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DEPARTMENT OF NATURAL RESOURCES
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FINAL
ENVIRONMENTAL ASSESSMENT

Project Name:	Butte Mining District Reclamation and Protection Project – Phase V
Proposed Implementation Date:	04/01/2021
Proponent:	City and County of Butte-Silver Bow
Location:	Anselmo Mineyard: 46.01.01N, 112.32.51W Steward Mineyard: 46.00.59N, 112.32.51W
County:	Silver Bow

I. TYPE AND PURPOSE OF ACTION

The Butte-Silver Bow Butte Mining District Reclamation and Protection Project (Project) concentrates on reclaiming resources adversely affected by mineral development and mitigating damage to public resources associated with mineral development activity. A century-long run of hardrock mining in the Butte Mining District yielded billions of dollars in copper, silver, zinc, and other minerals. However, this legacy of wealth and power severely compromised the natural environment, leaving behind enormous amounts of hazardous waste and major mineyard facilities, industrial complexes that supported underground mining operations. Following the collapse of its once powerful mining industry and after decades of abandonment and neglect, Butte-Silver Bow struggled with addressing remediation and conservation needs of Butte's surviving mineyards.

In the 1980s, an area in and around Butte and Silver Bow Creek, including 26 miles of stream between Butte and the former smelter city of Anaconda, was designated a Superfund site, part of the largest in the nation. Since then, remedial projects have removed mine waste dumps and mill tailings from over 600 acres of land and capped the sites with clean cover soil and plantings of grasses. Large sections of stream channel and banks have also been cleaned and restored, stormwater basins and sedimentation bays constructed, and heavy metal contaminants removed from residential yards and attics. Additional cleanup activities, operations and maintenance, sampling and monitoring actions are ongoing.

At the onset of the Superfund program in Butte as well as Anaconda, local, state and federal stakeholders grappled balancing cleanup activities with the need to preserve the historic integrity of the Butte-Anaconda National Historic Landmark District. The result was development of the *Anaconda-Butte Regional Historic Preservation Plan* (RHPP). Adopted in the early 1990s, the RHPP's most comprehensive recommendation called for removal of mine dumps and other hazardous waste and materials from Butte's mineyards, while leaving mineyard buildings and structures in place. The RHPP further recognized the tremendous potential of heritage tourism as a catalyst for local economic development. The Butte Mining District's constellation of 16 surviving mineyards was identified as the core element of the area's heritage tourism potential, key to telling the highly significant story of underground mining and cultural lifeways in the nation's most prestigious and productive mining district.

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Mineyards are industrial surface plants built to support underground mining operations. Butte's mineyards historically varied in size and complexity from one mine to another and evolved over the years in response to technological advances, consolidation of operations, and the needs of the underground work force, among other factors. Headframes became standard features at most Butte mineyards. Initially made of wood and then steel as underground mining grew deeper and more complex, headframes were towering structures that supported the cages and cables used to raise ore to the surface and lower men and equipment underground. Powerful hoisting engines for lifting and lowering the cages were housed nearby in buildings known as engine rooms or hoist houses. Other common support facilities included ore bins, assay offices, machine shops, carpentry shops, warehouses, and offices. A change house or the dry also became a Butte mineyard standard, providing miners the opportunity to take a hot shower and change into dry clothes at the end of their shift.

Creation of the Heritage Park envisioned by the RHPP has been constrained by safety and economic concerns. Butte-Silver Bow has continued to struggle economically from the decline of its once powerful mining industry. While proud to be part of the largest Historic Landmark District in the nation, the local government of Butte-Silver Bow lacks the financial resources to address the infrastructure needs of all the historic buildings and structures at its mineyards. Having been abandoned for decades and in a state of neglect, these resources require conservation, repair and remedial work to protect the public and BSB employees from inherent hazards and ensure their continued survival and reuse for the benefit of the public.

Butte-Silver Bow turned to the Department of Natural Resource and Conservation (DNRC) Reclamation and Development Grants Program (RDGP) for financial assistance with what became known as the Butte Mining District Reclamation and Protection Project. Between 1998 and 2014, Butte-Silver Bow has been awarded four RDGP grants. With RDGP funding and support from others, Butte-Silver Bow and its partners have been able to complete remedial and conservation activities at eight of Butte's surviving mineyards. Major accomplishment of each RDGP granting phase are as follows:

- Phase I 1998 (completed 2000): Painted and stabilized six headframes.
- Phase II 2008 (completed 2012): Roofed 11 buildings and completed exterior repairs to two key buildings at the Original Mineyard.
- Phase III (completed 2014): Initiated cleaning and painting of another headframe, completed access improvements to five headframes, and completed exterior repairs to nine buildings.
- Phase IV 2012 (completed June 30, 2019): Improved access to the Orphan Girl Mineyard, including stabilization of mine dumps and providing access to an underground tunnel, initiated ADA access improvements at the Steward, and completed building repairs at the Anselmo and Steward.

A phased project approach has enabled Butte-Silver Bow to complete remediation activities, make prudent investments in infrastructure to protect and conserve historic mineyards, and prioritize rehabilitation projects as funding becomes available. In the long term, this will retain the integrity of Butte's National Historic Landmark status and promote interpretation of mineral development activities in Butte.

This document reflects the goals and objectives associated with Phase V of the Project. The primary goal of this Project phase is to remediate portions of the Anselmo and Steward Mineyards to

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eliminate stormwater and erosion challenges posed by degradation of historic utility infrastructure that threatens public safety and the structural stability of mineyard resources. Additionally, the Project proposes to conserve mineyard structures and buildings key to demonstrating the history of mineral development in Butte. The mineyards are exceptional public resources long recognized as premier venues for interpreting Butte's rich and enduring history as a world-class producer of minerals and a pivotal player in the rise of the nation's labor movement.

Butte's mineyards form a critical network of resources that contribute to the understanding of the industrial, social, and labor history of Butte and the State of Montana. The mineyards contain physical artifacts where residents and visitors can learn about the above ground infrastructure supporting mineral development and ore extraction. The Anselmo and Steward Mineyards contain two of the most intact collections of the historic above-ground structures and mechanical technology supporting mineral development in the Butte district.

The goal to perform remediation within the Anselmo and Steward Mineyards fall into three categories including a) buried hazard remediation; b) building conservation; and c) institutional controls. Completion of these tasks supports the secondary goal of protecting mineyard buildings and structures to interpret the history of mineral development processes.

Buried hazard remediation will involve the identification, excavation, collapse, and backfill of up to 200 linear feet of utility chases within the Anselmo and Steward Mineyards. The utility chase locations are expansive and, historically, connected all mineyard structures with one central source of electricity, compressed air, steam and water. Recently, the utility chases have begun to collapse. The chases are collecting stormwater, and routing water and other nuisances throughout the mineyards. Water is undercutting the foundations of site buildings and has the potential to erode further, and compromise previously completed remediation and restoration investments. The degradation of this infrastructure poses a threat to environmental health by eroding mine waste into the stormwater system for discharge to surface waters and is a hazard to public safety by compromising safety of workers and visitors within the mineyards. Buried hazard remediation will involve the identification, excavation, collapse, and backfill of up to 200 linear feet of utility chases within the Anselmo and Steward Mineyards.

Building conservation is also necessary to conserve the historic artifacts which have fallen into disrepair due to neglect following the shuttering of underground mining operations in Butte. The remediation of utility chases will mitigate structural degradation. Investments focused on rehabilitating tunnels, building foundations, windows, doors, roofs, and other historic elements will support the strategic goal to preserve historic infrastructure and interpret the mineral development activities that once occurred on the Butte Hill.

Installation of institutional controls such as parking areas and walkways will serve as administrative controls allowing the public to safely access the mineyards to interact and learn about the above ground components of underground mineral development.

Successful Project completion will result in significant benefits to natural resources and the public. Remediation of hazards within the mineyards will eliminate potential for major environmental impacts related to erosion of mine waste into area surface waters. Improvement and enhancement of the mineyards will also allow Butte and Montana residents to explore a completing facet of their history and culture, while attracting tourists and tourist dollars to the city and the state.

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II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED:

Provide a brief chronology of the scoping and ongoing involvement for this project. List number of individuals contacted, number of responses received, and newspapers in which notices were placed and for how long. Briefly summarize issues received from the public.

This is Phase V of the Butte Mining District Reclamation and Protection Project. The applicant has provided a MEPA Environmental Checklist. The MEPA Environmental Checklist indicates that there are no potential impacts to resources and indicated the following agencies were contacted for assistance in completion of the MEPA Environmental Checklist: Butte-Silver Bow Department of Reclamation Services, Butte-Silver Bow Planning Department, Butte-Silver Bow Historic Preservation Office, and Butte-Silver Bow Public Works.

No scoping documents or meetings and/or public meetings during project development were detailed.

2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

Examples: cost-share agreement with U.S. Forest Service, 124 Permit, 3A Authorization, Air Quality Major Open Burning Permit.

Butte-Silver Bow or its contractors will secure all necessary permits prior to the onset of construction as follows:

- Asbestos Project Permit, Montana DEQ Asbestos Control Program.
- Building Permit. Butte-Silver Bow.
- Excavation Permit. Butte-Silver Bow
- MPDES CGP and SWPPP

The applicant has provided a MEPA Environmental Checklist. The MEPA Environmental Checklist indicates that there are no potential impacts to resources and indicated the following agencies were contacted for assistance in completion of the MEPA Environmental Checklist: Butte-Silver Bow Department of Reclamation Services, Butte-Silver Bow Planning Department, Butte-Silver Bow Historic Preservation Office, and Butte-Silver Bow Public Works.

3. ALTERNATIVE DEVELOPMENT:

Describe alternatives considered and, if applicable, provide brief description of how the alternatives were developed. List alternatives that were considered but eliminated from further analysis and why. Include the No Action alternative.

From Butte Mining District Reclamation and Protection Project – Phase V grant application

Alternative 1, Reasonable Alternative – Comprehensive remediation and rehabilitation to Secretary of the Interior Standards for the Treatment of Historic Properties.
Under this alternative, all hazards at the mineyards are fully remediated and all buildings and structures fully rehabilitated to Secretary of the Interior Standard's for the Treatment of Historic Properties. This alternative would be cost intensive for Butte-Silver Bow and would likely

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necessitate transfer of the mineyards to private developers to accomplish. However, large investments of public funds have already been made into the Anselmo and Steward Mineyards and the property must remain in public ownership as major elements of the Regional Heritage Park Plan.

Alternative 2, Preferred Alternative – Retain public ownership of mine yards and provide necessary protection and enhancements to make the sites safe for staff and visitors.
Butte-Silver Bow currently owns the Anselmo and Steward Mineyards. The main goal of this project phase is to stabilize mineyards by eliminating deteriorating utility chases and provide safe access for maintenance staff and the public. Without the proposed improvements, access will remain limited, regular maintenance efforts complicated and delayed, and public interaction with these structures restricted. Thus, this alternative allows Butte-Silver Bow and its residents to complete remediation activities, make prudent investments in infrastructure to protect and conserve historic mineyards, and prioritize rehabilitation projects as funding becomes available. In the long term, this allows the community to retain Butte's National Historic Landmark status in good standing and promote interpretation of mineral development activities in Butte.

Alternative 3, No Action – Allowing mineyards to deteriorate.
Butte accepted mineyards after several decades of inactivity with most in various states of disrepair. The sites themselves were environmental liabilities posing public health and safety threats to staff and visitors. Buildings and structures were in disrepair, damaged, and quickly deteriorating after decades of neglect. Failing to continue remediation and rehabilitation projects within the properties would ultimately lead to a complete loss of these artifacts that interpret the impacts of mineral development in Butte and Montana. Butte would not only lose its historic icons, but its National Historic Landmark status would be threatened along with opportunities for economic diversification associated with this designation. This option is not acceptable to the citizens of Butte, the City-County governing body, and historical enthusiasts across the nation. The mitigation costs of losing these features would be extensive.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

Consider the presence of fragile, compactable or unstable soils. Identify unusual geologic features. Specify any special reclamation considerations. Identify direct, indirect, and cumulative effects to soils.

The current project sites have collapsing utility chases and tunnels and very poor soil stability. The utility infrastructure within both the Anselmo and Steward mine yards once carried centralized steam and electricity to appurtenant buildings throughout the mine yard. Over time, stormwater flows throughout the mine yards have entered the chases causing deterioration and subsequently collapse and subsidence at the surface, and erosion within the vicinity.

The project sites are located within the northern part of the city, near Walkerville. The NRCS Web

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Soil Survey (see attached) indicates that both sites are in the 402E soil type – typic Cryorthents, reclaimed area-Beeftrail, severely impacted complex with 4 to 30 Percent slopes.

Proposed Alternative – The preferred alternative is collapsing the deteriorated utility chases and backfilling and compacting each void with appropriate backfill material to maintain ground stability and proper stormwater control. The process will have a direct, beneficial impact given the current unmitigated nature of contaminated mine yard stormwater flows and the threat of contamination to area surface waters. The mine yards themselves are relatively accessible, with established access roads. The areas of subsidence are generally easily accessible, but some locations of subsidence are more challenging to access than others. However, overall, the outcome of the work will provide stable ground with limited subsidence or ground hazard on the site.

No Action Alternative – Potentially direct and indirect, minor to major, short- to long-term, recurring adverse impacts to soil quality, stability, and moisture.

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5. WATER QUALITY, QUANTITY AND DISTRIBUTION:
Identify important surface or groundwater resources. Consider the potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality. Identify direct, indirect, and cumulative effects to water resources.

A sole source or principal aquifer does not serve the project area or Butte-Silver Bow, MT. The groundwater resources associated with the Butte Hill are within a controlled groundwater area. The CGWA was established due to pervasive historic contamination and groundwater not used for drinking. Residential and commercial development within Butte is required by ordinance to hook up to municipal water. Additionally, groundwater levels in the area of construction are located over 200-feet below ground surface and will not be impacted by construction.

No streams, lakes, irrigation systems, or canals are located within the project area. Stormwater on the Butte Hill is known to contain heavy metals at varying intervals. The stormwater on the Butte Hill is highly managed. Stormwater from the Anselmo is captured and conveyed to a catch basin system for passive treatment prior to discharge to area surface waters. Stormwater from the Steward Mine is captured in the municipal system and its trunkline conveys to a hydrodynamic device where solids are removed prior to discharge to surface waters.

Proposed Alternative – The proposed project will not impact groundwater resources. The work at the Anselmo and Steward directly address potential degradation of stormwater by eliminating known subsidence where stormwater is actively degrading the stability of the areas itself. With proper compaction and appropriate design, the stormwater challenges will appropriately route for infiltration into vegetated areas prior to entry into the stormwater system.

No Action Alternative – Potentially direct and indirect, moderate to major, short- and long-term, local adverse impacts through degradation of stormwater by continued subsidence where stormwater is degrading the stability of the areas.

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6. AIR QUALITY:

What pollutants or particulate would be produced (i.e. particulate matter from road use or harvesting, slash pile burning, prescribed burning, etc)? Identify the Airshed and Impact Zone (if any) according to the Montana/Idaho Airshed Group. Identify direct, indirect, and cumulative effects to air quality.

The procedure for remedying identified subsidence is excavation, backfilling, and compacting the utility chase structures. In general, the subsidence reveals itself while excavation takes place, and in some instances, water is used to flush accumulated sediments or material to identify the pathway of the utility chase structure for remedy.

Proposed Alternative – Potentially direct, minor, short-term, local adverse impacts to air quality as there may be some dust introduced to the environment from construction activity and/or exhaust fumes from operation of heavy construction equipment. There is a small buffer between the project and surrounding development to minimize impacts. The nearest residential home to the Anselmo work site is approximately 300 feet to the east. The closest residential home to the Steward work site is approximately 200 feet to the south. The collapse of the Steward Tunnel is located north and west, across Main Street from the Steward Mine yard in an area known as the Steward Parking Lot. This collapse is located 70 feet north of a residential property and approximately 200 feet from the BA&P recreation trail. Due to the proximity of residential properties, it is recommended that the contractor should provide dust control measures and limit construction working hours to approximately 7 AM to 7 PM.

No Action Alternative – No impacts to air quality.

7. VEGETATION COVER, QUANTITY AND QUALITY:

What changes would the action cause to vegetative communities? Consider rare plants or cover types that would be affected. Identify direct, indirect, and cumulative effects to vegetation.

The project is located within the urban limits of the city of Butte and is within historic industrial mineyards; as a result, the area has little to no native vegetation. Records from the Montana Natural Heritage Program (MTNHP) indicate the project area is surrounded by private land, primarily within Human Land Use (55%), Grassland Systems (33%), Shrubland, Steppe and Savanna Systems (6%) and Wetland and Riparian Systems (3%); see MTNHP report at the end of this document to view other land cover types, or the MTNHP website). There are 12 plant Species of Concern listed that may potentially occur within the project area (MTNHP website):

Platte Cinquefoil	*Potentilla plattensis*
Fleshy Stitchwort	*Stellaria crassifolia*
Hare's-foot Locoweed	*Oxytropis lagopus conjugans*
Linear-leaf Fleabane	*Erigeron linearis*
High Northern Buttercup	*Ranunculus hyperboreus*
Dense-leaf Draba	*Draba densifolisa*
Flat-topped Broomrape	*Orobanche corymbose*
Crawe's Sedge	*Carex crawei*
Wedge-leaf Saltbrush	*Atriplex truncata*

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Panic Grass	*Dichanthelium acuminatum*
Long-sheath Waterweed	*Elodea bifoliate*
Mat Buckweed	*Eriogonum caespitosum*

No farmland or agricultural land exists in the project area. According to the FWS, no critical habitat exists within the project.

Proposed Alternative – Potentially direct, minor to moderate, short term, local adverse impacts to vegetation cover, quantity, and quality. Construction that will affect existing vegetation will be required to be revegetated after construction is complete. Efforts should be made to preserve existing vegetation during construction where applicable. BMPs should be installed and monitored per the MPDES CGP and SWPPP, and other required permits.

No Action Alternative – No impacts to vegetation cover, quantity, and quality.

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8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:
Consider substantial habitat values and use of the area by wildlife, birds or fish. Identify direct, indirect, and cumulative effects to fish and wildlife.

The project is located within the urban limits of the city of Butte and is within historic industrial mineyards; as a result, the area has little to no wildlife that frequent the area.

Project location is not identified as a priority area for terrestrial conservations efforts within the Montana State Wildlife Action Plan (SWAP). The project does not exist within boundaries for Montana Sage Grouse habitat (see attached map; Montana Sage Grouse Habitat Conservation Plan web mapping tool). According to the FWS, no critical habitat exists within the project area.

Records from the MTNHP indicate the project area there are 9 species of concern in and around the project region including the following:

Westslope Cutthroat Trout	*Oncorhynchus clarkii lewisi*
Cassin's Finch	*Haemorhous cassinii*
Evening Grosbeak	*Coccothraustes vespertinus*
Greater Short-horned Lizard	*Phrynosoma hernandesi*
Great Blue Heron	*Ardea herodias*
Lewis's Woodpecker	*Melanerpes lewis*
Brewer's Sparrow	*Spizella breweri*
Grizzly Bear	*Ursus arctos*
Veery	*Catharus fuscescens*

Important animal habitat includes non-cave bat roosts. MTNHP records (see attached MTNHP report)
indicate 56 other observed and potential animal and plant species of concern, and potential species may exist in the area including the following:

Other Observed Species

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Rufous Hummingbird	*Selasphorus rufus*
Green-tailed Towhee	*Pipilo chlorurus*
American White Pelican	*Pelecanus erythrorhynchos*
Long-billed Curlew	*Numenius americanus*
Clark's Nutcracker	*Nucifraga columbiana*
Hooded Merganser	*Lophodytes cucullatus*
Barrow's Goldeneye	*Bucephala islandica*
White-faced Ibis	*Plegadis chihi*
Gray-crowned Rosy-Finch	*Leucosticte tephrocotis*
Trumpeter Swan	*Cygnus buccinator*
Western Toad	*Anaxyrus boreas*
Bald Eagle	*Haliaeetus leucocephalus*
Northern Goshawk	*Accipiter gentilis*
Black-necked Stilt	*Himantopus mexicanus*
Forster's Tern	*Sterna forsteri*
Franklin's Gull	*Leucophaeus pipixcan*
Varied Thrush	*Ixoreus naevius*
Common Loon	*Gavia immer*
Horned Grebe	*Podiceps auritus*

Other Potential Species

Broad-tailed Hummingbird	*Selasphorus platycercus*
Potentilla plattensis	*Platte Cinquefoil*
Dwarf Shrew	*Sorex nanus*
Western Spotted Skunk	*Spilogale gracilis*
Bombus suckleyi	*Suckley Cuckoo Bumble Bee*
Stellaria crassifolia	*Fleshy Stitchwort*
Ferruginous Hawk	*Buteo regalis*
Oxytropis lagopus var. conjugans	*Hare's-foot Locoweed*
North American Porcupine	*Erethizon dorsatum*
Spotted Bat	*Euderma maculatum*
Danaus plexippus	*Monarch*
Erigeron linearis	*Linear-leaf Fleabane*
Ranunculus hyperboreus	*High Northern Buttercup*
Draba densifolia	*Dense-leaf Draba*
Orobanche corymbosa	*Flat-topped Broomrape*
Columbia Plateau Pocket Mouse	*Perognathus parvus*
Short-eared Owl	*Asio flammeus*
Mountain Plover	*Charadrius montanus*
Wyoming Ground Squirrel	*Urocitellus elegans*
Carex crawei	*Crawe's Sedge*
Hoary Bat	*Lasiurus cinereus*

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Silver-haired Bat	*Lasionycteris noctivagans*
Pinyon Jay	*Gymnorhinus cyanocephalus*
Long-eared Myotis	*Myotis evotis*
Atriplex truncata	*Wedge-leaf Saltbush*
North American Water Vole	*Microtus richardsoni*
Wolverine	*Gulo gulo*
Western Screech-Owl	*Megascops kennicottii*
Dichanthelium acuminatum	*Panic Grass*
Elodea bifoliata	*Long-sheath Waterweed*
Common Poorwill	*Phalaenoptilus nuttallii*
Ovenbird	*Seiurus aurocapilla*
Little Brown Myotis	*Myotis lucifugus*
Eriogonum caespitosum Mat Buckwheat	*Mat Buckwheat*
Loggerhead Shrike	*Lanius ludovicianus*
Sage Thrasher Oreoscoptes montanus	*Oreoscoptes montanus*

Proposed Alternative – Potentially direct, negligible, short-term, local, non-recurring adverse impacts to terrestrial, avian, and aquatic life and habitats during construction. The primary disturbance will likely occur on private property; however, disturbance will be minimal, and contractor will be required to restore any disturbance to preexisting conditions.

No Action Alternative – No impacts to terrestrial, avian and aquatic life and habitats.

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9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:
Consider any federally listed threatened or endangered species or habitat identified in the project area. Determine effects to wetlands. Consider Sensitive Species or Species of special concern. Identify direct, indirect, and cumulative effects to these species and their habitat.

The project is located within the urban limits of the city of Butte and is within historic industrial mineyards; as a result, there will be no impact on unique or endangered species. The project site is located outside of any defined wetland areas. The Anselmo and Steward Mineyards are in FEMA floodplain map panel 30093C0170E, which is a designated an Area of Minimal Flood Hazard. The nearest floodplain is over one mile distant.

The National Wetlands Inventory (NWI) website was used to determine whether any wetlands were present within the lands adjacent to the project location. This search indicated that three types of wetlands are present near the project area, all of which are riverine or freshwater pond habitats. Riverine habitats are generally deepwater habitats contained within a channel, permanently flooded, with intermittent and seasonally flooded channels. The project does not exist within a riverine system. Emergent wetlands exist near the project and will not be impacted.

According to records from the MTNHP there are no unique, endangered, fragile or limited environmental resources within the project area. According to the FWS, no critical habitat exists within the project area. The project does not have any identified unique natural features. Emergent wetlands exist primarily south of the project, but not within the proposed construction limits of the project.

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As mentioned in the previous section, there are 56 species of concern listed as present or potentially present using the project area as viable habitat. DNRC also used the U.S. Fish and Wildlife Service IPaC tool to generate a resource list summarizing any endangered or threatened species that are known or expected to be near the project area. The IPaC list generated four (4) Federally listed species under the Endangered Species Act as potentially occurring in the greater project area, including: Canada Lynx (*Lynx canadensis*), Grizzly Bear (*Ursus arctos horribilis*), North American Wolverine (*Gulo gulo luscus*), and Monarch Butterfly (*Danaus plexippus*); and eleven (11) migratory bird species: Bald Eagle (*Haliaeetus leucocephalus*), California Gull (*Larus californicus*), Cassin's Finch (*Carpodacus cassinii*), Clark's Grebe (*Aechmophorus clarkii*), Evening Grosbeak (*Coccothraustes vespertinus*), Franklin's Gull (*Leucophaeus pipixcan*), Golden Eagle (*Aquila chrysaetos*), Lesser Yellowlegs (*Tringa flavipes*), Rufous Humingbird (*Selasphorus rufus*), Western Grebe (*Aechmorphorus occidentalis*) and Willet (*Tringa semipalmata*; USFWS IPaC Mapping tool, report attached). The eleven bird species are protected under the Migratory Bird Treaty Act of 1918, the eagles are protected under the Bald and Golden Eagle Protection Act of 1940, and the Bald Eagle is also protected under the Montana Bald Eagle Management Plan, and Lacey Act of 1900.

Proposed Alternative – Potentially direct, minor to moderate, short-term, local adverse impacts to unique, endangered, fragile, or limited environmental resources. Since the developed land does not provide habitat to any known species of concern, the disturbance caused by the project should not impact any sensitive environmental resources. Construction that will affect existing vegetation will be required to be revegetated after construction is complete. Efforts should be made to preserve existing vegetation where applicable. BMPs should be installed and monitored per the MPDES CGP and SWPPP, and any other required permits. Since the developed land does not provide habitat to any known species of concern, the minimal disturbance caused by the project should not impact any sensitive environmental resources.

No Action Alternative – No impacts to unique, endangered, fragile or limited environmental resources.

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10. HISTORICAL AND ARCHAEOLOGICAL SITES:

Identify and determine direct, indirect, and cumulative effects to historical, archaeological or paleontological resources.

The mineyards are listed in the National Register of Historic Places as contributing elements of the Butte- Anaconda National Historic Landmark District. Building conservation activities proposed by the project have been designed to meet Secretary of Interior's Standards for Rehabilitation.

Proposed Alternative – Remediation activities proposed by the project have been designed to avoid or mitigate impacts to historic mineyard buildings and structures. BSB also has a fulltime historic preservation officer who will consult on the project to ensure compliance with all applicable standards. However, if previously unknown cultural or paleontological materials are identified during project related activities, all work will cease until a professional assessment of such resources can be made.

No Action Alternative – Potentially direct and indirect, moderate to major, short- and long-term, local adverse impacts through degradation of historic structures by stormwater and continued subsidence where stormwater is degrading the stability of the areas.

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11. AESTHETICS:

Determine if the project is located on a prominent topographic feature, or may be visible from populated or scenic areas. What level of noise, light or visual change would be produced? Identify direct, indirect, and cumulative effects to aesthetics.

The mine yards and associated infrastructure have deteriorated significantly, and as such, the visual quality of these historic features has deteriorated as well. The project will improve both structural and site amenities, thereby improving visual appeal to the community and neighboring residents. The project is visible to local property owners. Temporary impacts to noise from construction equipment will occur. In some cases, visual quality and aesthetics may be improved from planned activities for the project. Limited noise will occur during the construction phase of the project.

Proposed Alternative –Potentially direct and indirect, negligible to minor, short-term, local, nonrecurring impacts to aesthetics during construction. Indirect, adverse nuisance impacts from heavy construction equipment will be temporary during the project and may include noise and exhaust fumes. Noise mitigation techniques to minimize impacts to the surrounding areas will be used by the contractor whenever possible. Construction working hours should be limited to 7 AM to 7 PM. The project will improve both structural and site amenities, a beneficial impact to the visual appeal to the community and neighboring residents.

No Action Alternative – No impacts to aesthetics.

12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:

Determine the amount of limited resources the project would require. Identify other activities nearby that the project would affect. Identify direct, indirect, and cumulative effects to environmental resources.

The current condition has no effect on energy resources. No additional resources are expected to be used.

Proposed Alternative & No Action Alternative – No impacts to demands on environmental resources of land, water, air, or energy. The project is not anticipated to have impacts on energy consumption or conservation, and/or solid waste.

13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

List other studies, plans or projects on this tract. Determine cumulative impacts likely to occur as a result of current private, state or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.

The applicant has provided a MEPA Environmental Checklist. The MEPA Environmental Checklist indicates that there are no potential impacts to resources and indicated the following agencies were contacted for assistance in completion of the MEPA Environmental Checklist: Butte-Silver Bow Department of Reclamation Services, Butte-Silver Bow Planning Department, Butte-Silver Bow Historic Preservation Office, and Butte-Silver Bow Public Works.

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IV. IMPACTS ON THE HUMAN POPULATION

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

14. HUMAN HEALTH AND SAFETY:

Identify any health and safety risks posed by the project.

The current condition of the mine yards contains dangerous public safety hazards due to subsidence and other deteriorating infrastructure.

Proposed Alternative – Proposed project activities will significantly improve public health and safety by remediating hazards resulting from past mineral development activities and constructing new infrastructure meeting current safety codes.

No Action Alternative – Potentially direct, negligible to major, short- to long-term, local, recurring adverse impacts may occur to human health and safety due to subsidence and other deteriorating infrastructure.

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:

Identify how the project would add to or alter these activities.

The project site is located within the urban limits of the City of Butte. No agricultural or farm lands are present in the area.

Proposed Alternative – The project will have no impacts to agricultural lands. The current sites do not have any impacts on businesses.

No Action Alternative – Potentially direct, minor to major, short- to long-term, local, recurring adverse impacts may occur to industrial and commercial activities due to subsidence and other deteriorating infrastructure, if severe. No impact on agricultural activities and production.

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

Estimate the number of jobs the project would create, move or eliminate. Identify direct, indirect, and cumulative effects to the employment market.

Butte is currently known for its mining history and the mineyards are listed on the National Register of Historic Places within the Butte-Anaconda National Historic Landmark District.

Proposed Alternative – Proposed project activities may provide short-term, direct benefits to local companies completing the work. It will provide indirect benefits by improving employment opportunities locally. Improved quality of life, as provided by the enhancement of the mineyards, historic resources of national significance, could help attract outside business and industries to locate in Butte.

No Action Alternative – No impacts to quantity and distribution of employment.

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17. LOCAL AND STATE TAX BASE AND TAX REVENUES:

Estimate tax revenue the project would create or eliminate. Identify direct, indirect, and cumulative effects to taxes and revenue.

Butte is currently known for its mining history and the mineyards are listed on the National Register of Historic Places within the Butte-Anaconda National Historic Landmark District. The mineyards are owned by Butte-Silver Bow.

Proposed Alternative – Proposed project activities may have indirect beneficial impacts to local income patterns by helping to attract new business and industries to Butte.

No Action Alternative – No impact to local and state tax base and tax revenues.

18. DEMAND FOR GOVERNMENT SERVICES:

Estimate increases in traffic and changes to traffic patterns. What changes would be needed to fire protection, police, schools, etc.? Identify direct, indirect, and cumulative effects of this and other projects on government services

The mineyards are owned by Butte-Silver Bow. The mine yards are currently closed for public access except for by appointment or special event. Butte-Silver Bow crew perform limited maintenance at the sites.

Proposed Alternative – Potentially direct, minor, short- to long-term beneficial impacts from improvements to the mineyards, which should reduce maintenance required at the sites. It will also provide new community open spaces for the public to use by allowing visitation at these mineyards.

No Action Alternative – Potentially direct, minor to major, short- to long-term, local, recurring adverse impacts may occur to the mineyards due to subsidence and other deteriorating infrastructure, and may require additional resources from Butte-Silver Bow.

19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:

List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

The current project sites are located within the Butte urban limits and are zoned Open Space Conservation.

Proposed Alternative – The Butte-Silver Bow Zoning Board of Adjustments approved a variance permitting use of the mineyards for heritage tourism and photography. Proposed project activities are directly tied to achieving aesthetics for these designed uses. Proposed project activities are consistent with mandates and goals of the Butte-Silver Bow Historic Preservation Ordinance, amended 2015 (Municipal Code, Chapter 2.64), Anaconda-Butte Regional Historic Preservation Plan (1993); Butte-Silver Bow Zoning Board of Adjustments, Special Use Permit #15792 (2018), and Butte-Silver Bow Comprehensive Preservation Plan (2014).

No Action Alternative – Potentially direct, minor to major, short- to long-term, local, recurring adverse impacts may occur to the mineyards due to subsidence and other deteriorating

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infrastructure, and may require additional resources from Butte-Silver Bow.

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20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:
Identify any wilderness or recreational areas nearby or access routes through this tract. Determine the effects of the project on recreational potential within the tract. Identify direct, indirect, and cumulative effects to recreational and wilderness activities.

The project is located within the urban limits of the city of Butte and is within a historic industrial mineyard. The sites are limited from public access due to the hazards and deteriorating infrastructure.

Proposed Alternative – Potential beneficial impacts to access and quality of recreational activities. The main goal of this project phase is to stabilize mineyards by eliminating deteriorating utility chases and provide safe access for maintenance staff and the public. Completion of the project will result in improved public access and open space for residents and visitors.

No Action Alternative – Without the proposed improvements, access will remain limited, regular maintenance efforts complicated and delayed, and public interaction with these structures restricted.

---

21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:
Estimate population changes and additional housing the project would require. Identify direct, indirect, and cumulative effects to population and housing.

The current sites do not have any impact on housing conditions.

Proposed Alternative & No Action Alternative – No impacts to density and distribution of population and housing as the proposed project is not expected to cause any changes in population demographics or housing conditions.

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22. SOCIAL STRUCTURES AND MORES:
Identify potential disruption of native or traditional lifestyles or communities.

Social conduct, structures, and behaviors follow conventions that are typical of the City of Butte and the surrounding valley.

Proposed Alternative and No Action – No impacts or changes to social structures are expected to occur.

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23. CULTURAL UNIQUENESS AND DIVERSITY:
How would the action affect any unique quality of the area?

The mineyards are listed in the National Register of Historic Places as contributing elements of the Butte-Anaconda National Historic Landmark District. Building conservation activities proposed by the project have been designed to meet Secretary of Interior's Standards for Rehabilitation.

Proposed Alternative – Proposed project activities will significantly benefit the cultural offerings in

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Butte by providing a venue for interpreting the city's rich and diverse cultural heritage to the public.

No Action Alternative – Without the proposed improvements, access will remain limited, regular maintenance efforts complicated and delayed, and public interaction with these structures restricted.

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24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

Include appropriate economic analysis. Identify potential future uses for the analysis area other than existing management. Identify direct, indirect, and cumulative economic and social effects likely to occur as a result of the proposed action.

Median household income (in 2021 dollars) for the city is $50,661.00.

Proposed Alternative – Potentially direct and indirect beneficial impacts to appropriate social and economic circumstances. Workers and materials required for the construction of the project may temporarily provide beneficial impacts to local businesses throughout construction.

No Action Alternative – No impact on other appropriate social and economic circumstances.

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25. DRINKING WATER AND/OR CLEAN WATER

Identify potential impacts to water and/or sewer infrastructure (e.g., community water supply, stormwater, sewage system, solid waste management) and identify direct, indirect, and cumulative effects likely to occur as a result of the proposed action.

The project sites do not handle or store solid waste. The wastewater at the sites goes to the city sewer which is treated at the Butte Metro Sewer Wastewater Treatment Plant. The current project sites have significant subsidence from utility chases and tunnels, and stormwater runoff continues to adversely impact these areas. The drinking water at the sites is municipal water from Butte-Silver Bow.

Proposed Alternative – The proposed projects will not have any impacts on existing solid waste, wastewater, or community water supply systems.

To address stormwater/surface drainage, the preferred alternative is collapsing the deteriorated utility chases and backfilling and compacting each void with appropriate backfill material to maintain ground stability and proper stormwater control. Additional institutional controls will improve site access areas by adding gravel and reducing soil erosion from the site. The process will have a direct, beneficial impact given the current unmitigated nature of contaminated mine yard stormwater flows and the threat of contamination to area surface waters.

No Action Alternative – Potentially direct and indirect, minor to major, short- to long-term, local and regional, recurring adverse impacts if the condition of the stormwater system continues to degrade and subsidence continues to occur.

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26. ENVIRONMENTAL JUSTICE

Will the proposed project result in disproportionately high or adverse human health or environmental effects on minority or low-income populations per the Environmental Justice Executive Order 12898? Identify potential impacts to and identify direct, indirect, and cumulative effects likely to occur as a result of the proposed action.

The current sites are historic mining sites that are deteriorating in condition and are located in environmental justice communities where historic mining occurred. These neighborhoods have borne the impacts of historic mining and industrial impacts.

Proposed Alternative – The proposed project will improve the appearance of these sites while preserving these historic sites, which will have an indirect beneficial effect on environmental justice communities.

No Action Alternative – Without the proposed improvements, access will remain limited, regular maintenance efforts complicated and delayed, and public interaction with these structures restricted.

EA Prepared By:	**Name:**	Samantha Treu	**Date:**	10/06/2023
	Title:	MEPA/NEPA Coordinator	**Email:**	samantha.treu@mt.gov

V. FINDING

27. ALTERNATIVE SELECTED:

Retain public ownership of mine yards and provide necessary protection and enhancements to make the sites safe for staff and visitors.

Butte-Silver Bow currently owns the Anselmo and Steward Mineyards. The main goal of this project phase is to stabilize mineyards by eliminating deteriorating utility chases and provide safe access for maintenance staff and the public. Without the proposed improvements, access will remain limited, regular maintenance efforts complicated and delayed, and public interaction with these structures restricted. Thus, this alternative allows Butte-Silver Bow and its residents to complete remediation activities, make prudent investments in infrastructure to protect and conserve historic mineyards, and prioritize rehabilitation projects as funding becomes available. In the long term, this allows the community to retain Butte's National Historic Landmark status in good standing and promote interpretation of mineral development activities in Butte.

28. SIGNIFICANCE OF POTENTIAL IMPACTS:

AIR QUALITY

Potentially direct, minor, short-term, local adverse impacts to air quality as there may be some dust introduced to the environment from construction activity and/or exhaust fumes from operation of heavy construction equipment. There is a small buffer between the project and surrounding development to minimize impacts. The nearest residential home to the Anselmo

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work site is approximately 300 feet to the east. The closest residential home to the Steward work site is approximately 200 feet to the south. The collapse of the Steward Tunnel is located north and west, across Main Street from the Steward Mine yard in an area known as the Steward Parking Lot. This collapse is located 70 feet north of a residential property and approximately 200 feet from the BA&P recreation trail. Due to the proximity of residential properties, it is recommended that the contractor should provide dust control measures and limit construction working hours to approximately 7 AM to 7 PM

VEGETATION COVER, QUANTITY, AND QUALITY

Potentially direct, minor to moderate, short term, local adverse impacts to vegetation cover, quantity, and quality. Construction that will affect existing vegetation will be required to be revegetated after construction is complete. Efforts should be made to preserve existing vegetation during construction where applicable. BMPs should be installed and monitored per the MPDES CGP and SWPPP, and other required permits.

TERRESTRIAL, AVAIN, AND AQUATIC LIFE AND HABITATS

Potentially direct, negligible, short-term, local, non-recurring adverse impacts to terrestrial, avian, and aquatic life and habitats during construction. The primary disturbance will likely occur on private property; however, disturbance will be minimal, and contractor will be required to restore any disturbance to preexisting conditions.

UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES

Potentially direct, minor to moderate, short-term, local adverse impacts to unique, endangered, fragile, or limited environmental resources. Since the developed land does not provide habitat to any known species of concern, the disturbance caused by the project should not impact any sensitive environmental resources. Construction that will affect existing vegetation will be required to be revegetated after construction is complete. Efforts should be made to preserve existing vegetation where applicable. BMPs should be installed and monitored per the MPDES CGP and SWPPP, and any other required permits. Since the developed land does not provide habitat to any known species of concern, the minimal disturbance caused by the project should not impact any sensitive environmental resources.

AESTHETICS

Potentially direct and indirect, negligible to minor, short-term, local, nonrecurring impacts to aesthetics during construction. Indirect, adverse nuisance impacts from heavy construction equipment will be temporary during the project and may include noise and exhaust fumes. Noise mitigation techniques to minimize impacts to the surrounding areas will be used by the contractor whenever possible. Construction working hours should be limited to 7 AM to 7 PM. The project will improve both structural and site amenities, a beneficial impact to the visual appeal to the community and neighboring residents.

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29. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

No impacts appear to require a mitigated EA or EIS, as there are no significant adverse impacts anticipated as a result of the project work. This is the final environmental review.

☐ EIS ☐ More Detailed EA ☒ No Further Analysis

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EA Approved By:	**Name:** Mark W Bostrom **Title:** Division Administrator
Signature: DocuSigned by: Mark W Bostrom BF7A1C50B2AF4DE...	**Date:** 11/13/2023 | 8:41:30 AM MST

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Environmental Summary

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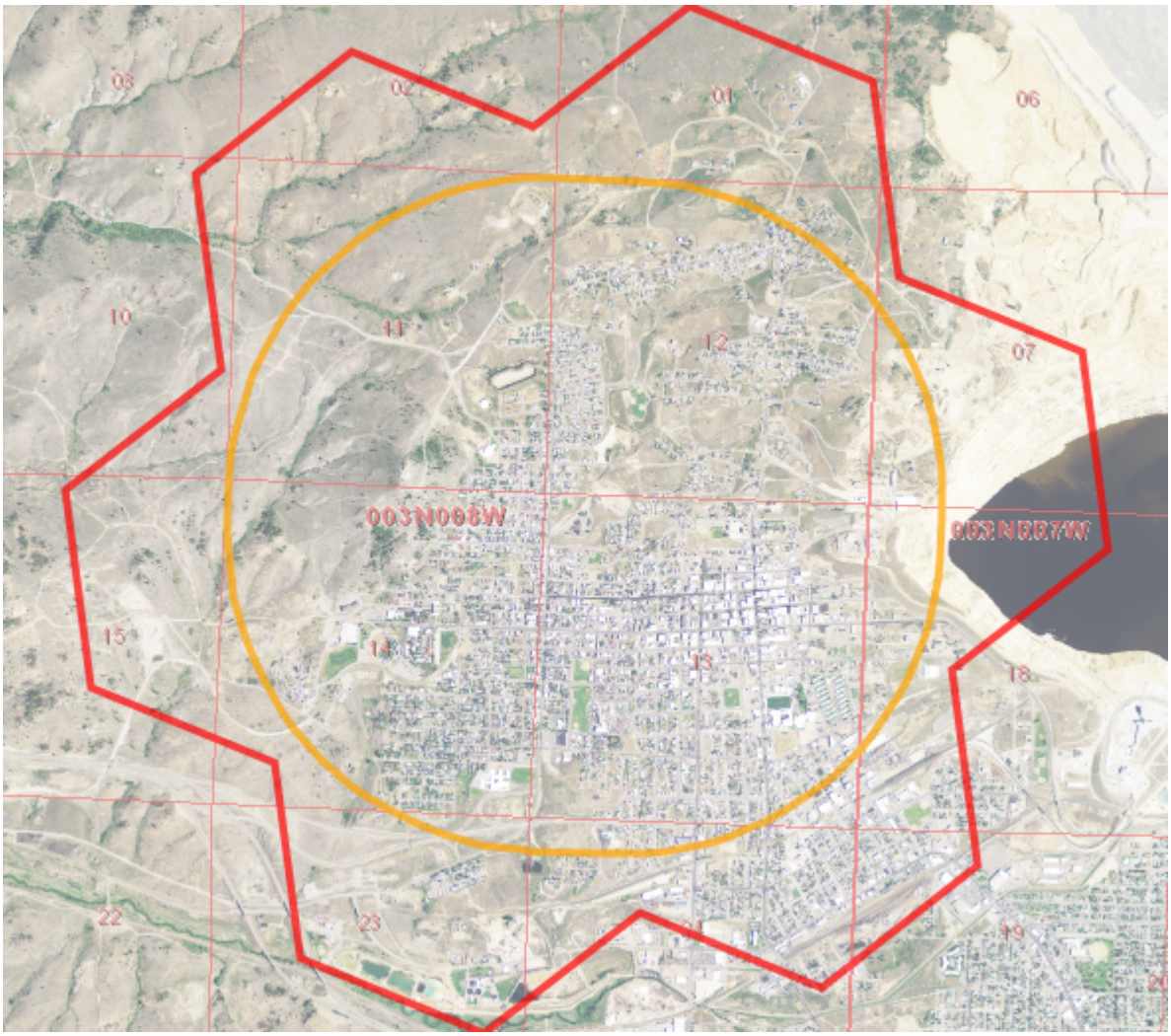
Latitude	Longitude
45.99323	-112.51438
46.04171	-112.57974

Summarized by:
224PRVT0030
(Custom Area of Interest)



Suggested Citation
Montana Natural Heritage Program. Environmental Summary Report.
for Latitude 45.99323 to 46.04171 and Longitude -112.51438 to -112.57974. Retrieved on 8/1/2023.

The Montana Natural Heritage Program is part of the Montana State Library's Natural Resource Information System. Since 1985, it has served as a neutral and non-regulatory provider of easily accessible information on Montana's species and biological communities to inform all stakeholders in environmental review, permitting, and planning processes. The program is part of the NatureServe network that is composed of over 60 member programs across North America that work to provide current and comprehensive distribution and status information on species and biological communities.

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NATURESERVE

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Introduction to Environmental Summary Report

Environmental Summary Reports from the Montana Natural Heritage Program (MTNHP) provide information on species and biological communities to inform all stakeholders in environmental review, permitting, and planning processes. For information on environmental permits in Montana, please see permitting overviews by the Montana Department of Environmental Quality, the Montana Department of Natural Resources and Conservation, the Index of Environmental Permits for Montana and our Suggested Contacts for Natural Resource Management Agencies. The report for your area of interest consists of introductory and related materials in this PDF and an Excel workbook with worksheets summarizing information managed in the MTNHP databases for: (1) species occurrences; (2) other observed species without species occurrences; (3) other species potentially present based on their range, presence of associated habitats, or predictive distribution model output if available; (4) structured surveys that follow a protocol capable of detecting one or more species; (5) land cover mapped as ecological systems; (6) wetland and riparian mapping; (7) land management categories; and (8) biological reports associated with plant and animal observations. If your area of interest corresponds to a statewide polygon layer (e.g., watersheds, counties, or public land survey sections) information summaries in your report will exactly match those boundaries. However, if your report is for a custom area, users should be aware that summaries do not correspond to the exact boundaries of the polygon they have specified, but instead are a summary across a layer of hexagons intersected by the polygon they specified as shown on the report cover. Summarizing by these hexagons which are one square mile in area and approximately one kilometer in length on each side allows for consistent and rapid delivery of summaries based on a uniform grid that has been used for planning efforts across North America.

In presenting this information, MTNHP is working towards assisting the user with rapidly assessing the known or potential species and biological communities, land management categories, and biological reports associated with the report area. Users are reminded that this information is likely incomplete and may be inaccurate as surveys to document species are lacking in many areas of the state, species' range polygons often include regions of unsuitable habitat, methods of predicting the presence of species or communities are constantly improving, and information is constantly being added and updated in our databases. **Field verification by professional biologists of the absence or presence of species and biological communities in a report area will always be an important obligation of users of our data. Users are encouraged to only use this environmental summary report as a starting point for more in depth analyses and are encouraged to contact state, federal, and tribal resource management agencies for additional data or management guidelines relevant to your efforts. Please see the Appendix for introductory materials to each section of the report, additional information resources, and a list of relevant agency contacts.**

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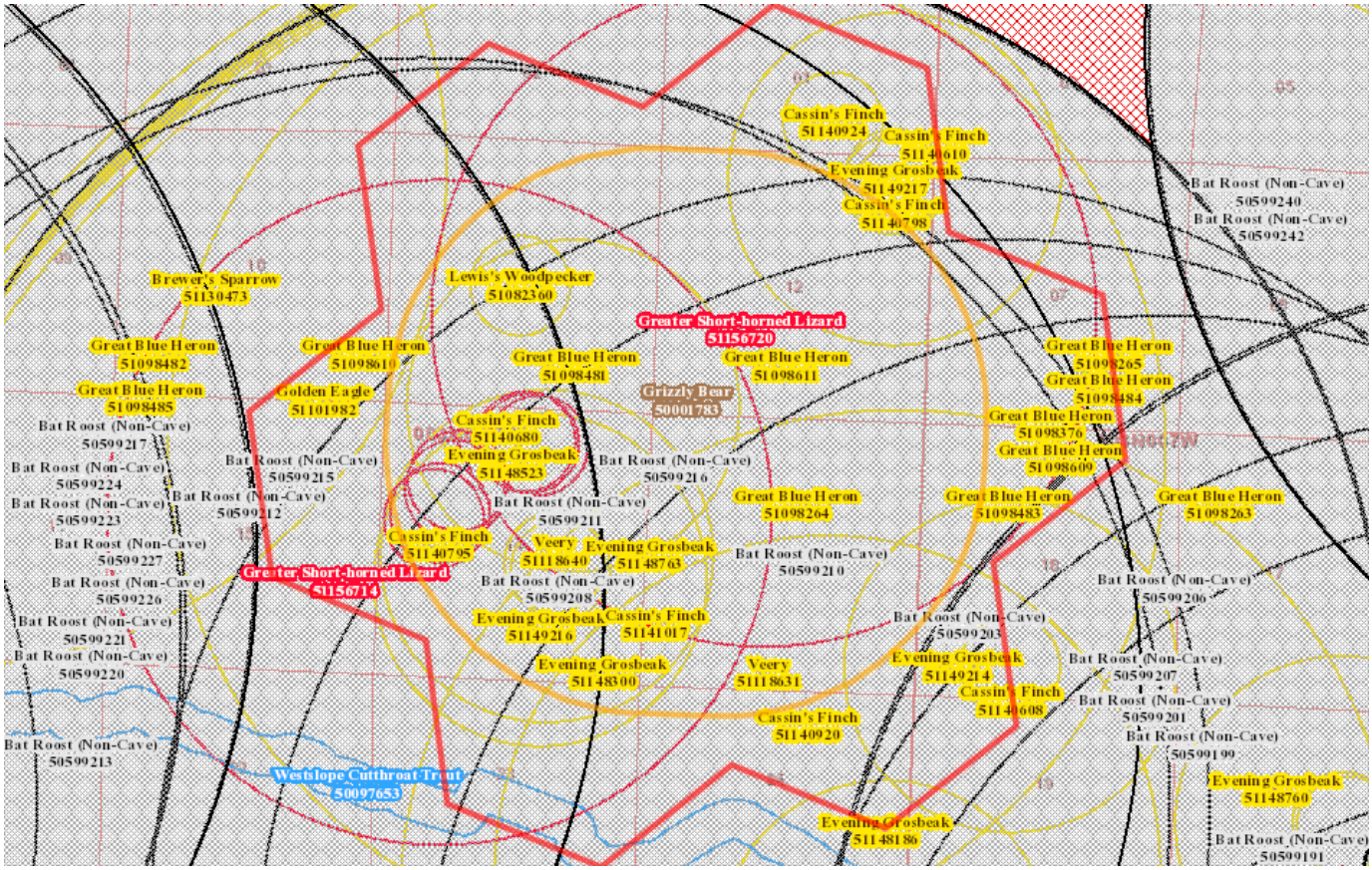
Model Icons	Habitat Icons	Range Icons	Num Obs
N Suitable (native range)	C Common	Y Native / Year-round	Count of obs with 'good precision' (<=1000m)
O Optimal Suitability	O Occasional	S Summer	+ indicates additional 'poor precision' obs (1001m-10,000m)
M Moderate Suitability		W Winter	
L Low Suitability		M Migratory	
I Suitable (introduced range)		N Non-native	
		H Historical	

Latitude	Longitude
45.99323	-112.51438
46.04171	-112.57974

Native Species

Summarized by: **224PRVT0030** *(Custom Area of Interest)*
Filtered by:
Native Species reports are filtered for Species with MT Status = Species of Concern, Special Status, Important Animal Habitat, Potential SOC



Species Occurrences

	USFWS Sec7	# SO	# Obs	Predicted Model	Range
F - Westslope Cutthroat Trout *(Oncorhynchus clarkii lewisi)* SOC		1	15 +		Y

View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native/Non-native Species - (depends on location or taxa) Global: **G5T4** State: **S2**
USFS: **Sensitive - Known in Forests (BD, BRT, KOOT, LOLO)**
Species of Conservation Concern in Forests (CG, HLC) BLM: **SENSITIVE** FWP SWAP: **SGCN2**

Delineation Criteria Stream reaches and standing water bodies where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards. (Last Updated: Jul 25, 2022)

Predicted Models: N 14% Suitable (native range) (deductive)

B - Cassin's Finch *(Haemorhous cassinii)* SOC		8	12		Y

View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA; BCC10** FWP SWAP: **SGCN3** PIF: **3**

Delineation Criteria Observations with evidence of breeding activity buffered by a minimum distance of 300 meters in order to be conservative about encompassing the courtship and foraging distance from nesting areas and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jun 30, 2023)

Predicted Models: M 71% Moderate (inductive), L 29% Low (inductive)

B - Evening Grosbeak *(Coccothraustes vespertinus)* SOC		7	11		Y WM

View in Field Guide **View Predicted Models** **View Range Maps**
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA; BCC10** FWP SWAP: **SGCN3**

Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 1,000 meters in order to encompass the maximum foraging distance from nests reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jun 30, 2023)

Predicted Models: M 57% Moderate (inductive), L 14% Low (inductive)

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R - Greater Short-horned Lizard *(Phrynosoma hernandesi)* SOC — 9 — 10 — Y

Species of Concern - Native Species Global: **G5** State: **S3** BLM: **SENSITIVE** FWP SWAP: **SGCN3, SGIN**

Delineation Criteria Confirmed breeding area based on the presence of a resident animal of any age. Point observation location is buffered by a minimum distance of 300 meters in order to encompass habitats supporting other individuals and documented distances moved betweeen summer and winter habitats. Otherwise the point observation is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jul 06, 2023)

Predicted Models: M 43% Moderate (inductive), L 57% Low (inductive)

B - Great Blue Heron *(Ardea herodias)* SOC — 12 — 21 — Y S M

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA** FWP SWAP: **SGCN3**

Delineation Criteria Confirmed nesting area buffered by a minimum distance of 6,500 meters in order to be conservative about encompassing the areas commonly used for foraging near the breeding colony and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jun 27, 2023)

Predicted Models: M 29% Moderate (inductive), L 43% Low (inductive)

B - Lewis's Woodpecker *(Melanerpes lewis)* SOC — 1 — 1 — S M

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G4** State: **S2B** USFWS: **MBTA; BCC10; BCC17** USFS: **Species of Conservation Concern in Forests (HLC)** BLM: **SENSITIVE** FWP SWAP: **SGCN2** PIF: **2**

Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 300 meters in order to encompass the likely foraging area used by breeding adults around the nest tree and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Mar 22, 2023)

Predicted Models: M 14% Moderate (inductive), L 43% Low (inductive)

B - Brewer's Sparrow *(Spizella breweri)* SOC — 1 — 1 — S M

View in Field Guide | View Predicted Models | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 100 meters in order to encompass the maximum territory size reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jun 29, 2023)

Predicted Models: L 29% Low (inductive)

M - Grizzly Bear *(Ursus arctos)* SOC — 7 — 1 — Not Assessed — Y — H

View in Field Guide | View Range Maps

Species of Concern - Native Species Global: **G4** State: **S2S3** USFWS: **LT** BLM: **THREATENED** FWP SWAP: **SGCN2-3**

Delineation Criteria Species Occurrence polygons represent areas delineated by the U.S. Fish and Wildlife Service (USFWS) that encompass both home ranges and potential transitory movements based on verified sightings. Within these areas, the USFWS wants project proponents to consider whether the species â€œmay be presentâ€ when evaluating the potential impacts of a project and to work with the USFWS to develop and implement best management practices to minimize or eliminate project effects on the species. (Last Updated: Jul 06, 2023)

B - Veery *(Catharus fuscescens)* SOC — 2 — 1 — Not Assessed — S M

View in Field Guide | View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

Delineation Criteria Observations with evidence of breeding activity buffered by a minimum distance of 300 meters in order to be conservative about encompassing home ranges and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jun 29, 2023)

O - Bat Roost (Non-Cave) *(Bat Roost (Non-Cave))* IAH — 13 — Not Assessed

View in Field Guide

Important Animal Habitat - Native Species Global: **GNR** State: **SNR**

Delineation Criteria Confirmed area of occupancy based on the documented presence of adults or juveniles of any bat species at non-cave natural roost sites (e.g. rock outcrops, trees), below ground human created roost sites (e.g. mines), and above ground human created roost sites (e.g., bridges, buildings). Point observation locations are buffered by a distance of 4,500 meters in order to encompass the 95% confidence interval for nightly foraging distance reported for Townsendâ€™s Big-eared Bat (a resident Montana bat Species of Concern) and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Oct 22, 2019)

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Model Icons	Habitat Icons	Range Icons	Num Obs
N Suitable (native range)	C Common	Y Native / Year-round	Count of obs with 'good precision' (<=1000m)
O Optimal Suitability	O Occasional	S Summer	+ indicates additional 'poor precision' obs (1001m-10,000m)
M Moderate Suitability		W Winter	
L Low Suitability		M Migratory	
I Suitable (introduced range)		N Non-native	
		H Historical	

Latitude	Longitude
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Native Species

Summarized by: **224PRVT0030** *(Custom Area of Interest)*
Filtered by:
Native Species reports are filtered for Species with MT Status = Species of Concern, Special Status, Important Animal Habitat, Potential SOC

Other Observed Species

	USFWS Sec7	# Obs	Predicted Model	Range
B - Rufous Hummingbird *(Selasphorus rufus)* PSOC		8		S M
View in Field Guide · View Predicted Models · View Range Maps				
Potential Species of Concern - Native Species Global: **G4** State: **S4B** USFWS: **MBTA; BCC10** PIF: **3**				
Predicted Models: M 71% Moderate (inductive), L 29% Low (inductive)				
B - Green-tailed Towhee *(Pipilo chlorurus)* SOC		1		S M
View in Field Guide · View Predicted Models · View Range Maps				
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**				
Predicted Models: M 71% Moderate (inductive), L 14% Low (inductive)				
B - American White Pelican *(Pelecanus erythrorhynchos)* SOC		3		S M
View in Field Guide · View Predicted Models · View Range Maps				
Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**				
Predicted Models: M 57% Moderate (inductive), L 29% Low (inductive)				
B - Long-billed Curlew *(Numenius americanus)* SOC		1		S M
View in Field Guide · View Predicted Models · View Range Maps				
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA; BCC11** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**				
Predicted Models: M 29% Moderate (inductive), L 71% Low (inductive)				
B - Clark's Nutcracker *(Nucifraga columbiana)* SOC		26		Y
View in Field Guide · View Predicted Models · View Range Maps				
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA** USFS: **Species of Conservation Concern in Forests (FLAT)** FWP SWAP: **SGCN3** PIF: **3**				
Predicted Models: M 29% Moderate (inductive), L 57% Low (inductive)				
B - Hooded Merganser *(Lophodytes cucullatus)* PSOC		8		Y M
View in Field Guide · View Predicted Models · View Range Maps				
Potential Species of Concern - Native Species Global: **G5** State: **S4** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **2**				
Predicted Models: M 14% Moderate (inductive), L 71% Low (inductive)				
B - Barrow's Goldeneye *(Bucephala islandica)* PSOC		6		Y W M
View in Field Guide · View Predicted Models · View Range Maps				
Potential Species of Concern - Native Species Global: **G5** State: **S4** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **2**				
Predicted Models: M 14% Moderate (inductive), L 43% Low (inductive)				
B - White-faced Ibis *(Plegadis chihi)* SOC		2		S M
View in Field Guide · View Predicted Models · View Range Maps				
Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**				
Predicted Models: M 14% Moderate (inductive), L 29% Low (inductive)				
B - Gray-crowned Rosy-Finch *(Leucosticte tephrocotis)* SOC		3		Y W M
View in Field Guide · View Predicted Models · View Range Maps				
Species of Concern - Native Species Global: **G5** State: **S2** USFWS: **MBTA** FWP SWAP: **SGCN2, SGIN**				
Predicted Models: L 86% Low (inductive)				
B - Trumpeter Swan *(Cygnus buccinator)* SOC		5		Y M
View in Field Guide · View Predicted Models · View Range Maps				
Species of Concern - Native Species Global: **G4** State: **S3** USFWS: **MBTA** USFS: **Sensitive - Known in Forests (BD)** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **1**				
Predicted Models: L 57% Low (inductive)				
A - Western Toad *(Anaxyrus boreas)* SOC		+		Y
View in Field Guide · View Predicted Models · View Range Maps				
Species of Concern - Native Species Global: **G4** State: **S2** USFS: **Sensitive - Known in Forests (BD, BRT, KOOT, LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN2**				
Predicted Models: L 43% Low (inductive)				
B - Bald Eagle *(Haliaeetus leucocephalus)* SSS		8 +		Y
View in Field Guide · View Predicted Models · View Range Maps				
Special Status Species - Native Species Global: **G5** State: **S4** USFWS: **BGEPA; MBTA** USFS: **Sensitive - Known in Forests (BD, BRT, KOOT, LOLO)** BLM: **SENSITIVE** PIF: **2**				
Predicted Models: L 29% Low (inductive)				
B - Northern Goshawk *(Accipiter gentilis)* SOC		2 +	Not Assessed	Y W M
View in Field Guide · View Range Maps				
Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **2**				

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B - Black-necked Stilt *(Himantopus mexicanus)* SOC — 2 — Not Assessed — S M

Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**

B - Forster's Tern *(Sterna forsteri)* SOC — 1 — Not Assessed — S M

View in Field Guide View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

B - Franklin's Gull *(Leucophaeus pipixcan)* SOC — 2 + — Not Assessed — S M

View in Field Guide View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA; BCC10; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

B - Varied Thrush *(Ixoreus naevius)* SOC — 1 — Not Assessed — S M

View in Field Guide View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** FWP SWAP: **SGCN3** PIF: **3**

B - Common Loon *(Gavia immer)* SOC — 1 — Not Assessed — M

View in Field Guide View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** USFS: **Sensitive - Known in Forests (KOOT, LOLO)** FWP SWAP: **SGCN3** PIF: **1**

B - Horned Grebe *(Podiceps auritus)* SOC — 2 — Not Assessed — M

View in Field Guide View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

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Model Icons	Habitat Icons	Range Icons	Num Obs
N Suitable (native range)	C Common	Y Native / Year-round	Count of obs with 'good precision' (<=1000m)
O Optimal Suitability	O Occasional	S Summer	+ indicates additional 'poor precision' obs (1001m-10,000m)
M Moderate Suitability		W Winter	
L Low Suitability		M Migratory	
I Suitable (introduced range)		N Non-native	
		H Historical	

Latitude	Longitude
45.99323	-112.51438
46.04171	-112.57974

Native Species

Summarized by: **224PRVT0030** *(Custom Area of Interest)*
Filtered by:
Native Species reports are filtered for Species with MT Status = Species of Concern, Special Status, Important Animal Habitat, Potential SOC

Other Potential Species

B - Broad-tailed Hummingbird *(Selasphorus platycercus)* PSOC — USFWS Sec7 | Predicted Model | Range: S M

View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native Species — Global: **G5** State: **S4B** USFWS: **MBTA; BCC10** FWP SWAP: **SGIN**
Predicted Models: O 71% Optimal (inductive), M 14% Moderate (inductive), L 14% Low (inductive)

V - Potentilla plattensis *(Platte Cinquefoil)* SOC — Range: Y

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species — Global: **G4** State: **S3** Plant Threat Score: **No Known Threats** CCVI: **Highly Vulnerable**
Predicted Models: O 14% Optimal (inductive), M 86% Moderate (inductive)

M - Dwarf Shrew *(Sorex nanus)* SOC — Range: Y

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species — Global: **G4** State: **S2S3** FWP SWAP: **SGCN2-3**
Predicted Models: M 86% Moderate (inductive), L 14% Low (inductive)

M - Western Spotted Skunk *(Spilogale gracilis)* PSOC — Range: Y

View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native Species — Global: **G5** State: **SU** FWP SWAP: **SGIN**
Predicted Models: M 86% Moderate (inductive), L 14% Low (inductive)

I - Bombus suckleyi *(Suckley Cuckoo Bumble Bee)* SOC — Range: Y

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species — Global: **G2G3** State: **S1**
Predicted Models: M 86% Moderate (inductive), L 14% Low (inductive)

V - Stellaria crassifolia *(Fleshy Stitchwort)* SOC — Range: Y

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species — Global: **G5** State: **S2** Plant Threat Score: **No Known Threats**
Predicted Models: M 86% Moderate (inductive), L 14% Low (inductive)

B - Ferruginous Hawk *(Buteo regalis)* SOC — Range: S M

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species — Global: **G4** State: **S3B** USFWS: **MBTA; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**
Predicted Models: M 71% Moderate (inductive), L 29% Low (inductive)

V - Oxytropis lagopus var. conjugans *(Hare's-foot Locoweed)* PSOC — Range: Y

View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native Species — Global: **G4G5T3T4** State: **S3S4**
Predicted Models: M 71% Moderate (inductive), L 14% Low (inductive)

M - North American Porcupine *(Erethizon dorsatum)* PSOC — Range: Y

View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native Species — Global: **G5** State: **S3S4** FWP SWAP: **SGIN**
Predicted Models: M 57% Moderate (inductive), L 43% Low (inductive)

M - Spotted Bat *(Euderma maculatum)* SOC — Range: S M

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species — Global: **G4** State: **S3** USFS: **Sensitive - Known in Forests (BD)** BLM: **SENSITIVE** FWP SWAP: **SGCN3, SGIN**
Predicted Models: M 57% Moderate (inductive), L 43% Low (inductive)

I - Danaus plexippus *(Monarch)* SOC — Range: S

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species — Global: **G4** State: **S2S3** USFWS: **C**
Predicted Models: M 57% Moderate (inductive), L 43% Low (inductive)

V - Erigeron linearis *(Linear-leaf Fleabane)* SOC — Range: Y

View in Field Guide | View Predicted Models | View Range Maps
Species of Concern - Native Species — Global: **G5** State: **S2** Plant Threat Score: **Low** CCVI: **Less Vulnerable**
Predicted Models: M 43% Moderate (inductive), L 57% Low (inductive)

V - Ranunculus hyperboreus *(High Northern Buttercup)* PSOC — Range: Y

View in Field Guide | View Predicted Models | View Range Maps
Potential Species of Concern - Native Species — Global: **G5** State: **S3S4**
Predicted Models: M 43% Moderate (inductive), L 57% Low (inductive)

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V - Draba densifolia *(Dense-leaf Draba)* SOC

Species of Concern - Native Species Global: **G5** State: **S2** USFS: **Species of Conservation Concern in Forests (CG, HLC)** Plant Threat Score: **Low** CCVI: **Moderately Vulnerable**

Predicted Models: M 43% Moderate (inductive), L 14% Low (inductive)

V - Orobanche corymbosa *(Flat-topped Broomrape)* PSOC

View in Field Guide View Predicted Models View Range Maps

Potential Species of Concern - Native Species Global: **G4** State: **S3S4**

Predicted Models: M 43% Moderate (inductive)

M - Columbia Plateau Pocket Mouse *(Perognathus parvus)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3** USFS: **Sensitive - Suspected in Forests (BD)** FWP SWAP: **SGCN3, SGIN**

Predicted Models: M 29% Moderate (inductive), L 43% Low (inductive)

B - Short-eared Owl *(Asio flammeus)* PSOC

View in Field Guide View Predicted Models View Range Maps

Potential Species of Concern - Native Species Global: **G5** State: **S4** USFWS: **MBTA; BCC11; BCC17** PIF: **3**

Predicted Models: M 14% Moderate (inductive), L 86% Low (inductive)

B - Mountain Plover *(Charadrius montanus)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G3** State: **S2B** USFWS: **MBTA; BCC10; BCC11; BCC17** BLM: **SENSITIVE** FWP SWAP: **SGCN2** PIF: **1**

Predicted Models: M 14% Moderate (inductive), L 57% Low (inductive)

M - Wyoming Ground Squirrel *(Urocitellus elegans)* PSOC

View in Field Guide View Predicted Models View Range Maps

Potential Species of Concern - Native Species Global: **G5** State: **S3S4**

Predicted Models: M 14% Moderate (inductive), L 14% Low (inductive)

V - Carex crawei *(Crawe's Sedge)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S2S3** Plant Threat Score: **Low**

Predicted Models: L 100% Low (inductive)

M - Hoary Bat *(Lasiurus cinereus)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G3G4** State: **S3B** BLM: **SENSITIVE** FWP SWAP: **SGCN3**

Predicted Models: L 100% Low (inductive)

M - Silver-haired Bat *(Lasionycteris noctivagans)* PSOC

View in Field Guide View Predicted Models View Range Maps

Potential Species of Concern - Native Species Global: **G3G4** State: **S4**

Predicted Models: L 71% Low (inductive)

B - Pinyon Jay *(Gymnorhinus cyanocephalus)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G3** State: **S3** USFWS: **MBTA; BCC10; BCC17** FWP SWAP: **SGCN3**

Predicted Models: L 71% Low (inductive)

I - Rhyacophila betteni *(A Caddisfly)* SSS

View in Field Guide View Predicted Models View Range Maps

Special Status Species - Native Species Global: **G2G4** State: **S3S4**

Predicted Models: L 71% Low (inductive)

M - Long-eared Myotis *(Myotis evotis)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3**

Predicted Models: L 57% Low (inductive)

M - Long-legged Myotis *(Myotis volans)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G4G5** State: **S3**

Predicted Models: L 57% Low (inductive)

V - Atriplex truncata *(Wedge-leaf Saltbush)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S3** Plant Threat Score: **Unknown**

Predicted Models: L 57% Low (inductive)

M - North American Water Vole *(Microtus richardsoni)* PSOC

View in Field Guide View Predicted Models View Range Maps

Potential Species of Concern - Native Species Global: **G5** State: **S4**

Predicted Models: L 43% Low (inductive)

M - Wolverine *(Gulo gulo)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G4** State: **S3** USFS: **Sensitive - Known in Forests (BD, BRT, KOOT, LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN3**

Predicted Models: L 43% Low (inductive)

B - Western Screech-Owl *(Megascops kennicottii)* PSOC

View in Field Guide View Predicted Models View Range Maps

Potential Species of Concern - Native Species Global: **G4G5** State: **S3S4** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **3**

Predicted Models: L 43% Low (inductive)

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V - Dichanthelium acuminatum *(Panic Grass)* SOC

Species of Concern - Native Species Global: **G5** State: **S2S3** Plant Threat Score: **Unknown**

Predicted Models: L 43% Low (inductive)

V - Elodea bifoliata *(Long-sheath Waterweed)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G4G5** State: **S2?** Plant Threat Score: **No Known Threats**

Predicted Models: L 43% Low (inductive)

B - Common Poorwill *(Phalaenoptilus nuttallii)* PSOC

View in Field Guide View Predicted Models View Range Maps

Potential Species of Concern - Native Species Global: **G5** State: **S4B** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **3**

Predicted Models: L 43% Low (inductive)

B - Ovenbird *(Seiurus aurocapilla)* PSOC

View in Field Guide View Predicted Models View Range Maps

Potential Species of Concern - Native Species Global: **G5** State: **S4B** USFWS: **MBTA** PIF: **3**

Predicted Models: L 43% Low (inductive)

M - Little Brown Myotis *(Myotis lucifugus)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G3G4** State: **S3** FWP SWAP: **SGCN3**

Predicted Models: L 29% Low (inductive)

V - Eriogonum caespitosum *(Mat Buckwheat)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G5** State: **S2S3** Plant Threat Score: **No Known Threats**

Predicted Models: L 29% Low (inductive)

B - Loggerhead Shrike *(Lanius ludovicianus)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **2**

Predicted Models: L 29% Low (inductive)

B - Sage Thrasher *(Oreoscoptes montanus)* SOC

View in Field Guide View Predicted Models View Range Maps

Species of Concern - Native Species Global: **G4** State: **S3B** USFWS: **MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3** PIF: **3**

Predicted Models: L 29% Low (inductive)

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45.99323	-112.51438
46.04171	-112.57974

Structured Surveys

Summarized by: **224PRVT0030** *(Custom Area of Interest)*

The Montana Natural Heritage Program (MTNHP) records information on the locations where more than 80 different types of well-defined repeatable survey protocols capable of detecting an animal species or suite of animal species have been conducted by state, federal, tribal, university, or private consulting biologists. Examples of structured survey protocols tracked by MTNHP include: visual encounter and dip net surveys for pond breeding amphibians, point counts for birds, call playback surveys for selected bird species, visual surveys of migrating raptors, kick net stream reach surveys for macroinvertebrates, visual encounter cover object surveys for terrestrial mollusks, bat acoustic or mist net surveys, pitfall and/or snap trap surveys for small terrestrial mammals, track or camera trap surveys for large mammals, and trap surveys for turtles. Whenever possible, photographs of survey locations are stored in MTNHP databases.

MTNHP does not typically manage information on structured surveys for plants; surveys for invasive species may be a future exception.

Within the report area you have requested, structured surveys are summarized by the number of each type of structured survey protocol that has been conducted, the number of species detections/observations resulting from these surveys, and the most recent year a survey has been conducted.

E-Noxious Weed, Road-based *(Noxious Weed Road-based Visual Surveys)*	**Survey Count**: 21	**Obs Count**: 31	**Recent Survey**: 2004
F-Fish Electrofishing *(Fish Electrofishing Surveys)*	**Survey Count**: 10	**Obs Count**: 71	**Recent Survey**: 2022
F-Fish Other Survey *(Fish Other Survey (FWP Survey Type))*	**Survey Count**: 3	**Obs Count**: 4	**Recent Survey**: 1992
I-Bumble Bee *(Bumble Bee Collection Surveys)*	**Survey Count**: 3	**Obs Count**: 3	**Recent Survey**: 2015
I-Odonates/Butterfly VES *(Visual Encounter Survey for Damselfly/Dragonfly/Butterfly)*	**Survey Count**: 1	**Obs Count**: 1	**Recent Survey**: 2011
M-Bat Roost (Active Season) *(Bat Roost (Active Season) Survey)*	**Survey Count**: 8	**Obs Count**: 2	**Recent Survey**: 2015
P-Algal scraping *(Algal Scraping)*	**Survey Count**: 8	**Obs Count**: 399	**Recent Survey**: 2018
P-FIA Ecosystem *(USFS FIA Ecosystem Survey)*	**Survey Count**: 1	**Obs Count**: 7	**Recent Survey**: 2003

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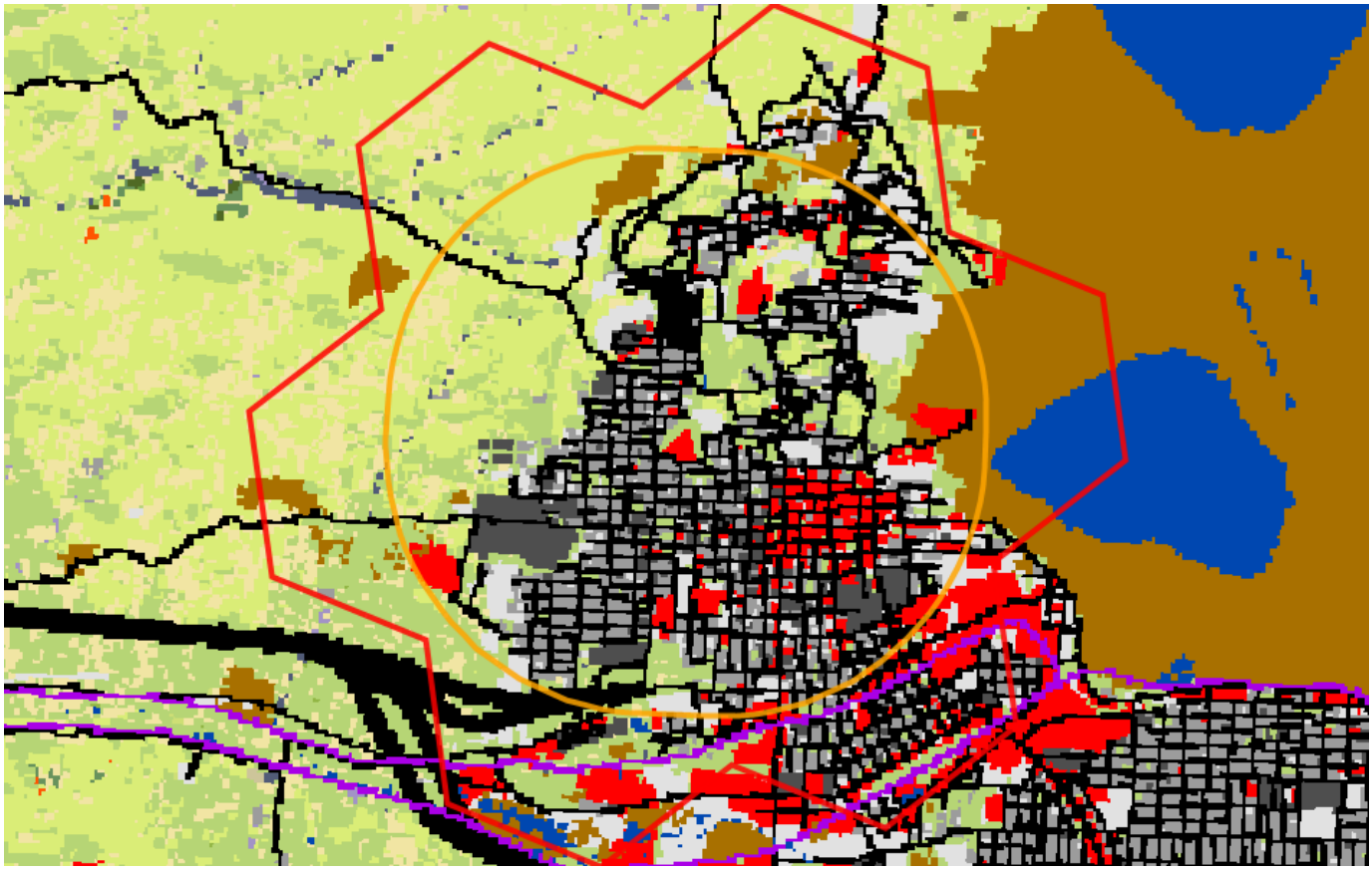
45.99323	-112.51438
46.04171	-112.57974

Land Cover

Summarized by: **224PRVT0030** *(Custom Area of Interest)*



No Image

22% (*980 Acres*)

Human Land Use
Developed
Other Roads

County, city and or rural roads generally open to motor vehicles.

19% (*842 Acres*)

Grassland Systems
Montane Grassland
Rocky Mountain Subalpine-Upper Montane Grassland

These lush grassland systems are found in upper montane to subalpine, high-elevation,zones, and are shaped by short summers, cold winters, and young soils derived from recent glacial and alluvial material. In subalpine settings, dry grasslands may occur as small meadows or large open parks surrounded by higher elevational forests, but typicall will have no tree cover within them. In general, soil textures are much finer, and soils are often deeper than in the neighboring forests. Most precipitation occurs as heavy snowpack in the mountains with spring and early summer rains. This system is composed of bunch grass species, with a diversity of cool season forbs. It is similar to the Rocky Mountain Lower Montane, Foothill and Valley Grassland ecological system, but is found at higher elevations and has additional floristic components with more subalpine taxa. In Montana, this system generally occurs as two plant communities: a rough fescue-Idaho fescue (*Festuca campestris-Festuca idahoensis*) association occurring on moister sites, such as the north and east-facing slopes and benches in the mountains; and the Idaho Fescue-bluebunch wheatgrass (*Festuca idahoensis-Pseudoroegneria spicata*) association occurring on drier sites, such as ridges, hilltops, and south and west facing slopes and benches. At elevations greater than 2286 meters (7,500 feet), Idaho fescue becomes dominant, sometimes associated with slender wheatgrass (*Elymus trachycaulus*), or in certain areas, tufted hairgrass (*Deschampsia cespitosa*). Noxious species invasion, fire suppression, heavy grazing, and oil and gas development are major threats to this system.

14% (*647 Acres*)

Grassland Systems
Montane Grassland
Rocky Mountain Lower Montane, Foothill, and Valley Grassland

This grassland system of the northern Rocky Mountains is found at lower montane to foothill elevations in mountains and valleys throughout Montana. These grasslands are floristically similar to Big Sagebrush Steppe but are defined by shorter summers, colder winters, and young soils derived from recent glacial and alluvial material. They are found at elevations from 548 - 1,650 meters (1,800-5,413 feet). In the lower montane zone, they range from small meadows to large open parks surrounded by conifers; below the lower treeline, they occur as extensive foothill and valley grasslands. Soils are relatively deep, fine-textured, often with coarse fragments, and non-saline. Microphytic crust may be present in high-quality occurrences. This system is typified by cool-season perennial bunch grasses and forbs (>25%) cover, with a sparse shrub cover (<10%). Rough fescue (*Festuca campestris*) is dominant in the northwestern portion of the state and Idaho fescue (*Festuca idahoensis*) is dominant or co-dominant throughout the range of the system. Bluebunch wheatgrass (*Pseudoroegneria spicata*) occurs as a co-dominant throughout the range as well, especially on xeric sites. Western wheatgrass (*Pascopyrum smithii*) is consistently present, often with appreciable coverage (>10%) in lower elevation occurrences in western Montana and virtually always present, with relatively high coverages (>25%), on the edge of the Northwestern Great Plains region. Species diversity ranges from a high of more than 50 per 400 square meter plot on mesic sites to 15 (or fewer) on xeric and disturbed sites. Most occurrences have at least 25 vascular species present. Farmland conversion, noxious species invasion, fire suppression, heavy grazing and oil and gas development are major threats to this system.

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9% (*389 Acres*)

Quarries, Strip Mines and Gravel Pits

Areas of extractive mining activities with significant surface expression in the form of pits, service roads, and permanently installed processing machinery

8% (*337 Acres*)

Human Land Use
Developed

Low Intensity Residential

Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20-50% of total cover. These areas most commonly include single-family housing units in rural and suburban areas. Paved roadways may be classified into this category.

7% (*316 Acres*)

Human Land Use
Developed

Developed, Open Space

Vegetation (primarily grasses) planted in developed settings for recreation, erosion control, or aesthetic purposes. Impervious surfaces account for less than 20% of total cover. This category often includes highway and railway rights of way and graveled rural roads.

No Image

6% (*282 Acres*)

Human Land Use
Developed

Commercial / Industrial

Businesses, industrial parks, hospitals, airports; utilities in commercial/industrial areas.

6% (*276 Acres*)

Shrubland, Steppe and Savanna Systems
Sagebrush Steppe

Montane Sagebrush Steppe

This system dominates the montane and subalpine landscape of southwestern Montana from valley bottoms to subalpine ridges and is found as far north as Glacier National Park. It can also be seen in the island mountain ranges of the north-central and south-central portions of the state. It primarily occurs on deep-soiled to stony flats, ridges, nearly flat ridgetops, and mountain slopes. In general, this system occurs in areas of gentle topography, fine soils, subsurface moisture or mesic conditions, within zones of higher precipitation and areas of snow accumulation. It occurs on all slopes and aspects, variable substrates and all soil types. The shrub component of this system is generally dominated by mountain big sagebrush (*Artemisia tridentata ssp. vaseyana*). Other co-dominant shrubs include silver sagebrush (*Artemisia cana ssp. viscidula)*, subalpine big sagebrush (*Artemisia tridentata ssp. spiciformis*), three tip sagebrush (*Artemisia tripartita* ssp*. tripartita*) and antelope bitterbrush (*Purshia tridentata*). Little sagebrush (*Artemisia arbuscula ssp. arbuscula*) shrublands are only found in southwestern Montana on sites with a perched water table. Wyoming big sagebrush (*Artemisia tridentata ssp. wyomingensis*) sites may be included within this system if occurrences are at montane elevations, and are associated with montane graminoids such as Idaho fescue (*Festuca idahoensis),* spike fescue (*Leucopoa kingii*), or poverty oatgrass (*Danthonia intermedia)*. In ares where sage has been eliminated by human activities like burning, disking or poisoning, other shrubs may be dominant, especially rubber rabbitbrush (*Ericameria nauseosa*), and green rabbitbrush (*Chrysothamnus viscidiflorus*). Because of the mesic site conditions, most occurrences support a diverse herbaceous undergrowth of grasses and forbs. Shrub canopy cover is extremely variable, ranging from 10 percent to as high as 40 or 50 percent.

3% (*152 Acres*)

Human Land Use
Developed

High Intensity Residential

Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50-80% of the total cover. These areas most commonly include single-family housing units in urban areas. Paved roadways, parking lots, and other large impervious surfaces may be classified into this category.

3% (*115 Acres*)

Wetland and Riparian Systems
Open Water

Open Water

All areas of open water, generally with less than 25% cover of vegetation or soil

Additional Limited Land Cover

1% (*60 Acres*) Interstate
1% (*44 Acres*) Railroad
<1% (*17 Acres*) Major Roads
<1% (*14 Acres*) Northern Rocky Mountain Lower Montane Riparian Woodland and Shrubland
<1% (*3 Acres*) Rocky Mountain Subalpine-Montane Mesic Meadow
<1% (*0 Acres*) Alpine-Montane Wet Meadow
<1% (*0 Acres*) Low Sagebrush Shrubland
<1% (*0 Acres*) Rocky Mountain Montane-Foothill Deciduous Shrubland

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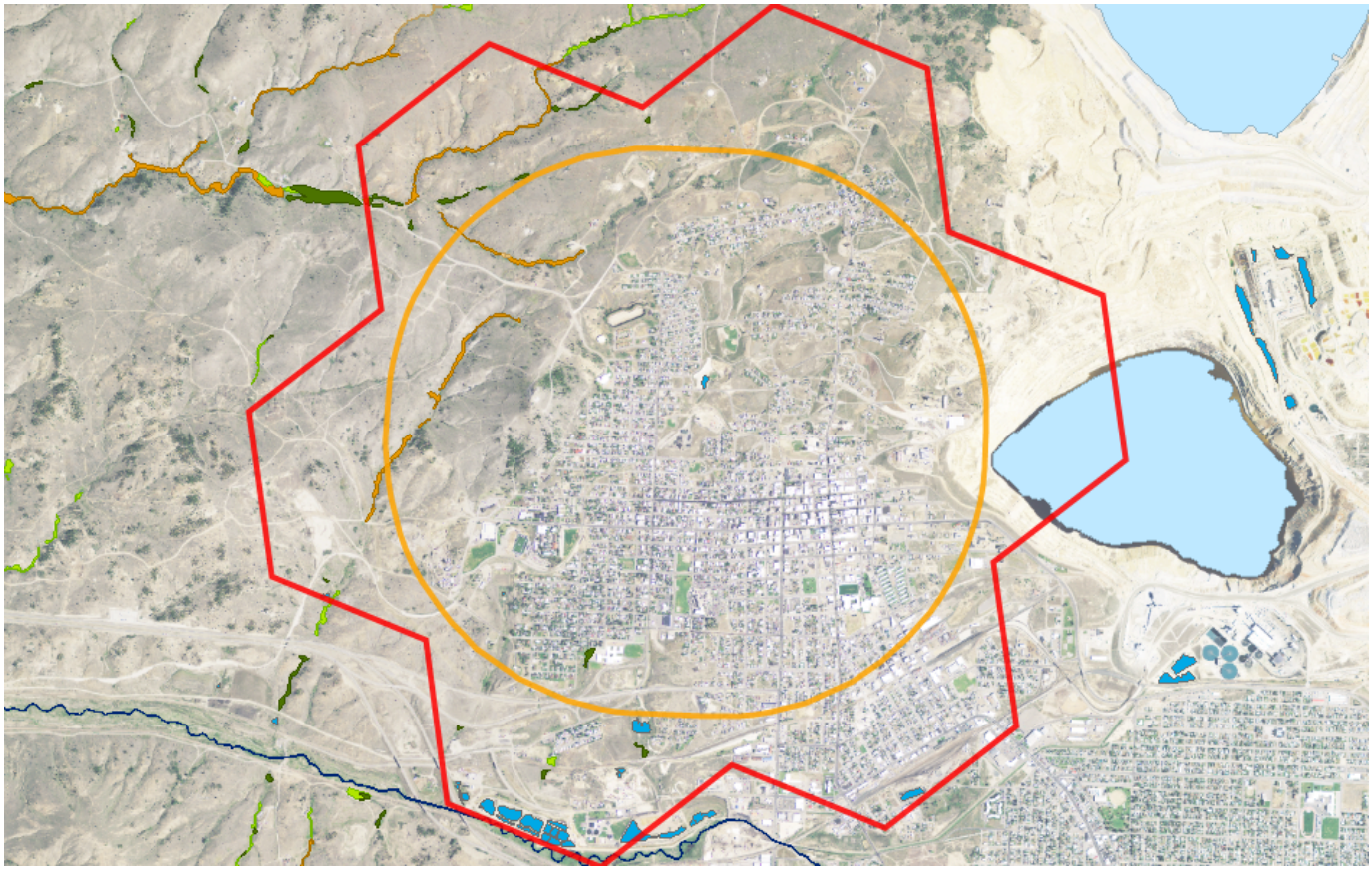
46.04171	-112.57974

Wetland and Riparian

Summarized by: **224PRVT0030** *(Custom Area of Interest)*



Wetland and Riparian Mapping

Explain

P - Palustrine

UB - Unconsolidated Bottom

F - Semipermanently Flooded	14 Acres	
x - Excavated	**14 Acres**	**PUBFx**

P - Palustrine, UB - Unconsolidated Bottom
Wetlands where mud, silt or similar fine particles cover at least 25% of the bottom, and where vegetation cover is less than 30%.

AB - Aquatic Bed

F - Semipermanently Flooded	3 Acres	
h - Diked/Impounded	**2 Acres**	**PABFh**
x - Excavated	**1 Acres**	**PABFx**

P - Palustrine, AB - Aquatic Bed
Wetlands with vegetation growing on or below the water surface for most of the growing season.

EM - Emergent

A - Temporarily Flooded	1 Acres	
(no modifier)	**1 Acres**	**PEMA**

P - Palustrine, EM - Emergent
Wetlands with erect, rooted herbaceous vegetation present during most of the growing season.

SS - Scrub-Shrub

A - Temporarily Flooded	5 Acres	
(no modifier)	**5 Acres**	**PSSA**

P - Palustrine, SS - Scrub-Shrub
Wetlands dominated by woody vegetation less than 6 meters (20 feet) tall. Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.

L - Lacustrine (Lakes)

1 - Limnetic

UB - Unconsolidated Bottom

H - Permanently Flooded	96 Acres	
x - Excavated	**96 Acres**	**L1UBHx**

L - Lacustrine (Lakes), 1 - Limnetic, UB - Unconsolidated Bottom
Deep waterbodies with mud or silt covering at least 25% of the bottom.

R - Riverine (Rivers)

3 - Upper Perennial

UB - Unconsolidated Bottom

H - Permanently Flooded	<1 Acres	
(no modifier)	**<1 Acres**	**R3UBH**

R - Riverine (Rivers), 3 - Upper Perennial, UB - Unconsolidated Bottom
Stream channels where the substrate is at least 25% mud, silt or other fine particles.

Rp - Riparian

1 - Lotic

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SS - Scrub-Shrub			**Rp - Riparian, 1 - Lotic, SS - Scrub-Shrub** *This type of riparian area is dominated by woody vegetation [illegible] meters (20 feet) tall. Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.*
EM - Emergent (no modifier)	**<1 Acres**	**Rp1EM**	**Rp - Riparian, 1 - Lotic, EM - Emergent** *Riparian areas that have erect, rooted herbaceous vegetation during most of the growing season.*

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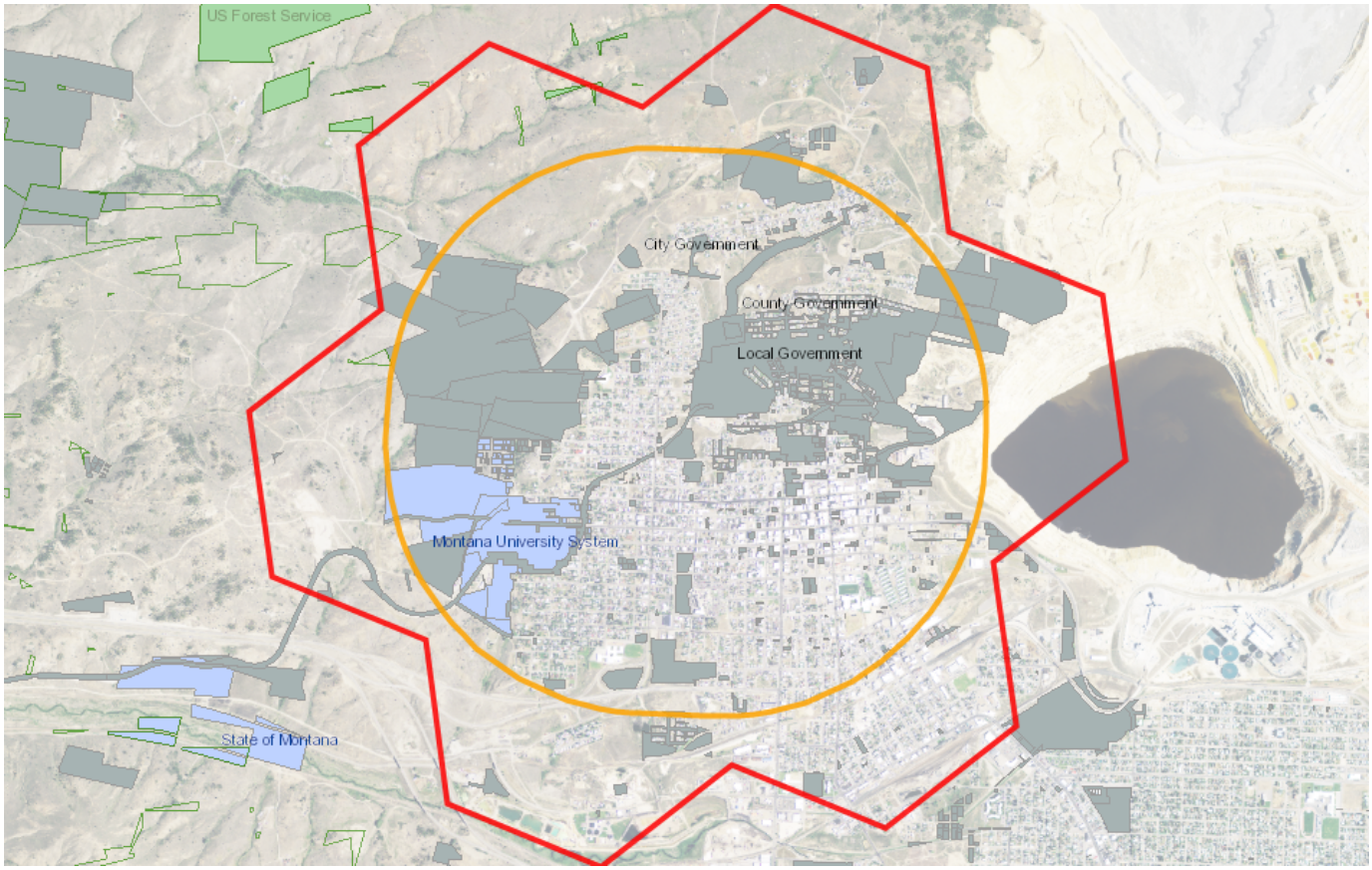
Land Management

Summarized by: **224PRVT0030** *(Custom Area of Interest)*



Land Management Summary

Explain

	Ownership	Tribal	Easements	Other Boundaries (possible overlap)
Public Lands	**976 Acres (22%)**			
Federal	**2 Acres (<1%)**			
US Forest Service	**2 Acres (<1%)**			
USFS Owned	**2 Acres (<1%)**			
USFS Ranger Districts				**10 Acres**
Beaverhead-Deerlodge National Forest, Butte-Jefferson Ranger District				10 Acres
USFS National Forest Boundaries				**10 Acres**
Beaverhead-Deerlodge National Forest				10 Acres
State	**134 Acres (3%)**			
Montana University System	**134 Acres (3%)**			
MUS Owned	**134 Acres (3%)**			
Local	**840 Acres (19%)**			
Local Government	**840 Acres (19%)**			
Local Government Owned	**840 Acres (19%)**			
Private Lands or Unknown Ownership	**3,500 Acres (78%)**			

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Biological Reports

Summarized by: **224PRVT0030** *(Custom Area of Interest)*

Within the report area you have requested, citations for all reports and publications associated with plant or animal observations in Montana Natural Heritage Program (MTNHP) databases are listed and, where possible, links to the documents are included.

The MTNHP plans to include reports associated with terrestrial and aquatic communities in the future as allowed for by staff resources. If you know of reports or publications associated with species or biological communities within the report area that are not shown in this report, please let us know: mtnhp@mt.gov

No Biological Reports were found in the selected area

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Model Icons
- Suitable (native range)
- Optimal Suitability
- Moderate Suitability
- Low Suitability
- Suitable (introduced range)

Habitat Icons
- Common
- Occasional

Range Icons
- Non-native

Num Obs
Count of obs with 'good precision' (<=1000m)
+ indicates additional 'poor precision' obs (1001m-10,000m)

Latitude	Longitude
45.99323	-112.51438
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Invasive and Pest Species

Summarized by: **224PRVT0030** *(Custom Area of Interest)*

	# Obs	Predicted Model	Range

Aquatic Invasive Species

V - Iris pseudacorus *(Yellowflag Iris)* N2A/AIS

View in Field Guide | View Predicted Models | View Range Maps

Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 43% Low (inductive)

V - Nymphaea odorata *(American Water-lily)* AIS

View in Field Guide | View Predicted Models | View Range Maps

Aquatic Invasive Species - Non-native Species Global: **G5** State: **SNA**

Predicted Models: I 57% Suitable (introduced range) (deductive)

Noxious Weeds: Priority 1A

V - Isatis tinctoria *(Dyer's Woad)* N1A

View in Field Guide | View Predicted Models | View Range Maps

Noxious Weed: Priority 1A - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: O 100% Optimal (inductive)

V - Centaurea solstitialis *(Yellow Starthistle)* N1A

View in Field Guide | View Predicted Models | View Range Maps

Noxious Weed: Priority 1A - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: O 57% Optimal (inductive), M 14% Moderate (inductive), L 14% Low (inductive)

V - Taeniatherum caput-medusae *(Medusahead)* N1A

View in Field Guide | View Predicted Models | View Range Maps

Noxious Weed: Priority 1A - Non-native Species Global: **G4G5** State: **SNA**

Predicted Models: L 29% Low (inductive)

Noxious Weeds: Priority 1B

V - Lythrum salicaria *(Purple Loosestrife)* N1B

View in Field Guide | View Predicted Models | View Range Maps

Noxious Weed: Priority 1B - Non-native Species Global: **G5** State: **SNA**

Predicted Models: O 57% Optimal (inductive), L 43% Low (inductive)

V - Polygonum cuspidatum *(Japanese Knotweed)* N1B

View in Field Guide | View Predicted Models | View Range Maps

Noxious Weed: Priority 1B - Non-native Species Global: **GNRTNR** State: **SNA**

Predicted Models: M 43% Moderate (inductive), L 43% Low (inductive)

V - Echium vulgare *(Blueweed)* N1B

View in Field Guide | View Predicted Models | View Range Maps

Noxious Weed: Priority 1B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 100% Low (inductive)

V - Cytisus scoparius *(Scotch Broom)* N1B

View in Field Guide | View Predicted Models | View Range Maps

Noxious Weed: Priority 1B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 57% Low (inductive)

V - Polygonum x bohemicum *(Bohemian Knotweed)* N1B

View in Field Guide | View Predicted Models | View Range Maps

Noxious Weed: Priority 1B - Non-native Species Global: **GNA** State: **SNA**

Predicted Models: L 43% Low (inductive)

Noxious Weeds: Priority 2A

V - Rhamnus cathartica *(Common Buckthorn)* N2A

View in Field Guide | View Predicted Models | View Range Maps

Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: O 86% Optimal (inductive), M 14% Moderate (inductive)

V - Hieracium aurantiacum *(Orange Hawkweed)* N2A

View in Field Guide | View Predicted Models | View Range Maps

Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: O 29% Optimal (inductive), M 43% Moderate (inductive), L 28% Low (inductive)

V - Lepidium latifolium *(Perennial Pepperweed)* N2A

View in Field Guide | View Predicted Models | View Range Maps

Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: O 14% Optimal (inductive), M 29% Moderate (inductive), L 43% Low (inductive)

V - Ranunculus acris *(Tall Buttercup)* N2A

View in Field Guide | View Predicted Models | View Range Maps

Noxious Weed: Priority 2A - Non-native Species Global: **G5** State: **SNA**

Predicted Models: M 14% Moderate (inductive), L 57% Low (inductive)

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V - Ventenata dubia *(Ventenata)* N2A

Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 100% Low (inductive)

V - Iris pseudacorus *(Yellowflag Iris)* N2A/AIS

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 43% Low (inductive)

Noxious Weeds: Priority 2B

V - Lepidium draba *(Whitetop)* N2B — 5

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: O 57% Optimal (inductive), M 43% Moderate (inductive)

V - Linaria dalmatica *(Dalmatian Toadflax)* N2B — 5

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **G5** State: **SNA**

Predicted Models: O 14% Optimal (inductive), M 86% Moderate (inductive)

V - Centaurea stoebe *(Spotted Knapweed)* N2B — 18

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: M 86% Moderate (inductive), L 14% Low (inductive)

V - Cynoglossum officinale *(Common Hound's-tongue)* N2B

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: M 71% Moderate (inductive), L 29% Low (inductive)

V - Leucanthemum vulgare *(Oxeye Daisy)* N2B — 2

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: M 71% Moderate (inductive), L 29% Low (inductive)

V - Linaria vulgaris *(Yellow Toadflax)* N2B — 2

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: M 71% Moderate (inductive), L 29% Low (inductive)

V - Euphorbia virgata *(Leafy Spurge)* N2B — 1

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: M 43% Moderate (inductive), L 57% Low (inductive)

V - Centaurea diffusa *(Diffuse Knapweed)* N2B

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: M 29% Moderate (inductive), L 57% Low (inductive)

V - Tanacetum vulgare *(Common Tansy)* N2B

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: M 29% Moderate (inductive), L 57% Low (inductive)

V - Hypericum perforatum *(Common St. John's-wort)* N2B

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 100% Low (inductive)

V - Acroptilon repens *(Russian Knapweed)* N2B

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 86% Low (inductive)

V - Cirsium arvense *(Canada Thistle)* N2B — 1

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **G5** State: **SNA**

Predicted Models: L 71% Low (inductive)

V - Berteroa incana *(Hoary False-alyssum)* N2B — 1

View in Field Guide View Predicted Models View Range Maps

Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: L 29% Low (inductive)

Regulated Weeds: Priority 3

V - Bromus tectorum *(Cheatgrass)* R3 — 3

View in Field Guide View Predicted Models View Range Maps

Regulated Weed: Priority 3 - Non-native Species Global: **GNR** State: **SNA**

Predicted Models: M 43% Moderate (inductive), L 57% Low (inductive)

Agricultural Pests

I - Euxoa auxiliaris *(Army Cutworm)* PESTA — 1 — Not Assessed

View in Field Guide

Agricultural Pest - Native Species Global: **G5** State: **SNR**

Biocontrol Species

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View in Field Guide **View Predicted Models** **View Range Maps**
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: M 100% Moderate (inductive)

I - Oberea erythrocephala *(Red-headed Leafy Spurge Stem Borer)* BIOCNTRL

View in Field Guide **View Predicted Models** **View Range Maps**
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: M 71% Moderate (inductive), L 29% Low (inductive)

I - Aphthona lacertosa *(Brown-legged Leafy Spurge Flea Beetle)* BIOCNTRL

View in Field Guide **View Predicted Models** **View Range Maps**
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: M 57% Moderate (inductive), L 43% Low (inductive)

I - Mecinus janthiniformis *(Dalmatian Toadflax Stem-boring Weevil)* BIOCNTRL

View in Field Guide **View Predicted Models** **View Range Maps**
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: M 14% Moderate (inductive), L 86% Low (inductive)

I - Mecinus janthinus *(Yellow Toadflax Stem-boring Weevil)* BIOCNTRL

View in Field Guide **View Predicted Models** **View Range Maps**
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: M 14% Moderate (inductive), L 71% Low (inductive)

I - Aphthona nigriscutis *(Black Dot Leafy Spurge Flea Beetle)* BIOCNTRL

View in Field Guide **View Predicted Models** **View Range Maps**
Biocontrol Species - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: L 43% Low (inductive)

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Introduction to Montana Natural Heritage Program

P.O. Box 201800 • 1515 East Sixth Avenue • Helena, MT 59620-1800 • fax 406.444.0266 • phone 406.444.5363 • mtnhp.org

Introduction

The Montana Natural Heritage Program (MTNHP) is Montana's source for reliable and objective information on Montana's native species and habitats, emphasizing those of conservation concern. MTNHP was created by the Montana legislature in 1983 as part of the Natural Resource Information System (NRIS) at the Montana State Library (MSL). MTNHP is "a program of information acquisition, storage, and retrieval for data relating to the flora, fauna, and biological community types of Montana" (MCA 90-15-102). MTNHP's activities are guided by statute as well as through ongoing interaction with, and feedback from, principal data source agencies such as Montana Fish, Wildlife, and Parks, the Montana Department of Environmental Quality, the Montana Department of Natural Resources and Conservation, the Montana University System, the US Forest Service, and the US Bureau of Land Management. Since the first staff was hired in 1985, the Program has logged a long record of success, and developed into a highly respected, service-oriented program. MTNHP is widely recognized as one of the most advanced and effective of over 60 natural heritage programs that are distributed across North America.

Vision

Our vision is that public agencies, the private sector, the education sector, and the general public will trust and rely upon MTNHP as the source for information and expertise on Montana's species and habitats, especially those of conservation concern. We strive to provide easy access to our information to allow users to save time and money, speed environmental reviews, and make informed decisions.

Core Values

- We endeavor to be a single statewide source of accurate and up-to-date information on Montana's plants, animals, and aquatic and terrestrial biological communities.
- We actively listen to our data users and work responsively to meet their information and training needs.
- We strive to provide neutral, trusted, timely, and equitable service to all of our information users.
- We make every effort to be transparent to our data users in setting work priorities and providing data products.

Confidentiality

All information requests made to the Montana Natural Heritage Program are considered library records and are protected from disclosure by the Montana Library Records Confidentiality Act (MCA 22-1-11).

Information Managed

Information managed at the Montana Natural Heritage Program is botanical, zoological, and ecological information that describes the distribution (e.g., observations, structured surveys, range polygons, predicted habitat suitability models), conservation status (e.g., global and state conservation status ranks, including threats), and other supporting information (e.g., accounts and references) on the biology and ecology of species and biological communities.

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Data Use Terms and Conditions

- Montana Natural Heritage Program (MTNHP) products and services are based on biological data and the objective interpretation of those data by professional scientists. MTNHP does not advocate any particular philosophy of natural resource protection, management, development, or public policy.
- MTNHP has no natural resource management or regulatory authority. Products, statements, and services from MTNHP are intended to inform parties as to the state of scientific knowledge about certain natural resources, and to further develop that knowledge. The information is not intended as natural resource management guidelines or prescriptions or a determination of environmental impacts. MTNHP recommends consultation with appropriate state, federal, and tribal resource management agencies and authorities in the area where your project is located.
- Information on the status and spatial distribution of biological resources produced by MTNHP are intended to inform parties of the state-wide status, known occurrence, or the likelihood of the presence of those resources. **These products are not intended to substitute for field-collected data, nor are they intended to be the sole basis for natural resource management decisions.**
- MTNHP does not portray its data as exhaustive or comprehensive inventories of rare species or biological communities. **Field verification of the absence or presence of sensitive species and biological communities will always be an important obligation of users of our data.**
- MTNHP responds equally to all requests for products and services, regardless of the purpose or identity of the requester.
- Because MTNHP constantly updates and revises its databases with new data and information, products will become outdated over time. Interested parties are encouraged to obtain the most current information possible from MTNHP, rather than using older products. We add, review, update, and delete records on a daily basis. Consequently, we strongly advise that you update your MTNHP data sets at a minimum of every four months for most applications of our information.
- MTNHP data require a certain degree of biological expertise for proper analysis, interpretation, and application. Our staff is available to advise you on questions regarding the interpretation or appropriate use of the data that we provide. See Contact Information for MTNHP Staff
- The information provided to you by MTNHP may include sensitive data that if publicly released might jeopardize the welfare of threatened, endangered, or sensitive species or biological communities. This information is intended for distribution or use only within your department, agency, or business. Subcontractors may have access to the data during the course of any given project, but should not be given a copy for their use on subsequent, unrelated work.
- MTNHP data are made freely available. Duplication of hard-copy or digital MTNHP products with the intent to sell is prohibited without written consent by MTNHP. Should you be asked by individuals outside your organization for the type of data that we provide, please refer them to MTNHP.
- MTNHP and appropriate staff members should be appropriately acknowledged as an information source in any third-party product involving MTNHP data, reports, papers, publications, or in maps that incorporate MTNHP graphic elements.
- Sources of our data include museum specimens, published and unpublished scientific literature, field surveys by state and federal agencies and private contractors, and reports from knowledgeable individuals. MTNHP actively solicits and encourages additions, corrections and updates, new observations or collections, and comments on any of the data we provide.
- MTNHP staff and contractors do not enter or cross privately-owned lands without express permission from the landowner. However, the program cannot guarantee that information provided to us by others was obtained under adherence to this policy.

Suggested Contacts for Natural Resource Management Agencies

As required by Montana statute (MCA 90-15), the Montana Natural Heritage Program works with state, federal, tribal, nongovernmental organizations, and private partners to ensure that the latest animal and plant distribution and status information is incorporated into our databases so that it can be used to inform a variety of permitting and planning processes and management decisions. We encourage you to contact state, federal, and tribal resource management agencies in the area where your project is located and review the permitting overviews by the Montana Department of Environmental Quality, the Montana Department of Natural Resources and Conservation and the Index of Environmental Permits for Montana for guidelines relevant to your efforts. In particular, we encourage you to contact the Montana Department of Fish, Wildlife, and Parks for the latest data and management information regarding hunted and high-profile management species and to use the U.S. Fish and Wildlife Service's Information Planning and Consultation (IPAC) website regarding U.S. Endangered Species Act listed Threatened, Endangered, or Candidate species.

For your convenience, we have compiled a list of relevant agency contacts and links below:

Montana Fish, Wildlife, and Parks

Fish Species	Zachary Shattuck zshattuck@mt.gov (406) 444-1231 or Eric Roberts eroberts@mt.gov (406) 444-5334
American Bison Black-footed Ferret Black-tailed Prairie Dog Bald Eagle Golden Eagle Common Loon Least Tern Piping Plover Whooping Crane	Kristian Smucker KSmucker@mt.gov (406) 444-5209
Grizzly Bear Greater Sage Grouse Trumpeter Swan Big Game Upland Game Birds Furbearers	Brian Wakeling brian.wakeling@mt.gov (406) 444-3940
Managed Terrestrial Game Data	Cara Whalen– MFWP Data Analyst cara.whalen@mt.gov (406) 444-3759
Fisheries Data and Nongame Animal Data	Ryan Alger – MFWP Data Analyst ryan.alger@mt.gov (406) 444-5365
Wildlife and Fisheries Scientific Collector's Permits	https://fwp.mt.gov/buyandapply/commercialwildlifeandscientificpermits/scientific Kristina Smucker for Wildlife ksmucker@mt.gov (406) 444-5209 Dave Schmetterling for Fisheries dschmetterling@mt.gov (406) 542-5514
Fish and Wildlife Recommendations for Subdivision Development	Charlie Sperry csperry@mt.gov (406) 444-3888 See https://fwp.mt.gov/conservation/living-with-wildlife/subdivision-recommendations
Regional Contacts 	Region 1 (Kalispell) (406) 752-5501 fwprg12@mt.gov Region 2 (Missoula) (406) 542-5500 fwprg22@mt.gov Region 3 (Bozeman) (406) 577-7900 fwprg3@mt.gov Region 4 (Great Falls) (406) 454-5840 fwprg42@mt.gov Region 5 (Billings) (406) 247-2940 fwprg52@mt.gov Region 6 (Glasgow) (406) 228-3700 fwprg62@mt.gov Region 7 (Miles City) (406) 234-0900 fwprg72@mt.gov

Montana Department of Agriculture
General Contact Information: https://agr.mt.gov/About/Office-Locations/Office-Locations-and-Field-Offices
Noxious Weeds: https://agr.mt.gov/Noxious-Weeds

Montana Department of Environmental Quality
Permitting and Operator Assistance for all Environmental Permits: https://deq.mt.gov/Permitting

Montana Department of Natural Resources and Conservation
Overview of, and contacts for, licenses and permits for state lands, water, and forested lands: https://dnrc.mt.gov/Permits-Services

Stream Permitting (310 permits) and an overview of various water and stream related permits (e.g., Stream Protection Act 124, Federal Clean Water Act 404, Federal Rivers and Harbors Act Section 10, Short-term Water Quality Standard for Turbidity 318 Authorization, etc.).
https://dnrc.mt.gov/Licenses-and-Permits/Stream-Permitting

Wildfire Resources: https://dnrc.mt.gov/Forestry/Wildfire

Bureau of Land Management

Montana Field Office Contacts:

Billings	(406) 896-5013
Butte	(406) 533-7600
Dillon	(406) 683-8000
Glasgow	(406) 228-3750
Havre	(406) 262-2820
Lewistown	(406) 538-1900
Malta	(406) 654-5100
Miles City	(406) 233-2800
Missoula	(406) 329-3914

United States Army Corps of Engineers
Montana Regulatory Office for federal permits related to construction in water and wetlands
https://www.nwo.usace.army.mil/Missions/Regulatory-Program/Montana/ (406) 441-1375

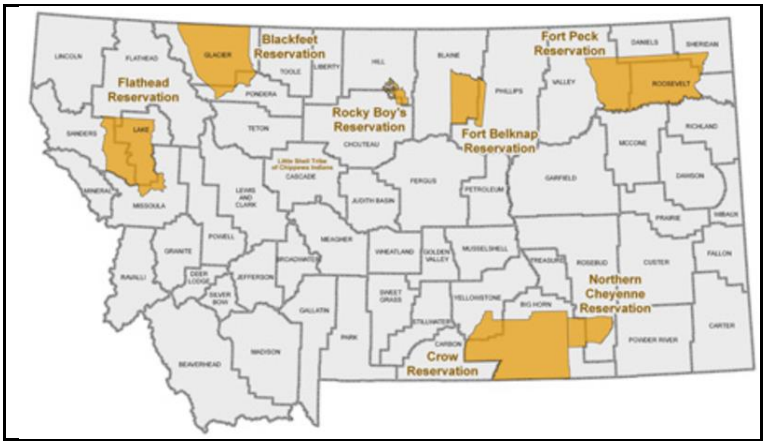
United States Environmental Protection Agency
Environmental information, notices, permitting, and contacts https://www.epa.gov/mt
Gateway to state resource locators https://www.envcap.org/srl/index.php

United States Fish and Wildlife Service
Information Planning and Conservation (IPAC) website: https://ipac.ecosphere.fws.gov
Montana Ecological Services Field Office: https://www.fws.gov/office/montana-ecological-services (406) 449-5225

United States Forest Service

Regional Office – Missoula, Montana Contacts			
Wildlife Program Leader	Tammy Fletcher	tammy.fletcher2@usda.gov	(406) 329-3086
Wildlife Ecologist	Cara Staab	cara.staab@usda.gov	(406) 329-3677
Aquatic Ecologist	Justin Jimenez	justin.jimenez@usda.gov	(435) 370-6830
TES Program	Lydia Allen	lydia.allen@usda.gov	(406) 329-3558
Interagency Grizzly Bear Coordinator	Scott Jackson	scott.jackson@usda.gov	(406) 329-3664
Regional Botanist	Amanda Hendrix	amanda.hendrix@usda.gov	(651) 447-3016
Regional Vegetation Ecologist	Mary Manning	marry.manning@usda.gov	(406) 329-3304
Invasive Species Program Manager	Michelle Cox	michelle.cox2@usda.gov	(406) 329-3669

Tribal Nations



[Assiniboine & Gros Ventre Tribes – Fort Belknap Reservation]

[Assiniboine & Sioux Tribes – Fort Peck Reservation]

[Blackfeet Tribe - Blackfeet Reservation]

[Chippewa Creek Tribe - Rocky Boy's Reservation]

[Crow Tribe – Crow Reservation]

[Little Shell Chippewa Tribe]

[Northern Cheyenne Tribe – Northern Cheyenne Reservation]

[Salish & Kootenai Tribes - Flathead Reservation]

Natural Heritage Programs and Conservation Data Centers in Surrounding States and Provinces

[Alberta Conservation Information Management System]
[British Columbia Conservation Data Centre]
[Idaho Natural Heritage Program]
[North Dakota Natural Heritage Program]
[Saskatchewan Conservation Data Centre]
[South Dakota Natural Heritage Program]
[Wyoming Natural Diversity Database]

Invasive Species Management Contacts and Information

Aquatic Invasive Species

[Montana Fish, Wildlife, and Parks Aquatic Invasive Species staff]
[Montana Department of Natural Resources and Conservation's Aquatic Invasive Species Grant Program]
[Montana Invasive Species Council (MISC)]
[Upper Columbia Conservation Commission (UC3)]

Noxious Weeds

[Montana Weed Control Association Contacts Webpage]
[Montana Biological Weed Control Coordination Project]
[Montana Department of Agriculture - Noxious Weeds]
[Montana Weed Control Association]
[Montana Fish, Wildlife, and Parks - Noxious Weeds]
[Montana State University Integrated Pest Management Extension]
[Integrated Noxious Weed Management after Wildfires]
[Fire Management and Invasive Plants]

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Introduction to Native Species

Within the report area you have requested, separate summaries are provided for: (1) Species Occurrences (SO) for plant and animal Species of Concern, Special Status Species (SSS), Important Animal Habitat (IAH) and some Potential Plant Species of Concern; (2) other observed non Species of Concern or Species of Concern without suitable documentation to create Species Occurrence polygons; and (3) other non-documented species that are potentially present based on their range, predicted suitable habitat model output, or presence of associated habitats. Each of these summaries provides the following information when present for a species: (1) the number of Species Occurrences and associated delineation criteria for construction of these polygons that have long been used for considerations of documented Species of Concern in environmental reviews; (2) the number of observations of each species; (3) the geographic range polygons for each species that the report area overlaps; (4) predicted relative habitat suitability classes that are present if a predicted suitable habitat model has been created; (5) the percent of the report area that is mapped as commonly associated or occasionally associated habitat as listed for each species in the Montana Field Guide; and (6) a variety of conservation status ranks and links to species accounts in the Montana Field Guide. Details on each of these information categories are included under relevant section headers below or are defined on our Species Status Codes page. In presenting this information, the Montana Natural Heritage Program (MTNHP) is working towards assisting the user with rapidly determining what species have been documented and what species are potentially present in the report area. We remind users that this information is likely incomplete as surveys to document native and introduced species are lacking in many areas of the state, information on introduced species has only been tracked relatively recently, the MTNHP's staff and resources are restricted by budgets, and information is constantly being added and updated in our databases. **Thus, field verification by professional biologists of the absence or presence of species and biological communities will always be an important obligation of users of our data.**

If you are aware of observation datasets that the MTNHP is missing, please report them to the Program Botanist apipp@mt.gov or Senior Zoologist dbachen@mt.gov If you have animal or plant observations that you would like to contribute, you can also submit them via Excel spreadsheets, geodatabases, iNaturalist, or a Survey123 form. Various methods of data submission are reviewed in this playlist of videos: https://www.youtube.com/playlist?list=PLRaydtZpHu2qOHPoSPq9cnM9uXGmEXACx

Observations

The MTNHP manages information on several million animal and plant observations that have been reported by professional biologists and private citizens from across Montana. The majority of these observations are submitted in digital format from standardized databases associated with research or monitoring efforts and spreadsheets of incidental observations submitted by professional biologists and amateur naturalists. At a minimum, accepted observation records must contain a credible species identification (i.e. appropriate geographic range, date, and habitat and, if species are difficult to identify, a photograph and/or notes on key identifying features), a date or date range, observer name, locational information (ideally with latitude and longitude in decimal degrees), notes on numbers observed, and species behavior or habitat use (e.g., is the observation likely associated with reproduction). Bird records are also required to have information associated with date-appropriate breeding or overwintering status of the species observed. MTNHP reviews observation records to ensure that they are mapped correctly, occur within date ranges when the species is known to be present or detectable, occur within the known seasonal geographic range of the species, and occur in appropriate habitats. MTNHP also assigns each record a locational uncertainty value in meters to indicate the spatial precision associated with the record's mapped coordinates. Only records with locational uncertainty values of 10,000 meters or less are included in environmental summary reports and number summaries are only provided for records with locational uncertainty values of 1,000 meters or less.

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Species Occurrences

The MTNHP evaluates plant and animal observation records for species of higher conservation concern to determine whether they are worthy of inclusion in the Species Occurrence (SO) layer for use in environmental reviews; observations not worthy of inclusion in this layer include long distance dispersal events, migrants observed away from key migratory stopover habitats, and winter observations. An SO is a polygon depicting what is known about a species occupancy from direct observation with a defined level of locational uncertainty and any inference that can be made about adjacent habitat use from the latest peer-reviewed science. If an observation can be associated with a map feature that can be tracked (e.g., a wetland boundary for a wetland associated plant) then this polygon feature is used to represent the SO. Areas that can be inferred as probable occupied habitat based on direct observation of a species location and what is known about the foraging area or home range size of the species may be incorporated into the SO. Species Occurrences generally belong to one of the following categories:

Plant Species Occurrences

A documented location of a specimen collection or observed plant population. In some instances, adjacent, spatially separated clusters are considered subpopulations and are grouped as one occurrence (e.g., the subpopulations occur in ecologically similar habitats, and their spatial proximity likely allows them to interbreed). Tabular information for multiple observations at the same SO location is generally linked to a single polygon. Plant SO's are only created for Species of Concern and Potential Species of Concern.

Animal Species Occurrences

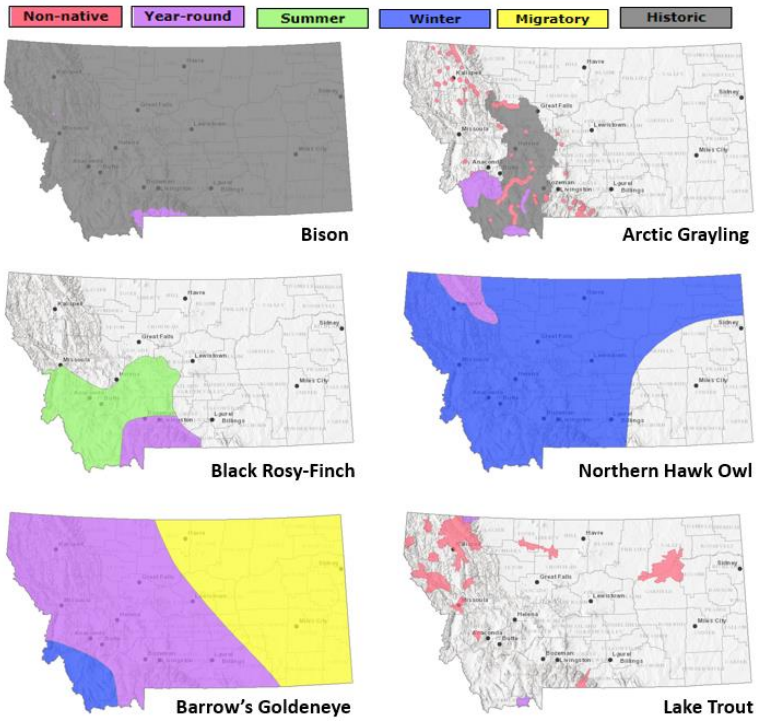
The location of a verified observation or specimen record typically known or assumed to represent a breeding population or a portion of a breeding population. Animal SO's are generally: (1) buffers of terrestrial point observations based on documented species' home range sizes; (2) buffers of stream segments to encompass occupied streams and immediate adjacent riparian habitats; (3) polygonal features encompassing known or likely breeding populations (e.g., a wetland for some amphibians or a forested portion of a mountain range for some wide-ranging carnivores); or (4) combinations of the above. Tabular information for multiple observations at the same SO location is generally linked to a single polygon. Species Occurrence polygons may encompass some unsuitable habitat in some instances in order to avoid heavy data processing associated with clipping out habitats that are readily assessed as unsuitable by the data user (e.g., a point buffer of a terrestrial species may overlap into a portion of a lake that is obviously inappropriate habitat for the species). Animal SO's are only created for Species of Concern and Special Status Species (e.g., Bald Eagle).

Other Occurrence Polygons

These include significant biological features not included in the above categories, such as Important Animal Habitats like bird rookeries and bat roosts, and peatlands or other wetland and riparian communities that support diverse plant and animal communities.

Geographic Range Polygons

Geographic range polygons are still under development for most plant and invertebrate species. Native year-round, summer, winter, migratory and historic geographic range polygons as well as polygons for introduced populations have been defined for most vertebrate animal species for which there are enough observations, surveys, and knowledge of appropriate seasonal habitat use to define them (see examples to left). These native or introduced range polygons bound the extent of known or likely occupied habitats for non-migratory and relative sedentary species and the regular extent of known or likely occupied habitats for migratory and long-distance dispersing species; polygons may include unsuitable intervening habitats. For most species, a single polygon can represent the year-round or seasonal range, but breeding ranges of some colonial nesting water birds and some introduced species are represented more patchily when supported by data. Some ranges are mapped more broadly than actual distributions in order to be visible on statewide maps (e.g., fish).



Predicted Suitable Habitat Models

Predicted habitat suitability models have been created for plant and animal Species of Concern and are undergoing development for non-Species of Concern. For species for which models have been completed, the environmental summary report includes simple rule-based associations with streams for aquatic species and seasonal habitats for game species as well as mathematically complex Maximum Entropy models (Phillips et al. 2006, Ecological Modeling 190:231-259) constructed from a variety of statewide biotic and abiotic layers and presence only data for individual species for most terrestrial species. For the Maximum Entropy models, we reclassified 90 x 90-meter continuous model output into suitability classes (unsuitable, low, moderate, and optimal) then aggregated that into the one square mile hexagons used in the environmental summary report; this is the finest spatial scale we suggest using this information in management decisions and survey planning. Full model write ups for individual species that discuss model goals, inputs, outputs, and evaluation in much greater detail are posted on the MTNHP's Predicted Suitable Habitat Models webpage. Evaluations of predictive accuracy and specific limitations are included with the metadata for models of individual species. **Model outputs should not be used in place of on-the-ground surveys for species. Instead model outputs should be used in conjunction with habitat evaluations to determine the need for on-the-ground surveys for species.** We suggest that the percentage of predicted optimal and moderate suitable habitat within the report area be used in conjunction with geographic range polygons and the percentage of commonly associated habitats to generate lists of potential species that may occupy broader landscapes for the purposes of landscape-level planning.

Associated Habitats

Within the boundary of the intersected hexagons, we provide the approximate percentage of commonly or occasionally associated habitat for vertebrate animal species that regularly breed, overwinter, or migrate through the state; a detailed list of commonly and occasionally associated habitats is provided in individual species accounts in the Montana Field Guide We assigned common or occasional use of each of the ecological

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systems mapped in Montana by: (1) using personal knowledge and reviewing literature that summarizes the breeding, overwintering, or migratory habitat requirements of each species; (2) evaluating structural characteristics and distribution of each ecological system relative to the species' range and habitat requirements; (3) examining the observation records for each species in the state-wide point observation database associated with each ecological system; and (4) calculating the percentage of observations associated with each ecological system relative to the percent of Montana covered by each ecological system to get a measure of numbers of observations versus availability of habitat. Species that breed in Montana were only evaluated for breeding habitat use, species that only overwinter in Montana were only evaluated for overwintering habitat use, and species that only migrate through Montana were only evaluated for migratory habitat use. In general, species were listed as associated with an ecological system if structural characteristics of used habitat documented in the literature were present in the ecological system or large numbers of point observations were associated with the ecological system. However, species were not listed as associated with an ecological system if there was no support in the literature for use of structural characteristics in an ecological system, even if point observations were associated with that system. Common versus occasional association with an ecological system was assigned based on the degree to which the structural characteristics of an ecological system matched the preferred structural habitat characteristics for each species as represented in the scientific literature. The percentage of observations associated with each ecological system relative to the percent of Montana covered by each ecological system was also used to guide assignment of common versus occasional association.

We suggest that the percentage of commonly associated habitat within the report area be used in conjunction with geographic range polygons and the percentage of predicted optimal and moderate suitable habitat from predictive models to generate lists of potential species that may occupy broader landscapes for the purposes of landscape-level planning. Users of this information should be aware that land cover mapping accuracy is particularly problematic when the systems occur as small patches or where the land cover types have been altered over the past decade. Thus, particular caution should be used when using the associations in assessments of smaller areas (e.g., evaluations of public land survey sections).

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Introduction to Land Cover

Land Use/Land Cover is one of 15 Montana Spatial Data Infrastructure framework layers considered vital for making statewide maps of Montana and understanding its geography. The layer records all Montana natural vegetation, land cover and land use, classified from satellite and aerial imagery, mapped at a scale of 1:100,000, and interpreted with supporting ground-level data. The baseline map is adapted from the Northwest ReGAP (NWGAP) project land cover classification, which used 30m resolution multi-spectral Landsat imagery acquired between 1999 and 2001. Vegetation classes were drawn from the Ecological System Classification developed by NatureServe (Comer et al. 2003). The land cover classes were developed by Anderson et al. (1976). The NWGAP effort encompasses 12 map zones. Montana overlaps seven of these zones. The two NWGAP teams responsible for the initial land cover mapping effort in Montana were Sanborn and NWGAP at the University of Idaho. Both Sanborn and NWGAP employed a similar modeling approach in which Classification and Regression Tree (CART) models were applied to Landsat ETM+ scenes. The Spatial Analysis Lab within the Montana Natural Heritage Program was responsible for developing a seamless Montana land cover map with a consistent statewide legend from these two separate products. Additionally, the Montana land cover layer incorporates several other land cover and land use products (e.g., MSDI Structures and Transportation themes and the Montana Department of Revenue Final Land Unit classification) and reclassifications based on plot-level data and the latest NAIP imagery to improve accuracy and enhance the usability of the theme. Updates are done as partner support and funding allow, or when other MSDI datasets can be incorporated. Recent updates include fire perimeters and agricultural land use (annually), energy developments such as wind, oil and gas installations (2014), roads, structures and other impervious surfaces (various years): and local updates/improvements to specific ecological systems (e.g., central Montana grassland and sagebrush ecosystems). Current and previous versions of the Land Use/Land Cover layer with full metadata are available for download from the Montana State Library's GIS Data List More information on the land cover layer is available at: https://msl.mt.gov/geoinfo/msdi/land_use_land_cover/

Within the report area you have requested, land cover is summarized by acres of Level 1, Level 2, and Level 3 Ecological Systems.

Literature Cited

Anderson, J.R. E.E. Hardy, J.T. Roach, and R.E. Witmer. 1976. A land use and land cover classification system for use with remote sensor data. U.S. Geological Survey Professional Paper 964.

Comer, P., D. Faber-Langendoen, R. Evans, S. Gawler, C. Josse, G. Kittel, S. Menard, M. Pyne, M. Reid, K. Schulz, K. Snow, and J. Teague. 2003. Ecological systems of the United States: A working classification of U.S. terrestrial systems. NatureServe, Arlington, VA.

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Introduction to Wetland and Riparian

Within the report area you have requested, wetland and riparian mapping is summarized by acres of each classification present. Summaries are only provided for modern MTNHP wetland and riparian mapping and not for outdated (NWI Legacy) or incomplete (NWI Scalable) mapping efforts; described here. MTNHP has made all three of these datasets and associated metadata available for separate download on the Montana Wetland and Riparian Framework web page.

Wetland and Riparian mapping is one of 15 Montana Spatial Data Infrastructure framework layers considered vital for making statewide maps of Montana and understanding its geography. The wetland and riparian framework layer consists of spatial data representing the extent, type, and approximate location of wetlands, riparian areas, and deep water habitats in Montana.

Wetland and riparian mapping is completed through photointerpretation of 1-m resolution color infrared aerial imagery acquired from 2005 or later. A coding convention using letters and numbers is assigned to each mapped wetland. These letters and numbers describe the broad landscape context of the wetland, its vegetation type, its water regime, and the kind of alterations that may have occurred. Ancillary data layers such as topographic maps, digital elevation models, soils data, and other aerial imagery sources are also used to improve mapping accuracy. Wetland mapping follows the federal Wetland Mapping Standard and classifies wetlands according to the Cowardin classification system of the National Wetlands Inventory (NWI) (Cowardin et al. 1979, FGDC Wetlands Subcommittee 2013). Federal, State, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands differently than the NWI. Similar coding, based on U.S. Fish and Wildlife Service conventions, is applied to riparian areas (U.S. Fish and Wildlife Service 2009). These are mapped areas where vegetation composition and growth is influenced by nearby water bodies, but where soils, plant communities, and hydrology do not display true wetland characteristics. **These data are intended for use at a scale of 1:12,000 or smaller. Mapped wetland and riparian areas do not represent precise boundaries and digital wetland data cannot substitute for an on-site determination of jurisdictional wetlands.**

See detailed overviews, with examples, of both wetland and riparian classification systems and associated codes as a storymap and companion guide

Literature Cited

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service, FWS/OBS-79/31. Washington, D.C. 103pp.

Federal Geographic Data Committee. 2013. Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, D.C.

U.S. Fish and Wildlife Services. 2009. A system for mapping riparian areas in the western United States. Division of Habitat and Resource Conservation, Branch of Resource and Mapping Support, Arlington, Virginia.

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Introduction to Land Management

Within the report area you have requested, land management information is summarized by acres of federal, state, and local government lands, tribal reservation boundaries, private conservation lands, and federal, state, local, and private conservation easements. Acreage for "Owned", "Tribal", or "Easement" categories represents non-overlapping areas that may be totaled. However, "Other Boundaries" represents managed areas such as National Forest boundaries containing private inholdings and other mixed ownership which may cause boundaries to overlap (e.g. a wilderness area within a forest). Therefore, acreages may not total in a straight-forward manner.

Because information on land stewardship is critical to effective land management, the Montana Natural Heritage Program (MTNHP) began compiling ownership and management data in 1997. The goal of the Montana Land Management Database is to manage a single, statewide digital data set that incorporates information from both public and private entities. The database assembles information on public lands, private conservation lands, and conservation easements held by state and federal agencies and land trusts and is updated on a regular basis. Since 2011, the Information Management group in the Montana State Library's Digital Library Division has led the Montana Land Management Database in partnership with the MTNHP.

Public and private conservation land polygons are attributed with the name of the entity that owns it. The data are derived from the statewide Montana Cadastral Parcel layer Conservation easement data shows land parcels on which a public agency or qualified land trust has placed a conservation easement in cooperation with the landowner. The dataset contains no information about ownership or status of the mineral estate. For questions about the dataset or to report errors, please contact the Montana Natural Heritage Program at (406) 444-5363 or mtnhp@mt.gov. You can download various components of the Land Management Database and view associated metadata at the Montana State Library's GIS Data List at the following links:

Public Lands
Conservation Easements
Private Conservation Lands
Managed Areas

Map features in the Montana Land Management Database or summaries provided in this report are not intended as a legal depiction of public or private surface land ownership boundaries and should not be used in place of a survey conducted by a licensed land surveyor. Similarly, map features do not imply public access to any lands. The Montana Natural Heritage Program makes no representations or warranties whatsoever with respect to the accuracy or completeness of this data and assumes no responsibility for the suitability of the data for a particular purpose. The Montana Natural Heritage Program will not be liable for any damages incurred as a result of errors displayed here. Consumers of this information should review or consult the primary data and information sources to ascertain the viability of the information for their purposes.

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Introduction to Invasive and Pest Species

Within the report area you have requested, separate summaries are provided for: Aquatic Invasive Species, Noxious Weeds, Agricultural Pests, Forest Pests, and Biocontrol species that have been documented or potentially occur there based on the predicted suitability of habitat. Definitions for each of these invasive and pest species categories can be found on our Species Status Codes page.

Each of these summaries provides the following information when present for a species: (1) the number of observations of each species; (2) the geographic range polygons for each species, if developed, that the report area overlaps; (3) predicted relative habitat suitability classes that are present if a predicted suitable habitat model has been created; (4) the percent of the report area that is mapped as commonly associated or occasionally associated habitat as listed for each species in the Montana Field Guide; and (5) links to species accounts in the Montana Field Guide. Details on each of these information categories are included under relevant section headers under the Introduction to Native Species above or are defined on our Species Status Codes page. In presenting this information, the Montana Natural Heritage Program (MTNHP) is working towards assisting the user with rapidly determining what invasive and pest species have been documented and what species are potentially present in the report area. We remind users that this information is likely incomplete as surveys to document introduced species are lacking in many areas of the state, information on introduced species has only been tracked relatively recently, the MTNHP's staff and resources are limited, and information is constantly being added and updated in our databases. **Thus, field verification by professional biologists of the absence or presence of species will always be an important obligation of users of our data.**

If you are aware of observation or survey datasets for invasive or pest species that the MTNHP is missing, please report them to the Program Coordinator bmaxell@mt.gov Program Botanist apipp@mt.gov or Senior Zoologist dbachen@mt.gov If you have animal or plant observations that you would like to contribute, you can also submit them via Excel spreadsheets, geodatabases, iNaturalist, or a Survey123 form. Various methods of data submission are reviewed in this playlist of videos:
https://www.youtube.com/playlist?list=PLRaydtZpHu2qOHPoSPq9cnM9uXGmEXACx

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Additional Information Resources

- MTNHP Staff Contact Information
- Montana Field Guide
- MTNHP Species of Concern Report - Animals and Plants
- MTNHP Species Status Codes - Explanation
- MTNHP Predicted Suitable Habitat Models (for select Animals and Plants)
- MTNHP Request Information page
- Montana Cadastral
- Montana Code Annotated
- Montana Fisheries Information System
- Montana Fish, Wildlife, and Parks Subdivision Recommendations
- Montana GIS Data Layers
- Montana GIS Data Bundler
- Montana Greater Sage-Grouse Project Submittal Site
- Montana Ground Water Information Center
- Montana Index of Environmental Permits, 21st Edition (2018)
- Montana Environmental Policy Act (MEPA)
- Montana Environmental Policy Act Analysis Resource List
- Laws, Treaties, Regulations, and Agreements on Animals and Plants
- Montana Spatial Data Infrastructure Layers
- Montana State Historic Preservation Office Review and Compliance
- Montana Stream Permitting: a guide for conservation district supervisors and others
- Montana Water Information System
- Montana Web Map Services
- National Environmental Policy Act
- Penalties for Misuse of Fish and Wildlife Location Data (MCA 87-6-222)
- U.S. Fish and Wildlife Service Information for Planning and Consultation (Section 7 Consultation)
- Web Soil Survey Tool

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Silver Bow County, Montana

Local office

Montana Ecological Services Field Office

(406) 449-5225
(406) 449-5339

585 Shephard Way, Suite 1
Helena, MT 59601-6287

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).

NOT FOR CONSULTATION

4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Canada Lynx Lynx canadensis There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3652	Threatened
Grizzly Bear Ursus arctos horribilis There is **proposed** critical habitat for this species. https://ecos.fws.gov/ecp/species/7642	Threatened
North American Wolverine Gulo gulo luscus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5123	Proposed Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list,click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

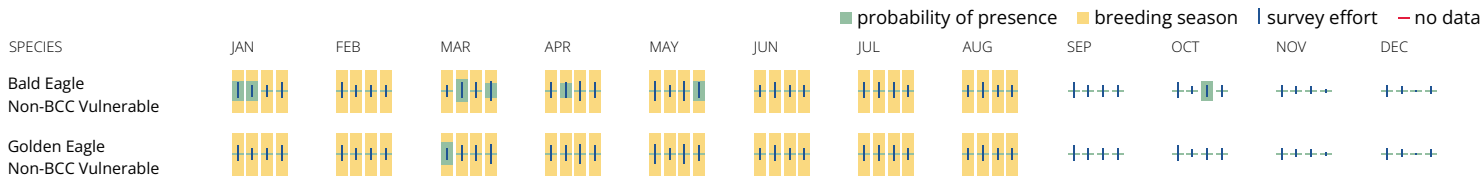
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
California Gull *Larus californicus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
Cassin's Finch *Carpodacus cassinii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Franklin's Gull *Leucophaeus pipixcan* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Rufous Hummingbird *selasphorus rufus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds Apr 15 to Jul 15
Western Grebe *aechmophorus occidentalis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 5

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5

of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

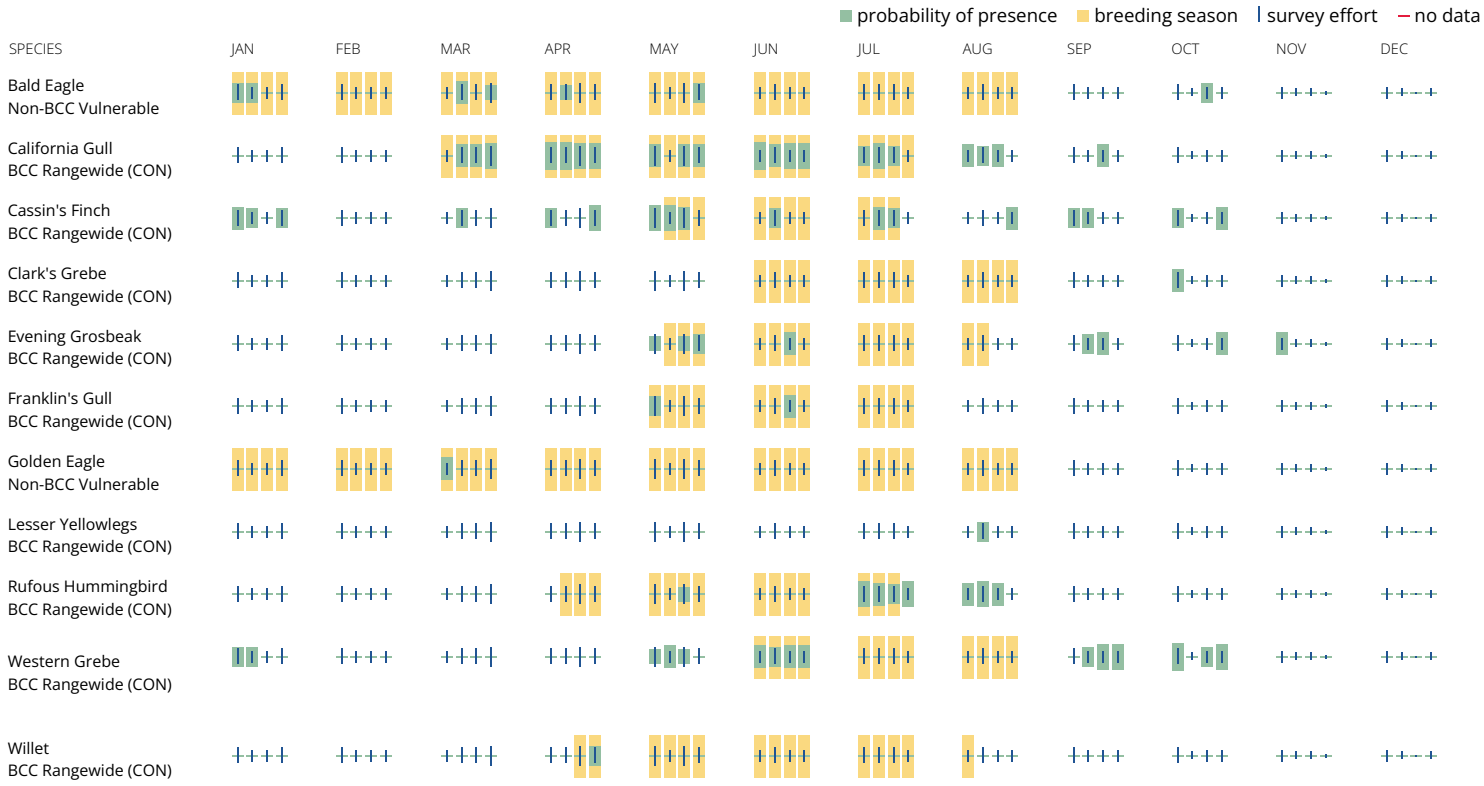
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER POND
PUBFx

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Powell County, Montana

Local office

Montana Ecological Services Field Office

(406) 449-5225
(406) 449-5339

585 Shephard Way, Suite 1
Helena, MT 59601-6287

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur

at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Canada Lynx Lynx canadensis There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3652	Threatened
Grizzly Bear Ursus arctos horribilis There is **proposed** critical habitat for this species. https://ecos.fws.gov/ecp/species/7642	Threatened
North American Wolverine Gulo gulo luscus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5123	Proposed Threatened

Fishes

NAME	STATUS

NOT FOR CONSULTATION

Bull Trout Salvelinus confluentus There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/8212	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Bull Trout Salvelinus confluentus https://ecos.fws.gov/ecp/species/8212#crithab	Final

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

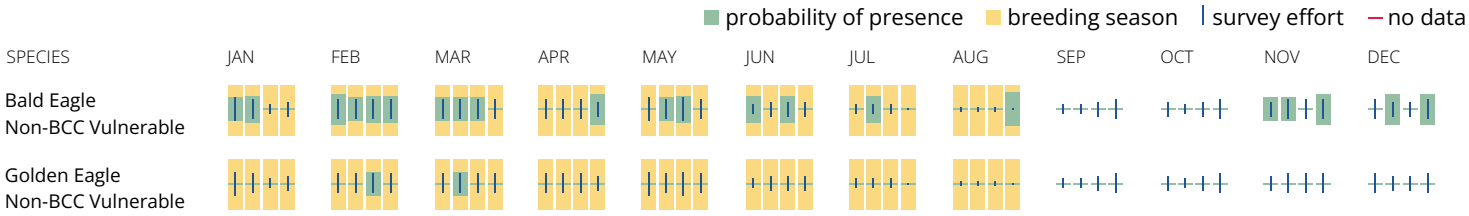
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/ documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Bobolink Dolichonyx oryzivorus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
California Gull Larus californicus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
Cassin's Finch Carpodacus cassinii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Evening Grosbeak Coccothraustes vespertinus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Franklin's Gull Leucophaeus pipixcan This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lesser Yellowlegs Tringa flavipes — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9679

Lewis's Woodpecker Melanerpes lewis — Breeds Apr 20 to Sep 30
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9408

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Rufous Hummingbird selasphorus rufus — Breeds Apr 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the

probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

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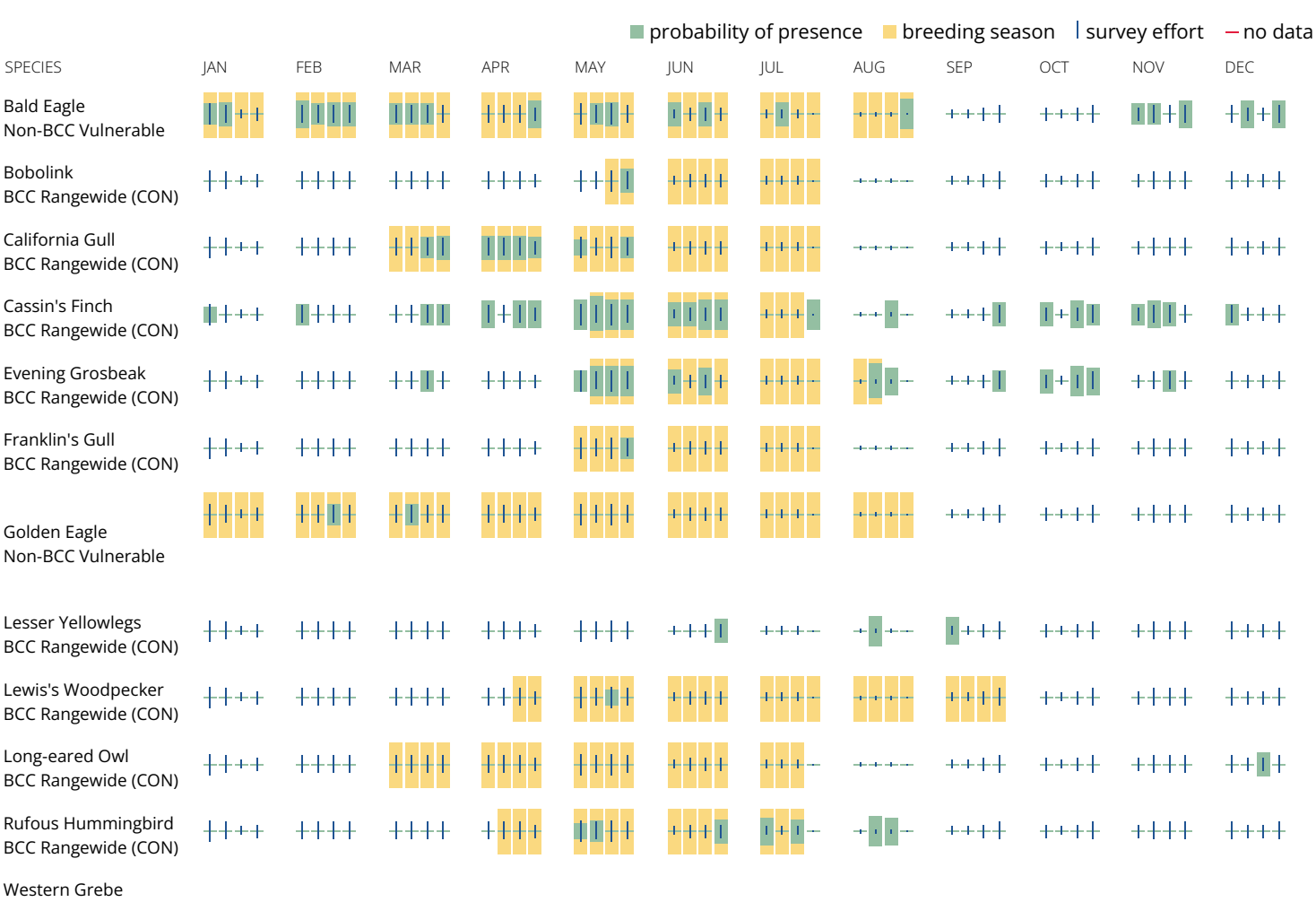
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

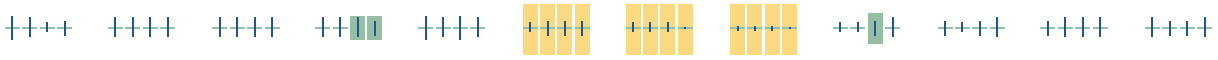
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



BCC Rangewide (CON) 

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act,

or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

PEM1C

RIVERINE

R2UBH
R5UBH

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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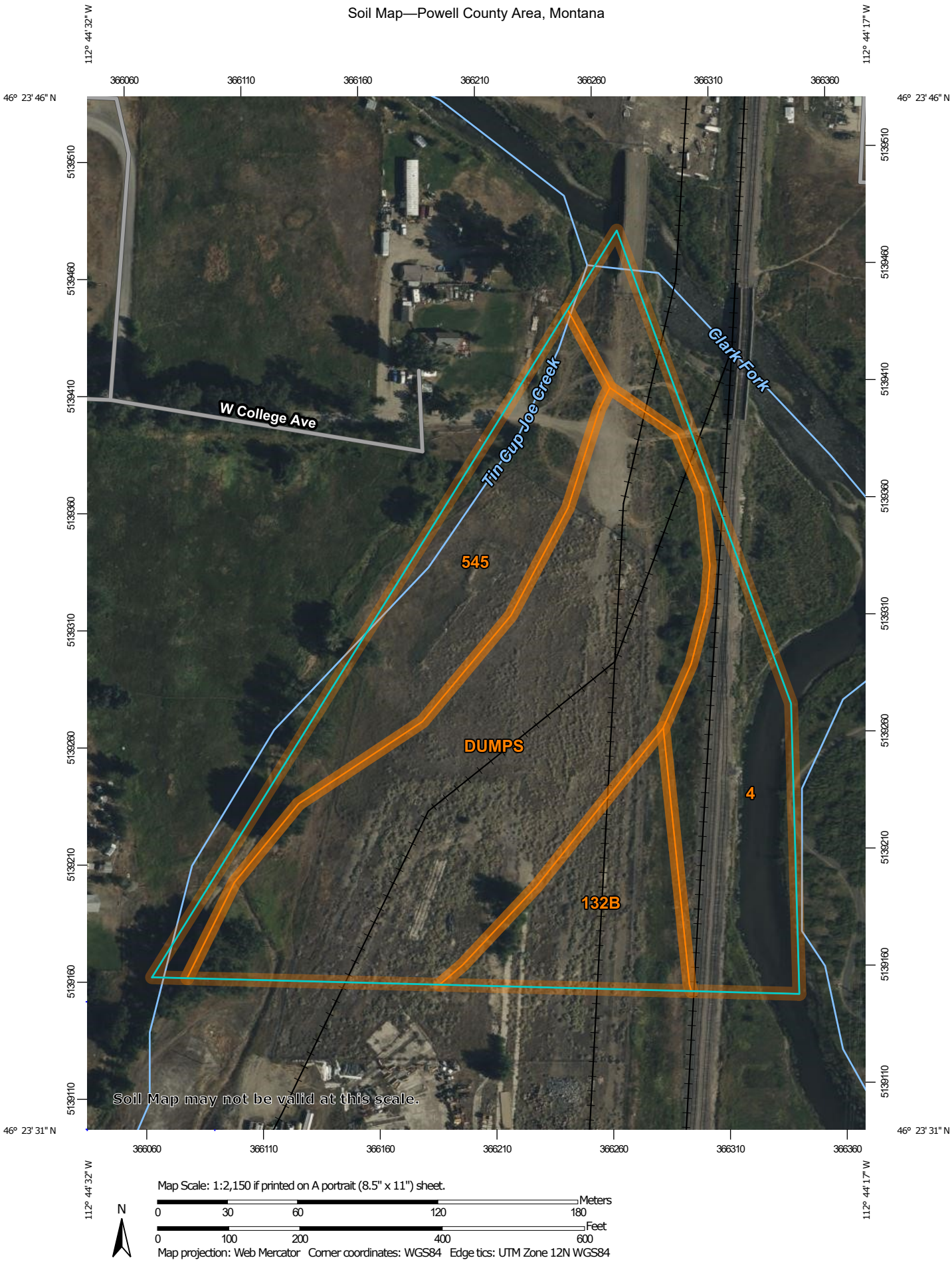
Soil Map—Powell County Area, Montana



Map Scale: 1:2,150 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Powell County Area, Montana
Survey Area Data: Version 19, Aug 29, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 13, 2022—Aug 16, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
4	Aquents-Slickens complex, 0 to 2 percent slopes, occasionally flooded	2.6	21.1%
132B	Beaverell cobbly loam, 0 to 4 percent slopes	1.4	11.6%
545	Saypo loam, 0 to 4 percent slopes	2.5	20.3%
DUMPS	Dumps, sanitary landfill	5.7	47.0%
Totals for Area of Interest		**12.2**	**100.0%**

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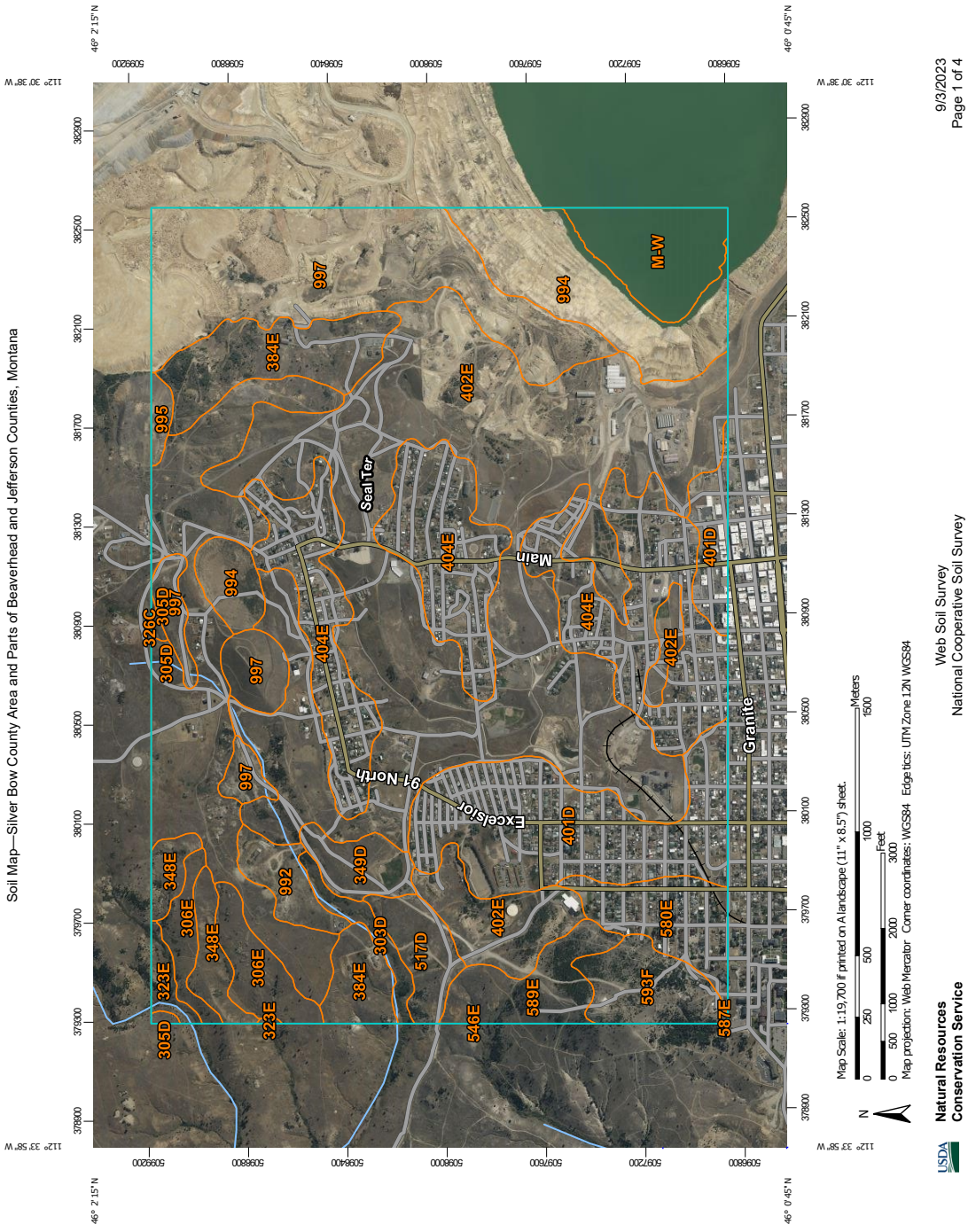

MAP LEGEND

Area of Interest (AOI)
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Special Point Features
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- Spoil Area
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- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Silver Bow County Area and Parts of Beaverhead and Jefferson Counties, Montana
Survey Area Data: Version 23, Aug 26, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 13, 2022—Aug 16, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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	occasionally flooded complex, 2 to 12 percent slopes		
305D	Beeftrail-Branham-Minestope complex, 2 to 15 percent slopes	157.2	8.3%
306E	Wissikihon-Branham-Highrye complex, 8 to 30 percent slopes	41.8	2.2%
323E	Highrye-Tuggle, very stony-Moosejaw complex, 2 to 25 percent slopes	9.5	0.5%
326C	Fleecer-Branham-Passmore complex, 2 to 8 percent slopes	1.2	0.1%
348E	Adit, moderately impacted, stony-Rock outcrop-Modess, moderately impacted complex, 8 to 30 percent slopes	27.6	1.5%
349D	Modess-Anaconda complex, 2 to 15 percent slopes, moderately impacted	22.8	1.2%
384E	Minestope, extremely bouldery-Branham, extremely bouldery-Rock outcrop complex, 8 to 35 percent slopes	80.7	4.3%
401D	Modess-Adit-Rockerjohn complex, 4 to 12 percent slopes, moderately impacted	154.3	8.1%
402E	Typic Cryorthents, reclaimed area-Beeftrail, severely impacted complex, 4 to 30 percent slopes	597.3	31.4%
404E	Beeftrail-Minestope-Dinnen complex, 4 to 25 percent slopes, moderately impacted	253.9	13.4%
517D	Poin-Larkspur complex, 4 to 20 percent slopes	26.4	1.4%
546E	Hungryhill-Euell-Bullrey complex, 8 to 45 percent slopes, stony	0.0	0.0%
580E	Patouza-Chinasprings-Nivean complex, 8 to 30 percent slopes, moderately impacted	42.7	2.2%

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593F	Nivean-Patouza-Whitlash complex, 20 to 50 percent slopes, very stony, moderately impacted	37.3	2.0%
992	Pits, borrow	21.2	1.1%
994	Pits, mine	101.9	5.4%
995	Dumps, garbage	6.0	0.3%
997	Dumps, mine	213.6	11.2%
M-W	Miscellaneous water	50.0	2.6%
Totals for Area of Interest		**1,899.5**	**100.0%**

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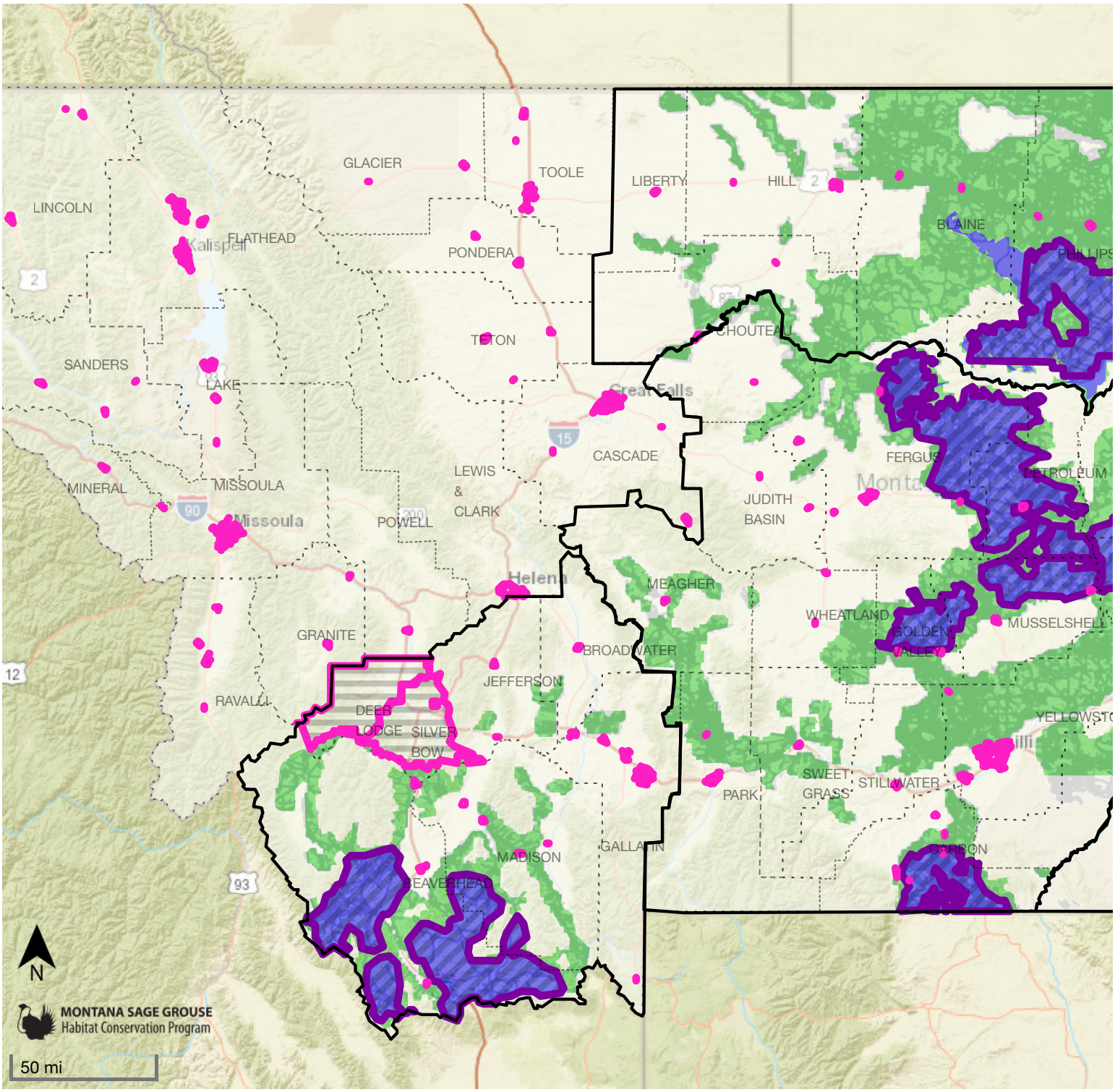
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LAKE
Great Falls
CASCADE
FERGUS
PETROLEUM
MINERAL
MISSOULA
LEWIS & CLARK
JUDITH BASIN
Missoula
POWELL
Helena
MEAGHER
WHEATLAND
MUSSELSHELL
GRANITE
BROADWATER
GOLDEN VALLEY
JEFFERSON
RAVALLI
DEER LODGE
SILVER BOW
YELLOWSTONE
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STILLWATER
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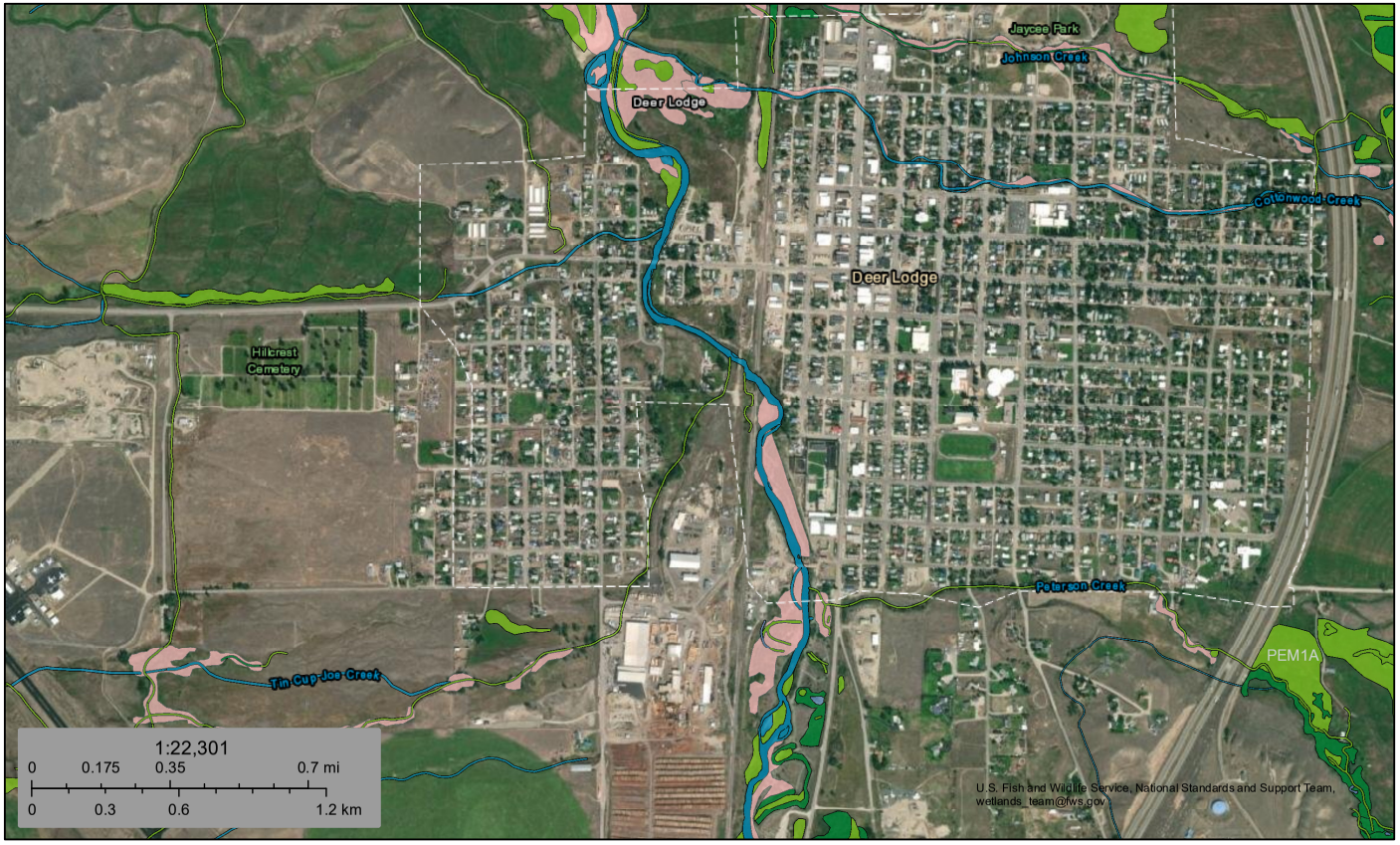
U.S. Fish and Wildlife Service

National Wetlands Inventory

Deer Lodge



September 29, 2023

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

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Environmental Checklist Instructions

Purpose of This Document:

All applicants must consider the potential environmental impacts of their projects. Consideration of these impacts on the location, design, or construction actions may help avoid expensive costs. A project will not be eligible for funding if it results in significant environmental degradation.

DNRC requires compliance with the Montana Environmental Policy Act (MEPA) per state law and associated DNRC Administrative Rules (ARM 36.2.523). MEPA requires state agencies to prepare a detailed statement on any project, program, or activity directly undertaken by the agency; a project or activity supported through a contract, grant, subsidy, loan, or other form of funding assistance from the agency; and a project or activity involving the issuance of a lease, permit, license, certificate, or other entitlement for use or permission by the agency (MCA Title 75, Chapter 1). Thus, all project applications will be subject to MEPA review.

What Does This Mean for Applicants?

- All applicants must complete the Environmental Checklist in its entirety and provide sufficient documentation on public participation.
- Public participation, or scoping, of the project must include stakeholder, landowner, and community engagement. These efforts can be in the form of documented public meetings (e.g., meeting minutes, pdf presentations) or letters of support.
    - The public meeting must be properly noticed (advertised) and the public must be provided with an opportunity at the meeting to comment on the project.
    - Minutes of the meeting should reflect what was discussed about the project, including all comments received from the public.
    - Letters of support must be included from any identified or interested stakeholders.
- Please submit these items with your application.

How Will DNRC Use the Information Provided?

The information provided within the Environmental Checklist will be subject to a MEPA review by DNRC. If this review should result in an Environmental Assessment, please be aware that DNRC will draft the Environmental Assessment. The drafted Environmental Assessment decision will be posted for a public comment period of either two weeks or 30 days dependent on the level of environmental impact. Please note this public comment period does not suffice for the public participation component mentioned above. The MEPA document will then require a final decision by DNRC before funds are awarded.

It is also important to note for projects with no environmental impacts, or those that do not lead directly to construction or any other sort of environmental degradation, will not be subject to an environmental assessment and the checklist/public participation does not need to be completed. Examples of these sorts of activities include, but are not limited to, development of a PER (professional engineering report), planning, and education/informational outreach. Please let us know if there are additional questions on what other projects may fall under this category.

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Instructions:

Complete the Environmental Checklist on the following pages after the instructions below. DNRC retains the ultimate decision-making authority on all MEPA decisions. If DNRC determines this section to be incomplete, additional information will be required before consideration for funding.

Example			
Impact Code	**Impact Type**	**Permits/ Mitigation Required?**	**Explanation of Impact to Resource**
1. Soil Suitability, Topographic and/or Geologic Constraints (example: soil slump, steep slopes, subsidence, seismic activity)			
☐ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☐ NA	*Current Conditions:* *Preferred Alternative Environmental Narrative:*

1. **Impact Code:** In the first column, identify the impact that the preferred alternative will have on each resource (e.g. 1. Soil Suitability, Topographic and/or Geologic Constraints) in the project area. Select from the following impact codes:
   - *No Impact*: No impact to the resource is anticipated or this is not applicable to this project.
   - *Beneficial*: Potentially beneficial impact to the resource.
   - *Adverse*: Potentially adverse impact to the resource.

   Please note that a resource may have more than one impact. Identify all possible impacts to the resource in the space provided. For example, the preferred alternative may have a short-term direct negative impact and a long-term direct and indirect positive impact on the resource. Check all boxes that apply and use the space provided in the final column "Explanation of Impact to Resource" to explain.

Example			
Impact Code	**Impact Type**	**Permits/ Mitigation Required?**	**Explanation of Impact to Resource**
1. Soil Suitability, Topographic and/or Geologic Constraints (example: soil slump, steep slopes, subsidence, seismic activity)			
☐ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☐ NA	*Current Conditions:* *Preferred Alternative Environmental Narrative:*

2. **Impact Type:** In the second column, identify the type(s) of impact to the resource from the preferred alternative. (Impacts may be direct, indirect or cumulative).
   - *Direct impacts*: Occur at the same time and place as the proposed project.
   - *Indirect or secondary impacts*: Occur at a different location or later time than the proposed project.
   - *Cumulative impacts*: Collective impacts on the environment when considered in conjunction with other past, present, and future actions related to the proposed

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project. Cumulative impact analysis includes a review of all state and nonstate activities that have occurred, are occurring, or may occur that have impacted or may impact the same resource as the proposed project.

Just as above, please note that a resource may have more than one impact. Identify all possible impacts to the resource in the space provided. For example, the preferred alternative may have a short-term direct negative impact and a long-term direct and indirect positive impact on the resource. Check all boxes that apply and use the space provided in the final column "Explanation of Impact to Resource" to explain.

Example			
Impact Code	**Impact Type**	**Permits/ Mitigation Required?**	**Explanation of Impact to Resource**
1. Soil Suitability, Topographic and/or Geologic Constraints (example: soil slump, steep slopes, subsidence, seismic activity)			
☐ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☐ NA	*Current Conditions:* *Preferred Alternative Environmental Narrative:*

3. **Permits/Mitigation Required:** In the third column, please select if a permit and/or mitigation is required for the project (e.g., 310, USACE Section 404 Nationwide).
    - Please make sure to include which permits (if any) are required for the particular resource and what mitigation techniques will be used if impacts are to occur.

Example			
Impact Code	**Impact Type**	**Permits/ Mitigation Required?**	**Explanation of Impact to Resource**
1. Soil Suitability, Topographic and/or Geologic Constraints (example: soil slump, steep slopes, subsidence, seismic activity)			
☐ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☐ NA	*Current Conditions:* Click or tap here to enter text. *Preferred Alternative Environmental Narrative:* Click or tap here to enter text.

4. **Explanation of Impact to Resource:** In the final column, use the space provided on the Environmental Checklist to summarize the following information:
    - ***Current Conditions***
        - Describe the <u>current</u> environmental resources of the affected area including the impact of no action. Your description of the current natural resources will provide a baseline to compare all alternatives and their associated environmental impacts.
    - ***Preferred Alternative Environmental Narrative:***
        - Describe the impact of the preferred alternative or ***indicate why there is <u>no impact</u>*** from the project.
        - Identify any reasonable cumulative impacts that may result from implementing the preferred alternative. Cumulative impacts are the collective impacts on the

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environment when considered in conjunction with other past, present, and future actions related to the proposed project.

- If a potentially adverse impact is identified for the preferred alternative, the applicant must provide the following:
  - An analysis of the severity, duration, extent, and frequency of the impact. Please specify and describe the following:
    - Severity: negligible, minor, or major.
    - Duration: short-term or long-term.
    - Extent: local, regional, or statewide.
    - Frequency: non-recurring or recurring.
  - An explanation of short- and/or long-term measures to mitigate the impact with a discussion on the effects of those mitigative measures on the proposed project.
- Identify any required permits.

5. **Additional Information:** Underneath the table the following information must be provided:
   - Cultural Survey Acknowledgement
   - Sources of Information: Identify all sources consulted for the completion of the Environmental Checklist. Sources may include studies, plans, documents, or the persons, organizations, or agencies contacted for assistance.

Certain sections of this Environmental Checklist may require specialized knowledge. Please contact the following agencies and attach comments provided by those agencies to your application. Below are contacts for certain sections that may require additional review by other agencies:

- *Physical Environment,* ***Section #5*** **– Surface Water Quality** – Montana Department of Environmental Quality, (406) 444 - 3080.
- *Physical Environment,* ***Section #6*** **– Floodplains and Floodplain Management** – Contact the Local Floodplain Administrator for your County and/or Community (http://dnrc.mt.gov/divisions/water/operations/floodplain-management/contacts/20210924FPAs2021.1.pdf) or visit the Department of Natural Resources Water Resources Division, (406) 444 – 0860, http://dnrc.mt.gov/divisions/water/operations/floodplain-management.
- *Physical Environment,* ***Section #7*** **– Wetlands** – U.S. Department of the Army Corps of Engineers, (406) 441 - 1375 or montana.reg@usace.army.mil.
- *Physical Environment,* ***Section #9*** **– Vegetation and Wildlife Species and Habitats** – Montana Fish, Wildlife and Parks, Wildlife Office (406) 444 - 2612 or find your Regional Office at https://fwp.mt.gov/aboutfwp/contact-us.
- *Physical Environment,* ***Section #10*** **– Unique, Endangered, Fragile or Limited Environmental Resources** – U.S. Fish and Wildlife Service for consultation on potential impacts to endangered or limited plants, fish, or other wildlife, (406) 449 - 5225.
- *Human Environment,* ***Section #4*** **– Historic Properties, Cultural or Archaeological Resources –** Montana State Historic Preservation Office (SHPO), (406) 444 - 7767 or dmurdo@mt.gov.

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For assistance in preparing the Environmental Checklist, contact DNRC grant manager listed on grant application.

Environmental Checklist

Environmental Checklist Prepared by: On: Click or tap to enter a date.

Julia Crain	Butte-Silver Bow Dept. of Reclamation
Name of Person 1	Organization
406-497-6264	jcrain@bsb.mt.gov
Phone Number	Email
Click or tap here to enter text.	Click or tap here to enter text.
Name of Person 2	Organization
Click or tap here to enter text.	Click or tap here to enter text.
Phone Number	Email

Click or tap here to enter text.

List additional people above. Include organization, phone number and email for all.

Physical Environment			
Impact Code	**Impact Type**	**Permits/ Mitigation Required?**	**Explanation of Impact to Resource**

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<table>
<tr><td colspan="4">1. Soil Suitability, Topographic and/or Geologic Constraints (example: soil slump, steep slopes, subsidence, seismic activity)</td></tr>
<tr><td>☐ No Impact
☒ Beneficial
☐ Adverse</td><td>☒ Direct
☐ Indirect
☐ Cumulative</td><td>☐Permit
☐Mitigation
☒ NA</td><td><u>Current Conditions:</u>
The current project sites have collapsing utility chases and tunnels and very poor soil stability. The utility infrastructure within both the Anselmo and Steward mine yards once carried centralized steam and electricity to appurtenant buildings throughout the mine yard. Over time, stormwater flows throughout the mine yards have entered the chases causing deterioration and subsequently collapse and subsidence at the surface and erosion within the vicinity.
<u>Preferred Alternative Environmental Narrative:</u>
The preferred alternative is collapsing the deteriorated utility chases and backfilling and compacting each void with appropriate backfill material to maintain ground stability and proper stormwater control. The process will have a direct, beneficial impact given the current unmitigated nature of contaminated mine yard stormwater flows and the threat of contamination to area surface waters. The mine yards themselves are relatively accessible, with established access roads. The areas of subsidence are generally easily accessible, but some locations of subsidence more challenging to access than others. However, overall, the outcome of the work will provide stable ground with limited subsidence or ground hazard on the site.</td></tr>
<tr><td colspan="4">2. Hazardous Facilities (example: power lines, hazardous waste sites, acceptable distance from explosive and flammable hazards including chemical/petrochemical storage tanks, underground fuel storage tanks, and related facilities such as natural gas storage facilities and propane storage tanks)</td></tr>
<tr><td>☐ No Impact
☒ Beneficial
☐ Adverse</td><td>☒ Direct
☐ Indirect
☐ Cumulative</td><td>☐Permit
☐Mitigation
☒ NA</td><td><u>Current Conditions:</u>
The Anselmo and Steward Mine Yards are decommissioned industrial operations where there are no known sources of onsite hazardous waste, explosives, flammable hazards, underground fuel storage, or natural gas or propane storage. However, both sites have electricity to their primary structures. In both mineyards, power lines are present.
<u>Preferred Alternative Environmental Narrative:</u>
In the case of the Steward Mine Yard, power lines and guide lines for power poles are present. In particular, the structural elements are embedded or attached to areas where known subsidence is occurring. The proposed alternative calls for excavation, backfill, and compaction of subsidence to promote structural stability of the ground. The action to repair known subsidence will positively and directly benefit the structural stability of existing and future power lines in the area.</td></tr>
</table>

3. Surrounding Air Quality (example: dust, odors, emissions)			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The current sites do not produce any air quality issues. The proposed work will require heavy equipment and construction activities, which may result in short term dust issues related to construction. These impacts will be mitigated with dust suppression activities using water during construction. Any adverse impacts will be minor and temporary in nature, with sufficient mitigation activities implemented. Preferred Alternative Environmental Narrative: The procedure for remedying identified subsidence is excavation, backfilling, and compacting the utility chase structures. In general, the subsidence reveals itself while excavation takes place, and in some instances water is used to flush accumulated sediments or material to identify the pathway of the utility chase structure for remedy. In these instances, the incidence of dust, odor, and emissions are unlikely. Dust is kept at bay by saturating material during excavation. Odor is typically not associated with this work, and while some work will occur with diesel equipment, they are not anticipated to incur any damage to the air quality resource. There is sufficient buffer between the project and surrounding development to minimize impacts. The nearest residential home to the Anselmo work site is approximately 300 feet to the east. The closest residential home to the Steward work site is approximately 200 feet to the south. The collapse of the Steward Tunnel is located north and west, across Main Street from the Steward Mine yard in an area known as the Steward Parking Lot. This collapse is located 70 feet north of a residential property and approximately 200 feet from the BA&P recreation trail.
4. Groundwater Resources and Aquifers (example: quantity, quality, distribution, depth to groundwater, sole source aquifers)			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: A sole source or principal aquifer does not serve the project area or Butte-Silver Bow, MT. The groundwater resources associated with the Butte Hill are within a controlled groundwater area. The CGWA was established due to pervasive historic contamination and groundwater not used for drinking. Residential and commercial development within Butte is required by ordinance to hook-up to municipal water. Additionally, groundwater levels in the are of construction are located over 200-feet below ground surface and will not be impacted by construction. Preferred Alternative Environmental Narrative: The proposed project will not impact groundwater resources.

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5. Surface Water/Water Quality, Quantity and Distribution (example: streams, lakes, storm runoff, irrigation systems, canals)			
☐ No Impact ☒ Beneficial ☐ Adverse	☒ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☐ NA	Current Conditions: No streams, lakes, irrigation systems, or canals are located within the project area. Stormwater on the Butte Hill is known to contain heavy metals at varying intervals. The stormwater on the Butte Hill is highly managed. Stormwater from the Anselmo is captured and conveyed to a catch basin system for passive treatment prior to discharge to area surface waters. Stormwater from the Steward Mine is captured in the municipal system and its trunkline conveys to a hydrodynamic device where solids are removed prior to discharge to surface waters. Preferred Alternative Environmental Narrative: The work at the Anselmo and Steward directly address potential degradation of stormwater by eliminating known subsidence where stormwater is actively degrading the stability of the areas itself. With proper compaction and appropriate design, the stormwater challenges will appropriately route for infiltration into vegetated areas prior to entry into the stormwater system.
6. Floodplains and Floodplain Management (Identify any floodplains within one mile of the boundary of the project.)			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The project site is located outside of any defined floodplain areas. See attached floodplain map. Preferred Alternative Environmental Narrative: The proposed project will not have any impact on floodplains.
7. Wetlands (Identify any wetlands within one mile of the boundary of the project and state potential impacts.)			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The project site is located outside of any defined wetland areas. See attached wetland map. Preferred Alternative Environmental Narrative: The stormwater system routes to a catch basin, and the proposed project will not have any impact on wetlands.
8. Agricultural Lands, Production, and Farmland Protection (example: grazing, forestry, cropland, prime or unique agricultural lands) Identify any prime or important farm ground or forest lands within one mile of the boundary of the project.			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The project site is located within the urban limits of the City of Butte. No agricultural or farm lands are present in the area. Preferred Alternative Environmental Narrative: The project will not have any impacts to agricultural lands.

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9. Vegetation and Wildlife Species and Habitats, Including Fish (example: terrestrial, avian and aquatic life and habitats)			
☐ No Impact ☒ Beneficial ☐ Adverse	☐ Direct ☒ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The project is located within the urban limits of the city of Butte and is within historic industrial mineyards; as a result, the area has little to no native vegetation or wildlife that frequent the area. Preferred Alternative Environmental Narrative: The preferred alternative will repair failing utility chases and tunnel subsidence and will utilize best management practices to improve grading, access, and preservation of remaining infrastructure. These activities will improve site stability and reduce sediment and storm water runoff off the site. This will indirectly benefit area receiving waters by reducing migration of sediment and other contaminants carried by stormwater.
10. Unique, Endangered, Fragile, or Limited Environmental Resources, Including Endangered Species (example: plants, fish or wildlife)			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The project is located within the urban limits of the city of Butte and is within historic industrial mine yards; as a result, there will be not impact on unique or endangered species. Preferred Alternative Environmental Narrative: The project will not have any impact on endangered species.
11. Unique Natural Features (example: geologic features)			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The project is located within the urban limits of the city of Butte and is within historic industrial mineyards; as a result, the area has been highly manipulated and there are no unique geologic features on the project. Preferred Alternative Environmental Narrative: The project will not have any impact on unique natural features.

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12. Access to, and Quality of, Recreational and Wilderness Activities, Public Lands and Waterways (including Federally Designated Wild & Scenic Rivers), and Public Open Space			
☐ No Impact ☒ Beneficial ☐ Adverse	☒ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The project is located within the urban limits of the city of Butte and is within a historic industrial mine yard. The sites are limited from public access due to the hazards and deteriorating infrastructure. Preferred Alternative Environmental Narrative: The main goal of this project phase is to stabilize mineyards by eliminating deteriorating utility chases and provide safe access for maintenance staff and the general public. Without the proposed improvements, access will remain limited, regular maintenance efforts complicated and delayed, and public interaction with these structures restricted. Completion of the project will result in improved public access and open space for local residents and visitors.
Human Environment			
Impact Code	**Impact Type**	**Resource**	
1. Visual Quality – Coherence, Diversity, Compatibility of Use and Scale, Aesthetics			
☐ No Impact ☒ Beneficial ☐ Adverse	☒ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The mine yards and associated infrastructure have deteriorated significantly, and as such, the visual quality of these historic features has deteriorated as well. The project will improve both structural and site amenities, thereby improving visual appeal to the community and neighboring residents. Preferred Alternative Environmental Narrative: The proposed project will improve both structural and site amenities, thereby improving visual appeal to the community and neighboring residents.
2. Nuisances (example: glare, fumes)			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The project will improve both structural and site amenities. There will not be any glare or fumes associated with the project. Preferred Alternative Environmental Narrative: The proposed project will not impact or create any nuisance.

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3. Noise – Suitable Separation Between Housing and Other Noise Sensitive Activities and Major Noise Sources (example: aircraft, highways and railroads.)			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: Permitted uses at the mineyards are limited to tours and photography shoots. Noise levels associated with those activities are minimal and should not extend beyond the mineyards, both of which are over 5 acres in area. There may be minor noise from construction activities, but these are anticipated to be minor and short-term in nature. Preferred Alternative Environmental Narrative: The project will not have any impact to noise.
4. Historic Properties, Cultural, and Archaeological Resources ***(Please see end of Environmental Checklist for details if Cultural Survey has not been performed per SHPO Section 106)***			
☐ No Impact ☒ Beneficial ☐ Adverse	☒ Direct ☐ Indirect ☐ Cumulative	☐Permit ☒Mitigation ☐ NA	Current Conditions: The mineyards are listed in the National Register of Historic Places as contributing elements of the Butte-Anaconda National Historic Landmark District. Building conservation activities proposed by the project have been designed to meet Secretary of Interior's Standards for Rehabilitation. Please see attached cultural surveys. Preferred Alternative Environmental Narrative: Remediation activities proposed by the project have been designed to avoid or mitigate impacts to historic mineyard buildings and structures. BSB also has a full-time historic preservation officer who will consult on the project to ensure compliance with all applicable standards.
5. Changes in Demographic (Population) Characteristics (example: quantity, distribution, density)			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: This current sites do not have any impact on population demographics. Preferred Alternative Environmental Narrative: The proposed project will not have any impact on population demographics.
6. General Housing Conditions – Quality, Quantity, Affordability			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: This current sites do not have any impact on housing conditions. Preferred Alternative Environmental Narrative: The proposed project will not have any impact on housing conditions.
7. Businesses or Residents (example: loss of, displacement, or relocation)			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The current sites do not have any impact on businesses or residents. Preferred Alternative Environmental Narrative: The proposed project will not impact any businesses or residents.

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8. Public Health and Safety			
☐ No Impact ☒ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The current condition of the mine yards contains dangerous public safety hazards due to subsidence and other deteriorating infrastructure. Preferred Alternative Environmental Narrative: Proposed project activities will significantly improve public health and safety by remediating hazards resulting from past mineral development activities and constructing new infrastructure meeting current safety codes.
9. Local Employment – Quantity or Distribution of Employment, Economic Impact			
☐ No Impact ☒ Beneficial ☐ Adverse	☒ Direct ☒ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: Butte is currently known for its mining history and the mineyards are listed on the National Register of Historic Places with in the Butte-Anaconda National Historic Landmark District. Preferred Alternative Environmental Narrative: Proposed project activities will provide short-term direct benefits to local companies completing the work. It will provide indirect benefits by improving employment opportunities locally by enhancing Butte as a major tourist destination. Increasing numbers of tourists will stimulate increasing demand for restaurants, shops, hotels, and other service industries dependent on the local workforce. Improved quality of life, as provided by the enhancement of the mineyards, historic resources of national significance, will also help attract outside business and industries to locate in Butte.
10. Income Patterns – Economic Impact			
☐ No Impact ☒ Beneficial ☐ Adverse	☐ Direct ☒ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: Butte is currently known for its mining history and the mineyards are listed on the National Register of Historic Places within the Butte-Anaconda National Historic Landmark District. Preferred Alternative Environmental Narrative: Proposed project activities may indirectly improve local income patterns by helping to attract new business and industries to Butte.
11. Local and State Tax Base and Revenues			
☐ No Impact ☒ Beneficial ☐ Adverse	☐ Direct ☒ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: Butte is currently known for its mining history and the mineyards are listed on the National Register of Historic Places with in the Butte-Anaconda National Historic Landmark District. Preferred Alternative Environmental Narrative: Proposed project activities may indirectly improve local income patterns by helping to attract new business and industries to Butte.

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12. Community and Government Services and Facilities (example: educational facilities; health and medical services and facilities; police; emergency medical services; and parks, playgrounds and open space)			
☐ No Impact ☒ Beneficial ☐ Adverse	☒ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The mine yards are currently closed for public access except for by appointment or special event. BSB crew perform limited maintenance at the sites. Preferred Alternative Environmental Narrative: The proposed project will result in improvements to the mineyards and should reduce maintenance required at the sites. It will also provide new community open spaces for the public to use by allowing visitation at these mineyards.
13. Commercial and Industrial Facilities – Production and Activity, Growth or Decline			
☐ No Impact ☒ Beneficial ☐ Adverse	☐ Direct ☒ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: Currently the mineyards are closed to the public and in a state of disrepair. Preferred Alternative Environmental Narrative: The proposed project may indirectly spur commercial and industrial growth by improving quality of life and interest in historic industrial sites, which may lead to outside investment on similar projects.
14. Social Structures and Mores (example: standards of social conduct/social conventions)			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The current project site does not have an impact on social structures. Preferred Alternative Environmental Narrative: The proposed project will not have any impact on social structures.
15. Land Use Compatibility (example: growth, land use change, development activity, adjacent land uses and potential conflicts)			
☐ No Impact ☒ Beneficial ☐ Adverse	☒ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The current project sites are located within the Butte urban limits and are zoned Open Space Conservation. Preferred Alternative Environmental Narrative: The Butte-Silver Bow Zoning Board of Adjustments approved a variance permitting use of the mineyards for heritage tourism and photography. Proposed project activities are directly tied to achieving aesthetics for these designed uses.

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16. Energy Resources – Consumption and Conservation			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The current project sites to do not have significant energy consumption. Preferred Alternative Environmental Narrative: The proposed project will not have an impact on energy resources above current conditions.
17. Solid Waste Management			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The current site conditions do not handle or store solid waste of any kind. Preferred Alternative Environmental Narrative: The proposed project will not have any solid waste impacts.
18. Wastewater Treatment – Sewage System			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The current sites are served by city sewer which is treated at the Butte Metro Sewer Waste Water Treatment Plant. Preferred Alternative Environmental Narrative: The proposed project will not have any impact on existing wastewater systems.
19. Storm Water – Surface Drainage			
☐ No Impact ☒ Beneficial ☐ Adverse	☒ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The current project sites have significant subsidence from utility chases and tunnels, and stormwater runoff continues to adversely impact these areas. Preferred Alternative Environmental Narrative: The preferred alternative is collapsing the deteriorated utility chases and backfilling and compacting each void with appropriate backfill material to maintain ground stability and proper stormwater control. Additional institutional controls will improve site access areas by adding gravel and reducing soil erosion from the site. The process will have a direct, beneficial impact given the current unmitigated nature of contaminated mine yard stormwater flows and the threat of contamination to area surface waters.
20. Community Water Supply			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The current sites are served by municipal water from Butte-Silver Bow. Preferred Alternative Environmental Narrative: The proposed project will not have any impact on community water supplies.

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21. Fire Protection – Hazards			
☐ No Impact ☒ Beneficial ☐ Adverse	☒ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The current mineyards are in deteriorated condition, which increases the chances of further damage and degradation including fire due to poor security and risk of vagrants/break-ins. Preferred Alternative Environmental Narrative: The proposed project will make various improvements to the mine yard structures, improving both access and security, which will positively impact fire protection. Further, repairing known subsidence will stabilize the ground supporting safe access of emergency vehicles to the facility.
22. Cultural Facilities, Cultural Uniqueness and Diversity			
☐ No Impact ☒ Beneficial ☐ Adverse	☒ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The mineyards are listed in the National Register of Historic Places as contributing elements of the Butte-Anaconda National Historic Landmark District. Building conservation activities proposed by the project have been designed to meet Secretary of Interior's Standards for Rehabilitation. Preferred Alternative Environmental Narrative: Proposed project activities will significantly benefit the cultural offerings in Butte by providing a venue for interpreting the city's rich and diverse cultural heritage to the general public.
23. Transportation Networks and Traffic Flow Conflicts (example: rail; auto including local traffic; airport runway clear zones – avoidance of incompatible land use in airport runway clear zones)			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The current sites are accessed off of Excelsior Street (Anselmo) and Main Street (Steward). They are not open to the public; however, there is some minor traffic from maintenance vehicles. Preferred Alternative Environmental Narrative: The proposed project will result in some increased traffic due to public access for tours, however ample on street parking is available in each area. The increase in traffic is well within the design capacity of Excelsior and Main Streets, both of which are primary routes.

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24. Consistency with Local Ordinances, Resolutions, or Plans (example: conformance with local comprehensive plans, zoning, or capital improvement plans.)			
☐ No Impact ☒ Beneficial ☐ Adverse	☒ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: Click or tap here to enter text. Preferred Alternative Environmental Narrative: Proposed project activities are consistent with mandates and goals of the Butte-Silver Bow Historic Preservation Ordinance, amended 2015 (Municipal Code, Chapter 2.64), Anaconda-Butte Regional Historic Preservation Plan (1993); Butte-Silver Bow Zoning Board of Adjustments, Special Use Permit #15792 (2018), and Butte-Silver Bow Comprehensive Preservation Plan (2014).
25. Private Property Rights (example: a regulatory action or project activity that reduces, minimizes, or eliminates the use of private property.)			
☒ No Impact ☐ Beneficial ☐ Adverse	☐ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The current sites are owned by Butte-Silver Bow. Preferred Alternative Environmental Narrative: The proposed project will not affect ownership.
26. Environmental Justice (example: does the project avoid placing lower income households in areas where environmental degradation has occurred, such as adjacent to brownfield sites?)			
☐ No Impact ☒ Beneficial ☐ Adverse	☐ Direct ☒ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☒ NA	Current Conditions: The current sites are historic mining sites that are deteriorating in condition, and are located in environmental justice communities where historic mining occurred. These neighborhoods have borne the impacts of historic mining and industrial impacts. Preferred Alternative Environmental Narrative: The proposed project will improve the appearance of these sites while preserving these historic sites, which will have an indirect beneficial effect on environmental justice communities.
27. Lead Based Paint and/or Asbestos (example: does the project replace asbestos-lined pipes? Do any structures qualify as containing lead-based paint?)			
☐ No Impact ☒ Beneficial ☐ Adverse	☒ Direct ☐ Indirect ☐ Cumulative	☐Permit ☐Mitigation ☐ NA	Current Conditions: The current sites have identified asbestos present, and possible lead paint due to the historic nature of the site. Preferred Alternative Environmental Narrative: The proposed project will remediate and/or encapsulate asbestos containing materials. Any suspected lead based paint will be tested by BSB personnel who are qualified to remediate LBP sites. Any identified LBP will be remediated by BSB crews.

Additional Information

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****If no cultural survey has been performed, or is not expected to be needed, applicant must agree to the following statement:**

☒ I hereby agree that, to my knowledge, there are no cultural or paleontological materials in the proposed project site. If previously unknown cultural or paleontological materials are identified during project related activities, the DNRC grant manager will be notified, and all work will cease until a professional assessment of such resources can be made.

List all sources of information used to complete the Environmental Checklist. Sources may include studies, plans, documents, or the individuals, organizations, or agencies contacted for assistance. For individuals, groups, or agencies, please include a contact person and phone number. List any scoping documents or meetings and/or public meetings during project development.

Butte-Silver Bow Department of Reclamation Services
Butte-Silver Bow Planning Department
Butte-Silver Bow Historic Preservation Office
Butte-Silver Bow Public Works

Below is a list of electronic resources available for data gathering to aid in the development of the Environmental Checklist:

Abandoned Mines (DEQ): https://deq.mt.gov/cleanupandrec/Programs/aml

Agricultural Statistics (USDA): USDA - National Agricultural Statistics Service - Data and Statistics

Air Quality

- Nonattainment Areas: Plan and Rule Development | Montana DEQ (mt.gov)
- Opening Burning Guidelines: Open Burning | Montana DEQ (mt.gov)

Army Corps of Engineers: http://www.usace.army.mil/Home.aspx

Bureau of Business and Economic Research, UM: http://www.bber.umt.edu/

Cadastral (for property ownership info): http://svc.mt.gov/msl/mtcadastral

Census Information, MT Dept. of Commerce: http://ceic.mt.gov

Conservation Districts, MT: http://macdnet.org/

Cultural Records

- Montana Historical Society: https://mhs.mt.gov/Shpo/CulturalRecords

DEQ data search tools: Montana DEQ's GIS Portal (mt.gov)

- Including Clean Water Act Info Center, Hazardous Waste Handlers, Petroleum Release Fund Claims, Unpermitted Releases, Underground Storage Tanks, Source Water Protection

EPA Enforcement and Compliance History Online http://echo.epa.gov/

Farmland Classification: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

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Fish (Also See Wildlife)

- Montana Fisheries Information System: Montana Fish, Wildlife & Parks GIS Data (arcgis.com)
- Aquatic Invasive Species: Montana FWP AIS Surveys Dashboard 2021 (arcgis.com)

Floodplain Maps, FEMA: https://msc.fema.gov/portal

Geographic Information, Natural Resources Information System: http://nris.mt.gov/gis

Geologic Information - MBMG - Publications - Download Geologic Maps (mtech.edu)

Maps of Montana for species observations, land cover, wetland and riparian areas, land management: Montana Natural Heritage Program (mtnhp.org); http://mtnhp.org/mapviewer/?t=6

Montana Department of Transportation: https://www.mdt.mt.gov/

- Environmental Manual: http://www.mdt.mt.gov/publications/docs/manuals/env/preface.pdf
- Environmental Manual - Chapter 29, Permits Required: https://www.mdt.mt.gov/publications/docs/manuals/env/Chapter%2029%20PERMITS%20REQUIRED.pdf

Montana Board of Oil and Gas Conservation Information System:

- http://bogc.dnrc.mt.gov/webApps/DataMiner/

Plants

- Plant database, USDA Natural Resources Conservation Service: http://plants.usda.gov/java
- Plant Species, MT Field Guide: http://fieldguide.mt.gov/default.aspx
- Plant Species of Concern: http://mtnhp.org/SpeciesOfConcern/Default.aspx?AorP=p
- Threatened, Endangered and Rare Plants, USDA: https://plants.usda.gov/home/raritySearch

Soils

- USDA Natural Resource Conservation Service database: https://websoilsurvey.nrcs.usda.gov/app/
- Montana soil and water conservation districts: http://swcdmi.org/

State Historic Preservation Office: http://mhs.mt.gov/Shpo

Tourism, UM – Institute of Tourism & Recreation Research: http://www.itrr.umt.edu

Tribal Resources:

- Blackfeet Tribal Environmental Permits: http://www.blackfeetenvironmental.com
- CSKT Natural Resources Department: http://nrd.csktribes.org/
- Montana Office of Indian Affairs: http://tribalnations.mt.gov/
- Tribal Historic Preservation Officer List: Search - NATHPO
- Tribal Directory Assessment Tool (TDAT): https://egis.hud.gov/tdat/

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Vehicle Traffic Count (MDT): http://www.mdt.mt.gov/publications/datastats/traffic.shtml

Water

- Stream Record Extension Facilitator, USGS: USGS | National Water Dashboard
- Streamstats basin characteristics, USGS: http://water.usgs.gov/osw/streamstats/
- Water Resources Division, DNRC: http://dnrc.mt.gov/divisions/water ; ArcGIS Web Application (mt.gov)
- Water Rights Bureau, DNRC: http://dnrc.mt.gov/divisions/water/water-rights
- Water Right Query System, DNRC: DNRC Water Right Query System (mt.gov)
- Wetlands database, USFWS: http://www.fws.gov/wetlands/Data/mapper.html

Wild and Scenic Rivers: http://www.rivers.gov/montana.php

Wildlife

- Animal Species, MT Field Guide: http://fieldguide.mt.gov/default.aspx
- Animal Species of Concern: http://mtnhp.org/SpeciesOfConcern/Default.aspx?AorP=a
- Aquatic Invasive Species: Montana FWP AIS Surveys Dashboard 2021 (arcgis.com)
- Critical Habitat Mapper, USFWS: http://ecos.fws.gov/crithab/
- Crucial Areas Planning System/Habitat Assessment Tool: Habitat MT (HB 526) Funded Lands (arcgis.com)
- FWP Contact Map: http://fwp.mt.gov/gis/maps/contactUs/ (includes biologist responsibility areas)
- Maps and GIS Data, FWP: Montana Fish, Wildlife & Parks GIS Data (arcgis.com)
- Sage grouse management, FWP: Montana Fish, Wildlife & Parks GIS Data : Sage-grouse Habitat/Current Distribution (Montana) : Sage-grouse Habitat/Current Distribution (Montana) (arcgis.com)
- Sage grouse habitat conservation program, DNRC: http://sagegrouse.mt.gov/
- Sage grouse habitat map: https://sagegrouse.mt.gov/ProgramMap

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ANSELMO MINE YARD PROJECT

Measurement

Montana Wetland/Riparian Type:
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Anselmo Mine Yard Project Boundary

Flood Hazard Zones:
- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard

1 Mile Buffer from Project Area

- Area with Reduced Risk Due to Levee
- Area with Risk Due to Levee

Flood Hazard Boundaries:
- Limit Lines
- SFHA / Flood Zone Boundary

N

0 500 1,000 2,000 3,000 4,000 Feet

1 inch equals 1,750 feet

T:\disk3\Butte\Reclamation\Maps_2023\Superfund_Reclamation_Grant_Maps\134523 Anselmo Yard Printed: 4/13/2023

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STEWARD MINE YARD PROJECT

Measurement

Montana Wetland/Riparian Type:
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Steward Mine Yard Project Boundary

Flood Hazard Zones:
- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard

1 Mile Buffer from Project Area
- Area with Reduced Risk Due to Levee
- Area with Risk Due to Levee

Flood Hazard Boundaries:
- Limit Lines
- SFHA / Flood Zone Boundary

N

0 500 1,000 2,000 3,000 4,000 Feet

1 inch equals 1,750 feet

T:\disk3\Butte\Reclamation\Maps_2023\Superfund_Reclamation_Grant_Maps\134523 Steward Mine Yard Printed: 4/13/2023

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SITE EVALUATION FOR PREVIOUSLY INVENTORIED SITES

Site Name: Anselmo Air **Legal Location:** T3N R8W, NW1/4SE1/4NE1/4 Sec. 14

Site Number: 24SB276 **UTM:** Zone 12 **Easting:** 379 725 **Northing:** 5096 625

Date Inventoried: 12/4/86 **Historical Consultant:** Paul Anderson/Dale Martin
GCM Services, Inc.

City: Butte **County:** Silver Bow

NRHP Determination: x Contributing Non-contributing
Located within National Landmark District? x **Yes** **No**

Property Types:

1) Mineyards - Features:
- a) headframes
- b) shaft opening
- c) idler towers
- d) hoist house
- e) dry or change house
- f) foundations/archeo. remains x
- g) shops/offices
- h) compressor/receiver tanks
- i) ore bins
- j) powerhouse/boilers
- k) waste rock dumps
- l) ventilation tower/openings x
- m) other - **concrete tower**

2) Linear Corridors - Features:
- a) compressor lines
- b) rail lines/beds
- c) electric transmission towers
- d) water systems
- e) ore tramways
- f) aerial tramways
- g) roads
- h)trails
- i) other

3) Placer Works - Features:
- a) water systems
- b) hydraulic features
- c) support buildings
- d) gold collection system
- e) outwash/tailings

4) Mills - Features:
- a) haulage system
- b) ore bins/ chutes
- c) water/power systems
- d) roasters
- e) pans
- f) crushers/stamps
- g) outbuildings
- h) tailings
- i) other

5) Smelting Works - Features:
- a) haulage trucks/trams
- b) ore-concentrate bins, chutes
- c) water/power systems
- d) roasters
- e) furnaces
- f) outbuildings
- g) storage/shipping
- h) waste slag heaps
- i) other

6) Mining Administration Facilities: Features
- a) buildings
- b) garages/shops
- c) other

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Site Attributes

Associative

x 1) Associated with significant dates, activities, persons - **2 pts.**
x 2) Directly related to major stages in industry growth or pivotal events - **2 pts.**

Physical

3) Representative of important architectural styles, methods of construction, and mining/ore processes
4) Features linked to important research topics
x 5) Plan and orientation of features provides information about mining and transmission/ distribution system - **2 pts.**
6) Features have potential to yield information about technical mining/ore processes

Site ranking (based on six associative/physical attributes: 5 points maximum for each)

x - 6 pts. High (5-30) Low (0-4)

Relative Site Importance (description)
This is a good example of an identifiable air shaft on the Butte hill and its close proximity to the Neversweat-Washoe Railroad makes it an important feature of the interpretive mine tour. The concrete tower constitutes an important part of the historic mining landscape and it is the only tower of its kind on the Butte hill.

Site Contribution to Historic Mining Landscape: x Yes No

Impact of proposed reclamation on highly ranked historic resources

No effect (proceed with action after concurrence over evaluation)
No adverse effect (proceed with action after concurrence over evaluation)
x Adverse effect (proceed to mitigation phase)

Range of mitigation actions (to be implemented when proposed reclamation is determined to have adverse effect on significant resources. Actions are ranked in order of effort/cost.)

x 1) avoidance and/or replacement of threatened feature through redesign of reclamation plan. **(avoid concrete tower)**
x 2) interpretive sign (name of air shaft, date of operation)
3) more extensive measurement of site features resulting in amended site map
4) collect artifacts on site to be donated to World Museum of Mining or B.A. Park system
5) further historical research and documentation of relationship of site to ACM mining/ ore processing system at large (suggested 3-days for research)
6) research of ACM maps and archival holdings to provide detail about how particular site fit into larger system (suggested 3-days research)
7) aerial video tape and still shots of site
8) video tape of miner or engineers discussing mining processes used at particular site
9) detailed mapping accompanied by selected archeological excavation to provide information on technical processes following health and safety regulations provided by OSHA and CERCLA.
10) HAER recording - measured drawings, 4 x 5 archival negatives/prints

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MONTANA CULTURAL RESOURCE INVENTORY

Form No. 1 Locational Information

1.1 Site number: 24SB276	1.2 Site name/field designation: Anselmo Mine and Air Shaft	1.3 County: Silver Bow

1.4 Township/range:

3N	8W	SW	NE	NE	14
T 3N	R 8W	NW 1/4	NW 1/4	NW 1/4 of Section 13	
		NW 1/4	SE 1/4	NE 1/4 of Section 14 (air shaft)	

1.5 UTM:

Zone 12 — 380275 Easting 5096900 Northing
379725 5096625 (air shaft)

1.6 Site type: Historic hardrock mine	1.7 Recording status & comments: Photographed, mapped and recorded

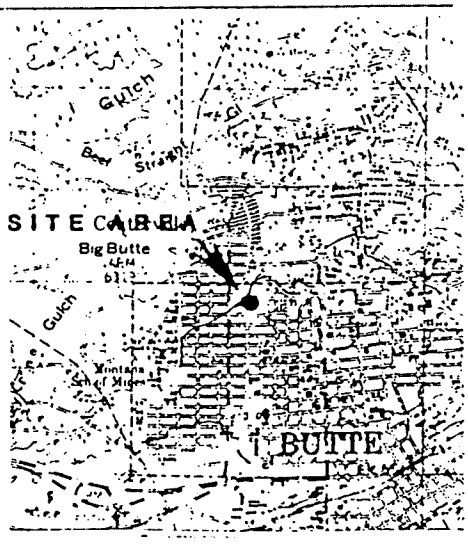
1.8 Administrative/surface ownership: Montana Resources, Inc.	1.9 Mineral ownership: Montana Resources, Inc.
	1.10 Project name: Department of State Lands Abandoned Mine Reclamation Program

1.11 General narrative description of site:
The site area consists of two discontiguous locations consisting of the main Anselmo mine yard and an auxiliary air shaft about 500 m southwest of the Anselmo headframe. Both parts of the site are on the railroad tracks of the former Butte, Anaconda and Pacific railroad. The site area is located in a residential area on the west side of the Butte hill. It is the most complete mine yard still remaining on the Butte hill with most of its surface facilities remaining although in a deteriorated condition.

1.12 Map reference:
Butte North, Mont. 1:62500 - 1959

1.13 City/town: [x] vicinity of
Butte

1.14 Access to site:
Drive north on Montana Street and turn left at Park Street. Follow Park Street to where it intersects with Excelsior Avenue. Turn right and proceed north past Caledonia Street to Woolman Street. The site is located east of here. To find the air shaft drive south of the mine on Excelsior and turn right on Quartz St. Follow this to just past the Butte-Anaconda and Pacific Railroad tracks. The tower is located to the north.



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MONTANA CULTURAL RESOURCE INVENTORY

Form No. 2. Environmental Setting

Site number: 24SB276

2.1 Geographic setting:

2.2 Elevation: 1786 m 5860 ft.

The site is located on the west side of the Butte hill which is part of the southern end of the Boulder Batholith geological formation.

2.3 View/aspect:
open

2.4 Major drainage:

Silver Bow Creek

2.5 Minor drainage(s):

2.6 Water sources:

	Names	Distance	Ele. Change	Type & seasonality
a.				
b.				

2.7 Regional vegetation:
Intermountain valley grassland and meadow.

2.8 Local vegetation:
grasses and shrubs

2.9 Soils:

2.10 Surface visibility/season of survey:
fair/winter

2.11 Other environmental factors pertaining to site location:
The site is located on the Butte hill which for nearly a century was one of the world's richest sources of copper, silver, zinc and other minerals.

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MONTANA CULTURAL RESOURCE INVENTORY

Form No. 3 Site Assessment and Recording Documentation

Site number: 24SB276

3.1 Condition of site:
The site is in excellent condition.

3.2 Site significance (NRHP):
The site is within the Butte National Historic Landmark District and is considered part of the National Register of Historic Places. The Anselmo has the most complete intact mine yard still remaining on the Butte hill and therefore is probably the most important single mine site within the Butte Historic District.

☐ Attachments:

3.3 Impacts:

The Department of State Lands plans to permanently seal the mine openings but will not impact any of the remaining structures.

3.4 Recommendations:
The site has been recorded, mapped and photographed and no further work is recommended.

3.5 Site located by:	3.6 Site recorded by:	3.7 Revisions by:
Date:	Paul Anderson & Dale Martin Date: 12/4/86	Date:

3.8 Permit No.: N/A

3.9 Publications concerning site:
(see attached)

3.10 Artifact repository:	3.11 Field notes/maps/photo repository:
none collected	GCM Services, Inc. 1003 S. Montana St. Butte, MT 59702

3.12 Photos & accession No:

No.	Description	View
Butte 86 proofs II Photos 56-60 additional photos from 1984 inventory of Butte Mines - State Historic Preservation Office		

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MONTANA CULTURAL RESOURCE INVENTORY

Form No. 5. Description of Historic Sites

Site number: 24SB276

5.1 Site dimensions, how determined:

100,000 (mine yard)
3700 (air shaft) m^2

5.2 Features:

Headframe: (A-Frame) This steel headframe of riveted (with batten plates) I-beam construction sits on concrete footings. The three sheave headframe sits atop the three and one-half compartment shaft. There is an enclosed ore tipple on the front of the headframe which sits astride the rail tracks to facilitate loading ore cars.

Two idler towers: These four-post steel idler towers constructed with riveted angle iron and are set on concrete footings.

Main hoist house: This one-story rectangular building sits on a concrete foundation and has a concrete floor, a rolled asbestos gable roof, and corrugated metal siding. Awning type, industrial sash windows are enclosed in a rounded arch frame. There are two bracketed, gable overdoors above the south entrance. The roof is supported by steel trusses and there is a concrete addition to the rear which houses a heating plant.

Auxiliary Hoist House; lamp-charging room: This corrugated metal-sided rectangular one-story building with rolled asbestos gable roof is built over a concrete foundation and floor. A roof monitor runs along the ridge and it has a gable dormer projecting from the south part of the roof. There is a gable overdoor above the south entrance. The roof is supported by wooden trusses.

(continued)

5.3 Artifacts (observed, collected):
none collected

5.4 Historical information and evaluation:

See attached.

5.5 References

(See Section 3.9)

5.6 Subsurface testing, results, methods, etc.
None

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Anaconda Copper Mining Company
1959 Annual Report for the Year ended December 31, 1959.

1960 Annual Report for the Year ended December 31, 1960.

Butte Miner
1906 Butte Miner. September 23, 1905.

Mines Register
1937 Mines Register. Mines Publications, Inc., New York.

Rand, Lenox H. and Edward B. Sturgis
1931 Mines Handbook. Mines Information Bureau, Suffern, N.Y.

U.S. Geological Survey
1898 Butte Special Map (topographic - surveyed 1895)

1904 Butte Special Map (topographic - surveyed 1903)

Weed, Walter Harvey
1920 Mines Handbook. W.H. Weed, New York.

1922 Mines Handbook. Mines Handbook Co., Tuckahoe, N.Y.

1925 Mines Handbook. Mines Handbook Co., Tuckahoe, N.Y.

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Change house/line-up room: This two-story rectangular building has a rolled asbestos gable roof supported by steel trusses. This corrugated metal-sided building sits on a concrete foundation and floor and has a wooden stairway leading to a second floor entrance. The windows in this building have been boarded up. There is a large steel tank adjacent to the change house which held heated water for showers in the change house.

Carpenter, framing shop: This one-story rectangular wood frame building has a rolled asbestos gable roof (with a shed roof off one side) which is supported by wooden trusses. This beveled lap sided building rests on a dirt floor and has no foundation. There is a garage bay on the front.

Auxiliary Buildings

Office/change house: This one-story rectangular building has a corrugated metal gable roof supported by standard wood rafters and asbestos siding. It has a concrete floor and foundation. The windows are covered with plywood.

Supply warehouse: This one-story rectangular building has a corrugated metal galbe roof and corrugated metal siding. There is no visible foundation.

Car pullers shed: This building has a corrugated metal shed roof and corrugated metal siding. The front has two large garage bay doors. There is no visible foundation.

Assorted garages: These buildings have rolled asphalt gabled roofs and beveled lap siding and are without foundations.

Horse cart house.

Privy.

Compressed air tank.

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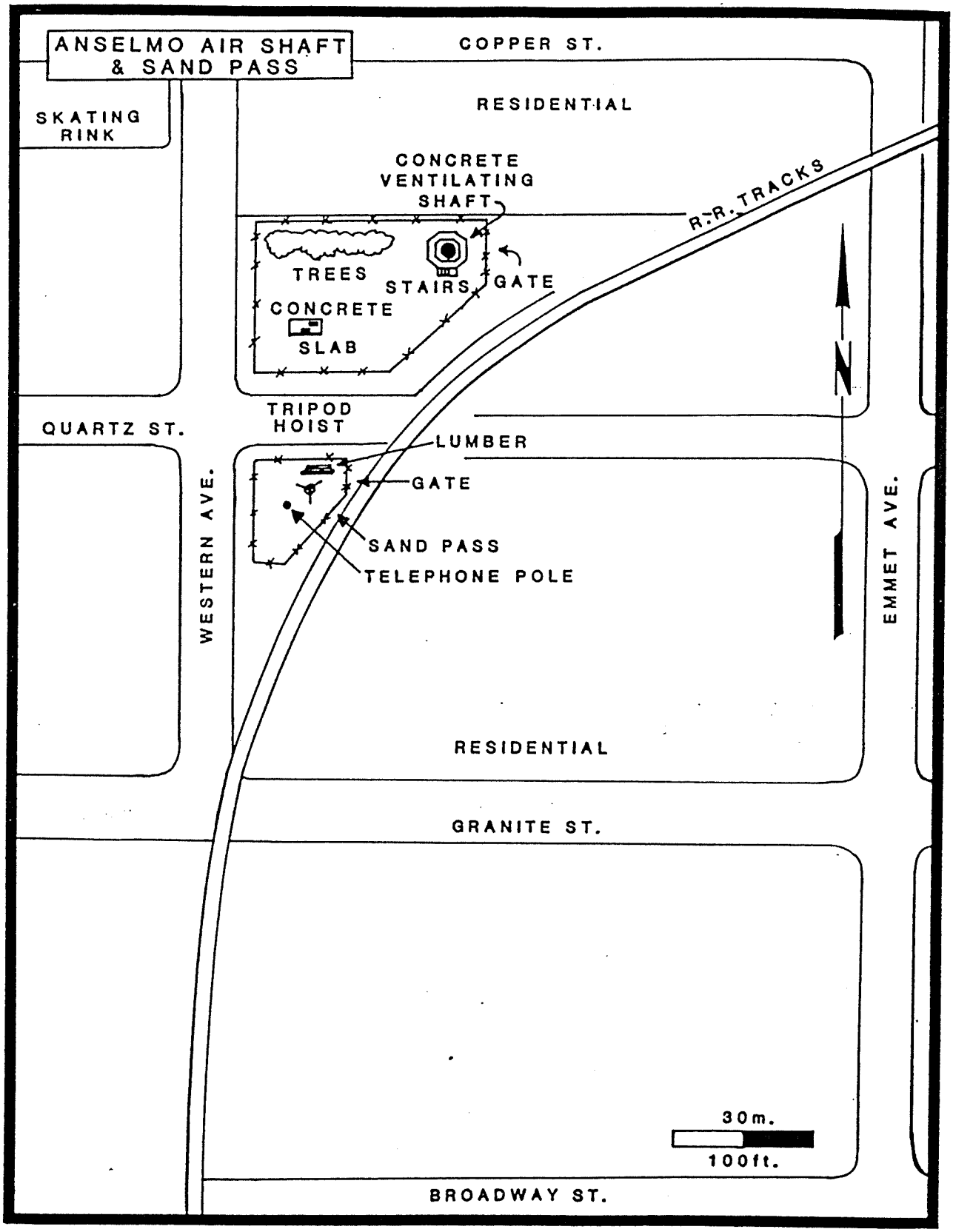

Figure 3. Site map of the Anselmo Air Shaft and Sand Pass.

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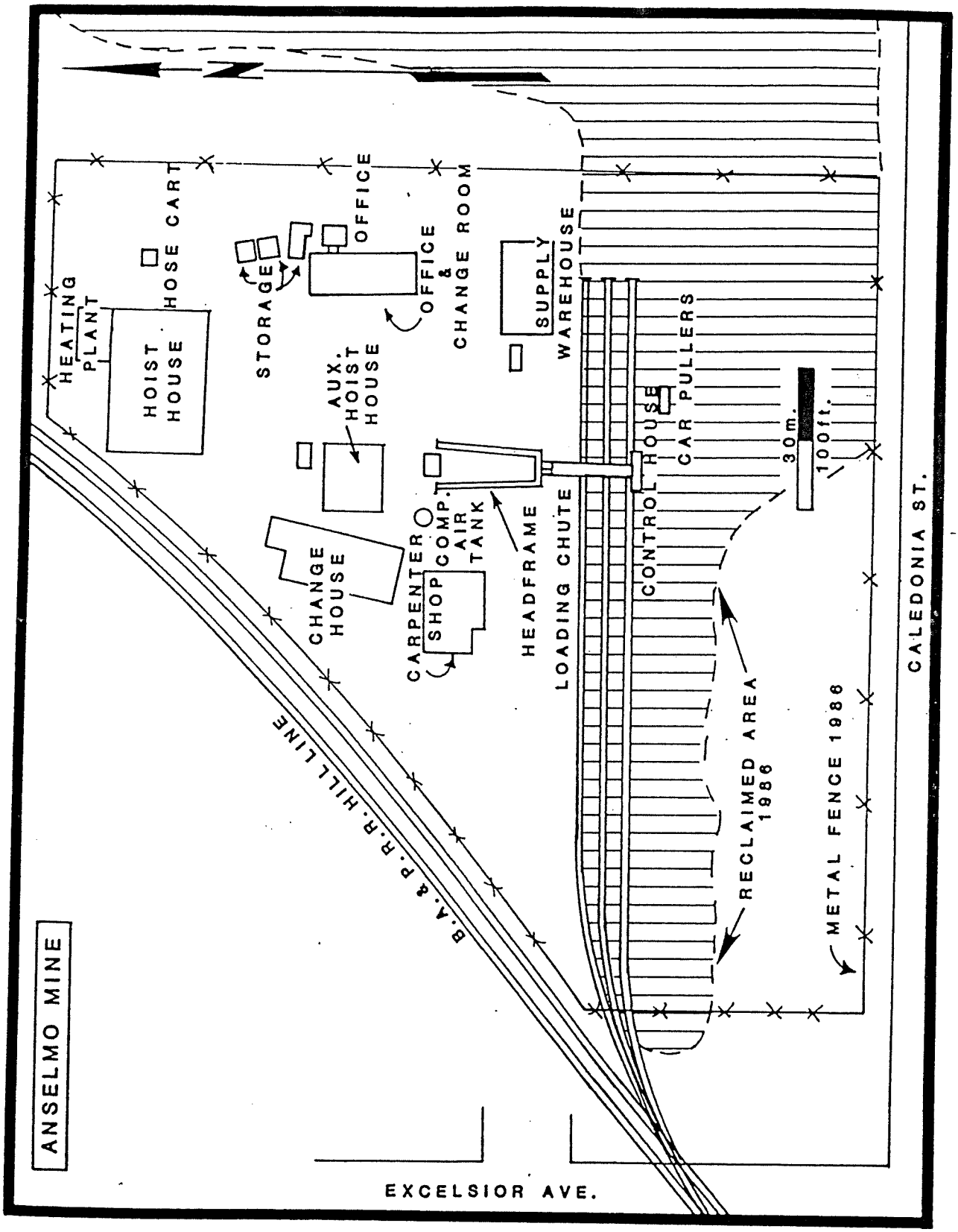

Figure 1. Site map of the Anselmo Mine.

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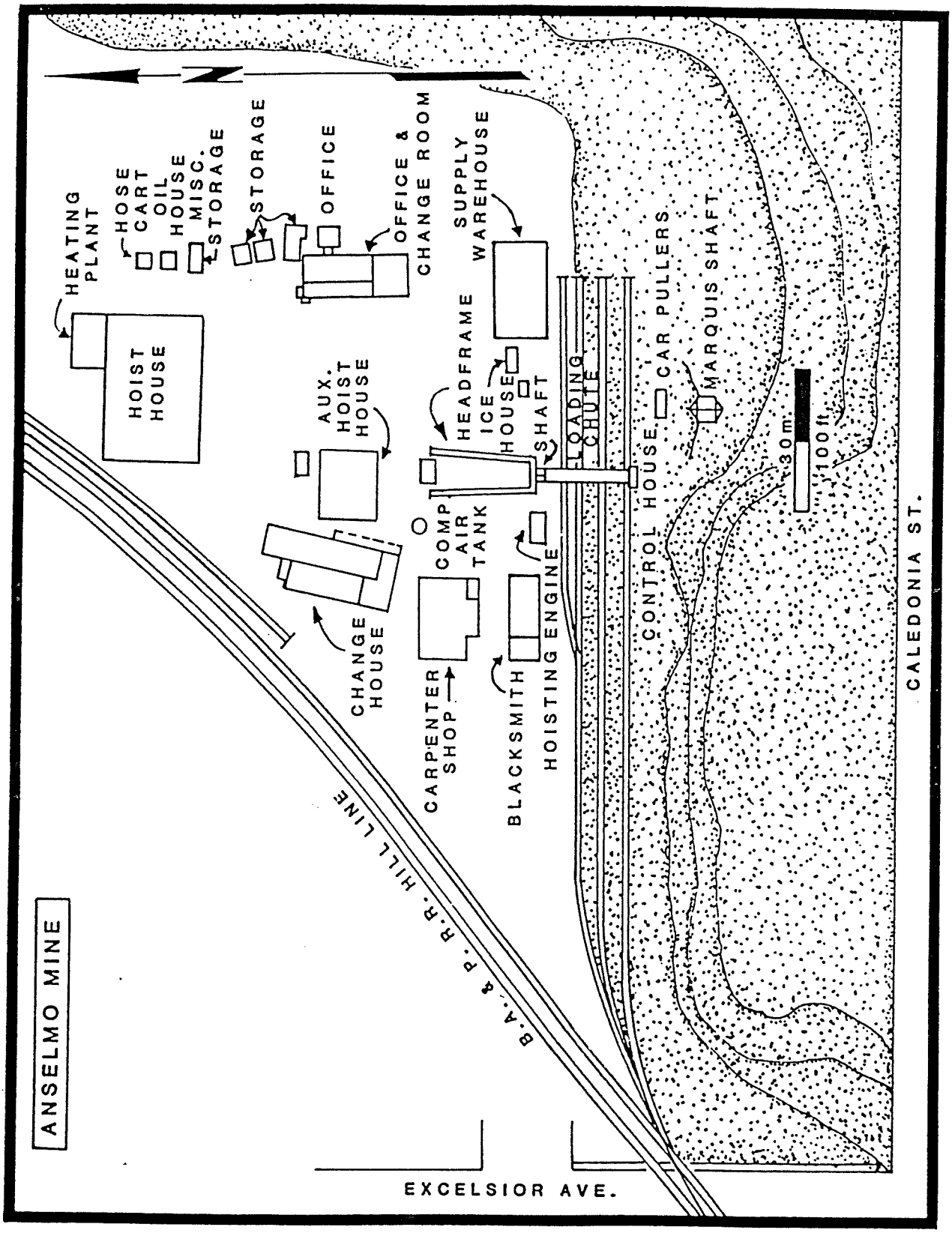

Figure 2.

Original layout of the Anselmo Mine
(from Sanborn map 1916-1954).

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The Anselmo Mine had three different shaft openings, of which the most recent survives in the best-preserved mine yard in Butte. The first Anselmo shaft was located about 300 feet northwest of (across the former BA&P tracks) the surviving mine yard and the second shaft was about 1000 feet east of the first. Both these shafts appear on U.S. Geological Survey maps of 1898 and 1904. On the same maps, the site of the present Anselmo mine yard is occupied by the Trifle Mine. The Trifle Mine was a silver producer which had a main shaft 300 feet deep in 1906. At that time, the Butte Copper Company incorporated in March 1906, completed a new surface plant at the Trifle and planned to begin extending the shaft down to a depth of 1000 feet. The new hoisting works consisted of a wood-frame boiler and engine house and a wooden headframe. Butte Copper Company ownership of the Trifle Mine continued through the 1910s, although by 1916 the Semmens Leasing Company operated the mine. The shaft was 700 feet deep in 1920 (U.S.G.S. 1898, 1904; Butte Miner 1906; Sanborn 1916; Weed 1920:977).

The Trifle shaft was deepened in the 1920s to reach ores of the Anselmo lode, resulting in the renaming of the shaft and mineyard as Anselmo. A subsidiary of the International Minerals and Metals Corp. (of New York), the Anselmo Mining Corp., developed the Trifle Mine to reach the zinc-lead ore of Anselmo, which also contained gold and silver. By 1925, the shaft was 1900 feet deep and the Anaconda Copper Mining Company had acquired half of the stock of the Anselmo Mining Corp. (Weed 1922:1023, 1925:1172).

After the Anaconda Company acquired full control of the Anselmo Mine in 1926, it remained a major zinc producer through the 1950s. The shaft reached a depth of 2800 feet in 1931 and 3400 in 1937. The mine also yielded silver and copper. The mineyard consisted of a steel headframe, a main hoist house with a steel frame and wood and copper sheathing, and many other buildings of wood-frame construction and wood or iron siding. To the southwest, near the intersection of Quartz and Western Streets, an air shaft was dug. During and just after excavation, a small power plant, hoist house, and headframe stood at this site. In the early 1950s an octagonal twenty-two foot high concrete fan housing replaced the earlier structures. The Anselmo was the last underground zinc mine operated in Butte. It continued to produce ore until August 1959, when the International Union of Mine, Mill and Smelter Workers struck the Anaconda Company and closed all Butte operations. The Anselmo did not reopen when the strike ended in early 1960 (Rand 1931:1265; Mines Register 1937:63; Sanborn 1916-1954; Anaconda 1959:10, 1960:12).

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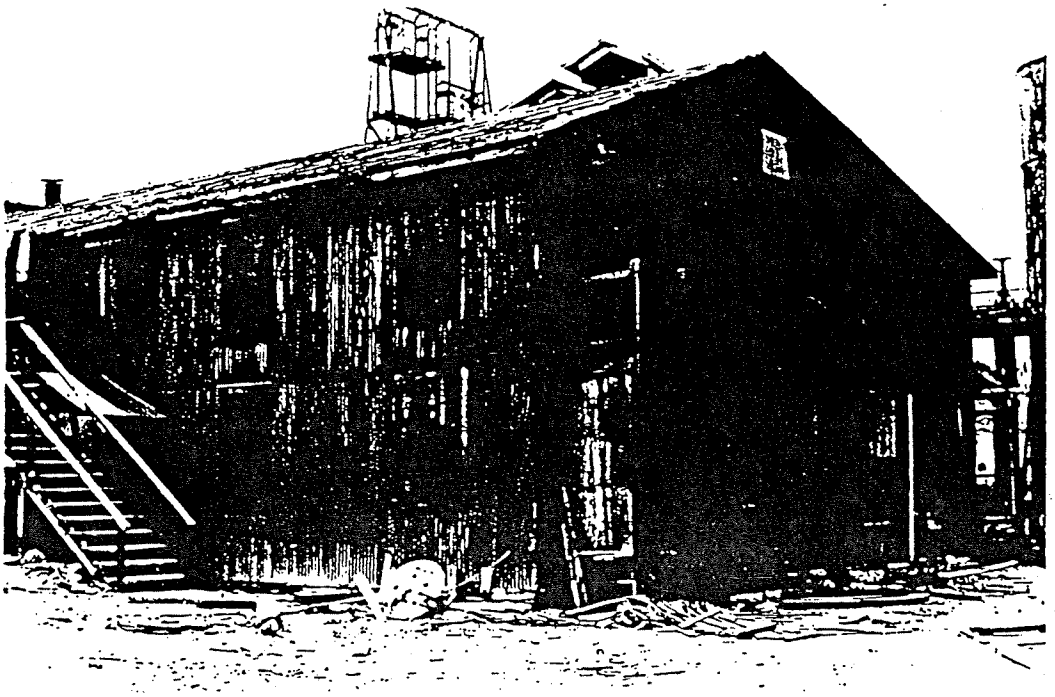

Figure 8. The Anselmo change house looking northeast.

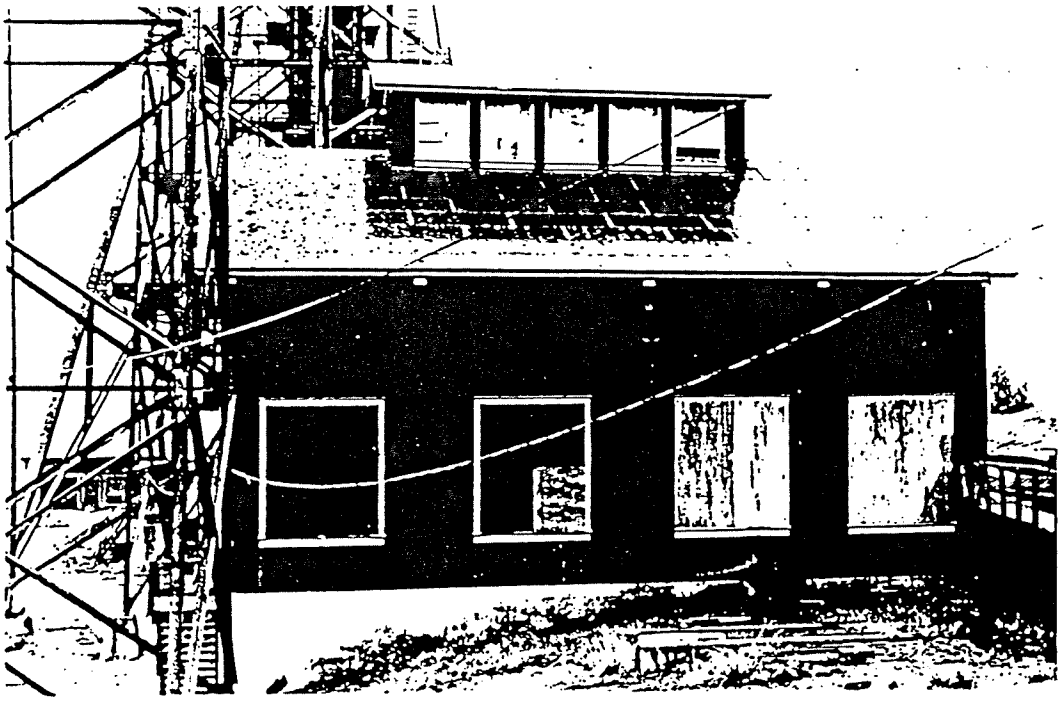

Figure 9. The auxiliary hoist house at the Anselmo (view to the south).

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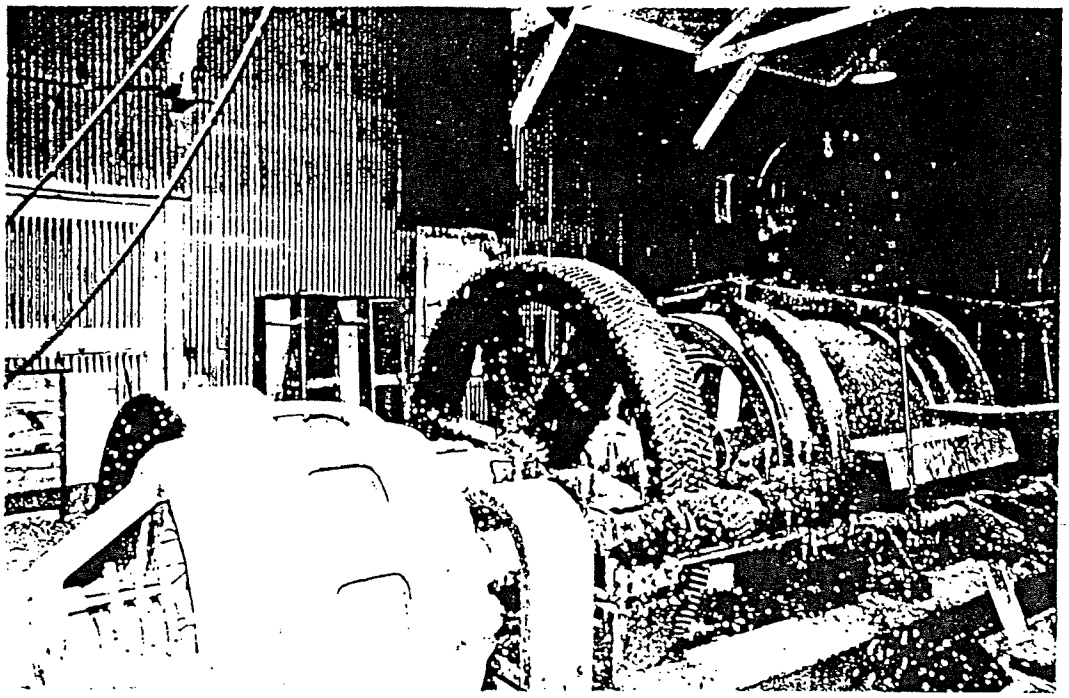

Figure 10. Interior of the Anselmo auxiliary hoist house.

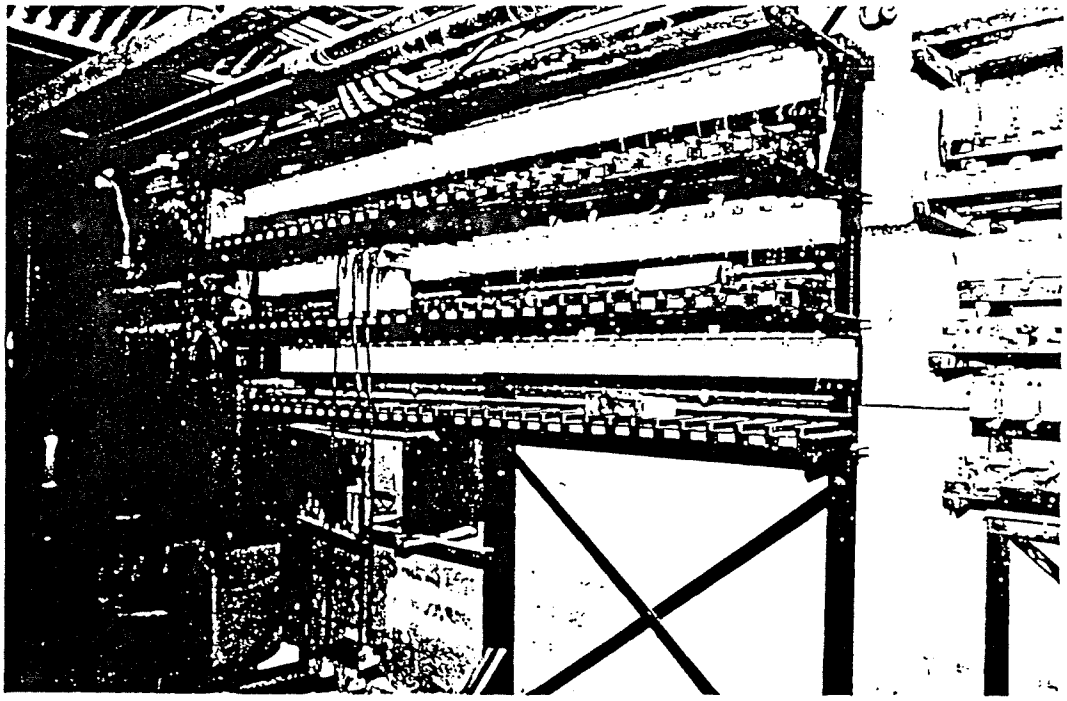

Figure 11. Mine lamps charge rack in the Anselmo lamp room located in the auxiliary hoist house.

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Figure 6. The Anselmo office building with the main hoist house in the background (view to the northeast).

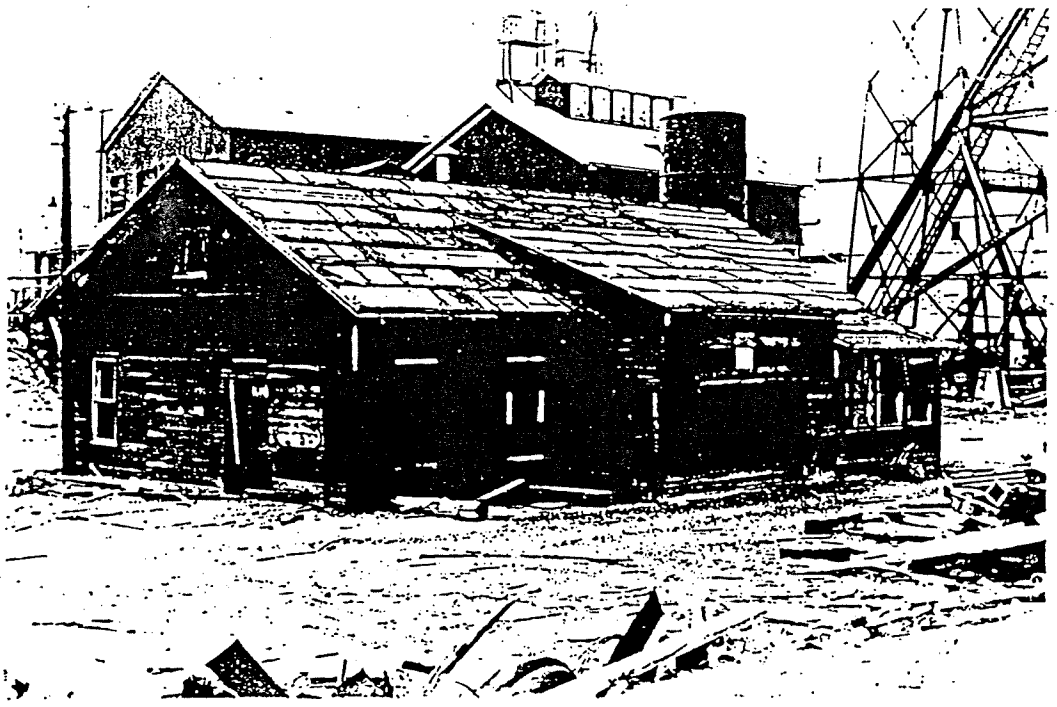

Figure 7. The Anselmo carpenter shop (view to the northeast).

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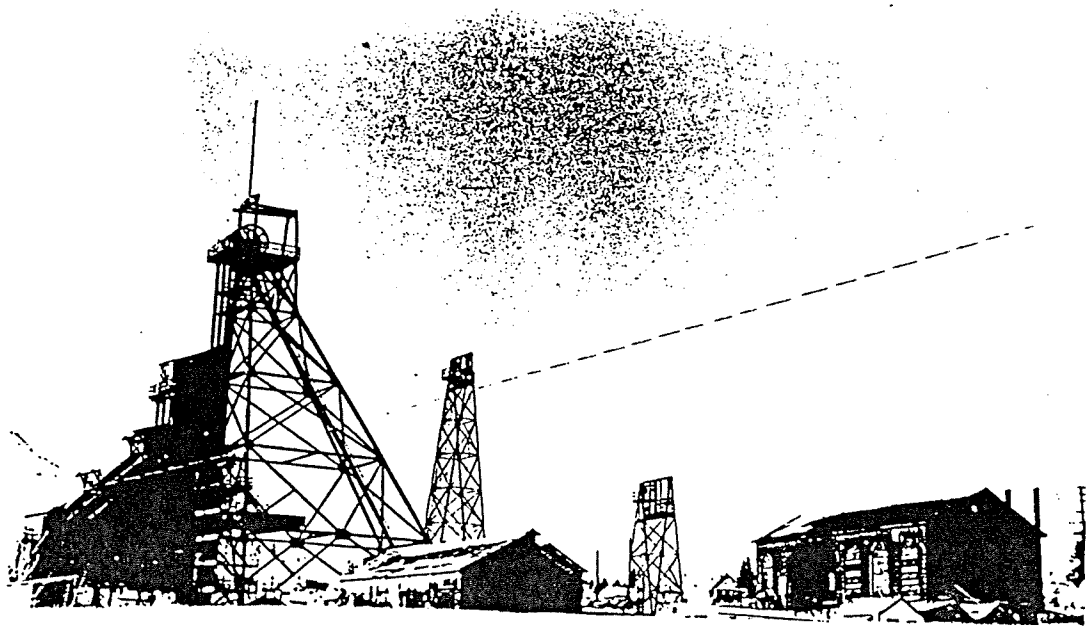

Figure 4. The Anselmo Mine yard looking northwest.

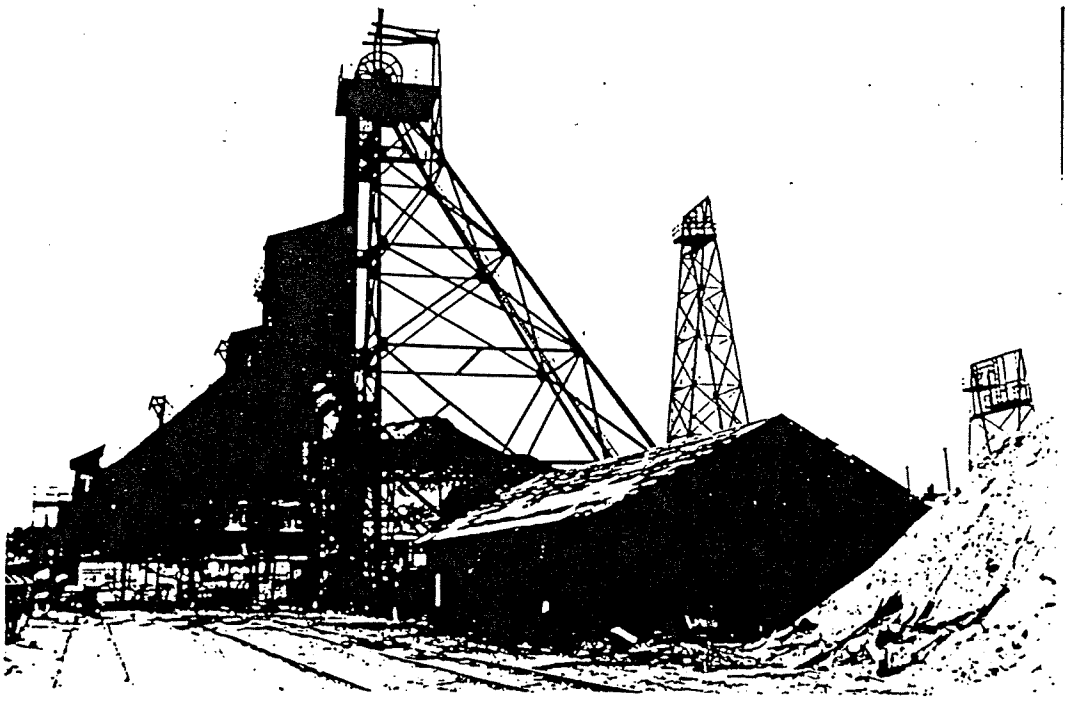

Figure 5. The Anselmo headframe (view to the west).

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Figure 12. The Anselmo air shaft and concrete fan housing (view to the northeast).

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SITE EVALUATION FOR PREVIOUSLY INVENTORIED SITES

Site Name: Steward **Legal Location:** T3N R8W, NE1/4NW1/4NE1/4, Sec. 13

Site Number: 24SB275 **UTM:** Zone 12 **Easting:** 381 225 **Northing:** 5097 250

Date Inventoried: 12/4/86 **Historical Consultant:** Paul Anderson/Dale Martin, GCM Services, Inc.

City: Butte **County:** Silver Bow
NRHP Determination: x Contributing Non-contributing
Located within National Landmark District? x **Yes** **No**

Property Types:

1) Mineyards - Features:
- a) headframes x
- b) shaft opening x
- c) idler towers
- d) hoist house & auxilary hoist house x
- e) dry or change house
- f) foundations/archeo. remains
- g) shops/offices
- h) compressor/receiver tanks
- i) ore bins
- j) powerhouse/boilers
- k) waste rock dumps x
- l) ventilation tower/openings
- m) other-**timber cribbing retaining wall**

2) Linear Corridors - Features:
- a) compressor lines x
- b) rail lines/beds x **(grade)**
- c) electric transmission towers
- d) water systems
- e) ore tramways
- f) aerial tramways
- g) roads
- h)trails
- i) other

3) Placer Works - Features:
- a) water systems
- b) hydraulic features
- c) support buildings
- d) gold collection system
- e) outwash/tailings

4) Mills - Features:
- a) haulage system
- b) ore bins/ chutes
- c) water/power systems
- d) roasters
- e) pans
- f) crushers/stamps
- g) outbuildings
- h) tailings
- i) other

5) Smelting Works - Features:
- a) haulage trucks/trams
- b) ore-concentrate bins, chutes
- c) water/power systems
- d) roasters
- e) furnaces
- f) outbuildings
- g) storage/shipping
- h) waste slag heaps
- i) other

6) Mining Administration Facilities: Features
- a) buildings
- b) garages/shops
- c) other

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Site Attributes

Associative

x 1) Associated with significant dates, activities, persons - **5 pts.**
x 2) Directly related to major stages in industry growth or pivotal events- **4 pts.**

Physical

x 3) Representative of important architectural styles, methods of construction, and mining/ore processes- **4 pts.**
4) Features linked to important research topics
x 5) Plan and orientation of features provides information about mining and transmission/ distribution system - **4 pts.**
6) Features have potential to yield information about technical mining/ore processes

Site ranking (based on six associative/physical attributes: 5 points maximum for each)

x-17 pts. High (5-30) Low (0-4)

Relative Site Importance (description)
The Steward mine yard and its associated features represent one of the most important historic mining sites on the Butte hill. The steel headframe is one of the first erected in Butte and a steam hoist found on the site is one of the only remaining of its type on the hill. The Steward represents a dominant feature of the historic mining landscape, especially prominent because of its close proximity to Butte's commercial district.

Site Contribution to Historic Mining Landscape: x Yes No

Impact of proposed reclamation on highly ranked historic resources

No effect (proceed with action after concurrence over evaluation)
No adverse effect (proceed with action after concurrence over evaluation)
x Adverse effect (proceed to mitigation phase)

Range of mitigation actions (to be implemented when proposed reclamation is determined to have adverse impact on significant resources. Actions are ranked in order of effort/cost.)

1) avoidance and/or replacement of threatened feature through redesign of reclamation plan.
2) interpretive sign (name of mine, date of operation)
x 3) more extensive measurement of site features resulting in amended site map
4) collect artifacts on site to be donated to World Museum of Mining or B.A. Park system
5) further historical research and documentation of relationship of site to ACM mining/ ore processing system at large (suggested 3-days for research)
x 6) research of ACM maps and archival holdings to provide detail about how particular site fit into larger system (suggested 3-days research) **use oral history**
x 7) aerial video tape and still shots of site **(import. to show relationship of features to be removed to headframe and hoist house).**
8) video tape of miner or engineers discussing mining processes used at particular site
9) detailed mapping accompanied by selected archeological excavation to provide information on technical processes following health and safety regulations provided by OSHA and CERCLA.
10) HAER recording - measured drawings, 4 x 5 archival negatives/prints

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MONTANA CULTURAL RESOURCE INVENTORY

Form No. 1 Locational Information

1.1 Site number: 24SB275	1.2 Site name/field designation: Stewart Mine	1.3 County: Silver Bow

1.4 Township/range:

T 3N R 8N NE 1/4 NW 1/4 NE 1/4 of Section 13

1.5 UTM:

Zone 12 3 81 225 Easting 509725 Northing

1.6 Site type: Historic hardrock mine	1.7 Recording status & comments: photographed, mapped and recorded

1.8 Administrative/surface ownership: Montana Resources, Inc.	1.9 Mineral ownership: Montana Resources, Inc. 1.10 Project name: Department of State Lands Abandoned Mine Reclamation Program

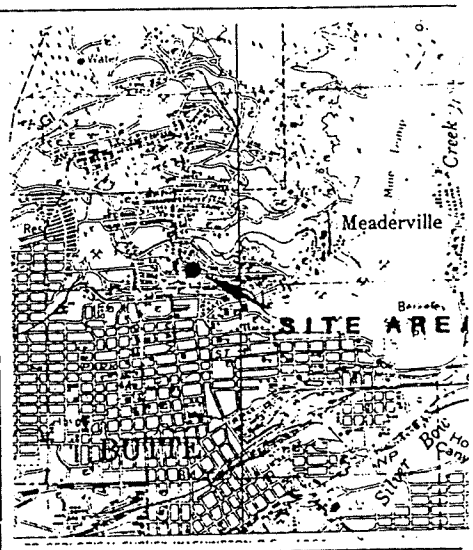
1.11 General narrative description of site:
The head frame, main hoist house and auxiliary hoist house remain on the Stewart mine site. The site is located a few blocks above the uptown business section of Butte on the northeast corner of North Main and East Woolman streets. The mine originally was one of the major mines on the Butte hill and had extensive surface facilities, most of which has been removed.

1.12 Map reference:
Butte North, Mont. 1:62500 - 1959

1.13 City/town: [x] vicinity of
Butte

1.14 Access to site:

Drive north on Main Street to where it is intersected by Woolman Street. Drive 200 ft past this intersection. The site is located to the east.



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MONTANA CULTURAL RESOURCE INVENTORY

Form No. 2. Environmental Setting

Site number: 24SB275

2.1 Geographic setting:

2.2 Elevation: 1798 m 5900 ft.

The site is located near the northern city limits of Butte between Centerville and Meaderville. The mine is on the Butte hill which is part of the southern border of the Boulder Batholith geological formation.

2.3 View/aspect:

all directions

2.4 Major drainage:

Silver Bow Creek

2.5 Minor drainage(s):

2.6 Water sources:

	Names	Distance	Ele. Change	Type & seasonality
a.				
b.				

2.7 Regional vegetation:
Intermountain valley grasslands

2.8 Local vegetation:

grass and low brush

2.9 Soils:

disintegrated rock and tailings

2.10 Surface visibility/season of survey:
fair/winter

2.11 Other environmental factors pertaining to site location:
The site is located on the Butte hill which for nearly a century was one of the world's richest sources of copper, silver and other minerals.

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MONTANA CULTURAL RESOURCE INVENTORY

Form No. 3 Site Assessment and Recording Documentation

Site number: 24SB275

3.1 Condition of site:
The site is in fair condition.

3.2 Site significance (NRHP):

The site is within the Butte National Historic Landmark District and is considered part of the National Register of Historic Places. The Stewart remains relatively intact and with its preserved headframe and hoist house it is a major contributing element to the Butte Historic District.

☐ Attachments:

3.3 Impacts:
The Department of State Lands plans to close any mine openings but will not impact any of the remaining structures.

3.4 Recommendations:
The site has been recorded, mapped and photographed and no further work is recommended.

3.5 Site located by:	3.6 Site recorded by:	3.7 Revisions by:
Date:	Paul Anderson & Dale Martin Date: 12/4/86	Date:

3.8 Permit No.: N/A

3.9 Publications concerning site:
see attached

3.10 Artifact repository:	3.11 Field notes/maps/photo repository:
none collected	GCM Services, Inc. 1003 S. Montana St. Butte, MT 59702

3.12 Photos & accession No:

No.	Description	View
Butte 86 Proofs I photo 49 additional photos from 1984 inventory of Butte mines - State Historic Preservation Office		

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MONTANA CULTURAL RESOURCE INVENTORY

Form No. 5. Description of Historic Sites

Site number: 24SB275

5.1 Site dimensions, how determined:

11,000 m^2

5.2 Features:
The headframe consists of riveted H-beams connected to channel sections riveted with lacing bars and the structure sits on concrete footings. The Stewart is a 3-1/2 compartment shaft with two sheaves atop the headframe and a smaller sheave to operate the chippy hoist. The headframe is 126 feet tall and was manufactured by the Gillette-Herzog Mfg. Co. of Minneapolis in 1898 (Copper Handbook, Horace Stevens, 1906, Vol. VI).

The auxillary hoist house is a one-story structure with a concrete foundation and floor with steel I-beam joists and heavy-timbered Howe trusses supporting the wood planked and asphalt-covered gable roof. There is a shed dormer off the ridge and the building is sheathed using board and batten siding. The windows are double-hung 6/6 and a bracketed overdoor covers the two bay wooden doors. This structure houses a S.F. Bowser steam hoist manufactured in Fort Wayne, Indiana.

The hoist house is a one-story rectangular building with a concrete foundation and floor and brick-bearing walls with a steel, flat-Pratt trussed roof. The asphalt-covered gable roof has a large shed dormer off the front and a three-lite roof monitor along the ridge and a metal roofed shed off one site (concrete walls). The is a tower at the building rear with corrugated metal siding and a gable roof. There is a shed roof covering a wood loading dock on the side and there is an aspha covered gable roofed addition intersecting the main gable on the west side. There is a bracketed gable overdoor above the main entry on the east side. Double-hung windows with transom 20/20 light this structure. This building houses a large stea hoist.

5.3 Artifacts (observed, collected):
none

5.4 Historical information and evaluation:
See attached sheet.

5.5 References
(See Section 3.9)

5.6 Subsurface testing, results, methods, etc.
None

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3.9 Publications concerning site: (continued)

Anaconda Copper Mining Company
1910 Report of the Anaconda Copper Mining Company for the Year Ending December
1911 Report of the Anaconda Copper Mining Company for the Year Ending December

Corbett, Robert
1984 The Changing Face of Mining in Butte. Speculator 1(Summer 1984):20-25.

Inspector of Mines
1894 Sixth Annual Report..December 1, 1894. Butte.
1896 Seventh Annual Report..December 1, 1896. Helena.
1898 Ninth Annual Report..December 1, 1897. Helena.
1901 Annual Report..December 1, 1900. Helena.
1903 Fourteenth Annual Report..December 1, 1902. Helena.
1907 Biennial Report..for the Years 1905-1906. Helena.

MacKnight, James Arthur
1892 The Mines of Montana: Their History and Development to Date. C.K. Wells Company, Helena.

Sanborn Map Company
1900 Insurance Maps of Butte, Montana.
1916 Insurance Maps of Butte, Montana.

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The Stewart (or Steward) Mine had two large surface plants. The first hoisting works became the East Stewart when a second, the West Stewart, began operation. Eventually the older east shaft was used only for ventilation and all hoisting and surface activity occurred around the west shaft, which was then called simply the Stewart (or Steward).

The Stewart Mine was the property of William A. Clark from the first major operations in the late 1880s until purchased by the Anaconda Company in 1910. A copper and silver mine, the Stewart was worked in the late 1880s and early 1890s by small lessees, who excavated the main shaft to a depth of 330 feet by 1892. This shaft was inclined at an angle of 15° to 20° from the vertical. With a small work force -- twenty-one men in 1894, one more in 1895, and only eleven in 1897 -- excavations continued to the end of the century. By 1900 the scale of operations had increased. At that time, two large wooden buildings, one housing boilers and the other containing hoisting gear and the entrance to the one thousand foot deep shaft, comprised the surface facilities. Over 150 employees worked underground or on top (MacKnight 1892:29; Inspector of Mines 1894:27, 1896:73, 1898:68, 1901:76; Sanborn 1900).

The first years of the twentieth century saw much change on the ground above the Stewart Mine. A steel headframe replaced the wooden one enclosed in the hoist house. One thousand feet to the west, a new shaft and hoisting works called the West Stewart rose on previously undeveloped ground just east of Main Street. The brick hoist house contained a large Nordberg engine and a 120 foot high steel headframe stoo over the shaft. During 1902 miners extended this shaft from a depth of 450 feet to 1100 feet. By 1906 it was 1900 feet deep. At this time, 235 workers labored underground and 20 more were at the surface. The mine inspector's report for 1905-1906 does not mention the East Stewart; perhaps by this time its transformation to eventual service as only an air shaft had begun. In 1910, the last several months of Clark's ownership and operation of the [West] Stewart saw hoisting transferred from there to the Original Mine (Inspector of Mines 1903:42, 1907:151; Anaconda 1910).

Under ownership of the Anaconda Copper Mining Company (ACM), the [West] Stewart Mine resumed hoisting and was active for several more decades. ACM assumed control of the Stewart on June 1, 1910. Six months later, hoisting resumed at the western shaft, lifting ore from the Stewart workings, as well as from the Clear Grit and Little Minah mines. The company installed new cylinders in the steam hoist engine to adapt it to operation by electrically-generated compressed air. In 1916 the West Stewart mineyard consisted of the steel headframe over the 3000 foot deep shaft, a brick hoist house, and many other wood-frame buildings (some with iron siding). The East Stewart surface facilities were reduced to housing for ventilation and located under the steel headframe (Anaconda 1910, 1911; Sanborn 1916).

The Stewart Mine continued operating through the middle part of the century, its main shaft eventually reaching a depth of 4400 feet. As with other mines on Butte hill, low metal prices, strikes, and economic depressions temporally closed the Stewart in the 1920s and 1930s. World War II brought renewed activity, and the following decade saw mining innovations which effected the Stewart. The Kelly shaft, begun in 1947 to hoist ore from block-caving exca-

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vation under the surface, lifted ore out of deep-level workings of the Stewart after block-caving ended in 1961. Until all underground mining in Butte ended in 1973, ore from the depths of the Stewart moved to the shaft of the Kelly and were hoisted there; the Stewart's surface plant was idle while mining continued below (Corbett 1984).

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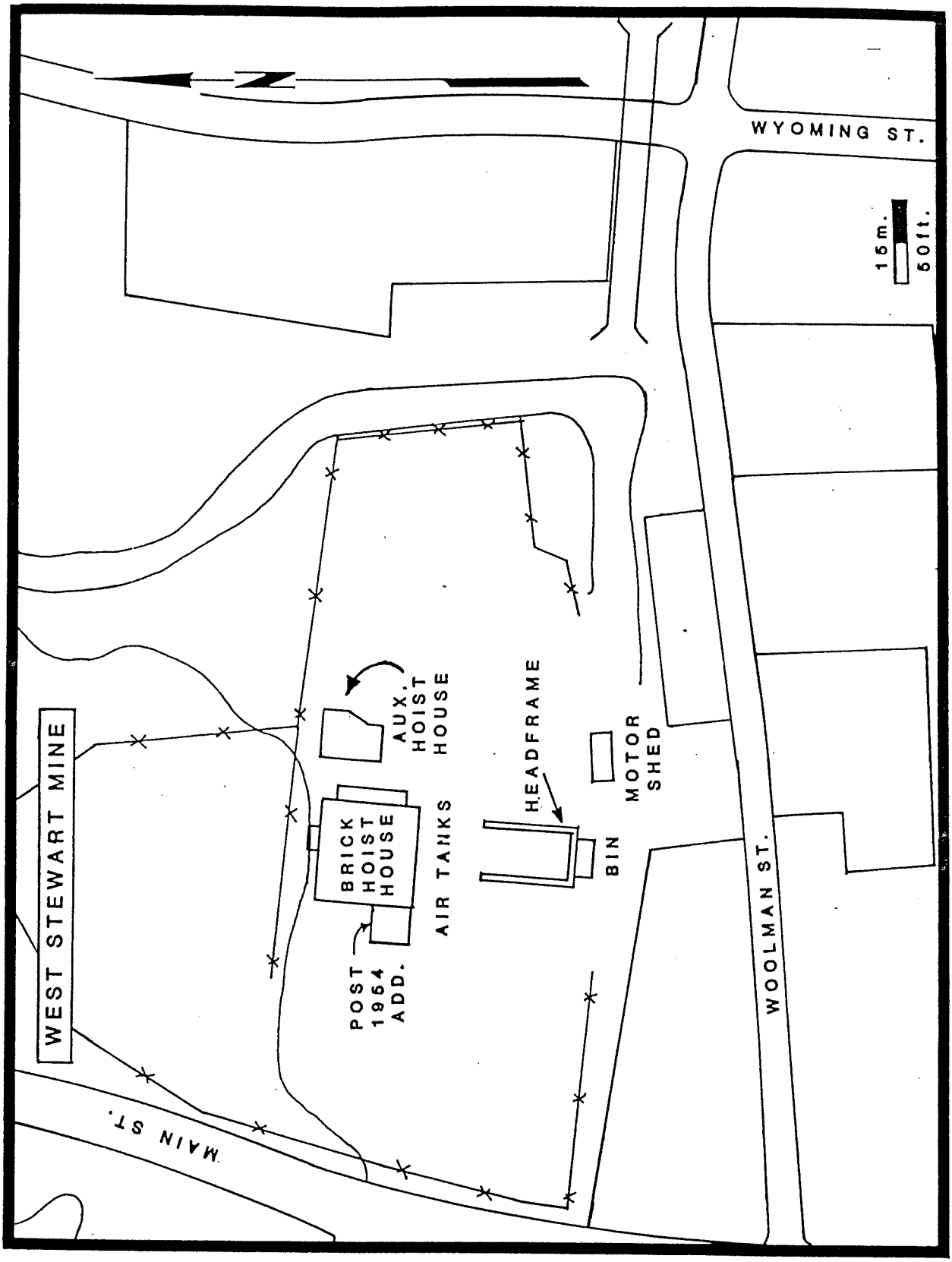

Figure 1. Site map of the Stewart Mine.

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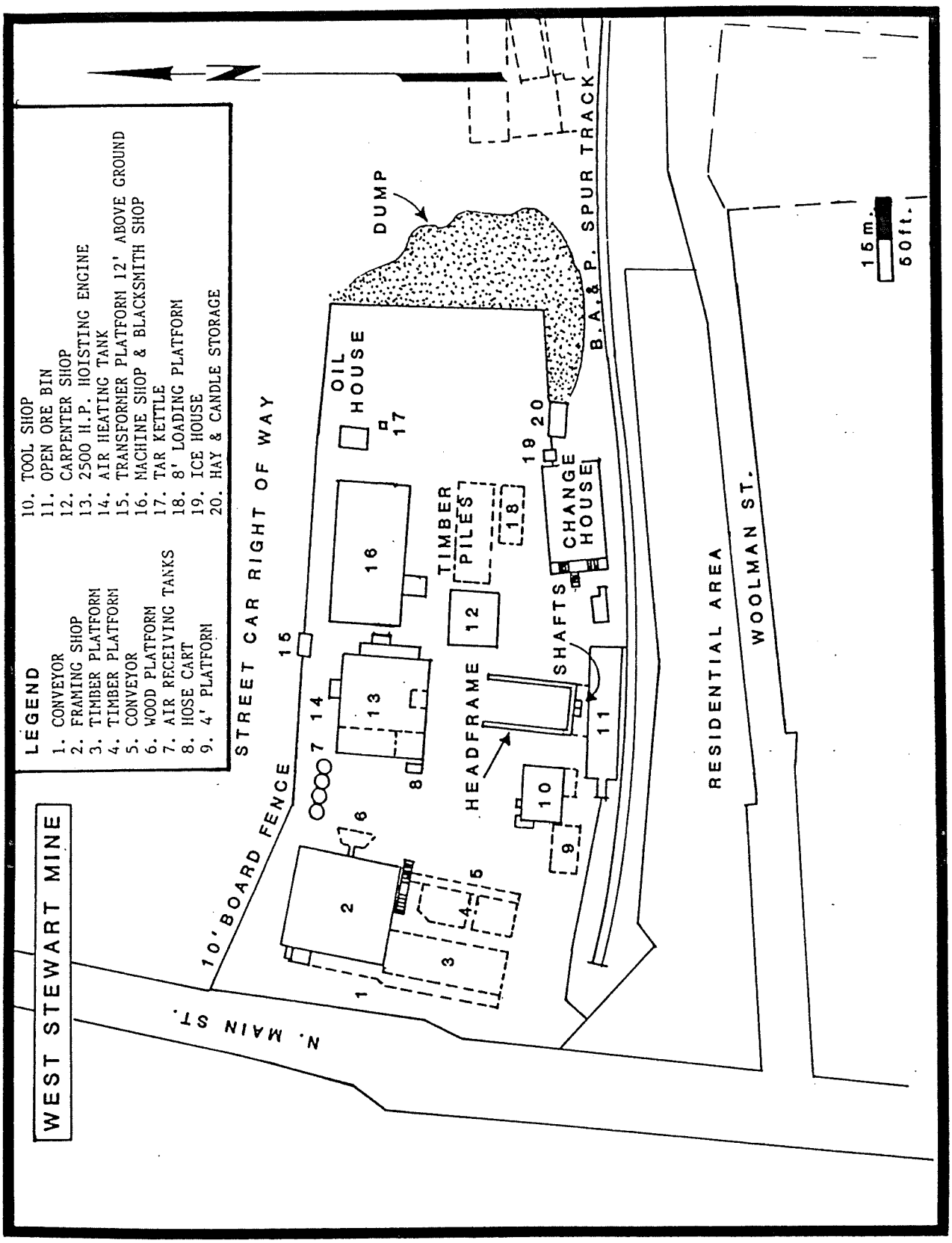

Figure 2. Original layout of the West Stewart c. 1916 (from 1916 Sanborn map).

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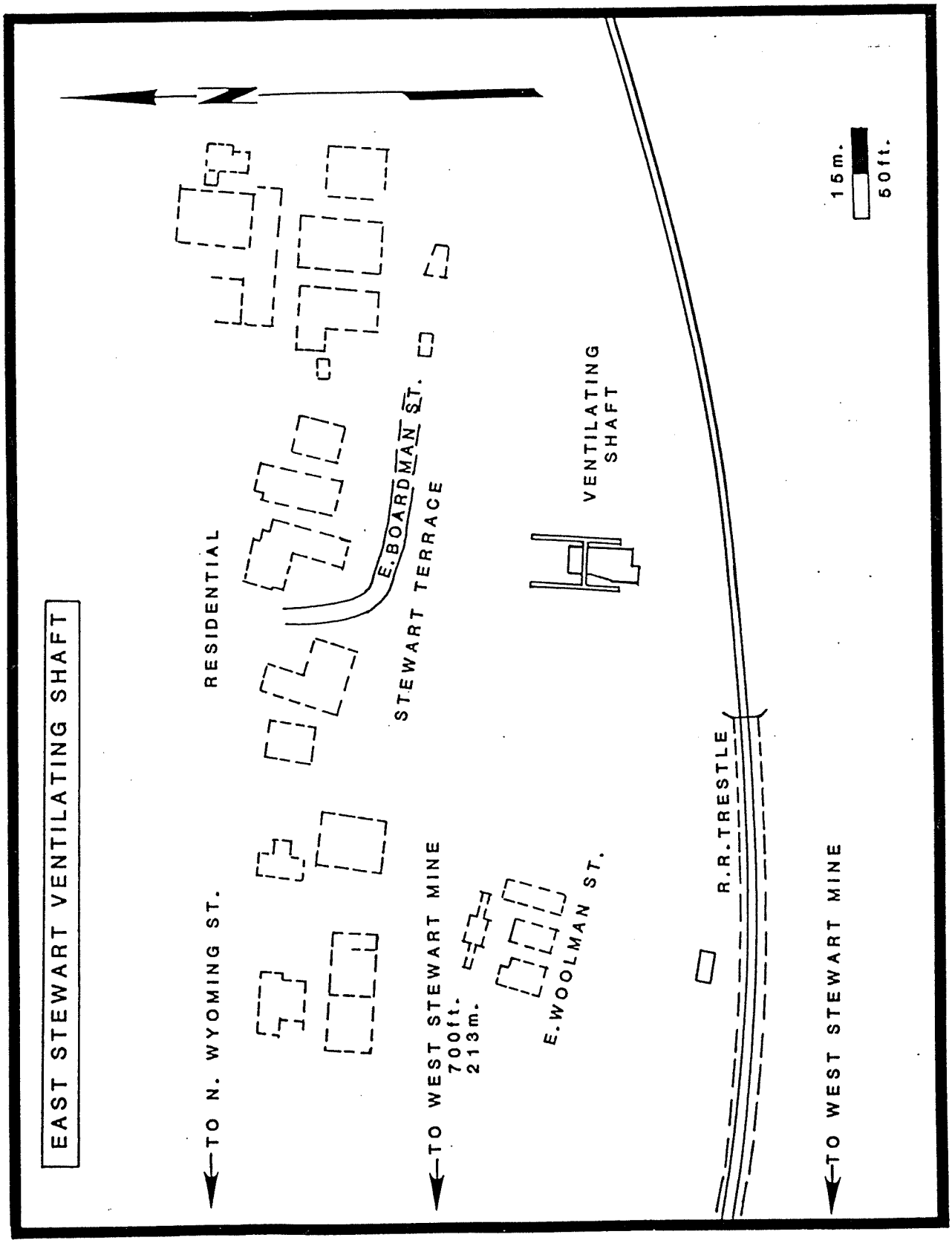

Figure 3. The East Stewart Ventilating Shaft c. 1916 (from 1916 Sanborn map).

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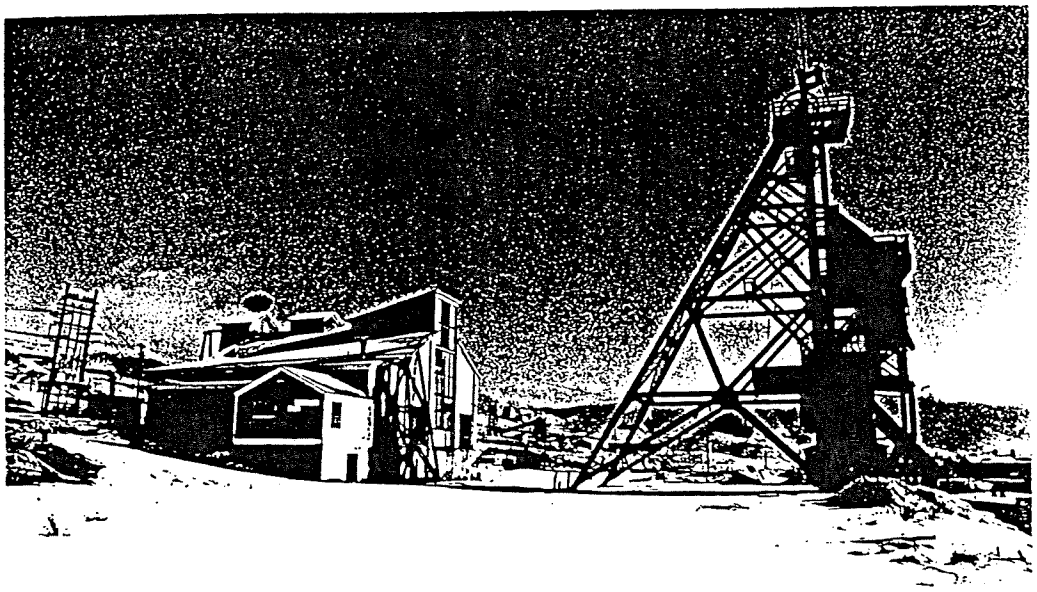

Figure 4. The Stewart Mine yard looking to the east.

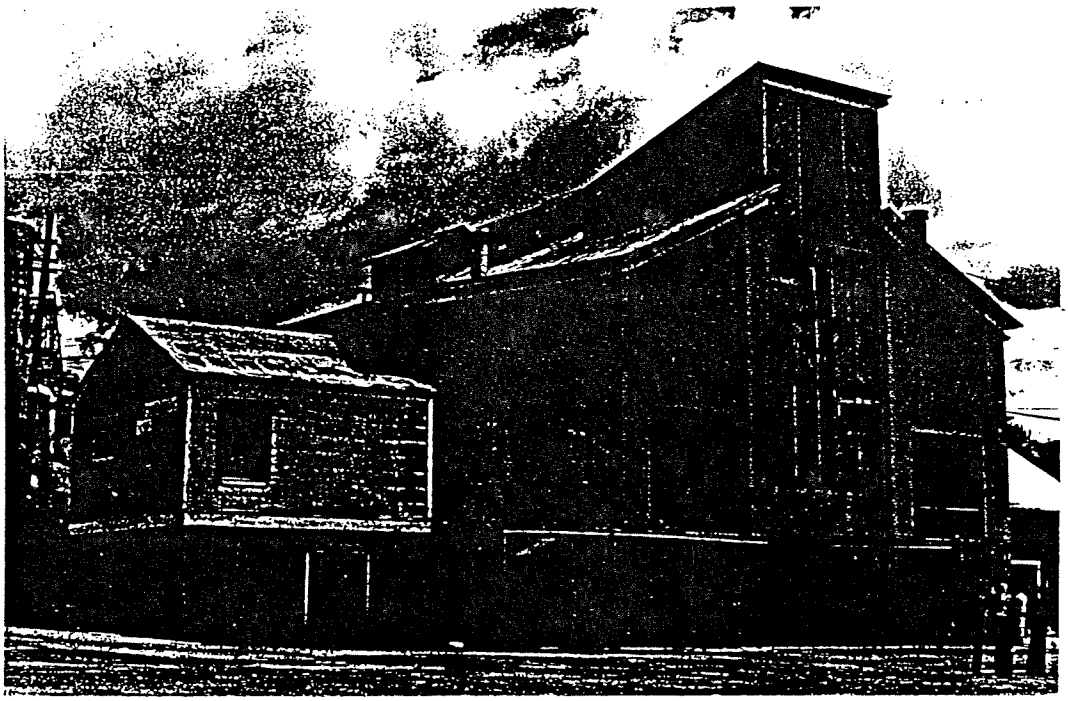

Figure 5. The Stewart Mine's main hoist house (view to the northeast).

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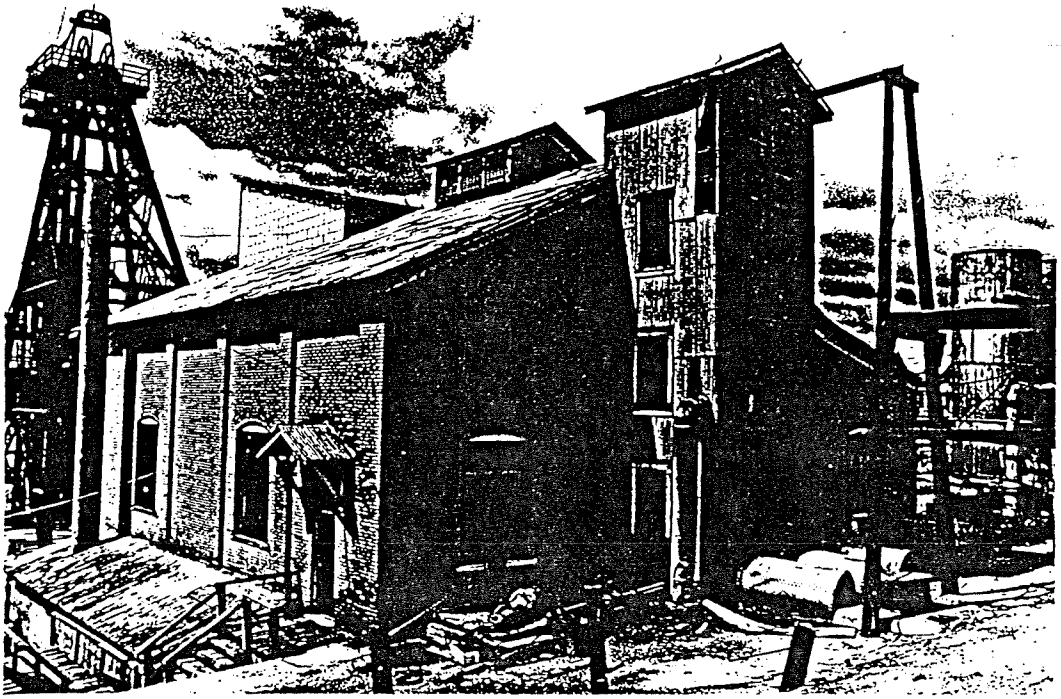

Figure 6. Rear view of the Stewart hoist house looking to the southwest.

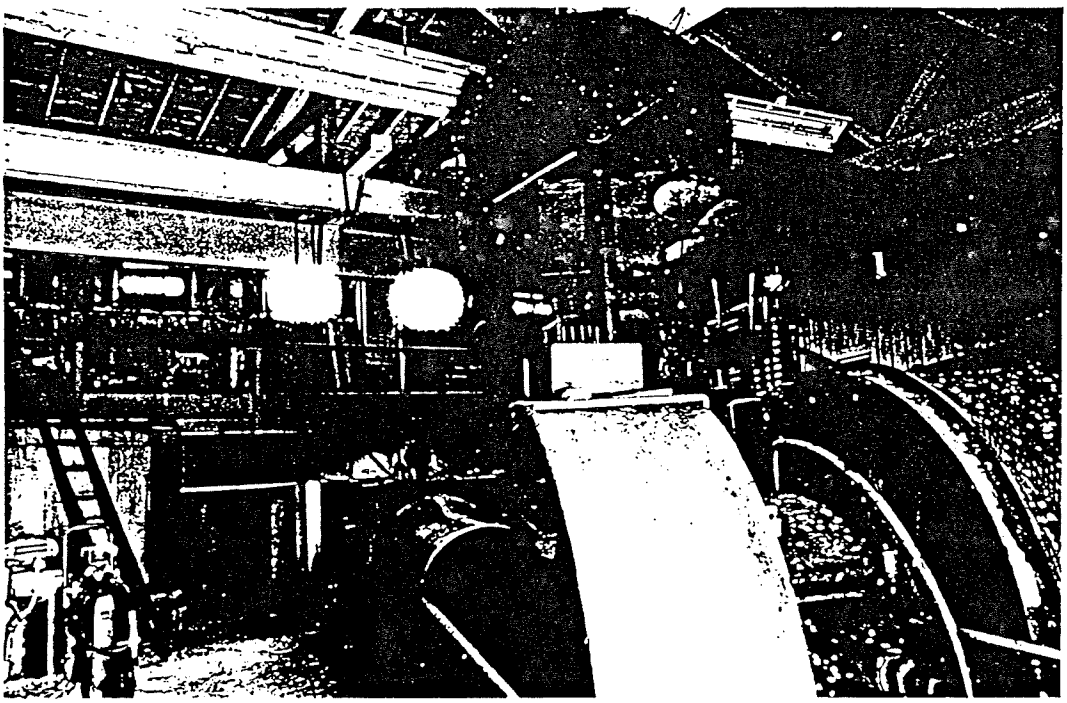

Figure 7. Interior of the Stewart hoist house.

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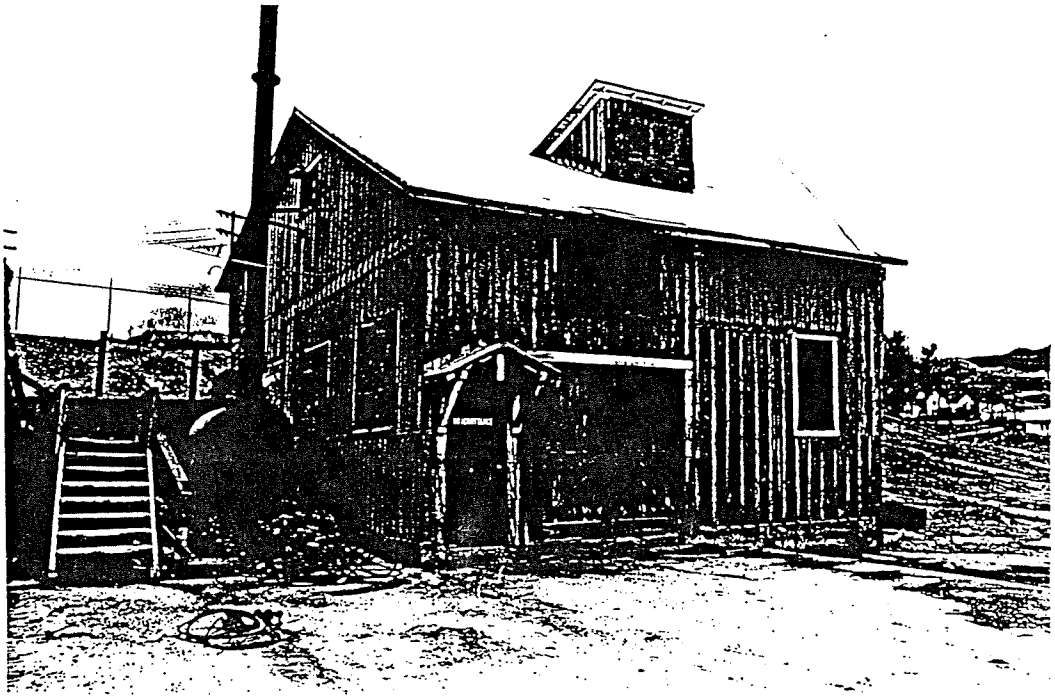

Figure 8. Auxiliary hoist house at the Stewart Mine looking north.

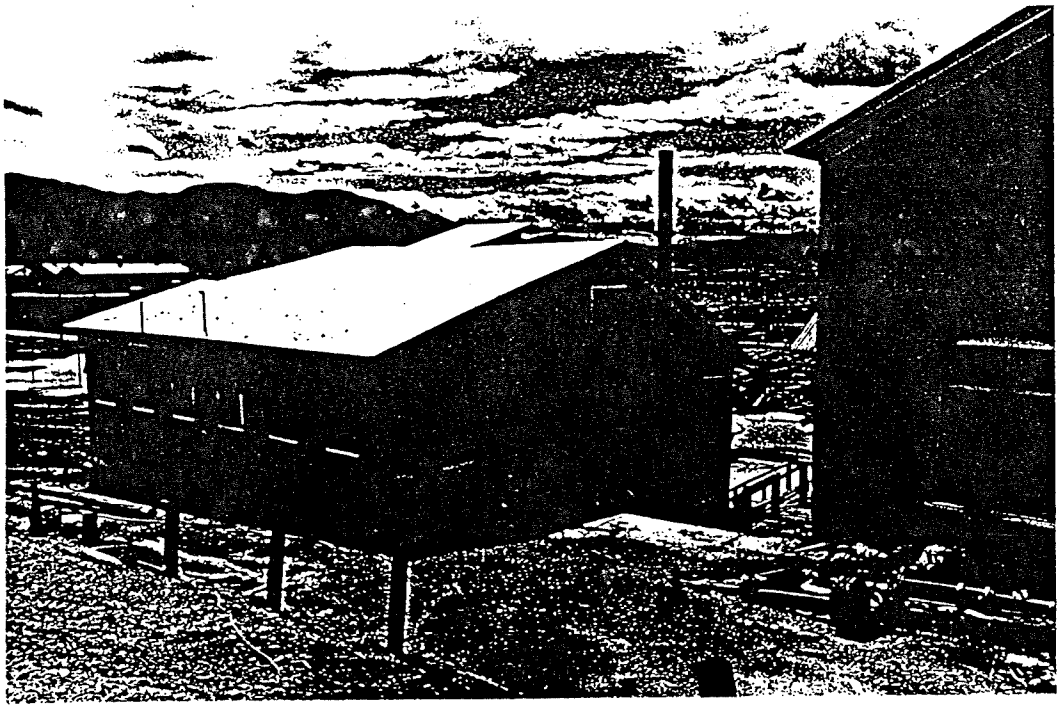

Figure 9. Rear view of the Stewart auxiliary hoist house (view to the southeast).

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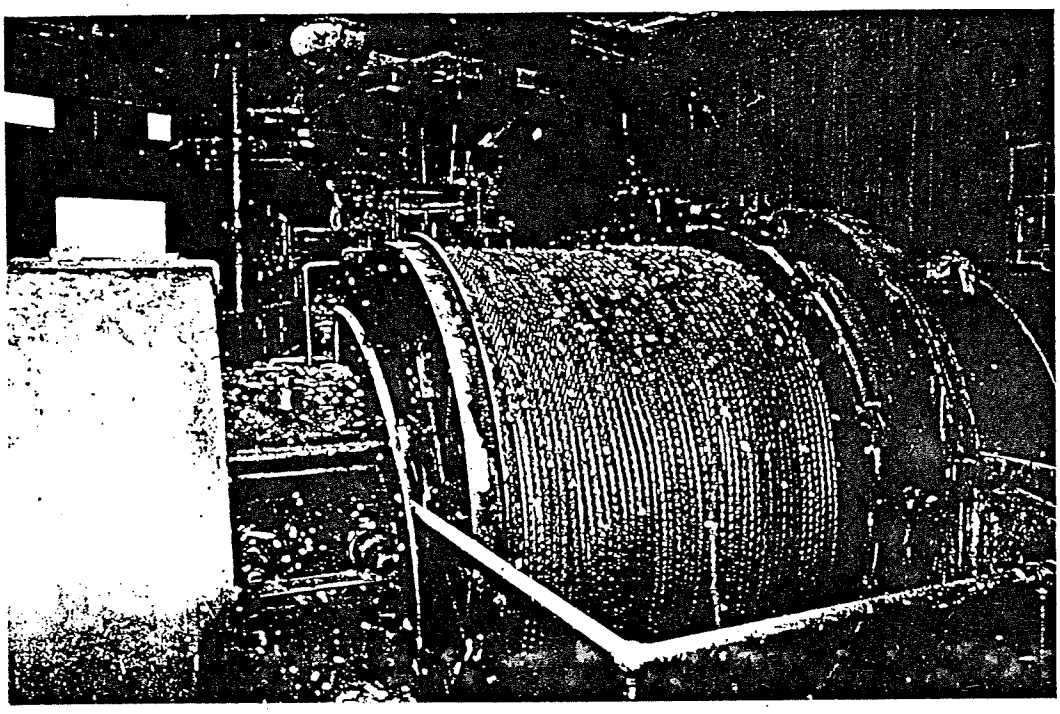

Figure 10. Interior of the Stewart auxiliary hoist house.

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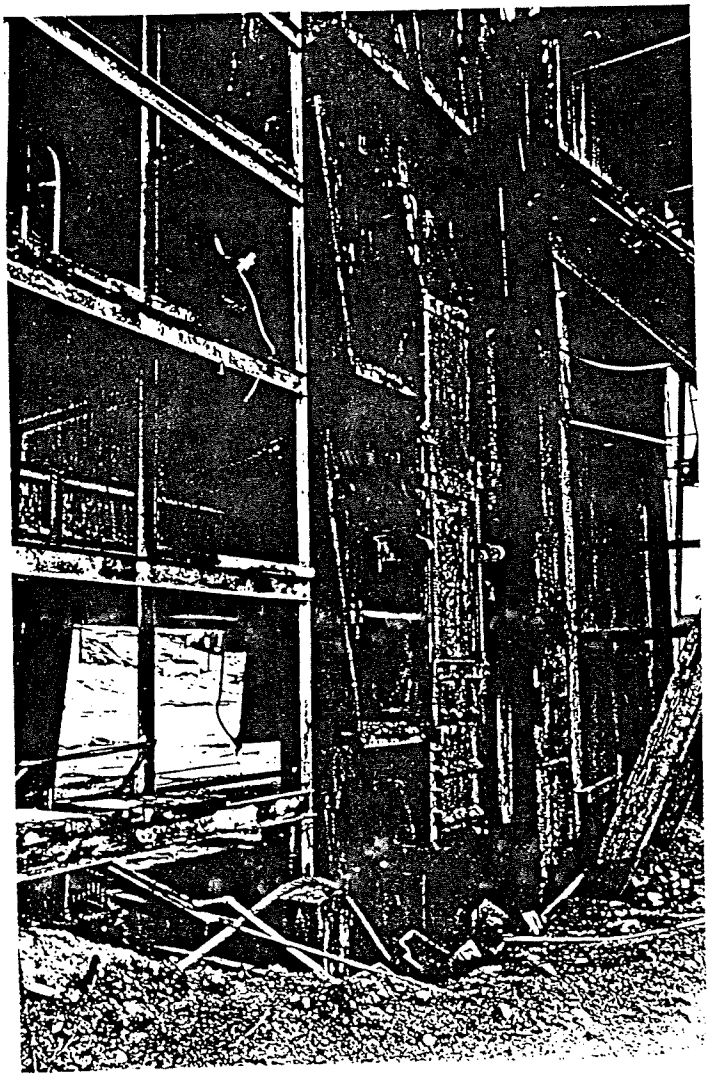

Figure 11. Cages on the headframe of the Stewart.

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ADDENDUM TO BUTTE MINE YARDS
STEWART MINE
Intersection Main and Woolman Streets
Butte
Silver-Bow
Montana

HAER No. MT-36-C

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Rocky Mountain Regional Office
Department of the Interior
P.O. Box 25287
Denver, Colorado 80225

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HISTORIC AMERICAN ENGINEERING RECORD
STEWART MINE

1. INTRODUCTION

Location:	Located within the Butte National Landmark District, Butte, Montana. The site is located approximately 200 feet north of the intersection of North Main and Woolman Streets on the east side of the street: Township 3N, Range 8W, NE1/4 of the NW1/4 of the NE1/4 of Section 13.
Quad:	Butte, Mont. - 1959
UTM:	Zone 12 - 381225 Easting 509725 Northing
Date of Construction	Late 1880s
Present Owner	Mountain Con Mining Co. P. O. Box 605 Butte, Montana 59701 Silver Bow County
Present Use:	Abandoned. Department of State Lands has developed a plan for reclamation and concrete bulkheading of shaft. Hoist house is intact.
Significance:	The Stewart represents one of Butte's oldest and most productive mines. It is historically significant for its association with William A. Clark and the Anaconda Copper Mining Company. The mine's steel headframe has engineering significance because of design and date of construction and the auxiliary hoisting engine constitutes one of the last examples of a steam-powered hoist found on the Butte hill.
Historian:	Brian Shovers

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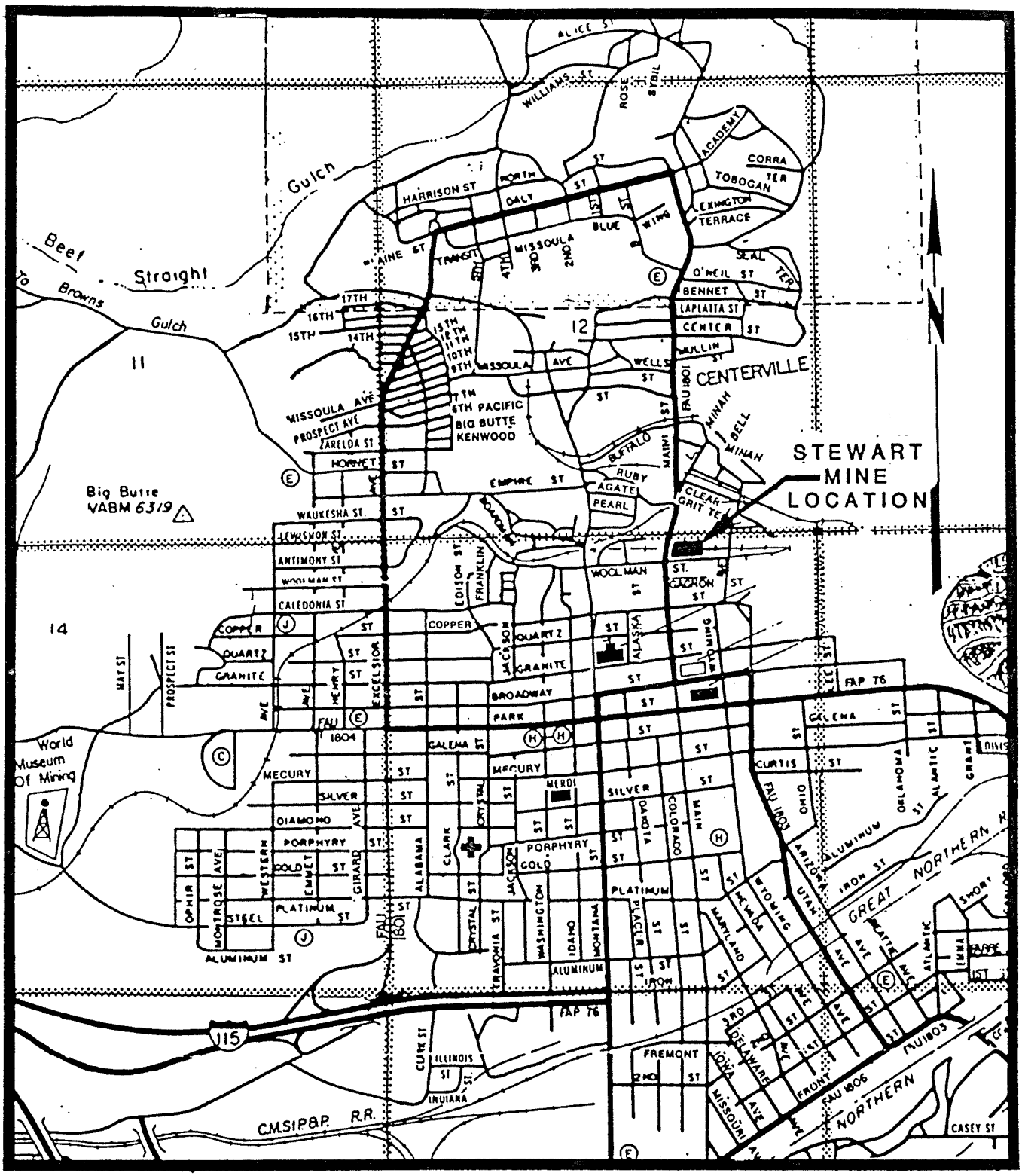

Figure 1. Location of Stewart Mine on 1970s Butte city map.

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II. HISTORY OF THE STEWART MINE

A. BACKGROUND

Consolidation of the Butte Mining District

Mining in Butte began rather inauspiciously in 1864 with the discovery of gold in Silver Bow Creek just west of the present city. These early prospectors unknowingly initiated a series of events that in less than twenty years would transform a mediocre placer camp, inhabited by several hundred gold seekers, into an industrial metropolis on its way to becoming the world's foremost producer of copper.

The Silver Bow placer camp quickly faltered after the initial strike because it lacked the richness of eroded gold and the large amounts of free-flowing water which were so necessary for placer mining. Although early miners recognized the existence of silver in the ore, the difficulty of extraction and refining halted development for some time. These early miners did not have access to either the mining technology, capital or transportation system necessary to make the recovery of silver from these complex ores feasible. By 1870 only several hundred people remained in the camp.[1]

While most had given up hope for the future of the mining camp, William Farlin assayed some ore from his Asteroid claim and, finding it rich in silver and copper, relocated his claim on the last day of 1874, giving birth to a new era of mineral development in Butte. The next year, Farlin began construction of the 10-stamp Dexter mill with a loan from the bank of W. A. Clark. Other stamp mills followed, including the Lexington which was rebuilt by entrepreneur A. J. Davis to process silver ore. In 1876 Marcus Daly, an employee of the Walker Brothers of Utah, arrived in Butte and purchased the Alice lode. The Alice rapidly became a prominent Montana silver mine. By 1887, 290 stamps processed silver ore in Butte. The repeal of the Sherman Silver Purchase Act (during the Panic of 1893, a national economic crisis) ultimately led to the demise of the silver boom in Butte as well as in dozens of other mining camps throughout the West. Ironically, the perseverance of early prospectors like Farlin brought many of them little in return, while later bringing fortunes to shrewd businessmen like Clark, Daly, Davis and Frederick Augustus Heinze. Hardrock mining became profitable when

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it acquired the accouterments of industry: capital and technology.[2]

The story of how money and technology transformed a "glory hole" into a booming silver industry repeated itself with the more prosaic copper. Although the first significant copper claim was staked out in 1864, most of the other major copper claims were located between 1871 and 1879. In 1876 a miner by the name of Billy Parks found a 4-ft copper vein at a depth of 150 ft, beginning a century of copper mining and ore processing at Butte. However, this discovery by Parks became significant only when the technology for development became available.[3]

The Industrialization of Butte Mining

Four factors were needed to transform the minerals beneath the Butte hill into the basis for industrial activity previously unknown in the northern Rockies. An efficient transportation system was the first necessary component since profits could not be accrued from hardrocking mining without it. Before the building of the Colorado Smelting Company in Butte in 1879, freight wagons hauled ore to the railhead at Corrine, Utah, some four hundred miles to the south. The arrival of the Utah and Northern Railroad in 1881 brought Butte closer to markets and refineries in the East and to the equipment necessary to expand Butte's mining industry. In 1883 the Northern Pacific tied Butte to the Great Lakes and Seattle and in 1893 Daly completed the Butte, Anaconda and Pacific railroad to haul ore from the Butte mines to his smelters in Anaconda.[4]

Word of promising silver and copper prospects in the Summit Valley attracted outside capital, another necessary element in any industrial enterprise, particularly hardrock mining. Frontier capitalists such as W. A. Clark, Marcus Daly, A. J. Davis, George Hearst, the Walker Brothers, and Samuel Hauser invested heavily in properties and in mining machinery including timber for headframes and shafts, steam hoists, stamp mills and furnaces to reduce the ore.[5]

The third important factor in Butte's phenomenal growth as a mining district (between 1875 and 1884) was the construction of numerous mills and

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smelters for processing the Butte ore. By 1881 the Parrot Smelter turned out high-grade silver-copper matte; the Lexington mill crushed the rich silver ore from its mine; and the Montana Copper Company thrived east of Butte in Meaderville. The Butte Reduction Works, the Colusa, and the Butte and Boston followed shortly after, virtually eliminating the costly shipment of primary ores. Daly's construction of a large concentrator and non-ferrous smelter at Anaconda in 1884 insured Butte a future in the world copper market.[6]

Finally, the emerging electrical age guaranteed a growing demand for Butte's copper. American cities increasingly used electricity as a power source for lighting, communications and industrial motors. These propitious circumstances of the 1880s prepared the way for men with capital to gather together dozens of disparate mining properties into a single corporate entity of enormous influence.[7]

The Building of an Industrial Empire

From the time Michael Hickey located the monumental Anaconda claim in 1876 until the incorporation of the Anaconda Mining Company in 1891, scores of individual entrepreneurs operated the mines on the Butte hill. Marcus Daly, who was acting as mine superintendent for the financial partnership of George Hearst, James Ben Ali Haggin and Lloyd Tevis, initiated a process of consolidating mining properties and ore processing facilities. This ultimately led to the creation of America's first fully integrated copper mining company and a world-class producer of valuable metals. Daly's death in 1900 led to a decade-long battle for control of the Butte hill. In the end the major Butte mines were taken over by Standard Oil interests under the aegis of a holding company - the Amalgamated Copper Company.

In 1900 W. A. Clark controlled the Moulton Mining and Reduction Works and the Colorado Smelting and Mining Company as well as to other valuable mining properties, including the Original, the Stewart and the Gagnon. New York and Boston investors controlled the Boston and Montana, and the Boston and Boston Mining Companies. The Montana Copper Company, owned by Charles Meader

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and the Lewisohn brothers, operated the Leonard, the Colusa, the Mountain View and the Badger State mines. F. Augustus Heinze created the Montana Ore Purchasing Company and operated the Rarus along with other successful properties. By 1910 Almalgamated had purchased most of these mining and smelting companies and began to integrate their operations.[8]

Amalgamated soon controlled other resources critical to mining and smelting such as coal, timber, water and hydroelectric systems. The holding company owned both the dam at Black Eagle Falls which supplied power to the Boston and Montana Smelter, and the Canyon Ferry Dam built on the Missouri in 1902 to supply power to the mines of Butte. In 1910 Amalgamated merged all of its subsidaries into the Anaconda Copper Mining Company (A.C.M.). Two years later, John Ryan, chairman of the board of A.C.M. consolidated a number of small power companies to form the Montana Power Company. The availability of inexpensive hydroelectric power enabled A.C.M., to further expand its industrial empire of mines, smelters and refineries. In 1913 Ryan used power from his fledgling company to electrify the Butte, Anaconda and Pacific Railroad, originally built by Daly to transport ore from mine to smelter.[9]

Consolidation of the Butte Mining District

A.C.M.'s phenomenal rise to prominence as a world-class copper producer would not have occurred without the company's access to large quantities of inexpensive hydroelectric power [$35/horsepower/year compared to $125 horsepower/year for steam power]. The mining operations in Butte and the smelting and refining that occurred in Anaconda and Great Falls profited greatly from John D. Ryan's business ventures in electrical power generation. With the consolidation of independent power companies under the Montana Power Company, Ryan linked together 11 power plants and constructed over 1300 miles of high voltage transmission lines. Ryan used hydroelectric facilities at Madison River Plants 1 and 2, Canyon Ferry Dam, Hauser Lake Dam, the Rainbow Falls Plant and the Black Eagle Plant

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to meet the 24,000 kilowatt needs of the Butte mines and the 20,000 kilowatts of power necessary to operate A.C.M. smelters at Anaconda and Great Falls. Montana Power constructed a total of 46 substations across the state to regulate the electricity produced at company dams. This power was distributed to over 40 Montana cities for lighting, public transit, and industrial use. The enormous demand for electrical energy created by the mining and smelting industries made power available for other aspects of the Montana economy such as irrigation for agriculture, coal mines and flour mills. Hydroelectric power generation designed to power Butte mining and smelting operations prompted the early industrialization and modernization of parts of rural Montana as well.[10]

By 1910 A.C.M. decided to put electricity to work to power its ore-hauling shortline between Butte and Anaconda. In 1911 the Butte, Anaconda and Pacific (B.A.& P.) purchased the equipment necessary to transform its system of steam power to one powered by electricity. The 2400-volt direct current system manufactured by General Electric eliminated much of the costly maintenance of steam locomotives while providing faster more efficient service. The B.A.&P. high-voltage system proved unique among American electric railroads and it soon established a record of remarkable freight-hauling prowess, hauling some 13,700 tons of ore daily and over five million tons a year. By 1914 the B.A.&P. system included over 36 miles of mainline track and spurs, serving over a dozen mines on the Butte hill and the smelter at Anaconda. The B.A.&P. was part of the growing industrial empire of Montana mines, mills, smelters, timberlands, transportation and utility networks lorded over by A.C.M.[11]

Amalgamated Copper Company persisted until 1915, although after 1910 most of the Butte operations were actually associated with its subsidiary A.C.M. Between 1910 and 1927 A.C.M. successfully consolidated all of the major Butte mines with the exception of the North Butte Mining Company properties (i.e., Speculator, and Granite Mountain), the Butte and Superior mines, and the East Butte Copper Company operations. A.C.M. linked together its 22 Butte shafts through a series of underground and above ground connections.

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Tunnels and drifts tied together the workings of mines at either end of the 3-mile wide district, making for more efficient hoisting, ventilation and pumping. By 1927 ore was hoisted through a dozen shafts with the most efficient hoisting engines and tallest headframes. Some historic hoisting shafts became air shafts while connections between mines increased the efficiency of the mechanical ventilation system installed by A.C.M. after 1914. A.C.M. connected all of its mines on the Butte hill on the 2800-ft level to facilitate the drainage and pumping of mine water.[12]

On the surface, A.C.M. connected its far-flung mining properties through an intricate web of powerlines, pipelines, roads and railroad tracks. Electrical power for hoisting, pumping, ventilating, lighting and tramming was distributed to the various A.C.M. mines through a 100,000 volt substation located on the Butte hill just below the High Ore Compressor Plant.

A.C.M. produced compressed air to operate hoisting engines and rock drills at three separate locations on the hill: at the Leonard, the Bell, and the largest at the High Ore, replacing smaller compressors originally sited at individual mines. The central compressor plant at the High Ore contained six 1200-horsepower synchronous electric motors. Twelve-inch steel pipes carried the compressed air to steel receiving tanks located at each mine where compressed air was stored for use in the event of a breakdown at the central plant. A single mine hoist could operate for one hour on stored air. The tanks also helped regulate the air flow with demand. A.C.M. constructed a 100-ft steel water tank with a capacity of 500,000 gallons just below the High Ore Plant to maintain a constant pressure of 90 pounds/square inch throughout the system. By 1922 the High Ore Compressor Plant served 22 A.C.M. mines, requiring a coordinated hoisting schedule to avoid demand overloads within the district-wide system.[13]

Spurs of the B.A.& P. mainline tied all the A.C.M. mines on the Butte hill to company smelting facilities in Anaconda and to the various consolidated shops on the hill. Between 1880 and 1910 each mine had their own machine shop, blacksmith shop, carpentry shop and rope repair shop. After 1910

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A.C.M. consolidated a number of these functions in singular locations around the hill. Dull drill steels from A.C.M. mines were sharpened and wire rope repaired at the Diamond shop while the Leonard served as a central site for timber framing, eventually replacing the framing mill at Rocker. With the opening of the Kelley shaft in the late 1940s, A.C.M. concentrated all company blacksmithing and machine repair at a shop adjacent to the Kelley. A.C.M. also maintained small blacksmith's shops and carpenter's shops at each mine to handle immediate needs well into the twentieth century. The most significant change in Butte's landscape that occurred with consolidation by A.C.M. was the disappearance of mills and smelters as A.C.M. concentrated these elements of the process at massive facilities in Anaconda and Great Falls. The B.A.& P. constituted a lifeline for the A.C.M. mines, daily hauling ore and supplies needed for operation.[14]

Modernization of the Butte Hill

Between 1927 and 1950 A.C.M. (later re-named the Anaconda Mineral Company) streamlined mining operations in Butte through the expanded use of faster and more efficient electric hoisting; the installation of miles of flexible underground ventilation ductwork; and the use of powerful surface fans. During this period several of the major Butte mines reached a depth of 4000 ft. Some older shafts were abandoned in order to make use of the more modern hoisting facilities at other shafts. In 1947 A.C.M. began work on the much wider concrete-lined Kelley shaft as part of a major block-caving operation initiated to make removal of a lower-grade ore body possible. Once completed, the Kelley constituted the largest hoisting shaft in the United States, capable of bringing four times as much ore and men to the surface in a single trip as had previously been possible at the Badger or the Mountain Con. With the Kelley block-caving project, production levels reached 15,000 tons of ore per day which eventually led to the abandonment of less efficient hoisting operations at adjacent shafts. However, by 1955 the ore encountered through block-caving was of such a poor grade A.C.M. turned to a radically new mining method for Butte.[15]

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The Berkeley Pit, started in July 1955 with the extraction of 17,000 tons of ore per day, represented the most dramatic change in mining methods seen in Butte during the district's 80 year history. The Berkeley Pit rapidly became recognized as the largest truck-operated pit mine in the nation. Behemoth ore trucks, ranging in size from 25 to 150-ton capacity, lumbered out of the pit enroute to the nearby Weed Concentrator, designed to crush and concenetrate low-grade copper ore more efficiently than its older counterpart in Anaconda. This new mining technique also produced a sub-milling grade ore in which copper could be removed using a process called dump leaching, further extending the life of the Berkeley Pit. While open-pit mining in the Berkeley dominated Anaconda activities in Butte until the early 1980s, the company explored the possibility of extensive zinc mining at the Missoula and Ryan shafts on the west edge of the district and at the Badger on the east side. The company continued to mine copper in the deep levels of the Mountain Con and the Stewart through the Kelley shaft. In 1973 Anaconda halted all underground mining, placing all hope for the future in pit mining. But the Berkeley Pit, producing 50,000 tons of ore per day at the end, could not on its own overcome shrinking world markets and foreign competition with their rich ore reserves and labor at one-tenth the cost of American labor. On June 30, 1983 ARCO, the new owner of Anaconda, suspended all mining in Butte.[16]

The demise of the century-old enterprise of hardrock mining in Butte was part of a world-wide trend in which the leading North American metal producers had succumbed to challenges from Third World producers. Until the 1970s American corporations (Kennecott, ASARCO, Phelps Dodge, AMAX, and Anaconda) dominated the world production of copper, but political, technological and geologic circumstances irretrievably reversed the U.S. position. Chile was typical of foreign producers with its largely untapped, rich ore reserves; absence of environmental regulations; latest recovery techniques; cheap labor; and access to open markets in the industrialized world. The results have been catastrophic to an American industry beseiged by costly environmental compliance and the depletion of high-grade ore reserves. Between 1981 and 1984 the number of working American metal miners

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shrunk from 109,000 to 44,800 and corporate losses topped 3 billion dollars. After 1984 the price of copper rose almost fifteen cents a pound which, along with a streamlined work force and wage cuts, led to a resumption of copper mining in Butte. In 1985 Washington Construction of Missoula, Montana reconstituted the Anaconda Company under the name of Montana Resources, Inc. and reopened the East Berkeley Pit for copper and molybdenum production. In 1987 an Australian investor purchased a number of the historic Butte underground mines from Montana Resources, promising to re-explore the Butte underground for silver and to employ some innovative above-ground techniques of silver extraction. After a brief remission in mining activity the shovels were once again unearthing valuable minerals in the mineral-rich Summit Valley, even though Butte would probably never again regain the prominence it held in world mining circles during A.C.M.'s reign over the district. Even so, Butte's niche in the chronicle of hardrock mining continues to be acknowledged by those who write world mining history.[17]

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B. HISTORY OF THE STEWART MINE

The Stewart Mine (referred to in early documents as the Steward) was one of Butte's deepest and most productive copper-silver mines from the late 1890s until its closure in 1973. Although large-scale development did not begin at the West Stewart until the turn of the century, the original mining claim was actually patented several decades earlier. On August 9, 1877 William A. Clark, John W. Steward, Samuel F. Larabie, and Clark's brother, Joseph, filed on 10 acres known as the Steward Lode in the Summit Valley Mining District of Deer Lodge County (Lot No. 53, Mineral Certificate No. 391, General Land Office No. 3191).[18] The Stewart vein (a maximum of 30 feet wide), rich in silver ore, branches both east and west of the original lode encompassing the Gagnon, Original and Parrot mine sites. The Clark Brothers initially developed the Steward Lode from the East Stewart shaft (inclined at 15° from vertical) beginning in the 1880s, working the vein sporadically with 10 to 30 men and reaching a depth of 330 feet by 1894. The miners worked the two compartment shaft using a 10 x 12 inch cylinder Ledgerwood steam engine for hoisting.[19]

Within the next six years the Stewart grew from a small, insignificant operation into one of Butte's premiere copper-silver mines. By 1895 W. A. Clark and his brothers, J. Ross and Joseph, operated the Original and the Colusa-Parrot, both located along the Stewart vein and very rich companions of the East Stewart. Since arriving in Butte in the 1870s the Clarks had accumulated a number of other valuable mining properties including the Black Rock, Elm Orlu, Acquisition, Black Chief and the Moulton. But even more important than his extensive mineral holdings, W. A. Clark had solved the persistent problem of extracting the copper and silver from the complex sulphide ore with the construction of a large capacity concentrator and smelter, the Butte Reduction Works, located on the southern edge of the city. As early as 1878 Clark had

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collaborated with Nathaniel P. Hill; a widely known Black Hawk, Colorado smelting expert; in bringing advanced Colorado reduction techniques to Butte under the name of the Colorado Smelting & Mining Company.[20]

The miners made great advances in the Stewart shaft during the last years of the nineteenth century, reaching a depth of 600 feet in 1895, 800 feet in 1898, and 1000 feet in 1900. Part of the reason for the extraordinary advances in shaft depth can be attributed to manpower; by 1900 the number of miners working for Clark in the Stewart reached 140. Another significant factor in production during this period can be linked to technology; a more powerful 16 x 30 inch cylinder E.P. Allis hoisting engine replaced the old engine. The success of Clark's vast and varied industrial enterprises throughout western Montana permitted unthrottled development of the Stewart and adjacent Clark holdings for the next ten years.[21]

The first years of the twentieth century marked noticeable changes both above and below ground at the Stewart. By 1902 a 120-ft shaft steel headframe replaced the wooden one over the 1300-ft deep, three compartment shaft. One hundred and forty men worked underground, setting 10 x 10 inch timbers and driving connections between the Stewart and the other Clark mines; the Nipper, Parrot and Original. That same year work continued on a shaft several hundred feet to the west, a mine that came to be known as the West Stewart. Clark employed 114 men to work this mine, who in one year's time advanced the shaft 650 ft, creating a shaft 1100 ft deep. During the first few years of the twentieth century Clark purchased a 32 x 72 inch cylinder Nordberg hoist operated on compressed air for use at the West Stewart.

By 1905 the number of miners working underground had risen to 235 and the shaft reached a depth of 1900 ft. Tunnels were driven connecting the West Stewart with the Clear Grit and the Mountain Consolidated (a large Anaconda mine to the north). The trammers at the West Stewart still relied on horses to move ore from the stope to the shaft, while some of the Amalgamated mines (to become part of the Anaconda Copper Mining Company after 1910) had already shifted to electric locomotives for tramming. By this time work in the East Stewart had subsided and the shaft was relegated to serve as a ven-

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tilation shaft for the more productive West Stewart. Even with improved ventilation the Stewart remained one of the two hottest mines on the Butte hill (the Belmont being the worst), with temperatures as high as 130° F. in certain deep-level stopes.[22]

On June 1, 1910, a new chapter began in the story of the Stewart Mine with the transfer of ownership from W. A. Clark to the Anaconda Copper Mining Company (A.C.M.), a world leader in copper mining and ore processing. During the last months of Clark's dominion ore hoisting was transferred from the Stewart to the Original Mine. Six months later hoisting resumed at the Stewart, and ore mined at the Little Minah and the Clear Grit was hoisted through the Stewart shaft. In 1911 the ACM found a vein of high grade ore on the 2300 ft level and set their workforce of 479 men to the task of drifting in both directions from the shaft along the vein. By 1912 miners at the Stewart reached a depth of 2500 ft using a hoisting system of three double-decked cages and 7-ton ore skips attached to 1-1/2 inch round wire rope and powered by the new Nordberg engine. The same year fire ravaged workings at the 1700 ft level but damage was confined to that single level and work continued in stopes above and below. Even with copper production falling off precipitiously in the Butte District with an end to World War I, by 1920 the shaft at the Stewart reached a depth of 3633 ft, making it the deepest ACM mine in Butte.[23]

During the next two decades low metal prices, strikes, and a nationwide economic depression temporarily halted mining at the Stewart. World War II demands for copper reactivated work at the Stewart and for the next twenty years prodigious amounts of ore were raised from the depths of the Stewart. After World War II copper continued to be hoisted from the depths of the Stewart mine through the modern, concrete-lined Kelley shaft located on the Butte hill to the northeast. In 1947 ACM sunk the Kelley shaft as part of a new "block-caving" project on the Butte hill, an ore extraction process designed to extract a lower-grade ore more economically. Miners connected the Stewart underground to the Kelley on

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the 3000 ft level so that ore mined through traditional stoping methods in the Stewart could be raised through the Kelley taking advantage of its larger skips and more powerful hoisting engine. Even after A.C.M. halted block-caving in 1955 and turned to pit mining in the eastern part of the district, miners continued to extract copper ore selectively in the Stewart underground until 1973 when all Anaconda underground operations ceased. Some experimental mining actually occurred in the Stewart until 1980, some three years before all mining in Butte ceased. The Stewart shaft eventually reached a depth of 4400 ft, making it one of Butte's longest operating and deepest copper mines.[24]

When A.C.M. absorbed the Stewart mine into its corporate portfolio in 1910 it relinquished its identity with W. A. Clark and became an integral part of a much larger industrial machine, which included 21 other mines on the Butte hill, a shortline electric railroad, and a district-wide compressed air system. Physical connections linked the Stewart mine, both above and below ground, to the world's largest copper producer. The Stewart bears historical significance both for its early association with William A. Clark and its later ties to A.C.M. Clark arrived in Butte an enterprising young merchant in 1872 and by 1889 had become one of America's wealthiest men as a result of a myriad of ventures in mining, smelting, banking, railroads and electrical power generation. The Stewart constituted just one of the many holdings of Clark's vast financial empire. Throughout its 100 year life, the Stewart mine remained a highly productive underground operation, even as the orebody in other parts of the district diminished in value.[25]

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III. THE MINE

DESCRIPTION

Only a small percentage of the structures once found at the West Stewart mine and none of the structures originally located at the East Stewart (700 ft east of the West Stewart) still stand today. Three significant structures remain standing at the West Stewart: the steel headframe, the main hoist house, and the auxiliary hoist house.

The headframe, which stands 126 ft tall, is constructed of riveted H-beams connected to channel sections riveted together with lacing bars. The entire structure is anchored to concrete footings. Two 10-ft diameter sheave wheels - and a smaller sheave to operate the auxiliary hoist - sit at the top of the headframe. An attached steel discharge chute is located near the top of the headframe where ore hoisted in 5-ton skips was dumped. The bottom of the chute, constructed of timbers and dimensional lumber, will be removed in order to cap the shaft under the direction of the Montana Department of State Lands as part of their reclamation plan for the site. The headframe sits over a 3-1/2 compartment shaft.

Erected between 1898 and 1902, the steel headframe at the West Stewart constitutes one of Butte's earliest examples of the larger steel headframes, permitting the use of five-ton skips. The construction of this headframe resembles the one erected by William A. Clark at the Original Mine in 1902. The Gillette-Herzog Mfg. Co. of Minneapolis, a company noted for its construction of steel bridges, manufactured both headframes. The headframe was designed so ore could be shunted directly from ore cars via a tramway into loading bins, from which rail cars could be loaded. In the later years the Anaconda Company abandoned this rail line and used trucks to haul ore to the Weed Concentrator. These early steel headframes were lighter than the Anselmo and the Mountain Con headframes. Because of the short distance between the hoisting engine and the headframe the floor of the hoist house was elevated in order to prevent undue tension on the steel rope.

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The hoist house is a one-story, 50 x 50 ft building with a concrete foundation and floor, and brick-bearing walls with a steel, flat-Pratt trussed roof. The asphalt-covered gable roof has a large shed dormer off the front and a three-lite roof monitor along the ridge. There is a tower at the building rear with corrugated metal siding and a gable roof. A shed roof, covering a wood loading dock is on the east side while an asphalt-covered gable-roofed addition intersecting the main gable is on the west side. There is a bracketed gable overdoor above the main entry on the east side while double-hung windows with a 20/20 transom lights the interior. The structure was built sometime between 1891 and 1906.

In 1906 W. A. Clark replaced the steam hoist with a 36 x 76 inch, 2500 horsepower, first-motion duplex hoist powered by compressed air. Replacing steam with air became common practice on the Butte hill during the first decade of the twentieth century and this retrofit usually could be accomplished by enlarging the steam engine cylinders. With the exception of the Original Mine, the Stewart has the only remaining brick hoist house on the Butte hill, even though the brick hoist house had once been a common sight in the Butte district. The tower at the rear of the hoist house contains a steam line which powered the hoist.

The auxiliary hoist house is a one-story wood frame structure, 25 x 30 ft, with a concrete foundation and floor. Steel I-beam joists and heavy-timbered Howe trusses support the wood-planked and asphalt-covered gable roof. There is a shed dormer off the ridge and the building is sheathed with board and batten siding. The windows are double-hung 6/6 and a bracketed overdoor covers the two bay wooden doors. The structure housed a S.F. Bowser steam hoist manufactured in Fort Wayne, Indiana. The Bowser steam hoist located at the Stewart was converted to operate on compressed air early in the twentieth century. The steel tank and smokestake located adjacent to the auxiliary hoist house on the west served as an exhaust for the steam-powered hoisting engine. Clark erected the building sometime between 1891 and 1906.

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To the west of the main hoist house, concrete foundations of several structures integral to the mining process are located. Immediately adjacent to the hoist house stood four steel compressed air receiving and storage tanks, which were sold by Montana Resources, Inc., sometime after they purchased the Anaconda Company in 1985. Just to the west of these structures stood the framing shop, where mine timbers were cut to the exact dimension needed in the underground workings. The timber bins, where milled timbers from the timber framing mill in Rocker were stored for delivery underground, were also located in this area. The compressor line that originated at the central compressor at the High Ore - in recent times the Cora - enters the Stewart yard on the east and exits on the west on route to the Anselmo. The compressor line can still be seen at the northwest corner of the hoist house. The Stewart crew used compressed air to power the hoist and drilling equipment.

A number of significant structures that were an integral part of the Stewart mine operation during the early twentieth century have been removed from the site. The tool shop, a long timbered ore bin, a carpenter shop, machine shop and blacksmith shop, an ice house, a building for storing hay and candles, and a change house have all disappeared. As operations became consolidated on the Butte hill by A.C.M. and with the increased use of the Kelley shaft for hoisting from the Stewart workings after about 1955, many of these structures lost their usefulness and were removed.

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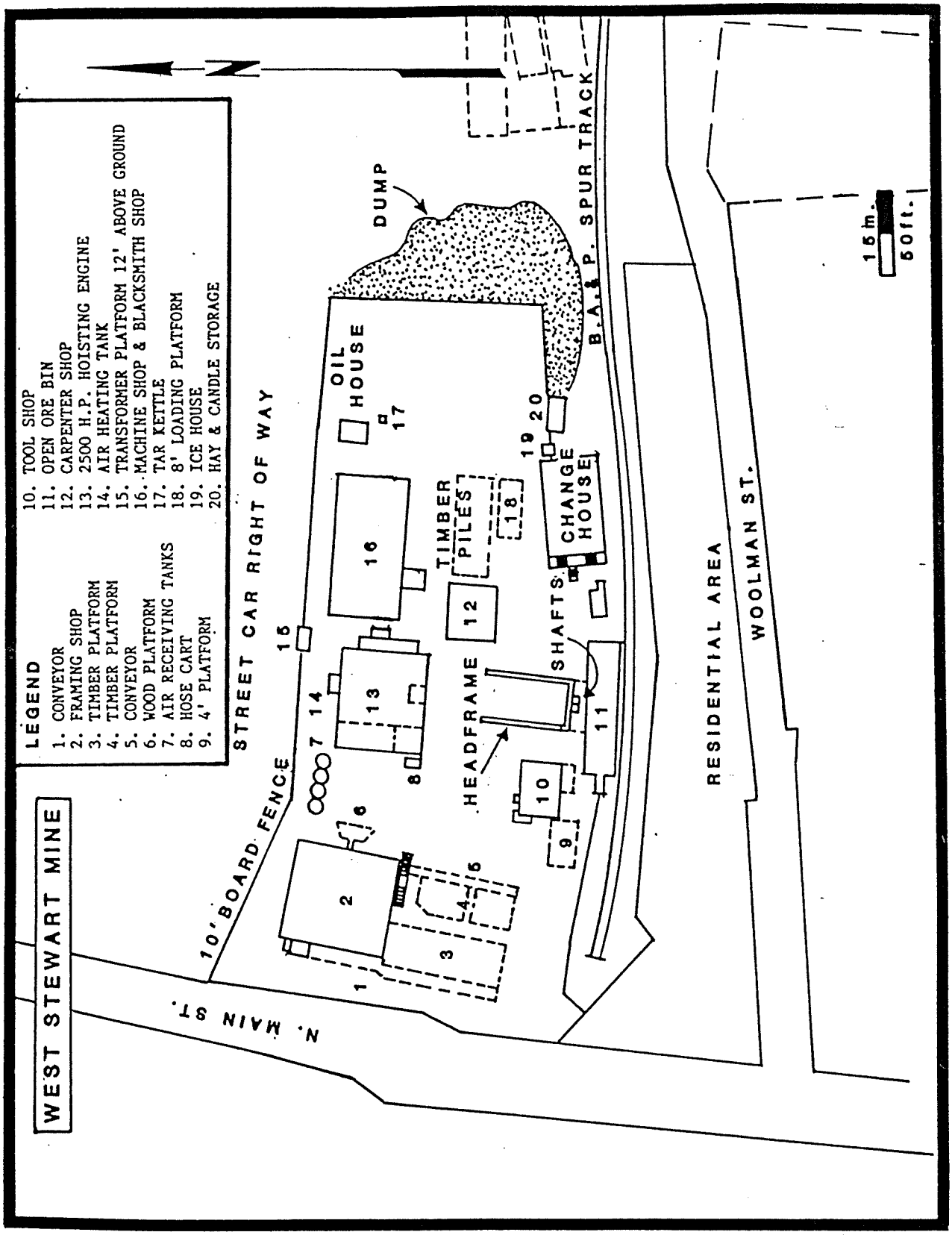

Figure 2. 1914 Sanborn Map of Stewart Mine.

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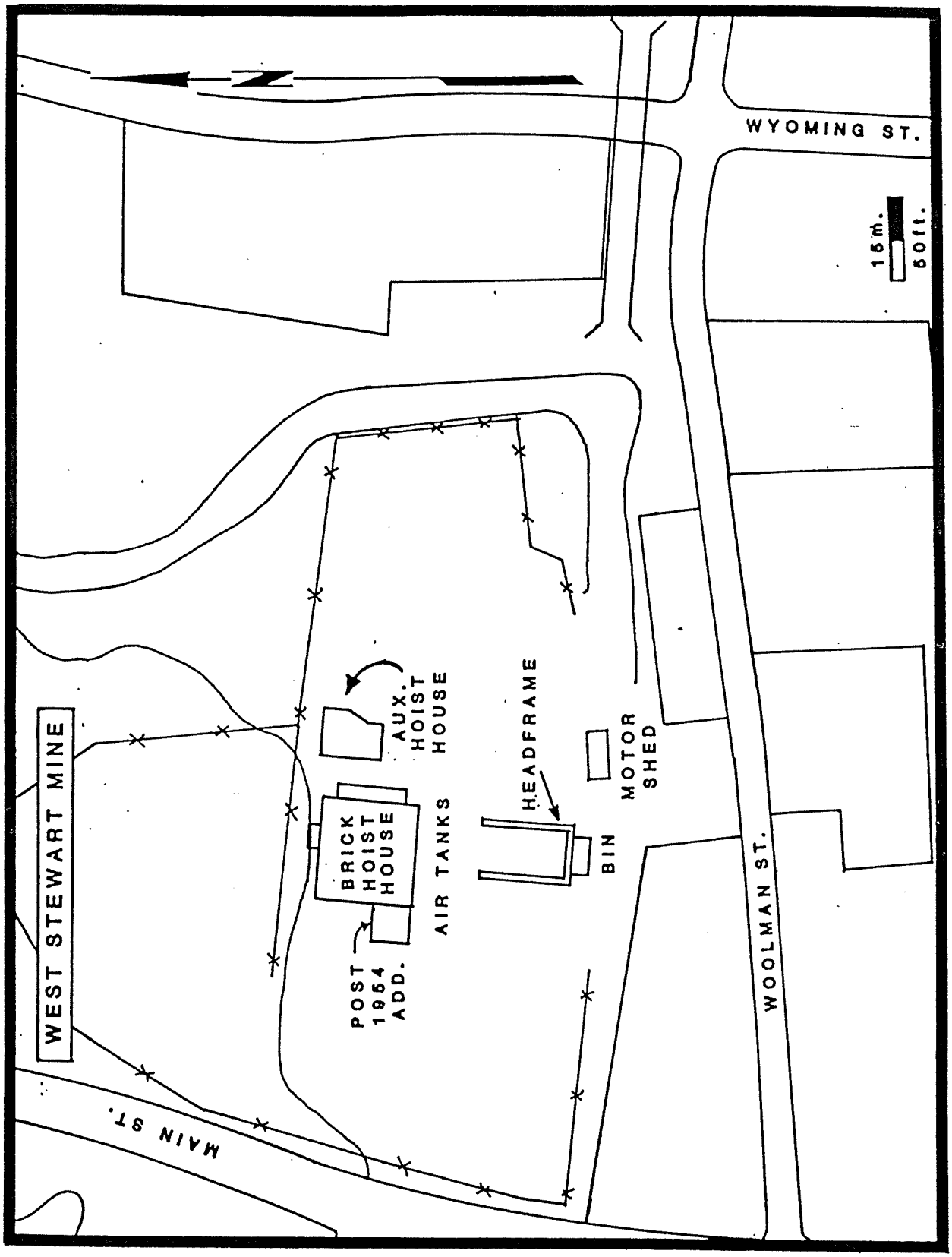

Figure 3. Structures Remaining at Stewart Mine 1987.

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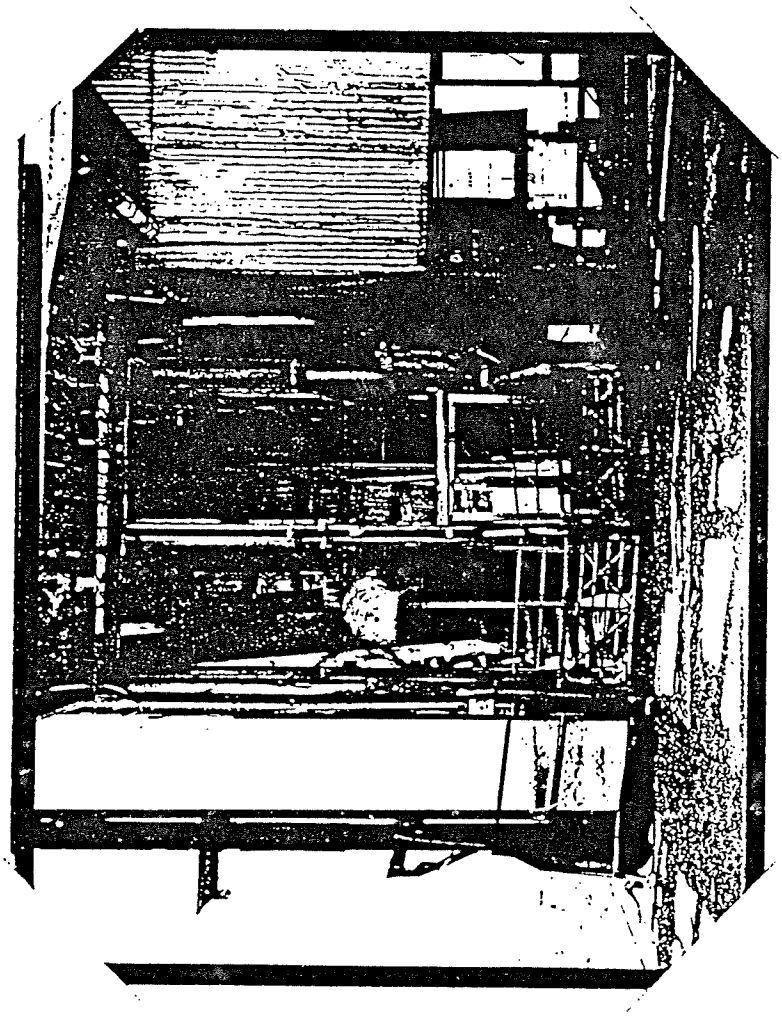

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Section 13, T3N, R8W
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Montana

Documentation: 10 exterior photos (1987)
24 data pages (1987)

Paul Anderson, Photographer, August 1987

Stewart Mine

MT-36-C-14 OVERVIEW OF STEEL HEADFRAME LOOKING TO THE SOUTHWEST.

MT-36-C-15 DETAIL OF FRONT OF HEADFRAME AND STEEL DISCHARGE CHUTE LOCATED NEAR THE TOP OF THE HEADFRAME. PICTURED AT THE BOTTOM IS THE TIMBER-FRAMED CHUTE SLATED FOR REMOVAL BY THE DEPARTMENT OF STATE LANDS TO FACILITATE BULKHEADING OF SHAFT. VIEW LOOKING NORTH.

MT-36-C-16 A SIDE VIEW OF HEADFRAME SHOWING STEEL DISCHARGE CHUTE ON FRONT. VIEW LOOKING NORTHEAST.

MT-36-C-17 DETAIL OF STEEL DISCHARGE CHUTE AND TIMBER-FRAMED BOTTOM OF THE CHUTE. VIEW LOOKING NORTHWEST INCLUDES CONCRETE RETAINING WALL.

MT-36-C-18 DETAIL OF SHAFT COLLAR AND CAGE GUIDES. VIEW LOOKING SOUTH INCLUDES DETAIL OF RIVETED STEEL CONSTRUCTION OF HEADFRAME.

MT-36-C-19 MORE DETAILED VIEW OF SHAFT COLLAR AND CAGE GUIDES. VIEW LOOKING SOUTH.

MT-36-C-20 DETAIL OF STEEL SUPPORTS FOR STEEL DISCHARGE CHUTE. VIEW LOOKING SOUTHWEST.

MT-36-C-21 DETAIL OF TIMBER-FRAMED DISCHARGE CHUTE AT BASE OF DISCHARGE APPARATUS. VIEW LOOKING NORTHEAST.

MT-36-C-22 DETAIL OF TIMBER-FRAMED DISCHARGE CHUTE AT THE BASE OF DISCHARGE APPARATUS. VIEW LOOKING NORTH.

MT-36-C-23 DETAIL OF TIMBER-FRAMED DISCHARGE CHUTE AT THE BASE OF DISCHARGE APPARATUS. VIEW LOOKING EAST.

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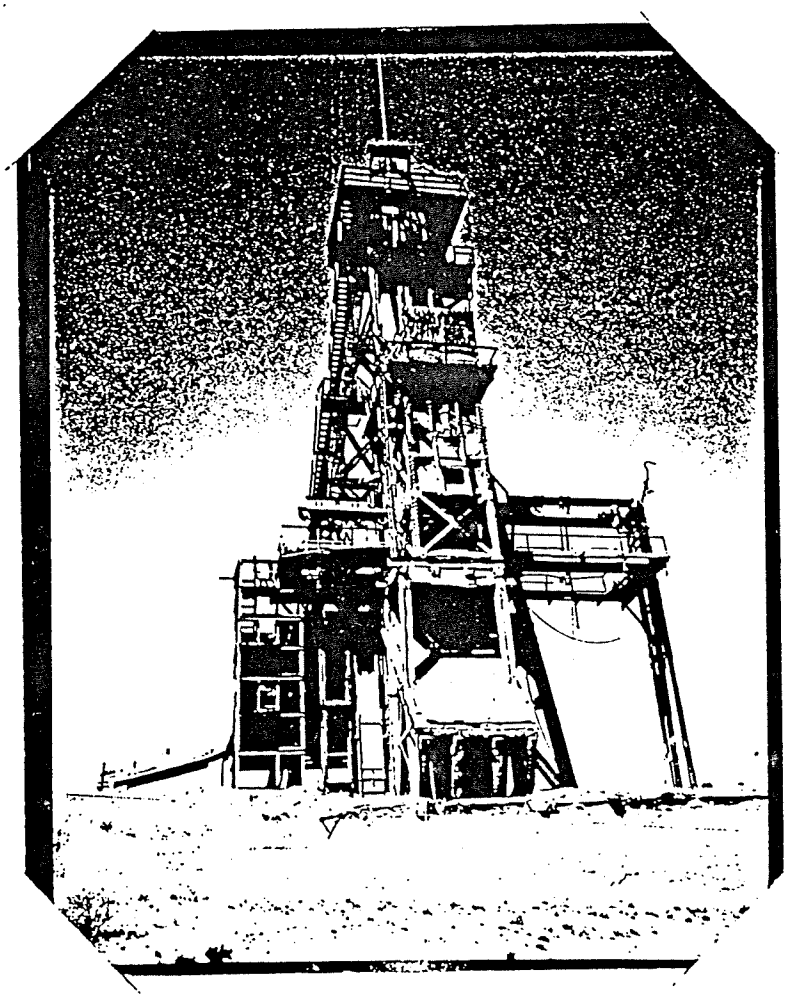

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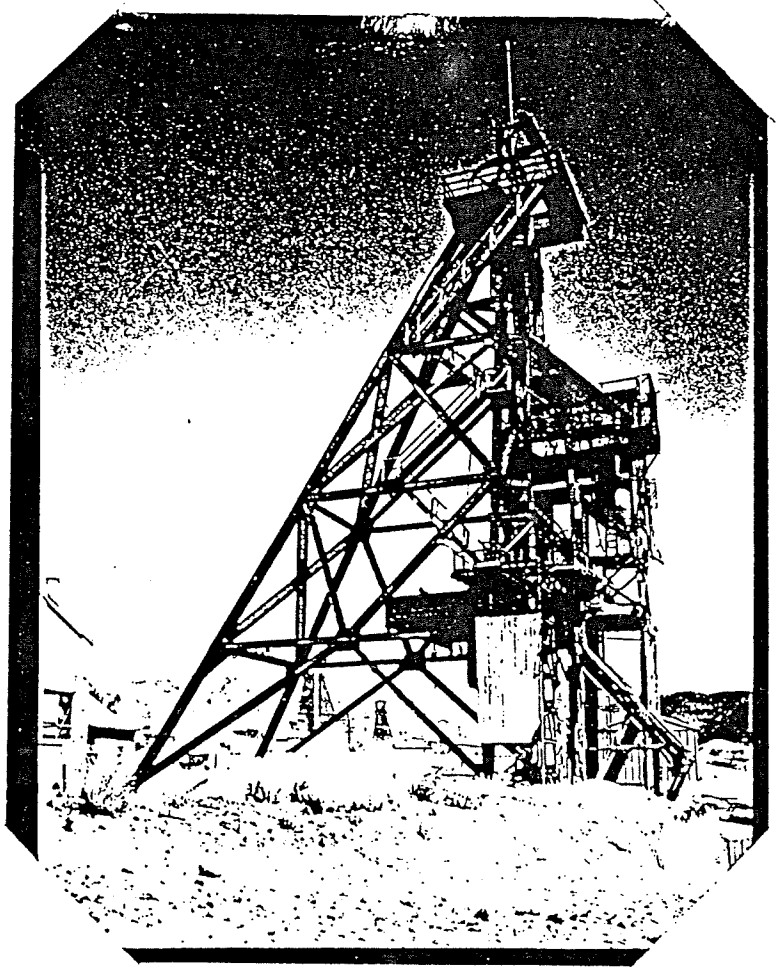

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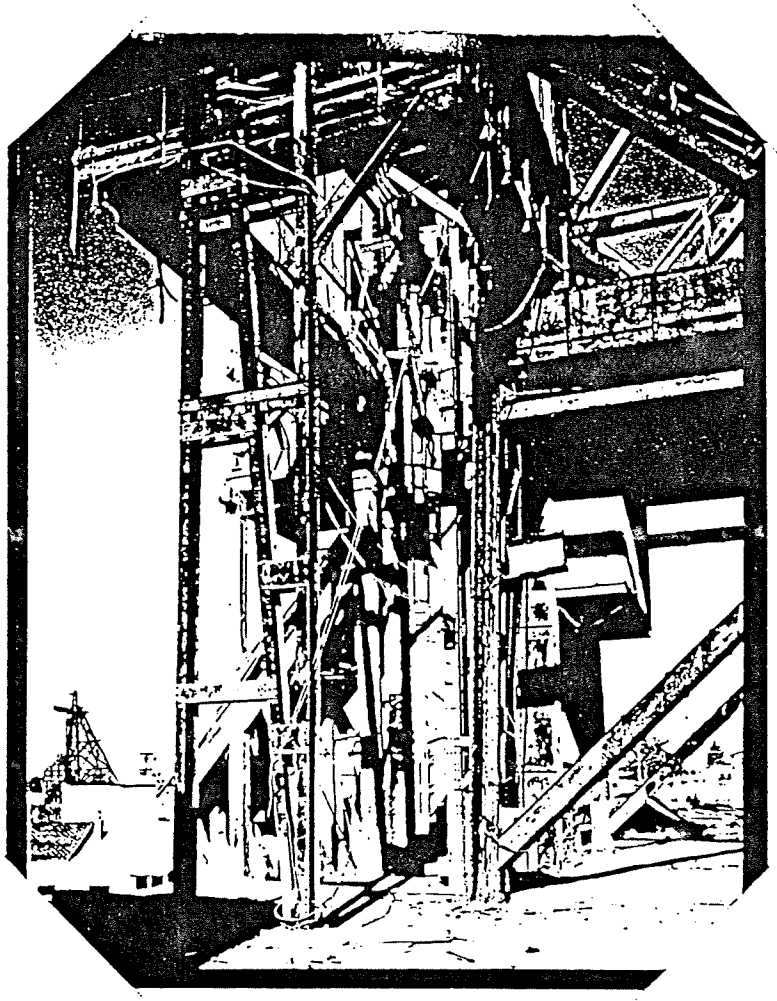

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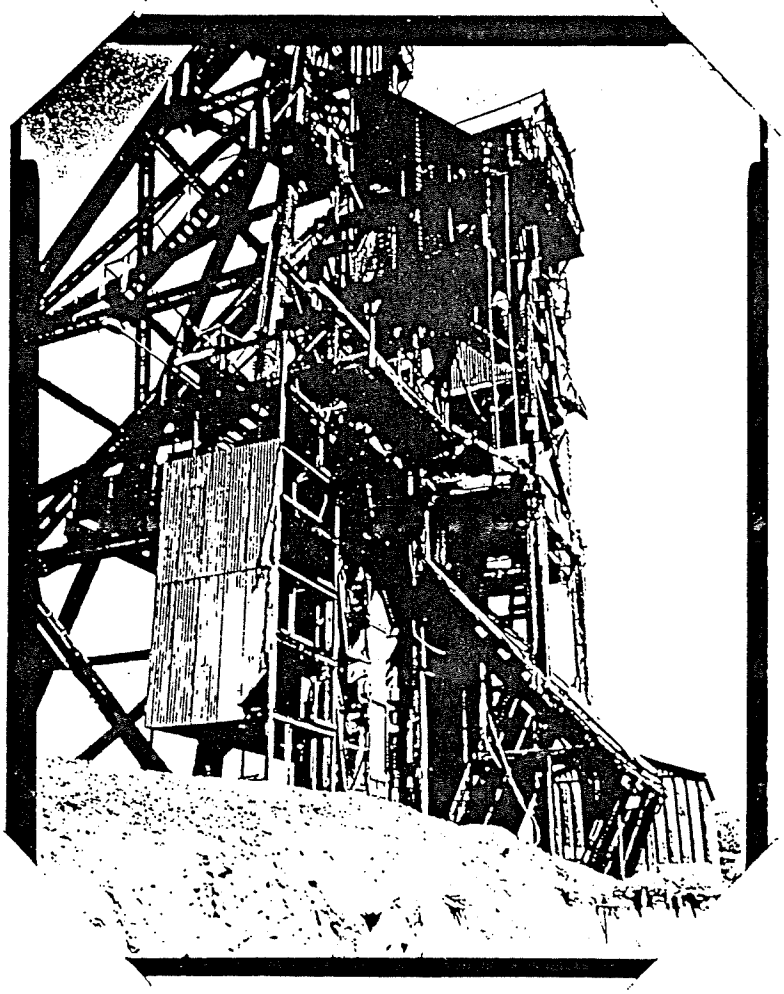

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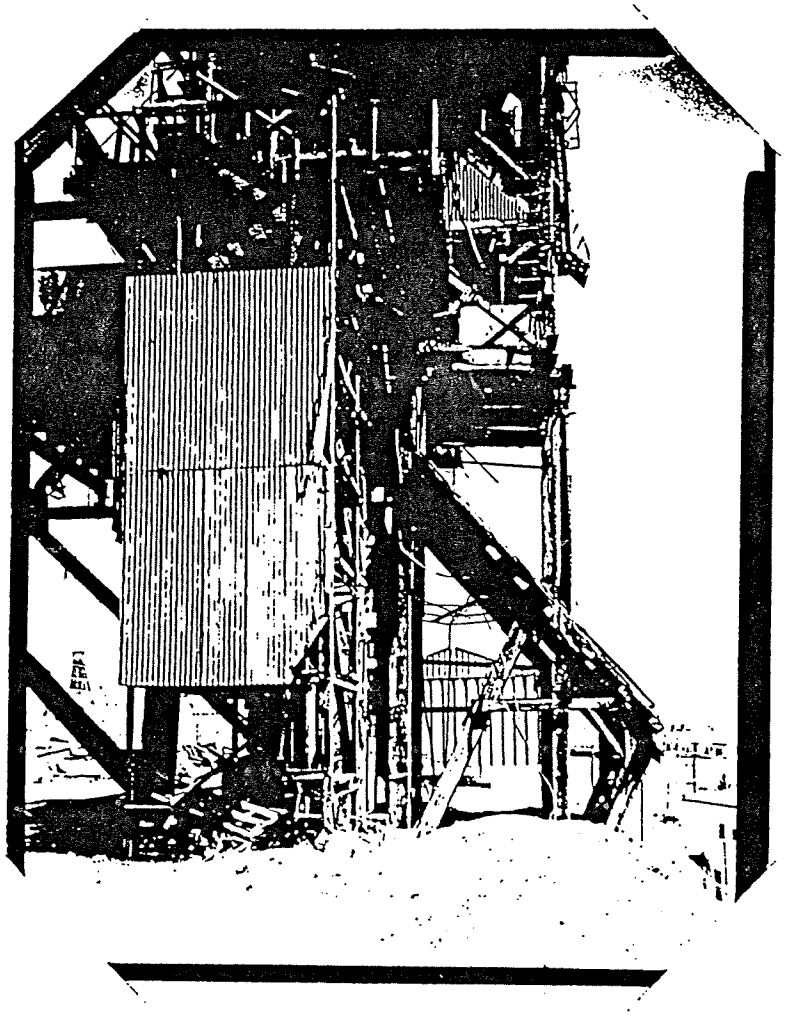

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