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March 25, 2009

Ms. Kathryn Ruth
Town Manager
Town of Pittsfield
112 Somerset Avenue
Pittsfield, Maine 04967-1432

RE: Analysis of Brownfields Cleanup Alternatives
8 Mount Road Property, Pittsfield, Maine

Dear Ms. Ruth:

Credere Associates, LLC (Credere) has prepared this Analysis of Brownfields Cleanup Alternatives for the 8 Mount Road property (the site) in Pittsfield, Maine (see **Figure 1** for site location map and **Figure 2** for a site plan). The purpose of this letter is to develop, evaluate, and recommend potential remedial action alternatives to accomplish remediation as part of the potential future mixed use redevelopment of the site. As a part of previous Phase II Investigations, remedial action and additional investigation are required to address the following confirmed or uninvestigated *recognized environmental conditions* (RECs) and other environmental considerations at the site:

1. Remedial action is required to address asbestos-containing materials and hazardous wastes including universal wastes identified within the building during a previous survey of the building.
2. Remedial action is required to address the petroleum (diesel range organic, DRO) contaminated soil detected beneath the aboveground storage tank (AST) fill pipe.
3. Additional characterization of groundwater is required to confirm concentrations of metals previously detected in groundwater as well as the adjacent private drinking water well.
4. Additional characterization of soil is required at the terminus of the floor drain and the floor drain pipe located beneath the building.

Based on the nature of remedial actions needed, Credere offers the following alternatives to address the remaining RECs and other environmental considerations at the site:

1. Alternative #1 – No Action: No action to address all contaminants.
2. Alternative #2 – Capping: This alternative includes the capping of DRO contaminated soil in the AST area, abatement of asbestos containing building materials as well as

removal of hazardous wastes (including any universal wastes) noted prior to redevelopment activities. In addition this alternative also includes conducting post remediation sampling of groundwater monitoring wells, the private drinking water well, and soil around the floor drain terminus. Because contamination would remain on-site, this alternative would also require the implementation of institutional controls to prevent the excavation of soil and extraction of groundwater from the site.

3. Alternative #3 – Waste Removal: This alternative includes removal of the DRO contaminated soil in the AST area, abatement of asbestos containing building materials as well as removal of hazardous wastes (including any universal wastes) noted prior to redevelopment activities. In addition this alternative also includes conducting post remediation soil sampling in the AST area and soil sampling around the floor drain and floor drain terminus, as well as post remediation sampling of groundwater monitoring wells and the private drinking water well., Background information regarding the site was obtained from several previous reports reviewed for this site and are summarized in **Section 1.2** below.

1. BACKGROUND INFORMATION

1.1 Site Location & History

The subject property is located at 8 Mount Road in Pittsfield, Maine and is currently owned by the Town of Pittsfield. The site is a 0.87-acre property located in a Corridor Development Overlay District targeted for growth. The existing structure on the site was constructed in 1950. The building was used as a retail furniture showroom between 1955 and approximately 1986. In the late 1980s, the site was occupied by a tanning bed manufacturer and retailer. From the late 1980s through the early or mid-1990s, the site was occupied by a printing company. Prior to 1981, the site parcel was larger and encompassed the abutting residential lot to the west. In 1981 the lot was divided, thereby creating two separate parcels. The current site parcel contains a single vacant wood-framed building, portions of which have collapsed and are unsafe.

1.2 Previous Reports

Based on information provided by the Town, two prior environmental assessments were completed for the subject property under the Kennebec Valley Council of Governments (KVCOG) Brownfields Assessment Program, each of which are summarized below.

Phase I Environmental Site Assessment, Weston & Sampson Engineers, January 2007

Weston & Sampson Engineers, Inc. (WSE) completed a Phase I Environmental Site Assessment (ESA) for the 8 Mount Road site in January 2007. The Phase I ESA identified several *recognized environment conditions* (RECs) at the property that warranted further investigation that include:

1. The historic use of the site as a printing company may have impacted groundwater, soil, sediment, and surface water at the site.
2. Oil and hazardous materials containers stored on the site and the lack of disposal documentation may have impacted groundwater, soil, sediment, and surface water at the site.
3. The presence of a subsurface disposal system (the old leach field) may have impacted groundwater and soil at the site.
4. A floor drain located in the building with an unknown terminus location may have impacted groundwater, soil, sediment, and surface water at the site.

Phase II Environmental Site Investigation, Weston & Sampson Engineers, December 2007

To address the RECs identified in the January 2007 Phase I ESA, WSE conducted Phase II ESA investigation activities at the site between September 2007 and December 2007. As part of the Phase II ESA, WSE performed the following tasks at the site:

1. Performed an asbestos and hazardous materials survey (including universal wastes).
2. Located the former septic system (the old leach field).
3. Evaluated the existing floor drain.
4. Evaluated the aboveground storage tank (AST) area.
5. Advanced soil borings and installed groundwater monitoring wells at the site.
6. Collected and analyzed groundwater, soil, sediment, and surface water samples.

Based on the results of the Phase II ESA investigation and sampling activities, WSE determined that the following areas of the site required further evaluation and/or remedial measures:

1. Asbestos-containing materials, universal wastes, and drums within the building require removal/abatement and proper disposal.
2. Petroleum contaminated soil was noted in the vicinity of the AST and fill pipe that exceed Maine Department of Environmental Protection (DEP) remediation goals require removal.
3. Arsenic contaminated soil in the vicinity of the old leach field that exceed Maine DEP Remedial Action Guidelines (RAGs) that require further evaluation and may require removal.
4. Metals contaminated groundwater was quantified in the vicinity of the old leach field near the water supply well field requiring further evaluation.

5. WSE determined that the existing floor drain requires further evaluation after building demolition to identify terminus and evaluate conditions around it.

1.3 Remedial Objectives

The purpose of this Analysis of Brownfields Cleanup Alternatives is to develop, evaluate, and recommend remedial action alternatives for the environmental conditions at the site (see **Section 3** below). The remedial objectives are to minimize or eliminate the potential for exposure to compounds of concern and reduce the risk of harm to human health, safety, public welfare and the environment.

2. SUMMARY OF ENVIRONMENTAL CONDITONS

Based on the previous work reviewed for the site, Credere identified the following remaining RECs and other concerns requiring further evaluation/remediation prior to site redevelopment:

1. Asbestos-containing materials in building materials, universal wastes in the building, and drums (that contain wastes) within the building that require removal/abatement and proper disposal.
2. Petroleum contaminated soil in the vicinity of the AST and fill pipe exceeding Maine DEP remediation goals that require removal.
3. Metals contaminated groundwater was noted in the vicinity of the old leach field that required further evaluation. In addition, the adjacent residential water supply well also requires further evaluation.
4. A floor drain was noted in the building with an unknown terminus requiring further investigation after the building is demolished.

3. CONTAMINANTS OF CONCERN, MIGRATION PATHWAYS AND EXPOSURE PATHWAYS

3.1 Contaminants of Concern

Based on information contained in the previous Phase I ESA, the former tenants of the subject property included: a furniture retailer, a tanning bed manufacturer and retailer, and a printing company. Contaminants of concern associated with the former uses and previously identified at the site include petroleum based products (i.e. fuel oils, and waste materials), volatile organic compounds (VOCs), metals, asbestos, and other potentially hazardous materials.

Based on the results of the previous Phase II Investigation, soil and groundwater in the vicinity of the old leach field are contaminated with metals (arsenic, chromium and lead, but may be attributed to background concentrations in soil and excess turbidity in groundwater), and soil in

the vicinity of the AST have been contaminated with petroleum products. In addition, asbestos, universal wastes and hazardous wastes (drums) were identified within the building.

3.2 Migration Pathways

The migration pathway for contaminants in soil would involve physical transport as concentrations that are sorbed to soil particles. The particles would travel downgradient with stormwater runoff towards the adjacent wet area. Additional migration pathways for soil contamination would be physical transport as dust particles distributed by dry, windy conditions. Contaminants leaching from soil during stormwater events may also transport contaminants into area drinking water.

3.3 Exposure Pathways

The following exposure pathways were identified for the site:

Potential exposure through inhalation of dust contaminated with asbestos at this site. *As part of this remediation project, this potential exposure pathway will be addressed through removal of asbestos containing materials prior to building demolition. In addition, all universal wastes and hazardous wastes will be removed prior to demolition.*

Potential exposure to soil contamination in vicinity of the fuel oil AST could result from dermal contact with petroleum contaminated soils, ingestion of particles via dirty hands, or from inhalation of airborne soil or dust particles under dry or windy conditions as well as ingestion of contaminated groundwater. *As part of this remediation project, this potential exposure pathway will be addressed through the excavation of contaminated soils in this area and offsite disposal.*

Potential exposure to metals contaminated soil in the vicinity of the old leach field could result from dermal contact with contaminated soils, ingestion of particles via dirty hands, or from inhalation of airborne soil or dust particles under dry or windy conditions as well as ingestion of contaminated groundwater. *Please note that the arsenic concentrations detected in this area (10 to 23 mg/kg) are consistent with background concentrations in Maine and therefore active remediation of this area is not currently planned for this area at this time. Additional background soil samples will be collected to determine the site-specific background concentration of metals (in particular arsenic).*

The floor drain located within the building represents a potential exposure pathway by allowing petroleum and hazardous materials to be discharged to subsurface soil, groundwater and the adjacent wet area. *As part of this remediation the building will be demolished and the floor drain will be traced. This exposure pathway will be confirmed or dismissed through the collection of a soil sample at the floor drain terminus and along*

the drain pipe located beneath the building. Please note that if contamination in exceedance of state standards is detected, then additional investigations and/or remediation will be required.

Potential exposure to contaminated groundwater is primarily through ingestion. Because the area receives its drinking water from private residential wells, exposure to potential contaminants in drinking water is a concern at the site. Based on previous sampling results, the metals detected in groundwater were attributed to turbidity contained in the samples collected. *As part of this remediation project, Credere plans to sample the onsite monitoring wells and adjacent residential water supply well for dissolved metals to confirm or dismiss this exposure pathway.*

4. EVALUATION OF REMEDIAL ALTERNATIVES

Based on the potential exposure pathways discussed in the previous section, the remedial alternative selected for the site should be capable of minimizing or eliminating ingestion of contaminated groundwater, direct contact and/or incidental ingestion/inhalation of contaminated soils, or inhalation of asbestos. To achieve these objectives, Credere has selected two remedial scenarios for evaluation and comparison. The selected alternatives are:

Alternative# 1 – No Action

No action for any of the issues requiring remediation.

Alternative #2 – Capping

a.) Capping of petroleum contaminated soil in the vicinity of the AST.

b.) Removal and proper disposal of asbestos, hazardous wastes, and universal wastes from inside the building.

c.) Additional characterization of metals in the onsite groundwater monitoring wells and the potable drinking water well.

d.) Additional characterization of soils located along the pipe and at the terminus of the building floor drain once its location is determined.

e.) Implementation of institutional controls in the form of restrictive deed covenants to prevent the excavation of soil and the extraction of groundwater from the site.

Alternative #3 – Waste Removal

a.) Removal and proper disposal of petroleum contaminated soil in the vicinity of the AST as well as post excavation soil sampling and analysis for DRO.

b.) Removal and proper disposal of asbestos, hazardous wastes, and universal wastes from inside the building.

c.) Additional characterization of metals in the onsite groundwater monitoring wells and the potable drinking water well.

d.) Additional characterization of soils located along the pipe and at the terminus of the building floor drain once its location is determined.

Each of these remedial alternatives, along with any inferences or assumptions, is further discussed below. Each of these alternatives is evaluated based on: 1) effectiveness; 2) implementability; and, 3) cost. Refer to **Appendix A** for a description of these evaluation criteria. **Appendix B** contains a Summary of the Analysis of Brownfields Cleanup Alternatives for these scenarios.

4.1 Alternative Scenario #1 - No Action

A "No Action" alternative signifies that none of the identified issues requiring remediation would be addressed. This alternative is presented and discussed as a baseline comparison and represents the existing conditions.

Effectiveness

The "No Action" alternative does not include a means for mitigating or eliminating potential exposure to petroleum contamination in surface soils as well as asbestos, universal wastes, and hazardous substances. This alternative does not also further characterize area groundwater and drinking water for metals as well as soils at the terminus of the building floor drain. As a result, no provisions for a reduction in toxicity, mobility or volume of compounds of concern are made as a part of this alternative. This alternative does not achieve the remedial objectives for the site.

Implementability

This alternative is technically and administratively implementable since this option has essentially been in effect since the property was vacated in the 1990's.

Cost

Since this option represents existing conditions, there is no cost associated with this alternative. However, this is not an acceptable long-term solution for this site.

4.2 Alternative Scenario #2 – Capping

This alternative consists of addressing all issues noted in Section 2.0 above.

Effectiveness

Capping of petroleum contaminated soil, and removal of asbestos, universal waste, and hazardous waste will be effective in reducing/removing the exposure pathways of contaminants removed or capped; however, this alternative will not wholly eliminate the

potential for exposure to on-site compounds of concern or reducing the risk of harm to human health, safety, public welfare and the environment because contaminants would remain on-site and drinking water in the area may be adversely effected. This alternative would potentially have short-term adverse affects for those site workers exposed to the compounds of concern during the alternative's implementation. The risks to site workers would be minimized and controlled by the preparation and implementation of a site-specific Health and Safety Plan. The transportation of contaminated soil and hazardous materials to a disposal facility (which will be predetermine later in the project) would be accomplished under a bill of lading or hazardous waste manifest in accordance with the Department of Transportation (DOT) regulations to reduce the risk to public health, welfare and safety.

Because this alternative would leave contamination on-site, institutional controls in the form of restrictive deed covenants would be required to prevent the excavation of soil and the extraction of groundwater at the site. Restrictive deed covenants have been proven effective in mitigating the potential for exposure to on-site compounds of concern, but do not reduce the risk of harm to human health, safety, public welfare and the environment because contamination will remain on-site.

Implementability

Remedial actions like capping and waste removal are a widely used and accepted form of remediation/risk reduction that has been proven highly implementable at numerous sites across the country. The capping and waste removal will also use conventional construction equipment and technologies. The services, equipment, materials and resources are available to implement this alternative. Institutional controls are easily prepared and filed with the State of Maine and the County Registry of Deeds. Based on this information, we conclude that the remedial alternatives associated with this scenario are implementable at this site.

Cost

Due to the limited nature of contamination and the regulatory setting of the site, capping is an efficient form of remediation for the site; however, is not an effective form of remediation due to the use of private drinking water wells in the area. Based on cost estimates received for capping, universal waste and hazardous material removal, engineering and regulatory costs, and confirmation/disposal sampling, it is estimated that this alternative will cost approximately $106,000; however, will leave contamination in place that may result in future financial liabilities associated with drinking water impacts and cleanup. Please note that this cost estimate is based on engineering estimates and not on actual contractor bids.

4.3 Alternative Scenario #3 – Soil Removal

This alternative consists of addressing all issues noted in Section 2.0 above.

Effectiveness

Removal and proper disposal of petroleum contaminated soil, asbestos, universal waste, and hazardous waste will be highly effective because the removal of these contaminants from the site will result in the exposure pathways being removed. This will eliminate the potential for exposure to on-site compounds of concern and reducing the risk of harm to human health, safety, public welfare and the environment. Since it would be a permanent solution, it would provide long-term effectiveness. This alternative would potentially have short-term adverse affects for those site workers exposed to the compounds of concern during the alternative's implementation. The risks to site workers would be minimized and controlled by the preparation and implementation of a site-specific Health and Safety Plan. The transportation of contaminated soil and hazardous materials to a disposal facility (which will be predetermine later in the project) would be accomplished under a bill of lading or hazardous waste manifest in accordance with the Department of Transportation (DOT) regulations to reduce the risk to public health, welfare and safety.

Implementability

Remedial actions like soil removal and waste removal are a widely used and accepted form of remediation that has been proven highly implementable at numerous sites across the country. The soil removal and waste removal will also use conventional construction equipment and technologies. The services, equipment, materials and resources are available to implement this alternative. Based on this information, we conclude that the remedial alternatives associated with this scenario are implementable at this site.

Cost

Due to the limited nature of contamination and the regulatory setting of the site, soil removal is the most efficient and effective method of remediation. Based on cost estimates received for soil excavation and disposal, universal waste and hazardous material removal, engineering and regulatory costs, and confirmation/disposal sampling, it is estimated that this alternative will cost approximately $110,000. Please note that this cost estimate is based on engineering estimates and not on actual contractor bids.

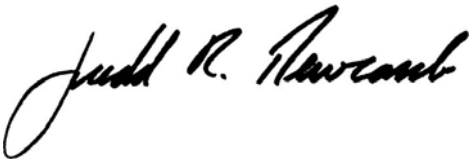
5. SELECTION OF PREFERRED REMEDIAL ALTERNATIVE

A Summary of the Analysis of Brownfields Cleanup Alternatives is presented in tabular form in **Appendix B**. It is clear that because redevelopment is sought, remedial Alternative #1 (No Action) is unacceptable. Because the site is located in a drinking water area, and due to the limited size of the contaminated area on the site, Alternative #2 is not effective at reducing the potential for exposure to on-site compounds of concern and reducing the risk of harm to human health, safety, public welfare and the environment. Alternative #3 will clearly meet the remedial objectives and will allow for future reuse of the site by eliminating the presence of contamination on the property. Therefore, Alternative #3 is the selected remedial alternative for the site.

We trust this report is consistent with your needs and expectations; however, please do not hesitate to contact us if you have any questions or comments.

Very truly yours,

Credere Associates, LLC



Judd R. Newcomb, CG
Assistant Project Manager/Geologist

Rip Patten, P.E., LEED-AP
Environmental Engineer/Vice President

Attachments:

Figure 1	Site Location Map
Figure 2	Site Map
Appendix A	Evaluation Criteria
Appendix B	Summary Table of Remedial Alternatives

cc: File: 09001046

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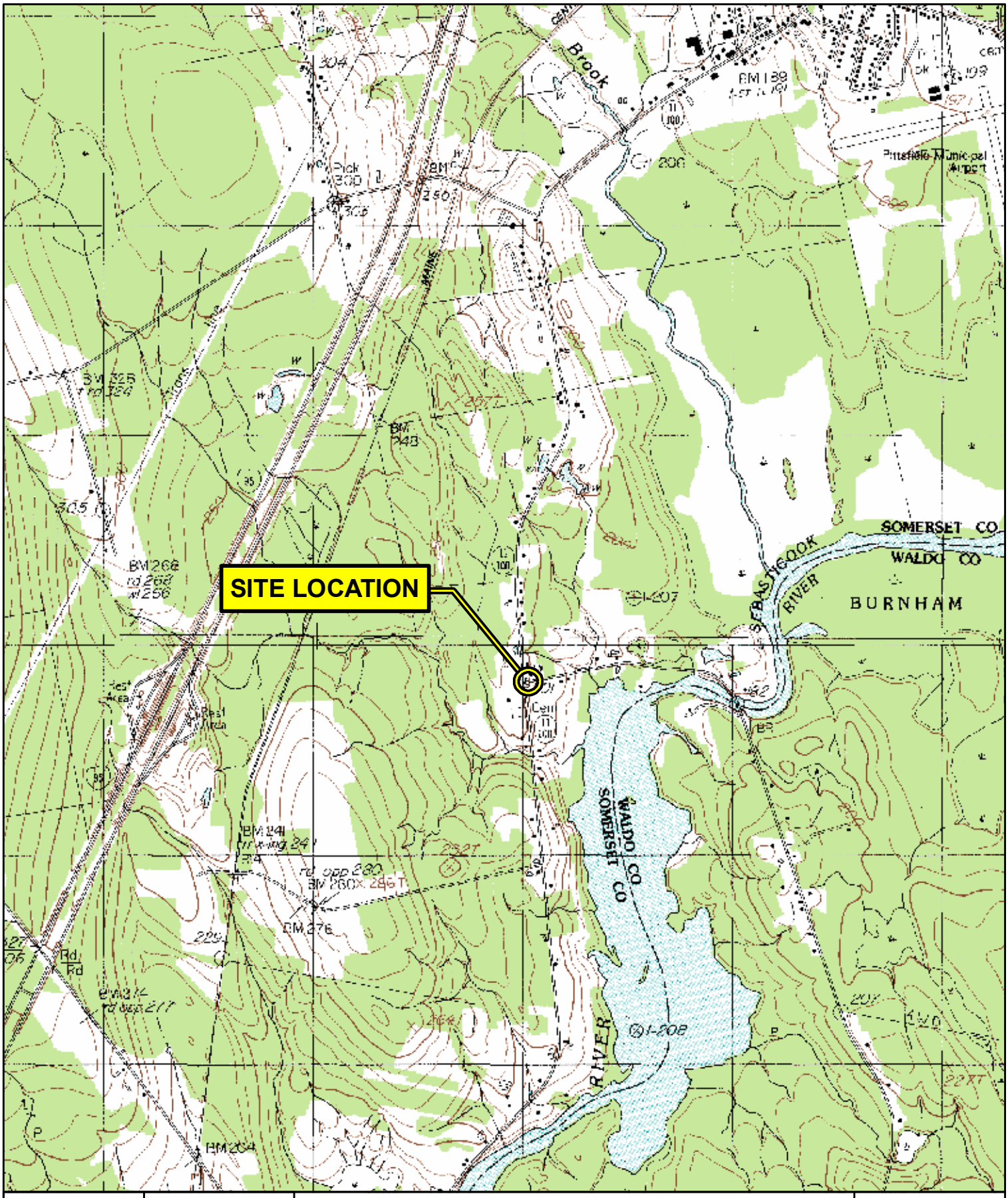

DRAWN BY: **AKL**	DATE: **2/5/2009**
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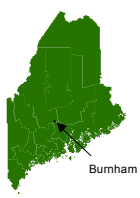
Figure 1
Site Location Map

8 Mount Road
Pittsfield, Maine

0 1,000 2,000 Feet

NORTH



Data Source: Maine Office of GIS, USGS (Gardiner [ME] 7.5 Quadrangles [DRG, 10 Meter DEM])

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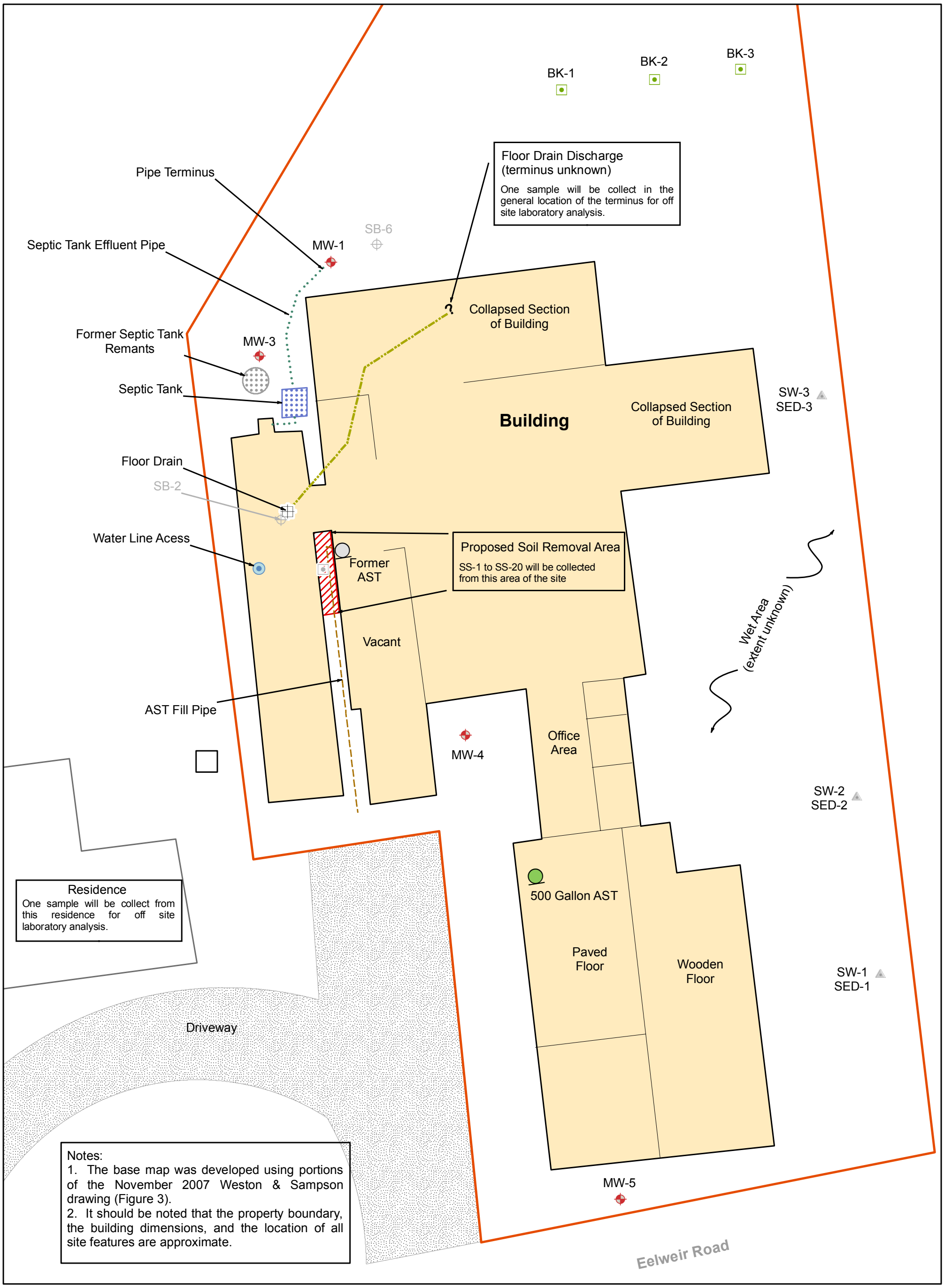

DRAWN BY: **MTG**	DATE: **2/13/2009**
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Figure 2
Site Plan

8 Mount Road
Pittsfield, Maine

Legend

- AST
- Floor Drain
- Monitoring Well
- Former AST
- Former Soil Boring
- Water Line Access
- Background Sample
- Approxemate Subject Property Boundary
- Floor Drain Pipe
- AST Fill Line
- Septic Effluent Pipe
- Interior Walls
- Former Surfical Soil Sample
- Former Surface Water Sample
- Site Bulding
- Proposed Soil Excavation
- Former Septic Tank
- Paved Areas
- Adjacent Residence
- Septic Tank

0 5 10 20 Feet

1 inch equals 20 feet

NORTH

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APPENDIX A

Evaluation Criteria

Effectiveness

A key aspect of the screening evaluation is the effectiveness of each alternative in protecting human health and the environment. Each alternative is evaluated as to its short-term and long-term effectiveness in providing protection, and the reductions in toxicity, mobility, or volume of the hazardous substances or contaminated media. Protection of human health is assessed by evaluating how risk from each exposure route is eliminated, reduced, or controlled through specific alternatives.

Implementability

This criterion analyzes technical feasibility and the availability of services and materials. Technical feasibility assesses the ability to monitor the effectiveness of the alternative. Availability of services and materials evaluates the need for off-site treatment, storage or disposal services and the availability of such services. Necessary equipment, specialists and additional resources are also evaluated.

Cost

Cost information presented for the alternatives evaluates the estimated capital, operation and maintenance costs of each alternative. Capital costs include direct capital costs such as materials and equipment and indirect capital costs such as engineering, contingencies, licenses, and permits. Costs are presented as a balancing criterion such that if a number of remedial alternatives are comparable for the previously discussed criteria, cost may be used as a distinguishing factor in the selection of remedial action. Costs presented are for planning purposes only and should not be construed as bid amounts.

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APPENDIX B

SUMMARY TABLE OF ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES

3-25-09
Summary of Analysis of Brownfields Cleanup Alternatives
8 Mount Road, Pittsfield, Maine

Remedial Alternative	Alternative Scenario #1 No Action Alternative	Alternative Scenario #2 Capping Alternative	Alternative Scenario #3 Waste Removal Alternative
Overall Protection of Human Health and the Environment	• No reduction in risks. • Risks to human health by direct contact, inhalation and ingestion will remain.	• Protection of groundwater is not addressed under this alternative. • Risks to human health by direct contact, inhalation of dust and ingestion of contaminated media are reduced by capping contaminated soil and removing hazardous materials from the site. • Risks to the environment from the onsite soils and future protection of groundwater are not reduced by this alternative. • Additional characterization of soils along the floor drain pipe and terminus is necessary and will confirm or dismiss adverse impacts to site soils.	• Protection of groundwater is addressed by removing contaminant source areas from the site to prevent future leaching or migration of these contaminants. • Risks to human health by direct contact, inhalation of dust and ingestion of contaminated media are eliminated by removing contaminated soil and hazardous materials from the site. • Risks to the environment from the onsite soils and future protection of groundwater are reduced by removal of the impacted soil and hazardous materials onsite. • Additional characterization of soils along the floor drain pipe and terminus is necessary and will confirm or dismiss adverse impacts to site soils.
Technical Practicality	• Not applicable.	• Capping uses standard construction techniques thus is technically practical.	• Excavation and removal uses standard construction techniques thus are technically practical.
Implementability	• Not applicable.	• All aspects of this scenario are implementable given the specifics of the site and considering the nature and extent of contaminants in soil.	• All aspects of this scenario are implementable given the specifics of the site and considering the nature and extent of contaminants in soil.
Reduction of Toxicity, Mobility and Volume	• No reduction in toxicity, mobility or volume of the contaminated media.	• This alternative does not reduce the toxicity and mobility of the contaminants in soil.	• As soil is removed, the volume of contaminated soil is reduced; therefore the toxicity and mobility of the contaminants is reduced. • The removal of source areas of contaminants will protect against future groundwater contamination.
Short Term Effectiveness	• Not applicable.	• Capping of contaminated soil will achieve the remedial action objectives in a relatively short time frame because soil capping immediately reduced direct contact to contaminants. Capping at the Mount Road site is not an effective long term solution due to the use of drinking water in the area.	• Removal of contaminated soil will achieve the remedial action objectives in a relatively short time frame because soil and hazardous material removal achieves results immediately.
Estimated Cost	• No cost.	• Approximately - $106,000	• Approximately - $110,000
Comments	• This alternative does not eliminate the recognized environmental conditions or the contamination associated with the property. • Redevelopment cannot occur under this scenario.	• Not an effective alternative, due to risk to groundwater. • Redevelopment can occur under this scenario only after using restrictive deed covenants. • Long term liabilities remain at the site.	• Good alternative, but more costly than Alternative #1 and #2. • Redevelopment can occur under this scenario. • Long term liabilities are removed from the site.