill facility property. No expansion of WMDSM's current property boundaries is required.
- The Phase 14 liner will consist of multiple layers of soil and geosynthetic materials placed directly over a natural in-situ deposit of clay, effectively resulting in a much thicker liner system than required by Maine or Federal regulations.
- In addition to the liner systems, measures to ensure the project does not affect groundwater or surface water will include frequent sampling and testing of groundwater and surface water before, during, and after waste is placed in the landfill from eleven new groundwater monitoring wells and four new surface water monitoring stations around the Phase 14 perimeter.
- Disturbances to natural resources have been avoided and minimized; unavoidable impacts will be offset by mitigation.
- No impacts to significant wildlife habitat or rare plant species will occur.
- Leachate from Phase 14 will be collected in the existing leachate storage tanks and treated at SAPPI Paper in Hinkley or Anson-Madison Sanitary District in Madison.
- Landfill gas will be collected from Phase 14 and converted to electric power at the on-site Landfill Gas-to-Energy plant.
- Traffic patterns to and from the facility will remain consistent with current traffic patterns.

- Large setback distances from WMDSM's property boundaries with trees and vegetation ensure that limited visibility of the project from public vantage points may occur only during later years of operation and after closure with a natural vegetative cover.
- Consistent with current landfill operations, no significant sound impacts are anticipated from construction or operation of Phase 14.

Additional benefits of the Phase 14 project are listed below.

- Phase 14 will continue operation of the following initiatives or programs:
    - Single-Sort Recycling
    - Electronic Waste Diversion
    - Battery Diversion
    - Cardboard Recycling
    - Woodwaste Recycling
    - Beneficial Tire Reuse
    - Waste Evaluations and Sustainability Consulting
    - Renewable Landfill Gas-to-Energy Plant operation

- Phase 14 will also implement the following initiatives or programs:
    - A comprehensive upgrade to the Airport Road Transfer Station
    - Organic Material Diversion and Composting
    - Hazardous Material Diversion
    - Textile Diversion

* * * * *

Phase 14 - LIST OF STATE, LOCAL AND FEDERAL LICENSES
Waste Management Disposal Services of Maine, Inc. - Crossroads Landfill
Norridgewock, Maine

- Solid Waste permit pursuant to 38 M.R.S. §§ 1301 et seq.

- Public Benefit Determination pursuant to 38 M.R.S. § 1310-AA
    - **Approval issued on Dec. 21, 2018**

- Preliminary Investigation Report pursuant to Chapter 06-096 CMR Chapter 401, §§ 1.B and E
    - **Approval issued on Mar. 12, 2018**

- Natural Resources Protection Act permit pursuant to 38 M.R.S. §§ 480-A through 480-JJ

- Army Corps of Engineers permit pursuant to Section 404 of the Clean Water Act, 33 U.S.C. § 1344

- Water quality certification pursuant to Section 401 of the Clean Water Act, 33 U.S.C. § 1341

- No hazard determination pursuant to the Federal Aviation Administration standards Form 7460

- Air permit pursuant to 38 M.R.S. §§ 581-610-D

- Notice of Intent to Comply with Maine's Multi-Sector General Permit – Stormwater Discharge Associated with Industrial Activity

- Permit pursuant to the Town of Norridgewock Shoreland Zone Ordinance

- Permit pursuant to the Town of Norridgewock Site Plan Review Ordinance

* * * * *

DEP INFORMATION SHEET

Public Participation in the Licensing Process

Dated: October 2008 **Contact: (207) 287-7688**

SUMMARY

Maine law charges the Commissioner of the Department of Environmental Protection (D.E.P.) with evaluating license applications for many different activities that affect Maine's environment. Individuals and legal entities may participate at various points during license application processing. Individuals must recognize that the Commissioner's charge may, under certain circumstances, be overtaken by the Board of Environmental Protection (Board). This INFORMATION SHEET, in conjunction with consulting statutory and regulatory provisions referred to in this document, will assist with your understanding of the potential opportunities for participation in the Commissioner's process; other specific provisions that apply to the Board are not addressed in this INFORMATION SHEET. A failure to participate during the licensing process will result in a person's only option for influence over that decision being the filing of an appeal. D.E.P.'s *Rules Concerning the Processing of Applications and Other Administrative Matters (Chapter 2)*, 06-096 CMR 2, was promulgated, in part, to provide guidance on this process.

1. **PUBLIC ACCESS TO INFORMATION.** Records submitted to D.E.P. are generally available to the public under Maine's Freedom of Access Law, 1 M.R.S.A. §§ 401-410. Other than portions claimed to be confidential by law when submitted to D.E.P., all license application materials are readily available for review and copying at our offices in Augusta, Portland, Bangor, and Presque Isle.

2. **PUBLIC NOTICE.** Maine law requires applicants to publicly make known their intent to submit an application to D.E.P. It is the responsibility of an individual who is interested in following or participating in the license decision-making process to act after seeking out that notice or, if you are an abutter, to act when noticed directly by mail.

   A. **Public Informational Meetings.** Informational meetings are held by persons prior to submitting a licensing application to D.E.P. for the purpose of informing the public about an anticipated project. These meetings are held at a location near to a proposed project and are by design open to the public. Abutters to the anticipated project location receive notice in the mail of the meeting time and location, and notice is also published in newspapers serving the area of the project.

   B. **Application Filing.** Prior to filing an application with D.E.P., abutters to the project location receive notice in the mail of the anticipated filing date, and it is also published in newspapers serving the area of the project.

3. **INTERESTED PERSONS.** Individuals can acquire materials submitted to D.E.P., attend public informational meetings, provide comments and request that a public hearing be held on a filed application, request that the Board take jurisdiction over an application, and provide comments on a draft decision.

   A. **Maximum Participation.** Participation in a D.E.P. licensing decision to the maximum extent possible requires a person to submit a written request stating his or her desire to acquire material related to an application. The individuals who do are known as "interested persons." Once a request is filed, interested persons will be provided with the opportunity to inspect and copy materials on file at D.E.P.; they also receive direct notice of public informational, pre-application and pre-submission meetings, and public hearings. The timing of an interested person's request to be part of the process will determine the number of events potentially available to him or her.

B. Public Informational Meetings. Informational meetings are held to inform the public about environmental impacts that are anticipated from a project. Interested persons may ask questions at such a meeting. Questioners should be aware that answers may not be available during the meeting.

C. Pre-application and Pre-Submission Meetings. D.E.P. often meets with potential applicants to identify regulatory and processing issues that need consideration. Pre-application and pre-submission meetings will typically not be attended by interested persons, in part because such a meeting is not, by law, a "public proceeding" freely open to attendance under Maine's Freedom of Access Law. Although the decision to allow individuals other than an applicant to attend is D.E.P.'s to make, interested persons invited to attend such a meeting should expect only to observe, since public input cannot be received at this time in the licensing process.

D. Application Comments. Interested persons and any other member of the public may submit written comments, including technical information, at any time during the course of an application's processing. It is in that person's interest to submit information early in the process in order to ensure adequate time for consideration by the D.E.P. staff member evaluating the application.

E. Draft Order Comments. Interested persons will receive the Commissioner's draft licensing decision at least five (5) working days prior to final action. Written comments may be submitted on that draft decision. Reasonable notice of when the Commissioner anticipates issuing a final decision on the draft order will also be provided to interested persons.

F. Public Hearing Requests. People may request that a public hearing be held on a filed application within 20 days after its acceptance as complete for processing by D.E.P. Such a request must satisfy requirements found in Section 7 of Chapter 2. The Commissioner will typically order that a hearing be held where credible conflicting technical information appears to exist regarding a licensing criterion.

G. BEP Jurisdiction Requests. People may request that the Board assume jurisdiction over a filed application within 20 days after D.E.P. accepts it as complete for processing. Such a request must satisfy Section 17 of Chapter 2. Board jurisdiction is not available for windpower development projects.

ADDITIONAL INFORMATION

If you have questions or need additional information on the appeal process, contact the D.E.P.'s Director of Procedures and Enforcement by calling (207) 287-7688. All Maine D.E.P. rules and laws are available via the internet by following the links provided at: http://www.maine.gov/dep/.

Note: D.E.P. provides this INFORMATION SHEET for general guidance only; it is not intended for use as a legal reference. Maine law governs every citizen's rights.

SIGN-IN-SHEET

WMDSM Phase 14 – Public Information Meeting – 09/19/19
SIGN-IN-SHEET

NAME	ADDRESS	E-MAIL
Janey McKim	Sophie May Lane Norridgewock	mydogs@tds.net
Taylor Abbott	Norridgewock, ME	tabbott@centralmaineco
Derek Lachance	Norridgewock, ME	
Jessica Vai Vancourt	Norridgewock, ME	
Derek Furbush	Norridgewock, ME	
Tyler Grant	47 main st, Norridgewock	Tyler.G.Grant@gmail.com
Ronald Frederick	7 Fawn Rd Norridgewock	
DAREN TURNER	PO BX 865 Skowhegan ME 04976	
Helen Balgooyen	256 Oak Hill Rd Nrw	
Rebecca Ketchum	sophie may Lane	RKetchum1@aol.com
Sallie Wilder	Wilder Hill Rd	sewilder@tdstelme.ne
Richard LaBelle	Town Manager 16 Perkins St / Po Box 7	townmanager@townofnorridgewock.com
L. Joseph Clark	148 Sophie May Lane Norridgewock	clarkhil@tdstelme.net
Gaylon Rogers	31 Upper Maine St	Gaylon Rogers
Donna Civitella	17 Harmony Ln Mercer	tthands@tds.net
Jay Clement	US Army Corps of Engineers	jay.l.clement@usace.army.mi
Ed Ferreira	New Sharon, ME	
MaryAnn Anderson	266 Fredericks Corner Rd Norridgewock	Duxojme@gmail.com
Steve Anderson	266 Frederick Corner Rd - N -	eidilon@gmail.com
JOHN CHESSA	WM	
Jamie Ledger	56 Tarbell Hill Rd - Norridgewock	ledgerdaughters@tds.net

WMDSM Phase 14 – Public Information Meeting – 09/19/19
SIGN-IN-SHEET

NAME	ADDRESS	E-MAIL
KATHY WILDER	531 WILDER HILL	kathyjwilder@aol.com

MEETING PHOTOS

41
1
Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Household Hazardous Material Diversion Program
Local Collection Event
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The three adjacent pictures were taken at a collection event held at the Crossroads facility on August 24, 2019.
Collection events for the local community will continue throughout the life of the Phase 14 Project.
Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Renewable Energy at Crossroads Facility
Crossroads Renewable Energy
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The engines generate 21,684,958 kilowatt hours of electricity per year – that is the equivalent of 13,330 barrels of oil.
The Renewable Landfill Gas-to-Energy Plant will continue operation throughout Phase 14.
Crossroads Landfill Gas-to-Energy Plant Control Room
Caterpillar 3520 Engines
Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Airport Road Transfer Station Upgrade

EXIT
Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Organics Diversion and Composting Program
Composting at Crossroads
Municipal Solid Waste Disposal
Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Crossroads and Norridgewock
Current Opportunities: 2004 - 2018
• Employment of 30 individuals at the facility.
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  • Annual average: $254,000
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PERIOD
EXIT
We are a proud partner of:
move more kids
LET'S GO!
SOMERSET
GOLDER
Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Geology and Hydrogeology
WM

Geosyntec consultants
Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Phase 14 Site Layout
Crossroads Facility Map
KEY POINTS
Phase 14 will:
have a fixed area of approximately 49 acres
consist of five disposal cells - Phases 14A, 14B, 14C, 14D, and 14E
require minimal changes to site infrastructure
Geosyntec consultants
Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Liner and Final Cover Systems, Leachate and Gas Collection
Waste Containment System
Phase 14 Multi-Layered Liner System
KEY POINTS
Geosyntec consultants
Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Stormwater Management
Stormwater Management System
KEY POINTS
Geosyntec consultants
Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Visual Assessment
KEY POINTS

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Natural Resources

WM WASTE MANAGEMENT

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- Vernal Pools

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NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

Crossroads Landfill - Phase 14
Public Information Meeting – September 19, 2019
Natural Resources

WM WASTE MANAGEMENT

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Welcome
Sign in here, please.
EXIT
WASTE MANAGEMENT
THINK GREEN.
Together we can
build a more
sustainable

Poland Spring
WASTE MANAGEMENT

TOWN OF NORRIDGEWOCK, MAINE
INCORPORATED 1788
SCHOOL
SPEED
LIMIT
WASTE MGMT EXPANSION
PUBLIC MEETING
9/19 6PM MSES GYM
W. Barr Hatfield Athletic Park

OCTOBER 16, 2019 NOTICE

PUBLIC NOTICE
INTENT TO FILE APPLICATIONS

Please take notice that Waste Management Disposal Services of Maine, Inc. ("WMDSM"), with its principal office at 357 Mercer Road, Norridgewock, Maine 04957, Attention Jeffrey McGown, (207) 634-2714 ext. 6, intends to file a solid waste permit application with the Maine Department of Environmental Protection ("DEP") on or about October 25, 2019 pursuant to the provisions of Title 38 M.R.S. Section 1301, et seq. and Maine's Solid Waste Management rules. At the same time, WMDSM will also file a Natural Resources Protection Act permit application pursuant to the provisions of Title 38 M.R.S. Sections 480-A through 480-HH and Maine's Natural Resource Protection Act rules, and an accompanying request for Water Quality Certification pursuant to 401 of the Clean Water Act. This notice provides an updated anticipated filing date for the applications.

The solid waste application is for a new lined solid waste disposal unit at the solid waste landfill located in Norridgewock, Maine (the "Crossroads Landfill") owned and operated by WMDSM. The project, referred to as Phase 14, will provide an estimated 17 years of additional disposal capacity at the Crossroads Landfill. In addition to construction of the new lined waste disposal unit, the Phase 14 project will include new infrastructure to manage leachate, landfill gas, and stormwater, as well as access roads and environmental monitoring system. The Natural Resources Protection Act application addresses how construction and operation of the Phase 14 project could affect natural resources.

According to Department regulations, interested parties must be publicly notified, written comments invited, and if justified, an opportunity for public hearing given on an application. A request for a public hearing, or that the Board of Environmental Protection assume jurisdiction of an application, must be received by the Department, in writing, no later than 20 days after the application is accepted by the Department as complete for processing. Public comment on the applications will be accepted throughout the processing of the applications.

The applications and supporting documentation will be available for review at the Bureau of Remediation and Waste Management (BRWM) at the DEP office in Augusta, during normal working hours. Copies of the applications and supporting documentation also will be provided to and may be seen at the municipal office in Norridgewock, Maine.

Send all correspondence on the solid waste application to: Maine Department of Environmental Protection, Bureau of Remediation and Waste Management, 17 State House Station, Augusta, Maine 04333-0017 Attention: Linda Butler or contact Linda Butler at (207) 287-7885 or Linda.J.Butler@maine.gov; and comments on the Natural Resources Protection Act application to: Maine Department of Environmental Protection, Bureau of Land Resources, 17 State House Station, Augusta, Maine 04333-0017 Attention: Dawn Hallowell or contact Dawn Hallowell at (207) 557-2624 or dawn.hallowell@maine.gov

CLASSIFIED

Public Notices

Public Notices are a permanent and independent record of government and court actions. These include state and local government meetings, rule making, available contracts, zoning changes, and many more, as required by law. In addition, parties to some court proceedings, such as foreclosures, probate, and estate actions are required to publish notices to ensure notification of affected parties, as well as the general public. These notices also alert business owners, large and small, to potential government contractual jobs, helping to ensure economic activity across a level playing field. Public notices have existed to ensure transparency in all levels of government since the founding of the United States.

State and local notices are published in Maine newspapers and are also recorded at mainenotices.com, where anyone can browse or search notices, and sign up to receive email alerts when relevant notices appear.

ANNOUNCEMENTS

Public Notices

Public Notice

NOTICE OF PUBLIC SALE

Notice is hereby given that in accordance with the Judgment of Foreclosure and Sale entered June 20, 2019 in the action entitled U.S. Bank National Association, as Trustee, for Manufactured Housing Contract Senior/Subordinate Pass-Through Certificate Trust 1998-7 v. William F. Longley, by the Skowhegan District Court, Docket No. SKODC-RE-18-62, wherein the Court adjudged the foreclosure of a mortgage granted by Christine L. Quirion and William F. Longley to Green Tree Financial Services Corporation dated August 13, 1998 and recorded in the Somerset County Registry of Deeds in Book 2459, Page 126, the period of redemption having expired, a public sale of the property described in the mortgage will be conducted on Thursday, November 14, 2019, commencing at 11:00 AM, at the Law Office of Korde & Associates, P.C., 707 Sable Oaks Dr., Suite 250, South Portland, Maine 04106.

The property is located at 67 Old Country Road, Norridgewock, Maine.

The sale will be by public auction. All bidders for the property will be required to make a deposit of $5,000.00 by certified or bank check at the time of the public sale made payable to Korde & Associates, P.C., which deposit is non-refundable as to the highest bidder. The balance of the purchase price shall be paid within forty-five (45) days of the public sale. In the event a representative of the mortgagee is not present at the time and place stated in this notice, no sale shall be deemed to have occurred and all rights to reschedule a subsequent sale are reserved. Additional terms will be announced at the public sale.

Korde & Associates, P.C., 707 Sable Oaks Dr., Suite 250, South Portland, Maine 04106, (207) 775-6223.

Public Notice

PUBLIC NOTICE INTENT TO FILE APPLICATIONS

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OCTOBER 16, 2019 NOTICE DOCUMENTS

Waste Management Abutters List 2019

Tax Map	Lot #	Name	Mailing Address
10	35-6	Glenn A. Jones	232 Airport Rd. Norridgewock, ME 04957
10	10	Joseph D. & Susan M. Cloutier	P.O. Box 369 Norridgewock, ME 04957
10	15	Winston L. & Linda J. Ford	251 Haynes Way Cambridge, NY 12816
10	35	Linda S. Roderick	275 Airport Rd. Norridgewock, ME 04957
10	42	Pamela L. Whitten	317 Airport Rd. Norridgewock, ME 04957
10	19	Waste Management Disposal Services of Maine, Inc.	P.O. Box 1450 Chicago, IL 60690-1450
10	24	Daren Turner*	P.O. Box 865 Skowhegan, ME 04976
13	3-1 & 3-3	Heidi Chamberland Trustee	9 Tracy Cove Circle Rome, ME 04963
13	3-5	Paul & Rebecca Alves	P.O. Box 2547 Orleans, MA 02653-6547
13	8	Norridgewock Municipal Airport	603 Airport Rd. Norridgewock, ME 04957
13	13-1	Forrest & Wilma Stevens & Julie S. McCarthy	P.O. Box 659 Norridgewock, ME 04957
13	3-2	Tammy J. Ferland	511 Airport Rd. Norridgewock, ME 04957
14	1, 2, 2-1, 2-2, 46	Waste Management Disposal Services of Maine, Inc.	P.O. Box 1450 Chicago, IL 60690-1450
14	3	Christopher J. Clark	P.O. Box 793 Norridgewock, ME 04957
14	17	Carol Decker*	180 Airport Rd. Norridgewock, ME 04957
14	13-1	Floyd Whitmore	P.O. Box 877 Norridgewock, ME 04957
14	13 & 41	Letty N. Brann	156 Airport Rd. Norridgewock, ME 04957
14	45	Rita Chaykowsky	P.O. Box 658 Norridgewock, ME 04957
14	48-4 & 48-5	Elizabeth A. Skidgell	P.O. Box 93 Smithfield, ME 04978
14	4, 6, 8-1	Edward & Gloria Frederick	362 Mercer Rd. Norridgewock, ME 04957
14	40	Lebanon Masonic Lodge	251 Mercer Rd. Norridgewock, ME 04957
14	10	Northern NE Conference of 7th Day Adventists	P.O. Box 689 Norridgewock, ME 04957
17	17-1, 20, 16	Waste Management Disposal Services of Maine, Inc.	P.O. Box 1450 Chicago, IL 60690-1450
17	12	Avis & Alice E. Emery	229 Frederick Corner Rd. Norridgewock, Me 04957
17	19	Edward & Gloria Frederick Trustee	362 Mercer Rd. Norridgewock, ME 04957

*Not an abutter but being notified with abutters.

18	7	Waste Management Disposal Services of Maine, Inc.	P.O. Box 1450 Chicago, IL 60690-1450
18	35	Edward & Gloria Frederick Trustee	362 Mercer Rd. Norridgewock, ME 04957
18	8	Parker & Rachel Parsons	134 Frederick Corner Rd. Norridgewock, ME 04957
19	66	Lois & Scott Von Husen	9415 99th Avenue #1013 Peoria, AZ 85345
19	2-5	Krista L. Bowman	290 Mercer Rd. Norridgewock, ME 04957
19	65	Richard & Lelia Von Husen	282 Mercer Rd. Norridgewock, ME 04957

*Not an abutter but being notified with abutters.

Attachment 11.

Maine Historic Preservation Commission Correspondence

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

JANET T. MILLS
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

June 18, 2019

Ms. Jamie O'Brien
Normandeau Associates
25 Nashua Road
Bedford, NH 03110

Project: MHPC #0822-19 Crossroads Landfill Phase 14 Expansion
Proposed Landfill Expansion

Town: Norridgewock, ME

Dear Ms. O'Brien:

In response to your recent request, I have reviewed the information received June 13, 2019 to initiate consultation on the above referenced project in accordance with the requirements of the Maine Department of Environmental Protection.

Based on the information submitted, I have concluded that there will be no historic properties (archaeological or architectural) affected by the proposed undertaking, as defined by Section 106 of the National Historic Preservation Act.

Please contact Megan Rideout at (207) 287-2992 or megan.m.rideout@maine.gov if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney

Kirk F. Mohney
State Historic Preservation Officer

Attachment 12.

Wetland Functions/Values and Natural Resources Impacts Assessment Report

Wetland Functions/Values and Natural Resources Impacts Assessment Report

WMDSM Phase 14 Project

Prepared For

Waste Management Disposal Services of Maine, Inc.
357 Mercer Rd., P.O. Box 629
Norridgewock, ME 04957

Prepared By

Normandeau Associates, Inc.
25 Nashua Road
Bedford, NH 03110
(603) 472-5191
www.normandeau.com

October 2019

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1 Introduction

1.1 Facility Description

Waste Management Disposal Services of Maine, Inc. (WMDSM) contracted Normandeau to perform wetland, stream and vernal pool surveys in support of the proposed Phase 14 landfill associated with their Crossroads Landfill (Crossroads) facility located in Somerset County in the Town of Norridgewock, Maine. This includes areas known as the Baker Borrow Area and Keating Parcel as well as WMDSM owned property within approximately 500 feet of the proposed Phase 14 landfill facility limits. The existing facility has operated as a solid waste facility continuously since the Board of Environmental Protection granted initial permits to Elizabeth Lappie on 28 April 1976 for a sanitary landfill per order 49-2696-25220. WMDSM acquired the facility in October 1990 and has operated the solid waste disposal facility since then in accordance with solid waste management permits issued by the MEDEP. WMDSM's property consists of approximately 933 acres of land adjacent to, and to the north of Route 2 (Figure 1). WMDSM has constructed and operated several expansion phases, and currently accepts waste for deposition in Phase 8.

2 Wetland Functions/Values Assessment Methodology

Wetland boundaries were delineated according to the 1987 *Corps of Engineers Wetland Delineation Manual* and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, which utilize the three- parameter approach (i.e., evaluating the site for the presence of hydric soils, hydrophytic vegetation and wetland hydrology) for identifying wetlands and determining their jurisdictional limits[1,2]. Wetlands and streams were classified according to the Cowardin wetland classification system[3]. Each delineated wetland was also evaluated in the field for the purpose of characterizing the given wetland's functions and values; these field assessments were further refined in the office with the help of mapping software following the completion of wetland delineations. This desktop review allowed for any given wetland to be viewed in the greater landscape setting and context to better understand the spatial and hydrological relationships between wetlands, streams and other natural resources identified with the project study area.

[1] U.S. Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1,U.S. Army Engineer Waterways Experiments Station.

[2] U.S. Army Corps of Engineers. 2011. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

[3] Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Online. http://www.npwrc.usgs.gov/resource/wetlands/classwet/index.htm (Version 04DEC1998).

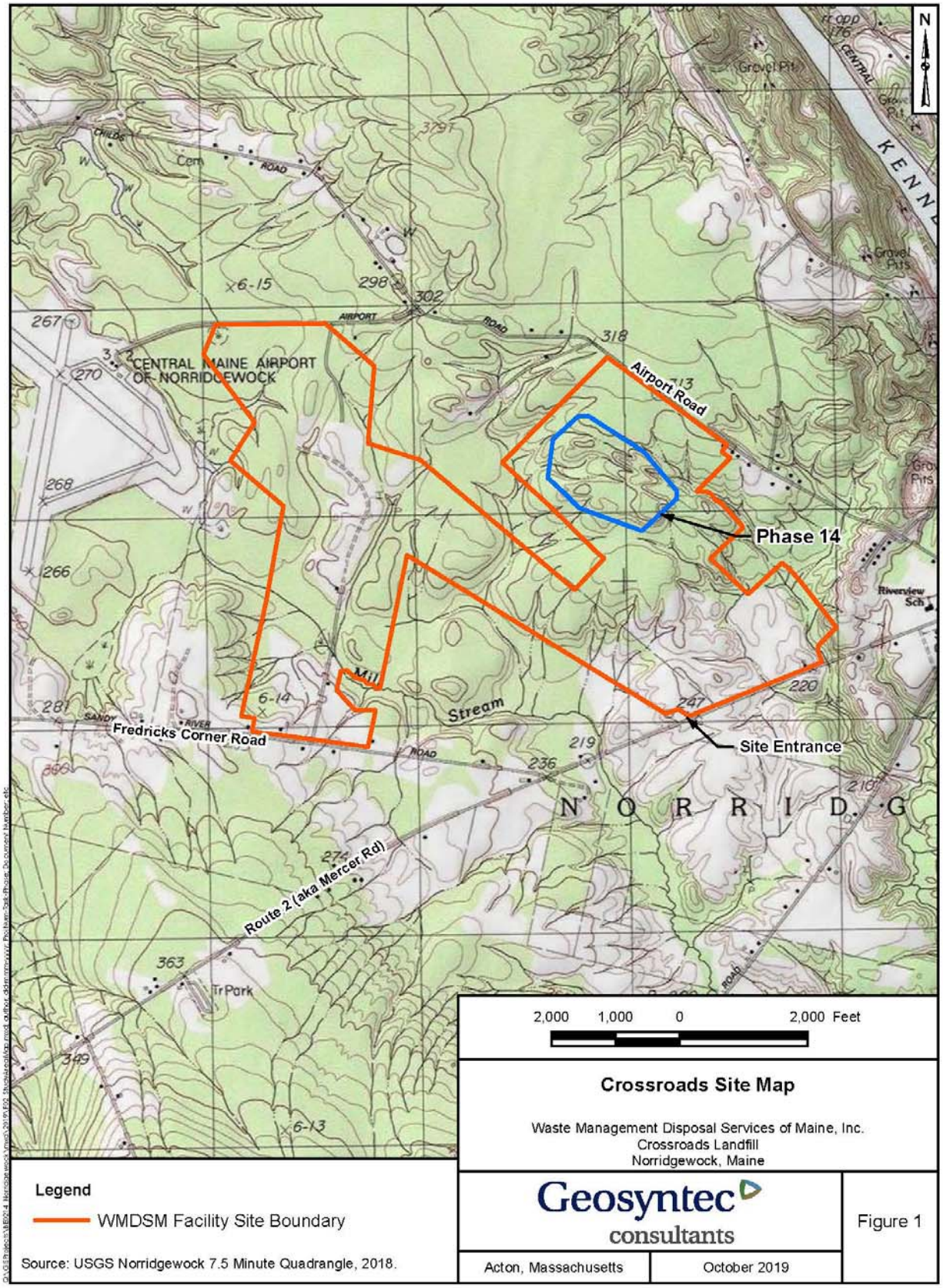


Figure 1. Phase 14 Site Location Map

Wetlands were evaluated in terms of a total of thirteen functions or values, as described in the U.S. Army Corps of Engineers (USACE) New England District *Highway Methodology Workbook Supplement*[4]. Please find within Table 2-1, abbreviations for wetlands functions and values. Normandeau utilized the recommendations and form included in Appendix A of the workbook in order to document and assign functions or values to a wetland. A completed Wetland Function-Value Evaluation Form for each wetland where permanent impacts are proposed is included in Appendix A to this report.

Additional information regarding the wetlands and other natural resources identified in the project area are included in the *Natural Resources Report*.

Table 2–1. Wetland Functions and Values and Abbreviations

Wetland Functions	Wetland Values
Groundwater Recharge/Discharge (GWRD)	Recreation (REC)
Floodflow Alteration (FA)	Educational/Scientific Value (ESV)
Fish and Shellfish Habitat (FSH)	Uniqueness/Heritage (UH)
Sediment/Toxicant/Pathogen Retention (STPR)	Visual Quality/Aesthetics (VQA)
Nutrient Removal (NR)	Endangered Species Habitat (ESH)
Production Export (PE)	
Sediment/Shoreline Stabilization (SSS)	
Wildlife Habitat (WH)	
Other	

3 Wetland Functions/Values Assessment Results

3.1 Wetlands

Permanent impacts are proposed to fourteen (14) of the thirty-nine (39) wetlands that Normandeau wetland scientists identified within the Phase 14 project area. Narrative descriptions of the functions and values where permanent impacts are proposed, are included below and a completed Wetland Function-Value Evaluation Form for each wetland where permanent impacts are proposed is included in Appendix A to this report. Function/Value information for other wetlands where impacts are not proposed is included in Table 3-1. Detailed descriptions of the identified wetland resources are included in the *Site Condition Report*.

[4] U.S. Army Corps of Engineers, New England District. 1999. *The Highway Methodology Workbook – Supplement*. NAEEP-360-1-30a. Accessed online: https://www.nae.usace.army.mil/Portals/74/docs/regulatory/Forms/HighwaySupplement6Apr2015.pdf. Date accessed: 8/19/19.

Wetland W02:

Wetland W02 is the largest wetland complex within the project area. The wetland is forested and is comprised of large flat basins and narrower forest swales that meander through rolling terrain. The wetland is quite uniform in terms of cover type and structure across the basins and interconnecting swales. The principal functions of this wetland are Groundwater Recharge and Discharge (primarily discharge as seeps along upper edges and in swales), Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Production Export and Wildlife Habitat. The wetland system is suitable for Nutrient Removal, Sediment/Shoreline Stabilization, Recreation, and Visual Quality/Aesthetics. The size and layout of the wetland allows for it to trap and hold precipitation and snowmelt and portions of the wetland are adjacent to logged and other developed or impacted portions of the Crossroads facility where it is assumed sediment and other toxicants are present. Some portions of the wetland have been logged, providing valuable timber (Production Export) and wildlife sign (deer, grouse) and vernal pools are present within the wetland (Wildlife Habitat).

Several large areas of W02 are proposed to be permanently impacted by the Phase 14 project; however the majority of the wetland has been avoided.

Wetlands W12, W20, W21, and W22:

These wetlands consist of very small, isolated and seasonally ponded depressions in cleared and previously graded areas (upland meadows). These wetlands are generally suitable for Groundwater Recharge and Discharge as they may have some interaction with the water table in close proximity to the wetland. The wetlands are also generally suitable for Wildlife Habitat. These wetlands did not support vernal pools species when reviewed; however they appeared to provide suitable habitat (with the exception of W22 which does not support pooled water of a sufficient depth to support amphibians).

Wetlands W12, W20, W21 and W22 fall completely within the Phase 14 project footprint and are proposed to be permanently impacted.

Wetlands W23 and W24:

These wetlands are similar in to W20, W21 and W22 (above) in terms of landscape context and characteristics; however they supported vernal pool species and therefore Wildlife Habitat is the principal function of both wetlands. Both wetlands are considered suitable for Groundwater Recharge and Discharge. W24 contains a more diverse assemblage of flowering aquatic and other wetland plants species and woody overstory and is therefore considered suitable for Visual Quality/Aesthetics.

Wetlands W23 and W24 fall completely within the Phase 14 project footprint and are proposed to be permanently impacted.

Wetlands W8 and W11:

Wetlands W8 and W11 are large wetlands located along, south and east of the proposed Phase 14 impact area. Wetlands W8 and W11 are similar in character to the W2 wetland complex,

but generally smaller. The principal functions associated by Wetlands W8 and W11 are Groundwater Recharge and Discharge, Sediment/Toxicant/Pathogen Retention (primarily sediment from adjacent sand borrow areas) and Wildlife Habitat. The wetlands are suitable for Floodflow Alteration (primarily retention of precipitation and snowmelt), Sediment/Shoreline Stabilization (in proximity to Streams S06 and S31), Production Export (if logged), and Recreation (primarily hunting if allowed).

Forested lobes along the western edge of Wetland W8 and Wetland W11 are proposed to be permanently impacted by the Phase 14 project; however the majorities of both wetlands will not be impacted.

Wetlands W18 and W19:

These wetlands are located in a forested pockets, separated by narrow topographic rises; they are not connected to any other wetlands via surface water. Both wetlands are similar in terms of functions and values with Groundwater Recharge and Discharge, Sediment/Toxicant/Pathogen Retention (primarily sediment from adjacent sand borrow areas), and Wildlife Habitat being associated with the wetlands.

Wetlands W18 and W19 fall completely within the Phase 14 project footprint and are proposed to be permanently impacted.

Wetland W31:

Wetland W31 is located at the southern edge of the Phase 14 project area in the vicinity of the existing access road, Tire Processing Facility, and a stormwater basin. The wetland includes Stream S30. The principal functions of W31 are Groundwater Discharge, Sediment/Toxicant/Pathogen Retention (primarily sediment from road and Tire Processing Facility) and Wildlife Habitat. The wetlands are suitable for Floodflow Alteration (primarily retention of precipitation and snowmelt), Sediment/Shoreline Stabilization (in proximity to Stream S30), and Nutrient Removal.

A small portion of W31 is proposed to be impacted due to the upgrade of an existing access road to support the proposed project.

Wetland W06:

Wetland W06 is located at the western edge of the Phase 14 project area in the vicinity of a proposed stormwater control structure. The wetland is forested and extends outside the WMDSM property to the south. The wetland's principal function is groundwater discharge and it is suitable for Production Export and Wildlife Habitat.

Wetland W06 will only have a very small impact associated with the outfall of an Erosion Control Basin

Wetland W34:

Wetland W34 is located along the southeastern edge of the Phase 14 project area and drains in an easterly or southeasterly direction out of the wetland survey/project area. The principal

function of Wetland W34 was the discharge of groundwater. The wetland is suitable for Floodflow Alteration (primarily retention of precipitation and snowmelt), Sediment/Toxicant/Pathogen Retention (primarily sediment from adjacent roads, disturbed areas and soil/material stockpiles), Production Export (if logged), and Wildlife Habitat.

A narrow swale associated with Wetland W34 will be crossed by the access road to the Phase 14 landfill area and this small portion is proposed to be permanently impacted; the majority of the wetland will not be impacted.

Table 3–1. Summary of wetland cover classification, functions and values

Wetland ID	Cowardin Class	GWRD[a]	FA	FSH	STPR	NR	PE	SSS	WH	REC	ESV	UH	VQA	ESH	Other
W01	PFO1,4E	X[b]	-	-	X	X	X	-	X	-	-	-	X	-	-
W02	PFO1,4E (80%) PEM1E (20%)	P	P	-	P	X	P	X	P	X	-	-	X	-	-
W03	PFO1,4E (50%) PEM1E (50%)	X	-	-	P	X	X	-	P	-	-	-	X	-	-
W04	PFO1,4E	X	-	-	X	P	X	-	P	-	-	-	X	-	-
W05	PFO1,4E (70%) PEM1E (30%)	X	-	-	X	X	X	-	X	-	-	-	-	-	-
W06	PFO1,4E	P	-	-	-	-	X	-	X	-	-	-	-	-	-
W08	PFO1,4E	P	X	-	P	-	X	X	P	X	-	-	-	-	-
W10	PFO1E	P	P	-	X	X	X	-	P	-		-	-	-	-
W11	PFO1,4E	P	X	-	P	-	X	X	P	X	-	-	-	-	-
W12	PFO1E	X	-	-	-	-	-	-	X	-	-	-	-	-	-
W13	PFO1,4E (40%) PSS1E (60%)	P	X	-	P	-	X	-	P	-	-	-	-	-	-
W14	PFO4E	P	P	-	X	-	-	-	X	-	-	-	-	-	-
W15	PFO1,4E	P	P	-	-	-	-	-	P	-	-	-	-	-	-
W16	PFO1E	X	P	-	P	-	-	-	X	-	-	-	-	-	-
W17	PEM1Jx	P	-	-	-	-	-	-	-	-	-	-	-	-	-
W18	PFO4E	X	-	-	X	-	-	-	P	-	-	-	-	-	-
W19	PFO1,4E	X	-	-	X	-	-	-	X	-	-	-	-	-	-
W20	PFO1,4E	X	-	-	-	-	-	-	X	-	-	-	-	-	-
W21	PEM1E	X	-	-	-	-	-	-	X	-	-	-	-	-	-
W22	PEM1E	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W23	PEM1Ex	X	-	-	-	-	-	-	P	-	-	-	-	-	-
W24	PEM1F	X	-	-	-	-	-	-	P	-	-	-	X	-	
W25	PFO1E	P	-	-	X	-	-	-	P	-	-	-	-	-	-

Wetland ID	Cowardin Class	GWRD[a]	FA	FSH	STPR	NR	PE	SSS	WH	REC	ESV	UH	VQA	ESH	Other
W30	PEM1B	-	-	-	-	-	-	-	P	-	-	-	-	-	-
W31	PFO4E	P	X	-	P	X	-	X	P	-	-	-	-	-	-
W32	PFO4	X	-	-	P	-	-	-	-	-	-	-	-	-	-
W33	PFO1,4E (80%) PEM1E (20%)	P	-	-	X	-	-	-	-	-	-	-	-	-	-
W34	PFO1,4E	P	X	-	X	-	X	-	X	-	-	-	-	-	-
W35	PFO1,4E	X	X	-	X	-	-	P	X	-	-	-	-	-	-
W37	PEM1B	-	-	-	X	-	-	-	P	-	-	-	-	-	-
W38	PFO1,4E	X	-	-	X	-	X	-	X	-	-	-	-	-	-
W39	PEM1Bx	X	-	-	-	-	-	-	-	-	-	-	-	-	-
W40	PFO1,4B	P	-	-	X	-	X	-	X	-	-	-	-	-	-
W41	PFO1,4B	P	-	-	-	-	-	X	-	-	-	-	-	-	-
W42	PEM1B (90%) PSS1B (10%)	P	-	-	P	X	X	-	X	-	-	-	-	-	-
W43	PFO1,4B	P	-	-	X	X	X	X	X	-	-	-	-	-	-
W44	PFO1,4B	P	-	-	X	-	-	X	X	-	-	-	-	-	-
W45	PSS1E	X	-	-	-	-	-	-	X	-	-	-	-	-	-
W46	PFO1,4B	X	-	-	-	-	-	-	X	-	-	-	-	-	-

[a] GWRD = Groundwater Recharge/Discharge; FA= Floodflow Alteration; FSH=Fish and Shellfish Habitat; STPR= Sediment/Toxicant/Pathogen Retention; NR=Nutrient Removal; PE=Production Export; SSS= Sediment/Shoreline Stabilization; WH=Wildlife Habitat; REC=Recreation; ESV= Educational/Scientific Value; UH= Uniqueness/Heritage; VQA= Visual Quality/Aesthetics; ESH= Endangered Species Habitat

[b] P = Principal Function or Value; X = Suitable for Function or Value; "-" = Not Suitable for Function or Value

4 Natural Resource Impacts Assessment

A summary of the proposed impacts to natural resources, including wetlands, streams, and vernal pools is presented below. Impacts have been avoided and minimized to the maximum extent practicable. There are no proposed impacts to significant wildlife habitat or other wildlife habitat or endangered, threatened or special concern species. Proposed impact types include direct permanent and temporary impacts as well as direct impact to areas within the 100 and 750-foot vernal pool habitat buffers.

4.1 Proposed Impact Types

4.1.1 Direct Permanent and Temporary Impacts

Direct permanent impacts will result from the construction and placement of fill associated with the proposed Phase 14 facility including the landfill, access roads, MSE berm, and stormwater control infrastructure. The installation of a new culvert that will allow conveyance of a stream under the proposed access road is also a permanent impact.

Direct temporary impacts will result in one location where a proposed underground stormwater conveyance pipe will be installed in a temporary trench through a wetland.

The limit of disturbance shown on Figure 2 includes the footprint of all infrastructure that results in permanent or temporary impacts to wetland and stream resources. The limit of disturbance includes all necessary work areas inclusive of the MSE berm and other proposed project infrastructure and erosion controls.

4.1.2 Secondary Wetland Impacts

Secondary impacts associated with the permanent conversion of a forested wetland to an emergent wetland will result where a proposed underground stormwater conveyance pipe will cross a narrow wetland area and be maintained in a non-forested state to allow for periodic maintenance. This area totals 196 SF.

4.2 Wetlands

A total of 447,431 square feet (SF) (10.273 acres) of wetlands are proposed to be permanently impacted by the Phase 14 project (Figure 2). None of the wetland areas proposed to be impacted as a result of the project are classified as Wetlands of Special Significance (WoSS) as defined in Chapter 310(4)(A) of the Natural Resources Protection Act Wetlands and Waterbodies Protection Rules. The permanent wetland impacts are associated with the installation of fill material required to construct the facility and access road. Table 4-1 summarizes the proposed impacts to affected wetlands.

A total of 196 SF (0.005 acres) of wetlands are proposed to be temporarily impacted by the Phase 14 project. The temporary impacts are associated with the installation of an underground stormwater conveyance pipe through a narrow portion of Wetland W11. The pipe will be installed via a temporary trench and the area will be restored following construction to the original grade and maintained as a narrow corridor for routine maintenance.

Table 4–1. Summary of proposed wetland impacts for the proposed Phase 14 landfill.

Wetland ID	Cowardin Classification	Proposed Permanent Impact (SF)	Proposed Permanent Impact (Acres)	Proposed Temporary Impact (SF)	Proposed Temporary Impact (Acres)	Total Impact (SF)	Total Impact (Acres)
W02	PFO14E/ PEM1E	376,405	8.641	0	0	376,405	8.641
W06	PFO14E	1	<0.001	0	0	1	<0.001
W08	PFO14E	7,094	0.163	0	0	7,094	0.163
W11	PFO14E	36,308	0.834	196	0.005	36,504	0.839
W12	PFO1E	998	0.023	0	0	998	0.023
W18	PFO4E	12,321	0.283	0	0	12,321	0.283
W19	PFO14E	2,143	0.049	0	0	2,143	0.049
W20	PFO14E	247	0.006	0	0	247	0.006
W21	PEM1E	1,354	0.031	0	0	1,354	0.031
W22	PEM1E	185	0.004	0	0	185	0.004
W23	PEM1Ex	5,132	0.118	0	0	5,132	0.118
W24	PEM1F	3,122	0.072	0	0	3,122	0.072
W31	PFO4E	1,376	0.032	0	0	1,376	0.032
W34	PFO14E	745	0.017	0	0	745	0.017
	Total:	**447,431**	**10.273**	**196**	**0.005**	**447,627**	**10.278**

Proposed permanent impacts to principal functions and value are summarized in Table 4-2. The proposed permanent impacts are predominantly to groundwater recharge/discharge, floodflow alteration, sediment/toxicant/pathogen retention, production export, and wildlife habitat. The majority of these impacts are associated with Wetland W02, the wetland to which the majority of permanent impacts are proposed.

The groundwater recharge/discharge function is primarily associated with discharge of shallow groundwater as indicated by visible seeps observed throughout the affected wetlands. These areas are primarily located along the periphery of the wetlands and along narrower swales associated with the wetlands.

The floodflow alteration function is attributed to Wetland W02 in two ways: first the portion of the wetland that parallels and is adjacent to Stream S01 has some capacity to capture and detail overbank flows, however the stream is small and likely does not leave the channel on a frequent basis; and second, the larger, flatter basin areas of the wetland do capture and hold any overland flow from surrounding uplands. No impacts are proposed within the area adjacent to Stream S01.

The sediment/toxicant/pathogen retention function is associated with observations of permanently impacted wetlands capturing small amounts of runoff from roads or logged areas and/or being located as receiving waters for existing sedimentation basins.

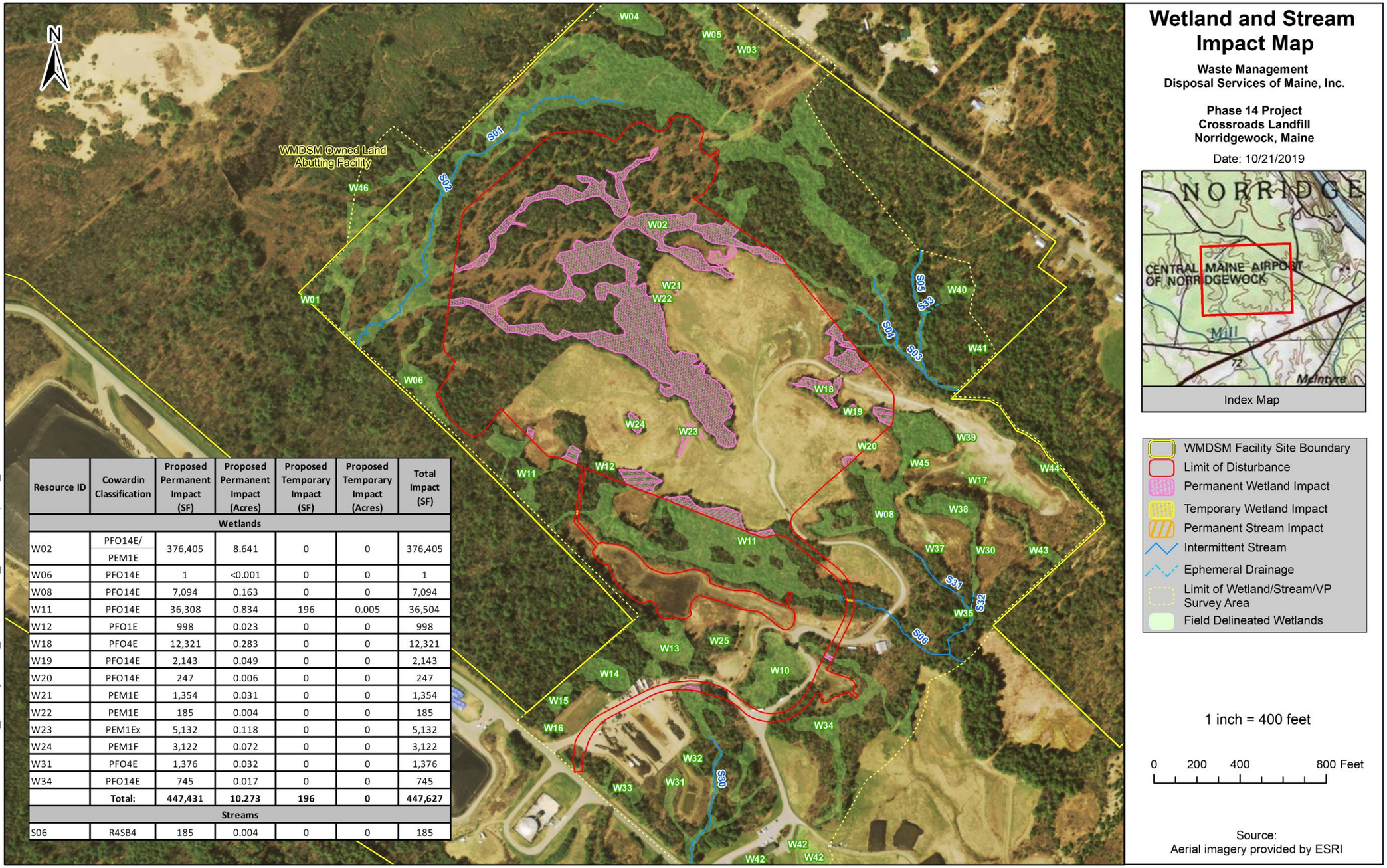
The production export function as observed within the wetlands that are proposed to be permanently impacted is primarily attributed to general use of the area for logging (current, past or future) and hunting of common species such as turkey, deer and bear that may be present in the site on an infrequent basis.

The wildlife habitat function is primarily associated with the general observation that common wildlife species are present in these wetlands and also take into account the presence of vernal pools and the seasonal presence of these species. The wetland proposed to be impacted do not contain any known or observed threatened, endangered or rare wildlife species.

Table 4–2. Summary of proposed total permanent impact to principal wetland functions or values associated with Phase 14 project

	GWRD[a]	FA	FSH	STPR	NR	PE	SSS	WH	REC	ESV	UH	VQA	ESH
Proposed Permanent Impacts (SF)	421,929	376,405	0	421,183	0	376,405	0	441,758	0	0	0	0	0

[a] GWRD = Groundwater Recharge/Discharge; FA= Floodflow Alteration; FSH=Fish and Shellfish Habitat; STPR= Sediment/Toxicant/Pathogen Retention; NR=Nutrient Removal; PE=Production Export; SSS= Sediment/Shoreline Stabilization; WH=Wildlife Habitat; REC=Recreation; ESV= Educational/Scientific Value; UH= Uniqueness/Heritage; VQA= Visual Quality/Aesthetics; ESH= Endangered Species Habitat



Resource ID	Cowardin Classification	Proposed Permanent Impact (SF)	Proposed Permanent Impact (Acres)	Proposed Temporary Impact (SF)	Proposed Temporary Impact (Acres)	Total Impact (SF)
Wetlands						
W02	PFO14E/ PEM1E	376,405	8.641	0	0	376,405
W06	PFO14E	1	<0.001	0	0	1
W08	PFO14E	7,094	0.163	0	0	7,094
W11	PFO14E	36,308	0.834	196	0.005	36,504
W12	PFO1E	998	0.023	0	0	998
W18	PFO4E	12,321	0.283	0	0	12,321
W19	PFO14E	2,143	0.049	0	0	2,143
W20	PFO14E	247	0.006	0	0	247
W21	PEM1E	1,354	0.031	0	0	1,354
W22	PEM1E	185	0.004	0	0	185
W23	PEM1Ex	5,132	0.118	0	0	5,132
W24	PEM1F	3,122	0.072	0	0	3,122
W31	PFO4E	1,376	0.032	0	0	1,376
W34	PFO14E	745	0.017	0	0	745
	Total:	**447,431**	**10.273**	**196**	**0**	**447,627**
Streams						
S06	R4SB4	185	0.004	0	0	185

Figure 2. Phase 14 Wetland and Stream Impact Map

4.3 Streams

One stream will be permanently impacted due to the proposed installation of a new culvert under the access road. The stream (S06) is an intermittent stream with a maximum width of 5 feet at the reach proposed to be crossed with the culvert. The culvert has been designed based on the MEDEP and USACE guidelines pertaining to hydrologic capacity and aquatic organism passage. The culvert will be a 6-foot diameter, corrugated metal pipe-arch that will be embedded approximately 1.5 feet below the current elevation of the streambed to allow for a continuous natural substrate within the culvert.

A total of 37 linear feet (LF) of intermittent stream will be impacted due to the culvert, totaling 185 SF or (0.004 acres)(Figure 2).

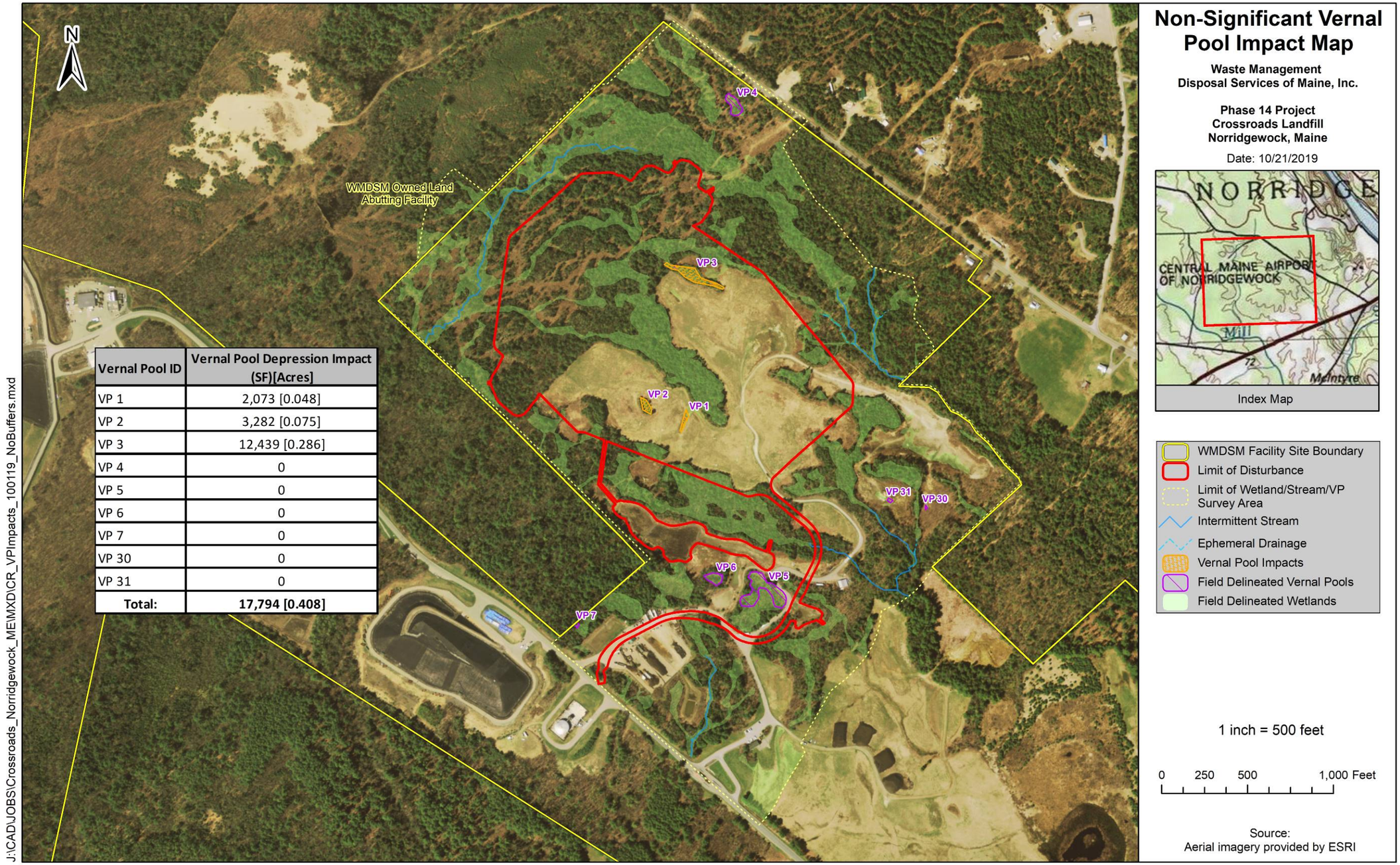
4.4 Vernal Pools

None of the identified vernal pools are considered significant vernal pools as determined by the MEDEP and therefore for the purposes of NRPA, impacts to vernal pools are not considered. However, the USACE may regulate impacts to vernal pool depressions identified within the project area.

A total of 17,794 SF (0.408 acres) of non-significant vernal pool depressions will be permanently impacted due to the proposed Phase 14 project (Figure 3). The impacts are associated with the construction of the landfill area. Proposed impacts to vernal pools and the Vernal Pool Management Areas are summarized in Table 4-3.

Table 4–3. Summary of proposed impacts to vernal pools associated with Phase 14 project

Vernal Pool ID	Vernal Pool Depression Impact (SF)[Acres]
VP 1	2,073 [0.048]
VP 2	3,282 [0.075]
VP 3	12,439 [0.286]
VP 4	0
VP 5	0
VP 6	0
VP 7	0
VP 30	0
VP 31	0
Total:	**17,794 [0.408]**



Vernal Pool ID	Vernal Pool Depression Impact (SF)[Acres]
VP 1	2,073 [0.048]
VP 2	3,282 [0.075]
VP 3	12,439 [0.286]
VP 4	0
VP 5	0
VP 6	0
VP 7	0
VP 30	0
VP 31	0
Total:	**17,794 [0.408]**

Figure 3. Phase 14 Non-Significant Vernal Pool Impact Map

4.5 Significant Wildlife Habitat

There are no Significant Wildlife Habitats within the Phase 14 project area, and therefore there will not be any impacts to Significant Wildlife Habitat from the Phase 14 landfill project.

The only mapped wildlife habitat in the project footprint is a candidate/unrated Deer Wintering Area (DWA). Mapped by MDIFW in 1993 through aerial survey, it is categorized as a candidate/unrated DWA, as it has not been ground surveyed by MDIFW to determine its rating. An experienced wildlife biologist from Normandeau conducted an evaluation conducted for the proposed project in March 2018, using the criteria and methods described in the 1993 MDIFW DWA survey guidelines. That evaluation, provided in Attachment X, found that the portion of the DWA within the Phase 14 footprint would receive a quality rating of "low." A "low" quality DWA is not considered a Significant Wildlife Habitat.

The footprint of the proposed project will impact 51.8 acres, or 10.7 % of the mapped DWA 060087, which is 483.5 acres in size. Forested wetlands make up 8.8 acres, or 17.1% of the 51.8 total acres of mapped DWA that is proposed to be impacted by the project. In addition, approximately 20.7 acres (or 39.9%) of the 51.8 acres of DWA that is proposed to be impacted by the Phase 14 facility is either cleared, graded and meadow, stormwater basin, or paved/developed infrastructure and does not, and will not in the near future, function as deer wintering habitat. This DWA also overlaps with portions of the existing Crossroads Landfill property to the south and extends beyond the property boundaries to the north and the south. Based on the "low" quality of the DWA proposed to be impacted, and the relatively small portion of DWA 060087 that will be within the project footprint, no undue adverse impacts are anticipated to the mapped unrated DWA.

4.6 Endangered, Threatened or Special Concern Species

The Maine Natural Areas Program (MNAP) determined that there are no rare botanical features documented within the project area. In terms of wildlife, MDIFW has mapped an area of potential upland sandpiper habitat that overlaps very minimally with a southeastern portion of the Phase 14 project footprint. The Cornell Lab of Ornithology "eBird" database does not include any records of upland sandpiper in Norridgewock, with the nearest records located to the east of the project area in Canaan and Fairfield, Maine[5]. The mapped areas of potential upland sandpiper habitat that overlap with the proposed Phase 14 project footprint are a mix of forested land, old field, existing access roads, offices and paved areas that do not provide suitable breeding or foraging habitat. In addition, upland sandpiper have not been observed within the Crossroads facility by Normandeau biologists.

Given that the portions of the mapped habitat where impacts are proposed does not actually contain any suitable breeding or foraging habitat for upland sandpiper, and that adjacent areas of mapped potential upland sandpiper habitat are too small and experience too much

[5] https://ebird.org/home

disturbance to support upland sandpiper, no undue adverse impacts are anticipated to upland sandpiper.

Several federally or state listed wildlife species could use the project area. Based on known distribution and habitat preferences, the listed species potentially present within the proposed project area consist of Maine's eight bat species, and 23 birds listed as Species of Special Concern. These species are listed in Table 4-4. Because they are all highly mobile and in most cases, migratory, direct impact to them are not expected if clearing is conducted between October 15 and April 15. Clearing during this window avoids the presence of vulnerable, young and/or roosting bats. The loss of habitat to the project footprint is also not expected to have a measurable impact on these species. The project area is part of a larger mosaic of suitable habitat for these species in the surrounding landscape, and the habitat types that will be lost are abundant within this mosaic.

Table 4–4. Listed Species with Potential to be Present within the Project Area

Endangered	Species of Special Concern	
Little brown bat Northern long-eared bat*	Big brown bat Eastern red bat Hoary bat Silver-haired bat Tri-colored bat	Evening Grosbeak Fox Sparrow Least Flycatcher Northern Harrier Olive-sided Flycatcher Prairie Warbler Tennessee Warbler
Threatened	American Redstart Bald Eagle Black-and-white Warbler Brown Thrasher Canada Warbler Chestnut-sided Warbler Eastern Kingbird Eastern Meadowlark Eastern Wood-Pewee	Tree Swallow Veery Whip-poor-will White-throated sparrow Wood Thrush Yellow Warbler Yellow-billed Cuckoo
Eastern small-footed bat		

*This species is also Federally Threatened

Appendices

Appendix A. Completed Wetland Function-Value Evaluation Forms for Permanently Impacted Wetlands

Wetland Function-Value Evaluation Form

Total area of wetland 24.7 acre Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use forest, old field Distance to nearest roadway or other development 200 FT

Dominant wetland systems present PFO1,4E Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? UPPER

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W02

Latitude 44.71441 Longitude -69.834157

Prepared by: WSM Date 08/20/2019

Wetland Impact:

Type Permanent Fill Area

Evaluation based on:

Office ✓ Field ✓

Corps manual wetland delineation completed? Y ☐ N ☐

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	☒	☐	1,6,7,10,13,15,	☒	Seeps observed along edges of wetland and in swales; mostly discharge but some recharge possible
Floodflow Alteration	☒	☐	1,2,3,5,6,9,13,18	☒	Wetland retails precipitation and spring snowmelt; not flooded by watercourse
Fish and Shellfish Habitat	☐	☐	1,2	☐	No viable habitat for fish or shellfish; intermittent stream only
Sediment/Toxicant Retention	☒	☐	1,2,4,6,7,8,10,14	☒	Wetland is adjacent to landfill and stockpile areas currently and will be in the future
Nutrient Removal	☒	☐	1,3,5,6,7,8,9,12,14	☐	Wetland is suitable for nutrient removal but currently lacks a significant source of nutrient input
Production Export	☒	☐	1,3,4,5,7,8,12	☒	Edges of wetland have been logged, some wildlife use (deer sign) and vernal pool
Sediment/Shoreline Stabilization	☒	☐	2,3,4,12,15	☐	Wetland stabilizes banks of intermittent stream only; minor drainage
Wildlife Habitat	☒	☐	6,7,8,10,11,13-15,16,17	☒	Deer sign observed; wetland contains vernal pool and VP habitat
Recreation	☒	☐	3,5,6,7	☐	Wetland suitable; however access is restricted and it's on private land
Educational/Scientific Value	☐	☐	5	☐	Wetland typical for area; restricted access; private land
Uniqueness/Heritage	☐	☐	5,7,16,17,18,19,27	☐	Wetland is typical for area; no known RTE
Visual Quality/Aesthetics	☒	☐	3,5,6,7,8	☐	Visual quality associated with contract of intact forested wetland to surrounding area
ES Endangered Species Habitat	☐	☐		☐	No known RTE
Other	☐	☐		☐	

Notes:

* Refer to backup list of numbered considerations.

Adapted from: U.S.Army Corps of Engineers - New England District. 1999. The Highway Methodology Workbook: Supplement: Wetland Functions and Values - A Descriptive Approach. NAEEP-360-1-30a.

Wetland Function-Value Evaluation Form

Total area of wetland 2.62 acre Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use old field Distance to nearest roadway or other development 0 FT

Dominant wetland systems present PFO1,4E Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? UPPER

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W08

Latitude 44.71118 Longitude -69.82947

Prepared by: WSM Date 08/20/2019

Wetland Impact:

Type Permanent Fill Area

Evaluation based on:

Office ✓ Field ✓

Corps manual wetland delineation completed? Y N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	☒	☐	2,4,6,7,10,12,13	☒	Wetland likely serves primarily to discharge groundwater especially near outlet; some recharge possible
Floodflow Alteration	☒	☐	1,2,3,5,6,9,13	☐	Wetland likely retains precipitation and snowmelt
Fish and Shellfish Habitat	☐	☐	1,2	☐	None
Sediment/Toxicant Retention	☒	☐	1,2,4,5,8,10,14	☒	Wetland is in close proximity to sand borrow and stockpile areas; does trap some sediment
Nutrient Removal	☐	☐	1,3,7,12,14	☐	Limited capacity and limited sources nearby
Production Export	☒	☐	1,3,4,5	☐	Wetland forested w/ mature trees, would be suitable for logging/hunting
Sediment/Shoreline Stabilization	☒	☐	3,4,5	☐	Portions of wetland near outlet stream stabilize banks of stream
Wildlife Habitat	☒	☐	6,7,8,10,11,16,17	☒	Deer sign and some insect/amphibian utilization
Recreation	☒	☐	5,6	☐	Suitable mostly for hunting, but limited/restricted access/private land
Educational/Scientific Value	☐	☐	5	☐	Limited access, private land, typical wetland for area
Uniqueness/Heritage	☐	☐	5,17,18	☐	Typical/common wetland for area; limited access to site, private land
Visual Quality/Aesthetics	☐	☐	6	☐	Limited access, typical wetland
ES Endangered Species Habitat	☐	☐		☐	None
Other	☐	☐		☐	

Notes:

* Refer to backup list of numbered considerations.

Adapted from: U.S.Army Corps of Engineers - New England District. 1999. The Highway Methodology Workbook: Supplement: Wetland Functions and Values - A Descriptive Approach. NAEEP-360-1-30a.

Wetland Function-Value Evaluation Form

Total area of wetland 5.7 acre Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use forest, old field Distance to nearest roadway or other development 75 FT

Dominant wetland systems present PFO1,4E Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? UPPER

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W11

Latitude 44.71048 Longitude -69.83327

Prepared by: WSM Date 08/20/2019

Wetland Impact:

Type Permanent Fill Area

Evaluation based on:

Office ✓ Field ✓

Corps manual wetland delineation completed? Y N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		2,4,6,7,10,12,13	X	Wetland likely serves primarily to discharge groundwater especially near outlet; some recharge possible
Floodflow Alteration	X		1,2,3,5,6,9,13		Wetland likely retains precipitation and snowmelt
Fish and Shellfish Habitat			1,2		None
Sediment/Toxicant Retention	X		1,2,4,5,8,10,14	X	Wetland is located near road and erosion control basin
Nutrient Removal			1,3,7,12,14		Limited capacity and limited sources nearby
Production Export	X		1,3,4,5		Wetland forested w/ mature trees, would be suitable for logging/hunting
Sediment/Shoreline Stabilization	X		3,4,5		Portions of wetland near outlet stream stabilize banks of stream
Wildlife Habitat	X		6,7,8,10,11,16,17	X	Deer sign and some insect/amphibian utilization
Recreation	X		5,6		Suitable mostly for hunting, but limited/restricted access/private land
Educational/Scientific Value			5		Limited access, private land, typical wetland for area
Uniqueness/Heritage			5,17,18		Typical/common wetland for area; limited access to site, private land
Visual Quality/Aesthetics			5		Limited access, typical wetland
ES Endangered Species Habitat					None
Other					

Notes:

* Refer to backup list of numbered considerations.

Adapted from: U.S.Army Corps of Engineers - New England District. 1999. The Highway Methodology Workbook: Supplement: Wetland Functions and Values - A Descriptive Approach. NAEEP-360-1-30a.

Wetland Function-Value Evaluation Form

Total area of wetland 997.5 SF Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use forest, old field Distance to nearest roadway or other development 700 FT

Dominant wetland systems present PFO1E Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? UPPER

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W12

Latitude 44.71126 Longitude -69.83454

Prepared by: WSM Date 08/20/2019

Wetland Impact:

Type Permanent Fill Area

Evaluation based on:

Office ✓ Field ✓

Corps manual wetland delineation completed? Y ☐ N ☐

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	☒	☐	6,15	☐	Marginally suitable for some shallow recharge, no inlet or outlet
Floodflow Alteration	☐	☐		☐	Not suitable, isolated
Fish and Shellfish Habitat	☐	☐		☐	Not suitable, no stream or waterbody, very small
Sediment/Toxicant Retention	☐	☐	1,2,4	☐	Limited sources near wetland currently
Nutrient Removal	☐	☐	7	☐	Limited capacity/sources
Production Export	☐	☐		☐	Limited
Sediment/Shoreline Stabilization	☐	☐		☐	Not associated with a waterbody or stream
Wildlife Habitat	☒	☐	7,8	☐	Some suitability for use by wildlife, generally at a low level
Recreation	☐	☐		☐	Not suitable
Educational/Scientific Value	☐	☐		☐	Not suitable
Uniqueness/Heritage	☐	☐		☐	Not suitable
Visual Quality/Aesthetics	☐	☐		☐	Not suitable
ES Endangered Species Habitat	☐	☐		☐	None
Other	☐	☐		☐	

Notes:

* Refer to backup list of numbered considerations.

Adapted from: U.S.Army Corps of Engineers - New England District. 1999. The Highway Methodology Workbook: Supplement: Wetland Functions and Values - A Descriptive Approach. NAEEP-360-1-30a.

Wetland Function-Value Evaluation Form

Total area of wetland 12321 SF Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use old field Distance to nearest roadway or other development 0 FT

Dominant wetland systems present PFO4E Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? UPPER

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W18

Latitude 44.71227 Longitude -69.830694

Prepared by: WSM Date 08/20/2019

Wetland Impact:

Type Permanent Fill Area

Evaluation based on:

Office ✓ Field ✓

Corps manual wetland delineation completed? Y ✓ N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		4,6		Wetland has no inlet or outlet, likely some recharge to shallow groundwater
Floodflow Alteration			5,9		Limited, not associated with stream or waterbody, small
Fish and Shellfish Habitat					None
Sediment/Toxicant Retention	X		1,2,4,8		Generally limited, wetland is near sand borrow and topsoil staging area
Nutrient Removal			7		Limited capacity, sources
Production Export			1,3		Limited to potential logging
Sediment/Shoreline Stabilization			3		Not associated with stream or waterbody
Wildlife Habitat	X		7,8,11,16,17	X	Marginally suitable, small size, deer scat and some potential for amphibians, no VP
Recreation					Limited, private land, controlled access
Educational/Scientific Value					Limited
Uniqueness/Heritage			5		Limited
Visual Quality/Aesthetics					Limited
ES Endangered Species Habitat					None
Other					

Notes:

* Refer to backup list of numbered considerations.

Adapted from: U.S.Army Corps of Engineers - New England District. 1999. The Highway Methodology Workbook: Supplement: Wetland Functions and Values - A Descriptive Approach. NAEEP-360-1-30a.

Wetland Function-Value Evaluation Form

Total area of wetland 2143 SF Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use old field Distance to nearest roadway or other development 75 FT

Dominant wetland systems present PFO1,4E Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? UPPER

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W19

Latitude 44.71198 Longitude -69.830129

Prepared by: WSM Date 08/20/2019

Wetland Impact:

Type Permanent Fill Area

Evaluation based on:

Office ✓ Field ✓

Corps manual wetland delineation completed? Y N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		4,6		Wetland has no inlet or outlet, likely some recharge to shallow groundwater
Floodflow Alteration			5,9		Limited, not associated with stream or waterbody, small
Fish and Shellfish Habitat					None
Sediment/Toxicant Retention	X		1,2,4,8		Generally limited, wetland is near sand borrow and topsoil staging area
Nutrient Removal			7		Limited capacity, sources
Production Export			1,3		Limited to potential logging
Sediment/Shoreline Stabilization			3		Not associated with stream or waterbody
Wildlife Habitat	X		7,8,11,16,17		Marginally suitable, small size, deer scat and some potential for amphibians, no VP
Recreation					Limited, private land, controlled access
Educational/Scientific Value					Limited
Uniqueness/Heritage			5		Limited
Visual Quality/Aesthetics					Limited
ES Endangered Species Habitat					None
Other					

Notes:

* Refer to backup list of numbered considerations.

Adapted from: U.S.Army Corps of Engineers - New England District. 1999. The Highway Methodology Workbook: Supplement: Wetland Functions and Values - A Descriptive Approach. NAEEP-360-1-30a.

Wetland Function-Value Evaluation Form

Total area of wetland 368.6 SF Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use old field Distance to nearest roadway or other development 250 FT

Dominant wetland systems present PFO1,4E Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? UPPER

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W20

Latitude 44.71155 Longitude -69.829870

Prepared by: WSM Date 08/20/2019

Wetland Impact:

Type Permanent Fill Area

Evaluation based on:

Office ✓ Field ✓

Corps manual wetland delineation completed? Y N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		4,6		Wetland may have some interaction with shallow groundwater; no inlet/outlet
Floodflow Alteration			5,9		Not suitable, not associated with stream
Fish and Shellfish Habitat					Not suitable
Sediment/Toxicant Retention			1,2,4,8		Not suitable, limited sources, very small
Nutrient Removal			7		Not suitable
Production Export			1,3		Not suitable, very small
Sediment/Shoreline Stabilization			3		Not suitable, not associated with stream/waterbody
Wildlife Habitat	X		7,8,11,16,17		Marginally suitable; no vp species observed
Recreation					Not suitable
Educational/Scientific Value					Not suitable
Uniqueness/Heritage			5		Not suitable, common wetland for area
Visual Quality/Aesthetics					Not suitable
ES Endangered Species Habitat					None
Other					

Notes:

* Refer to backup list of numbered considerations.

Adapted from: U.S.Army Corps of Engineers - New England District. 1999. The Highway Methodology Workbook: Supplement: Wetland Functions and Values - A Descriptive Approach. NAEEP-360-1-30a.

Wetland Function-Value Evaluation Form

Total area of wetland 1354 SF Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use old field Distance to nearest roadway or other development 600 FT

Dominant wetland systems present PEM1E Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? UPPER

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W21

Latitude 44.71357 Longitude -69.833396

Prepared by: WSM Date 08/20/2019

Wetland Impact:

Type Permanent Fill Area

Evaluation based on:

Office ✓ Field ✓

Corps manual wetland delineation completed? Y ☐ N ☐

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	☒	☐	6	☐	Wetland may have some interaction with shallow groundwater; no inlet/outlet
Floodflow Alteration	☐	☐	5	☐	Not suitable, not associated with stream, isolated
Fish and Shellfish Habitat	☐	☐		☐	Not suitable, not associated with stream, isolated
Sediment/Toxicant Retention	☐	☐	1,2,4	☐	Not suitable, very small, potentially manmade
Nutrient Removal	☐	☐	3,7,8	☐	Not suitable
Production Export	☐	☐		☐	Not suitable
Sediment/Shoreline Stabilization	☐	☐	3	☐	Not suitable, not associated with stream/waterbody
Wildlife Habitat	☒	☐	7,8	☐	Marginally suitable; limited utilization but some deer sign, turkey
Recreation	☐	☐		☐	Not suitable
Educational/Scientific Value	☐	☐		☐	Not suitable
Uniqueness/Heritage	☐	☐		☐	Not suitable
Visual Quality/Aesthetics	☐	☐		☐	Not suitable
ES Endangered Species Habitat	☐	☐		☐	None
Other	☐	☐		☐	

Notes:

* Refer to backup list of numbered considerations.

Adapted from: U.S.Army Corps of Engineers - New England District. 1999. The Highway Methodology Workbook: Supplement: Wetland Functions and Values - A Descriptive Approach. NAEEP-360-1-30a.

Wetland Function-Value Evaluation Form

Total area of wetland 185.4 SF Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use old field Distance to nearest roadway or other development 600 FT

Dominant wetland systems present PEM1E Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? UPPER

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W22

Latitude 44.71344 Longitude -69.833563

Prepared by: WSM Date 08/20/2019

Wetland Impact:

Type Permanent Fill Area

Evaluation based on:

Office ✓ Field ✓

Corps manual wetland delineation completed? Y N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge			6		Not suitable, very small, likely manmade
Floodflow Alteration					Not suitable
Fish and Shellfish Habitat					Not suitable, not associated with stream or waterbody
Sediment/Toxicant Retention			1,2		Not suitable, very small
Nutrient Removal			7		Not suitable, very small
Production Export			8		Not suitable
Sediment/Shoreline Stabilization			3		Not suitable, not associated with stream or waterbody
Wildlife Habitat			7,8		Not suitable, very small, not a VP
Recreation					Not suitable
Educational/Scientific Value					Not suitable
Uniqueness/Heritage					Not suitable
Visual Quality/Aesthetics					Not suitable
ES Endangered Species Habitat					None
Other					

Notes:

* Refer to backup list of numbered considerations.

Adapted from: U.S.Army Corps of Engineers - New England District. 1999. The Highway Methodology Workbook: Supplement: Wetland Functions and Values - A Descriptive Approach. NAEEP-360-1-30a.

Wetland Function-Value Evaluation Form

Total area of wetland 5132 SF Human made? _____ Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use old field, forest Distance to nearest roadway or other development 240 FT

Dominant wetland systems present PEM1Ex Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? UPPER

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W23

Latitude 44.71165 Longitude -69.833071

Prepared by: WSM Date 08/20/2019

Wetland Impact:

Type Permanent Fill Area _____

Evaluation based on:

Office ✓ Field ✓

Corps manual wetland delineation completed? Y ☐ N ☐

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	☒	☐	6	☐	Wetland has shallow spring ponding, likely interacts with shallow groundwater, no inlet/outlet
Floodflow Alteration	☐	☐	5	☐	Not suitable, not associated with stream, very small
Fish and Shellfish Habitat	☐	☐		☐	Not suitable
Sediment/Toxicant Retention	☐	☐	1,2,4	☐	Not suitable
Nutrient Removal	☐	☐	5,7,8	☐	Not suitable
Production Export	☐	☐	1,4,7	☐	Not suitable, small, emergent, isolated, may be manmade
Sediment/Shoreline Stabilization	☐	☐	3	☐	Not suitable, not associated with stream, very small
Wildlife Habitat	☒	☐	7,8,13,16,17,20	☒	Wetland contains a vernal pool, wood frogs & spotted salamanders
Recreation	☐	☐	5	☐	Not suitable
Educational/Scientific Value	☐	☐	5	☐	Not suitable
Uniqueness/Heritage	☐	☐	19	☐	Not suitable
Visual Quality/Aesthetics	☐	☐	8	☐	Not suitable
ES Endangered Species Habitat	☐	☐		☐	None
Other	☐	☐		☐	

Notes:

* Refer to backup list of numbered considerations.

Adapted from: U.S.Army Corps of Engineers - New England District. 1999. The Highway Methodology Workbook: Supplement: Wetland Functions and Values - A Descriptive Approach. NAEEP-360-1-30a.

Wetland Function-Value Evaluation Form

Total area of wetland 3122 SF Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use old field Distance to nearest roadway or other development 550 FT

Dominant wetland systems present PEM1F Contiguous undeveloped buffer zone present Y

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? UPPER

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W24

Latitude 44.71180 Longitude -69.834026

Prepared by: WSM Date 08/20/2019

Wetland Impact:

Type Permanent Fill Area

Evaluation based on:

Office ✓ Field ✓

Corps manual wetland delineation completed? Y ☐ N ☐

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	☒	☐	6	☐	Wetland contains deep pool, some interaction with shallow groundwater is assumed
Floodflow Alteration	☐	☐	5,9	☐	Not suitable
Fish and Shellfish Habitat	☐	☐		☐	Not suitable, not associated with watercourse
Sediment/Toxicant Retention	☐	☐	1,2,4,8	☐	Not suitable, limited sources
Nutrient Removal	☐	☐	5,7	☐	Not suitable, limited sources
Production Export	☐	☐	1,4,7,12	☐	Limited, not suitable
Sediment/Shoreline Stabilization	☐	☐	3	☐	Not suitable, not associated with watercourse
Wildlife Habitat	☒	☐	7,8,13,16,17,20	☒	Wetland is a vernal pool, potted salamanders and wood frogs observed
Recreation	☐	☐	5	☐	Not suitable
Educational/Scientific Value	☐	☐	5	☐	Not suitable
Uniqueness/Heritage	☐	☐	19	☐	Not suitable, common wetland type, common VP species
Visual Quality/Aesthetics	☒	☐	6,7,8,12	☐	Wetland in an isolated pocket, flowering aquatic vegetation with pool and trees around
ES Endangered Species Habitat	☐	☐		☐	None
Other	☐	☐		☐	

Notes:

* Refer to backup list of numbered considerations.

Adapted from: U.S.Army Corps of Engineers - New England District. 1999. The Highway Methodology Workbook: Supplement: Wetland Functions and Values - A Descriptive Approach. NAEEP-360-1-30a.

Wetland Function-Value Evaluation Form

Total area of wetland 71382 SF Human made? N Is wetland part of a wildlife corridor? N or a "habitat island"? N

Adjacent land use forest, field, roadway Distance to nearest roadway or other development 0 FT

Dominant wetland systems present PFO1,4E Contiguous undeveloped buffer zone present N

Is the wetland a separate hydraulic system? N If not, where does the wetland lie in the drainage basin? UPPER

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W34

Latitude 44.70801 Longitude -69.830127

Prepared by: WSM Date 08/20/2019

Wetland Impact:

Type Permanent Fill Area

Evaluation based on:

Office ✓ Field ✓

Corps manual wetland delineation completed? Y N

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	☒	☐	2,4,6,13,15	☒	Some seeps along periphery of wetland
Floodflow Alteration	☒	☐	1,2,5,7,9	☐	Wetland detains precip. and snowmelt; receives overflow from stormwater basin
Fish and Shellfish Habitat	☐	☐	1	☐	Not suitable, not associated with a watercourse/body
Sediment/Toxicant Retention	☒	☐	1,2,4,5,8	☐	Wetland located near facility roads, sediment basins
Nutrient Removal	☐	☐	3,7,8	☐	Not suitable
Production Export	☒	☐	1,3	☐	Suitable for logging
Sediment/Shoreline Stabilization	☐	☐	2,3	☐	Not suitable, not associated with a watercourse/body
Wildlife Habitat	☒	☐	7,8,10,11,17	☐	Some deer sign, no vernal pool
Recreation	☐	☐		☐	Not suitable
Educational/Scientific Value	☐	☐		☐	Not suitable
Uniqueness/Heritage	☐	☐	5	☐	Not suitable
Visual Quality/Aesthetics	☐	☐		☐	Not suitable
ES Endangered Species Habitat	☐	☐		☐	None
Other	☐	☐		☐	

Notes:

* Refer to backup list of numbered considerations.

Adapted from: U.S.Army Corps of Engineers - New England District. 1999. The Highway Methodology Workbook: Supplement: Wetland Functions and Values - A Descriptive Approach. NAEEP-360-1-30a.

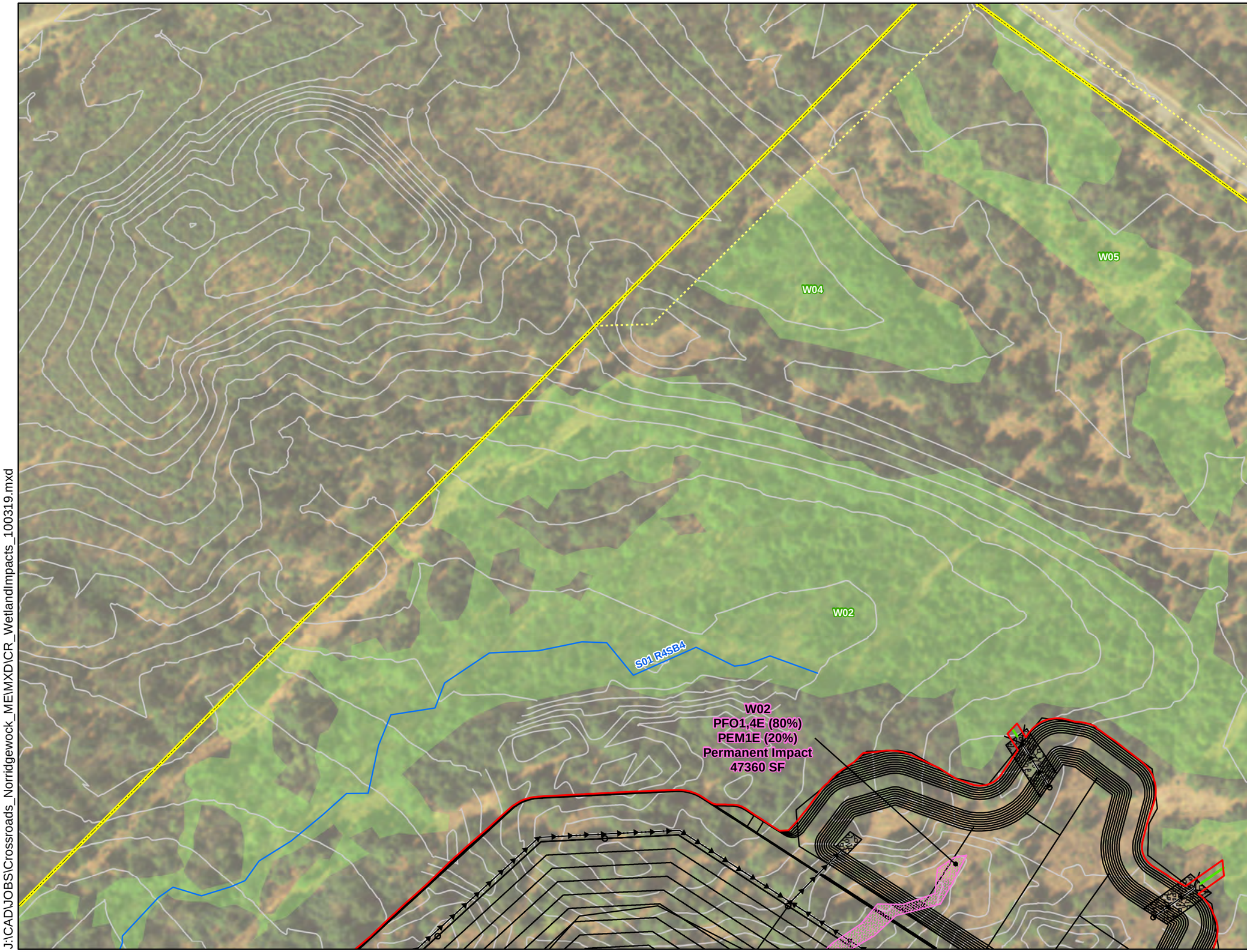
Appendix B. Detailed Natural Resource Impact Plans

Wetland and Stream Impact Map

Waste Management
Disposal Services of Maine, Inc.

Phase 14 Project
Crossroads Landfill
Norridgewock, Maine

Date: 10/21/2019



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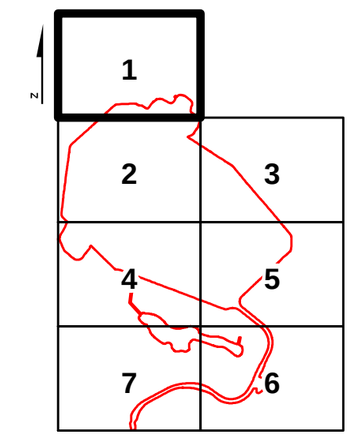

- Limit of Disturbance
- WM Property Boundary
- Permanent Vernal Pool Impact
- Permanent Wetland Impact
- Temporary Wetland Impact
- Permanent Stream Impact
- Intermittent
- Ephemeral
- Field Delineated Vernal Pools
- Limit of Wetland/Stream/VP Survey Area
- Proposed Stormwater Pipe
- Proposed Grasslined Swale
- Proposed Contours
- Rip-Rap Pad
- Existing Contours
- Field Delineated Wetlands

1 inch = 100 feet

0 25 50 100 Feet

Source:
Aerial imagery provided by ESRI

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Wetland and Stream Impact Map

Waste Management
Disposal Services of Maine, Inc.

Phase 14 Project
Crossroads Landfill
Norridgewock, Maine

Date: 10/21/2019

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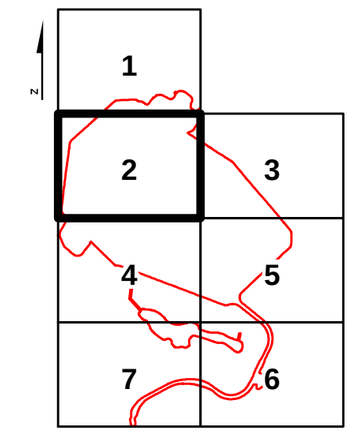

- Limit of Disturbance
- WM Property Boundary
- Permanent Vernal Pool Impact
- Permanent Wetland Impact
- Temporary Wetland Impact
- Permanent Stream Impact
- Intermittent
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- Field Delineated Vernal Pools
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- Proposed Contours
- Rip-Rap Pad
- Existing Contours
- Field Delineated Wetlands

1 inch = 100 feet

0 25 50 100 Feet

Source:
Aerial imagery provided by ESRI

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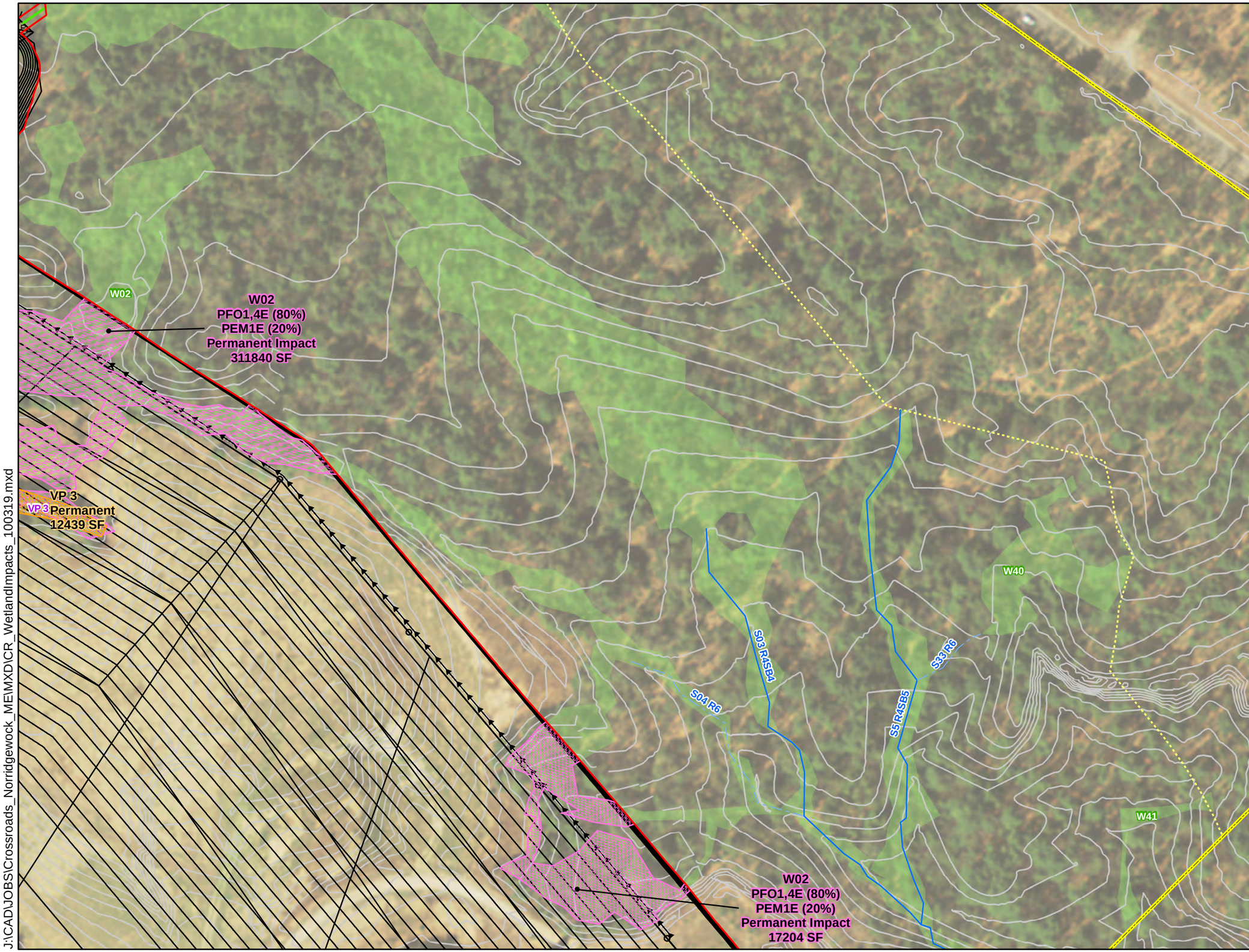
Wetland and Stream Impact Map

Waste Management
Disposal Services of Maine, Inc.

Phase 14 Project
Crossroads Landfill
Norridgewock, Maine

Date: 10/21/2019



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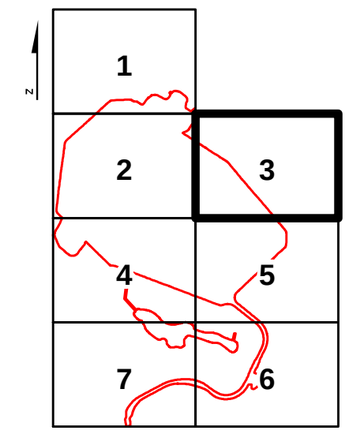

- Limit of Disturbance
- WM Property Boundary
- Permanent Vernal Pool Impact
- Permanent Wetland Impact
- Temporary Wetland Impact
- Permanent Stream Impact
- Intermittent
- Ephemeral
- Field Delineated Vernal Pools
- Limit of Wetland/Stream/VP Survey Area
- Proposed Stormwater Pipe
- Proposed Grasslined Swale
- Proposed Contours
- Rip-Rap Pad
- Existing Contours
- Field Delineated Wetlands

1 inch = 100 feet

0 25 50 100 Feet

Source:
Aerial imagery provided by ESRI

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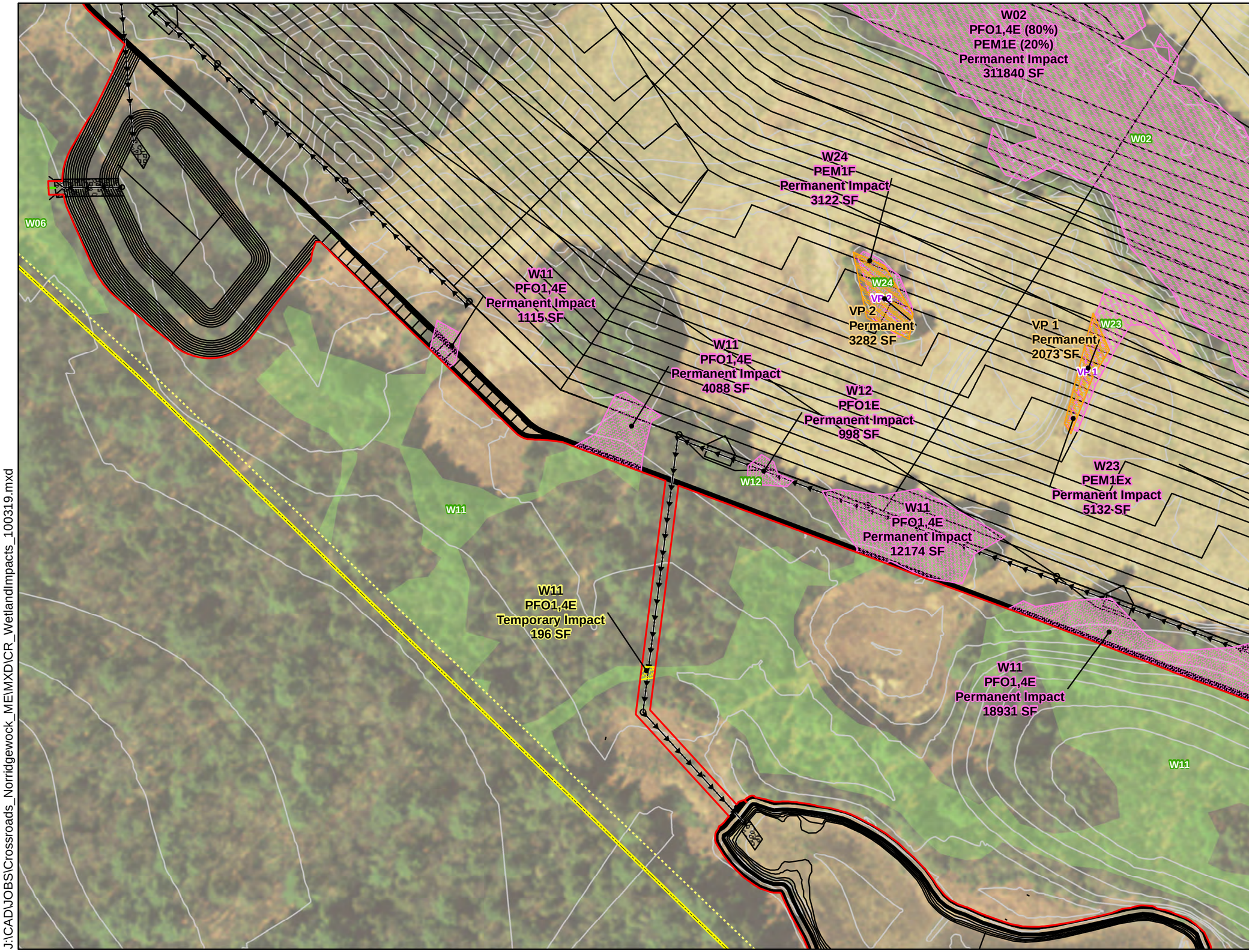
Wetland and Stream Impact Map

Waste Management Disposal Services of Maine, Inc.

Phase 14 Project
Crossroads Landfill
Norridgewock, Maine

Date: 10/21/2019



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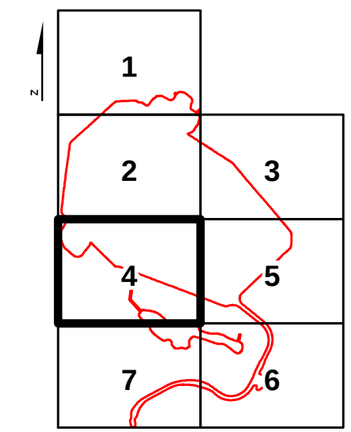

- Limit of Disturbance
- WM Property Boundary
- Permanent Vernal Pool Impact
- Permanent Wetland Impact
- Temporary Wetland Impact
- Permanent Stream Impact
- Intermittent
- Ephemeral
- Field Delineated Vernal Pools
- Limit of Wetland/Stream/VP Survey Area
- Proposed Stormwater Pipe
- Proposed Grasslined Swale
- Proposed Contours
- Rip-Rap Pad
- Existing Contours
- Field Delineated Wetlands

1 inch = 100 feet

0 25 50 100 Feet

Source:
Aerial imagery provided by ESRI

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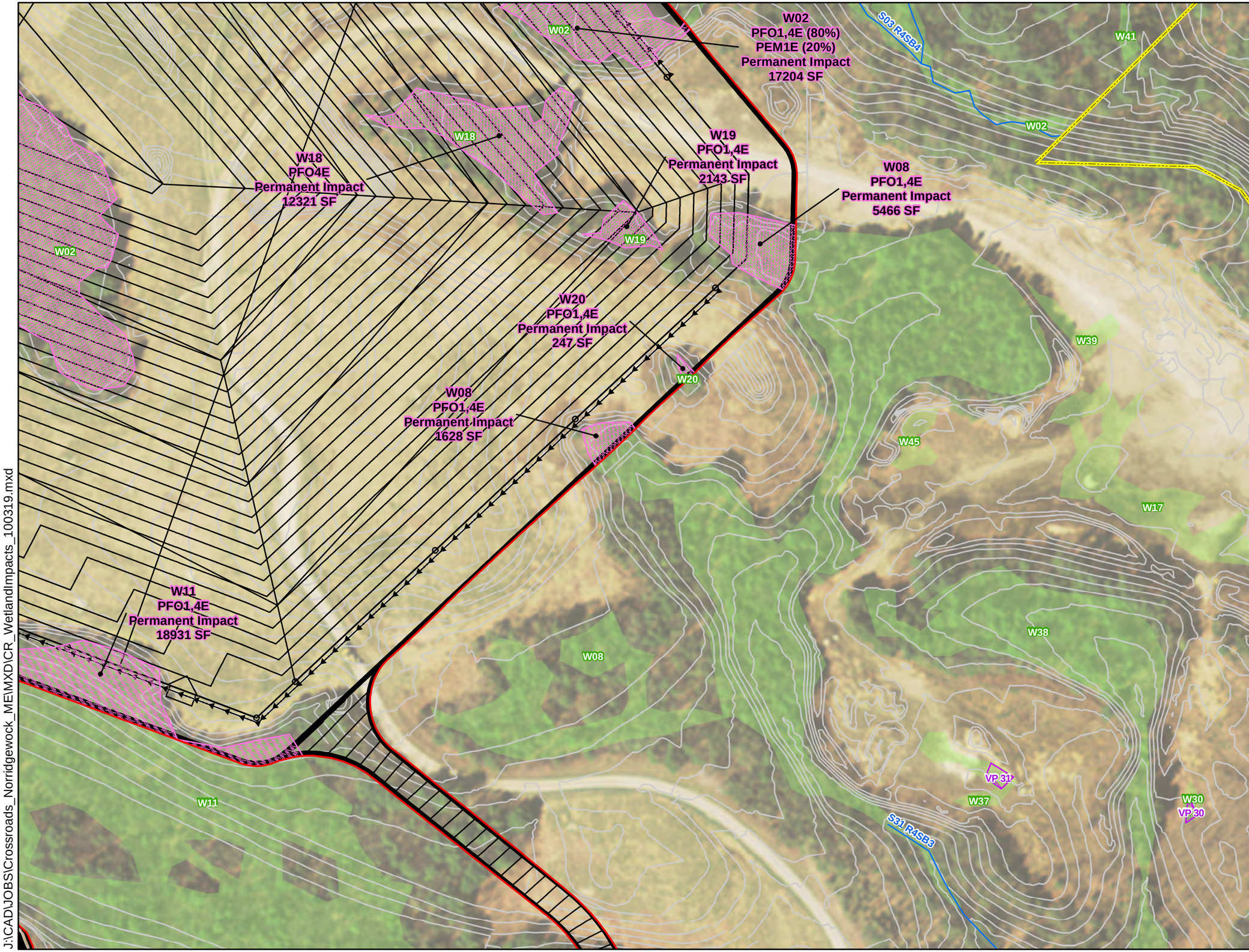
Wetland and Stream Impact Map

Waste Management
Disposal Services of Maine, Inc.

Phase 14 Project
Crossroads Landfill
Norridgewock, Maine

Date: 10/21/2019



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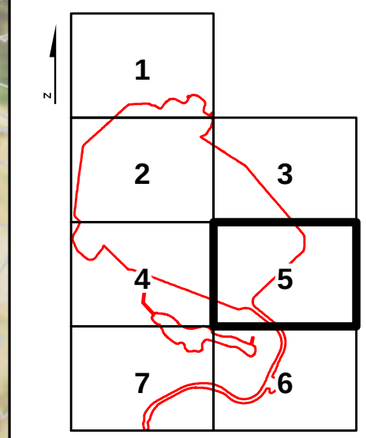


- Limit of Disturbance
- WM Property Boundary
- Permanent Vernal Pool Impact
- Permanent Wetland Impact
- Temporary Wetland Impact
- Permanent Stream Impact
- Intermittent
- Ephemeral
- Field Delineated Vernal Pools
- Limit of Wetland/Stream/VP Survey Area
- Proposed Stormwater Pipe
- Proposed Grasslined Swale
- Proposed Contours
- Rip-Rap Pad
- Existing Contours
- Field Delineated Wetlands

1 inch = 100 feet

0 25 50 100 Feet

Source:
Aerial imagery provided by ESRI

J:\CAD\JOBS\Crossroads_Norridgewock_ME\MXD\CR_WetlandImpacts_100319.mxd

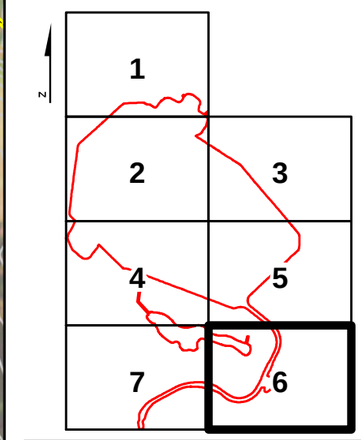
Wetland and Stream Impact Map

Waste Management
Disposal Services of Maine, Inc.

Phase 14 Project
Crossroads Landfill
Norridgewock, Maine

Date: 10/21/2019

Index Map
Page 6 of 7



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Source:
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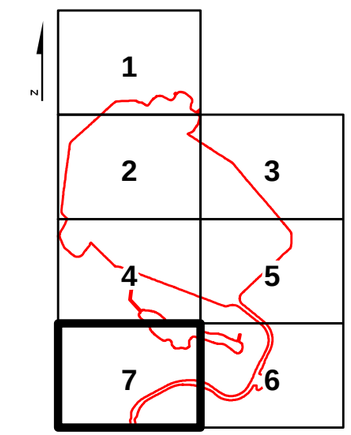
Wetland and Stream Impact Map

Waste Management
Disposal Services of Maine, Inc.

Phase 14 Project
Crossroads Landfill
Norridgewock, Maine

Date: 10/21/2019

Index Map
Page 7 of 7



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Source:
Aerial imagery provided by ESRI

J:\CAD\JOBS\Crossroads_Norridgewock_ME\MXD\CR_WetlandImpacts_100319.mxd

Attachment 13.

Compensation

Attachment 13. Compensation.

Compensation

The construction of Phase 14 will permanently impact approximately 10.273 acres of wetlands. The design team has been diligent in configuring the landfill footprint to avoid and minimize wetland impacts to the maximum extent practicable (see Attachment 2) resulting in reduced wetland impacts from approximately 15 acres in the original design to the current 10.273 acres.

WMDSM understands that the method preferred by the USACE and the MEDEP for the mitigation of impacts to wetlands is through the Maine In Lieu Fee Compensation Program (ILF). The Fees collected by the Department through the ILF Program are allocated through the Maine Natural Resource Conservation Program (MNRCP) which is a cooperative program between MEDEP and the USACE and is administered by The Nature Conservancy (TNC) in Maine. The MNRCP helps compensate for unavoidable impacts to protected natural resources in Maine by funding the restoration, enhancement, preservation, and creation of similar resources to maintain ecological benefits[1]. Preference is given to projects that restore, enhance, preserve, or create resources that best match the natural characteristics and values that were impacted. The focus of the program is to maximize the ecological benefits of compensatory mitigation. Projects that benefit habitat areas of statewide conservation significance, or other natural resource priority areas, are generally preferred.

Other acceptable forms of compensation for lost resource functions and values are: on-site compensation projects and/or off-site compensation projects with or without an additional ILF program contribution.

The proposed compensation plan has been discussed in detail with the USACE, MEDEP and MDIFW during a site walk that was conducted on June 25, 2019 and at the second MEDEP Pre-Submission Meeting on September 25, 2019. The potential for permittee-responsible compensation projects that are tailored to the specific resources being impacted were also discussed at these meetings, and the Project Team is working with federal, state and local resources to identify potentially suitable sites where permittee-responsible mitigation projects might be feasible.

At this time, WMDSM proposes to satisfy the required mitigation through the ILF Compensation Program in Maine, however permittee-responsible mitigation is still being evaluated by WMDSM. Payment to the ILF Compensation Program would involve the total proposed area of direct wetland impact in square feet (447,431 square feet) multiplied by the sum of both the Natural Resource Enhancement & Restoration Cost per Square Foot ($3.61 for Somerset County) and the Average Assessed Land Value per Square Foot ($0.04 Somerset County) which

[1] Maine In Lieu Fee Compensation Program (ILF) and Maine Natural Resource Conservation Program (MNRCP) Website. Accessed at: https://www.maine.gov/dep/land/nrpa/ILF_and_NRCP/index.html. Date accessed: September 26, 2019.

results in a Total Wetland Compensation Fee of $1,633,123.15[2]. No resource multipliers are applicable.

If a suitable permittee-responsible mitigation site(s) is found, WMDSM proposes to inform MEDEP and provide supplemental information no later than January 1, 2020. The supplement will detail the components of the site(s) that would be used to replace, or used in conjunction with, ILF Program payments to fulfill all of the required mitigation for the Phase 14 project.

[2] Fee Calculation Formula: Wetland Compensation Fee = (Direct wetland impact/sq. ft. x (natural resource enhancement & restoration cost/sq. ft. + avg. assessed land valuation/sq. ft.)) x (resource multiplier) OR (447,431 sq. ft. x ($3.61 + $0.04)) x 1 = $ 1,633,123.15

Appendix A.

MDEP Visual Evaluation Field Survey Checklist

APPENDIX A: MDEP VISUAL EVALUATION
FIELD SURVEY CHECKLIST
(Natural Resources Protection Act, 38 M.R.S. §§ 480 A - Z)

Name of applicant: Waste Management Disposal Services of Maine, Inc. Phone: 207-634-2714

Application Type: NRPA Permit, Tier 3

Activity Type: (brief activity description) Phase 14 Proposed Landfill

Activity Location: Town: Norridgewock County: Somerset

GIS Coordinates, if known: 44.713386 -69.835344

Date of Survey: 8/22/19 Observer: McCloy Phone: 802-861-7038

1.Would the activity be visible from:	Distance Between the Proposed Visibility Activity and Resource (in Miles) 0-¼	¼-1	1+
A. A National Natural Landmark or other outstanding natural feature?	☐	☐	X
B. A State or National Wildlife Refuge, Sanctuary, or Preserve or a State Game Refuge?	☐	☐	X
C. A state or federal trail?	☐	☐	X
D. A public site or structure listed on the National Register of Historic Places?	☐	☐	X
E. A National or State Park?	☐	☐	X
F. 1) A municipal park or public open space?	☐	☐	X
2) A publicly owned land visited, in part, for the use, observation, enjoyment and appreciation of natural or man-made visual qualities?	☐	☐	X
3) A public resource, such as the Atlantic Ocean, a great pond or a navigable river?	☐	☐	X
2. What is the closest estimated distance to a similar activity?	X	☐	☐
3. What is the closest distance to a public facility intended for a similar use?	☐ N/A Not Applicable		☐

4. Is the visibility of the activity seasonal? (i.e., screened by summer foliage, but visible during other seasons) ☐Yes X No

5. Are any of the resources checked in question 1 used by the public during the time of year during which the activity will be visible? ☐Yes X No

A listing of National Natural Landmarks and other outstanding natural features in the State of Maine can be found at: www.nature.nps.gov/nnl/Registry/USA_map/states/Maine/maine.htm . In addition, unique natural areas are listed in the Maine Atlas and Gazetteer published by DeLorme.

(pink)

Most Maine State and National Wildlife Refuges, Sanctuaries, and Preserves and State Game Refuges are listed in the Maine Atlas and Gazetteer published by DeLorme.

Most State and federal trails are listed in the Maine Atlas and Gazetteer published by DeLorme. In addition, the Maine Department of Conservation maintains a list of state parks with trails that can be searched by county at: www.state.me.us/doc/parks/programs/db_search/index.html

Maine sites and structures listed on the National Register of Historic Places pursuant to the National Historic Preservation Act of 1966, as amended, can be searched by town at: www.cr.nps.gov/nr/research/nris.htm

In addition, State historic sites can be found at: www.state.me.us/doc/parks/programs/db_search/index.html A partial listing of historic sites in Maine can be found in the Maine Atlas and Gazetteer published by DeLorme.

A listing of Maine State Parks can be found at: www.state.me.us/doc/parks/programs/db_search/index.html or in the Maine Atlas and Gazetteer published by DeLorme. Acadia National Park on Mount Desert Island is Maine's only National Park.

For guidance on completing this field survey checklist, please contact Licensing staff in the Division of Land Resource Regulation at the following offices:

(Headquarters)
Central Maine Regional Office
17 State House Station
Ray Building, Hospital Street
Augusta, Maine 04333
(207) 287-7688 or
toll free at **1-800-452-1942**

Eastern Maine Regional Office
106 Hogan Road
Bangor, Maine 04401
(207) 941-4570 or
toll free at **1-888-769-1137**

Northern Maine Regional Office
1235 Central Drive
Presque Isle, Maine 04769
(207) 764-0477 or
toll free at **1-888-769-1053**

Southern Maine Regional Office
312 Canco Road
Portland, Maine 04103
(207) 822-6300 or
toll free at **1-888-769-1036**

(pink)

Memorandum

Tuesday, October 22, 2019

TO: WMDSM Phase 14 Project File
FROM: William McCloy, Normandeau Associates, Inc.
SUBJECT: Summary of References and Sources Used To Complete MDEP Visual Evaluation Field Survey Checklist

---

Normandeau Associates, Inc. (Normandeau) consulted several different sources and references, in addition to driving around and near the proposed Phase 14 (Project Site) and Waste Management Disposal Services of Maine, Inc. (WMDSM) property. This memorandum includes additional details supporting the information contained on the checklist form.

1. **Would the activity be visible from:**
    A. *A National Natural Landmark or other outstanding natural feature?*
        i. Normandeau reviewed the list of designated National Natural Landmarks (NNL) for the state of Maine, of which there are 14. The closest NNLs to the Project Site are the Colby-Marsten Preserve and Penney Pond-Joe Pond wetland complex in the Belgrade Lakes Region (>1 mile away):
            - https://www.nps.gov/subjects/nnlandmarks/state.htm?State=ME
    B. *A State or National Wildlife Refuge, Sanctuary, or Preserve or a State Game Refuge?*
        i. Normandeau reviewed mapping of conserved lands in Maine and Maine Department of Agriculture, Conservation and Forestry mapping of Parks & Lands. There are no state refuges, sanctuaries or preserves within 1 mile of the project area:
            - https://www.maine.gov/dacf/mnap/assistance/conslands.htm
            - https://www.maine.gov/cgi-bin/online/doc/parksearch/gmaps/doc_map.pl
        ii. Normandeau reviewed the U.S. Fish & Wildlife Service National Wildlife Refuge System mapping for the State of Maine. There are no National Wildlife Refuges within 50 miles of the project area. There are nine within 100 miles:
            - https://www.fws.gov/refuges/zipCodeLocator/index.cfm
    C. *A state or federal trail?*
        i. Normandeau reviewed the locations of National Scenic Trails, National Historic Trails and National Recreation Trails in Maine.

1. The closest National Scenic Trail is the Appalachian Trail, > 1 mile away (31.5 miles away):
    - https://www.nps.gov/subjects/nationaltrailssystem/national-scenic-trails.htm
2. The closest National Historic Trail is the northern terminus of the Washington-Rochambeau Revolutionary Route National Historic Trail in Boston, MA:
    - https://www.nps.gov/subjects/nationaltrailssystem/national-historic-trails.htm
3. The closest National Recreation Trail is the Johnson Brook Trail east of Orono, ME in the Sunkhaze Meadows National Wildlife Refuge:
    - https://www.americantrails.org/national-recreation-trails)

ii. Normandeau reviewed the Maine Trail Finder for state trails in Maine and determined that there are none within 1 mile of the project area.

D. *A public site or structure listed on the National Register of Historic Places?*

i. Normandeau reviewed tabular and mapping data for the National Register of Historic Places and determined that there are six structures on the Register in Norridgewock and all are > 1 miles from the project area.

1. See NRPA Attachment 11 for additional information from the Maine Historic Preservation Commission:
    - https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466

E. *A National or State Park?*

i. Normandeau reviewed the list/map of Maine State Parks and determined that there are no State Parks in Norridgewock or the immediate area surrounding the town. The nearest state park is Mt. Blue State Park in Weld, ME, which is greater than 1 mile away. The Fort Halifax State Historic Site in Waterville is the nearest site on the ME Department of Agriculture, Conservation and Forestry map:
    - https://www.maine.gov/cgi-bin/online/doc/parksearch/gmaps/doc_map.pl

ii. Normandeau reviewed National Park mapping and information for Maine. There are six areas listed in the state, including Acadia National Park near Bar Harbor, ME., Appalachian Trail, Katahdin Woods and Waters National Monument, Maine Acadian Culture National Monument, the Roosevelt Campobello International Park, and the Saint Croix Island International Historic Site; All are greater than 1 mile from the project area and none are located in Norridgewock or the surrounding towns:
    - https://www.nps.gov/state/me/index.htm

F. *Local resources, including:*
   i. *A municipal park or public open space?*
      1. Normandeau reviewed local mapping and websites for the Norridgewock area, including conserved land mapping and the Town of Norridgewock website. Oosoola Park, a town park, is located on the western shore of the Kennebec River in Norridgewock. It includes a public boat launch. Oosoola Park is approximately 1.8 miles from the project site. The Mill Stream Elementary School and ballfields are approximately 1.5 miles from the project site.
   ii. *A publicly owned land visited, in part, for the use, observation, enjoyment and appreciation of natural or man-made visual qualities?*
      1. Oosoola Park is the nearest resource that meets this description to the Project Site and is approximately 1.8 miles away.
   iii. *A public resource, such as the Atlantic Ocean, a great pond, or a navigable river?*
      1. The Kennebec River, located approximately 1.01 miles from the proposed Phase 14 limit of disturbance, is the nearest "public resource" in this category that would be accessed for the purpose of recreating or enjoying a waterbody, and that has public boat launches and other access points. Smaller tributaries in the area do not have public, designated access points and are too small and shallow in proximity to the Project Site to be practically "navigated" even by small watercraft. The nearest great pond is North Pond, approximately 4.4 miles to the south of the project area. The Atlantic Ocean is approximately 50 miles away.

2. What is the closest estimated distance to a similar activity?

The nearest landfill to the Phase 14 Project Site at the Crossroads facility is the Phase 11 and 12 landfills located on the same property (less than ¼ mile). The closest facility other than those associated with Crossroads are greater than 1 mile away; the Hatch Hill Landfill in Augusta (a municipal landfill) is approximately 27 miles away. The Phase 14 project will not be visible from any other landfills other than those already associated with the Crossroads facility.

3. What is the closest distance to a public facility intended for a similar use?

Not applicable. There are two state-owned landfills in Maine: the Carpenter Ridge landfill which isn't developed (T2R8) and the Juniper Ridge landfill (Old Town – 57 miles away); however these landfills are not accessed for the enjoyment of the natural world for scenic or recreational purposes:

- https://www.nrcm.org/wp-content/uploads/2015/12/MaineDEPmaterialsmgmtplan2014.pdf

4. **Is the visibility of the activity seasonal?**

   No. The Phase 14 project will not be visible from any of the resources listed above at any time of year.

5. **Are any of the resources checked in question 1 used by the public during the time of year during which the activity will be visible?**

   No. The Phase 14 project will not be visible from any of the resources listed above at any time of year.

Appendix B.

Tribal Correspondence

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

Memorandum

Friday, September 06, 2019

TO: Youngmin Cho, PhD, PE, Geosyntec Consultants, Inc.
FROM: William McCloy, Normandeau Associates, Inc.
SUBJECT: Summary of Maine Tribal Communications for Phase 14 Project

---

Normandeau Associates, Inc. (Normandeau) mailed "Requests for Project Review and Comment" letters with an accompanying site location map to Tribal Historic Preservation Officers (THPOs) via the United States Postal Service (USPS) in April 2019. Contact information for each of the five THPOs within Maine was obtained from Appendix E of the Department of the Army General Permit for the State of Maine[1]. Table 1 summarizes the notifications and responses that Normandeau has received to date. Note that not all of the THPOs have responded; however none have lands in close proximity to the Project site based on available information. See Attachment 1 for a copy of correspondence to date.

Table 1. Summary of Tribal Correspondence

THPO Contact Information	Response Details
THPO & Environmental Planner *Houlton Band of Maliseet Indians* 88 Bell Road Littleton, Maine 04730 (207) 532-4273, x215 (phone) (207) 532-6883 (fax) envplanner@maliseets.com ogs1@maliseets.com	Susan Young Responded via Email on April 8, 2019 THPO "…does not have an immediate concern with project or project site…"
THPO *Aroostook Band of Micmacs* 7 Northern Road Presque Isle, Maine 04769 (207) 764-1972 (phone); (207) 764-7667 (fax) jpictou@micmac-nsn.gov	No response to date

[1] Department of the Army General Permit for the State of Maine. Valid October 13, 2015 through October 13, 2020. Accessed online at: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Maine-General-Permit/. Date accessed: September 6, 2019.

THPO Contact Information	Response Details
THPO *Passamaquoddy Tribe of Indians* Indian Township Reservation P.O. Box 301 Princeton, Maine 04668 (207) 796-2301 (phone) (207) 796-5256 (fax); soctomah@gmail.com	No response to date
THPO *Passamaquoddy Tribe of Indians* Pleasant Point Reservation P.O. Box 343 Perry, Maine 04667 (207) 853-2600 (phone); (207) 853-6039 (fax) *soctomah@gmail.com*	No response to date
THPO *Penobscot Nation* Cultural and Historic Preservation Dept. 12 Wabanaki Way Indian Island, Maine 04468 (207) 817-7471 (phone) chris.sockalexis@penobscotnation.org	Chris Sockalexis responded "This project appears to have no impact on a structure or site of historic, architectural or archaeological significance to the Penobscot Nation as defined by the National Historic Preservation Act of 1966, as amended."

Attachment 1.

Tribal Correspondence Letters and Responses To Date

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

April 1, 2019

Susan Young, THPO
Natural Resources Director
Houlton Band of Maliseets
88 Bell Road
Littleton, ME 04730

Re: Request for Project Review and Comment
Waste Management Disposal Services of Maine, Inc. – Crossroads Landfill (WMDSM)
Proposed Landfill Expansion
Norridgewock, Maine

Dear Ms. Young:

Normandeau Associated, Inc. (Normandeau), on behalf of Waste Management Disposal Services of Maine, Inc. (WMDSM), is respectfully requesting your review and comment, as necessary, regarding WMDSM's proposed landfill expansion at their existing Crossroads Landfill in the Town of Norridgewock, Somerset County, Maine. A site location map is attached to depict the location of the proposed project.

WMDSM is proposing to construct Phase 14 on approximately 50 acres to expand the capacity at the existing landfill. Phase 14 will be located east of the current landfill facilities on land that is contiguous to the existing facility. It will be bordered by WMDSM property and Clark's property to the north, Airport Road to the east, WMDSM property to the south, and Frederick Property to the west.

Please review and comment regarding potential effects to your tribal lands and interests.

It would be appreciated if you would respond within 10 business days. If it would be easier for you to reply via e-mail, I can be reached at sallen@normandeau.com. Thank you for your time and consideration.

Sincerely,

Sarah Allen

Sarah Allen
Normandeau Associates, Inc.
25 Nashua Road
Bedford, NH 03110

Attach. 1: Site Location Map

From: Sue Young
To: Sarah Allen
Subject: Crossroads Landfill, Norridgewock, ME
Date: Monday, April 8, 2019 2:51:23 PM
Attachments: image001.jpg

Ms. Allen,
We do not have an immediate concern with your project or project site, and do not currently have the resources to fully investigate same. Should any human remains, archaelogical properties or other items of historical importance be unearthed while working on this project, we recommend that you stop your project and report your findings to the appropriate authorities including the Houlton Band of Maliseet Indians.
Please submit all future requests/permit applications to my attention via fax or email to the number or email address below. Thank you.

<><><><><><><><><><>

Susan Young

Tribal Historic Preservation Officer
Natural Resources Director
Houlton Band of Maliseet Indians
88 Bell Road
Littleton, ME 04730
207-532-4273 ext. 202
fax 207-532-6883

ogs1@maliseets.com
www.maliseets.com

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

April 1, 2019

Jennifer Pictou, THPO
Aroostook Band of Micmac Indians
7 Northern Road
Presque Isle, ME 04769

Re: Request for Project Review and Comment
Waste Management Disposal Services of Maine, Inc. – Crossroads Landfill (WMDSM)
Proposed Landfill Expansion
Norridgewock, Maine

Dear Ms. Pictou:

Normandeau Associated, Inc. (Normandeau), on behalf of Waste Management Disposal Services of Maine, Inc. (WMDSM), is respectfully requesting your review and comment, as necessary, regarding WMDSM's proposed landfill expansion at their existing Crossroads Landfill in the Town of Norridgewock, Somerset County, Maine. A site location map is attached to depict the location of the proposed project.

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Please review and comment regarding potential effects to your tribal lands and interests.

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Sarah Allen

Sarah Allen
Normandeau Associates, Inc.
25 Nashua Road
Bedford, NH 03110

Attach. 1: Site Location Map

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

April 1, 2019

Donald Soctomah, THPO
Passamaquoddy Tribe of Indians
Indian Township Reservation
PO Box 301
Princeton, ME 04668

Re: Request for Project Review and Comment
Waste Management Disposal Services of Maine, Inc. – Crossroads Landfill (WMDSM)
Proposed Landfill Expansion
Norridgewock, Maine

Dear Mr. Soctomah:

Normandeau Associated, Inc. (Normandeau), on behalf of Waste Management Disposal Services of Maine, Inc. (WMDSM), is respectfully requesting your review and comment, as necessary, regarding WMDSM's proposed landfill expansion at their existing Crossroads Landfill in the Town of Norridgewock, Somerset County, Maine. A site location map is attached to depict the location of the proposed project.

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Sarah Allen

Sarah Allen
Normandeau Associates, Inc.
25 Nashua Road
Bedford, NH 03110

Attach. 1: Site Location Map

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

April 1, 2019

Donald Soctomah, THPO
Passamaquoddy Tribe of Indians
Pleasant Point Reservation
PO Box 343
Perry, ME 04667

Re: Request for Project Review and Comment
Waste Management Disposal Services of Maine, Inc. – Crossroads Landfill (WMDSM)
Proposed Landfill Expansion
Norridgewock, Maine

Dear Mr. Soctomah:

Normandeau Associated, Inc. (Normandeau), on behalf of Waste Management Disposal Services of Maine, Inc. (WMDSM), is respectfully requesting your review and comment, as necessary, regarding WMDSM's proposed landfill expansion at their existing Crossroads Landfill in the Town of Norridgewock, Somerset County, Maine. A site location map is attached to depict the location of the proposed project.

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Sincerely,

Sarah Allen

Sarah Allen
Normandeau Associates, Inc.
25 Nashua Road
Bedford, NH 03110

Attach. 1: Site Location Map

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

April 1, 2019

Christopher Sockalexis, THPO
Cultural & Historic Preservation Department
12 Wabanaki Way
Indian Island, ME 04468

Re: Request for Project Review and Comment
Waste Management Disposal Services of Maine, Inc. – Crossroads Landfill (WMDSM)
Proposed Landfill Expansion
Norridgewock, Maine

Dear Mr. Sockalexis:

Normandeau Associated, Inc. (Normandeau), on behalf of Waste Management Disposal Services of Maine, Inc. (WMDSM), is respectfully requesting your review and comment, as necessary, regarding WMDSM's proposed landfill expansion at their existing Crossroads Landfill in the Town of Norridgewock, Somerset County, Maine. A site location map is attached to depict the location of the proposed project.

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Sincerely,

Sarah Allen

Sarah Allen
Normandeau Associates, Inc.
25 Nashua Road
Bedford, NH 03110

Attach. 1: Site Location Map

PENOBSCOT NATION
CULTURAL & HISTORIC PRESERVATION
12 WABANAKI WAY, INDIAN ISLAND, ME 04468

CHRIS SOCKALEXIS – TRIBAL HISTORIC PRESERVATION OFFICER
E-MAIL: chris.sockalexis@penobscotnation.org

NAME	Sarah Allen
ADDRESS	Normandeau Associates, Inc. 25 Nashua Road Bedford, NH 03110
OWNER'S NAME	Waste Management Disposal Services of Maine, Inc.
TELEPHONE	(603) 472-5191
EMAIL	sallen@narmandeau.com
PROJECT NAME	Crossroads Landfill Expansion Project
PROJECT SITE	Norridgewock, ME
DATE OF REQUEST	April 1, 2019
DATE REVIEWED	April 18, 2019

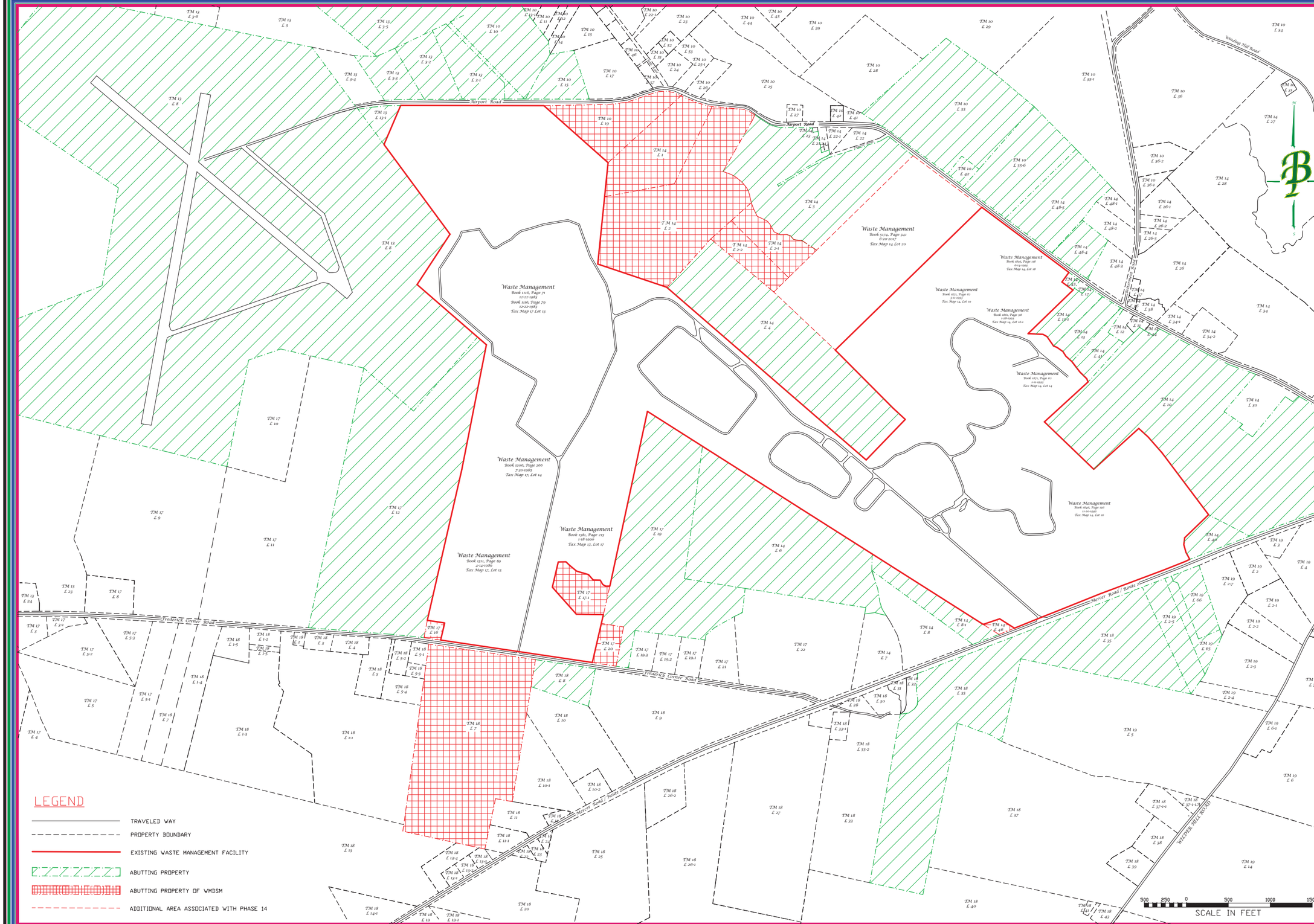
Thank you for the opportunity to comment on the above referenced project. This project appears to have no impact on a structure or site of historic, architectural or archaeological significance to the Penobscot Nation as defined by the National Historic Preservation Act of 1966, as amended.

If Native American cultural materials are encountered during the course of the project, please contact my office at (207) 817-7471. Thank you for consulting with the Penobscot Nation Tribal Historic Preservation Office with this project.

Chris Sockalexis, THPO
Penobscot Nation

Appendix C.

Property Deeds & Other Title, Right and Interest Documentation



STATE OF MAINE
Somerset ss. Registry of Deeds
Received _____, 20____
at _____ h. _____ M. and Recorded
in Plan File _____, Page _____
Attest: _____ Register

12.2016	REVISED PER NEW PLAN	MBB	
9.3.19	REVISED PER COMMENTS	MBB	

SHEET TITLE:
Waste Management Property
Narrow Definition of Existing Facility

SITE LOCATION:
Mercer Road
Norridgewock, Maine

SCALE: 1" = 500'

September 3, 2019

RECORD OWNER:
WASTE MANAGEMENT
"Think Green"
CROSSROADS LANDFILL
NORRIDGEWOCK, MAINE 04957

PLAN PREPARED BY:
Boynton & Pickett L.L.C.
PROFESSIONAL LAND SURVEYOR
"Where you want Professional Work, On Time and Affordable!"
922 East River Road Skowhegan, Maine 04976
Phone: (207) 474-0016 Cell: 207-399-7517
Email: whboynton@aol.com
www.BoyntonPickett.com

Job #: WM06272018ABUTTERS

STATE OF MAINE
JOHN M. PICKETT
351
PROFESSIONAL LAND SURVEYOR

All Written & Graphical Work is Copyright Protected.

Waste Management Abutters List 2019

Tax Map	Lot #	Name	Mailing Address
10	35-6	Glenn A. Jones	232 Airport Rd. Norridgewock, ME 04957
10	10	Joseph D. & Susan M. Cloutier	P.O. Box 369 Norridgewock, ME 04957
10	15	Winston L. & Linda J. Ford	251 Haynes Way Cambridge, NY 12816
10	35	Linda S. Roderick	275 Airport Rd. Norridgewock, ME 04957
10	42	Pamela L. Whitten	317 Airport Rd. Norridgewock, ME 04957
10	19	Waste Management Disposal Services of Maine, Inc.	P.O. Box 1450 Chicago, IL 60690-1450
10	24	Daren Turner*	P.O. Box 865 Skowhegan, ME 04976
13	3-1 & 3-3	Heidi Chamberland Trustee	9 Tracy Cove Circle Rome, ME 04963
13	3-5	Paul & Rebecca Alves	P.O. Box 2547 Orleans, MA 02653-6547
13	8	Norridgewock Municipal Airport	603 Airport Rd. Norridgewock, ME 04957
13	13-1	Forrest & Wilma Stevens & Julie S. McCarthy	P.O. Box 659 Norridgewock, ME 04957
13	3-2	Tammy J. Ferland	511 Airport Rd. Norridgewock, ME 04957
14	1, 2, 2-1, 2-2, 46	Waste Management Disposal Services of Maine, Inc.	P.O. Box 1450 Chicago, IL 60690-1450
14	3	Christopher J. Clark	P.O. Box 793 Norridgewock, ME 04957
14	17	Carol Decker*	180 Airport Rd. Norridgewock, ME 04957
14	13-1	Floyd Whitmore	P.O. Box 877 Norridgewock, ME 04957
14	13 & 41	Letty N. Brann	156 Airport Rd. Norridgewock, ME 04957
14	45	Rita Chaykowsky	P.O. Box 658 Norridgewock, ME 04957
14	48-4 & 48-5	Elizabeth A. Skidgell	P.O. Box 93 Smithfield, ME 04978
14	4, 6, 8-1	Edward & Gloria Frederick	362 Mercer Rd. Norridgewock, ME 04957
14	40	Lebanon Masonic Lodge	251 Mercer Rd. Norridgewock, ME 04957
14	10	Northern NE Conference of 7th Day Adventists	P.O. Box 689 Norridgewock, ME 04957
17	17-1, 20, 16	Waste Management Disposal Services of Maine, Inc.	P.O. Box 1450 Chicago, IL 60690-1450
17	12	Avis & Alice E. Emery	229 Frederick Corner Rd. Norridgewock, Me 04957
17	19	Edward & Gloria Frederick Trustee	362 Mercer Rd. Norridgewock, ME 04957

*Not an abutter but being notified with abutters.

18	7	Waste Management Disposal Services of Maine, Inc.	P.O. Box 1450 Chicago, IL 60690-1450
18	35	Edward & Gloria Frederick Trustee	362 Mercer Rd. Norridgewock, ME 04957
18	8	Parker & Rachel Parsons	134 Frederick Corner Rd. Norridgewock, ME 04957
19	66	Lois & Scott Von Husen	9415 99th Avenue #1013 Peoria, AZ 85345
19	2-5	Krista L. Bowman	290 Mercer Rd. Norridgewock, ME 04957
19	65	Richard & Lelia Von Husen	282 Mercer Rd. Norridgewock, ME 04957

*Not an abutter but being notified with abutters.

$35.00

19840911 D 01 13 1993

1930151200011 LNME

Fee Paid $35.00

C. B. -----

Date -----

3

This Space For Use By Secretary of State

STATE OF MAINE

ARTICLES OF AMENDMENT

(Amendment by Shareholders Voting as Separate Class)

OF

CONSOLIDATED WASTE SERVICES, INC.

MAINE SECRETARY OF STATE FILED

January 13, 1993

Gary Cooper

Secretary of State AGENT

Pursuant to 13-A MRSA §§805 and 807, the undersigned corporation adopts these Articles of Amendment.

FIRST: As set out in detail in "THIRD", one or more classes of shares of the corporation were entitled to vote on the following amendment as a separate class.

SECOND: The amendment to the Articles of Incorporation of the corporation set out in Exhibit A attached hereto was adopted by the shareholders by unanimous written consent without a meeting on December 1, 19 92.

THIRD: On said date, the number of shares of each class outstanding and entitled to vote on such amendment (whether or not entitled to vote as a separate class), the manner in which each such class was entitled to vote (whether or not as a separate class), and the number of shares voted for and against said amendment, respectively, were as follows:

Designation of Each Class However Entitled To Vote	Manner In Which Entitled To Vote	No. of Shares Outstanding And Entitled To Vote	Voted For	Voted Against
Common		500	500	0
Totals of All Classes		500	500	0

FOURTH: If such amendment provides for exchange, reclassification or cancellation of issued shares the manner in which the same shall be effected is contained in Exhibit B attached hereto, if it is not set forth in the amendment itself. N/A

*FIFTH: If such amendment effects a change in the number or par values of authorized shares the number of shares which the corporation has authority to issue after giving effect to such amendment, is as follows: N/A

Class	Series (If Any)	Number of Shares	Par Value (If Any)

The aggregate par value of all such shares (of all classes and series) *having par value* is $_____.

The total number of all such shares (of all classes and series) *without par value* is _____ shares.

(MAINE - 2356 - 7/15/82)

Mon Jul 02 2018 10:28:18

SIXTH: The address of the registered office of the corporation in the State of Maine is One Portland Square, Portland, ME 04101
(street, city and zip code)

Dated: December 1, 1992

CONSOLIDATED WASTE SERVICES, INC. **
(name of corporation)

By _____
(signature)

Gregory T. Sangalis, Vice President
(type or print name and capacity)

By _____
(signature)

Howard L. Kruse, Assistant Secretary
(type or print name and capacity)

Legibly print or type name and capacity of all signers 13- A MRSA §104.

I certify that I have custody of the minutes showing the above action by the shareholders.

X _____
(signature of clerk, secretary or asst. secretary)
Howard L. Kruse, Assistant Secretary

NOTE: Shares may be entitled to vote as a separate class for any of the reasons stated in §806, or if so provided in the Articles. For vote necessary for adoption, see §805.

*To be completed only if Exhibit A or B do not give this required information.

** The name of the corporation should be typed, and the document must be signed by (1) the Clerk or (2) by the President or a vice-president and by the Secretary or an assistant secretary or such other officer as the bylaws may designate as a second certifying officer or (3) if there are no such officers, then by a majority of the directors or by such directors as may be designated by a majority of directors then in office or (4) if there are no such directors, then by the holders, or such of them as may be designated by the holders, of record of a majority of all outstanding shares entitled to vote thereon or (5) by the holders of all of the outstanding shares of the corporation.

FORM NO. MBCA-9A
(MAINE - 2356)

Mon Jul 02 2018 10:28:18

EXHIBIT A

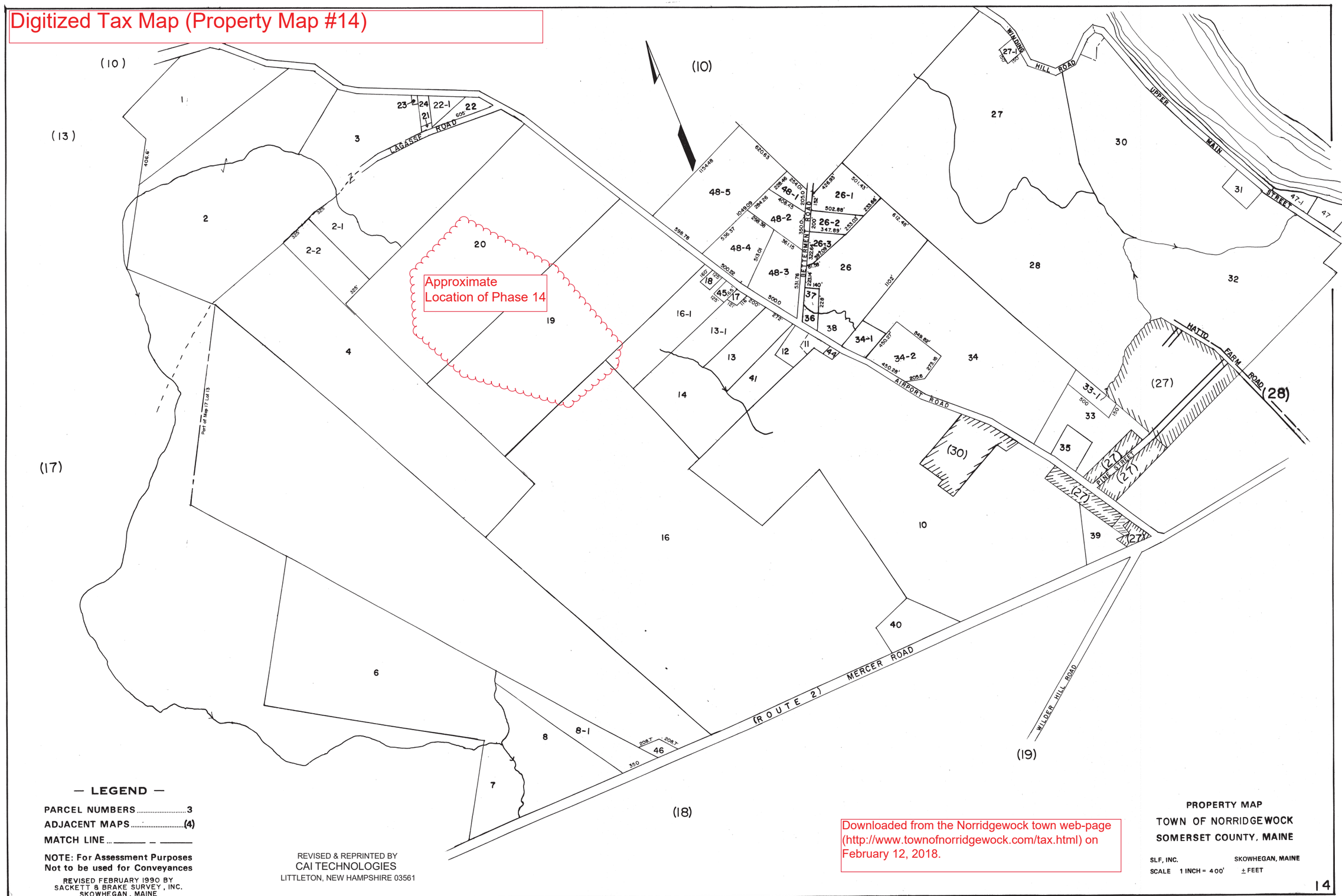
The Certificate of Incorporation of this corporation is amended by changing the Article thereof numbered " First " so that, as amended said Article shall be and read as follows:

" The name of the corporation is: Waste Management Disposal Services of Maine, Inc. "

(MAINE - 2356)

Mon Jul 02 2018 10:28:18

Digitized Tax Map (Property Map #14)



— LEGEND —

PARCEL NUMBERS 3

ADJACENT MAPS ..... (4)

MATCH LINE ..... _____ _ _____

NOTE: For Assessment Purposes Not to be used for Conveyances

REVISED FEBRUARY 1990 BY SACKETT & BRAKE SURVEY, INC. SKOWHEGAN, MAINE

REVISED & REPRINTED BY
CAI TECHNOLOGIES
LITTLETON, NEW HAMPSHIRE 03561

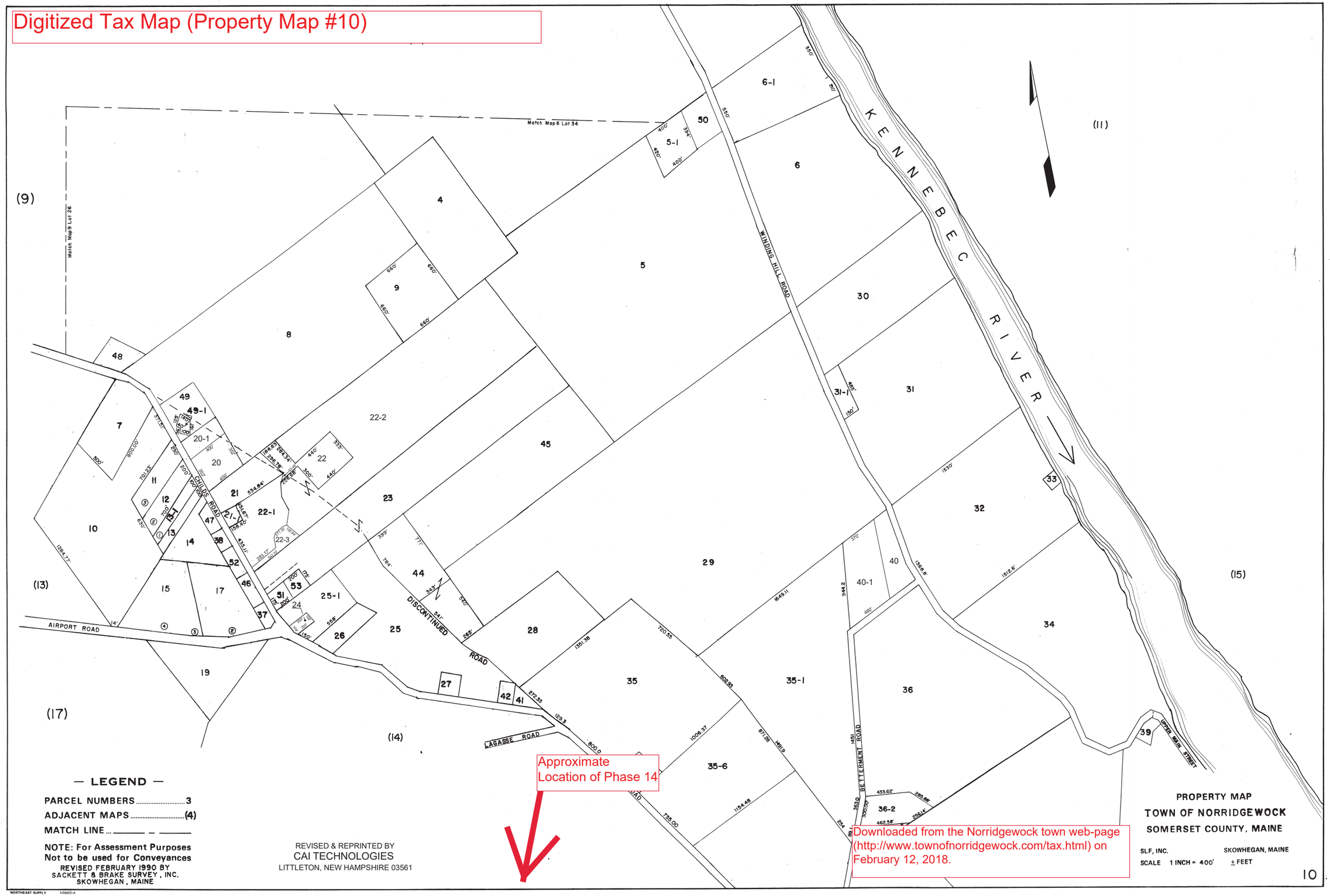
Downloaded from the Norridgewock town web-page (http://www.townofnorridgewock.com/tax.html) on February 12, 2018.

PROPERTY MAP
TOWN OF NORRIDGEWOCK
SOMERSET COUNTY, MAINE

SLF, INC. SKOWHEGAN, MAINE
SCALE 1 INCH = 400' ± FEET

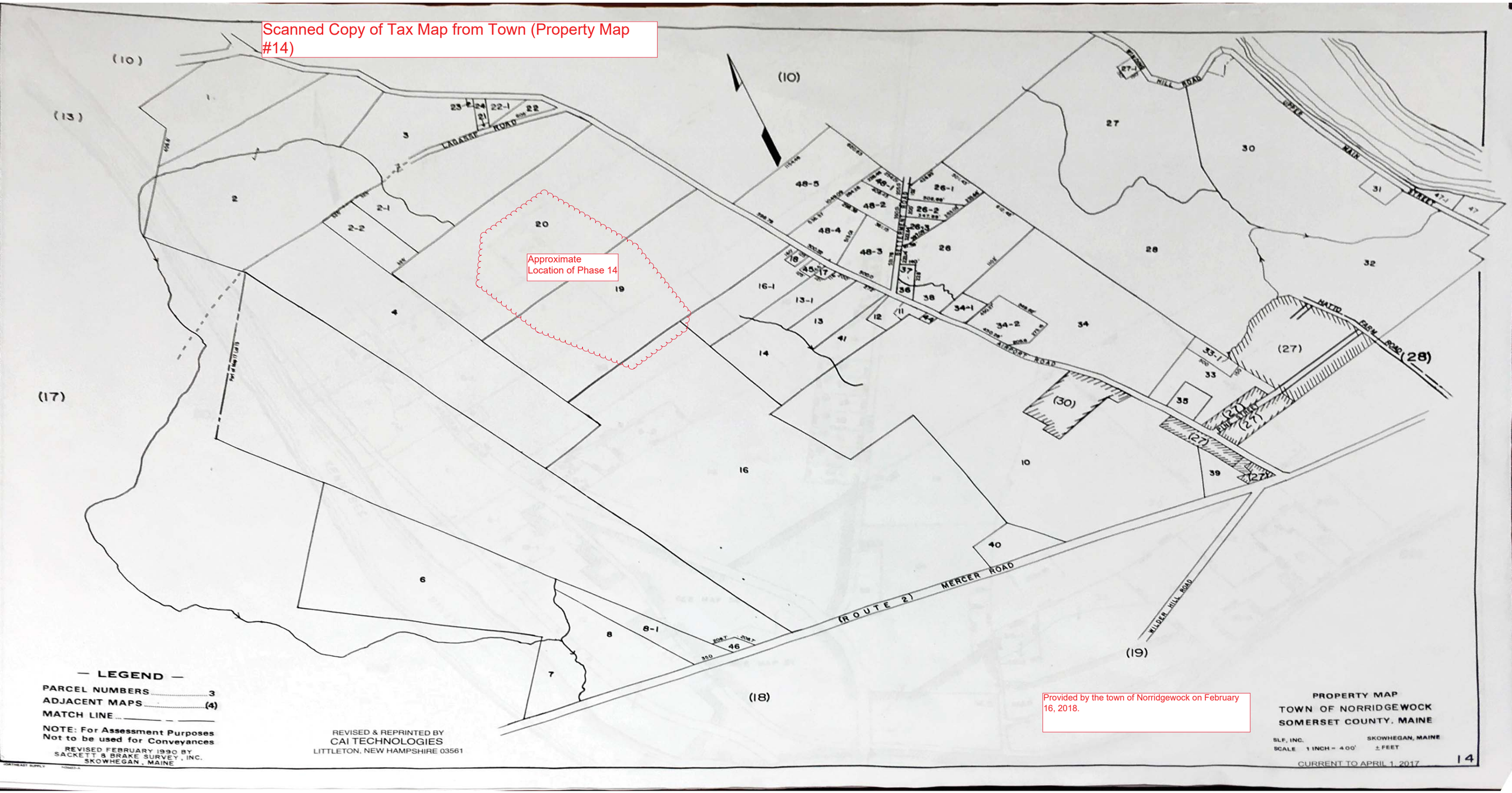
NORTHEAST SUPPLY N2M653-A

Digitized Tax Map (Property Map #10)

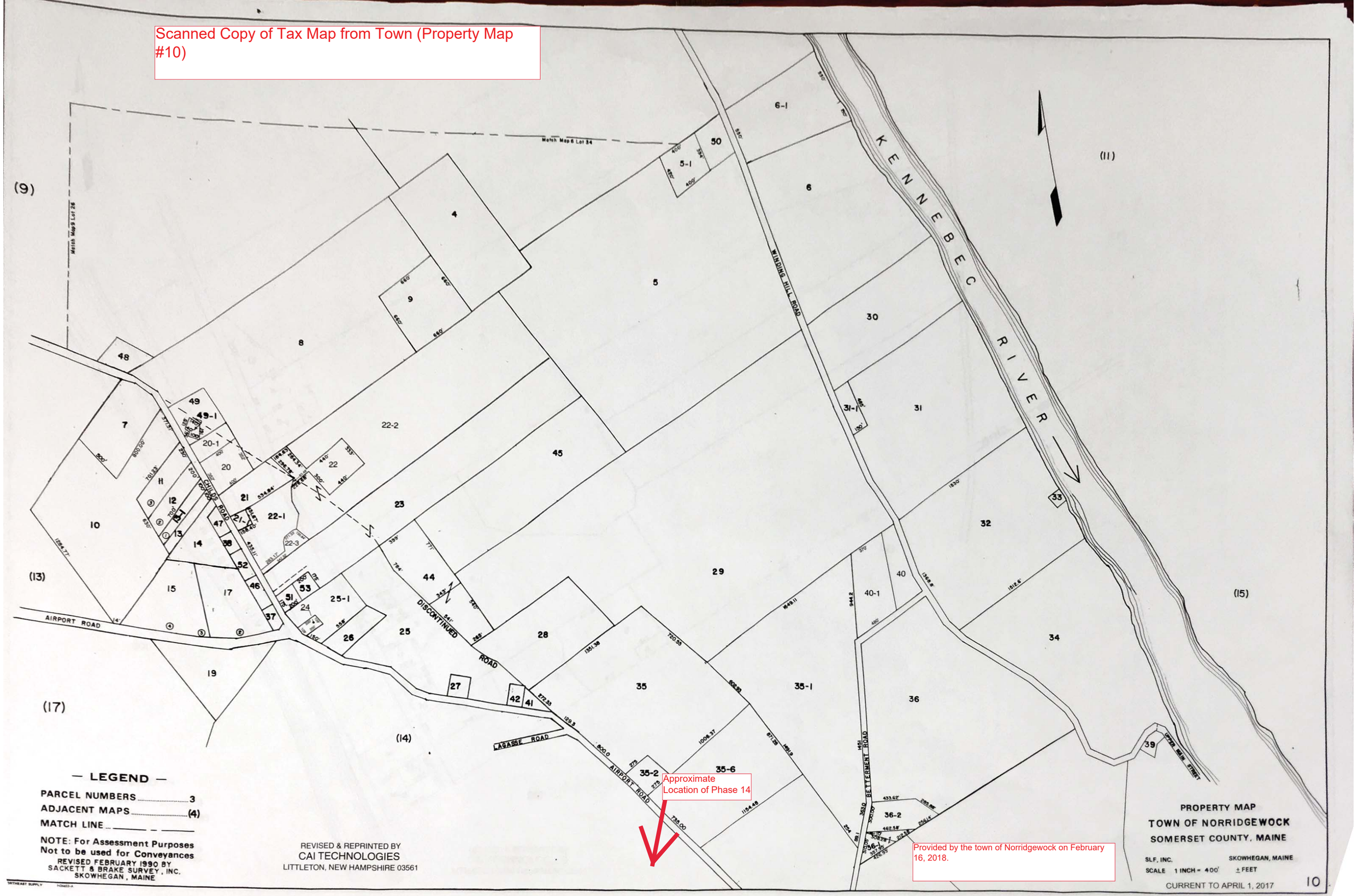


Downloaded from the Norridgewock town web-page (http://www.townofnorridgewock.com/tax.html) on February 12, 2018.

Scanned Copy of Tax Map from Town (Property Map #14)



Scanned Copy of Tax Map from Town (Property Map #10)



WARRANTY DEED

KNOW ALL MEN BY THESE PRESSNTS, THAT WE, ELIZABETH P. LAPPIE and HERBERT D. LAPPIE, also known as Daniel Lappie, husband and wife, of Norridgewock, County of Somerset and State of Maine, whose mailing address is RFD#2, Box 292, Norridgewock, Maine 04957,

14283

in consideration of one dollar and other valuable considerations paid by CONSOLIDATED WASTE SERVICES, INC. A Corporation organized and existing under the laws of the State of Maine, and having a place of business at Bangor, Penobscot County, State of Maine,

the receipt whereof we do hereby acknowledge, do hereby GIVE, GRANT, BARGAIN, SELL and CONVEY unto the said CONSOLIDATED WASTE SERVICES, INC.

A certain lot or parcel of land, together with any buildings thereon, situated in Norridgewock, County of Somerset, and State of Maine, bounded and described as follows, to-wit:

Beginning at a point, said point being marked by a 1/2-inch iron rebar on the southerly limits of the Airport Road, said point also being the northeasterly corner of land now or formerly of Charles H. Blood;

Thence S.72°10'23"E. along the southerly limits of the Airport Road 130.36 feet to a 1/2-inch iron rebar at the westerly corner of land now or formerly of David and Janice Decato;

Thence S.30°40'13"E. along the line of land of said Decato 1023.85 feet to a wooden post at the southerly corner of land of said Decato;

Thence S.23°37'11"W. along the line of land now or formerly of Emery Warren 406.34 feet to a 2-inch iron pipe at the southwest corner of said Warren and at the northwest corner of land now or formerly of Glenn R. and Joyce M. Totman, and thence continuing S.23°37'11"W. along the line of land of said Totman 807.47 feet to a 1/2-inch iron rebar at the southwest corner of land of said Totman;

Thence S.53°40'54"E. along the line of land of said Totman, 839.81 feet to a 1/2-inch iron rebar and continuing S.53°40'54"E. 29.53 feet along the line of land of said Totman to a point;

Thence S.30°38'37"E. along the line of land now or formerly of Edward and Gloria Frederick 113.61 feet to a 1/2-inch iron rebar, said rebar being at the northwesterly corner of land now or formerly of Herbert D. and Elizabeth P. Lappie;

Thence S.30°21'23"W. along the line of land of said Lappie 1474.65 feet to a granite stone and continuing S.30°21'23"W. along the line of land now or formerly of Arthur Chester Frederick 1113.76 feet to a 1/2-inch iron rebar at the northeasterly corner of land now or formerly of Joseph E. and Irene M. Pion;

Thence N.59°21'48"W. along the line of land of said Pion, being along the remains of a wire fence 237.15 feet to a point;

Thence N.53°24'17"W. along the line of land of said Pion, being along the remains of a wire fence 254.13 feet to a point;

Thence N.64°04'26"W. along the line of land of said Pion, being along the remains of a wire fence 119.29 feet to a point;

Thence N.55°59'13"W. along the line of land of said Pion, being along the remains of a wire fence 149.71 feet to a 1/2-inch iron rebar at the southeasterly corner of land now or formerly of David W. and Elizabeth Y. Andrews;

Thence N.27°48'11"E. along the line of land of said Andrews 560.37 feet to a 1-inch iron pipe at the northeasterly corner of land of said Andrews;

Thence N.54°51'49"W. along the line of land of said Andrews 882.70 feet to a 1/2-inch iron rebar at the northwesterly corner of land of said Andrews;

Thence S.30°45'11"W. along the line of land of said Andrews 663.24 feet to a 1/2-inch iron rebar at the southwesterly corner of land of said Andrews, and on northerly line of land now or formerly of Leslie M. and Caroline G. Hilton;

Thence N.60°53'06"W. along the line of land of said Hilton, being along the remains of a wire fence 338.98 feet to a 1/2-inch iron rebar at the northwesterly corner of land of said Hilton and on the easterly line of land now or formerly of Avis E. and Alice E. Emery;

Thence N.28°46'21"E. along the line of land of said Emery and along the line of land of said Blood 4417.92 feet to the point of beginning.

Said parcel to contain 150.11 acres.

All bearings are referenced to Magnetic North 1983.

Together with a 33-foot wide right-of-way, which is unrestricted as to use and is hereinafter described as follows:

Beginning at a 1/2-inch iron rebar on the northerly line now or formerly of David W. and Elizabeth Y. Andrews, said rebar being N.54°51'49"W. 106.39 feet from a 1-inch iron pipe, said iron pipe being at the northeasterly corner of land of said Andrews;

Thence S.28°53'11"W. 568.45 feet to a 1/2-inch iron rebar, said rebar being N.59°26'24"W. 116.40 feet from another 1/2-inch iron rebar at the southeasterly corner of land of said Andrews;

Thence N.61°49'49"W. 33 feet to a 1/2-inch iron rebar. said rebar being S.61°49'49"E., 760.36 feet from another 1/2-inch iron rebar at the southwesterly corner of land of said Andrews;

Thence N.28°53'11"E. 572.48 feet to a 1/2-inch iron rebar on the northerly line of land of said Andrews, said rebar being N.54°51'49"W. 139.59 feet from a 1-inch iron pipe at the northeasterly corner of land of said Andrews;

Thence S.54°51'49"E. 33.20 feet to the point of beginning.

Reference may be had to a Map Plan dated October 28, 1983, entitled "Boundary Survey - Herbert D. & Elizabeth P. Lappie - Norridgewock - Somerset Co. - Maine", prepared by Robert Garbacik, Land Surveyor No. 1182, recorded in Somerset County Registry of Deeds, Plan File C-83-156.

Subject to the conditions and restrictions contained in the Site Location Order recorded in Somerset County Registry of Deeds, Volume 864, Page 198.

Reference may be had to a deed of Elizabeth P. Lappie to Herbert D. Lappie and Elizabeth P. Lappie dated May 4, 1978, recorded in Somerset County Registry of Deeds, Volume 891, Page 694.

TO HAVE AND TO HOLD the aforegranted and bargained premises, with all the privileges and appurtenances thereof to the said CONSOLIDATED WASTE SERVICES, INC., its successors and assigns, to its and their use and behoof forever.

AND we do COVENANT with the said Grantee, its successors and assigns, that we are lawfully seized in fee of the premises; that they are free of all encumbrances, except as aforesaid mentioned; that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs shall and will WARRANT AND DEFEND the same to the said Grantee, its successors and assigns forever, against the lawful claims and demands of all persons.

IN WITNESS WHEREOF, we the said ELIZABETH P. LAPPIE and HERBERT D. LAPPIE, husband and wife, of the said Norridgewock, Somerset County, Maine, joining this deed as Grantors, and relinquishing and conveying our rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this twenty-second day of December, in the year of our Lord one thousand nine hundred and eighty-three.

SIGNED, SEALED AND DELIVERED
IN PRESENCE OF:

Witness — Elizabeth P. Lappie
Elizabeth P. Lappie

Witness — Herbert D. Lappie
Herbert D. Lappie

STATE OF MAINE
PENOBSCOT, ss.

December 22, 1983

Personally appeared the above-named Elizabeth P. Lappie and Herbert D. Lappie and acknowledged the above instrument to be their free act and deed.

Before me,

Wallace A. Bilodeau (SEAL)
Notary Public

Somerset County
REC'D DEC 23 1983 AT 8 H. 30 M. A. M.
and recorded from the original

HERBERT D. LAPPIE, also known as Daniel Lappie, and ELIZABETH P. LAPPIE, husband and wife,

of Norridgewock, Somerset County, Maine

~~(being married)~~, for consideration paid,

grant to CONSOLIDATED WASTE SERVICES, INC., a corporation organized and existing under the laws of Maine, and having a place of business at Bangor, County of Penobscot and State of Maine,

1.1385

with Warranty Covenants

the land in Norridgewock, Somerset County, State of Maine.

A certain lot or parcel of land situated in Norridgewock, County of Somerset and State of Maine, bounded and described as follows, to-wit: On the north by the C.P. Bigelow farm; on the east by land of W.S. Tobey and N. Miller; on the south by the highway leading from Norridgewock to Mercer; on the west by land of Dan Nason and the Stephen Holway farm, containing one hundred ten (110) acres, more or less.

Excepting and reserving those premises conveyed to David A. Sincyr and Marie N. Sincyr by deed from Leo J. Redmond and Hazel H. Redmond dated May 10, 1968, recorded in Somerset County Registry of Deeds, Book 779, Page 101, now owned by said Marie N. Sincyr and more particularly described as follows; viz: "Beginning on the northerly line of the highway leading from Norridgewock to Mercer at the southwest corner of land conveyed to Leo J. Redmond and Hazel H. Redmond by William E. Clayton, et al, by deed dated November 18, 1965 and recorded in said Registry, Book 730, Page 159; thence running easterly along the northerly line of said highway two hundred eight and seven-tenths (208.7) feet to an iron stake set in the ground; thence running northerly parallel with the westerly line of land conveyed to the Redmonds by Clayton et al, above mentioned, two hundred eight and seven-tenths (208.7) feet to another iron stake set in the ground; thence running westerly parallel with said highway two hundred eight and seven-tenths (208.7) feet to another iron stake set in the ground; thence running southerly along the westerly line of land conveyed to said Redmonds by said Claytons two hundred eight and seven-tenths (208.7) feet to the point of beginning."

Being a portion of the premises conveyed to Leo J. Redmond, et al by deed from William E. Clayton, et al., dated November 18, 1965, recorded in said Registry of Deeds, Book 730, Page 159. Being the same premises conveyed by David A. Sincyr to said Herbert D. Lappie and Elizabeth P. Lappie by deed dated May 4, 1978, recorded in said Registry of Deeds, Book 891, Page 692.

Herbert D. Lappie and Elizabeth P. Lappie join as grantors and release all rights by descent and all other rights.

~~wife of said grantor~~

~~joins as grantor and releases all rights by descent and all other rights~~

Witness our hands and seals this 22nd day of December, 1983

Wallace A. Bilodeau — Herbert D. Lappie

Witness — Elizabeth P. Lappie

The State of Maine — Penobscot, ss. December 22, 1983

Then personally appeared the above named HERBERT D. LAPPIE

SEAL

and acknowledged the foregoing instrument to be his free act and deed,

Before me, Wallace A. Bilodeau

~~Justice of the Peace~~ ~~Attorney at Law~~ - Notary Public

Wallace A. Bilodeau

Somerset County
REC'D DEC 23 1983 AT 8 H 30 M. A.M.
and recorded from the original

(20) S WARRANTY DEED

Maine Real Estate Transfer Tax Paid

Know All Men By These Presents.

That David W. Andrews and Elizabeth Y. Andrews, husband and wife, both of Norridgewock, Somerset County, Maine
(Mailing Address: R.F.D. #2, Box 360, Norridgewock, Maine 04957)

07402

in consideration of One dollar and other valuable consideration

paid by Consolidated Waste Services, Inc., a corporation organized and existing under the laws of the State of Maine, and having a place of business at Norridgewock, Somerset County, Maine
(Mailing Address: Airport Road, P.O. Box 629, Norridgewock, Maine 04957)

the receipt whereof we *do hereby acknowledge, do hereby*

give, grant, bargain, sell and convey *unto the said* Consolidated Waste Services, Inc., its successors and assigns

~~heirs and assigns~~ *forever,*

~~a certain lot or parcel of land~~

A certain lot or parcel of land situated in Norridgewock, County of Somerset, State of Maine, being on the easterly side of the road leading from Frederick's Corner to Starks and at the northerly termination of the Town Road, so-called, and bounded and described as follows, to-wit:

Beginning at a pipe, said pipe being at the intersection of the southerly line of land now or formerly of Willis Tryon, and the easterly side line of a private right-of-way, being the one described and excepted below; thence following an old wire fence N 61° 58' W a distance of 793.36 feet to a pipe; thence along land of Willis Tryon N 30° 37' E a distance of 665.12 feet to a pipe; thence along land of Willis Tryon S 55° E a distance of 882.7 feet to a pipe; thence along land of Willis Tryon S 27° 40' W a distance of 558.25 feet to a pipe; thence along an old rail fence N 61° 33' W a distance of 116.4 feet to the point of beginning.

EXCEPTING AND RESERVING to Willis Tryon, his heirs and assigns forever a right-of-way across the granted premises being 33 feet in width and described as follows: Beginning at the northerly terminal of the said Town Road; thence N 28° 45' E 572.1 feet across the granted premises to other land of Willis Tryon. Said right-of-way to be unrestricted to use.

Being the same premises conveyed to David W. Andrews and Elizabeth Y. Andrews by deed of Earl B. Babcock and Mary K. Babcock dated October 17, 1977 and recorded in the Somerset County Registry of Deeds in Book 884, Page 236.

This instrument is given in satisfaction of the obligations of David W. Andrews and Elizabeth Y. Andrews under an option agreement dated November 19, 1984, a memorandum of which is recorded in Somerset County Registry of Deeds, Book 1166, Page 284. Paragraphs 5, 6, 7 and 9(b) of the option agreement provided as follows, and are made a part of this instrument:

> "(5) The Sellers may, at their option and upon notice to the Buyer, be entitled to exclusive use and occupancy of the premises for a period of one year after closing without the payment of rent to the Buyer, provided that the Sellers shall be responsible for and pay all utilities and maintain the premises as they now are, reasonable wear and tear and act of God excepted, and provided, further that they shall not commit waste.

(6) In addition to the right of the use and occupancy given to Sellers in paragraph (5) of this agreement, Sellers may, at their option, extend such right to use and occupancy for an additional six (6) month period, upon the same terms and conditions as set forth in paragraph (5), except that Sellers, in order to exercise such right, must give notice to Buyer and pay, in advance, the sum of One Thousand Dollars ($1,000.00) at least fourteen (14) days prior to expiration of the one year period.

(7) During any period of use and occupancy of the premises by Sellers, they hereby covenant and agree to indemnify, save and hold harmless the Buyer from all claims, including costs of investigation and defense, losses, damages, judgments or settlements which may be made against Buyer as a result, or claimed to be as a result, of any use or activity thereof by Sellers.

(9)(b) The Sellers shall have the right to remove all fences upon the premises at any time up and until the time when they finally vacate the premises."

To Have and to Hold *the aforegranted and bargained premises with all the privileges and appurtenances thereof to the said*

Consolidated Waste Services, Inc., its successors

~~heirs~~ *and assigns, to* it *and their use and behoof forever.*

And we *do COVENANT with the said Grantee* ,its successors ~~heirs~~ *and assigns, that* we are *lawfully seized in fee of the premises that they are free of all encumbrances:*

that we *have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that* we *and* our *heirs shall and will WARRANT and DEFEND the same to the said Grantee* , its / successors ~~heirs~~ *and assigns forever, against the lawful claims and demands of all persons.*

In Witness Whereof, David W. Andrews and Elizabeth Y. Andrews, husband and wife,

~~joining in this deed as Grantors and relinquishing and conveying rights by descent and all other rights in the above described premises~~, *have hereunto set* our *hand* s *and seal* s *this* 30th *day of* July *in the year of our Lord one thousand nine hundred and* eighty-five.

Signed, Sealed and Delivered in presence of

Clinton B. Townsend

Clinton B. Townsend

David W. Andrews

David W. Andrews

Elizabeth Y. Andrews

Elizabeth Y. Andrews

State of Maine, Somerset } ss. July 30, *19* 85

Personally appeared the above named David W. Andrews and Elizabeth Y. Andrews *and acknowledged the above instrument to be* their *free act and deed.*

Before me, Clinton B. Townsend SEAL

CLINTON B. TOWNSEND
Notary Public - Typed Name

~~Justice of the Peace.~~
Notary Public

RECEIVED SOMERSET SS
1985 JUL 31 AM 9:15
RECORDED FROM ORIGINAL

DISCHARGE OF MORTGAGE 038705

KNOW ALL MEN BY THESE PRESENTS, that I, DOUGLAS R. FARRIN, owner of a certain mortgage given by LARRY J. SMITH dated June 10, 1975, and recorded in the Somerset County Registry of Deeds, in Book 1234, Page 148, do hereby acknowledge that I have received full payment and satisfaction of the same, and I do hereby cancel and discharge said mortgage and release unto the said LARRY J. SMITH his heirs and assigns forever the premises therein described.

IN WITNESS WHEREOF, I, DOUGLAS R. FARRIN have hereunto set my hand and seal, this 12thday of April, 1989.

Signed, Sealed and Delivered
in Presence of

Judith A. Mesnbley

Douglas R. Farrin
DOUGLAS R. FARRIN

STATE OF MAINE
SOMERSET, ss.

Personally appeared the above named DOUGLAS R. FARRIN and acknowledged the foregoing instrument to be his free act and deed.

Before me,

Judith A. Mesnbley
Notary Public

JUDITH A. MESNBLEY
NOTARY PUBLIC, MAINE
MY COMMISSION EXPIRES OCTOBER 6, 1994

SEAL

RECEIVED SOMERSET SS
1989 APR 14 PM 12:00
RECORDED FROM ORIGINAL

Maine Real Estate
Transfer Tax Paid

WARRANTY DEED

JAMES R. DELORIE and DENISE J. DELORIE, husband and wife, both of Norridgewock, Somerset County, Maine (Mailing Address: P.O. Box 307, Norridgewock, Maine 04957), for consideration paid, grant to CONSOLIDATED WASTE SERVICES, INC., a corporation organized and existing under the laws of the State of Maine and having its principal office at 33 Rigby Street, South Portland, Maine 04106, its successors and assigns, with WARRANTY COVENANTS, the land in Norridgewock, Somerset County, Maine, bounded and described as follows:

00599

A certain lot or parcel of land with the buildings thereon situated in Norridgewock, Somerset County, Maine, and being more particularly bounded and described as follows, to-wit:

Being located at the junction of the road leading from said Frederick's Corner Road to Sandy River with the road leading from said Frederick's Corner Road to the Charles Road, so-called, said latter road formerly having been known as the Lagasse Road, and now being known as the Pion Road; bounded on the south by the highway leading from Frederick's Corner to Starks, on the west by the highway leading northerly from the first named highway to the Charles Road, so-called, now known as the Pion Road; on the north by Charles P. Bigelow Farm, later owned by Cassius G. Everett; bounded on the east by land formerly owned by the Heirs of Stephen Halway; later owned by Chester L. Frederick; containing 50 acres, more or less.

Excepting and reserving to the grantors, their heirs and assigns, a certain parcel land more particularly described to wit:

Commencing at a point which is marked by a three quarter inch iron rebar driven in a stone wall on the easterly sideline of the Grantors herein. Said point being North Twenty-nine degrees, Thirty-five minutes, sixteen seconds east, five hundred and eighty-nine point eighty-three feet (N 29°-35'-16"E; 389.83') from

a two inch iron pipe located on the northerly sideline of the Frederick's Corner Road, said iron pipe being at the southeasterly corner of land of the Grantor's herein; Thence, north seventy-two degrees thirty three minutes fifty-nine seconds west (N 72°-33'-59"W) along a blazed and painted line a distance of three hundred and twenty-two point sixty-two feet (322.62') to a point marked by a three quarter inch iron rebar set in the ground; Thence north twenty-five degrees zero minutes forty-six seconds west (N 25°-00'-46"W) a distance of four hundred and twenty-nine point eighty nine feet (429.89') to a point marked by a three quarter inch iron rebar set in the ground; Thence north twenty-nine degrees forty-three minutes fifty seconds east (N 29°-43'-50"E) a distance of three hundred and nine point fifty-seven feet (309.57') to a point marked by a three quarter inch iron rebar set in the ground; Thence south sixty degrees east (S 60°E) twelve feet (12') plus or minus (±) to the thread of Mill Stream; Thence easterly along the thread of said stream a distance of six hundred and ninety feet more or less (690'±) to the easterly sideline of land of Grantor's herein; Thence south twenty-nine degrees twenty minutes thirty seconds west (S 29°-29'-30"W) a distance of twenty eight feet plus or minus (29'±) along the easterly sideline of land of the Grantor's herein to a point marked by a three quarter inch iron rebar set in the ground; Thence south twenty-nine degrees twenty minutes thirty seconds west (S 29°-20' -30"W) along a barb wire fence and stone wall a distance of three hundred and forty-eight point sixty-seven feet (348.67') to the point of beginning, said barb wire fence and stone wall being the easterly sideline of the Grantor's herein, containing five point seven (5.7) acres more or less.

Also excepting and reserving to the grantors, their heirs and assigns, a right-of-way 25 feet in width to the excepted and reserved parcel for all purposes; the centerline being described as follows, to wit:

Beginning at a point on the easterly sideline of the Pion Road said point being eight hundred and eighty-one point sixty-six feet (881.66') northerly from the intersection of the easterly sideline of the Pion Road and the northerly sideline of the Frederick's Corner Road; Thence south eighty degrees zero minutes twenty-one seconds east (S 80°-00'-21"E) along the centerline of an existing paved driveway a distance of twenty-nine feet plus or minus (29'±) to a

point; Thence south thirty-nine degrees forty-one minutes fifty-one seconds east (S 39°-41'-51"E) no longer following the existing driveway a distance of eighty point eighty-six feet (80.86') to a point; Thence south sixty degrees east (S 60°E) one hundred and ten point sixty-five feet (110.65') to a point on the westerly sideline of parcel herein reserved said point being north twenty-nine degrees forty-three minutes fifty seconds east (N 29°-43'-50"E) twenty-six point eighty four feet (26.84') from a point being the south westerly corner of the parcel herein reserved, said point being marked by a three quarter inch iron rebar.

Being a portion of the premises conveyed by Ronald C. Currier and Laurelee H. Currier to James R. Delorie and Denise J. Delorie by deed dated June 16, 1987 and recorded in Somerset County Registry of Deeds, Book 1351, Page 316.

The above described premises are subject to a mortgage given by James R. Delorie and Denise J. Delorie to Merrill Trust Company (now known as Fleet Bank) dated June 16, 1987 and recorded in Somerset County Registry of Deeds, Book 1351, Page 317.

WITNESS our hands this 18th day of January, 1990.

Witness — James R. Delorie

Witness — Denise J. Delorie

STATE OF MAINE
SOMERSET, ss.

January 18, 1990

Then personally appeared the above named JAMES R. DELORIE and DENISE J. DELORIE and acknowledged the foregoing instrument to be their free act and deed.

Before me,

Notary Public

Geoffrey F Brown
Typed Name - Notary Public

RECEIVED SOMERSET SS

1990 JAN 19 AM 8:30

RECORDED FROM ORIGINAL

Doc 8157 Bk 5174 Pg 341
Recorded: Somerset County Jul 05,2017 10:57A
Deputy Register of Deeds Laura L Price

TRANSFER TAX PAID

Warranty Deed

I, **Allison J. Keating, also known as Allsion J. Keating** ("Grantor"), of 2220 Swedish Drive, Unit 60, Clearwater, FL for consideration paid in the amount of [redacted] does hereby give, grant, bargain, sell and convey, to Waste Management Disposal Services of Maine, Inc. ("Grantee"), with address of 720 East Butterfield Road, 4th Floor, Lombard, IL.

With ***WARRANTY COVENANTS***

Certain lots or parcels of land located in Norridgewock, Somerset County, State of Maine, situated generally westerly or southwesterly of the Airport Road, so-called, referred to in previous deeds as the Childs Road, or the Starks Road, and collectively abutting thereto, being bounded and described as follows:

Parcel One: Beginning on the south side of said Road at the dividing line of land formerly owned by S.H. Crosby and land formerly owned by Levi Powers; thence S-62°-W, by said line, about one hundred and twenty-seven (127) rods to the corner of said Powers lot; thence northwesterly (sic: northeasterly) on the southerly line of said Powers lot fifteen (15) rods to a cedar stake marked; thence southeasterly, parallel to the first named line to the road aforesaid; thence by said road fifteen rods to the first mentioned bound. Containing twelve and one-half acres, more or less.

Parcel Two: Beginning on said Road at a cedar stake, thence running S-62°-W one hundred and twenty-seven (127) rods, more or less, on line of land formerly owned by Levi Powers and Loring B. Jones, to a point marked by a cedar stake; thence northwesterly fifteen (15) rods to a point marked by a second cedar stake; thence on a line parallel with the first above described line on a bearing of N-62°-E to said Road; thence on said Road to the place of beginning. Containing twelve (12) acres, more or less.

Parcel Three:

Lot 1: Bounded on the east by said Road; on the south by land now or formerly of the Estate of

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the late James Trench; on the west by the line of lot seventy-two (72) of which said lot is a part, and land formerly owned by William S. Tobey; on the north by the old rangeway and by land formerly owned by W. W. Gould.

Lot 2: Commencing at said Road at a point marked by a cedar stake at the northeast comer of land conveyed by Levi Powers to Stephen D. and John H. Burgess on the 27th day of November, 1863; thence running S-62°-W about one hundred twenty-seven rods to a point marked by a cedar stake on a line with the land conveyed to said Burgess as above described thence on a line running northwesterly seven and one-half (7 and 1/2) rods to a point marked by a cedar stake; thence on a line parallel with the first described line, N-62°-E, to said Road; thence on said Road to first described bound.

The premises herein conveyed have been subject of a survey by Robert Garbacik, P.L.S. #1182 dated November 7, 1997 and the Grantor does hereby additionally give, grant, bargain, sell and convey to said Grantee, its heirs and assigns forever, the above described premises by a description based on said survey as follows:

Beginning at a point in the southwesterly sideline of said Airport Road, assuming a width thereof of four rods, marked by a ½" iron rebar with cap inscribed #1182 at the northeasterly comer of land now or formerly of Waste Management of Maine, Inc., with reference to an instrument recorded in the Somerset County Registry of Deeds in Book 1871, Page 62; thence on a compass bearing of S-64°-14'-20"-W, along the northwesterly line of said now or former land of Waste Management of Maine, Inc., a distance of 2,439.33 feet to a point in the line of land now or formerly of Edward & Gloria Frederick, with references to an instrument recorded in said Registry in Book 777, Page 1192 and marked by a wood post marked "Harlow 1931-Tibbetts" located 0.42 feet on a compass bearing ofN-85°-08'-30"-W from a point marked by a 3" iron fence post; thence from said point marked by said wood post on a compass bearing of N-27°- 59'-45"-W, along the line of said now or former Frederick land, a distance of 1,014.75 feet to another point marked by a ½" iron rebar with cap inscribed #1182 in the line of land now or formerly of P.J. Realty Trust with reference to instruments recorded in said Registry in Book 1711, Page 301 and Page 303; thence on a compass bearing of N-64°-14'-20"-E, along the southeasterly line of said now or former land of P. J. Realty Trust, and along the southeasterly line of land now or formerly of Lester J. & Marlene K. Clark, with reference to an instrument recorded in said Registry in Book 862, Page 278, a distance of 2,327.10 feet, to another point marked by a ½" iron rebar with cap inscribed #1182 in the southwesterly line of said Airport Road at the southeasterly comer of said now or former Clark land; thence on a compass bearing of S-34°-16'-30"-E, along the southwesterly line of said Road, a distance of 1,025.28 feet to the point of beginning. Being the 55.48 acre parcel shown on survey of land of former owner, Thomas R. Dhillon, recorded in Plan File 2001, Page 42.

Being the same premises acquired by the Grantor in warranty deed from Thomas R. Dillon dated September 9, 1999, and recorded in the Somerset County Registry of Deeds in Book 2601, Page 223.

Title not examined by preparer of deed.

To have and to hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Grantee, its successors and assigns, to its and their use and behoof forever.

And I do covenant with the said Grantee, its successors and assigns, that I am lawfully seized in fee of the premises, that they are free of all encumbrances that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs shall and will warrant and defend the same to the said Grantee, its successors and assigns forever, against the lawful claims and demands of all persons.

In witness whereof, I, Allison J. Keating, also known as Allsion J. Keating, relinquishing and conveying all rights in above premises, have hereunto set my hand and seal this 26th day of June, 2017.

Executed as a sealed instrument this 20th day of June, 2017.

Allison J. Keating

STATE OF FLORIDA

Pinellas County, ss.

On 20 day of June, 2017, before me, the undersigned notary public, personally appeared Allison J. Keating, and who proved to me through satisfactory evidence of identification, which was a driver's license, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that she signed it voluntarily for its stated purpose as a free act and deed.

Notary Public: Tyler Duncan
My Commission Expires: July 1 2020

TYLER DUNCAN
Notary Public - State of Florida
Commission # FF 989139
My Comm. Expires Jul 1, 2020

Doc 3994 Bk 5398 Pg 244
Recorded: Somerset County Apr 16,2019 10:29A
Register of Deeds Laura L Price

WHEN RECORDED RETURN TO:

VERRILL DANA, LLP
One Portland Square
Portland, ME 04112-0586
Attention: Juliet Browne

NO TRANSFER TAX

QUITCLAIM DEED WITHOUT COVENANT

WASTE MANAGEMENT OF MAINE, INC., a Maine Corporation with a place of business in Portland, Maine, for consideration paid, hereby releases to **WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC.**, a Maine Corporation with a mailing address of 357 Mercer Rd., Norridgewock, ME 04957, all right, title and interest in and to certain real estate located in the Town of Norridgewock, County of Somerset and State of Maine, more particularly described in Exhibit A attached hereto and made a part hereof.

IN WITNESS WHEREOF, the undersigned has caused this instrument to be executed as of the 2nd day of April, 2019.

WITNESS:

Vidya VIDYA DARSHANE

WASTE MANAGEMENT OF MAINE, INC.

By: [signature]
Print: James A. Wilson
Its: Vice President

STATE OF MAINE
COUNTY OF SOMERSET

~~March~~ April 2, 2019

Personally appeared before me the above-named James A. Wilson, the Vice President of Waste Management of Maine, Inc., and acknowledged the foregoing instrument to be his/her free act and deed in said capacity, and the free act and deed of Waste Management of Maine, Inc.

OFFICIAL SEAL
Cynthia Schultz
NOTARY PUBLIC, STATE OF ILLINOIS
My Commission Expires Sept 23, 2022

Cynthia Schultz
Notary Public
Print Name: CYNTHIA SCHULTZ
My Commission Expires: 9-23-22

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EXHIBIT A

Norridgewock Tax Map 14, Lots 14, 16, 16-1, 18 and 19

Those certain lots or parcels of land located in the Town of Norridgewock, County of Somerset and State of Maine described in the following deeds:

1. Warranty Deed from Kendall K. Baker and Barbara H. Baker dated November 20, 1992 and recorded in Book 1840, Page 244, and re-recorded in Book 1846, Page 136, of the Somerset County Registry of Deeds.

2. Warranty Deed from Raymond L. Lancaster and Emerald A. Lancaster dated January 28, 1993 and recorded in Book 1861, Page 98 of said Registry.

3. Warranty Deed from Laura C. Doyle dated March 11, 1993 and recorded in Book 1871, Page 62 of said Registry.

4. Warranty Deed from Stephen P. Pomelow and Donna L. Pomelow dated June 14, 1993 and recorded in Book 1895, Page 118 of said Registry.