



WGMGROUPTM



Analysis of Brownfields Cleanup Alternative (ABCA)

Lavina School Boiler Room

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1.0 INTRODUCTION

WGM Group, Inc (WGM), on behalf of Snowy Mountain Development Corporation (SMDC), prepared this Analysis of Brownfields Cleanup Alternatives (ABCA) for cleanup and redevelopment of the Lavina School Boiler Room located in Lavina, Montana (Site). SMDC intends to repurpose the Lavina School Boiler Room and renovate it into a storage area. Data used to develop this ABCA is based on a Targeted Brownfields Assessment (TBA) Limited Phase II Environmental Site Assessment (ESA) conducted by START contractor Tetra Tech, Inc. (Tetra Tech, 2022a). The ABCA provides cleanup alternatives based on site-specific conditions, technical feasibility and estimated costs.

1.1 SITE DESCRIPTION AND USE

The Lavina School is located at 214 First Street East in Lavina, Golden Valley County, Montana. **Figures 1 and 2** show the vicinity and site locations of the school and are included in **Appendix A**. The town of Lavina is a predominantly rural area surrounded by agricultural and ranching land use. The Lavina School (Original Building) was originally constructed as a K-12 school in 1915 with a high school addition (New Building) built in 1997. Both buildings are situated on rectangle-shaped parcels that are 0.964 acres in size and located in the southeastern portion of town. The original building is a three-story, rectangular-shaped building with a total of 13,680 square feet (sf). The new building is one story and is attached to the original building with a total of 17,091 sf. The boiler room is located in the basement of the original building and contains a coal-fired boiler with the approximate dimensions of seven feet (ft) by eight ft by 10 ft (Tetra Tech, 2022a). The boiler is located in a basement room with other utilities (**Figure 3**).

1.2 SITE ASSESSMENT FINDINGS

SMDC requested assistance under the TBA program from EPA Region 8 to conduct the work described below:

- A structural integrity inspection was performed in 2020 at Lavina School and no major signs of differential settlement were observed (Stahly Engineering and Associates, 2021).
- A Sampling and Analysis Plan (SAP) for a Limited Phase II ESA was prepared to describe the plan for building materials inspection of the property (Tetra Tech, 2022b).
- In March 2022, a Limited Phase II ESA was conducted to determine the presence and/or absence of asbestos containing building materials (ACBM) in the Lavina School boiler room (Tetra Tech, 2022a). Findings of the Phase II ESA identified no ACBM within the areas sampled at the school; however, some of the suspected ACBM could not be sampled. This suspected ACBM is assumed to be ACBM. The Limited Phase II ESA noted that the interior of boiler was not dismantled or disturbed and that interior parts of the boiler were not observed during the inspection. The ESA stated that all ACBM should be removed by a licensed asbestos abatement contractor before renovation work disturbs the material and that the removed waste must be disposed of in accordance with federal, state, tribal, and local regulations.

1.3 THREATS TO PUBLIC HEALTH &/OR THE ENVIRONMENT

ACBM that have been identified within the building poses a potential threat to public health during renovation or deconstruction of onsite structures because asbestos fibers can be released during these activities. Exposure to airborne asbestos has been linked to illnesses, including asbestosis (scarring of the lungs), lung cancer, and mesothelioma (a rare cancer of the plural linings of the lung and/or



stomach). Federal and state regulations may require air monitoring and controls to limit generation of dust during activities such as sawing, grinding, or sanding. Such activities should be avoided, where possible, to limit potential inhalation of asbestos fibers.

1.4 PROJECT GOAL

The Phase II ESA identified assumed and/or potential asbestos in building material in the boiler and boiler room of Lavina School. If ACM is not properly handled prior to planned renovation or deconstruction, asbestos could be released into the environment and inhaled by individuals working or visiting the building. Asbestos abatement would remove this concern and the general threat to public health and/or the environment. The current coal-fired boiler will be retired, and the new system will be constructed in a different location within the building. The boiler is approximately seven feet by eight feet by 10 feet and is in a room with other utilities. After the boiler has been removed, the school plans to renovate the current boiler room and use the room for storage.



2.0 APPLICABLE REGULATIONS & CLEANUP STANDARDS

2.1 ASBESTOS IN BUILDING MATERIALS

Asbestos abatement activities on the Site will be subject to Montana Department of Environmental Quality's (DEQ) Asbestos Control Program, and remediation performed by an abatement contractor will be conducted under an asbestos project permit. Asbestos abatement will also conform to Environmental Protection Agency (EPA) 40 Code of Federal Regulations (CFR) Asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP), and Occupational Safety and Health Administration (OSHA) Asbestos Construction Standard 29 CFR 1926.1101. The DEQ defines ACBM as material containing more than one percent asbestos based on laboratory analysis of the material. Three categories of ACBM have been defined in the NESHAP standard, which is established in Title 40 Section 61.141 of the Code of Federal Regulations (40 CFR 61.141) and adopted by DEQ in Title 17, Chapter 74, Subchapter 3 of the Administrative Rules of Montana (ARM 17.74.351). The NESHAP category definitions are as follows:

- **Category I non-friable ACBM** includes any asbestos-containing packing, gasket, resilient floor covering, or asphalt roofing product that contains more than one percent (>1%) asbestos
- **Category II non-friable ACBM** includes any material, excluding Category I nonfriable ACBM, containing more than one percent (>1%) asbestos, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure; such as cement asbestos board, asbestos-cement pipe, and window glazing materials
- **Regulated Asbestos-Containing Materials (RACBM)** includes friable materials, Category I non-friable ACBM that will or may be subjected to sanding, grinding, cutting, or abrading, and Category II non-friable ACBM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by forces acting on it or expected to act upon it during the course of renovations and/or deconstruction activities

The definition of RACBM includes all ACBM associated with a structure or space that will be impacted by renovation and/or deconstruction activities. An "asbestos project," as defined by Montana Code Annotated (MCA) 75-2-502, means the encapsulation, enclosure, removal, repair, renovation, placement in new construction, or deconstruction of asbestos in a building or other structure, or the transportation or disposal of asbestos-containing waste. A NESHAP permit application must be completed by a Montana-accredited Asbestos Project Designer and submitted to the DEQ at least 10 days prior to the scheduled project. The project must be conducted by personnel holding current Montana accreditation as Asbestos Workers and/or Asbestos Contractor/Supervisors. RACBM abatement is not considered complete until the project area has passed draft visual and air clearance monitoring. Clearance air monitoring must be completed for all abatement projects except where deconstruction will commence immediately following completion of abatement and the location has successfully passed draft visual clearance. During the cleanup and demolition process, SMDC's Qualified Environmental Professional (QEP) contractor will document cleanup activities are performed in accordance with applicable regulations. A Cleanup Completion Report detailing the cleanup activities will be submitted to EPA and DEQ. The report will demonstrate applicable cleanup standards were obtained and request a liability assurance for the Site for applicable media.

Additionally, cleanup alternatives that utilize active remediation strategies will adhere to EPA's Clean Remediation Best Management Practices: Clean Fuel & Emission Technologies for Site Cleanup (EPA 2010). This may include, but is not limited to, reducing idling of construction vehicles while onsite,



ensuring equipment is well maintained to minimize excess fuel use and discharge of uncombusted fuel products, and ensuring that vehicles are using the proper lubricants and fuels to ensure efficient operation. Additionally, in accordance with EPA's Green Remediation Best Management Practices: Excavation and Surface Restoration (EPA, 2019), remedial alternatives utilizing dust suppression techniques will use tarps to cover spoils piles where possible, thereby reducing water use at the Site. Disposals will be selected as close to the Site as possible, to minimize transport time and distance, and expenditure of fuels in trucking. Backfill will be acquired from sources as close as practicable to the Site, to minimize fossil fuel expenditure. Loads will be covered to prevent disposition of waste and/or backfill soils along the trucking route.



3.0 ALTERNATIVES EVALUATION

This ABCA was developed to evaluate remedial alternatives for implementation of remedial actions to address hazardous building materials at the Site. When applicable, the alternatives evaluation will consider the resilience of remedial options to address potential adverse impacts caused by extreme weather events (e.g., sea level rise, increased frequency and intensity of flooding, etc.).

Cleanup alternatives that utilize active remediation strategies will adhere to EPA’s Clean Remediation Best Management Practices: Clean Fuel & Emission Technologies for Site Cleanup (EPA, 2010). This may include, but is not limited to, reducing idling of construction vehicles while on site, ensuring equipment is well maintained to minimize excess fuel use and discharge of uncombusted fuel products, and ensuring that vehicles are using the proper lubricants and fuels to ensure efficient operation.

Also, in accordance with EPA’s Green Remediation Best Management Practices: Excavation and Surface Restoration (EPA, 2019), remedial alternatives utilizing dust suppression techniques will use tarps to cover spoils piles where possible, thereby reducing water use at the site. Disposals will be selected as close to the site as possible, to minimize transport time and distance, and expenditure of fuels in trucking. Backfill will be acquired from sources as close as practicable to the site, to minimize fossil fuel expenditure. Loads will be covered to prevent disposition of waste and/or backfill soils along the trucking route. Based on the current information available about the Site, assumed/potential ACBM requires a cleanup alternatives evaluation. Accordingly, cleanup alternatives for ACBM are discussed below.

3.1 HAZARDOUS BUILDING MATERIALS ALTERNATIVE ANALYSIS

Three cleanup alternatives were considered for the Site based on their comparative effectiveness, ease of implementation, and cost., including:

- Alternative 1: No Action – Included for comparison purposes
- Alternative 2: ACBM abatement of the boiler during its removal from the boiler room.
- Alternative 3: ACBM abatement of the boiler during its removal from the boiler room; then ACBM abatement of the boiler room followed by renovation. It is assumed that any waste will be characterized as non-hazardous and will not require removal and disposal at a hazardous waste facility.

CRITERIA	ALTERNATIVE 1: No Action	ALTERNATIVE 2: Abatement of the Boiler During Removal	ALTERNATIVE 3: Abatement of the Boiler and Boiler Room Prior to Removal
Effectiveness	Not Effective	Partially Effective	Effective
Implementability	Implementable	Implementable	Implementable
Cost	None	\$29,858.00 ¹	\$34,716.00 ¹

¹Estimated cost provided by Abatement Contractors of Montana (ACBM-MT)



Effectiveness

- Alternative 1: No Action is not effective at mitigating potential hazards that would need to be addressed for any reuse of the Site.
- Alternative 2: Abatement of ACBM associated with the boiler prior to renovation of the boiler room is an effective method for preventing receptors from coming into direct contact with hazardous material related to boiler removal; as long as no subsequent construction or renovation activities occur following abatement and removal of the boiler.
- Alternative 3: Abatement of ACBM associated with the boiler and the boiler room prior to removal of the boiler and renovation of the boiler room is an effective method for preventing receptors from coming into direct contact with hazardous material.

Implementability

- Alternative 1: No Action is easy to implement since no actions would be conducted.
- Alternative 2: Abatement of ACBM prior to and during boiler removal is implementable.
- Alternative 3: Abatement of ACBM prior to boiler removal and boiler boom renovation is implementable.

Cost

- Alternative 1: No Action would have no associated costs.
- Alternative 2: Abatement of ACBM prior to removal of the boiler is estimated to be \$29,858.00. This alternative is not considered cost effective because abatement and removal of the boiler will not allow SMDC to meet the goal of repurposing the boiler room into storage space.
- Alternative 3: Abatement of ACBM during boiler removal and of the boiler room after removal and renovation is estimated to be \$34,716.00. This alternative is considered cost effective because removal of the boiler and renovation of the boiler room will allow SMDC to repurpose the boiler room into storage space.

3.2 HAZARDOUS BUILDING MATERIAL CLEANUP ALTERNATIVES ANALYSIS & RECOMMENDATION

Alternative #1: The advantage of Alternative #1 is its low immediate cost. The disadvantages of this alternative are that ACBM remains in place; the risk to human health remains for people entering the boiler room; as the boiler room deteriorates, health and safety threats could migrate outside of the boiler room; the boiler room remains unused; and the abandoned boiler room would require security to deter trespassing. Therefore, **Alternative #1 is not recommended** since it does not address Site risks.

Alternative #2: Alternate #2 would abate ACBM in the boiler and then remove it. The advantages of this alternative include removal of the health hazards of ACBM associated with the boiler and relative low cost. The disadvantages of this alternative include the inability to utilize and renovate the boiler room without further ACBM abatement. **Alternative #2 is not recommended** because it is not cost effective with regard to achieving Project goals; without renovation of the existing boiler room SMDC could not repurpose the room into much needed storage space.

Alternative #3: Alternative #3 would encapsulate and remove ACBM in the boiler and the boiler room and the entire boiler room could be renovated. Waste stream materials during renovation would be taken to the nearest local landfill that accepts ACBM. The advantages of this alternative are that ACBM is safely encapsulated/removed from the boiler and boiler room and properly disposed; and the Site can subsequently be repurposed into storage space. Some minor disadvantages of this alternative include the potential exposure of environmental hazards during construction, transport, and disposal of



hazardous materials and a negative environmental impact with generation of boiler room materials disposed in the local landfill along with heavy equipment emissions during the construction. However, **Alternative #3 is the recommended cleanup alternative** for the Site.

Asbestos abatement contractors would perform removals in accordance with applicable regulations. Under the recommended cleanup alternative, the abatement contractor would be required to obtain a permit from DEQ, mobilize to the Site, remove ACBM, and properly encapsulate and dispose of ACBM. All personnel hired to remove the ACBM must be accredited in accordance with Federal (40 CFR 763.90) and State (MCA 75-2-511) regulations. This includes use of a 40-hour trained Asbestos Contractor Supervisor to oversee removal and handling of asbestos. This individual would oversee abatement to ensure that ACBM is properly segregated from other deconstruction wastes and transported to an appropriate disposal facility. In accordance with OSHA requirements, site workers would be required to use personal air monitoring equipment during abatement of friable asbestos. After abatement, an asbestos inspector would perform visual clearance inspection and sampling of the work areas to confirm each area is free from miscellaneous debris. Clearance sampling would be completed in accordance with 40 CFR 763.90 to ensure asbestos in post-abatement air are not above regulatory thresholds. Following abatement and clearance sampling, a report by a 40-hour accredited third party asbestos Contractor Supervisor will document that clearance sample results and targeted materials are no longer present and that no debris or dust remains. Sampling and analysis must be completed under SMDC's EPA-approved Brownfields Project-Wide QAPP (Tetra Tech, 2016) and Programmatic SAP for Building Materials Inspections & Final Clearance Air Sampling (WWC, 2021). Removal of LBP surfaces must be conducted in accordance with the OSHA Lead rule (29 CFR 1926.26). The contractor will be responsible for providing monitoring and appropriate personal protection.



4.0 REFERENCES

EPA, 2010. Green Remediation Best Management Practices: Clean Fuel & Emission Technologies for Site Cleanup, Office of Superfund Remediation and Technology Innovation, Quick Reference Fact Sheet. EPA 542-F-10-008. August 2010.

EPA, 2019. Green Remediation Best Management Practices: Excavation and Surface Restoration. A fact sheet about the concepts and tools for using best management practices to reduce the environmental footprint of activities associated with assessing and remediating contaminated sites. Office of Land and Emergency Management (5203). EPA 542-F-19-002. August 2019 Update.

Stahly Engineering and Associates, 2021. Structural Evaluation of Lavina School. May 2021.

Tetra Tech, 2016. Final Project-Wide Quality Assurance Project Plan, Central Montana Brownfields Coalition. Presented to Snowy Mountain Development Corporation, Lewistown, MT. July 27.

Tetra Tech, 2022a. Draft Limited Phase II Environmental Site Assessment, Lavina School, 214 First Street East, Lavina, Golden Valley County, Montana. Report prepared by Tetra Tech, Inc., Denver, Colorado, for USEPA. April 11, 2022.

Tetra Tech, 2022b. Sampling and Analysis Plan, Lavina School, Environmental Site Assessment. March.

WWC, 2021. Programmatic Sampling and Analysis Plan for Building Materials Inspection and Clearance Air Sampling. Prepared for Snowy Mountain Development Corporation, Lewistown, MT. August 12.



APPENDIX A

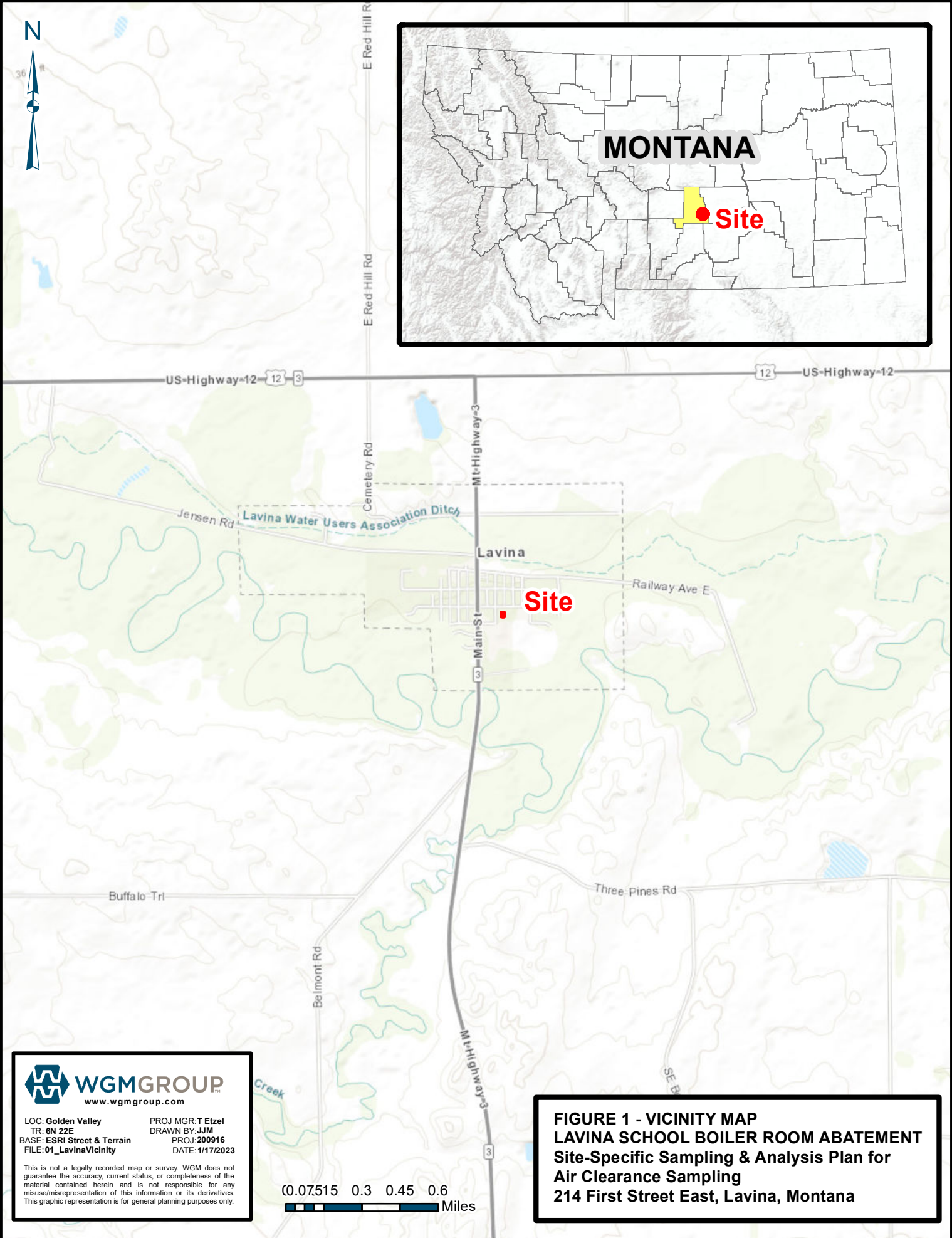
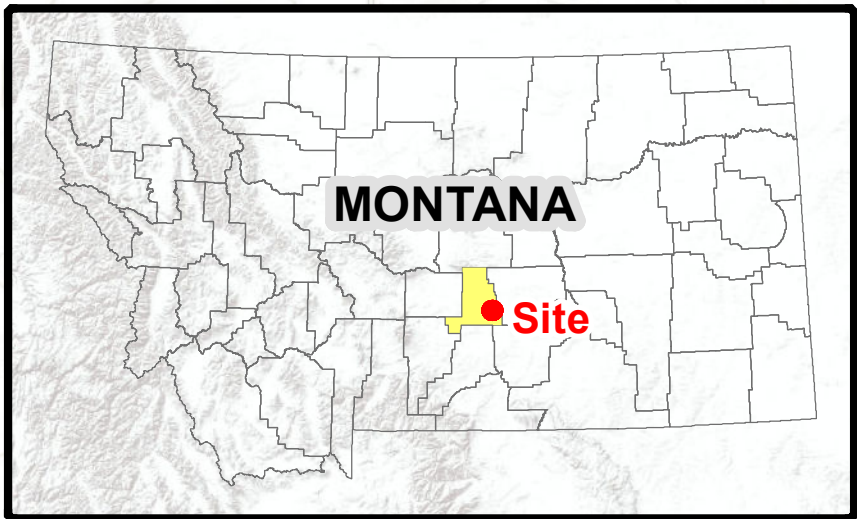
FIGURES

FIGURE 1 – VICINITY MAP

FIGURE 2 – SITE MAP

FIGURE 3 – BOILER ROOM LOCATION





LOC: Golden Valley PROJ MGR: T Etzel
 TR: 6N 22E DRAWN BY: JJM
 BASE: ESRI Street & Terrain PROJ: 200916
 FILE: 01_LavinaVicinity DATE: 1/17/2023

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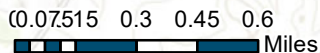


FIGURE 1 - VICINITY MAP
LAVINA SCHOOL BOILER ROOM ABATEMENT
Site-Specific Sampling & Analysis Plan for
Air Clearance Sampling
214 First Street East, Lavina, Montana



SECOND AVE E

FIRST ST

THIRD AVE E

Approximate Location
of Boiler Room

 Subject Property Boundary



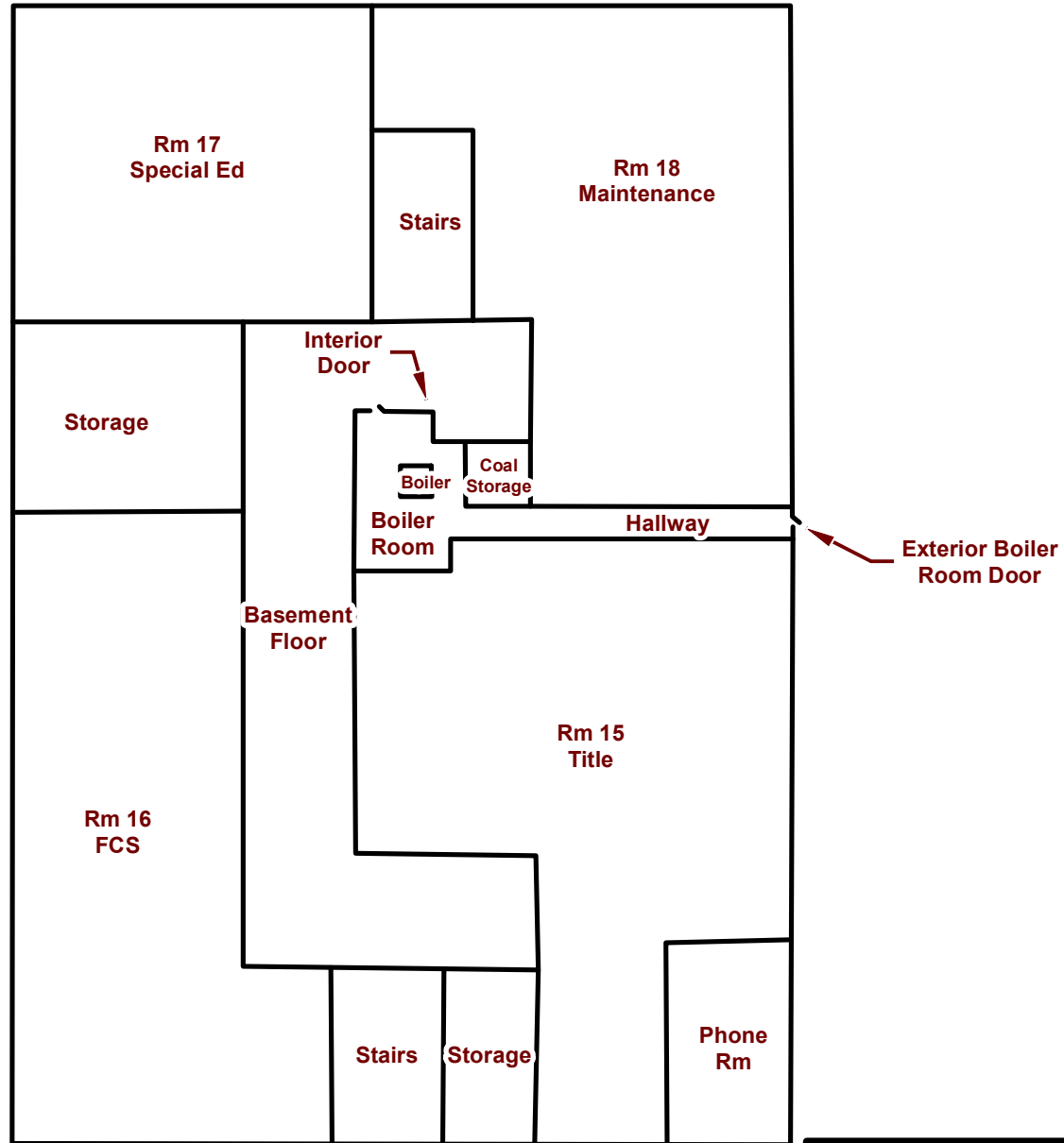
LOC: Golden Valley
TR: 6N 22E
BASE: Google Earth 2022
FILE: 02_SiteLoc


PROJ MGR: T Etzel
DRAWN BY: JJM
PROJ: 200916.2
DATE: 1/11/2023

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0 0.005 0.01 0.02 0.03 0.04
Miles

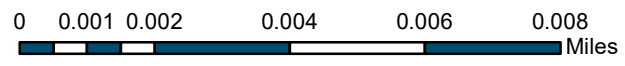
**FIGURE 2 - SITE LOCATION
LAVINA SCHOOL BOILER ROOM ABATEMENT
Analysis of Brownfields Cleanup Alternatives
214 First Street East, Lavina, Montana**



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LOC: Golden Valley PROJ MGR: T Etzel
TR: 6N 22E DRAWN BY: SMA
BASE: Boiler Room Floor Plan PROJ: 200916.2
FILE: 03_BoilerRmLoc DATE: 1/11/2023

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**FIGURE 3 - BOILER ROOM LOCATION
LAVINA SCHOOL BOILER ROOM ABATEMENT
Analysis of Brownfields Cleanup Alternatives
214 First Street East, Lavina, Montana**