DRAFT ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES AND CONCEPTUAL REMEDIAL ACTION PLAN

Fuel Storage Area – West
Former Great Northern Paper Mill
50 Main Street
East Millinocket, Maine 04430

MEDEP Site Remediation No. REM02048

June 18, 2026

TRC Project No. 636165

Prepared For:

The Town of East Millinocket
53 Main Street
East Millinocket, Maine 04430

EPA Brownfields Cleanup Grant
Cooperative Agreement No. 4B00A01955

Prepared By:

TRC Environmental Corporation
63 Marginal Way, 4th Floor
Portland, Maine 04101

Prepared by:
Zachary Bonin, PG
Project Manager/Geologist

Reviewed and Approved by:
Peter Sherr, PE
Brownfields Program Manager

TABLE OF CONTENTS

TABLES

FIGURES

APPENDIX

1.0 INTRODUCTION

1.1 Background

TRC Environmental Corporation (TRC) has prepared this Analysis of Brownfields Cleanup Alternatives (ABCA) and Conceptual Remedial Action Plan (RAP) on behalf of the Town of East Millinocket (the "Town") for the Fuel Storage Area-West at the former Great Northern Paper (GNP) Mill, located at 50 Main Street in East Millinocket, Maine 04430 (the "Site"). The Fuel Storage Area-West comprises approximately 5.5 acres of the larger 215-acre GNP property, as further described in Section 1.2.

The larger GNP Mill site was previously entered into the Maine Department of Environmental Protection (MEDEP) Voluntary Response Action Program (VRAP), with a No Action Assurance (NAA) Letter generated in 2023 and has been assigned MEDEP Site Remediation Number REM02048.

This ABCA is designed to summarize potential cleanup alternatives for addressing the cleanup and management of impacted media identified during previous investigations. The Town of East Millinocket plans to clean up and redevelop the Fuel Storage Area-West cleanup site to protect human and environmental health and prepare the site for future redevelopment. The cleanup will be funded, in part, by a United States Environmental Protection Agency (EPA) Brownfields Cleanup Grant No. 4B00A01955.

This ABCA includes the following:

- Summary of the evaluation of potential Remedial Alternatives for the Site;
- Summary of the remedial options and evaluation criteria;
- Preliminary cost estimates;
- Evaluation of the degree of effectiveness of the Remedial Alternative;
- Evaluation for ease of implementation for each Remedial Alternative;
- Recommended selection of Remedial Alternative(s); and
- Discussion of the resiliency to extreme weather conditions for the Remedial Alternatives.

The primary purpose of the Conceptual RAP is to outline a structured approach for the selected or recommended cleanup alternative to address contamination at this Brownfields Site. The approach is designed to ensure the Site is safe for reuse and that actions are protective of human health and the environment.

Prior Environmental Site Assessments (ESAs) have been completed for the Site, as summarized in Section 2.0. The prior ESA activities identified comingled hazardous substance and petroleum contaminated soil and groundwater conditions in the Fuel Storage Area-West portion of the Site along with potential hazardous building materials, which must be properly managed during future site cleanup and redevelopment activities. As such, this ABCA/RAP presents a summary of potential cleanup alternatives for addressing management of Site soils and the abatement of hazardous building materials associated with the building structures.

1.2 Site Description

The Former Great Northern Paper (GNP) Mill is located at 50 Main Street in East Millinocket, Maine. The approximate 215-acre mill site, identified by the Town of East Millinocket as Parcel Number 0001-2-00000-010, was originally developed in 1906, producing paper products as one of the region's largest employers, until its closure in 2014. The Town of East Millinocket acquired the former GNP Mill parcel on July 21, 2020.

During its operation, the GNP Mill complex comprised numerous buildings, a wood yard, a stormwater pond, aboveground oil storage tanks, storage sheds, parking areas, a vehicle maintenance garage, several pulp storage silos, and a wastewater treatment plant. Although the site is largely vacant at this time, numerous buildings and structures associated with the former mill operations remain present. To assist in the evaluation of environmental conditions at the former mill site, previous environmental investigations have divided the mill parcel into seven "Study Areas." The subject site comprises the western portion of Study Area 4 (Fuel Storage Area).

Comprising approximately 5.5 acres on the northern portion of the GNP Mill property, the western portion of the Fuel Storage Area (Fuel Storage Area – West) encompasses an existing 750,000-gallon fuel oil aboveground storage tank (AST) within an earthen berm, an associated heater house, rail car fuel unloading facilities, an approximately 5,000-gallon overflow AST, an oil pump house, subsurface piping/distribution utilities, and paved parking areas.

A Site Location Plan identifying the general Site vicinity is provided as **Figure 1**. A Site Layout Plan illustrating the general features and existing conditions of the Site is provided as **Figure 2**.

1.3 Historical Site Use

Construction of the fuel storage area occurred circa 1950, prior to which, this portion of the mill consisted of undeveloped land. Fuel storage operations within this area continued until mill operations ceased in 2014. In addition to the 750,000-gallon fuel oil AST located in the western portion of the Fuel Storage Area, a 2.4-million-gallon fuel oil AST was previously located in the eastern portion of the Fuel Storage Area.

No significant previous cleanup/remediation is known to have occurred in the western portion of the Fuel Storage Area. The fuel oil AST currently contains approximately 70,000 gallons of #6 fuel, which exhibits high sulfur content and impurities that prevent its direct recycling. An associated day-tank in the steam plant building to the south currently contains an estimated 10,000 gallons of this same #6 fuel oil.

1.4 Potential Future Site Use

The Town of East Millinocket sees the redevelopment of the GNP Mill as crucial to achieving its goals to revitalize its rural community, including the introduction of new or expanded job opportunities to entice employment and people back to the Town. To this end, the Town has developed a conceptual business and comprehensive plan for the former GNP Mill, which includes the assessment, cleanup, and redevelopment of the entire mill site in a phased approach for future commercial and light industrial use. The specific redevelopment of the Fuel Storage

Area includes the creation of a new main entrance to the future commercial/industrial business park with better access and safety.

Under this plan, the western portion of the Fuel Storage Area will see the remaining fuel storage equipment decommissioned to facilitate additional assessment of soil/groundwater underlying the equipment, as needed, and the removal and/or capping of soil contaminated with petroleum and co-mingled hazardous materials using a combination of both hardscapes (including paved parking areas and reconfigured access roads to improve access to the facility) and softscapes to enhance the appearance of the mill entrance. Dismantling and decommissioning the fuel storage equipment and regrading the site to remove the earthen berm will enhance the aesthetics of the East Millinocket downtown area and improve sightlines.

1.5 Purpose and Scope of Services

The purpose of this ABCA/RAP is to evaluate potential cleanup remedial action alternatives to be implemented at the Site during the proposed redevelopment and recommend/select a proposed remedial option(s), based on the findings of previous investigations and the proposed future use of the Site, as described in Section 1.4. The ABCA/RAP includes the following:

- Evaluation of the available remedial alternatives against evaluation criteria stated herein;
- Selection of the remedial alternative that best meets the objectives and considerations of the project and proposed end use; and
- Presentation of a general plan for implementation of the selected remedial alternative(s).

Prior to developing remedial alternatives for the Site, evaluation of the exposure scenarios to on-Site contaminants is also required, and presented herein, given the new proposed future use of the Site.

1.6 Objectives

Based on the information collected during previous environmental investigations (listed in Section 2.0), remedial options were considered for the Site and evaluated based on feasibility and ease of implementation, resiliency to extreme weather conditions, effectiveness and reliability, preliminary cost and cost effectiveness, schedule and time to implement the remedy and reach an endpoint of “no further action.”

Remedial consideration was given to the following goals:

- Eliminate or reduce potential or current exposure to receptors, to the extent possible;
- Eliminate or reduce the risk of exposure to potential future site users, site workers, and trespassers to the contamination identified based on the proposed future reuse of the Site; and
- Eliminate or reduce potential environmental impacts to off-site receptors, including environmental receptors.

The remedial alternatives evaluated in this ABCA include:

- Alternative 1: No Action.
- Alternative 2: Tank Decommissioning, Soil Cover Systems, and Onsite Management of Disturbed Soil.
- Alternative 3: Tank Decommissioning, Soil Cover Systems, and Offsite Disposal of Disturbed Soil.

Alternative 2 assumes that impacted soils will be excavated only, as necessary, to support Site redevelopment activities and implementation of MEDEP-approved engineered cover systems. Excavated contaminated soils will be managed on the mill site to the maximum extent practicable through in-place covering and onsite relocation and consolidation, followed by installation of MEDEP-approved engineered soil cover systems.

Alternative 3 also assumes that impacted soils will be excavated only, as necessary, to support Site redevelopment activities and implementation of a MEDEP-approved engineered cover systems. However, under this alternative, excess contaminated soils will be transported off-Site for disposal at a licensed disposal facility, with remaining soils left in place and subsequently covered by MEDEP-approved engineered cover systems. Additional details for Alternatives 2 and 3 are provided on **Figure 3** and in the preliminary cost estimates provided in **Appendix A**.

Section 2.0 of this report presents a summary of prior Site investigations completed to date and Section 3.0 presents the applicable cleanup goals. Sections 4.0 and 5.0 provide a detailed discussion of the evaluation criteria and evaluation of the proposed remedial alternatives for the identified impacted media. The recommended remedial alternatives are presented in Section 6.0.

2.0 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

TRC reviewed the following previous environmental reports regarding the Site:

- Phase I Environmental Site Assessment (ESA) – prepared by S.W. Cole Engineering (S.W. Cole), dated January 22, 2001;
- Phase I ESA – prepared by TRC, dated September 2014;
- Phase I ESA – prepared by Ransom Consulting, Inc. (Ransom), dated June 2019;
- Phase I ESA – prepared by Ransom, dated February 2020;
- Targeted Brownfields Assessment Report, Great Northern Paper Mill Study Areas 3, 6, 7 – prepared by KGSNE JV II, LLC, dated November 2023;
- Leachate Pipeline Construction Memorandum – prepared by Sevee & Maher Engineers (SME), dated July 15, 2024;
- Environmental Media Management Plan (EMMP), Great Northern Paper, East Millinocket, Maine – prepared by Campbell Environmental Group (CEG), September 24, 2024;
- Site-Specific Quality Assurance Project Plan (SSQAPP) Addendum, East Millinocket-B (Revision 1) – prepared by TRC, dated September 26, 2024;
- Draft Limited Phase II ESA, - prepared by TRC, dated November 2024;
- ABCA – Preliminary Evaluation, Fuel Storage Area – West, Former Great Northern Paper Mill – prepared by the Town of East Millinocket, dated November 2024; and
- Limited Subsurface Investigation and Waste Characterization Summary Report – prepared by TRC, dated June 2025.

Findings specific to the Site from the above previous environmental investigations are summarized below:

Based on previous Phase I ESAs, numerous spill incidents have occurred in the Fuel Storage Area over the years. According to the 2001 Phase I ESA prepared by S.W. Cole, in 1991, following the identification of a significant release of #6 fuel oil caused by a leak in an underground fuel line, SME conducted a subsurface investigation of the area consisting of twenty test pits in two #6 oil outbreak areas, which identified extensive #6 oil impacts of the area including “dense layers of oil and apparently mobile #6 oil in the vicinity of the underground steam pipes and within fill layers.” Based on the investigation, SME estimated that up to 6,500 cubic yards of soil had potentially been impacted by #6 fuel oil; however, no subsequent remediation of this area was completed. During more recent Phase I ESAs performed by TRC and Ransom between 2014 and 2020, ongoing staining and releases of #6 oil were observed within the unlined earthen berm of the 750,000-gallon fuel oil AST and on the ground surface at the adjacent petroleum offloading area.

In October 2015, during trenching for installation of a leachate pipeline through the GNP Mill parcel, separate-phase petroleum product impacting soil and groundwater were encountered within an approximately 140-foot segment of the trench in the parking lot area located directly south of the 750,000-gallon fuel oil AST. MEDEP was notified of the observed conditions and ultimately approved the reuse of the petroleum-impacted soil as backfill around the leachate line and the controlled re-infiltration of the impacted groundwater to the trench.

Based on a Limited Phase II ESA completed by TRC in October 2024, comingled hazardous substances and petroleum were identified in soil and/or groundwater at the Site. Specifically, significant petroleum staining and petroleum-saturated soil is present in the vicinity of the fuel unloading area and within the earthen berm surrounding the 750,000-gallon AST. A total of four hand-excavated soil borings were advanced in the accessible areas around the earthen berm surrounding the 750,000-gallon fuel oil AST. In addition to verifying the presence of petroleum-saturated surficial soil through visual and olfactory observations, results of confirmatory soil sampling and laboratory analysis conducted within accessible areas of the earthen berm area surrounding the fuel oil AST indicate concentrations of arsenic above the MEDEP Remedial Action Guidelines (RAGs), as well as concentrations of lead and polycyclic aromatic hydrocarbons (PAHs) above background levels that are comingled with the identified petroleum contamination. In addition, tank piping/ equipment and associated structures are presumed to be lined and/or to contain asbestos-containing materials (ACM) and lead-based paint (LBP).

3.0 PROPOSED SITE REUSE AND CLEAN-UP GOALS

Prior environmental investigations completed for the Site identified comingled subsurface impacts including separate-phase petroleum product, elevated concentrations of petroleum compounds in soil and groundwater, and concentrations of arsenic above MEDEP RAGS and lead and PAHs above background levels in soil. These investigations are documented and described in Section 2.0. The proposed redevelopment requires management of hazardous building materials (HBMs) to facilitate demolition/dismantlement of the 750,000-gallon AST and associated structures and the management of impacted soil and/or groundwater during earthwork activities.

3.1 Site Use and Site Classification

The Town of East Millinocket intends to redevelop the Site for the purpose of revitalizing its rural community through its conceptual business and comprehensive plan for the former GNP mill, which includes assessment and cleanup activities. The Town anticipates the Site to be redeveloped to include access roads, parking lots, and softscape features to serve as a new main entrance to the mill with better access and safety features. Redeveloping this Brownfields Site with sustainable development goals will be beneficial for the Town of East Millinocket through the beneficial reuse of the industrial property.

3.2 Cleanup Oversight Responsibility

The cleanup will be overseen by the MEDEP VRAP and the EPA. The Town of East Millinocket has contracted with TRC as the cleanup Qualified Environmental Professional (QEP), responsible for ensuring the state and/or federal regulations are adhered to during the cleanup.

3.3 Applicable Cleanup Goals

The project area is anticipated to be reused for access roads, parking lots, and softscape features to serve as a new main entrance to the former mill, which is currently being redeveloped in a phased approach for commercial and light industrial reuse. Therefore, the MEDEP RAGs for the “Commercial Worker” exposure scenarios are applicable to surficial soils (0-2 feet below ground surface [bgs]) and the MEDEP RAGs for the “Construction Worker” exposure scenario are applicable to soils in the subsurface (greater than 2 feet bgs). Additionally, the 2024 MEDEP-approved EMMP must be followed during any earthwork activities related to cleanup and redevelopment of the Site.

Public water is supplied to the Site and vicinity. Therefore, the MEDEP RAGs for the “Construction Worker” exposure scenario would be the most applicable guidance standard for groundwater.

3.4 Risk Evaluation

A comprehensive risk assessment was not performed as part of the previous assessments. However, this section contains a brief overview of the findings for groundwater, soil, and HBMs and a discussion of potential environmental risks based on a comparison to standards.

3.4.1 Groundwater

No groundwater monitoring wells are currently located within the Fuel Storage Area – West site.

TRC reviewed public/private water supply wells within a 2,500-foot radius of the Site. There are no known private wells identified within the search radius. There are numerous domestic wells downgradient from the Site located within the vicinity of Medway, Maine. The closest domestic well (Well No. 20251) is approximately 7,300 feet (1.4 miles) downgradient of the Site, southeast along the Penobscot River. Due to the distance and direction of the wells, likely risks to these wells from the Site are minimal. In addition, public water is supplied to the Site and immediate vicinity.

The Site is outside of the 1,000-foot buffer for water supply wells and associated mapped source water protection areas.

Since groundwater extraction will not be conducted at the Site and will be a prohibited condition under the MEDEP VRAP, groundwater risks are limited, except for potential contact by construction and excavation workers.

3.4.2 Soil

As discussed in Section 2.0, comingled subsurface impacts were previously identified at the Site during prior investigations. Specifically, separate-phase petroleum product and concentrations of associated petroleum compounds were identified in soil and groundwater in several areas of the Fuel Storage Area-West cleanup site. Furthermore, soil screening/sampling performed as part of the prior 2024 Limited Phase II ESA/2025 Limited Subsurface Investigation and Waste Characterization Summary Report identified comingled subsurface soil impacts related to petroleum, PAHs, and metals above MEDEP RAGs.

The presence of these soil impacts could pose a potential risk to public health; therefore, risk reduction measures will need to be implemented during redevelopment, such as removal of soils and/or installation of soil cover systems to prevent or minimize exposure through direct contact to soils. In addition, a risk-based approach will need to be utilized including, but not limited to, a soil management plan (i.e., EMMP) and deed restrictions, if applicable.

3.4.3 Hazardous Building Materials

As summarized in prior sections, presumed ACM and LCP were identified in connection with the tank piping/equipment and associated structures (e.g., pipe insulation, gasket fittings, and paint coatings). Abatement and demolition activities could expose workers to these HBMs. Demolition workers should wear appropriate PPE and take proper safety measures when removing, abating, and/or disposing of these materials from the Site.

4.0 DESCRIPTION OF EVALUATION CRITERIA

Each remedial alternative was evaluated with respect to the comparative evaluation criteria, including effectiveness, short- and long-term reliability, difficulty of implementation, cost, potential risks, timeliness, non-pecuniary effects, and resiliency to extreme weather conditions.

The preliminary cost estimates presented in this document are based on soil quantities calculated utilizing proposed Site grades and the extent of soil contamination, as well as the extent of contamination from HBMs, as identified in previous Site investigations. It was prepared utilizing published data from RS Means, an engineering and construction cost estimating tool, as well as recent Maine Department of Transportation (MDOT) bid tabulations, and includes a 25% contingency to allow for the relative comparison of the identified alternatives. Actual cleanup costs and cost estimates from cleanup contractors may vary from these preliminary engineering costs estimates generated at this time and will ultimately be dependent on final remedial action plans, bid specifications, and competitive contractor bids/quotes to be obtained in the future as part of future cleanup and redevelopment planning activities.

4.1 Identification and Initial Screening of Remedial Technologies

No Action

No Action assumes no additional efforts are undertaken to eliminate potential future exposures to accessible surficial and subsurface soil contaminant impacts at the Site. This alternative would not remove contamination and would not reduce, mitigate, or eliminate compounds identified in the soil. In addition, this alternative would not address the presence of HBMs associated with the tank and related equipment/structures. Therefore, the potential exposure to human health and the environment from impacted soils would remain at the Site. This alternative is not protective of human health and the environment. This alternative will not achieve a “No Further Action” criteria from the MEDEP and will not meet the requirements of VRAP and a Certificate of Completion. However, this alternative will continue to be evaluated as a remedial alternative in this analysis.

Declaration of Environmental Covenant (DEC) / Institutional Controls

Institutional controls establish restrictions on the use of a site that would otherwise result in exposure to the contaminants of concern that remain. This alternative would not be selected alone because it does not fully address existing exposure to contaminated soils at the Site. However, a deed restriction may be used in conjunction with other technologies to achieve a reduction of harm to human health and the environment by limiting the future exposure at the Site. Institutional controls are commonly used to limit the current and future activities and uses. The DEC would prohibit alteration or extraction of groundwater and/or excavation or disturbance of soil without prior notice and approval by MEDEP. Anticipated future use of this Site will be for commercial/industrial purposes. Therefore, institutional controls continue to be evaluated as a remedial alternative in this analysis.

4.2 Remedial Technologies for Hazardous Building Materials

Hazardous Building Material Abatement – Removal & Off-Site Disposal

Abatement and removal of HBMs would eliminate the possibility of exposure for potential future use of the Site. Due to the nature of the construction of the tank, including the use of presumed

asbestos-containing gaskets, flanges, etc., and the structural integrity of the components, it is not possible to separately abate ACM prior to demolition/dismantlement. When these conditions are encountered, an experienced demolition contractor will demolish the building or specific component without first abating the ACM. Following demolition and dismantling inert material, ACM will be segregated and managed for proper disposal to the maximum extent practicable; however, in these situations an increased volume of bulk waste is generated due to the co-mingling of ACM and demolition waste materials. Abatement and demolition consists of hiring experienced contractors to identify and remove HBMs from the project Site. Abatement of HBMs through removal and off-site disposal continue to be evaluated as a remedial alternative in this analysis.

Hazardous Building Material Abatement - On-Site Encapsulation

HBMs may also be abated through encapsulation or barrier, which would physically prevent direct exposure contact and allow for continued use of the structure. The alternative of abating and disposing of HBMs off-site can be difficult and expensive, particularly when the volume of impacted building materials is large. Therefore, encapsulating HBMs in-place with a barrier/cap, if applicable and/or acceptable, without removing for off-site disposal generally provides a cost-effective and proven method of containment for managing large volumes of HBMs. When encapsulation is selected for a remedial solution, it is also typically implemented in conjunction with an institutional control or Declaration of Environmental Covenant (DEC), i.e., deed restriction, that would require long-term encapsulant/barrier maintenance and prohibit uncontrolled encapsulant/barrier removal and/or penetration.

However, for the Fuel Storage Area-West site, the tank and related equipment/structures will be fully demolished as part of the proposed redevelopment; therefore, encapsulation will not be considered further as an alternative in this ABCA.

4.3 Remedial Technologies for Soil

Soil Containment

Containment measures are designed to isolate contaminants to prevent direct contact, erosion, and, depending on the chemicals of concern, leaching. The alternative of excavating and disposing of soil off-site can be difficult and expensive, particularly when the volume of impacted soil is large. Therefore, containing or encapsulating soil in-place with a barrier/cap, if applicable and/or acceptable, without significant excavation and off-site disposal, generally provides a cost-effective and proven method of containment for managing large volumes of impacted soil.

A containment remedy (cap) could consist of a layer of soil, pavement, or other impervious materials, which will eliminate or minimize direct contact with the underlying soils and will address contaminants. When containment/encapsulation is selected for a remedial solution, it is also typically implemented in conjunction with an institutional control or DEC (i.e., deed restriction) that would require cap/barrier maintenance and prohibit uncontrolled cap/barrier removal or penetration. Containment continues to be evaluated as a remedial alternative in this analysis.

Soil Consolidation and Containment

Consolidation measures are designed to limit the onsite footprint of contaminated soils and minimize the area requiring containment. Consolidation also allows for use of the remainder of the property without restriction.

When consolidation is selected as a remedial solution, it is implemented in conjunction with a containment remedy (cap) and institutional controls. The combination of consolidation and containment continues to be evaluated as a remedial alternative in this analysis.

Soil Excavation / Removal

Physical removal addresses risk-driving compounds in soil by physically removing impacted media from the Site for disposal or recycling at an appropriately licensed off-Site facility.

Excavation and off-site disposal is a proven and commonly used method of site remediation that addresses all contaminants. This alternative often targets small volumes due to the increased costs associated with excavation, transportation, and disposal. In addition, site restoration would be necessary, thereby further increasing costs.

Given the proven performance of excavation as a remedy at similar sites, this technology continues to be evaluated as a remedial alternative in this analysis.

4.4 Remedial Action Alternatives Development and Evaluation

The proposed cleanup and redevelopment includes the removal and off-site disposal of HBMs and management of impacted soil during earthwork. Certain subsurface utilities and clean corridors may also be installed as part of cleanup activities to minimize the need for excavating or disturbing contaminated soils at the Site. In the event that contaminated soils will be disturbed during earthwork, technologies were identified that have the potential to eliminate direct contact with contaminated soils at the Site. TRC identified the following potentially applicable technologies to achieve these objectives, which are:

- **Reuse of any disturbed Site soils on-Site and cover via a MEDEP-approved engineered cover system, with a DEC** – This alternative uses a combination of limited soil excavation to facilitate utility installations, consolidation and reuse of these soils on-Site, the implementation of engineering controls (i.e., a cap/cover system), and institutional controls (i.e., deed restrictions). This alternative allows a limited area of the Site to be subject to engineering controls and institutional controls.

- **Off-site disposal of disturbed Site soils, cover of remaining soil via a MEDEP-approved engineered cover system, and a DEC** – This alternative uses a combination of limited soil excavation to facilitate utility installations, off-Site disposal of these soils, the implementation of engineering controls on the remaining soil (i.e., a cap/cover system), and institutional controls (i.e., deed restrictions).

The remedial alternatives identified above were evaluated with respect to the comparative evaluation criteria including effectiveness, short and long-term reliability, difficulty of implementation, cost, potential risks, timeliness, non-pecuniary effects, and resiliency to extreme weather conditions. This evaluation is presented in the following section (Section 5.0).

5.0 EVALUATION OF REMEDIATION ALTERNATIVES

The process for identified viable remedial actions focused on technologies that exhibited the potential to eliminate or significantly reduce exposure to the elevated levels of petroleum and metals in shallow/surficial soil and groundwater, and to the HBMs at the Site. The remediation technologies to be employed by the alternative were considered using the following:

- Effectiveness
- Reliability
- Ability to Implement
- Feasibility
- Risk Reduction (Toxicity, Mobility, Quantity)
- Preliminary Costs
- Resiliency to Extreme Weather Conditions

Based on the evaluation criteria presented above, potential exposure pathways evaluated during previous environmental assessments and summaries presented herein, the remedial action alternatives selected for the Site should accomplish the following objectives.

- Remove the HBMs from the Site and minimize the potential for direct contact or incidental ingestion or inhalation of HBMs during abatement and demolition; and
- Minimize the potential for direct contact or incidental ingestion or inhalation of impacted soils.

To achieve these objectives, a total of three remedial options were considered to address the environmental conditions previously described and are discussed below.

5.1 Considered Remediation Alternatives for Site Soils and HBMs

To address contaminated soils and HBMs identified at the Site, and in consideration of the proposed building renovations, three different cleanup alternatives were considered and are described below:

- Alternative #1: No Action.
- Alternative #2: Tank Decommissioning, Soil Cover Systems, and Onsite Management of Disturbed Soil.
- Alternative #3: Tank Decommissioning, Soil Cover Systems, and Offsite Disposal of Disturbed Soil.

5.1.1 Alternative #1: No Action

A “No Action” alternative indicates that no remedial activities will be conducted at the Site. The “No Action” alternative does not include activities to mitigate, eliminate or reduce exposure to contaminated material; therefore, the potential for human exposure through direct contact,

ingestion, and inhalation has not been controlled and therefore continues to exist for potential future Site users, visitors, workers (construction/utility), and or trespassers.

The “No Action” alternative does not involve any remedial activities; therefore, the “No Action” response is not protective of human health and the environment and does not meet the threshold criteria as previously discussed. However, this alternative has been included to demonstrate a comparison between the alternatives.

5.1.2 Alternative #2: Tank Decommissioning, Soil Cover Systems, and Onsite Management of Disturbed Soil

The remaining fuel storage equipment (750,000-gallon fuel oil AST, rail car loading rack, and associated aboveground/underground piping and appurtenances) will be decommissioned to facilitate additional assessment and/or cleanup of subsurface conditions underlying the equipment, as needed, including the removal and/or capping of soil contaminated with co-mingled petroleum and hazardous materials to facilitate redevelopment of the main entrance to the mill site for better access and safety features. In addition, it is assumed that the remaining fuel oil (approximately 70,000 gallons in the exterior tank and approximately 10,000 gallons in the associated interior tank) will need to be disposed of as waste oil due to its high sulfur content and impurities; however, alternative disposal or recycling approaches will be pursued to potentially reduce disposal costs. For the purposes of estimating costs of this alternative, it is assumed that the waste oil will be transported by tanker truck to a fuel blending facility.

This alternative includes targeted soil removal in previously identified impacted soil areas, along with onsite management of remaining impacted soils through in-place covering and onsite relocation and consolidation, followed by installation of MEDEP-approved engineered soil cover systems. Impacted soils managed onsite would be compacted and encapsulated beneath hardscape cover systems (e.g., paved parking areas, reconfigured access roads, concrete sidewalks), softscape soil cover systems, or other MEDEP-approved soil cover systems. Onsite encapsulation would eliminate exposure. Softscape soil cover systems will likely be in the form of a marker geotextile fabric and 12-inches of structural gravel or 8-inches of common borrow with 4-inches of loam. Environmental personnel would be present during Site activities to oversee the excavation, movement, and encapsulation of soil. During excavation, excavated soils will be visually examined for the presence of contamination. Targeted soil removal/disposal will take place in areas shown on **Figure 3**.

5.1.3 Alternative #3: Tank Demolition/Dismantlement, Soil Cover Systems, and Offsite Disposal of Disturbed Soil

The remaining fuel storage equipment (750,000-gallon fuel oil AST, rail car loading rack, and associated aboveground/underground piping and appurtenances) will be decommissioned to facilitate additional assessment and/or cleanup of subsurface conditions underlying the equipment, as needed, including the removal and/or capping of soil contaminated with co-mingled petroleum and hazardous materials to facilitate redevelopment of the main entrance to the mill site for better access and safety features. In addition, it is assumed that the remaining fuel oil (approximately 70,000 gallons in the exterior tank and approximately 10,000 gallons in the associated interior tank) will need to be disposed of as waste oil due to its high sulfur content and impurities; however, alternative disposal or recycling approaches will be pursued to potentially

reduce disposal costs. For the purposes of estimating costs of this alternative we have assumed that the waste oil will be transported by tanker truck to a fuel blending facility.

This alternative includes excavation and offsite disposal of disturbed and previously identified impacted soils, combined with installation of MEDEP-approved engineered soil cover systems over remaining onsite soils. Offsite disposal of impacted soils would eliminate exposure pathways associated with those materials. Environmental personnel would be present during Site activities to oversee the excavation, stockpiling (if necessary), and offsite transport of soil. During excavation, excavated soils will be visually examined for the presence of contamination. Soil may be stockpiled pending disposal characterization/facility acceptance or may be directly loaded onto trucks for transportation to the disposal facilities. When characterization of the soil is required, the soil will be stockpiled on polyethylene sheeting and sampled for characterization parameters as required by the selected facilities. Stormwater controls will be implemented including a row of hay bales will be placed around the stockpile and the bottom layer of plastic sheeting will be draped over the hay bales to create a berm to contain the soil and stormwater run-off. The soil stockpile will be covered with polyethylene sheeting that will be held in place using hay bales, or a similar weighting object. **Figure 3** shows the areas of proposed excavation.

5.2 Effectiveness, Feasibility, and Cost of Alternatives

The effectiveness, feasibility, and cost of each alternative were considered prior to selecting a recommended cleanup alternative, in accordance with the EPA requirements.

5.2.1 Effectiveness

- Alternative #1 (No action): This alternative is not effective in controlling or preventing the exposure of receptors to contamination at the Site, or in the elimination of a potential continuing contaminant source at the Site. This alternative does not provide a reduction in risk.
- Alternative #2 (Tank Decommissioning, Soil Cover Systems, and Onsite Management of Disturbed Soil): This alternative includes removing HBMs, either covering impacted soils in-place with MEDEP-approved soil cover systems and/or excavation, and relocation of Site soils followed by covering with an engineered cover system in another area of the mill site. Excess soils which cannot be encapsulated/covered, would need to be managed through temporary stockpiling and cover, and/or off-Site disposal. Covering of impacted soil with a MEDEP-approved soil cover system is an effective alternative for eliminating the direct contact exposure pathway. The alternative will be effective at consolidating the source of contamination and minimizing potential exposure while protecting the nearby environmental receptors. This alternative provides resiliency to extreme weather events change by minimizing the likelihood of contaminants mobilizing during higher frequency flood events.
- Alternative #3 (Tank Decommissioning, Soil Cover Systems, and Offsite Disposal of Disturbed Soil): This alternative includes removing HBMs and excavation and offsite disposal of previously identified contaminated soils, combined with installation of MEDEP-approved engineered soil cover systems over remaining onsite soils. Removal and offsite disposal of contaminated soils would eliminate the direct contact exposure pathway and remove a significant portion of the contaminant mass from the Site. This alternative will

protect environmental receptors. This alternative provides resiliency to extreme weather conditions by minimizing the likelihood of contaminants mobilizing during higher frequency flood events.

5.2.2 Feasibility and Ease of Implementation

- Alternative #1 (No action): This alternative would be easy to implement as no remedial actions will be conducted at the Site.
- Alternative #2 (Tank Decommissioning, Soil Cover Systems, and Onsite Management of Disturbed Soil): This alternative is relatively easy to implement. The necessary services and materials to complete the remedial tasks are readily available, including the necessary equipment and contractors. This remedial alternative would utilize standard abatement and demolition/dismantlement, earthwork, excavation, and transportation techniques for encapsulation impacted soils in-place and/or moving soils to other areas of the redevelopment site for on-Site management and encapsulation via paved parking or other MEDEP-approved soil cover system. This alternative is technically practical, easily implementable at the Site, but may require the coordination of off-Site soil transportation of excess soils. Additionally, this alternative would require periodic surveillance of cover systems and preparation of institutional controls.
- Alternative #3 (Tank Decommissioning, Soil Cover Systems, and Offsite Disposal of Disturbed Soil): This alternative is the most difficult to implement; while the necessary services and materials to complete the remedial tasks are available, including the necessary equipment and contractors, the removal of large soil volumes will require the greatest effort on the part of the contractor. This remedial alternative would utilize standard abatement and demolition/dismantlement and excavation and transportation techniques for impacted soil containerization, off-Site transport, and disposal. The collection and analysis of verification and field screening samples, if necessary, from the remainder of the Site would be easily conducted using standard environmental sampling techniques.

5.2.3 Cost

- Alternative #1 (No action): No cost as no remedial activities will be implemented.
- Alternative #2 (Tank Decommissioning, Soil Cover Systems, and Onsite Management of Disturbed Soil): Cost of Alternative #2 is estimated to be approximately $2,250,000 to $2,650,000. Assumptions for preliminary costing purposes include:
    - Demolition/dismantlement of the 750,000-gallon AST and associated equipment/structures
    - Targeted excavation of impacted soil within areas identified by the preliminary soil cut-fill balance analysis
    - Cover in-place and/or excavation, relocation on-Site, then covering/capping of remaining impacted soils
    - Management of remaining excavated soils on-Site
    - Grading of relocated soil and capping with paved parking/roads, softscape cover system, or other MEDEP-approved engineered soil cover system, including appropriate gravel base and subbase

- Waste Oil will be disposed of at a fuel blending facility.
- Mobilization
- Engineering, construction oversight, & reporting
- A 20% contingency

- Alternative #3 (Tank Demolition/Dismantlement, Soil Cover Systems, and Offsite Disposal of Disturbed Soil): Cost of Alterative #3 is estimated to be approximately $3,800,000 to 4,500,000. Assumptions for preliminary costing purposes include:
  - Demolition/dismantlement of the 750,000-gallon AST and associated equipment/structures
  - Targeted excavation of impacted soil within areas identified by the preliminary soil cut-fill balance analysis
  - Off-Site trucking and disposal of the limited targeted impacted soils to a disposal facility
  - Waste Oil will be disposed of at a fuel blending facility.
  - Mobilization
  - Backfill and grading, including appropriate gravel base and subbase
  - Engineering, construction oversight, & reporting
  - A 20% contingency

The preliminary cost estimates presented in this document are based on the extent of contamination as identified in previous site investigations and costs associated with abatement, demolition, and/or waste transportation and disposal. They were prepared utilizing recent project experience and RS Means data and include a 20% contingency to allow for the relative comparison of the identified alternatives and to account for the possibility of encountering previously unidentified HBMs, impacted soil, and/or higher transportation and disposal costs, once cleanup begins. A breakdown of preliminary remedial costs is included on the estimated cost tables presented in **Appendix A**. Please note that actual cleanup costs may vary from these preliminary engineering cost estimates prepared at this time and will ultimately be dependent on final remedial action plans, bid specifications, and competitive contractor bids/quotes to be obtained in the future as part of future cleanup and redevelopment planning activities.

5.3 Overall Comparison of Comparative Evaluation Criteria

This section presents a relative comparison of the selected remedial alternatives.

Effectiveness – Alternative #3 is the most effective means to mitigate exposure to both HBMs and to soil contamination, as all disturbed soils would be removed from the Site. Alternatives #1 and #2 do not include the removal and disposal of all disturbed soil in its entirety from the Site. Alternative #2 includes excavation of soil for on-Site management under an engineered cap/cover system, which is also an effective mitigation measure; however, additional inspections and adherence to an EMMP would be required. Therefore, Alternative #3 is considered slightly more effective than Alternative #2. Alternative #1 is considered the least effective as exposure is not mitigated.

Reliability – Alternatives #2 and #3 are more reliable than Alternative #1 in preventing exposure to future users of the Site because HBMs are removed and soils are either removed or isolated/contained. Alternative #1 is not reliable as no remedial action is implemented. Because of the relatively simple nature of the excavation work and design and construction of a cap/cover system, there is low potential for failure associated with Alternatives #2 and #3. However, Alternative #2 and Alternative #3 require future inspection and maintenance of the cover systems to ensure long-term reliability. Alternative #1 is not reliable as no remedial action is implemented. Therefore, Alternative #2 and Alternative #3 are considered equally reliable.

Difficulty of Implementation – There is no difficulty associated with Alternative #1, as no actions are taken. There is more difficulty associated with Alternatives #2 and #3, as additional measures are required to remove and cover soils to remain on-Site. However, Alternative #3 is the most difficult to implement; while the necessary services and materials to complete the remedial tasks are available, including the necessary equipment and contractors, the removal of large soil volumes will require the greatest effort on the part of the contractor.

Cost-Benefit –There is no cost associated with Alternative #1 as no remedial activities would occur. The cost to implement Alternative #3 is significantly higher than Alternative #2, due to the higher volumes of impacted soils to be managed and the costs associated with off-Site disposal of all impacted surficial soils.

Resiliency to Extreme Weather Events – Alternative #1 is effective from an extreme weather resiliency standpoint, as no actions are taken. Alternatives #2 and #3 provide resiliency to extreme weather by minimizing the possibility of contaminated soils being mobilized during higher frequency flood events and the stormwater controls and mitigation measures to be implemented during construction activities under these alternatives. For the Site area, such weather conditions include days of extreme precipitation and/or season precipitation above the 33% average (per CMRA).

Potential Risks – The potential short-term and long-term risks associated with each alternative are considered low, except for Alternative #1, which is a No Action Alternative, and therefore, no remedial activities are conducted. Potential short-term risks associated with Alternatives #2 and #3 include possible accidently spills of petroleum during demolition/dismantlement of the tank and associated equipment/structures. However, any accidental spill of contaminated soil would be immediately remediated, and therefore, the duration of potential human exposure to the contaminated soil would be extremely short-term. Additional potential short-term risks associated with Alternative #3 soil excavation/disposal include possible accidental spills of contaminated soil during soil transport, which could result in short-term exposure to the contaminated soil by surrounding human populations. However, again, any accidental spill of contaminated soil would be immediately remediated, and therefore, the duration of potential human exposure to the contaminated soil would be extremely short-term. Alternative #2 and Alternative #3 require future inspection and maintenance of the cover systems to prevent potential risks. Assuming those inspections and maintenance are completed, there is a low potential risk associated with those alternatives.

Timeliness – The following estimated time frames are associated with implementation of each alternative:

- Alternative #1: No associated timeframe.

- Alternative #2: Estimated two to three months (dependent on selected contractors and concurrent cleanup and redevelopment schedules).
- Alternative #3: Estimated two to three months (dependent on selected contractors and concurrent cleanup and redevelopment schedules).

Based on the above, Alternative #1 is the timeliest of the alternatives. However, the additional time required for Alternatives #2 and #3 are associated with greater protection of future Site use and protection of Site construction workers.

Conclusion – Alternatives #2 and 3 are nearly equally effective and reliable. Excluding Alternative #1 (which is not recommended because it does not address the risks posed by the HBMs and soil contamination), Alternative #3 is logistically the least difficult to implement, except for additional logistics related to management of off-site soil disposal activities, and has low potential risks. However, Alternative #2 also has a relatively low difficulty of implementation, low potential risk, and is significantly much more cost-effective. Therefore, Alternative #2 is the recommended Alternative.

5.4 Green and Sustainable Remediation

The following measures will be implemented where applicable, beneficial or feasible to improve the overall sustainability of the proposed remedial alternative as recommended by the U.S. EPA Region 1 Green and Sustainable Remediation Guidance.

Administrative

- Green remediation principles will be incorporated into the contracting process, as possible.
- Interim and final documents will be submitted in digital rather than hardcopy format, unless otherwise requested by EPA or required by law, to save paper. This is especially applicable to voluminous data reports.
- Optimize the use of electronic and centralized communication and outreach to the local community.

General Site Operations

- Use energy efficient equipment
- Reuse or recycle waste in the visual and access control berms
- Protect and conserve water
- Use alternative fuel vehicles (e.g., hybrid-electric, biodiesel, and/or ultra-low sulfur diesel)
- Carpool for Site visits and project meetings and/or use public transportation
- Schedule activities efficiently to minimize travel to and from the Site

Remediation Operations

- Encourage use of fuel-efficient / alternative fuel vehicles and equipment
- Minimize mobilizations
- Provide for erosion control to minimize runoff into environmentally sensitive areas

- Encourage use of diesel engines that meet the most stringent EPA on-road emissions standards available upon time of project's implementation
- Have idle reduction policy and idle reduction devices installed on machinery
- Use ultra-low sulfur diesel and/or fuel-grade biodiesel as fuel on machinery
- Maximize use of machinery equipped with advanced emission controls
- Maximize efficiency in transport/disposal of soils and backfill, utilizing practices such as backloading.

5.5 Additional Permitting

Final local and State permits, as necessary, will be obtained prior to initiating the selected/proposed cleanup alternatives.

5.6 Recommended Cleanup Alternative

Alternative #2 is the recommended cleanup alternative for the mitigation of shallow/surficial impacted soils at the Site, as it is the most cost-effective and equally effective and reliable in comparison to Alternative #3.

Alternative #1 is not recommended because it does not address the risks posed by the soil contamination (no action taken).

Alternative #3 is not recommended because it is not cost-effective.

5.6.1 Evaluation and Comparison of Alternatives

Table 1 (on the following page) provides Evaluation and Comparison Summaries of the Remedial Alternatives.

Table 1. Evaluation and Comparison Summary of Alternatives

Remedial Action	Alternative #1: No Action	Alternative #2: Tank Decommissioning, Soil Cover Systems, and Onsite Management of Disturbed Soil	Alternative #3: Tank Decommissioning, Soil Cover Systems, and Offsite Disposal of Disturbed Soil
Overall protection of Human Health and the Environment	Not protective of human health and the environment. Does not meet threshold criteria.	Provides protection of human health and the environment concerns through mitigating/ eliminating the risk of exposure to humans and the environment to impacted soil identified on the Site.	Provides protection of human health and the environment concerns through mitigating/eliminating the risk of exposure to humans and the environment to impacted soil identified on the Site.
Technical Practicality	Not Applicable.	Completing the remedial alternative identified is technically practical.	Completing the remedial alternative identified is technically practical.

Table 1. Evaluation and Comparison Summary of Alternatives

Remedial Action	Alternative #1: No Action	Alternative #2: Tank Decommissioning, Soil Cover Systems, and Onsite Management of Disturbed Soil	Alternative #3: Tank Decommissioning, Soil Cover Systems, and Offsite Disposal of Disturbed Soil
Ability to Implement	Not Applicable.	Containment of the in-place contaminated soil is technically feasible and is an effective action for reducing or eliminating the risk of direct contact to contamination. The activities and materials to complete the alternative are readily available. Equipment and contactors are available and have the expertise to complete.	Off-Site disposal of disturbed soil at the Site is technically feasible and is an effective action for reducing or eliminating the risk of direct contact to contamination. The activities and materials to complete the alternative are readily available. Equipment and contactors are available and have the expertise to complete.
Reduction of Toxicity, Mobility, and Volume	No Reduction.	Alternative achieves a reduction risk of contact.	Alternative achieves a reduction risk of contact.
Short Term Effectiveness	Not Applicable.	Cover placement reduces the risk of contact but limits the future development options for the Site.	Cover placement reduces the risk of contact but limits the future development options for the Site.
Estimated Cost	Not Applicable.	$2,250,000 - $2,650,000	$3,800,000 - $4,500,000

As previously noted, the preliminary cost estimates presented in this document are based on the extent of contamination as identified in previous site investigations and costs associated with abatement, demolition, and/or waste transportation and disposal. They were prepared utilizing recent project experience and RS Means data and include a 20% contingency to allow for the relative comparison of the identified alternatives and to account for the possibility of encountering previously unidentified HBMs, impacted soil, and/or higher transportation and/or disposal costs, once cleanup begins. A breakdown of preliminary remedial costs is included on the estimated cost tables presented in **Appendix A**. Please note that actual cleanup costs may vary from these preliminary engineering cost estimates prepared at this time and will ultimately be dependent on final remedial action plans, bid specifications, and competitive contractor bids/quotes to be obtained in the future as part of future cleanup and redevelopment planning activities.

6.0 CONCLUSIONS AND RECOMMENDATIONS

HBMs and contaminated soil are present at the Site and require proper management to facilitate cleanup and redevelopment. While the proposed redevelopment of the Site is for pavement/softscape landscaping, additional remedial actions are necessary to mitigate the identified contamination at the Site, in accordance with State of Maine and MEDEP cleanup guidelines.

The three total remedial alternatives evaluated in this ABCA include:

- Alternative 1: No Action.
- Alternative 2: Tank Decommissioning, Soil Cover Systems, and Onsite Management of Disturbed Soil.
- Alternative 3: Tank Decommissioning, Soil Cover Systems, and Offsite Disposal of Disturbed Soil.

Alternative #2 is the recommended cleanup alternative for the abatement of HBMs and mitigation of shallow/surficial impacted soils at the Site, as it is the most cost-effective and equally effective and reliable in comparison to Alternative #3. Alternative #2 is also considered to be an equally practical alternative to mitigate the risk posed by the contamination considering the proposed renovation scenario from a feasibility and ease of implementation standpoint.

7.0 CONCEPTUAL REMEDIAL ACTION PLAN

Potential remedial action alternatives were outlined. evaluated, compared to one another for feasibility, cost, and implementation ability in this ABCA/RAP. The selected remedial actions have been outlined herein. The purpose of the selected remedial actions is to address the identified environmental concerns identified in the prior assessment activities, as outlined above. Media addressed by these actions includes shallow soils and hazardous building materials.

1. *Hazardous Building Materials Abatement and Tank Decommissioning* – TRC will assist the Town with obtaining quotes and the selection of reputable and qualified contractors for the abatement of HBMs (e.g., ACM, LBP, etc.) in conjunction with the demolition/dismantlement of the 750,000-gallon AST and associated equipment/ structures. The abatement of HBMs is expected to occur concurrently with the demolition/dismantlement of the tank and associated equipment/structure and will be conducted in accordance with state (MEDEP) and federal (EPA and OSHA) guidelines and regulations. The remaining fuel storage equipment (750,000-gallon fuel oil AST, rail car loading rack, and associated aboveground/underground piping and appurtenances) will be decommissioned to facilitate additional assessment and/or cleanup of subsurface conditions underlying the equipment, as needed, including the removal and/or capping of soil contaminated with co-mingled petroleum and hazardous materials to facilitate redevelopment of the main entrance to the mill site for better access and safety features. It is assumed that the remaining fuel oil (approximately 70,000 gallons in the exterior tank and approximately 10,000 gallons in the associated interior tank) will need to be disposed of as waste oil due to its high sulfur content and impurities; however, alternative disposal or recycling approaches will be pursued to potentially reduce disposal costs. Any capping and abandonment of underground piping will be completed in accordance with MEDEP approvals and the Maine Chapter 691 Rules for Underground Oil Storage Facilities.

2. *Soil Excavation, Soil Cover Systems, and Onsite Management of Disturbed Soil* – Existing soils and/or cover systems (asphalt-paved parking areas and/or landscaped areas), which are disturbed during Site redevelopment, will either be covered in-place with a MEDEP-approved soil cover system and/or removed and consolidated to another portion of the Site property to be regraded and then covered by an asphalt parking lot and/or other MEDEP-approved soil cover system. Proper erosion and sedimentation controls and soil stockpile management (Best Management Practices) will be implemented during earthwork, as applicable. A Deed Restriction will be put in place prohibiting the disturbance of the encapsulated soil. Periodic inspections of the cover systems will be a requirement of this remedial action to ensure that a good cover remains in place over the impacted soils to reduce potential for exposure.

3. *EMMP* – The site-specific EMMP will be adhered to, which will guide 1) the management of impacted soils (if disturbed during Site redevelopment), 2) the management of groundwater (if encountered) during disturbance of the Site subsurface, and 3) the on- and off-Site management of HBMs. The EMMP additionally outlines notifications of Site owner and MEDEP personnel in the instance that media are disturbed, as well as appropriate personal protective equipment to be considered during the redevelopment activities. In addition, the EMMP will be updated at the

conclusion of cleanup activities to include as-builts and/or other relevant Site information, as requested by the MEDEP.

4. *Deed Restriction and Declaration of Environmental Covenant* – Once the remedial actions are completed, a DEC will serve as a deed restriction for the Site, which will notify future owners/occupants of the existence and location of the installed MEDEP-approved engineered cover systems (e.g., parking lot and concrete sidewalk, landscape areas), prohibition of digging into subsurface soils or extraction of groundwater on Site, adherence to the EMMP, and a long-term monitoring schedule for the soil cover systems, as applicable.

8.0 CLOSING

8.1 Schedule

The owner plans to begin remedial actions in late Summer of 2026, once the cleanup contractors have been procured over the later Spring/early Summer of 2026. The remedial actions outlined herein are anticipated to be the first activities to occur for this redevelopment, with an anticipated completion of initial cleanup activities in 2027. The remainder of the redevelopment activities will likely continue through 2027/2028.

8.2 Completion and Closure

As previously noted, the larger GNP Mill site was previously entered into the MEDEP VRAP, with a NAA Letter generated in 2023 and has been assigned MEDEP Site Remediation Number REM02048. Once the proposed remedial actions are completed to the satisfaction of the VRAP, it is anticipated the MEDEP VRAP will issue a Closure Report and a Certificate of Completion for the portion of the Site subject to the proposed cleanup actions. The owner (and their members and/or assigns) will thereby be granted liability protections provided by 38 M.R.S. §343-E.1. for the Site and the MEDEP will take no action against the Town (or its members and/or assigns), as identified in 38 M.R.S. §343-E.6.

9.0 LIMITATIONS

TRC's study was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same geographical area, and TRC observed that degree of care and skill generally exercised by other consultants under similar circumstances and conditions. TRC's findings and conclusions must be considered not as scientific certainties, but rather as our professional opinion concerning the significance of the limited data gathered during the course of the study. No other warranty, express or implied is made. Specifically, TRC does not and cannot represent that the subject property contains no hazardous material, oil, or other latent condition beyond that observed by TRC during its study. Additionally, TRC makes no warranty that any response action or recommended action will achieve all of its objectives or that the findings of this study will be upheld by a MEDEP audit.

The observations described in this report were made under the conditions stated therein. The conclusions presented in the report were based solely upon the services described therein, and not on scientific tasks or procedures beyond the scope of described services or the time and budgetary constraints imposed by the Town. The work described in this report was carried out in accordance with the Terms and Conditions referenced in our contract with the Town.

In preparing this report, TRC has relied on certain information obtained from previous reports, and on information contained in the files of state and/or local agencies available to TRC at the time of the study. Although there may have been some degree of overlap in the information provided by these various sources, TRC did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this evaluation.

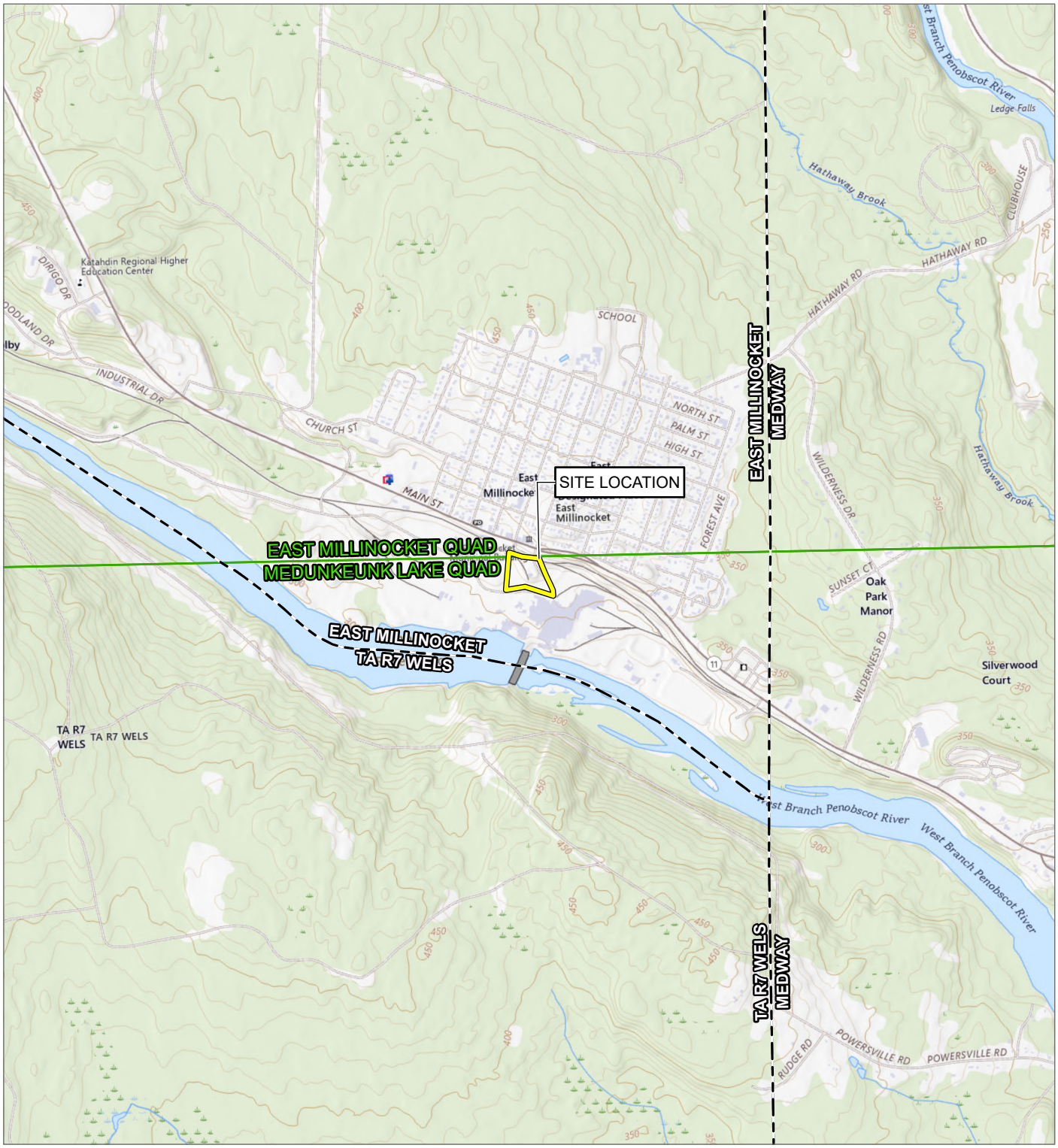
No specific attempt was made to check on the compliance of present or past owners or operators of the Site with federal, state, or local laws and regulations, environmental or otherwise. The conclusions and recommendations contained in this report are based in part upon the data obtained from a limited number of soil samples and groundwater samples obtained from widely spread subsurface explorations. The nature and extent of variations between these explorations may not become evident until further exploration. If variations or other latent conditions then appear evident, it will be necessary to reevaluate the conclusions and recommendations of this report.

TRC has relied upon the quantitative laboratory analyses data provided by various laboratories and has not conducted an independent evaluation of the reliability of these data.

The conclusions and recommendations contained in this report are based in part upon various types of chemical data and are contingent upon their validity. These data have been reviewed and interpretations made in the report. Moreover, it should be noted that variations in the types and concentrations of contaminants and variations in their migration pathways may occur due to seasonal water table fluctuations, past disposal practices, the passage of time, and other factors. Should additional chemical data become available in the future, these data should be reviewed by TRC and the conclusions and recommendations presented herein modified accordingly.

Historic chemical analyses have been performed for specific parameters as described in the text. However, it should be noted that additional chemical constituents not searched for during the referenced studies might be present at the subject property. Nothing herein limits, changes or modifies TRC’s contract with the Town.

FIGURES



SITE BOUNDARY

MUNICIPAL BOUNDARY

USGS 7.5 MINUTE QUADRANGLE MAP BOUNDARY

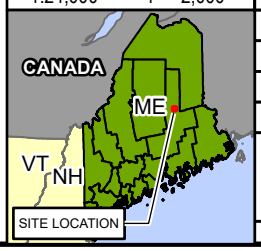
BASE MAP: USGS NATIONAL MAP
DATA SOURCES: USGS, ESRI, TRC

N

0 1,000 2,000

FEET

1:24,000 1" = 2,000'



PROJECT: **TOWN OF EAST MILLINOCKET, MAINE**
FUEL STORAGE AREA – WEST, FORMER GREAT NORTHERN PAPER MILL
50 MAIN STREET,
EAST MILLINOCKET, MAINE 04430

TITLE:

SITE LOCATION MAP

DRAWN BY:	R. BARBER	PROJ. NO.:	636165.0000.0000
CHECKED BY:	J. FREDENBURG		
APPROVED BY:	Z. BONIN		**FIGURE 1**
DATE:	JUNE 2026		

TRC
63 MARGINAL WAY
4TH FLOOR
PORTLAND, ME 04101
PHONE: 207.879.1930

FILE: FuelStorageAreaWest

Coordinate System: NAD 1983 StatePlane Maine West FIPS 1802 Feet; Map Rotation: 0
-- Saved By: RBARBER on 6/2/2026, 10:14:45 AM; File Path: T:\1-PROJECTS\Town_of_East_Millinocket\636165_FuelStorageArea_West_FGNPM\2-APRX\FuelStorageAreaWest.aprx; Layout Name: Fuel Storage Area West Fig1 Site Location Map

PLAN REFERENCES

1. HORIZONTAL COORDINATE SYSTEM IS BASED ON NAD83 MAINE STATE PLAN (US SURVEY FEET, EAST ZONE, ME83-EF). ELEVATIONS ARE BASED ON NAV88 (US SURVEY FEET).
2. EXISTING CONDITIONS SHOWN ON THIS PLAN ARE BASED ON A DRAWING PREPARED BY STILLWATER ENVIRONMENTAL ENGINEERING, INC. ENTITLED *"EAST MILLINOCKET MILL INFRASTRUCTURE MAPPING, 50 MAIN STREET, EAST MILLINOCKET, ME 04430"* DATED 12-20-2024.
3. BOUNDARY SURVEY AND EXISTING TOPOGRAPHIC FEATURES WERE PROVIDED BY PLISGA & DAY LAND SURVEYORS AS REFERENCED IN STILLWATER ENGINEERING, INC. DRAWING IN PLAN REFERENCE (1).
4. AERIAL IMAGERY UNDERLAY SOURCED FROM BING MAPS AND IS GEOREFERENCED HOWEVER, LOCATIONS SHOULD BE CONSIDERED APPROXIMATE.

0 60 120 180 240
SCALE IN FEET

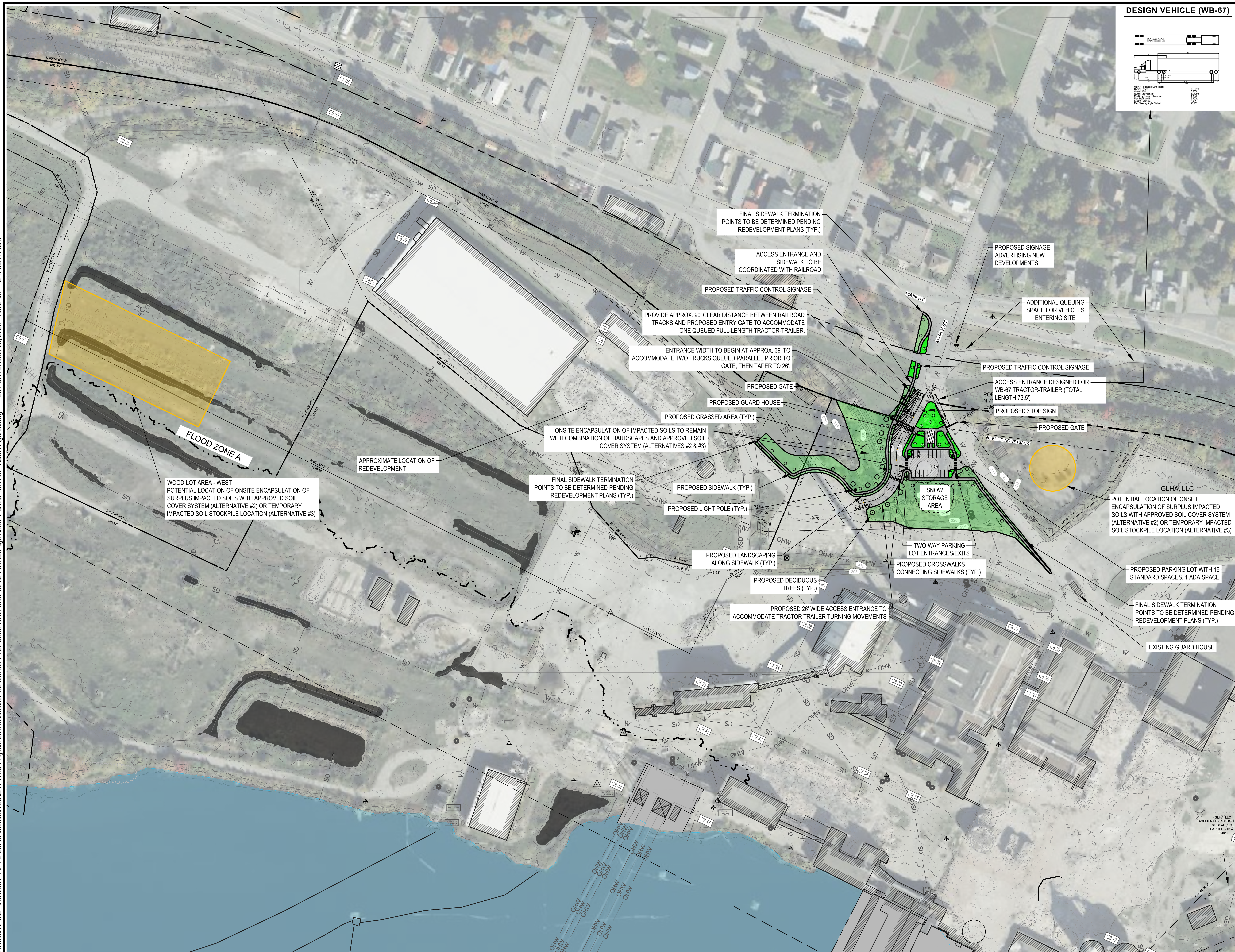
PROJECT: **TOWN OF EAST MILLINOCKET, MAINE**
BROWNFIELDS CLEAN-UP ALTERNATIVES
FORMER GREAT NORTHERN PAPER MILL
50 MAIN STREET, EAST MILLINOCKET, ME 04430

TITLE: **EXISTING CONDITIONS & SITE LAYOUT PLAN FOR ALTERNATIVE 1**

DRAWN BY:	AJG/TRC	PROJ. NO.:	636165.0000
CHECKED BY:	ARD		
APPROVED BY:	ARD		**FIGURE 2**
DATE:	JUNE 2026		

TRC
249 Western Ave.
Augusta, ME 04330
Phone: 207.621.7000
www.trccompanies.com

FILE NO.: 636165 - ABCA Figures.dwg



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RIGHT-OF-WAY
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- EXISTING 5' CONTOUR
- EXISTING 1' CONTOUR
- EXISTING OVERHEAD LINES
- EXISTING TREE LINE
- EXISTING/ABANDONED RAIL LINE
- EXISTING FENCE
- EXISTING GUARD RAIL
- EXISTING STORMDRAIN
- EXISTING SANITARY SEWER
- EXISTING WATER LINE
- EXISTING LEACHATE LINE
- APPROXIMATE FEMA FLOOD ZONE LIMIT
- USF TEST PIT LOCATION
- EXISTING UTILITY POLE
- EXISTING HYDRANT
- EXISTING BOLLARD
- EXISTING CATCH BASIN
- EXISTING SEWER MANHOLE
- EXISTING MANHOLE
- EXISTING WELL
- SURVEY CONTROL POINT
- EXISTING GATE VALVE
- EXISTING LIGHT/LAMP
- EXISTING POST INDICATOR CONTROL VALVE
- PROPOSED ACCESS ENTRANCE
- PROPOSED DIRECTION OF TRAFFIC
- PROPOSED SIDEWALK
- PROPOSED CROSSWALK
- PROPOSED GUARD HOUSE
- PROPOSED GATE
- PROPOSED LIGHT POLE
- PROPOSED SIGN
- PROPOSED DECIDUOUS TREES
- PROPOSED SHRUBS/LANDSCAPING
- PROPOSED GRASSED AREA

PLAN REFERENCES

1. HORIZONTAL COORDINATE SYSTEM IS BASED ON NAD83 MAINE STATE PLAN (US SURVEY FEET, EAST ZONE, ME83-EF). ELEVATIONS ARE BASED ON NAV88 (US SURVEY FEET).
2. EXISTING CONDITIONS SHOWN ON THIS PLAN ARE BASED ON A DRAWING PREPARED BY STILLWATER ENVIRONMENTAL ENGINEERING, INC. ENTITLED *"EAST MILLINOCKET MILL INFRASTRUCTURE MAPPING, 50 MAIN STREET, EAST MILLINOCKET, ME 04430"* DATED 12-20-2024.
3. BOUNDARY SURVEY AND EXISTING TOPOGRAPHIC FEATURES WERE PROVIDED BY PLISGA & DAY LAND SURVEYORS AS REFERENCED IN STILLWATER ENGINEERING, INC. DRAWING IN PLAN REFERENCE (1).
4. AERIAL IMAGERY UNDERLAY SOURCED FROM BING MAPS AND IS GEOREFERENCED. HOWEVER, LOCATIONS SHOULD BE CONSIDERED APPROXIMATE.
5. EXISTING EDGE OF PAVEMENT IS BASED ON PUBLICLY AVAILABLE AERIAL IMAGERY AND SHOULD BE CONSIDERED APPROXIMATE.

0 100 200 300 400
SCALE IN FEET

PROJECT: TOWN OF EAST MILLINOCKET, MAINE
BROWNFIELDS CLEAN-UP ALTERNATIVES
FORMER GREAT NORTHERN PAPER MILL
50 MAIN STREET, EAST MILLINOCKET, ME 04430

TITLE: **SITE LAYOUT PLAN FOR ALTERNATIVES 2 & 3**

DRAWN BY:	AJG/TRC	PROJ. NO.:	636165.0000
CHECKED BY:	ARD	FIGURE 3	
APPROVED BY:	ARD		
DATE:	JUNE 2026		

TRC
249 Western Ave.
Augusta, ME 04330
Phone: 207.621.7000
www.trccompanies.com

FILE NO.: 636165 - ABCA Figures.dwg

22x34 --- USER: AGombas --- ATTACHED XREFS: XR_EastMillinocket_Infrastructure_SEE_Working_3-2025 --- ATTACHED IMAGES:
DRAWING NAME: \\AUGUSTA-VFP2\Environmental\RMD\ENV RMD Projects\East Millinocket ME\636165-FY25 Brownfields Cleanup\02-Fuel Storage Area\10-DWG\636165 - ABCA Figures.dwg --- PLOT DATE: June 08, 2026 - 10:02AM --- LAYOUT: FIG 3

Appendix A: Remedial Alternatives Costing

PROJECT: Fuel Storage Area Brownfields Cleanup - East Millinocket, ME

DESCRIPTION: Preliminary Eligible Brownfields Cleanup Cost Estimates Alternative 2

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES & ASSUMPTIONS
SITE WORK AND COVER SYSTEM					
Erosion Control Geotextile/Marker Layer	13097	SY	$ 5	$ 65,486	Recent MaineDOT bids
Granular Borrow	3424	CY	$ 70	$ 239,698	Recent MaineDOT bids
Crushed Stone	9	CY	$ 100	$ 891	Recent MaineDOT bids
Aggregate Subbase Course	468	CY	$ 55	$ 25,761	Recent MaineDOT bids
Aggregate Base Course	306	CY	$ 100	$ 30,569	Recent MaineDOT bids
HMA 9.5mm Surface Course	250	TON	$ 150	$ 37,560	Assume 145 pcf, price per recent MaineDOT bids
HMA 12.5mm Base Course	255	TON	$ 175	$ 44,570	Assume 145 pcf, price per recent MaineDOT bids
Bituminous Tack Coat	277	G	$ 18	$ 4,988	Assume 0.1 gal/SY, price per recent MaineDOT bids
4" White or Yellow Painted Pavement Marking Line	1570	LF	$ 4	$ 5,495	Recent MaineDOT bids
Crosswalk Pavement Markings	320	LF	$ 2	$ 512	RS Means 32 17 23.13 0600
Vertical Curb Type 1	1725	LF	$ 95	$ 163,875	Recent MaineDOT bids
12 Inch Culvert Pipe Type III	900	LF	$ 100	$ 90,000	Recent MaineDOT bids
Catch Basin Type A1-C	9	EA	$ 7,000	$ 63,000	Recent MaineDOT bids
Common Excavation	6140	CY	$ 25	$ 153,500	Recent MaineDOT bids
Backfilling	6140	CY	$ 12	$ 71,224	RS Means 31 23 23.20 3084
Finish Grade	13097	SY	$ 3	$ 33,398	RS Means 31 22 16.10 1150
Drum	50	EA	$ 70	$ 3,500	Recent MaineDOT bids
Cone	50	EA	$ 25	$ 1,250	Recent MaineDOT bids
Maintenance of Traffic Control Devices	100	CD	$ 125	$ 12,500	Recent MaineDOT bids
Signage	40	SF	$ 40	$ 1,600	Assume 10 sings 2'x2' Recent MaineDOT bids
Advanced Solar Powered Flashing Warning Sign	2	EA	$ 10,000	$ 20,000	Recent MaineDOT bids
Rectangular Rapid Flashing Beacon	6	EA	$ 14,000	$ 84,000	Recent MaineDOT bids
Curb Ramp Detectable Warning Field	48	SF	$ 125	$ 6,000	Recent MaineDOT bids, assume 2'x3'
Field Office	1	EA	$ 10,000	$ 10,000	Recent MaineDOT bids
Building Slab	9	CY	$ 320	$ 2,850	Slab on grade, 6" thick, RS Means 03 30 53.40 4700
Foundation Wall	14	CY	$ 730	$ 10,490	RS Means 03 30 53.40 4200 Assume 6'Hx8"W
Footings	7	CY	$ 490	$ 3,521	RS Means 03 30 53.40 3940 Assume 12"Hx24"W
Evergreen Trees 6'-8' B&B	10	EA	$ 390	$ 3,900	Recent MaineDOT bids
Deciduous Trees 6'-8'	10	EA	$ 220	$ 2,200	Recent MaineDOT bids
Evergreen Shrubs	33	EA	$ 240	$ 7,920	Recent MaineDOT bids
Deciduous Shrubs	33	EA	$ 215	$ 7,095	Recent MaineDOT bids
Topsoil	1141	CY	$ 80	$ 91,314	Recent MaineDOT bids
Seed	92	UN	$ 50	$ 4,623	Recent MaineDOT bids, 1 unit=1000 SF
Mulch	92	UN	$ 60	$ 5,547	Recent MaineDOT bids, 1 unit=1000 SF
Temporary Erosion Controls	1	LS	$ 65,442	$ 65,442	5% subtotal
Mobilization	1	LS	$ 130,884	$ 130,884	10% subtotal
ABATEMENT AND UNIVERSAL WASTE DISPOSAL					
LCP Abatement	1	LS	$ 10,000	$ 10,000	Recent project experience.
Asbestos Abatement	1	LS	$ 16,500	$ 16,500	Recent project experience.
Railtrack Removal	141	LF	$ 22	$ 3,032	RS Means Building Construction Costs 02 41 13.33 3500
Waste #6 Oil Disposal	1	LS	$ 375,000	$ 375,000	Assumes disposal via tanker trucks at Fuel Blending Facility
Demo of Tank	1	EA	$ 54,223	$ 54,223	RS Means 130505.75-0540, multiplied by factor of 25
			SUBTOTAL	**$ 1,963,915**	
			Contingency (20%)	$ 392,783	
			Engineering and Environmental Oversight (15%)	$ 294,587	Includes Brownfields documentation
			TOTAL	**$ 2,651,000**	

Notes:

Unit pricing obtained from recent MaineDOT bid tabulations, published RS Means Data, and Project Experience.

Total cost is rounded to the nearest multiple of 1,000.

PROJECT: Fuel Storage Area Brownfields Cleanup - East Millinocket, ME
DESCRIPTION: Preliminary Eligible Brownfields Cleanup Cost Estimates Alternative 3

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES & ASSUMPTIONS
SITE WORK AND COVER SYSTEM					
Erosion Control Geotextile/Marker Layer	9264	SY	$ 5	$ 46,319	Recent MaineDOT bids
Granular Borrow	2146	CY	$ 70	$ 150,254	Recent MaineDOT bids
Crushed Stone	9	CY	$ 100	$ 891	Recent MaineDOT bids
Aggregate Subbase Course	468	CY	$ 55	$ 25,761	Recent MaineDOT bids
Aggregate Base Course	306	CY	$ 100	$ 30,569	Recent MaineDOT bids
HMA 9.5mm Surface Course	250	TON	$ 150	$ 37,560	Assume 145 pcf, price per recent MaineDOT bids
HMA 12.5mm Base Course	255	TON	$ 175	$ 44,570	Assume 145 pcf, price per recent MaineDOT bids
Bituminous Tack Coat	277	G	$ 18	$ 4,988	Assume 0.1 gal/SY, price per recent MaineDOT bids
4" White or Yellow Painted Pavement Marking Line	1570	LF	$ 4	$ 5,495	Recent MaineDOT bids
Crosswalk Pavement Markings	320	LF	$ 2	$ 512	RS Means 32 17 23.13 0600
Vertical Curb Type 1	1725	LF	$ 95	$ 163,875	Recent MaineDOT bids
12 Inch Culvert Pipe Type III	900	LF	$ 100	$ 90,000	Recent MaineDOT bids
Catch Basin Type A1-C	9	EA	$ 7,000	$ 63,000	Recent MaineDOT bids
Finish Grade	9264	SY	$ 3	$ 23,623	RS Means 31 22 16.10 1150
Drum	50	EA	$ 70	$ 3,500	Recent MaineDOT bids
Cone	50	EA	$ 25	$ 1,250	Recent MaineDOT bids
Maintenance of Traffic Control Devices	100	CD	$ 125	$ 12,500	Recent MaineDOT bids
Signage	40	SF	$ 40	$ 1,600	Assume 10 sings 2'x2' Recent MaineDOT bids
Advanced Solar Powered Flashing Warning Sign	2	EA	$ 10,000	$ 20,000	Recent MaineDOT bids
Rectangular Rapid Flashing Beacon	6	EA	$ 14,000	$ 84,000	Recent MaineDOT bids
Curb Ramp Detectable Warning Field	48	SF	$ 125	$ 6,000	Recent MaineDOT bids, assume 2'x3'
Field Office	1	EA	$ 10,000	$ 10,000	Recent MaineDOT bids
Building Slab	9	CY	$ 320	$ 2,850	Slab on grade, 6" thick, RS Means 03 30 53.40 4700
Foundation Wall	14	CY	$ 730	$ 10,490	RS Means 03 30 53.40 4200 Assume 6'Hx8"W
Footings	7	CY	$ 490	$ 3,521	RS Means 03 30 53.40 3940 Assume 12"Hx24"W
Evergreen Trees 6'-8' B&B	10	EA	$ 390	$ 3,900	Recent MaineDOT bids
Deciduous Trees 6'-8'	10	EA	$ 220	$ 2,200	Recent MaineDOT bids
Evergreen Shrubs	33	EA	$ 240	$ 7,920	Recent MaineDOT bids
Deciduous Shrubs	33	EA	$ 215	$ 7,095	Recent MaineDOT bids
Topsoil	715	CY	$ 80	$ 57,240	Recent MaineDOT bids
Seed	58	UN	$ 50	$ 2,898	Recent MaineDOT bids, 1 unit=1000 SF
Mulch	58	UN	$ 60	$ 3,477	Recent MaineDOT bids, 1 unit=1000 SF
Temporary Erosion Controls	1	LS	$ 46,393	$ 46,393	5% subtotal
Mobilization	1	LS	$ 92,786	$ 92,786	10% subtotal
ABATEMENT AND UNIVERSAL WASTE DISPOSAL					
LCP Abatement	1	LS	$ 10,000	$ 10,000	Recent project experience.
Asbestos Abatement	1	LS	$ 16,500	$ 16,500	Recent project experience.
Disposal of Special Waste	9947	TON	$ 180	$ 1,790,424	Assume 120 pcf, Recent MaineDOT bids
Railtrack Removal	141	LF	$ 22	$ 3,032	RS Means Building Construction Costs 02 41 13.33 3500
Waste #6 Oil Disposal	1	LS	$ 375,000	$ 375,000	Assumes disposal via tanker trucks at Fuel Blending Facility
Demo of Tank	1	EA	$ 54,223	$ 54,223	RS Means 130505.75-0540, multiplied by factor of 25
			SUBTOTAL	**$ 3,316,213**	
			Contingency (20%)	$ 663,243	
			Engineering and Environmental Oversight (15%)	$ 497,432	Includes Brownfields documentation
			TOTAL	**$ 4,477,000**	

Notes:
Unit pricing obtained from recent MaineDOT bid tabulations, published RS Means Data, and Project Experience.
Total cost is rounded to the nearest multiple of 1,000.