

1.0 DRAFT ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES

1.1 Introduction/Background: Site Location and Purpose of Analysis of Brownfields Cleanup Alternatives

Miller’s Department Store is located at 230 Penobscot Avenue in the Town of Millinocket, Penobscot County, Maine (the “Site”). According to information obtained from the Town of Millinocket Tax Assessor, the Site is identified on Assessor’s Map U5 as Lot 231, which is approximately 0.17 acres in size.

Our Katahdin (Cleanup Grant Applicant) is providing this draft Preliminary Analysis of Brownfields Cleanup Alternatives (ABCA) to support a United States Environmental Protection Agency (USEPA) Brownfields Cleanup Grant Application to evaluate cleanup alternatives associated with redevelopment of the Site. As required to support a Brownfields Cleanup Grant Application, this ABCA includes and *Introduction & Background* (Section 1), a discussion of *Applicable Regulations and Cleanup Standards* (Section 2), and an *Evaluation of Cleanup Alternatives* (Section 3).

1.2 Site Current and Past Uses

The Site is currently comprised of a two-story (with basement), 10,352 square foot unoccupied building. Previous uses have included a bowling alley, cigar factory, Day’s Jewelers, and department store (see below). The approximate 10,000 square foot building was utilized as a department store from 2003-2007. The building structure is constructed with metal, wood, brick, and concrete block. The foundation is concrete slab on grade with a basement. The interior finishes primarily include bead boards, plasters (with wallpapers), drop ceilings, floor tiles, linoleum floor coverings, and carpeting. There are multiple roof levels.

Based on information reviewed during the historical record review, through the Penobscot County Registry of Deeds, available file Site Assessment (as discussed below), and/or the Maine Department of Environmental Protection (MEDEP), historical Site ownership and operator information is provided in the table below.

Previous Owner and/or Operator Information

Site Owner and/or Operator	From	To
Our Katahdin	c. 2016	Present
Town of Millinocket	c. 2007	c. 2016
Miller’s Department Store	c. 2003	c. 2007
Epstein’s Department Store	c. 1976	c. 1998
Day’s Jewelers	c. 1972	c. 1976
Bowling alley and/or cigar factory and/or store(s)	c. 1931	c. 1972
Bowling alley and/or store(s)	c. 1916	c. 1931

1.3 Previous Site Assessments Findings

A Phase I Environmental Site Assessment was performed for the Site in June 2016. A Potential Hazardous Building Materials Inventory (PHBMI) was conducted to evaluate potential hazardous building materials (report dated June 2016). The Phase I ESA and PHBMI were prepared for the Our Katahdin (listed "User") on behalf of the MEDEP in accordance with the American Society for Testing and Materials E 1527-13 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E 1527-13). The result of the Phase I ESA indicated that no evidence of *recognized environmental conditions* (RECs), *historical recognized environmental conditions* (HRECs), or *controlled recognized environmental conditions* (CRECs) were found in association with the Site, as defined by the ASTM E 1527-13 standard.

However, the PHBMI indicated the presence of building components and materials visible during the Site walk which are suspect and include:

- Potential and/or suspect asbestos-containing materials (ACM);
- Potential and/or suspect lead-based coatings;
- Potentially Polychlorinated Biphenyl (PCB)-containing materials (i.e.: light-fixture ballasts, glazing, and caulking);
- Potential and/or suspect mercury-containing equipment (i.e.: thermostats, hydrostats, manometers, natural gas meters, reed, float, and tilt-switches);
- Lamps (i.e.: fluorescent, neon, high-pressure sodium, mercury vapor, and metal halide);
- Fire extinguishers and fire suppression systems;
- Oils such as fuel oil, etc.;
- Used electronic equipment;
- Stored chemicals and combustible liquids; and
- Facility-specific concerns.

In the fall of 2016, a Limited Investigative Survey Report for Asbestos and Other Hazardous Materials was conducted at the Site (report dated November 2016). The purpose of this limited survey was to evaluate the presence of ACM, lead-containing paint (LCP), polychlorinated biphenyls (PCBs) and other hazardous/regulated materials (OHM) throughout the building that may require remediation and disposal prior to future building renovation/demolition activities. The investigative survey has revealed the presence of building materials containing ACM, LCP, PCBs, and OHM on the interior and exterior of the Site building.

Additionally, in December 2016, a Fungal Spore Air Sampling and Guano Assessment was conducted. Mold was observed in the basement and on the first and second floors of the building. Spore sampling results were much higher on the indoor samples as compared to the ambient (outdoor) samples. The detected fungal spores were of similar species for the indoor vs. outdoor, however in quantities significantly higher than the ambient samples (10 x ambient/background). Guano was not observed inside the building during the assessment; an attempt to observe the building's roofing system was made, however, snow cover limited visual observations.

1.4 Redevelopment Project Goals

The overall redevelopment plan for the Site includes subdividing the building into three distinct uses: (1) co-working space, (2) community co-op space and (3) residential apartments upstairs. Re-using the Site diversifies both services and revenue potential and creates a "home base" for community and business innovation in the region. The Town of Millinocket is lacking in "shared-space" alternatives and this redevelopment would be a catalysis for the area.

The project cleanup goals are to abate the asbestos identified in the Site building, remove the mold, guano, remove polychlorinated biphenyls (PCBs) in window caulking and abate the lead-based paint in order to reuse the building and existing infrastructure.

2.0 APPLICABLE REGULATIONS AND CLEANUP STANDARDS

2.1 Cleanup Oversight and Responsibility

The cleanup will be overseen by an environmental consultant/environmental professional who will coordinate with the MEDEP and follow applicable guidelines and regulations of the MEDEP, USEPA and other applicable regulations (see below). The documents prepared in support of the cleanup will be submitted to both MEDEP and USEPA for review and comment as applicable.

2.2 Cleanup Standards for Major Contaminants

Major contaminants identified are below. Applicable Cleanup Standards follow.

Asbestos - In general, analytical results revealed the presence of asbestos in numerous building materials throughout the Site building. ACM observed within the Site building ranged from good to damaged condition. Positive ACM materials include: 9" X 9" floor tiles, sink lining(s), and faux brick siding material.

Lead-Based Paint - A screening for lead containing paint in the interior and exterior of building sections using an on-Site x-ray fluorescence (XRF) lead detector was conducted. Low levels (<1.0 mg/cm²) and high levels (>1.0 mg/cm²) of lead paint were identified throughout the Site building.

Polychlorinated Biphenyls - Caulking and Glazing Compounds - A visual inspection, physical assessment, and bulk sampling of suspect PCB-containing caulking and window glazing compounds on building components was conducted. Select bulk samples were collected. Laboratory results for the caulking and glazing compound samples submitted for PCB analysis had PCB concentrations detected above the laboratory detection limits, but less than the EPA's PCB Bulk Product Waste criteria of >50 milligrams/kilograms (mg/kg). As such, none of the suspect PCB-containing caulking and glazing compounds collected and analyzed during this survey meet the definition of Bulk Product Waste as defined by EPA under 40 CFR 761.62. Materials containing PCB concentrations of 1.0 mg/kg or greater, but less than 50 mg/kg may be defined as Excluded PCB Products as defined in 40 CFR 761.3. Excluded PCB products may be disposed of at any permitted solid waste management or recycling facility as long as their permit

allows them to accept these type of sealants. Proper site controls, worker protection and waste disposal methods will need to be implemented during removal and disposal of these materials.

Other Hazardous and Regulated Materials - A visual inspection to identify and quantify other potentially hazardous and regulated materials throughout the Site building that may require special handling prior to future renovation/demolition activities was conducted. Identified items included fluorescent bulbs (potentially containing mercury), fluorescent light fixture ballasts (potentially containing PCBs), thermostats (potentially containing mercury ampoules), electronic devices (i.e., televisions, VCRs, etc.), fire extinguishers, various containers of maintenance materials, and above ground storage tanks.

Cleanup Objectives - The objective of the remediation at the Site is to remove an environmental and public safety hazard, achieve No Further Action Assurance Letter from MEDEP, and achieve Site closure by elimination or management of environmental conditions that pose a risk to human health and/or the environment. In order to achieve this objective, the following cleanup goals and/or regulatory standards and/or guidelines are applicable:

- Polychlorinated Biphenyl (PCB) Containing Materials
 - EPA 40 CFR, Part 761.123, Toxic Substances and Control Act (TSCA)
- Asbestos Containing Materials (ACM)
 - OSHA 29 CFR 1910 - Asbestos
 - MEDEP Chapter 425: Asbestos Management Regulations
- Lead-Based Paint (LBP)
 - OSHA 29 CFR 1926.62 - Lead in Construction Standard
 - MEDEP Chapter 424: Lead Management Regulations
- Universal, Solid, and Other Regulated Wastes
 - USDOT 49 CFR 100-199 - Transportation of Hazardous Materials
 - MEDEP Chapter 400 – Solid Waste Management
 - MEDEP Chapters 850 - 857 - Maine Hazardous Waste Management Regulations
 - MEDEP Chapter 860 – Waste Oil Management
- Mold and Guano
 - No federal or state standards or guidelines exist for acceptable or hazardous levels of spore counts. As a result, relative level/type comparisons and professional judgments of concentrations compared to “typical” and ambient levels are utilized to supplement visual inspections in order to provide an assessment.

2.3 Laws and Regulations Applicable to the Cleanup

Applicable laws and regulations associated with this cleanup will include the following:

- Brownfields Revitalization Act
- Federal Davis-Bacon Act

- MEDEP state environmental laws and regulations, and
- Town By-Laws, as applicable.

Other laws and regulations that may be applicable are cited above. In addition, federal, state, and local laws which identify procurement of cleanup contractors to conduct and oversee cleanup will be followed during the remediation and cleanup. All applicable permits to conduct the work and hazardous waste manifests for off-site disposal of the contaminated materials will be obtained.

3.0 ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES

Each remedial alternative was evaluated with respect to the comparative evaluation criteria including: effectiveness, reliability, implementability, preliminary cost, and the impact of potential climate changes to the remedy based on selection.

The preliminary cost estimates presented (including preliminary engineering, bidding, remediation, contingency, etc.) are approximate estimates prepared solely for the relative comparison of the identified alternatives. As such, these cost data are not to be used as design-level estimates.

3.1 Identification of Remedial Alternatives

Potential alternatives were evaluated for addressing the environmental conditions that could pose a risk to human health and/or the environment at the Site. A limited number of practicable remedial alternatives that could be implemented at the Site based on available Site data were developed. The “No Action” alternative was included as part of the evaluation to establish a basis for conducting remedial actions at the Site and as required in the Cleanup Grant application.

The remedial alternatives identified for consideration under this alternatives analysis include:

1. No Action Alternative;
2. Asbestos Abatement/Limited Hazardous Building Materials Removal, Repair, Reuse, Disposal; and
3. Asbestos Abatement/Full Hazardous Building Materials Removal and Disposal.

3.2 Evaluation of Remedial Alternatives

A description of each alternative and the results of the comparative analysis are presented in the following subsections.

Alternative #1: No Action

This alternative involves no additional response actions at the Site. Under this alternative, the Site buildings are not abated of asbestos containing material, lead-based paint, mold, and other regulated waste. The No Action alternative would not prevent exposure of Site contaminants to

humans and the environment. Therefore, the No Further Action alternative will not meet the remedial action objectives and cleanup goals and will not be evaluated further with respect to the comparative evaluation criteria.

The costs for Remedial Alternative #1 is \$0.00.

Alternative #2 –Asbestos Abatement/Limited Hazardous Building Materials Removal, Repair, and Reuse

This alternative involves abatement of asbestos containing material, mold abatement, lead-based paint abatement, and management of windows with potential PCB-containing materials and other regulated wastes. The alternative will utilize standard construction techniques to abate hazardous building materials components. The alternative would include proper management of wastes for off-site disposal, as applicable. The alternative will utilize encapsulated, enclosed, or repaired hazardous building materials in order to reach closure and reuse. The estimated cost ranges for implementing Remedial Alternative #2 are presented below.

ACM Abatement	\$20k to 25k
LBP Abatement	\$40k to \$45K
PCBs Abatement	\$70 to \$85k
Mold Abatement	\$70 to \$85k
Supplemental Materials Testing	\$10k to \$25k
Disposal of Regulated Waste Containers	\$5k to 15k
Site Oversight/Engineering/Closure	\$40k to \$50k

The range of costs for Remedial Alternative #2 is \$255K to \$330K.

Alternative #3 –Asbestos Abatement/Full Hazardous Building Materials Removal

This alternative is similar to Alternative #2 in that it involves abatement of asbestos containing material, mold abatement, PCB-containing materials and other regulated wastes but also includes the removal of all hazardous building materials infrastructure (no repair and reuse). This alternative would be effective at reducing risk at the Site, but would be more costly, when compared to the Alternative #2 because of the additional testing of window substrates, additional consultant and engineering costs (e.g. additional engineering drawings and specifications), and additional lead-based paint removal activities. In this Alternative, lead-based paint would be sand-blasted off interiors for a complete removal rather than Alternative #2 where the lead-based paint would be “encapsulated”/painted/treated as required. The estimated cost ranges for implementing Remedial Alternative #3 are presented below.

ACM Abatement	\$25k to \$35k
LBP Abatement	\$45 to \$55k
PCB Abatement	\$85k to \$145k
Mold Abatement	\$70k to \$90k
Supplemental Materials Testing	\$25k to \$45k
Disposal of Regulated Waste Containers	\$5k to 15k

Site Oversight/Engineering/Closure

\$55k to \$85k

The range of costs for Remedial Alternative #3 is \$310K to \$470K.

3.3 Comparison to Evaluation Criteria

This Section presents a relative comparison of the selected remedial alternatives (Alternatives #2 and #3). Alternative #1 is not carried through for review.

Effectiveness: Remedial Alternatives #2 and #3 would both be effective at achieving Site closure.

Reliability: Remedial Alternative #3 is more reliable in preventing exposure to future users of the Site because the hazardous building materials are directly targeted for full scale removal of all suspect materials. Alternative #2 is a simple approach involving the removal/abatement of materials and encapsulating, enclosing, or repairing of hazardous materials such as lead-paint.

Difficulty of Implementation: Remedial Alternative #3 would be moderately more difficult to implement as the removal process is a full-scale removal of windows and all substrate material as well as other building infrastructure. Off-site disposal of windows and other building materials are a more complex action than removal of the windows and off-site disposal as it does not include the testing of the substrate. Remedial Alternative #2 would be relatively easy to implement as it includes the removal of all asbestos and hazardous building materials but eliminates the testing of substrate which would increase costs.

Cost-Benefit: Due to the significant removal and additional testing of building materials (e.g. all window substrates would need to be tested prior to removal versus assuming the materials around the windows could be considered PCB-containing, if applicable) and full scale removal of lead-based paint materials versus painting and treating existing surfaces, Remedial Alternative #3 is most likely to be the highest cost as the abatement is more time consuming and additional testing (to meet facility disposal criteria) prior to disposal would be warranted.

3.4 Selection of Remedial Alternative

The No Action Alternative (Remedial Alternative #1) was included in this analysis for comparative purposes only and is not a feasible alternative because it does not meet the remedial action objectives.

Remedial Alternatives #2 and #3 were evaluated to address abatement and cleanup of hazardous building materials in Site building materials. Each is deemed equally effective in terms of its ability to achieve a Site closure.

Remedial Alternative #2 is reliable, moderately less difficult to implement and is the most cost effective alternative. Therefore, Alternative #2 is chosen as the preferred remedial alternative.

3.5 Green and Sustainable Remediation and Climate Change

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 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, in an effort 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

- Utilize existing buildings for field office, if possible/safe
- Use energy efficient equipment
- Reuse or recycle waste
- Protect and conserve water
- Use alternative fuel vehicles (hybrid-electric, biodiesel, ultra-low sulfur diesel)
- Carpool for site visits and project meetings and/or use public transportation
- Schedule activities efficiently so as 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
- Maximize use of machinery equipped with advanced emission controls

Climate Change Conditions

In evaluating climate change conditions, the proposed cleanup activities were evaluated with regard to proximity to a coastline, flood plain, in an area with a potential increase of drought, and impact of increased frequency and intensity of storms. The Site is not located near the coastline of Maine or located along a waterway where flooding has been identified. The Site topographic elevation is approximately 372 feet above mean sea level, and local topography slopes east towards Millinocket Stream. The Site is located in the downtown which does not experience flooding. The remedial activities proposed for the Site include the abatement of building materials and therefore flooding or other climate-related activities are not believed to be a concern for the Site.