Analysis of Brownfield Cleanup Alternatives

Big Sandy Hotel

185 Johannes Avenue

Big Sandy, Montana 59520

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GRANITE PEAK
ENVIRONMENTAL

Table of Contents

1.0 Introduction 2
2.0 Site Background 2
3.0 Cleanup Standards 2
3.1 Applicable Laws 3
3.1.1 Asbestos 3
4.0 Cleanup Alternatives 3
5.0 Evaluation of Alternatives 4
6.0 Preferred Alternative 5
7.0 Climate Change and Severe Weather Events 6
8.0 Public Review and Comments 6
9.0 References 6

List of Figures

Figure 1 – Location Map
Figure 2 – Area Map

List of Appendices

Appendix A – Montana DEQ LBP Disposal Guidance
Appendix B – Cost Estimates

1.0 Introduction

Granite Peak Environmental, LLC (Granite Peak) prepared this Analysis of Brownfields Cleanup Alternatives (ABCA) in anticipation of environmental cleanup at the Big Sandy Hotel (site) in Big Sandy, Montana (**Figure 1**). Bear Paw Development Corporation (BPDC) was awarded a U.S. Environmental Protection Agency (EPA) Brownfields Revolving Loan Fund (RLF) Grant to assist landowners in the remediation of brownfields sites within BPDC's region. A Phase II Environmental Site Assessment (ESA) completed in 2016 revealed asbestos-containing building materials (ACBM) in the hotel, but abatement has not been completed to-date. This ABCA was prepared to facilitate the abatement of hazardous building materials at the site using BPDC's RLF program to allow for future site redevelopment.

2.0 Site Background

The site is located at 185 Johannes Avenue in Big Sandy, Montana and is owned by the Town of Big Sandy. The site contains an approximately 20,000 square foot, two-story brick structure with both a basement and an attic that was originally constructed in 1916. The building served as a hotel until the 1990's when it was renovated into apartment units. The building has now been abandoned for several decades and is in a current state of disrepair that poses a significant public safety threat.

An asbestos survey was completed at the site by NewFields Companies, LLC (NewFields) in 2016. This investigation identified 10 building materials that contain >1% asbestos including carpet adhesive, two different types of 12x12" vinyl floor tiles (VFT), mastic, two different types of 9x9" VFT, boiler breaching, 4" straight run air cell, 2" straight run air cell, and a 4" air cell elbow. The survey report noted that the abandoned building was in a state of disrepair at the time of the investigation. Several building materials were classified as being "poor/deteriorated" and mold was observed in the basement. It should be noted that roofing materials were not inspected for asbestos as part of the 2016 survey. Additionally, a survey for lead-based paints (LBP) or universal waste was not completed during this site investigation.

To-date, no abatement efforts have been completed at the site. When left intact and undisturbed, ACBM does not pose a significant health risk to people working or living in buildings or homes. However, if ACBM deteriorates or is disturbed by renovation or demolition activities, asbestos fibers may be released into the air and cause significant health concerns for building occupants by inhalation of asbestos fibers. Inhaled fibers can become entrapped in the lungs and cause diseases such as asbestosis, lung cancer, and mesothelioma.

The Town of Big Sandy would like to remove the blighted, structurally unsound building that poses a potential health and safety risk to the community. After cleanup of the building, potential redevelopment plans include expansion of the local grocery store to allow for more grocery options for residents.

3.0 Cleanup Standards

The cleanup requirements for asbestos on a commercial structure in Montana are found in 40 Code of Federal Regulations (CFR) 61.140-157, also known as the EPA National Emission Standards for Hazardous Air Pollutants (NESHAP), and Chapter 74 of the Administrative Rules of Montana (ARM). In general, a building material containing >1% asbestos must be abated if the material is in a friable state or if it is to be disturbed making it friable.

Lead-based paint must be remediated in accordance with the Resource Conservation and Recovery Act (RCRA). In general, substrates having lead concentrations of 0.5% by weight or 5,000 milligrams per kilogram (not risk based) identifies LBP. Waste materials generated during lead abatement containing leachable lead above the RCRA TCLP limit of 5.0 mg/L may also be a hazardous waste, requiring special waste handling. However, if a building is demolished in its entirety, the Montana Department of Environmental Quality (DEQ) Solid Waste Division and EPA allow the waste generated to be disposed of in a Class II landfill even while containing LBP components. EPA has determined that components coated with LBP from a whole building demolition are less likely to be hazardous due to the ratio of LBP to the total mass of the waste stream (**Appendix A**).

3.1 Applicable Laws

This section summarizes the laws and regulations that are applicable to the proposed cleanup.

3.1.1 Asbestos

Applicable codes, regulations, and laws that govern asbestos remediation/cleanup work and transport/disposal of lead-contaminated wastes include the following:

- CFR Publications:
  - OSHA 29 CFR 1926.1101 Construction Industry Standard (1994)
  - OSHA 29 CFR 1926.500 Guardrails, Handrails, and Covers
  - OSHA 29 CFR 1910.134 Respiratory Protection
  - OSHA 29 CFR 1910.145 Specifications for Accident Prevention Signs and Tags
  - EPA 40 CFR 61 Subpart A, General Provisions
  - EPA 40 CFR 61 Subpart M, National Emission Standard for Hazardous Air Pollutants
  - EPA 40 CFR 763.120, 121 Asbestos Abatement Projects
  - EPA 40 CFR 763 Subpart E, Asbestos Hazard Emergency Response Act Asbestos-Containing Materials in Schools
- ANSI Publications:
  - Z9.2-1979 Fundamentals Governing the Design and Operations of Local Exhaust Systems
  - Z88.2-1980 Practices for Respiratory Protection NIOSH Revised Recommended Asbestos Standard
- EPA:
  - 560/5-85-024 Guidance for Controlling Friable Asbestos-Containing Materials in Buildings
- State Requirements:
  - Chapter 74 Administrative Rules of Montana
  - Applicable sections of the Asbestos Work Practices and Procedures Manual, (2005)

4.0 Cleanup Alternatives

Granite Peak has determined there are three (3) cleanup alternatives for the site, as follows:

Alternative 1 – No Action. Under this alternative no actions would be taken to abate the hazards associated with the building.

Alternative 2 – ACBM Abatement During Building Demolition. Under this alternative, hazardous substances associated with the building will be addressed as follows:

- *Asbestos Containing Building Materials* – All identified ACBM would be abated during the demolition process. ACBM (including the roofing materials) would be segregated from non-ACBM (wood, concrete, metal, etc.), and disposed of separately. ACBM would be placed in plastic-lined truck beds or dumpsters, wrapped to prevent release of asbestos, and hauled to and disposed of at the Hill County Landfill while non-ACBM waste would be placed into unlined trucks, hauled, and disposed of as construction and demolition waste at the Hill County Municipal Landfill in Havre, Montana.
- *Lead-based Paint* – Per DEQ and EPA guidance, an entire building can be disposed of in a Class II landfill even while containing LBP components (Appendix A). Therefore, any LBP on the building will be disposed of at the Hill County Landfill with the general waste stream.
- *Lead in Soil* – The exterior of the building will be scanned for LBP using an X-ray fluorescence (XRF) prior to building demolition to determine if soils adjacent to the hotel may contain elevated concentrations of lead. If the exterior XRF survey identifies a painted substrate(s) as LBP, soil samples will be collected from beneath the substrate(s) and sent to an accredited laboratory to be analyzed for lead. Soil containing lead at an elevated concentration (>200 mg/kg) would be removed during site cleanup and disposed of at the Class II Landfill.

Alternative 3 – ACBM Abatement Prior to Building Demolition. Under this alternative, hazardous substances associated with the building will be addressed as follows:

- *Asbestos Containing Building Materials* – All ACBMs and roofing material would be abated, removed from the building, and disposed of at the Hill County Municipal Landfill prior to demolition. To complete this in a safe manner, it is likely interior building components such as flooring and possibly wall systems would need to be stabilized prior to abatement activities due to the poor structural integrity of the building.
- *Lead-based Paint* – Since the building would not be demolished in a single cleanup action, an interior and exterior LBP survey would need to be completed prior to abatement activities to determine which painted substrates, if any, would need to be abated and disposed of as LBP. Interior substrates containing LBP would require abatement prior to building demolition which would incur additional costs.
- *Lead in Soil* – Same as Alternative 2.

5.0 Evaluation of Alternatives

Each of the alternatives identified for the facility are evaluated in this section using three primary criteria: long-term human health risk reduction, implementability, and costs relative to human health risk reduction. In addition, logistical objectives for the Town of Big Sandy are considered when evaluating the alternatives. **Table 1**, below, summarizes the evaluation and cost estimates for the three action alternatives. Cost estimates are included in **Appendix B**.

Alternative 1 – While there would be no cost associated with this alternative, the owner would not be able to move forward with redevelopment plans for the site and the on-site structure would continue to pose a public safety risk. Although this alternative is cost-effective and implementable,

the risk of exposure to hazardous materials in the building would remain and the Town's goal of clearing the site for redevelopment would not be achieved.

Alternative 2 – This alternative is implementable and poses limited safety risks to workers abating materials in the buildings. It is effective as it would remove environmental concerns and eliminate the human health and public safety risks associated with the building. This alternative is more cost effective than Alternative 3 and helps the Town of Big Sandy achieve their future redevelopment plans for the site.

Alternative 3 – This alternative is more difficult to implement, less effective in removing human health, and public safety risks and is more costly than Alternative 2. Due to the dilapidated state of the building, the floors in the building would need to be stabilized to allow for asbestos abatement workers to safely abate ACBM and complete an interior LBP survey in the building. This approach is far less environmentally friendly, as new building materials would be purchased to secure a building that is otherwise unusable. ACBM abatement under this alternative could prove laborious and troublesome as many ACBM, such as the air cell pipe insulation, are hidden behind walls. It might not be possible to locate and remove all ACBM without further jeopardizing the integrity of the building's structure. Additionally, should the interior LBP survey identify LBP substrates in the building, LBP abatement may be needed at additional costs which are unknown at this time. Lastly, and most importantly, this alternative would leave the hotel building standing without a roof thus creating an even greater safety risk for the community. At this time, the Town of Big Sandy does not have any additional funds to remove the building after abatement is completed under this alternative; therefore, the building would remain for an undetermined amount of time and site redevelopment would not occur in a timely manner.

Table 1 – Summary of Alternative Comparison

Alternative	Criteria		
	Risk Reduction	Implementability	Cost
Alternative 1 – No Action	None	Implementable	$0
Alternative 2 – ACBM abatement during building demolition	Removes all future human health risk	Implementable	$308,100
Alternative 3 – ACBM abatement prior to building demolition	Removes human health risks from asbestos and LBP, but does not remove public safety risk	Difficult to Implement	$355,645

6.0 Preferred Alternative

The preferred cleanup action is Alternative 2. This alternative 1) is the lowest-cost option, 2) eliminates all human health and public safety risks, 3) eliminates the need for LBP abatement, and 4) removes the building allowing for future site redevelopment in a single cleanup action.

BPDC would seek cost estimates from abatement contractors capable of completing Alternative 2. A copy of the final clearance abatement report describing all abatement completed on the project would be transmitted to BPDC and EPA.

7.0 Climate Change and Severe Weather Events

The EPA requires a discussion of whether climate change could be impacted by the preferred alternative. According to the Montana Climate Assessment, climate changes predicted for Montana include:

- Increased mean annual air temperatures with winter and springs temperatures increasing the most
- Increased precipitation in winter, spring, and fall, with decreasing precipitation in summer
- Decreased snowpack with peak runoff occurring earlier
- Increased frequency of flooding
- Increased time of drought
- Increased frequency and longer season for wildfires
- Decreased carbon capturing forests

The proposed cleanup would impact the climatic changes described above, as a significant amount of additional wood products would need to be purchased to secure a building that is unusable and will eventually be demolished. The site is not in a floodplain and the preferred alternative would not increase the potential for flooding. It is recommended that equipment used for abatement be turned off when not in use.

8.0 Public Review and Comments

The ABCA will be presented to the public at the Big Sandy Town Council meeting to be held at 7:00 on Thursday, April 11, 2024, and the public will be notified the ABCA is available for public review. A copy of this plan will be available to the public on Bear Paw's website at www.bearpaw.org. Public comments will be accepted until May 13, 2024, at 5:00 MST. Comments will be documented in writing, a response will be provided to each comment, and relevant comments will be incorporated into the final cleanup design and approach. Please submit all comments in writing to:

Julea Robbins, Interim Brownfields Coordinator
Bear Paw Development Corporation
jrobbins@bearpaw.org

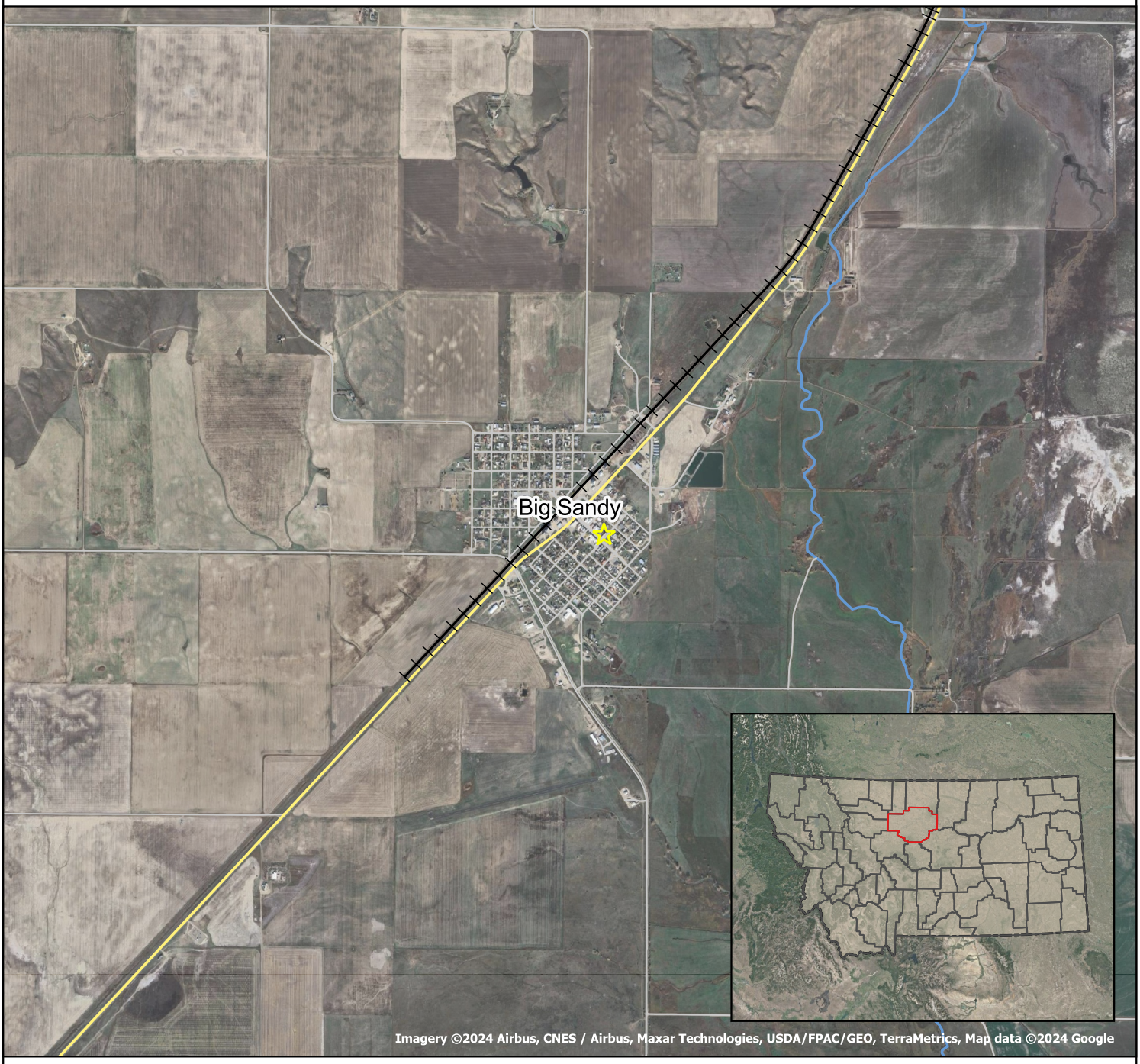
9.0 References

NewFields Companies, LLC (NewFields), 2016. Phase II Environmental Site Assessment (ESA), Asbestos Survey. Big Sandy Hotel, Northwest Corner of Johannes Avenue and 2nd Street, Big Sandy, Montana 59520. Prepared for Bear Paw Development Corporation. April.

FIGURES

Figure 1 – Location Map
Big Sandy Hotel
185 Johannes Avenue
Big Sandy, MT 59520

GRANITE PEAK ENVIRONMENTAL



0 0.5 1 mi

Site
Roads
Highway 87
Chouteau County
Railroad
Streams

N

Figure 2 – Area Map
Big Sandy Hotel
185 Johannes Avenue
Big Sandy, MT 59520

GRANITE PEAK ENVIRONMENTAL

0 50 100 ft

Site Boundary

N

APPENDIX A
MONTANA DEQ LBP DISPOSAL GUIDANCE

RENOVATION & ABATEMENT

- Small-scale debris that is generated during renovation, maintenance, or abatement activities such as paint chips, vacuum debris and dust, waste wash water and sludge from chemical paint stripping is more likely to exceed the TCLP.

- Sampling may be appropriate for intermediate-volume renovation wastes such as window moldings, doors, etc.

- Core or sectional samples can be taken of representative waste items to determine whether each waste is hazardous.

    - Fewer samples could be taken by taking one or more core samples, compiling ratios of waste material surface area to mass for each type, and then comparing these to the surface area/mass ratio of the sample.
    -Sampling protocol should be used for each site.

- Individual waste materials should either:
    - Be sampled and analyzed by TCLP and then handled/disposed of accordingly; or
    - Be segregated from other large-scale debris and then managed as hazardous waste.

- Records of sampling procedures and analytical results must be kept for at least 3 years.

Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

DEQ
Montana Department of Environmental Quality

Solid Waste Program

Lead-Based Paint

Solid Waste Section
www.deq.mt.gov/Land/solidwaste
406-444-5300

Solid Waste Program (SWP)
deqswprogram@mt.gov
406-444-3463

LEAD-BASED PAINT (LBP)

Where do we find it?

- Prior to the 1950s, paints used for residential use contained up to 50% lead.
- Lead-based paint was used on buildings until 1978, when it was banned on residential structures by the consumer Products Safety Commission.
- Renovation, remodeling, demolition, and surface preparation for painting have the potential to produce hazardous wastes if LBP was involved.

How do we know it is there?

- Test the paint for lead to be certain of the presence of lead.
- Hazardous waste criterion for lead waste is established under the federal Resource Conservation and Recovery Act (RCRA), Subtitle C, as 5.0 mg/L measured with the Toxicity Characteristic Leaching Procedure (TCLP).

STRUCTURE DEMOLITION

Residential Structures

Household Hazardous Waste Exemption

- On June 18, 2003, the Environmental Protection Agency (EPA) published a rule under solid waste regulations to streamline LBP debris disposal.
  - LBP debris from households generated by homeowners or contractors may be disposed of at a municipal solid waste landfill or and construction and demolition waste landfill.

Non-residential Structures

Waste Determination and Management

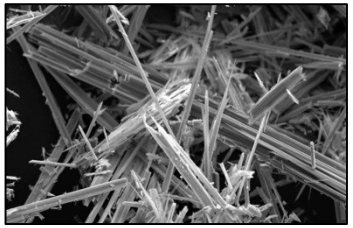
- LBP debris that comes from commercial or industrial sources, ***not households***, may be subject to state and federal hazardous waste rules.
- The generator of the waste must determine whether the debris fails the TCLP for lead.
- Two scenarios outlined for making the waste determination and then managing the LBP debris are:
  - Whole-Building Demolition
  - Renovation and Abatement

WHOLE-BUILDING DEMOLITION

- Whole-building demolitions debris is considered a non-hazardous waste with regard to lead.
  - EPA stated that solid architectural components coated with LBP are less likely to be hazardous because of the small ratio of lead paint to total waste mass.
  - The US Army conducted a study that concluded that whole-building demolition debris is not likely to exceed the toxicity characteristic standard for lead if it is handled as a single, whole waste stream and disposed of all together.

- No sampling or analysis of painted components for lead is required for disposal as a non-hazardous waste.

NOTE: Constituents other than LBP, including PCBs from light ballasts or asbestos containing materials, may require special handling and should be removed before demolition.



APPENDIX B
COST ESTIMATES

Cost Estimate
Alternative 2: ACBM Abatement During Building Demolition
Big Sandy Hotel, Big Sandy, MT

GRANITE PEAK ENVIRONMENTAL

Description	Quantity	Units	Hourly Rate	Total
Mobilization, Site Preparation, and Permit[1]				
Mobilization/Site Preparation	1	lump sum	$30,000	$30,000
Asbestos Project Permit	1	lump sum	$4,000	$4,000
			Mobilization, Site Preparation, and Permit Subtotal	**$34,000**
Building Demolition and Asbestos Abatement[2]				
Excavator, with operator	108	hours	$275	$29,700
Loader, with operator	108	hours	$165	$17,820
Laborer	108	hours	$60	$6,480
Skidsteer	108	hours	$110	$11,880
Waste Disposal				
Concrete (242 yds or 485 tons)				
Trucking (5 trucks, 3 days)	15	truck days	$1,000	$15,000
Landfill Disposal Fee	485	tons	$37	$17,945
Non-ACBM Disposal (325 Tons)				
Trucking (6 trucks, 5 days)	30	truck days	$1,000	$30,000
Landfill Disposal Fee	325	tons	$37	$12,025
Asbestos Waste Disposal (100 tons)				
Trucking (5 trucks, 3 days)	15	truck days	$1,000	$15,000
Landfill Disposal Fee	100	tons	$37	$3,700
Universal Waste Disposal	1	lump sum	$1,200	$1,200
			Building Demolition and Asbestos Abatement Subtotal	**$160,750**
Lead-based Paint Survey[3]				
Exterior LBP Survey	1	lump sum	$1,000	$1,000
			Lead-based Paint Survey Subtotal	**$1,000**
Excavation Backfilling				
Backfill material	1,400	yards	$13	$18,200
Backfill material hauling	1,400	yards	$12	$16,800
Backfill material placement and compaction	1,400	yards	$10	$14,000
Engineered Testing	1	lump sum	$12,000	$12,000
			Excavation Backfilling Subtotal	**$61,000**
			Total (All Tasks)	$256,750
			Contingency[4] (20%)	$51,350
			Total Estimated Cost	**$308,100**

Notes/Assumptions:

Asbestos waste volumes were estimated based on building size and type as well as from cost estimates included in the Phase II Environmental Site Assessment (ESA) Asbestos Survey completed for the site by NewFields (2016). Other waste volumes are based on experience demolishing other similar structures.

[1] Contractor mobilization includes travel, lodging, site preparation, bonding, permitting, and incidentals.

[2] Quantities for ACBMs that were hidden behind walls or otherwise not observable during the asbestos survey (NewFields, 2016) such as air cell pipe insulation are only estimates. Actual quantities of ACBM could vary once abatement begins and materials are uncovered.

Cost Estimate
Alternative 3: ACBM Abatement Prior to Building Demolition
Big Sandy Hotel, Big Sandy, MT

GRANITE PEAK ENVIRONMENTAL

Description	Quantity	Units	Hourly Rate	Total
Mobilization, Site Preparation, and Permit[1]				
Mobilization/Site Preparation	1	lump sum	$30,000	$30,000
Asbestos Project Permit	1	lump sum	$4,000	$4,000
			Mobilization, Site Preparation, and Permit Subtotal	**$34,000**
Roof Abatement[2]				
Roof Abatement	6,500	square feet	$20	$130,000
			Roof Abatement	**$130,000**
Interior Floor Stabilization				
Structural Survey	1	lump sum	$10,000	$10,000
Labor	20	man days	$1,600	$32,000
Materials	1	lump sum	$4,000	$4,000
			Interior Floor Stabilization	**$46,000**
Asbestos Abatement[3]				
Carpet Adhesive	96	square feet	$4.00	$384
12"x12" dark brown VFT w/ cream streak & black mastic	2,223	square feet	$4.50	$10,004
12"x12" dark brown VFT w/ cream streak	952	square feet	$4.00	$3,808
Black mastic only	480	square feet	$4.00	$1,920
9"x9" red and cream VFT	1,109	square feet	$4.00	$4,436
9"x9" gray VFT	21	square feet	$4.00	$84
Boiler jacket	1	lump sum	$2,000.00	$2,000
4" straight run air cell pipe insulation	1,541	linear feet	$35	$53,935
2" straight run air cell pipe insulation	155	linear feet	$35	$5,425
4" elbow air cell pipe insulation	5	each	$75	$375
			Asbestos Abatement Subtotal	**$82,371**
Lead-based Paint Survey[4]				
Exterior LBP Survey	1	lump sum	$3,000	$3,000
Exterior LBP Survey	1	lump sum	$1,000	$1,000
			Lead-based Paint Survey Subtotal	**$4,000**
			Total (All Tasks)	$296,371
			Contingency[5] (20%)	$59,274
			Total Estimated Cost	**$355,645**

Notes/Assumptions:

Asbestos waste volumes were estimated based on building size and type as well as from cost estimates included in the Phase II Environmental Site Assessment (ESA) Asbestos Survey completed for the site by NewFields (2016).

[1] Contractor mobilization includes travel, lodging, site preparation, bonding, permitting, and incidentals.

[2] The roof would be abated first as it appears to be structurally sound.

[3] Quantities for ACBMs that were hidden behind walls or otherwise not observable during the asbestos survey (NewFields, 2016) such as air cell pipe insulation are only estimates. The actual quantities could vary once abatement begins and materials are uncovered.

[4] This cost estimate accounts for the cost of completing an iinterior and exterior LBP survey, but does not include the cost of LBP abatement and/or lead in soil cleanup. Additional costs could be incurred if either of the LBP surveys identify LBP on/in the building or if there are lead in soils at the site.

[5] The abatement contingency is estimated at 20%, which reflects overall confidence in the estimated costs.