

**EXPLORATION PLAN OF OPERATIONS
LIBBY EXPLORATION PROJECT
LINCOLN COUNTY, MONTANA**

Prepared for:

U.S. Department of Agriculture

Kootenai National Forest
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Libby, Montana 59923

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ACRONYMS & ABBREVIATIONS

°F	Degrees Fahrenheit
ANFO	Ammonium Nitrate Fuel Oil
ARM	Administrative Rules of the State of Montana
BMP	Best Management Practice
BO	Biological Opinion

CFR	Code of Federal Regulations
cfs	Cubic Feet Per Second
CMW	Cabinet Mountains Wilderness
dBA	A-Weighted Decibels
DNRC	Department of Natural Resources and Conservation
gpm	Gallons Per Minute
HDPE	High-Density Polyethylene
KNF	Kootenai National Forest
MAQP	Montana Air Quality Permit
MBBR	Moving Bed Biological Reactor
MCA	Montana Code Annotated
MDEQ	Montana Department of Environmental Quality
MFWP	Montana Fish, Wildlife & Parks
MMC	Montanore Minerals Corporation
MPDES	Montana Pollutant Discharge Elimination System
MSHA	Mine Safety and Health Administration
NAAQS	National Ambient Air Quality Standards
NFS	National Forest System
NSF	National Sanitation Foundation
PM	Particulate Matter
PM₁₀	Particulate Matter with an aerodynamic diameter less than or equal to 10 microns
PM_{2.5}	Particulate Matter with an aerodynamic diameter less than or equal to 2.5 microns
PoO	Plan of Operations
Project	Libby Exploration Project
PVC	Polyvinyl Chloride
RCRA	Resource Conservation and Recovery Act
RHCA	Riparian Habitat Conservation Area
SDS	Safety Data Sheets
SWPPP	Stormwater Pollution Prevention Plan
U.S.	United States
USEPA	Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish & Wildlife Service
WRS	Waste Rock Sump
WRSA	Waste Rock Storage Area
WTP	Water Treatment Plant
yd³	Cubic Yards

1.0 INTRODUCTION

Montanore Minerals Corporation (MMC) prepared this Plan of Operations (PoO) to present to the United States (U.S.) Department of Agriculture Forest Service (Kootenai National Forest [KNF]) with a description of activities to be conducted under the Libby Exploration Project (Project). Project activities will occur at the Libby Adit Site, which consists of the existing Montana Department of Environmental Quality (MDEQ)-permitted disturbance area (Project area), and underground beneath land administered by the KNF.

The Project will consist of the following main elements:

- Dewatering and rehabilitation of approximately 7,000 feet of the existing Libby Adit. This activity will occur underground beneath KNF-administered land.
- Underground construction including an extension of the Libby Adit by approximately 4,200 feet and construction of lateral drifts to conduct exploration activities. This activity will occur beneath KNF-administered land.
- Expansion of the existing Waste Rock Storage Area (WRSA) #1 to increase the storage capacity of the facility to approximately 77,000 cubic yards (yd³). This activity will occur on private land.
- Construction of a new lined WRSA #2 with a storage capacity of approximately 87,000 yd³. This activity will occur on private land.
- Construction of a new lined 360,000-gallon capacity Waste Rock Sump (WRS). This activity will occur on private land.
- Relocation of a soil stockpile to accommodate construction of WRSA #2. This activity will occur on private land.
- Continued access to the Project area using existing Forest Service roads.
- Seasonal road closures to reduce impacts on grizzly bear (*Ursus arctos horribilis*) spring range.

MMC will conduct the Project over a period of approximately 16 years including post-reclamation monitoring. During dewatering and adit rehabilitation, MMC will employ six to 10 employees, while work associated with underground exploration activities and reclamation and closure will require employment for 30 to 35 people at the Project area.

1.1 Project Location

The Project is located approximately 20 aerial miles south of the town of Libby in Lincoln County, Montana near the Cabinet Mountains of northwestern Montana (**Figure 1-1**). The existing surface portal facilities at the Project area are shown on **Figure 1-2** and are located on private land. The proposed Project layout is presented on **Figure 1-3**.

1.2 Objective of the Exploration Project

The purpose of the Project is to allow MMC to conduct underground mineral exploration and data collection to achieve the following objectives:

- Determine the economic value of the mineralization contained within established valid existing rights and assess the technical and economic nature of future potential underground mining operations.
- Analyze samples to obtain geologic and metallurgical data on the characteristics of copper and silver mineralization.
- Collect data to evaluate geochemical and geotechnical conditions underground to obtain information on rock characteristics and to assess potential extraction techniques for use in future mine feasibility analyses.
- Assess hydrologic conditions.

1.3 Project Owner

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1.3.1 Applicant Contact Information

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1.4 Land Status

1.4.1 Surface and Mineral Ownership

Surface and subsurface activities for the Project will be conducted on lands owned or controlled by MMC or its parent company Mines Management Inc. and on public lands administered by the KNF. Access to the Project area will be via existing National Forest System (NFS) roads.

The State of Montana issued Operating Permit No. 00150 area encompasses 219 acres. Project activities will occur within Section 31, Township 29 North, Range 30 West; Section 36, Township 28 North, Range 31 West; Sections 4, 5, 9, 16, 17, 18, 19, 30, and 31, Township 28 North, Range 30 West; Sections 1, 2, 11, 15, 16, 19, 20, 21, and 30, Township 27 North, Range 31 West; all Principal Meridian, in Lincoln and Sanders counties, Montana (**Figure 1-4**).

Table 1-1 presents information on land status associated with the Project.

Table 1-1 Exploration Project Activity and Land Status

Activity	Land Status	Land or Claim Description
Surface support facilities in the Project area	Private/Patented	Johnstone placer claims
Rehabilitation of Libby Adit and underground exploration work	Private/ Patented/ Unpatented	Tunnel site claims (Unpatented)
		HR 134 (patented and outside of Cabinet Mountains Wilderness [CMW])
		HR 133 and HR 134 (patented subsurface inside CMW)

1.5 Permits and Approvals

Federal, state, and county permits and approvals are required for the Project as listed in **Table 1-2**. Some of the permits/authorizations listed below will depend upon final design of activities conducted during the Project, while others are currently in-hand.

Table 1-2 Permits, Approvals, and Other Responsibilities for Exploration Project

Agency	Permits and Approvals
Federal Agencies	
United States Forest Service (USFS)	Plan of Operations (36 Code of Federal Regulations [CFR] 228 Subpart A), if determined to be required, for operations on NFS surface lands.
U.S. Treasury Department (Department of Alcohol, Tobacco, Firearms, and Explosives)	Explosives Use Permit
Mine Safety and Health Administration (MSHA)	Mine Identification Number 2402450,
State Agencies	
Montana Department of Environmental Quality (MDEQ)	▪ Hard Rock Operating Permit No. 00150 Modification ▪ Exploration License No. 00648 Amendment ▪ Air Quality Permit MAQP #3788-00 ▪ Montana Pollutant Discharge Elimination System (MPDES) Permit #MT0032158 (pending) ▪ Public Water Supply and Sewer Permit ▪ Water Quality Waiver of Turbidity ▪ Hazardous Waste and Solid Waste Registration

2.0 SITE CONDITIONS

2.1 Climate

The Project is located in a region of modified continental maritime climate, with warm and dry summers and cold winters. Similar to the regional climate, the climate in the Project area is highly influenced by local terrain and elevation. Elevations range from 2,600 feet along U.S. Highway 2 to nearly 8,000 feet at Elephant Peak in the Cabinet Mountains. The annual average temperature in the Project area is 41 degrees Fahrenheit (°F), ranging between -26°F and 95°F.

Precipitation ranges from 90 inches per year at higher elevations in the Cabinet Mountains to 30 inches per year in the lower drainage areas. The highest precipitation period generally occurs from November through February, the lowest in July through October. Approximately 35 percent of precipitation is snow that falls between October and May. Winter snowpack serves as a natural reservoir gradually releasing water to soil and streams in the warmer and drier months.

2.2 Air Quality

Under the federal Clean Air Act, the U.S. Environmental Protection Agency (USEPA) sets National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment measured as Total Suspended Particles and Particulate Matter (PM) with an aerodynamic diameter less than or equal to 10 and 2.5 microns (PM₁₀ and PM_{2.5}, respectively). In the Project area, concentrations of Total Suspended Particles and PM are typical of remote, mountainous sites. Site conditions for air quality are considered stable relative to measured concentration standards over time. Particulate concentrations comply with the Montana Ambient Air Quality Standards and NAAQS.

An area is designated as nonattainment when existing concentrations of one or more regulated pollutants are above the accepted standard. The town of Libby and surrounding area has been designated a nonattainment area for both PM_{2.5} and PM₁₀. The closest these nonattainment areas come to the Project area is 1.5 miles north of Little Cherry Creek.

2.3 Geology

The Project area lies within the northern Rocky Mountain physiographic province and is situated on the eastern flank of the Cabinet Mountains, a rugged northwest-trending range in northwestern Montana. This range is bounded on the south by the Clark Fork River, on the east by Libby Creek, on the north by the Kootenai River, and on the west by the Purcell Trench in Idaho (**Figure 2-1**). Elephant Peak is the highest peak in the Project area at 7,938 feet and is located on the divide separating Rock Creek and Libby Creek. The Project area is at 3,900 feet.

The Cabinet Mountains region was subject to folding and faulting during mountain building processes. Structural features, including primary faults, tend to parallel fold axes. The Project area is bounded on the east by the Libby Thrust belt and on the west by the Moyie Thrust. Intervening between these two is the west-directed Snowshoe Thrust, formerly known as the Snowshoe Fault.

The Snowshoe Thrust can be traced from Rock Lake to the Montana border. The Rock Lake Fault is a younger north-northwest striking fault that crosscuts structures related to the Snowshoe Thrust. The Rock Lake Fault separates the Rock Creek-Montanore mineral resource.

Two mineralizing events define the mineral resource. A Precambrian-age event and intrusions in the Prichard Formation, and an older migration of metal-bearing solutions through the Revett Formation during lithification. The structure containing the mineral resource is a breached, overturned syncline, which plunges to the northwest. This syncline is bound on the west by the Rock Lake Fault and on the east by the Libby Lake Fault.

Surficial geology in the area is dominated by shallow bedrock and Quaternary-age glacial deposits. Fine-grained glacial lake materials dominate the lower slopes and interfinger with mixed silt, sand, and gravel glaciofluvial materials on the western portion of the area. Thickness of the unconsolidated deposits is generally 100 to 200 feet.

2.4 Geochemistry

The Project is located in a region rich in mineralization. Historically, silver, lead, zinc, and gold have been produced from numerous mines and placer operations in the area.

The risk of acid generation from rock exposed in underground workings is determined to be mostly low, with some potential for release of select metals under near-neutral pH and potential release of nitrate due to blasting. Low acid generation potential exists for waste rock from the Prichard Formation, with moderate potential suggested by some static tests. In situ monitoring of Prichard Formation, where it is exposed underground in the Libby Adit, indicates low acid drainage risk as does drainage within the Revett formation from the Troy Mine.

The mineral resource occurs in two nearly parallel zones within the lower Revett and Prichard formations. Thickness of the unmineralized zone overlying the mineral resource ranges from zero feet at the outcrop at Rock Lake to about 3,800 feet near Libby Lakes. Most of the mineral resource is overlain by an average of 2,000 and 3,500 feet of cover.

2.5 Soil

Most salvageable topsoil within the Project surface disturbance area has been collected and stockpiled in conjunction with past construction activities, including construction of existing buildings and waste rock storage areas. If the proposed expansion of surface facilities encounters salvageable topsoil, it will be removed and added to existing topsoil stockpiles, all of which will occur on private land.

2.6 Water Resources

2.6.1 Surface Water

The Project area lies within the upper Libby Creek sub-watershed (Hydrologic Unit Code 170101011301) in the Middle Kootenai subbasin of the Columbia River (**Figure 2-2**). Libby Creek flows northward from the Project area 28 miles to its confluence with the Kootenai River at the town of Libby. The upper reaches of Libby Creek are intermittent and restricted to narrow canyon channel flow. Libby Creek widens into perennial flow in the mid-section of the valley and is the

only stream in the Project area that has a well-developed floodplain. Average monthly flows range from four cubic feet per second (cfs) in September to 80 cfs in May, with maximum monthly flows ranging from 23 cfs in September to nearly 420 cfs in June.

Snowmelt is the main source of surface water in the Project area. Water bodies that exist above an elevation of approximately 5,000 to 5,600 feet are supplied by surface runoff, snowmelt, and drainage from unconsolidated deposits that store meteoric water. Lakes and streams located below this elevation are generally perennial, supplied by surface runoff and groundwater. Peak flows occur annually between April and June, with highest flows in May. Beneficial uses of surface water in the general area include domestic water supply, irrigation, mining, stock watering, fish habitat, and wildlife use.

Overall surface water quality in streams and lakes within the region is considered high. Total Suspended Solids, Total Dissolved Solids, major ions, metals, and nutrient concentrations are generally low in Project area streams and are frequently at or below detection limits. Ongoing monitoring of surface water quality continues at several stations on Libby Creek as part of Operating Permit No. 00150 requirements.

2.6.2 Groundwater

Groundwater occurs in fractures of bedrock formations beneath the Project area and in unconsolidated glacial and alluvial sediments along and adjacent to drainages. Although hydraulically connected in many areas, these water-bearing geologic systems behave differently due to their respective hydraulic characteristics. Three primary hydrogeologic structures govern the amount, distribution, and flow of groundwater in the area: bedrock, valley-fill unconsolidated deposits, and glaciofluvial/lacustrine deposits along the eastern flank of the Cabinet Mountains.

The bedrock groundwater system generally has low porosity and permeability with water primarily occurring in joints or faults. Bedrock groundwater is recharged by infiltration of precipitation, snowmelt, and seepage from high mountain streams. This groundwater system is unconfined and water tables generally parallel surface topography. Groundwater flows along fractures trend toward topographic lows, discharging to mountain lakes, springs, streams, and unconsolidated valley-fill deposits. Bedrock groundwater tables are expressed in lake levels and springs and were confirmed in water levels observed during previous exploration drilling. Drilling indicates a high degree of variability in depth to water indicative of the complexity and lack of horizontal or vertical interconnection in the bedrock fracture systems.

Groundwater in valley-fill deposits is limited. These deposits follow the narrow tributary valley bottoms and are not extensive or continuous, particularly where bedrock outcrops along the stream channel bottoms. Geophysical surveys indicate the valley-fill deposits are up to 70 feet deep in the Libby Adit area. Groundwater in valley-fill deposits is shallow and flows down-valley.

Water samples collected of discharge from the Libby Adit are considered representative of groundwater quality in deep bedrock in the Project area. The source of the adit water is generally more than 1,000 feet below ground surface and seasonal trends in water quality were not observed in the data, as might be expected in shallow groundwater influenced by surface water infiltration. Ongoing monitoring of discharge quality from the Libby Adit occurs as part of the MPDES permit requirements. Groundwater quality samples are also collected periodically from two monitoring wells located near the Libby Adit.

2.6.3 Wetlands, Springs, and Seeps

Wetlands, springs, and seeps are not expected to be affected by the adit dewatering or other proposed Project activities. As previously indicated, the Project requires no new surface disturbance.

2.6.4 Water Rights

MMC has two 1902 surface water rights on Libby Creek, one for mining near the Project area in Section 15, Township 27 North, Range 31 West (maximum diversion of 44.9 gallon per minute (gpm) between April 1 and December 19, and a maximum volume of 50.97 acre-feet), and one for domestic use in the same section (15 gpm year-round, and a maximum volume of 1.5 acre-feet). MMC also has a 1989 groundwater right for mining purposes near the Project area in Section 15, Township 27 North, Range 31 West (total diversion of 40 gpm year-round).

2.7 Vegetation

Three dominant vegetation communities occur in the Project area: mature coniferous forest, previously harvested forest, and riparian and wetland areas. The forested areas are comprised of mixed conifer with some areas of deciduous shrubland. The overstory is dominated by western hemlock (*Tsuga heterophylla*), and western red cedar (*Thuja plicata*) with a scattering of Douglas-fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), western larch (*Larix occidentalis*), and grand fir (*Abies grandis*). Lodgepole pine (*Pinus contorta*) occurs at higher-elevations and steeper slopes resulting from historic stand-replacing wildland fire and select timber harvest. Although a large portion of the upper Libby Creek area burned in 1889 and 1910, no major wildfires have occurred in several decades. Deciduous shrublands occur in areas of previous disturbance and timber removal.

Riparian vegetation and wetland communities are present in the Project area along most streams and creeks and hosts deciduous shrubs and trees. Overstory consists mostly of quaking aspen (*Populus tremuloides*) and cottonwood (*Populus balsamifera*). The understory is generally sparse with a thick layer of duff and leaf litter.

2.7.1 Sensitive Plant Species

No threatened or endangered plant species, as defined by the U.S. Fish and Wildlife Service (USFWS) are known to occur in the Project area.

2.7.2 Noxious Plants

Noxious plant (weed) surveys were conducted during the summers of 1988 and 1989 and updated in 2005. Nine species of noxious weeds were found in the Project area during the 2005 baseline vegetation studies (WESTECH 2005). **Table 2-1** lists the weed species documented in the Project area according to the 2005 survey. Weed abatement occurs on at least an annual basis with the Project area.

Table 2-1 Weed Species Known to Occur in the Project Area

Common Name	Scientific Name	KNF Priority ¹	State List Priority ²	County List Priority ^{3,4}
Tall buttercup	<i>Ranunculus acris</i>	IB	2A	IIIa
Spotted knapweed	<i>Centaurea maculosa</i>	II	2B	I
Oxeye daisy	<i>Chrysanthemum leucanthemum</i>	II	2B	I
Canada thistle	<i>Cirsium arvense</i>	II	2B	II
Orange hawkweed	<i>Hieracium aurantiacum</i>	II	2A	I
Meadow hawkweed	<i>Hieracium pratense</i>	II	2A	I
St. John's Wort	<i>Hypericum perforatum</i>	II	2B	I
Sulfur cinquefoil	<i>Potentilla recta</i>	II	2B	I
Common tansy	<i>Tanacetum vulgare</i>	II	2B	II

Source: WESTECH, 2005

¹ KNF Priority IA, prevention, and eradication; Priority IB, eradication; Priority IC, containment within main body of infestation and eradication of outlier populations; Priority II, prioritize areas to treat, reduce plant populations and reduce the rate of spread; Priority III, monitor known populations for trends.

² Montana State List Priority 1A, eradication if detected; education and prevention; Priority 1B, require eradication or containment and education; Priority 2A, require eradication or containment where less abundant; Priority 2B, require eradication or containment where less abundant; Priority 3, recommend research, education, and prevention to minimize spread.

³ Lincoln County Category I, established with extensive acreage; Category II, established – targeted for management; Category IIIa, potential invaders; Category IIIb, new invaders.

⁴ The Lincoln County Integrated Noxious Weed Management Plan was updated in March of 2020. The 2005 baseline survey does not include new additions to the county weed list since 2005.

2.8 Wildlife

The region provides habitat for more than 300 different species of wildlife, many of which occur in the general vicinity of the Project area. Three wildlife species are listed under the Endangered Species Act as threatened in the Project area: grizzly bear, Canada lynx (*Lynx canadensis*), and North American wolverine (*Gulo gulo luscus*)

2.8.1 Migratory Birds

Most wildlife habitats in the Project area host one or more species of migratory birds. These birds arrive in the spring to set up territories for breeding purposes. Young are raised and fledged by mid-summer. Most species leave the area by mid- to late summer. Although some birds may migrate along the Cabinet Mountains and some birds may use stream corridors in the Project area to move between habitat areas, no major migratory corridors have been identified in the Project area.

2.9 Aquatic Habitat and Fisheries

Aquatic habitat in the Project area has been assessed and characterized throughout Project planning. Habitat baseline surveys have been conducted for most of the streams within the Libby Creek watershed. Most recently, habitat surveys, including physical characterization of stream reaches, were conducted in Libby Creek and other streams in the Libby Creek watershed in 2015.

The Project area is considered to have very few areas of diverse high quality aquatic habitat due to natural stream condition and aggradation, an extensive road network within Riparian Habitat Conservation Areas (RHCAs), past mining practices, and timber harvest. Availability of habitat in tributaries for fish moving from Libby Creek is limited by passage barriers. The MDEQ has designated Libby Creek as a Water Quality Limited Segment for sediment derived from agriculture and silviculture. The dominant substrate classes in the Libby Creek watershed are cobble, gravel, and some sand, with channel braiding common in some reaches of the stream. Large woody debris and pools are common.

Fish populations in the Project area include rainbow trout (*Oncorhynchus mykiss*), westslope cutthroat trout (*Oncorhynchus clarkii lewisi*), redband trout (*Oncorhynchus mykiss gairdneri*), or hybrids (*Oncorhynchus* sp.) brook trout (*Salvelinus fontinalis*), bull trout (*Salvelinus confluentus*), largescale suckers (*Catostomus macrocheilus*), longnose dace (*Rhinichthys cataractae*), mountain whitefish (*Prosopium williamsoni*), and sculpin (*Cottus* sp.).

Bull trout is listed as threatened by the USFWS under the Endangered Species Act with designated critical habitat existing in the vicinity of the Project area. Westslope cutthroat trout and interior redband trout are Forest Service sensitive species that inhabit streams in the general vicinity of the Project area. Western pearlshell mussels (*Margaritifera falcata*), another Forest Service sensitive species, and torrent sculpin (*Cottus rhotheus*), a Montana species of concern, may also occur.

2.9.1 Bull Trout

Historically, bull trout have been distributed throughout the Libby Creek drainage. Recent population surveys show bull trout populations within the Project area are composed of both a resident and a fluvial and adfluvial migratory component. Bull trout have been reported both upstream and downstream of Libby Creek Falls on Libby Creek, as well as within numerous tributaries. Bull trout spawning has also been documented within the Libby Creek watershed, with redds located in Libby Creek (both upstream and downstream of Libby Creek Falls)

2.10 Noise

Existing sound levels in the Project area vary depending upon the time of day and year. Current site operations occur all year long four to five days per week, approximately 10 hours per day. From approximately mid-October through mid-May, diesel generators operate 24 hours per day, seven days per week to ensure that the mine water treatment plant does not freeze.

Current site operations consist of light vehicle operations to support site maintenance, operation of ventilation fans located outside of the adit portal to support underground ventilation, and operation of diesel generators.

2.11 Cultural Resources

No new surface disturbance is proposed on federal land. No impacts to cultural resources are expected.

2.12 Transportation

Libby Creek Road (NFS Road 231) intersects U.S. Highway 2 at milepost 42.0, 9.3 miles east of the Libby town limit boundary. Upper Libby Creek Road (NFS Road 2316) begins at the Howard Lake turnoff (NFS Road 4779) near Howard Creek (**Figure 2-3**). It functions as a recreational road providing access to the KNF. The initial portion of the Libby Creek Road (approximately 2.5 miles from its junction with U.S. Highway 2) is maintained by Lincoln County.

Libby Creek Road is a two-way, two-lane width of 22 feet and a chip-seal paved surface for the first 0.5 mile. The road then narrows to a two-way, single-lane width (14 to 16 feet) with a gravel surface until the bridge at Mile Post 9.2. At the intersection with Bear Creek Road (Mile Post 9.2) and proceeding to the end of the road, the road is a two-way, single lane with a width of 12 feet.

2.13 Land Use

The KNF manages most land in the Project area as public land. Private inholdings occur along Libby Creek, including the location of the Project area. The KNF manages this area for multiple use, including wood products, recreation, range, wildlife, and mineral development. Some timber production has occurred in the area, including private land timber removal by Libby Placer Mining Company. Grazing occurs only on private land in some parts of the Libby Creek drainage. Numerous placer and lode mining claims exist within and near the Project area. Small sand and gravel operations are also present.

Recreational use of the Project area is highest in the summer with camping, hiking, and fishing on weekends being the major activities. These activities tend to concentrate near Howard Lake and along popular hiking trails. Fall recreational use of the Project area is mainly dispersed hunting and berry picking.

3.0 EXPLORATION PROJECT DESCRIPTION

MMC proposes to conduct underground mineral exploration and other exploration activities on private land in Lincoln County, Montana. The activities and facilities associated with the Project are presented on **Figure 1-3** and include the following:

- Dewatering and rehabilitation of approximately 7,000 feet of the Libby Adit. This activity will occur underground beneath KNF-administered land.
- Underground construction including an extension of the Libby Adit by approximately 4,200 feet to above the mineral resource, along with constructing 6,300 feet of drifts to conduct exploration activities in the mineral resources zone. The adit has dimensions of approximately 18 feet by 18 feet or less. This activity will occur beneath KNF-administered land.
- Expansion of the existing WRSA #1 in the Project area by approximately 1.3 acres, increasing the storage capacity to 77,000 yd³. The expansion will include placement of a Polyvinyl Chloride (PVC) liner on the expanded area. This activity will occur on private land.
- Construction of a new High-Density Polyethylene (HDPE) lined WRSA #2 encompassing an area of 2.7 acres with a storage capacity of approximately 87,000 yd³. This activity will occur on private land.
- Construction of a 360,000-gallon capacity WRS. The sump will be double-lined with an 80-mil HDPE liner and include a leak detection system. This activity will occur on private land.
- Relocation of soil stockpiles within the Project area are to accommodate construction of WRSA #2. This activity will occur on private land.
- Continued access to the Project area using existing Forest Service roads.

MMC will conduct the Project over a period of approximately 16 years including post-reclamation activities. During dewatering and adit rehabilitation, MMC will employ six to 10 employees, while drift construction and drilling associated with underground exploration activities will require employment for 30 to 35 people at the Project area.

3.1 Existing and Project Disturbances

No Project surface disturbance is proposed on KNF-administered lands with all existing and proposed disturbance occurring on private land. As such, the following description of existing and proposed facilities is provided to the USFS for informational purposes.

The existing MDEQ-permitted disturbance at the Project area encompasses 11.6 acres, all on private property. MMC will not create any new disturbance associated with the Project

As part of the Project, MMC will expand WRSA #1, construct a new WRSA (WRSA #2), construct a new WRS, and relocate topsoil stockpiles at the Project area (within existing MDEQ-permitted disturbance area) as shown on **Figure 3-1**.

MMC will continue to use existing surface facilities within the Project area to support underground rehabilitation, construction, and exploration activities associated with the Project. Most of these facilities at the site were installed during the initial 1989 to 1991 work on the adit and/or the 2009 rehabilitation program. Main surface facilities at the Project area are shown on **Figure 1-2** and described below.

3.1.1 Office Buildings

Office buildings consist of existing modular trailers set on pier foundations. These trailers are used by management, engineering, safety, and environmental personnel. There is also an existing “cold storage area” that consists of stacked sea-containers. The area adjacent to the office buildings can accommodate parking for 10 to 15 vehicles.

3.1.2 Maintenance Shop

The existing Project area maintenance shop is constructed on a concrete foundation, which also serves as the shop floor. Adjoining containers are used as warehouse storage for small parts and tool storage.

3.1.3 Temporary Core Storage Area

The existing project facilities include a temporary core storage area and core shed. Underground exploration drill core will be taken to MMC's Libby office for logging and permanent storage.

3.1.4 Waste Rock Storage Area

WRSA #1 in the Project area was designed and constructed in 2007-2008. The existing pad has a lined area of approximately 1.2 acres. Since construction was completed, a small amount of waste rock was placed in the facility before the advancement of the Libby Adit was suspended in 2009. The Project will expand WRSA #1 by approximately 1.3 acres, increasing the storage capacity to 77,000 yd³. The expanded area will be lined with a PVC liner. WRSA #2 will be constructed on an area of approximately 2.7 acres with a storage capacity of approximately 87,000 yd³. The area will be HDPE lined.

3.1.5 Waste Rock Sumps

Runoff from the existing WRSA #1 and precipitation that infiltrates to the liner below the facility is directed to a lined WRS. The pond has a capacity of approximately 75,000 gallons. Captured water is periodically pumped to the Water Treatment Plant (WTP) prior to discharge at permitted MPDES Outfall 001 located adjacent to WRSA #1.

A second WRS will be constructed with a storage capacity of 360,000 gallons. The sump will be double lined with an 80-mil HDPE liner and include a leak detection system.

3.1.6 Soils Stockpiles

Topsoil (growth media) has been removed and stockpiled in the Project area for use during reclamation. Approximately 15,200 yd³ of topsoil is stockpiled at the site. Existing stockpiled soils will be relocated above WRSA #1 to accommodate construction of WRSA #2 (**Figure 3-1**).

3.1.7 Water Treatment Plant

The existing Project area WTP uses ultrafiltration to remove metals sorbed onto particles suspended in the water, thereby reducing metal concentrations to acceptable levels specified in the MPDES permit. The WTP uses a series of filter systems, including a multi-media filter and an ultra-filtration system. Micron-sized filters provide the final clarifying step before the water is ready for discharge. Filtration system backwash water generated in the WTP is pumped back underground where the backwashed solids are settled out in sumps. The WTP has a design capacity of 500 gpm. As part of the ongoing care and maintenance program for the Libby Adit, MMC pumps a daily average of approximately 30 gpm, with some minimal seasonal fluctuations, to the WTP. This pumping effort maintains the underground adit open to the 7,200-foot level.

3.1.8 Stormwater and Percolation Pond

A lined stormwater pond collects water from the Project area. Discharge from the WTP flows to a percolation pond that serves as Outfall 001 under MMC's MPDES permit. The existing culvert outlet and catchment basin are located within the proposed footprint of WRSA #2 and MMC will extend the culvert beyond the footprint of WRSA #2. The new catchment basin will include geotextile and riprap for energy dissipation at the culvert outlet.

3.1.9 Fuel Storage Facilities

There are two existing 3,000-gallon diesel storage tanks in the Project area. These tanks are located within a concrete containment area. Two 250-gallon double-walled day tanks are located on site: one at the WTP and the other in the maintenance shop area. As fuel storage requirements increase for the Project, MMC will install two aboveground 20,000-gallon double-walled fuel tanks within covered concrete-floored areas. Required secondary containment will be provided by the secondary tank wall which jackets the inner containment tank. These tanks will be designed, constructed, and installed in accordance with Administrative Rules of the State of Montana (ARM) 17.57.105 – Design, Construction, and Installation Standards for Aboveground Double-Walled Petroleum Storage Tank Systems. The stationary (fixed) diesel fuel tanks, including day tanks, will be stored within covered concrete floors. For containment purposes, fueling will occur on a concrete pad adjacent to the fuel storage area to the extent practical.

3.1.10 Security and Fencing

A chain-link fence surrounds the Project area (private land) to restrict unauthorized access, as well as limit wildlife access to the site (**Figure 3-1**). A gate is installed at the entrance off the Upper Libby Creek Road (NFS Road 2316). This gate can be locked after normal business hours to prohibit unauthorized entrance. The gate and fencing have warning signs posted, such as "Keep Out," "No Hunting" and/or "No Trespassing" at strategic sites to discourage unauthorized access.

3.2 Site Access

During the Project, MMC will use the existing Libby Creek Road (NFS Road 231) and Upper Libby Creek Road (NFS Road 2316) as the primary year-round access to the Project area (**Figure 2-3**). No new roads will be constructed for the Project.

The Libby Creek Road is accessed from U.S. Highway 2, approximately 9.3 miles east of the Libby town limit boundary. The initial portion of the Libby Creek Road (approximately 2.5 miles from its junction with U.S. Highway 2) is owned and controlled by Lincoln County.

Since approval of a temporary closure order in 2007 (USFS 2007), NFS Road 231, NFS Road 2316, Midas-Howard Creek Road (NFS Road 4778) and spurs Midas-Howard Creek C Lower Segment (NFS Road 4778C), Midas-Howard Creek Road E (NFS Road 4778E) and Midasize Road (NFS Road 14458) have been seasonally closed to motorized use. The temporary closure order (USFS 2007) authorized the installation of two gates on NFS Road 231 at milepost 8.70 and milepost 10.92 and one gate on NFS Road 4778 at milepost 0.07 to implement the seasonal closures and restrict unauthorized motorized use. This closure order includes seasonal restrictions for public motorized access, including over-snow vehicles, to portions of NFS Road 231 and the full length of NFS Road 2316 from April 1 to May 15, except for MMC traffic. The closure order also includes seasonal restrictions for all public motorized access, including over-snow vehicles, to NFS Road 4778 and spurs from April 1 to June 15. MMC does not utilize any part of NFS Road 4778 or spurs for project activities. The Project will continue to implement these seasonal closures until reclamation and closure is completed. Details of the road status and proposed use are provided in **Table 2-2**. Proposed access changes are shown on **Figure 3-2**.

Table 2-2 National Forest System Road Access Changes Implemented in 2007 and Proposed to Continue through Libby Adit Closure

NFS Road Number	Road Name	Length (miles)	Current Closure Device and Access Status for Motor Vehicles	Proposed Closure Device and Proposed Access Status for Motor Vehicles	Notes
231	Libby Creek	2.3 ¹	Open – Gates installed and seasonal closures were temporarily implemented with the KNF's approval in 2007 (USFS 2007) to MMC for snowplowing portions of NFS Road 231 and NFS Road 2316.	Gated ³ - ATM 11: seasonally restricted to all motor vehicles, including over-snow vehicles, except MMC traffic April 1 to May 15.	Gates on NFS Road 231 below existing Project area. Seasonal access restrictions would continue until Libby Adit closure and Project area reclamation expected within 11 years of project initiation. After reclamation and closure, motorized access would return to pre-2007 conditions.
2316	Upper Libby Creek	2.2 ²			

NFS Road Number	Road Name	Length (miles)	Current Closure Device and Access Status for Motor Vehicles	Proposed Closure Device and Proposed Access Status for Motor Vehicles	Notes
4778	Midas- Howard Creek	6.9	Open - Gate installed and seasonal closures were temporarily implemented with the KNF's approval in 2007 (USFS 2007) to MMC for snowplowing portions of NFS Road 231 and NFS Road 2316.	Gated ³ - ATM 13: seasonally restricted to all motor vehicles, including over-snow vehicles April 1 to June 15	Gate on NFS Road 4778 with spurs located behind the gate. Spur Road 4778E and segments of spur roads 14458 and 4778C are currently open. Seasonal restriction would continue until Libby Adit closure and Project area reclamation expected within 11 years of project initiation. After reclamation and closure, motorized access would return to pre-2007 conditions.
4778E	Midas- Howard Creek E	0.8			
4778C	Midas- Howard Creek C Lower Segment	1.8			
14458	Midasize	0.3			
Total access change Open – Seasonally gated		14.1			

Road lengths are approximate due to rounding.

ATM = Restricted Use Access Travel Management Code are designated for NFS roads in the Infrastructure Application database.

¹ MMC Proposed use = 2.3 miles from gate to junction with NFS Road 2316

² MMC Proposed use = 1.4 miles from junction with NFS Road 231 to gate on private route 8749 at the PoO boundary.

³The seasonal access changes, which minimize potential for displacement and reduce mortality risk for grizzly bears on spring range, do not change the status of these existing open roads during the active bear year, and thus do not change Open Motorized Route Density or Total Motorized Route Density within the bear management unit or open or total linear miles within the Bear Out of Recovery Zone.

3.3 Road Use and Maintenance

Culvert replacements are not planned but if culvert replacement or maintenance or ditch maintenance are needed along NFS Road 231 and NFS Road 2316 and the areas have revegetated since initially being disturbed, MMC will survey these areas for sensitive plant species prior to initiating work, and will coordinate, as appropriate, with the KNF. BMPs will be employed based on site-specific conditions including use of straw wattles or other sediment control devices to limit erosion. No instream work is planned. If needed, instream work will be coordinated with the USFS fisheries biologist and be conducted in accordance with applicable permits.

MMC will not side cast surface material and snow during snowplowing. MMC will clean bridge decks and implement BMPs to reduce surface flow and runoff, avoiding sand input to streams. MMC will minimize road maintenance in RHCAs to the extent practicable. Signs will be installed to prevent snow casting in these areas during plowing and grading. No salt will be used on roadways. Snow plowing will avoid exposing bare earth to keep plowed snow from mixing with soil. MMC will implement BMPs to reduce surface flow and runoff, avoid sand input to streams, and clean bridge decks.

MMC will implement the following BMPs associated with road surface and ditch maintenance adapted from the Biological Opinion (BO) on the Effects to Bull Trout and Bull Trout Critical Habitat From the Implementation of Proposed Actions Associated with Road related Activities that May Affect Bull Trout and Bull Trout Critical Habitat in Western Montana (USFWS 2015). Numbers shown are the design criteria number in the BO (USFWS 2015).

- 8: When surface runoff flows directly into a stream, consider in-sloping roads and building sediment catch basins to avoid delivery of road sediment to stream channels.
- 15: Place large woody debris or rock that must be removed from the road prism, into the stream channel only under the direction of a fisheries biologist.
- 16: Utilize sediment filter fence, weed-free straw bales, or other means to reduce delivery of sediment to streams or channels.
- 20: Sidecasting of road materials smaller than four inches in diameter is prohibited on road segments within or abutting RHCA. Material greater than four inches from surface or ditch maintenance will not be sidecast where there is a potential to enter the stream. Large boulders may be sidecast under the direction of a fisheries biologist.
- 21: Reduce the erosion of loose dirt from ditches following ditch maintenance (e.g., roll ditch with grader wheel).
- 23: Incorporate material from the ditch into the road surface on NFS Road 2316, or if not incorporated, put it on a designated site where it will not be delivered to stream channels.
- 24: When pulling ditches, the cut slope will not be undercut.
- 28: Where directed by the fisheries biologist, rolling (surface compaction) of the road surface needs to be included as part of the blading for roads that are located in RHCAs.

MMC will implement the following BMPs for snowplowing and snow removal (USFWS 2015).

- 32: Open culverts and ditches restricted by snow or ice to allow proper drainage.
- 33: Leave two inches of snow on roadways during winter plowing operations to protect the road surface from mechanical disturbance.
- 34: Avoid sidecasting of snow mixed with soil. Install or fund installing signage where sidecasting will be avoided.
- 35: Openings in snow berms will be provided and maintained as required for surface drainage. Avoid drainage outlets on erodible fills. If the snow berm can be satisfactorily pushed off the road shoulder without sidecasting into streams or causing snow and ice damming of stream channels, openings in the snow berm may not be needed. Snow berm openings will be assessed on a case-by-case basis by the fisheries biologist.
- 36: Restore damage from snow removal by the following summer. Examples of this are damage or excessive erosion of road surface, damage to cross drain structures and damage or excessive erosion on cut and fill slopes.

MMC may also need to brush NFS Road 231 and NFS Road 2316 to clear adjacent vegetation to improve sight distance. MMC will implement the following BMPs (USFWS 2015):

- 13: Brush along streams will be cut to a height of no less than the height needed to maintain the sediment filtering capacity of the shrub base, and long-term viability of bank-supporting shrubs.
- 17: Keep brush-clearing on all roads used by the Project to the minimum level necessary to provide for public safety or to maintain a road surface and drainage system.
- 18: Vegetation between the road edge and the stream will be retained when roads are near (as defined by the biologist) the high-water mark, except where safety is an overriding concern (see number 17, above). This distance may be greater where site specific issues exist, such as near laterally migrating channels.

Traffic including MMC staff, contractors, and deliveries associated with the dewatering and rehabilitation portion of the Project (years 1 to 2) is anticipated to average 34 trips per week with each trip consisting of two passes along U.S. Highway 2, NFS Road 231, and NFS Road 2316 between the Project area and Libby, Montana. This will be a total of 1,760 trips per year for the first two years. For the exploration and reclamation portions (years 3 to 11) of the Project, there will be approximately 48 trips per week for a total of 2,490 trips per year. During the monitoring portion of the Project (years 12 to 16), there will be about 12 trips per year. Trips are considered to be round trip (to and from the Project). MMC has developed a transportation plan (**Appendix A**) to minimize Project-related traffic and it is discussed in detail in Section 4.10.

3.4 Libby Adit Dewatering and Rehabilitation

The Libby Adit was developed in the late 1980s. Operations ceased in the early 1990s allowing the Libby Adit (decline) to flood with groundwater. The constructed decline is approximately 14,000 feet in length, 18 feet wide, and 18 feet high.

In 2009, MMC conducted rehabilitation work on approximately half of the decline. This work involved dewatering, installation of ground support and utilities, and ventilation. As part of the ongoing care and maintenance of the underground workings to maintain the static water level in the Libby Adit, MMC is pumping water from the Libby Adit through the WTP at a dewatering rate that corresponds to a 24/7 mine dewatering rate of approximately 30 gpm. Operation of the WTP will allow MMC to commence dewatering and rehabilitation efforts associated with the Project.

As one of the initial tasks of the Project, MMC will complete rehabilitation of the lower segment of the Libby Adit. MMC will dewater the flooded adit, install ground support, mount underground support utilities (i.e., electric cables, compressed air, water pipeline, and communications) along the walls of the adit, and re-establish ventilation. **Figure 3-3** shows the Libby Adit rehabilitation and adit extension.

MMC will maintain a pump in the underground water pool and will move the pump progressively as the adit is dewatered. This water will be pumped to a series of underground sumps to allow sediment to settle. MMC will install a pipeline on the side of the decline and extend the pipeline as part of the rehabilitation work. From these sumps, water will be pumped through the pipeline to the WTP for treatment and discharge to Outfall 001.

As dewatering progresses, MMC will inspect ground conditions of the Libby Adit to ensure safe working conditions and will install ground support, as needed. Based on historic knowledge of the Libby Adit, ground conditions in the adit are expected to be good. Site-specific conditions (i.e., geological mapping) will govern the rock support and reinforcement strategy with the key goals of underground stability and employee safety.

As dewatering proceeds in the Libby Adit and appropriate ground support is re-established, MMC will drill small diameter boreholes into key potential water-bearing locations within the Libby Adit and install instrumentation with continuous recording pressure transducers to monitor groundwater pressure.

3.5 Libby Adit Extension and Underground Adit Construction

Once the existing Libby Adit has been dewatered and rehabilitated, MMC will begin underground construction to establish drill stations. MMC will construct an inclined adit extension to above the currently defined mineral resource and lateral drifts (**Figure 3-3**).

Beginning 400 feet from the bottom of the existing Libby Adit, MMC will construct a 4,200-foot inclined drift toward the mineralized zone. When the incline reaches 400 feet above the general centerline of the upper mineral resource zone, MMC will transition into a series of lateral drifts that will parallel the dip of the mineral resource. Lateral drifts will total no more than 6,300 feet of underground workings. Muck bays and drill stations will be established at various intervals along the drifts. MMC will drill from the drill stations downward into the mineral resource or lateral into other structures as necessary to collect a full suite of underground data. Sumps will be established, where needed, to temporarily store adit water. The location and number of sumps will depend on the amount of inflow encountered. Sump water will be pumped to the WTP.

3.5.1 Underground Buffer and Boundary Monitoring

All drifts and drill stations will remain at least 300 feet from the Rock Lake Fault and 1,000 feet from Rock Lake (**Figure 3-3**). MMC will not complete mineral exploration drilling for any mineral resource outside of its extralateral rights (**Figure 3-4**).

Mineral resource encountered outside of MMC's extralateral rights for which removal is reasonably incident for access or other approved exploration activities either will be stored underground or on private land surface. MMC will locate the eastern extralateral right boundary.

3.5.2 Underground Construction

3.5.2.1 Grouting and Other Measures for Groundwater Control

During adit extension and construction of lateral drifts, MMC will drill forward to assess groundwater conditions, as well as obtain geochemical and geotechnical information. At an appropriate interval of 50 to 100 feet of advance in adit and/or drift construction, MMC will drill a probe hole ahead of the working face to ascertain if substantial water-bearing faults or fractures are present. If substantial water flow (greater than an estimated 50 gpm that will persist over a 24-hour period) is encountered, MMC will grout the fault(s) or fracture(s). Grouting has historically been successfully implemented by MMC to reduce groundwater inflows into the Libby Adit.

MMC will document groundwater inflow as follows:

- Inspect, record, and document water-producing units and associated rock fractures and faults.
- Document zones where grouting is used.
- Measure or estimate groundwater inflows prior to and after grouting.
- Include grouting and groundwater inflow information in the MMC's annual report to the agencies, as required by Operating Permit No. 00150.

Other techniques (besides and/or in addition to grouting) that MMC may use to minimize groundwater inflow will include plugging drillholes that produce water, placing packers on drillholes to control flow, and periodic re-grouting (secondary grouting) where appropriate or where needed.

3.6 Waste Rock Management

MMC will remove waste rock to extend the adit. The waste rock will be taken to the surface and stored on the lined WRSAs. Specific surface waste rock management requirements are outlined in the existing Operating Permit No. 00150.

3.7 Underground Drilling Program

Underground exploration and exploration drilling will commence once drift construction has advanced sufficiently to establish the drill stations and will be conducted throughout the life of the Project. MMC will conduct mineral exploration from approximately 35 underground drill stations located in drifts above the mineralized zone. The drilling program will consist of drilling multiple individual holes from each underground drill station. The drillholes will fan out at different angles to intersect various targeted mineralized zones in both the upper and lower mineralized areas. None of the drillholes will breach the topographic surface and drilling will not occur within approximately 500 feet of the surface, MMC will coordinate with USFS for approval to drill closer than 500 feet. A general schematic of the underground drilling and exploration program is presented on **Figure 3-3**.

MMC will use core drill rigs for exploration. Each rig will be supplied with compressed air, recycled water, drain-line, sump, and electricity. MMC will use an existing water well (Water Right 76D 73018 00) as a water source to support underground drilling. Sumps will be constructed at each of the 35 drill stations or strategically placed to allow use by several drill stations to collect recycled water. Measurable amounts of water will not be consumed by drilling activities. To the extent practical, MMC will recycle and segregate drill water from adit water to minimize the volume pumped to the WTP.

Drilling additives such as bentonite muds and polymers will be used during core drilling to stabilize the borehole, remove cuttings, and help separate drilling waters from the surrounding formations and groundwater. All of the drilling additives are environmentally safe and certified by either the National Sanitation Foundation (NSF) International/American National Standards Institute (ANSI Standard 40) for use in potable water wells or by the Oslo Paris Convention list of substances

considered to pose little or no risk to the environment (OSPAR 2021). Though no rod lube (used to lubricate and protect the drilling rods) has been certified by the NSF, only industry standard, fatty acid, fully biodegradable and/or non-toxic lubes will be used. Typical drilling additives are listed in **Table 2-3**.

Table 2-3 Typical Drilling Additives

Drilling Additives	Manufacturer	Environmental Certification	Chemical family
EZ-MUD DP GOLD®	Baroid	NSF/ANSI Standard 60	PHPA ³
N-SEAL™	Baroid	NSF/ANSI Standard 60	Silicate, spun mineral fiber
POLY-BORE Plus™	Baroid	NSF/ANSI Standard 60	PHPA ³
QUIK-GEL®	Baroid	NSF/ANSI Standard 60	Sodium Bentonite
QUIK GROUT®	Baroid	NSF/ANSI Standard 60	Sodium Bentonite
NSX-Lube®	Baroid	Not toxic under 40 CFR 372 sec 313 ¹	Blend
QUIK TROL GOLD®	Baroid	NSF/ANSI Standard 60	PAC ⁴
Soda Ash	Baroid	OSPAR PLONOR ²	Sodium Carbonate
EZ-MUD DP GOLD®	Baroid	NSF/ANSI Standard 60	PHPA ³
N-SEAL™	Baroid	NSF/ANSI Standard 60	Silicate, spun mineral fiber

¹ Does not meet criteria of 'hazardous waste' as defined by the USEPA (Section 313 of SARA, 1986)

² Oslo Paris Convention list of substances Considered to Pose Little or No Risk to the Environment

³ Partially hydrolyzed polyacrylamide/polyacrylate (PHPA) copolymer

⁴ Polyanionic Cellulosic Polymer

MMC will retain a drilling contractor who will provide the underground drilling equipment and personnel. Core will be removed from underground drillholes for geologic logging and laboratory studies.

Any used oils, trash, or other residue from the underground drilling operation will be collected, hauled to the surface, and transported off-site for disposal in a permitted facility.

3.8 Water Management

In 2009, MMC installed a water management system as part of the Libby Adit rehabilitation work. This system includes underground sumps, pumps, and piping to the surface, and a WTP. MMC continues to operate the water management system. The current system, with installation of additional underground sumps and piping as dewatering and adit/drift construction occur, will be capable of handling and treating the expected average pumping rate of approximately 165 gpm (Piteau 2024) during rehabilitation and construction work planned during the Project.

MMC monitors groundwater inflow along the rehabilitated section of the Libby Adit decline. Much of the groundwater encountered in the dewatered portion of the adit occurs in the upper segments of the adit closest to the portal.

During the Project, the Libby Adit will be dewatered in order to conduct exploration under dry conditions. Water pumped to the surface will be treated at the WTP. The expected average pumping rate for the Project is approximately 165 gpm (Piteau 2024). This is within the current design capacity of the WTP, which is up to 500 gpm.

MMC's existing MPDES permit (MT0030279) regulates wastewater discharges from the Libby Adit and sets effluent limits for discharges to both surface water and groundwater. MMC will continue to abide by permit requirements under any future revised or issued permits. Adit dewatering rates exceeding 165 gpm but within the 500 gpm capacity of the WTP may occur initially over a three- to four-week period and then reduced to maintenance levels after initial dewatering. Once water is processed through the WTP, it will flow to the percolation pond. The MPDES permit has three approved discharge outfalls (001, 002 and 003). During the Project, MMC will only use Outfall 001 (percolation pond) for all discharges from the Project area. Outfall 002 (drainfield) will be covered by the WRSA #1 expansion. MMC will not construct and/or operate Outfall 003 (end of pipe discharge from percolation pond to Libby Creek) because it has not been needed in the past and is not needed for the proposed dewatering and treatment activities.

Current water quality only requires minimal treatment (filtration) to meet effluent limits of the MPDES permit. MMC samples Libby adit water prior to treatment in the WTP and after treatment. The most recent sampling indicated that water contained low amounts of nitrogen in the form of nitrate and nitrite, and the metals arsenic, iron, sodium, and zinc. The amounts of each analyte were below permitted limits in the MPDES permit before and after treatment. Water is treated by a combination of settling, ultrafiltration in the WTP, and percolation through alluvial sediments. The current WTP allows for the installation of a mix tank and the mechanisms to add chemical treatment to address higher levels of dissolved metals than those currently encountered in adit water. If test results indicate that chemical treatment is necessary to meet effluent limits, this system can be installed.

MMC will upgrade the WTP as necessary to treat parameters such as dissolved metals and nitrogen-containing compounds to meet the MPDES permitted effluent limits (**Table 2-4**) and the DEQ limits identified in **Table 2-5**.

Table 2-4 MPDES Permit Effluent Limitations

Parameter	Average Monthly (mg/L)	Daily Maximum (mg/L)	Annual Averal Load (lbs/day)
Total Inorganic Nitrogen, as N	2.5	Not Applicable	15.0
Chromium, Total Recoverable	0.013	0.020	0.078
Copper, Total Recoverable	0.007	0.010	0.042
Iron, Total Recoverable	0.25	0.38	1.50
Manganese, Total Recoverable	0.11	0.15	0.66
Zinc, Total Recoverable	0.10	0.15	0.66
Cadmium, Total Recoverable	0.0008	0.0012	0.005
Mercury, Total Recoverable	0.00001	0.000015	0.00006
Lead, Total Recoverable	0.0006	0.0009	0.004

mg/L = milligram per liter
lbs/day = pound per day

Table 2-5 Montana Department of Environmental Quality Water Quality Standards

Parameter	MDEQ-7 Required Reporting Value
Nitrate Plus Nitrite	20 µg/l
Nitrogen, Total Inorganic, mg/l	10 µg/l
Phosphorus, Total	1 µg/l

Parameter	MDEQ-7 Required Reporting Value
Aluminum, Dissolved	9 µg/l
Antimony, Total Recoverable in Water	0.5 µg/l
Arsenic, Total Recoverable in Water	1 µg/l
Beryllium, total Recoverable in Water	0.8 µg/l
Cadmium, Total Recoverable in Water	0.03 µg/l
Copper, Total Recoverable in Water	2 µg/l
Iron, Total Recoverable in Water	20 µg/l
Nickel, Total Recoverable in Water	2 µg/l
Selenium, Total Recoverable in Water	1 µg/l
Silver, Total Recoverable in Water	0.2 µg/l
Thallium, Total Recoverable in Water	0.2 µg/l
Zinc, Total Recoverable in Water	8 µg/l

µg/l = Microgram per liter

Upgrades to the WTP will include installation of a Moving Bed Biological Reactor (MBBR) for ammonia and nitrate removal prior to commencement of adit extension drilling and blasting. The MBBR, associated chemical addition, and additional clarification, will allow MMC to maintain compliance with effluent standards of the MPDES permit. Any settled particulate solids from the WTP will be returned underground hauled off-site for disposal at an approved site. Other wastes generated from the WTP will be characterized and disposed at an appropriate approved off-site facility based on the characterization of the waste.

Based on information obtained during early construction of the Libby Adit in the 1990s, MMC has completed rehabilitation through the section of the decline that historically produced the largest volume of the water that enters the adit. It is anticipated that incremental increases of groundwater inflow will be encountered as rehabilitation work proceeds to the existing end of the decline. During construction work, as explained in Section 3.5.2.1, MMC will drill ahead of drift advancement to identify any significant water-bearing geologic structures. If encountered, MMC will initiate grouting to reduce water inflow to the adit.

Underground ditches will direct water away from work areas and into sumps, where applicable and practicable. Sumps will provide for solids settling from adit water. Water from these underground sumps will be pumped to the surface WTP, where it will be treated for discharge requirements under the MPDES permit.

Although MMC will undertake special care in underground blasting for the Project, water pumped from the underground workings may experience an increase in nitrate and ammonia concentrations above those currently encountered. BMPs will be implemented to limit nitrate compounds in waste rock and adit drainage, including limiting the type of explosive used during adit extension and underground drift construction through blast design optimization and use of diversions, grouting, and other means to control water flow contact with blasted rock. Regardless, mine water or precipitation that contacts waste rock will be captured, treated and discharged in compliance with MPDES permit effluent limits.

3.8.1 Stormwater Management

MMC is authorized by MDEQ to discharge stormwater through existing MPDES permitted outfalls. To facilitate compliance with this permit, MMC operates under a site-specific Stormwater Pollution

Prevention Plan (SWPPP) MMC will comply with all effluent limitations, monitoring requirements, and other conditions of the MPDES permit. The SWPPP describes stormwater management at the Project area, BMPs, control measures, and monitoring procedures that will ensure compliance with the terms and conditions of the MPDES permit. The SWPPP also describes all structural and non-structural BMPs implemented at the site to minimize erosion and sediment transport.

The intent of stormwater management is to prevent damage to infrastructure and downstream receiving points and encourage diversion of clean run-on water around the WRSAs. The plan for stormwater runoff is to:

- Route/divert surface water flows around Project area facilities.
- Extend an existing culvert beyond the limits of WRSA #2.
- Armor sections of channels or outlet points to minimize erosion and sediment transport.
- Implement BMPs in design and construction of the surface water management system in accordance with the SWPPP (MMC 2018).

Stormwater from disturbed areas at the Project area will be treated and discharged at Outfall 001. Run-on from upgradient of the Project area will continue to be routed to the existing diversion ditch along the Upper Libby Creek Road (NFS Road 2316). MMC will conduct minor grading along the existing ditch to ensure run-on is captured prior to contacting site materials. The diversion drains toward an existing culvert which then conveys non-contact stormwater to a small catchment basin on the southern side of the Project area. The existing culvert outlet and catchment basin are located within the footprint of WRSA #2 and an extension to the culvert will be necessary. The new catchment basin will include geotextile and riprap for energy dissipation at the culvert outlet. Minor grading will be required along the Upper Libby Creek Road to redirect runoff captured on it towards the WRSAs.

SWPPP BMPs will be implemented and continue until the areas disturbed are finally stabilized (vegetation cover has been established with a density of at least 70 percent of pre-disturbed levels, or permanent physical erosion control reduction methods such as sediment fences, sediment traps, and sumps have been employed). While on-site, personnel are trained to make visual observations of BMP effectiveness. Both routine documented inspections and routine undocumented visual observations will verify that BMPs are adequately maintained. Any control measures not achieving the intended effect will be modified as expeditiously as practicable, with documentation as required by the permit.

3.8.2 Water Rights

No new water rights or sources will be required to support the Project. MMC holds water rights listed in **Table 3-1**.

Table 3-1 MMC Water Rights

Details	MMC Water Rights ¹		
	76D 141319 00	76D 141320 00 ²	76D 73018 00
Type	Statement of Claim	Statement of Claim	Groundwater Certificate

Details	MMC Water Rights ¹		
	76D 141319 00	76D 141320 00 ²	76D 73018 00
Purpose	Domestic	Mining	Mining
Location	Section 15, T27N, R31W	Section 15, T27N, R31W	Section 15, T27N, R31W
Priority Date	August 21, 1902	August 21, 1902	October 17, 1989
Source	Surface Water	Surface Water	Groundwater
Source Name	Libby Creek	Libby Creek	Groundwater
Means of Diversion	Flowing	Headgate	Well
Flow Rate (gpm)	15	44.9	40

¹ All water rights are located in Section 15, Township 27 North, Range 31 West.

² Restrictions in place from December 19 through April 1.

MMC will use the above water rights as authorized by the Montana Department of Natural Resources and Conservation (DNRC) for beneficial use required during the Project. MMC will use its groundwater right with a year-round diversion and/or its surface water right with a diversion between April 1 and December 19 for any required water usage including adit dewatering and other operational uses.

MMC will not appropriate any water encountered from groundwater inflow to the underground workings for beneficial use; this water will be pumped from the adit, treated in the WTP, and released into the percolation pond (Outfall 001) under the MPDES permit.

At the start of the Project, MMC will install Montana DNRC-approved measuring devices on its water right sources. In addition, MMC may install the necessary infrastructure (such as pumps and piping) with existing and proposed disturbed areas required to appropriate water as authorized for water rights 76D 141319 00 and 76D 141320 00, which are surface water sources. The current groundwater source infrastructure is in place and operational.

3.9 Explosive Use and Management

MMC's primary objective for explosives management will be to limit the introduction of nitrate compounds from blasting into waste rock material and adit drainage, which could affect stormwater and adit discharge quality. MMC will apply the following measures:

- Limit the type of explosive used during adit extension and underground drift construction.
- Optimize blast design to avoid using more explosive than required.
- Implement proper water management.
- Conduct adit water and stormwater quality monitoring.

MMC will use emulsion as the primary explosive instead of the more common Ammonium Nitrate Fuel Oil (ANFO). Nitrate in the emulsion type of explosives is less soluble in water than nitrate in other bulk industrial explosives such as ANFO. Explosives will be stored on surface and/or underground in powder magazines and shipping/storage containers delivered directly to the Project area by the supplier of explosives. Explosives stored on surface will be contained within secured, locked containers with no open exposure to the environment. The containers will be in a secure within the Project area. Explosive magazines will be sized and designed to meet

requirements of the Federal Explosives Law and Regulations, Title 27 CFR 181, Subpart J, Storage of Explosives. Explosives used underground will be handled and used in accordance with MSHA) regulations by trained and certified personnel.

MSHA regulates underground explosives storage, transport and use in 30 CFR, Part 57, Safety and Health Standards – Underground Metal and Nonmetal Mines, Subpart E, Explosives. The explosives powder magazines will be locked, except with either loading or unloading explosives from the storage area. Transfer of explosives to containers on the surface will be limited and will use hoses and pumps to minimize potential for spills. Spill contingency plans will be developed by the explosives supplier to address unlikely spills that may occur off the property.

Blast designs will be developed to address explosive quantities required for each hole. Strict quality control will be maintained to ensure the exact type and amount of explosives are used for the specific conditions and lithologies. This will ensure complete detonation and consumption of explosive product, minimizing product loss and nitrate levels in adit water.

MMC will be responsible for the regular inspection and audit of the blasting operation. Employee training will be an important aspect of compliance, ensuring all applicable employees understand the importance of proper explosives management.

Water management also will be an important aspect of explosives management. The use of diversions, grouting, and other means to control water flow contact with blasted rock will reduce nitrate loading to discharge water from the adit. Monitoring of nitrate concentrations in adit water in compliance with MMC's MPDES permit will assess the effectiveness of the water management measures.

3.10 Power Supply

Power is supplied by diesel-powered generators located in the Project area. MMC operates three Tier 3 225 kilowatt electrical generators, which provide enough power to maintain the site including maintaining the static water elevation in the Libby Adit. While the adit is dewatered, MMC will upgrade the existing generators with newer, more efficient Tier 4 generators. MMC's Montana air quality permit (MAQP) 3788-00 established required limits, emission controls, and mitigations for activities covered by the permit. The permit allows for the use of on-site diesel-powered generators, provided the generator engines are at least Tier 3 or Tier 4.

3.11 Fuel Storage and Management

Diesel fuel is and will continue to be delivered to the site on a periodic basis, based on use and storage availability. Mobile underground mining and surface support equipment, as well as the site generators, will use diesel fuel.

As fuel storage requirements will increase for the Project, MMC will install two aboveground 20,000-gallon double-walled fuel tanks within covered concrete-floored areas. Required secondary containment for these tanks is provided by the secondary tank wall which jackets the inner containment tank. These tanks will be designed, constructed, and installed in accordance with ARM 17.57.105 – Design, Construction, and Installation Standards for Aboveground Double-Walled Petroleum Storage Tank Systems. The stationary (fixed) diesel fuel tanks, including day

tanks, will be stored within covered concrete floors. For containment purposes, fueling will occur on a concrete pad adjacent to the fuel storage area to the extent practical.

3.12 Solid Waste Disposal

MMC employees and contractors will receive waste identification and management training as part of annual and new miner training for general environmental procedures. MMC will not construct a landfill at the Project area and no solid waste or refuse materials will be disposed in underground mined-out areas. Trash and other solid waste, including hazardous waste, will be handled as addressed in the following subsections.

3.12.1 Recycling

Recyclable items include metals (e.g., aluminum and steel cans), cardboard, glass, and plastics. MMC will maintain a recycling program to reduce waste delivery to the local landfill. Lincoln County offers local recycling drop-off points in Libby (across from City Hall), at the Libby County landfill, and at the Kootenai disposal site on U.S. Highway 2. Recyclable materials will be hauled off-site by a contractor.

MMC will recycle by providing bins of various categories giving employees and contractors the opportunity to recycle. Recycling bins will accompany regular trash bins. Recycling bins (typically yellow or blue in color) will be labelled with a listing of products that are recyclable. As part of on-site safety and environmental training, MMC will include instructions and information about the Project's recycling program.

3.12.2 Trash and Inert Wastes

MMC will provide appropriate garbage containers at the Project area for specific refuse. Inert wastes generated from Project operations will include non-recyclable scrap metal, wood, cardboard, paper products, properly managed (drained) empty containers, pierced aerosol cans, pierced and hot drained oil filters¹, tires, piping, and other similar non-perishable waste products.

Non-recyclable items will be disposed at the Lincoln County landfill. MMC will engage a local waste management contractor to remove trash and other waste material from the Project area on a regular basis for disposal at the Lincoln County landfill.

3.12.3 Hazardous Materials, Used Materials, and Petroleum Wastes

The Resource Conservation and Recovery Act (RCRA) creates a framework for the proper management of hazardous and non-hazardous solid wastes; these wastes include fluorescent bulbs and batteries that are considered "universal wastes". Empty aerosol product containers are also considered hazardous, until punctured and drained. All potentially hazardous wastes generated at site will be characterized prior to waste generation so that proper disposal practices can be developed, and qualified waste management vendors identified.

Most of any hazardous materials (i.e., diesel fuel, gasoline, etc.) used at the Project area will be spent or consumed during operations. Materials that are not spent or consumed (i.e., oils,

¹ Before disposal in one of the on-site trash receptacles or containers, oil filters must be pierced, dismantled, or punctured and hot drained for 12 hours, or the excess oil removed by crushing or another equivalent method that substantially eliminates most oil from the filter.

antifreeze, etc.) will be recycled, to the extent practical, or disposed offsite in an approved depository in accordance with applicable federal and state regulations. All used petroleum products and solvents and used antifreeze will be collected in approved containers, transported offsite, and disposed through qualified vendors. It is likely that a very small amount of hazardous waste will be generated in the shop, such as residue drained from punctured aerosol cans. All hazardous waste will be properly contained, labeled, and stored within the shop or fuel storage building pending off-site disposal by a contractor qualified to transport and dispose of hazardous waste. Waste generation, storage, transport, and disposal records will be kept by MMC, as required by RCRA.

Used petroleum products will be stored on-site in approved containers that will be separated from other trash and garbage products, and these used petroleum products may be reused on-site or will be transported off-site for recycling or disposal in an approved facility. MMC will maintain a Spill Prevention, Control, and Countermeasure Plan that establishes procedures for responding to accidental spills and releases of petroleum products.

3.12.4 Sewage Treatment and Disposal

New sewage system improvements associated with the Project may include installation of the following, depending upon final State and Local permitting requirements:

- One new 3,000-gallon combined tank (septic/pump)
- One existing 1,000-gallon (pre-anoxic) septic tank
- Effluent filter on outlet of final recirculation tank
- Three existing 1,000-gallon tanks to be used as pre-anoxic, recirculation, and pump chamber
- Three AX-20 Advantex pods (or equal Level 2 treatment)
- Carbon (methanol) feeder
- Alkalinity (soda ash) feeder
- Orenco PF751012 recirculation pump and transfer pump to subsurface drip field (or equal)
- Approximately 400 linear feet of 2-inch diameter effluent force main
- One 1,000-gallon drain back/dose pump chamber
- One Orenco PF1005-FC effluent dose pump (or equal)
- Pressure-dosed subsurface drip absorption area comprised of 11 150-foot drip lines with system appurtenances (including air vents, check valves, filter, and flow meter).

All sewage treatment and disposal will occur in permitted facilities located on private land.

3.13 Water Quality and Quantity Information

During the Project, MMC will use various consumable materials and supplies. MMC will maintain Safety Data Sheets (SDSs) for chemicals stored on site. As applicable and appropriate, MMC will report chemical use volumes under the USEPA Toxic Release Inventory program, as required by Section 313 of the Emergency Planning and Community Right to Know Act. **Table 3-2** summarizes fuels and reagents used and stored to support the Project.

Table 3-2 Consumable Materials and Supplies

Name	Area Used	Delivery Vehicle	Estimated Site Storage Quantity	Estimated Annual Use	Estimated Shipment Quantities	Estimated Frequency of Supply Deliveries
Diesel fuel	Underground and Surface Equipment	Tanker Truck	10,000 gal	500,000 gal	4,000-5,000 gal	100-125 trips/year
Gasoline	Surface	Tanker Truck	5 gal containers	200 gal	20-25 gal	8-10 trips/year ⁽¹⁾
Propane	Surface & Ventilation	Tanker Truck	1,000 gal	3,000 gal	1,000 gal	3 trips/year
Antifreeze, oil, hydraulic fluid, grease, degreasers, and solvents	Shop	Flatbed or Enclosed Delivery Truck	150-200 gal	2,000 gal	150-200 gal	10-15 trips/year
Oxygen and acetylene	Shop	Flatbed or Enclosed Delivery Truck	3,000 ft ³	8,000 ft ³	1,500 -2,000 ft ³	4-5 trips/year
Explosives: blasting agents, emulsions, detonation cord, detonators, and delays	Underground	Flatbed or Enclosed Delivery Truck	(2)	(2)	(2)	(2)
Drilling fluids ⁽³⁾	Underground and Surface	Flatbed or Enclosed Delivery Truck	4,000-5,000 gal	40,000-50,000 gal	2,000 gal	20-25 trips/year
Water treatment materials and chemicals ⁽⁴⁾	Water Treatment Plant	Flatbed or Enclosed Delivery Truck	4,000-5,000 gal	30,000-40,000 gal	2,000 gal	15-20 trips/year
Hydrated Lime	Water Treatment Plant	Flatbed or Enclosed Delivery Truck	15,000-20,000 lb	20,000 lb	10,000 lb	2 trips/year
Miscellaneous supplies and materials ⁽⁵⁾	Surface and Underground	Flatbed or Enclosed Delivery Truck	variable	variable	variable	50-100 trips/year
Estimated Trips for Supplies and Materials to the Libby Adit						212-305 trips/year ⁽⁶⁾

Abbreviations: gal = gallons; ft³ = cubic feet; lb = pounds

¹ One of the site supervisors will probably bring the gas containers to the site in their pickup truck.

² The U.S. Office of Homeland Security discourages mine operators to report explosive quantities.

³ Fluids used for exploration and geotechnical drilling will include choline chloride, mineral oil, anionic polyacrylamide, vegetable oil, and copolymer of sodium acrylate.

⁴ Materials and chemicals to be used at the WTP will include sodium hypochlorite, sulfuric and hydrochloric acid, and flocculent.

⁵ Miscellaneous supplies and materials to be used at the site will be rock bolts, wire mesh, steel, epoxy and resin, shotcrete, grout and associated additives, wood and timber, spare parts, cleaning supplies, and office supplies.

⁶ Based on a 260 day per year delivery window to the Project area (5 days/week for 52 weeks/year), the average weekly estimated supply trips to the site will be from approximately 4 to 6, which will be approximately 1 trip per day. However, these estimates represent a long-term average, and it can be expected that supply delivery will be variable, meaning that there may be more trips on any given day, while other days will not experience a delivery. In addition, this estimate is for supplies and materials needed at the Libby Adit to conduct exploration activities, and does not represent traffic associated with the workforce, vendors, contractors, government personnel, and visitors.

3.14 First Aid and Safety-Related Facilities

MMC will implement health and safety programs for the Project. These programs will comply with MSHA's requirements and regulations, including annual refresher and new miner training for safety, as well as environmental considerations.

The Project is located in proximity to the town of Libby where hospital and ambulance services are available in case of medical emergencies. First aid supplies will be located strategically around the site. Some first aid supplies will be in the office, dry and offices, while other supplies will be located underground.

The parking area at the Project area will serve as an emergency helicopter landing pad during the Project. This pad will be available for Medivac purposes. The Kalispell (Montana) Regional Medical Center provides helicopter ambulance services for northwest Montana.

3.15 Communications

MMC maintains a satellite phone system at the Project area to provide for routine or emergency communications. In emergency situations, MMC can connect into the local county Very High Frequency radio system as a backup to the satellite communications.

Underground communications will be provided by phone lines from the administration offices and maintenance shop to various points in the underground workings. Underground phones will be strategically located throughout the underground workings in conformance with MSHA standards. Additionally, MMC may install "leaky feeder" radio communications within the underground workings.

3.16 Project Schedule

Project activities are anticipated to last 16 years. Project activities and schedule are shown in Table 3-3.

Table 3-3 Project Schedule

Years	Task	Activities	Access
1 to 2	Dewatering and Rehabilitation	Dewatering and rehabilitation of the existing Libby Adit.	Year-round use and maintenance of NFS Road 231 and NFS Road 2316 by Project traffic. 4.5 miles of these roads would be seasonally closed to public traffic from April 1 to May 15.
3 to 8	Exploration	Underground activities include extension of the Libby Adit, construction of lateral drifts, continued dewatering, and exploration drilling. Surface activities include expansions of WRSA #1, construction of WRSA #2 and WRS, and relocation of a soil stockpile.	Year-round use and maintenance of NFS Road 231 and NFS Road 2316 by Project traffic. 4.5 miles of these roads would be seasonally closed to public traffic from April 1 to May 15.
9 to 11	Reclamation	Reclamation and closure of the Libby Adit and Plan disturbance.	Year-round use and maintenance of NFS Road 231 and NFS Road 2316 by Project traffic. 4.5 miles of these roads would be seasonally closed to public traffic from April 1 to May 15.

Years	Task	Activities	Access
12 to 16	Monitoring	Monthly post-reclamation monitoring.	Project traffic would use NFS Road 231 and NFS Road 2316 when weather permits and over-snow travel during winter.

3.17 Plan for Interim Closure

MMC does not anticipate the need to temporarily or seasonally reduce Project activities; however, in the unlikely event that a temporary closure occurs (less than one year), MMC will follow requirements in accordance with 36 CFR 228.10- Cessation of Operations, Removal of Structures and Equipment, by filing a statement with the District Ranger at the Libby Ranger District. If MMC determines that an extended period of closure is necessary (more than one year), MMC will submit a Temporary Closure Notification to KNF and MDEQ for approval. If MMC decides to permanently cease and conclude operations at the Project, reclamation and closure activities will be implemented as described in Section 6.0.

MMC will conduct the following during periods of interim closure:

- Continue dewatering of the Libby Adit,
- Maintain the water management system at the Project area, and
- Maintain required monitoring activities including water and aquatic resources as outlined in the MPDES permit and State of Montana Hard Rock Operating Permit No. 00150.

Traffic levels during periods of temporary and extended interim closure will return to the current levels of approximately 270 trips per year. Seasonal closure of NFS Road 231 and NFS Road 2316 and snowplowing will continue as described in Section 3.2.

3.18 Workforce Requirements and Schedule

MMC is committed to hire locally when and where possible. During dewatering and adit rehabilitation, MMC will employ six to 10 people at the Project area, working two 10-hour shifts, seven days per week. During drift construction and drilling, MMC will employ 30 to 35 people at the Project area, working two 10-hour shifts, seven days per week. The hours of operation will fluctuate based on daily requirements but will operate seven days per week. MMC will work with the KNF to exploration and implement appropriate alternative work schedules that minimize potential impacts to wildlife while allowing for reasonable Project completion.

3.19 Monitoring

The monitoring plan for the Project is included in **Appendix B**. The purpose of the monitoring plan is to describe the monitoring programs that MMC will implement during the 16-year life of the Project. The monitoring plan incorporates requirements from MDEQ permits, environmental monitoring proposed by MMC, and reporting requirements.

3.20 Equipment

MMC will use conventional underground and surface mining equipment during the Project. The major pieces of mobile equipment to be used at the Project site are presented in **Table 3-4**. All surface equipment will be outfitted with the highest level of noise suppression allowed by the equipment manufacturer. This equipment list may be modified during the Project depending on site-specific conditions and needs.

Table 3-4 Project Mobile Equipment List

Equipment	Number
Underground Mobile Equipment	
Loader – 6 cubic yards	1
Truck – 16 to 20-ton capacity	1
Drill Jumbos	1
Grader	1
Personnel Tractor	1
Rock Bolter	1
Jackleg Drill (hand-held pneumatic drill)	1
Scissor Deck	1
Remix Truck	1
Shotcrete Boom Truck	1
Portable Substations	1
Telehandler	1
Flatbed Truck	1
Lube/Fuel/Maintenance Truck	1
Powder Truck	1
Pumps	1
Surface Mobile Equipment	
Backhoe	1
Dozer	1
Motor Grader	1
Forklift	1
Front End Loader (7-8 cubic yards)	1
Surface Haul Truck(s)	1
Water Truck	1
Supply Truck (flatbed truck)	1
Crew Vans	1
Light Vehicles (pickups)	1
Compressor	1
Generators	1
Welders	1

4.0 ENVIRONMENTAL PROTECTION MEASURES

This section describes the environmental protection measures that have been developed and will be implemented by MMC during the Project to avoid or reduce potential impacts to the environment. Monitoring is intended to help determine and define the effects of Project activities on the environment and the effectiveness of environmental management and provide input to MMC and regulatory agencies regarding Project performance. Data collected during the Project monitoring activities will be used to adaptively manage the Project. MMC will implement the approved monitoring plans. Unless otherwise stated in the monitoring plans, monitoring will continue for the Project duration.

MMC will produce an annual report presenting all monitoring results, unless otherwise specified. MMC will submit as part of the Project annual report a discussion of its compliance with all monitoring and other requirements specified in Operating Permit No. 00150 and this PoO.

4.1 Air Quality

MMC will continue to monitor and submit annual production levels or quantities for all emissions identified in the permit issued by the MDEQ Air Quality Bureau (MAQP #3788-00) for both stationary sources and portable emitting units. Applicable federal and state air quality criteria will be met using Best Available Control Technology for emissions that result from the Project. Air quality BMPs include dust abatement, limiting disturbance, and concurrent reclamation. MMC will use a chemical stabilizer or groundwater appropriated from existing water rights to control dust.

4.2 Geotechnical Protection Measures

During extension of the Libby Adit and construction of exploration drifts, MMC will implement measures to ensure no impact to surface resources by limiting the size of underground openings (18 foot by 18 foot or less), maintaining several hundred feet depth to surface, and utilizing ground support to keep the adit safe for use. All drifts and drill stations will remain at least 300 feet from the Rock Lake Fault and 1,000 feet from Rock Lake.

4.3 Explosives Management

MMC's primary objective for explosives management will be to limit introducing nitrate compounds generated from blasting into waste rock material and adit drainage. Employee training is a key component of explosive management and safety. MMC supervisory personnel and blasting crews will be specially trained for the handling and use of explosives. Employees handling explosives will be certified blasters and appropriately permitted by the Bureau of Alcohol, Tobacco, Firearms, and Explosives.

MMC will monitor nitrate concentrations in adit water in compliance with MMC's MPDES permit, and adaptively manage the use of explosives. MMC will use emulsion as the primary explosive.

MMC will implement BMPs to support safe operations that limit the introduction of nitrate compounds from blasting into waste rock and adit drainage. BMPs include limiting the amount of explosive used during adit extension and underground drift construction through blast design

optimization and use of diversions, grouting, and other means to control water flow contact with blasted rock. MMC will attempt to reduce water ponding at the working face prior to blasting, minimize the amount of water used to spray down the muck piles prior to loading, and minimize water flowing down ramps/declines towards the face by diverting water into collection sump(s).

MMC will develop blast designs to address explosive quantities required for each hole. Strict quality control will be maintained to ensure the exact type and amount of explosives are used for the specific conditions and lithologies. This will ensure complete detonation and consumption of explosive products, minimizing product loss and nitrate levels in adit water. Water that contacts waste rock will be captured, treated, and discharged in compliance with MPDES permits.

4.4 Water Quality

MMC will continue monitoring of water quality and quantity in compliance with MMC's existing and any future MPDES permits to ensure appropriate State water quality standards are met. The Project will upgrade the WTP and/or implement additional BMPs to ensure continued compliance with future permit discharge requirements.

Although MMC will undertake special care in underground blasting for the Project, water pumped from the underground workings may experience an increase in nitrate and ammonia concentrations above those currently encountered. Water will be captured, treated, and discharged in compliance with MPDES permits. BMPs will be implemented to limit nitrate compounds in waste rock and adit drainage, including limiting the type of explosive used during adit extension and underground drift construction through blast design optimization and use of diversions, grouting, and other means to control water flow contact with blasted rock.

4.5 Stormwater Pollution Prevention Plan

MMC operates under a site-specific SWPPP which facilitates compliance with the effluent limitations, monitoring requirements, and other conditions of the MPDES permit. The SWPPP describes stormwater management at the Project area, BMPs, control measures, and monitoring procedures that will ensure compliance with the terms and conditions of the MPDES permit. The SWPPP also describes all structural and non-structural BMPs implemented at the site to minimize erosion and sediment transport.

MMC will continue to utilize and implement BMPs for erosion and sediment control including:

- Construction of berms, sediment traps, silt fence, ditches, native materials (brush pile filters, surface revegetation/reclamation), lined sumps, and pumps.
- Elimination of off-road vehicle traffic except in association with environmental management and monitoring activities.
- Implementation of reclamation and revegetation as soon as practical for long-term stability and erosion control.

Stormwater from disturbed areas within the Project area will be treated and discharged at Outfall 001. Run-on from upgradient of the Project area will continue to be routed to the existing diversion ditch along NFS Road 2316. MMC will conduct minor grading along the existing ditch to ensure

run-on is captured prior to contacting site materials. The diversion drains toward an existing culvert which then conveys non-contact stormwater to a small catchment basin on the southern side of the Project area.

SWPPP BMPs will be implemented and continue until the areas disturbed are finally stabilized (vegetation cover has been established with a density of at least 70 percent of pre-disturbed levels, or permanent physical erosion control reduction methods such as sediment fences, sediment traps, and sumps have been employed). While on-site, personnel are trained to make visual observations of BMP effectiveness. Both routine documented inspections and routine undocumented visual observations will verify that BMPs are adequately maintained. Any control measures not achieving the intended effect will be modified as expeditiously as practicable, with documentation as required by the permit.

4.6 Road Maintenance

Culvert replacements are not planned but if culvert replacement or maintenance or ditch maintenance are needed along NFS Road 231 and NFS Road 2316 and the areas have revegetated since initially being disturbed, MMC will survey these areas for sensitive plant species prior to initiating work, and will coordinate, as appropriate, with the KNF. BMPs will be employed based on site-specific conditions including use of straw wattles or other sediment control devices to limit erosion. No instream work is planned. If needed, instream work will be coordinated with the USFS fisheries biologist and be conducted in accordance with applicable permits.

MMC will not side cast surface material and snow during snowplowing. MMC will implement BMPs to reduce surface flow and runoff, avoiding sand input to streams, and cleaning bridge decks. MMC will minimize road maintenance in RHCA's to the extent practicable. Signs will be installed to prevent snow casting in these areas during plowing and grading. No salt will be used on roadways. Snow plowing will avoid exposing bare earth to keep plowed snow from mixing with soil. MMC will implement BMPs to reduce surface flow and runoff, avoid sand input to streams, and clean bridge decks.

MMC will implement the following BMPs associated with road surface and ditch maintenance adapted from the Biological Opinion on the Effects to Bull Trout and Bull Trout Critical Habitat From the Implementation of Proposed Actions Associated with Road related Activities that May Affect Bull Trout and Bull Trout Critical Habitat in Western Montana (USFWS 2015). Numbers shown are the design criteria number in the Biological Opinion (USFWS 2015).

- 8: When surface runoff flows directly into a stream, consider in-sloping roads and building sediment catch basins to avoid delivery of road sediment to stream channels.
- 15: Place large woody debris or rock that must be removed from the road prism, into the stream channel only under the direction of a fisheries biologist.
- 16: Utilize sediment filter fence, weed-free straw bales, or other means to reduce delivery of sediment to streams or channels.
- 20: Sidecasting of road materials smaller than four inches in diameter is prohibited on road segments within or abutting RHCA. Material greater than four inches from surface or ditch

maintenance will not be sidecast where there is a potential to enter the stream. Large boulders may be sidecast under the direction of a fisheries biologist.

- 21: Reduce the erosion of loose dirt from ditches following ditch maintenance (e.g., roll ditch with grader wheel).
- 23: Incorporate material from the ditch into the road surface on NFS Road 2316, or if not incorporated, put it on a designated site where it will not be delivered to stream channels.
- 24: When pulling ditches, the cut slope will not be undercut.
- 28: Where directed by the fisheries biologist, rolling (surface compaction) of the road surface needs to be included as part of the blading for roads that are located in RHCAs.

MMC will implement the following BMPs for snowplowing and snow removal (USFWS 2015).

- 32: Open culverts and ditches restricted by snow or ice to allow proper drainage.
- 33: Leave two inches of snow on roadways during winter plowing operations to protect the road surface from mechanical disturbance.
- 34: Avoid sidecasting of snow mixed with soil. Install or fund installing signage where sidecasting will be avoided.
- 35: Openings in snow berms will be provided and maintained as required for surface drainage. Avoid drainage outlets on erodible fills. If the snow berm can be satisfactorily pushed off the road shoulder without sidecasting into streams or causing snow and ice damming of stream channels, openings in the snow berm may not be needed. Snow berm openings will be assessed on a case-by-case basis by the fisheries biologist.
- 36: Restore damage from snow removal by the following summer. Examples of this are damage or excessive erosion of road surface, damage to cross drain structures and damage or excessive erosion on cut and fill slopes.

MMC may also need to brush NFS Road 231 and NFS Road 2316 to clear adjacent vegetation to improve sight distance. MMC will implement the following BMPs (USFWS 2015):

- 13: Brush along streams will be cut to a height of no less than the height needed to maintain the sediment filtering capacity of the shrub base, and long-term viability of bank-supporting shrubs.
- 17: Keep brush-clearing on all roads used by the Project to the minimum level necessary to provide for public safety or to maintain a road surface and drainage system.
- 18: Vegetation between the road edge and the stream will be retained when roads are near (as defined by the biologist) the high-water mark, except where safety is an overriding concern (see number 17, above). This distance may be greater where site specific issues exist, such as near laterally migrating channels.

4.7 Noxious Weeds

MMC will survey for noxious weeds each growing season as described in the monitoring plan. During noxious weed surveys, any sensitive plant species found will be documented and flagged for avoidance. Where noxious weeds are found, MMC will document occurrence, and treat as appropriate following the Lincoln County Integrated Noxious Weed Management Plan. Treated areas and effectiveness will be reported as described in the monitoring plan. MMC will treat weeds along roadways annually with herbicide, as permitted in accordance with the KNF Invasive Plant Management Final Environmental Impact Statement. Vehicles and equipment will be washed and inspected prior to mobilizing to the Project area. MMC will use certified noxious weed-free seed mixtures and erosion control products. As appropriate, seed mixes will be approved by KNF and/or MDEQ.

4.8 Wildlife

Monitoring and reporting of wildlife activities is intended to allow for adaptive management to ensure preemptive management and avoid risk of mortality and displacement of wildlife. The adaptive management includes modification of environmental protection measures where new information may assist to further reduce wildlife impacts. Modifications will be reviewed and approved by the USFS in coordination with the Montana Fish, Wildlife, and Parks (MFWP) and the USFWS.

MMC will monitor the number of big game animals killed by vehicle collisions along NFS Road 231 and NFS Road 2316 for the duration of the Project and report findings annually to the USFS and MFWP. The numbers of animals killed by vehicle collisions will be reviewed by the USFS, in cooperation with MFWP, and if necessary, mitigation measures will be developed and implemented to reduce mortality risks.

MMC will monitor and report within 24 hours all Canada lynx, wolf (*Canis* sp.), moose (*Alces americanus*), elk (*Cervus canadensis*), and wolverine mortalities, and immediately report all grizzly bear and black bear (*Ursus americanus*) mortalities as described in the mandatory reporting system within Project area and along the same access roads for the life of the Project. If a threatened or endangered species mortality occurs, MMC will be required to haul future road-killed animals to a disposal location approved by MFWP, if deemed necessary by the grizzly bear specialist or law enforcement officer to avoid additional grizzly bear or other threatened and endangered species mortality.

MMC will establish a mandatory electronic reporting system for MMC and KNF employees to immediately report grizzly and black bear incidents, observations, and mortalities to ensure that preemptive management, hazing, or removal of food attractants occur to avoid risks of habituation, mortality, or displacement of grizzly bears. The reporting system will be coordinated with the FWP carnivore conflict specialist and FWP law enforcement warden officer. Data collected will be reported annually to the USFS and MFWP.

By December of each year, MMC will submit an annual summary report to the USFS, for the duration of the Project, to describe any grizzly bear and black bear incidents including sanitation that have occurred involving MMC personnel, and corrective measures taken during the previous year associated with the Project.

MMC will voluntarily adhere to the USFS food storage rules and regulations (USFS 2023) on private land at the Project area and also as required on KNF NFS lands located along NFS Road 231 and NFS Road 2316. By voluntarily adhering to USFS food storage guidelines on private land, MMC is committing to minimizing the potential for human-to-bear conflicts which also minimizes the potential for mortality risk to grizzly bears associated with the Project.

MMC will not use salt during winter snowplowing operations to avoid attracting big game. To eliminate attractions to bears and other predators, MMC will remove road-killed animals along NFS Road 231 and NFS Road 2316. Road-killed animals will be moved at least 50 feet beyond the right-of-way clearing or as far as necessary to be out of sight of the road or to a disposal location approved by MFWP as soon as they are encountered. On the lower portion of Libby Creek Road within the Chronic Wasting Disease management area, MMC will haul road-killed deer, elk, and moose carcasses to the Libby Landfill.

MMC will ensure the wildlife exclusion fencing around the Project area is in good condition and will maintain the fencing until site closure, reclamation, and monitoring are completed.

MMC will provide bear-resistant dumpsters at the Project area. Waste and recycling bins will be stored in areas that are not accessible to bears such as in office and shop buildings.

MMC has developed a Wildlife Management Awareness Plan (**Appendix C**) for its employees and contractors as part of the Plan. The objectives of the wildlife awareness plan are to reduce the risk of human-caused mortality of threatened and endangered species, identify other wildlife issues of concern for the Project, establish company procedures and protocols that address these issues, and develop employee and contractor awareness of wildlife issues. The Wildlife Management Awareness Plan includes the education of employees about bear awareness and safety, refuse management, company policies regarding wildlife, and other wildlife concerns. MMC will identify consequences for violations in an employment contract so employees will be aware of the consequences before beginning their employment.

MMC employees, contractors, and subcontractors will be prohibited from carrying firearms within the Project area permit area boundary and along NFS Road 231 and NFS Road 2316 access roads, except for security officers and other designated personnel.

MMC employees, contractors, and subcontractors will be prohibited from feeding wildlife (including dropping foodstuffs from lunches, etc.) to avoid attracting bears or other wildlife and to discourage habituation.

MMC employees, contractors, and subcontractors will be prohibited from hunting within the Project area.

4.9 Noise

The use of explosives will occur underground.

At the surface, MMC will take the following actions to reduce surface noise:

- All surface equipment will be outfitted with the highest level of noise suppression allowed by the equipment manufacturer. Vehicles operated on the surface will use mufflers to the greatest extent practicable, as allowed by the appropriate vehicle manufacturer.
- MMC will operate all surface equipment so that sound levels will not exceed 55 A-weighted decibels (dBA), measured 250 feet from the Project area boundary, for continuous periods exceeding an hour. Backup beepers may exceed 55 dBA 250 feet from the Project area boundary.
- Ventilation fans will either be located underground or muffled as needed to meet the noise levels discussed below. MMC will install silencers on intake and exhaust ventilation fans in the Libby Adit so that they generate sounds less than 85 dBA measured three feet from the fan. MMC will locate all fans such that they will not increase noise levels in the CMW from the Project by 5 dBA or more. The USEPA considers changes smaller than 5 dBA to be insignificant (USEPA 1978).
- Install high-grade mufflers on all diesel-powered equipment.
- MMC will use critical grade silencers on generators.
- Combine noise-generating operations to occur for short durations simultaneously whenever possible.
- Implement a semiannual maintenance and lubrication schedule to ensure that equipment is operating properly.
- Keep noise-generating sources from approaching animals on a direct course where possible.
- Provide safe cover near noise-generating on-site sources where possible.
- Explosives use will be limited to underground and most other activities will also occur underground.
- MMC will provide a summary report of monitoring and any equipment repairs made annually to the USFS by the end of each bear year (December).

4.10 Transportation

MMC will require suppliers and transporters to maintain SDSs for cargo delivered to the site. Contractors and vendors must transport fuel, oils/lubricants, chemicals, and explosives to the Project area in certified containers and vehicles that comply with associated regulations and guidelines. MMC will maintain spill response supplies including items such as absorbent pads, control berms, straw waddles at the Project area.

To minimize traffic associated with the Project between U.S. Highway 2 and the Project area, MMC will implement its transportation plan which is included in the PoO. Employees and contractors will ride-pool using vans or busses for transportation to the Project area. MMC will establish a supply staging area in Libby, Montana to consolidate shipments to the Project area. The transportation plan specifies that exceptions to staging and consolidation of supplies will include full-load shipments, expedited shipments to repair equipment, and other emergencies as

described in the transportation plan. MMC will implement the transportation plan until site reclamation and closure are completed.

Using private vehicles to travel to and from the work site will be restricted except as approved in the transportation plan.

MMC will limit speeds for all Project-related vehicles to 25 miles per hour or less along NFS Road 231 and NFS Road 2316.

As discussed in Section 3.2, activities associated with the road closure order (USFS 2007) temporarily implemented in 2007 and the KNF annual authorization of snowplowing will be authorized under approval of this Project to continue through reclamation and closure. Snowplowing will continue to be conducted as needed in the winter months, generally between October and May, along 9.6 miles of NFS Road 231 and NFS Road 2316, under the USFS Road Use Permit for this Project. MMC will continue to be responsible for repairing any damage to roads and road infrastructure associated with snow plowing including damage to road surface, guardrails, bridges, etc.

Seasonal road closures will continue to be implemented to reduce disturbance to grizzly bear spring range due to snowplowing and year-round access by three gates with signs shown on **Figure 2-2**. MMC will continue to maintain the gates and signs until reclamation and closure is complete. A 2.3-mile portion of NFS Road 231 and all of NFS Road 2316 (2.2 miles) will continue to be seasonally restricted to all motor vehicles, including over-snow vehicles, between April 1 and May 15 except for authorized administrative use, including MMC and its contractors. NFS Road 4778 and spurs will continue to be seasonally closed to all motorized traffic, including over-snow vehicles, from April 1 to June 15. After reclamation and closure, seasonal access changes and snowplowing will cease. NFS Roads 231, 2316, and 4778 and spurs will be returned to pre-2007 access status (open to motor vehicles, including over-snow vehicles).

At the beginning of the seasonal road closure periods, MMC will close and lock the two gates on NFS Road 231 and the gate on NFS Road 4778. During the seasonal road closure period along NFS Road 231 and NFS Road 2316, April 1 to May 15, MMC and its contractors will close and lock the lower gate on NFS Road 231 once they pass through to prevent unauthorized motorized access beyond the gate and maintain public road use restrictions. Training will be provided to ensure all staff understand how to operate the gate without allowing any unauthorized motorized access. MMC will periodically monitor the gates during the closure periods. If the gates are found to be non-functional, MMC will repair the gates. By December of each year, MMC will submit an annual summary report to the USFS, for the duration of the Project, describing any required repairs to the gates or observations of unauthorized motorized access during the closure periods.

Fuel, explosives, and various other operational supplies will be delivered to the Project area on a regular basis by contractors/vendors. MMC will establish a supply staging area in Libby to consolidate shipments to the Project area to limit traffic on NFS Road 231 and NFS Road 2316. Supplies and materials will be shipped by truck primarily from Libby, Kalispell, Missoula, and Spokane. MMC will schedule delivery of operational materials and supplies needed for the Project during day shift, Monday through Friday to the extent possible. Deliveries outside of this timeline will only take place if needed to maintain operations.

Contractors and vendors will be required to transport fuel, oils/lubricants, chemicals, and explosives to the Project area in certified containers and vehicles that comply with associated regulations and guidelines. Spill response supplies will be kept at the Project area and in company vehicles.

4.11 Fire Prevention

In accordance with 36 CFR 228.11, MMC will comply with all applicable federal and state fire laws and regulations. MMC will take all reasonable measures to prevent and suppress fires in the operations area; and require employees, contractors, and subcontractors to do likewise within Operating Permit No. 00150 boundary. The Project area is kept in a safe and neat manner (see 36 CFR 228.9) and will continue to comply with applicable federal and state fire laws. MMC maintains fire extinguishers at locations at the Project area facilities, such as the shop and office facility, and in company vehicles.

MMC employees, contractors, and subcontractors will exercise caution during dry conditions and the general wildland fire season. MMC will ensure that equipment that could potentially come into contact with dry vegetation will be required to have functional spark arrestors. Fire suppression equipment will be kept at each work site and in vehicles as appropriate. This includes shovels, axes, buckets, and fire extinguishers. On-site staff will monitor local fire conditions and maintain contact with local area fire officials to ensure appropriate fire management procedures are followed in the event of implementation of fire restrictions or woodland use restrictions (e.g., “Red Flag Warnings”). Any fire occurrence will be reported immediately to the Kootenai Dispatch Center.

4.12 Libby Site Access Control

Access to the Project area is and will continue to be limited with fencing, locked gates, and notice postings (**Figure 2-1**).

5.0 PLAN FOR INTERIM SHUTDOWN

MMC does not anticipate any temporary or seasonal closures during the Project; however, uncontrollable situations may arise that will require temporary cessation of activities. In accordance with 36 CFR 228.10, in occurrences of temporary cessation of operations (period up to 1 year, other than seasonally), MMC will file a statement with the KNF District Ranger that includes informational requirements of 36 CFR 228.10.

Once the drilling program of the Project is completed, MMC will maintain dewatering of the Libby Adit while completing data analysis and feasibility work. If, during the Project, MMC determines some extended period of temporary closure is necessary, it will submit a Temporary Closure Notification to KNF and MDEQ for review and approval.

MMC will conduct the following activities during periods of reduced activities:

- Continue dewatering of the Libby Adit.
- Maintain the water management system in the Project area, including operation of the WTP and discharge to Outfall 001 in accordance with the MPDES permit.
- Continue implementing BMPs described in the SWPPP (MMC 2018).
- Maintain required monitoring activities including water and aquatic resources.

If MMC decides to permanently cease and conclude operations at the Project site, MMC will implement reclamation and closure activities as described in Section 6.0 – Reclamation and as required by Operating Permit No. 00150.

6.0 RECLAMATION

Future potential activities and operations depend on results of information gained from the Project, subsequent engineering and feasibility studies, and the ability to meet environmental and regulatory standards. MMC will implement reclamation and closure of the Project area and associated facilities as described in this section.

MMC maintains a reclamation and closure bond with the MDEQ as part of Operating Permit No. 00150. MMC will post the required reclamation bond with KNF and MDEQ before starting all Project-related activities and disturbances. All disturbances associated with the Project will be fully bonded for reclamation. MMC will comply with all requirements of Operating Permit No. 00150 and any subsequent modifications. The KNF may require a bond for long-term monitoring and maintenance, and possible long-term, post-closure water treatment to ensure groundwater and surface water will be protected from unanticipated impacts.

6.1 Reclamation Objectives and Standards

Goals of reclamation will include ensuring that the Libby Project area is stable and secure. Site drainage and water management will be maintained to prevent or control on-site and off-site damage to the environment and forest surface resources, which will be used to determine reclamation success.

6.2 Post-Exploration Project Land Use

All surface disturbance is on private land. Because the Project area is on private land, MMC will maintain control of the property with a fence until site maintenance is no longer required.

6.3 General Reclamation Activities

The following sections describe general reclamation activities that will be implemented if MMC decides to close and reclaim its facilities located on private land. As previously noted, all surface disturbance associated with the Project occurs on private land.

6.3.1 Grading and Post-Project Topography

The Project area will be subject to additional grading in accordance with Operating Permit No. 00150. Primary grading work will focus on reducing slopes for the WRSAs. MMC will backfill the percolation pond (Outfall 001) and the WRS when no longer needed by spreading waste rock material from the WRSAs.

Final slopes of the WRSAs will be regraded to slopes of 2 Horizontal (H): 1 Vertical (V) or less. Steeper slopes on WRSA #2 will be reduced by pushing material down to backfill the percolation pond and the WRS. The topsoil stockpile will be spread throughout the site as growth media prior to seeding. A total of approximately 15,200 yd³ of alluvial material is currently stockpiled in the Project area.

Approximately 7,000 yd³ of waste rock material will be used to backfill the first 800 feet of the Libby Adit in front of the main portal plug. Some stormwater and erosion control features will

remain within the Project area after reclamation, including traps, ditches, berms, silt fences, and brush piles.

6.3.2 Soil Salvage and Replacement

Soil salvaged and stockpiled prior to construction of the Libby Adit and WRSA was partially utilized in 1996 reclamation activities. Approximately 13,000 yd³ of topsoil (10–12 inches thick) were placed over the regraded slope of drainage fields and adit pad area. Remaining soil is stored in a stockpile at the eastern side of the Project area (**Figure 1-2**). This stockpile will be relocated as shown on **Figure 3-1**. Soil salvaged within the footprint of the WRSA #1 expansion, the new WRSA #2, and the WRS will be placed in the new topsoil stockpile.

Suitability of soil material or growth media to be used for reclamation was determined from physical and chemical data collected during the baseline soils survey. Physical parameters analyzed for suitability included depth, percent slope, saturation percentage, water-holding capacity, texture, permeability, organic matter, and coarse fragment content. Chemical parameters included pH and electrical conductivity. Results of these analyses for alluvial soil in the Project area show 5 to 55 percent rock fragments with low to high water holding capacity, and slow to rapid permeability. Soil with more than 50 percent rock fragments are generally considered unsuitable for reclamation. Values of soil pH are typically between 5 and 6.

Growth media will be removed on an as-needed basis from areas of new disturbance. Soil materials will be salvaged using dozers, front-end loaders, or tracked excavators as dictated by site conditions. Every effort will be made to minimize compaction during soil handling operations. To the extent practical, soil will be handled only when it exhibits good tilth and is moderately dry. Direct haul of topsoil will be maximized to the extent practical to retain soil structure and allow for germination of existing seeds.

Soil stockpiles will have organic matter and fertilizer added to help retain soil quality and promote successful revegetation. Noxious weeds on stockpiles will be controlled throughout the stockpile life and sprayed before soil redistribution. Stockpiled topsoil will be tested before re-spreading to identify what, if any, deficiencies, or limitations in soil physical and chemical properties exist that may affect plant growth. Based on this testing, MMC will determine appropriate fertilizer, liming, organic matter, and other amendments to be used.

MMC will recontour the area and spread salvaged soil over the regraded and scarified surface. Because soil is limited, MMC will cover all areas with the available growth media, but soil may have limited thickness. Prior to soil spreading, disturbed areas, such as parking areas, roads, adit portal area, and building sites will be ripped with a dozer to 18 inches deep to reduce any root zone barriers. MMC will place growth media over the regraded and scarified areas in the Project area. All disturbed areas will be seeded, fertilized, and mulched, as necessary.

Soil will be redistributed on slopes of 2H:1V or flatter using tracked or rubber-tired equipment. During soil redistribution, an effort will be made to create small trenches perpendicular to slopes (as dozer tracking), which will catch seed and reduce erosion. Soil material will be applied in lifts as thick as possible to decrease compaction. Organic debris that have been salvaged and stored in soil stockpiles will be re-spread along with the soil. This will create microsites (thereby enhancing seedling success) and reduce soil movement by creating a rough seedbed surface.

6.3.3 Revegetation

As part of Project area reclamation, MMC will seed the area following placement of growth media. MMC will reclaim all existing soil disturbances in accordance with Operating Permit No. 00150. Disturbed sites will be re-seeded using an acceptable seed mixture approved by MDEQ. Standard native and cover crops seed mixes provide a range of seed options depending on the amount and duration of disturbance, site risk for erosion, and availability of seed.

6.3.4 Soil Amendments and Fertilization

Reclamation success can be enhanced by use of soil amendments. MMC will amend the top four inches of soil before seeding with a wood-based organic amendment to raise the organic matter level in soil to a minimum of one percent by volume. MMC will use mulch to limit soil loss until seedlings can become established. After seeding, straw mulch will be applied and anchored with a straw crimper. Some hydroseeded areas of slopes steeper than 33 percent will be mulched with a cellulose fiber mulch and tackifier. Nitrogen and phosphorous will be applied to the newly reclaimed area.

6.4 Reclamation of Project Facilities

Because the Project area is on private land, MMC will restrict access to the property with a fence and vehicle access gate. MMC will reclaim all facilities associated with the Project consistent with methods and measures presented below and outlined in Operating Permit No. 00150.

6.4.1 Libby Adit

Because the Libby Adit penetrates the water table, upon closure, it will be plugged and sealed to minimize the potential for degradation of groundwater quality by eliminating the inflow or outflow of water through the adit. Prior to cessation of dewatering activities, all infrastructure within the adit that will impede plugging and water-tight seals, or that could leave an open conduit to groundwater (e.g., cables, ventilation ducts, piping, conduit, etc.), will be removed or sealed.

MMC will install two plugs in the Libby Adit. The main portal plug will be installed in the Libby Adit near the bedrock/colluvial contact located approximately 600 feet from the portal opening. The KNF will confirm the location before installation of the plug. This plug will act as a water-retaining structure and will be engineered based on site-specific requirements. A variety of plugging methods are available and MMC will utilize methods consistent with industry standards such as a pressure-grouted bulkhead or polyurethane foam or polyurea silicate mixed with waste rock and interlaced with heavy gauge wire.

To ensure long-term stability, MMC will backfill the adit to the main portal plug using approximately 7,000 yd³ of waste rock material. MMC will install another plug at the entrance of the adit or portal opening to restrict access. Because no water is anticipated in the colluvial zone of the adit, the portal plug will not be a water retention feature. Once the surface plug is installed, excavated material will be placed back over the portal plug and general opening and regraded to match surrounding topography. Additional waste rock will be placed in front of the entrance portal plug to match adjacent topography, with a final cover of growth media and revegetated.

6.4.2 Waste Rock Storage Areas

The WRSAs are located on private and will be reclaimed in accordance with Operating Permit No. 00150 when they are no longer needed by MMC. Reclamation of the WRSAs will meet the following general objectives: create stable slopes, reduce slope erosion, regrade to rounded edges to blend with adjacent land, and successfully re-establish vegetation. Waste rock will remain in the lined WRSAs until closure. A portion of the waste rock will be used to backfill the Libby Adit, and the remainder will be regraded and covered with soil as part of reclamation activities. The lined WRS is located at the toe of the facilities where runoff and seepage are collected and pumped to the WTP for treatment before discharge to Outfall 001.

Closure activities will involve placement of growth media on the WRSAs surface with some regrading (contouring) of slopes. Final slopes of the WRSAs will be regraded to slopes of 2H:1V or less. MMC will push rock material farther downslope to fill the WRS and to better blend with overall site topography. Slopes that are steeper than 2H:1V for WRSA #2 (lower south, west, and east sides) will be reduced by pushing material down to backfill the WRS and percolation pond, when required. MMC will ensure the slopes are stable and graded using dozers to blend with surrounding topography, to the extent possible.

MMC will place 12 to 24 inches of topsoil on the flat surfaces and 6 to 12 inches for sloped surfaces. The surfaces of facilities will be roughened so that runoff velocities are reduced.

6.4.3 Waste Rock Sump

The WRS is located on private land. At closure, MMC will backfill the WRS with waste rock material from the WRSAs. The area will then be graded to avoid ponding of meteoric water. MMC will spread topsoil and revegetate with the approved seed mix.

6.4.4 Water Treatment System

Once water from the Libby Adit is no longer discharged (e.g., after adit is completely sealed with portal plug), and when water collected in the WRS meets acceptable water quality criteria, the existing water disposal system (i.e., buried piping, distribution boxes, and percolation pond) will be abandoned in-place. MMC will plug the pipes with concrete and remove the valves and aboveground portions of the distribution system.

The WTP will be decommissioned after discharge from the adit ceases, which is expected to be after all plugs are installed. Water treatment will continue until the quality of water from the WRSAs meet appropriate water quality standards or limits without treatment.

6.4.5 Soil Stockpile

Once material from the topsoil stockpiles has been used for reclamation activities, remaining stockpile areas will be regraded and contoured to blend with adjacent topography, limit erosion, and promote natural drainage. Following grading, the surfaces will be ripped and scarified to loosen compacted soil. Following scarification, vegetation will be established using the approved seed mix.

6.4.6 Buildings

All facilities in the Project area are located on private land and will be reclaimed in accordance with Operating Permit No. 00150 when they are no longer needed by MMC.

6.4.7 Fencing

MMC will maintain safety, security, and control of the Project area with a fence until the site is reclaimed and the reclamation bond is released.

6.5 Reclamation of Monitoring Instruments and Boreholes

Any monitoring well or piezometer installed by MMC or its predecessors on KNF-administered land will be removed and plugged according to ARM 36.21.810 at the end of its useful life. The well casing will be removed below ground surface, and the well covers will be removed and disposed off-site. The small area associated with the monitoring well or piezometer will be regraded to blend with natural surroundings. The area will be ripped, if appropriate, and soil will be placed consistent with general soil placement plans.

All other monitoring equipment, such as survey stations in the CMW or data loggers in CMW lakes and in streams, will be removed before reclamation bond release. Boreholes from the geotechnical investigation that will not be completed as wells or piezometers will be backfilled with material removed from the hole.

6.6 Post-Reclamation Monitoring

Monitoring of the Project area will continue for a period after reclamation to ensure the portal plugs are functioning properly and that revegetation, weed management, and erosion control are successful. Activities associated with site monitoring and maintenance may include water sampling, repair of recent erosion events, and revegetation. The existing fencing and locked gate around the Project area will remain during and after reclamation work to maintain site security.

Site monitoring and maintenance will continue for a period after initial site reclamation has been completed, as described in Operating Permit No. 00150.

6.6.1 Water Resources Monitoring

MMC will coordinate with MDEQ and KNF on any changes to the existing water quality monitoring requirements specified in both the Operating Permit and MPDES permits.

6.6.2 Soil Erosion Monitoring

All surface disturbance occurs on private land; therefore, any soil erosion monitoring on reclaimed facilities will be described in Operating Permit No. 00150.

6.6.3 Revegetation Monitoring

MMC will monitor reclamation success annually until reclamation success has been achieved. MMC will conduct annual revegetation monitoring during the growing season to identify areas where revegetation criteria are not met. Revegetation monitoring will be conducted in conjunction with routine soil maintenance monitoring. MMC will conduct systematic visual inspections to

identify areas with inadequate cover, poor seedling growth, damage, and/or obvious nutritional deficiencies. MMC will monitor areas of disturbance for existing and new invader weed species and populations annually until final bond release.

If revegetation problem areas are occurring, MMC will work to identify the cause. If the problem appears related to soil infertility or toxicity, MMC will implement a soil testing program that may include testing to assess macronutrient and micronutrient status, pH, cation exchange capacity, and potential toxicity or metal problems. Once the problem is identified, MMC will take appropriate remedial actions to correct the situation.

6.7 Reporting

During the Project, MMC will submit annual reclamation-related reports to KNF and MDEQ. Reclamation information for the annual report will include:

- Annual summary of soil salvage, handling, and replacement activities, including areas and volumes of soil removed and locations or stockpiles where soil was placed.
- Annual vegetation survey summary, noting areas seeded during the year and success of areas where seeding/planting was conducted in previous years.

These reports will continue until reclamation success has been achieved and the agencies have released the reclamation bond.

6.8 Contingency Plan

The contingency plan for reclamation of the Project area consists of the agencies using the reclamation bond to complete reclamation work if MMC does not complete proper site reclamation. MMC maintains a reclamation and closure bond with the MDEQ as part of Operating Permit No. 00150. MMC will post any additional required reclamation bond with MDEQ before starting all Project-related activities. All disturbances associated with the Project will be fully bonded for reclamation.

6.9 Reclamation Bond

State bonding requirements for reclamation are specified in 82-4-313, Montana Code Annotated (MCA) and ARM 17.24.140-146. The calculated bond amount is the agencies' estimated cost to complete site reclamation in the event the operator cannot or will not perform the required reclamation. MMC will post the required reclamation bond with KNF and MDEQ before starting the Project.

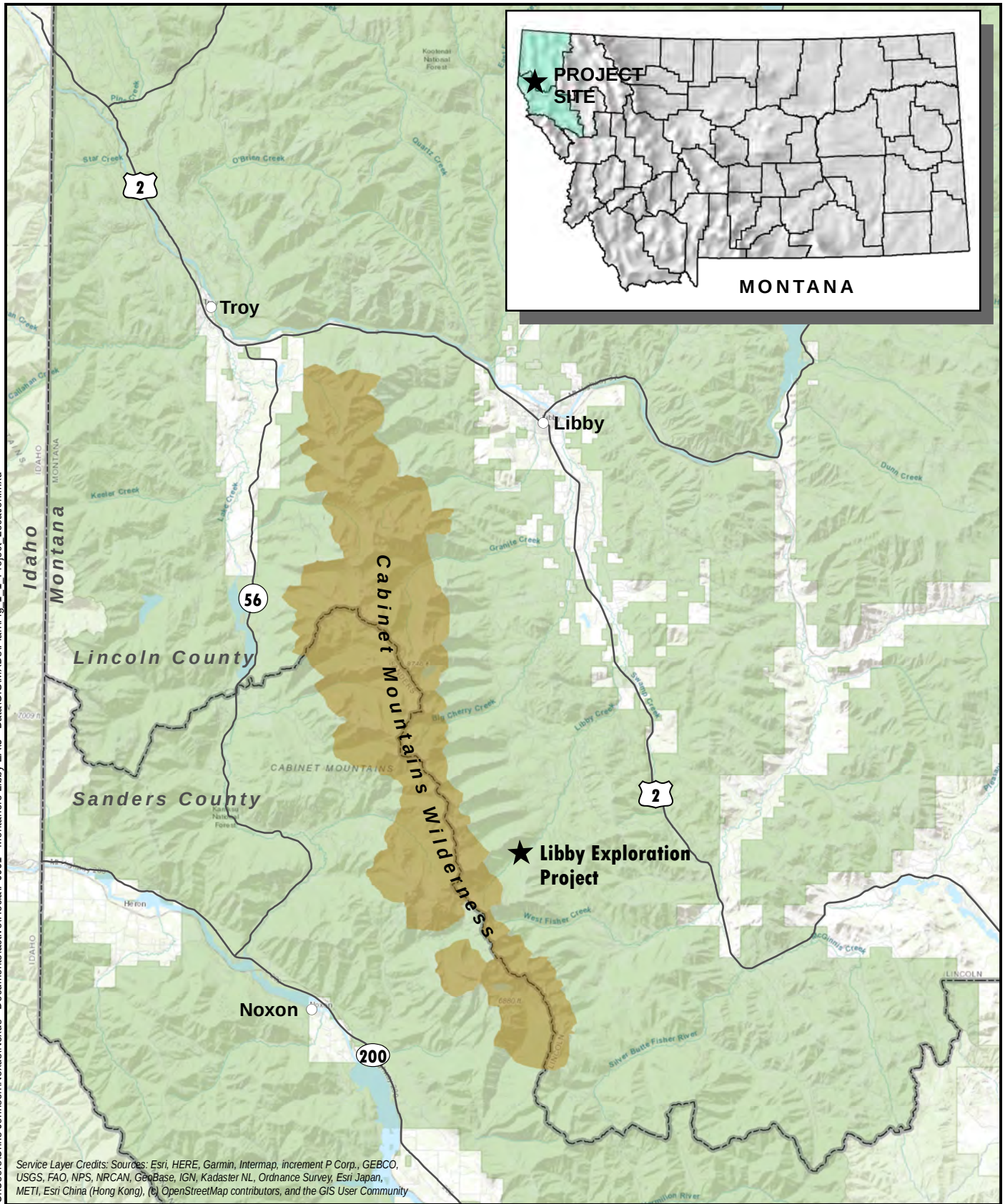
MDEQ currently holds a reclamation bond of \$2,153,931 to cover reclamation of 11.6 acres in the Project area. If appropriate, MDEQ will develop a new reclamation bond for additional disturbance within the 11.6-acre working footprint in the Project area. MMC will reclaim facilities associated with the Project consistent with its operating permit. MMC will use locally sourced seed when possible. MMC may substitute specific species in the final seed mixtures in the Project area if approved by MDEQ.

7.0 REFERENCES

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FIGURES

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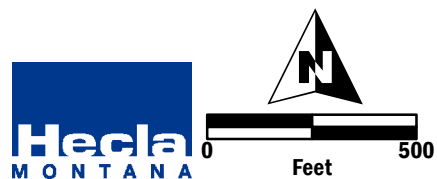
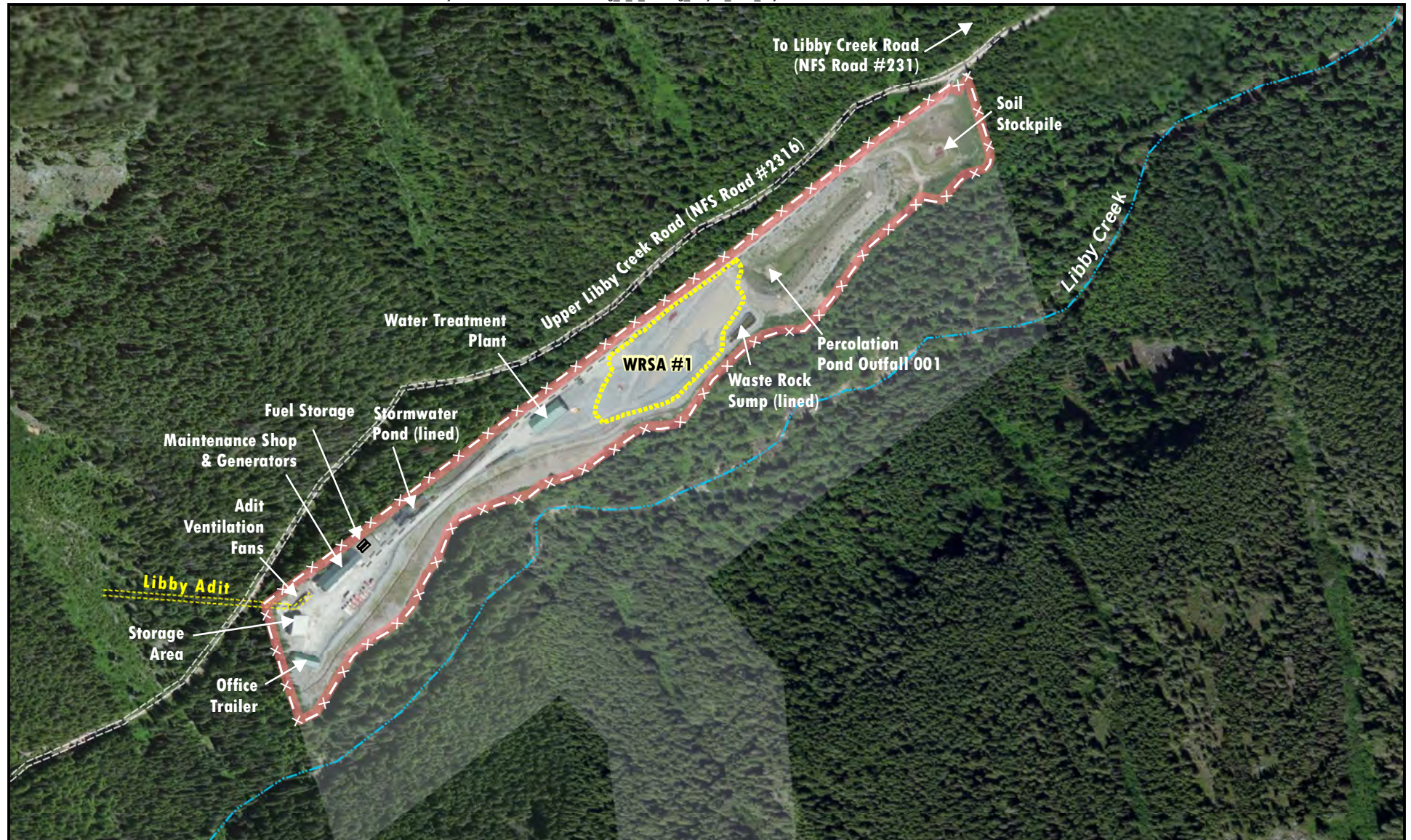


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Kootenai National Forest

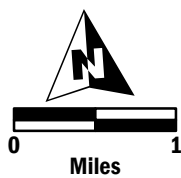
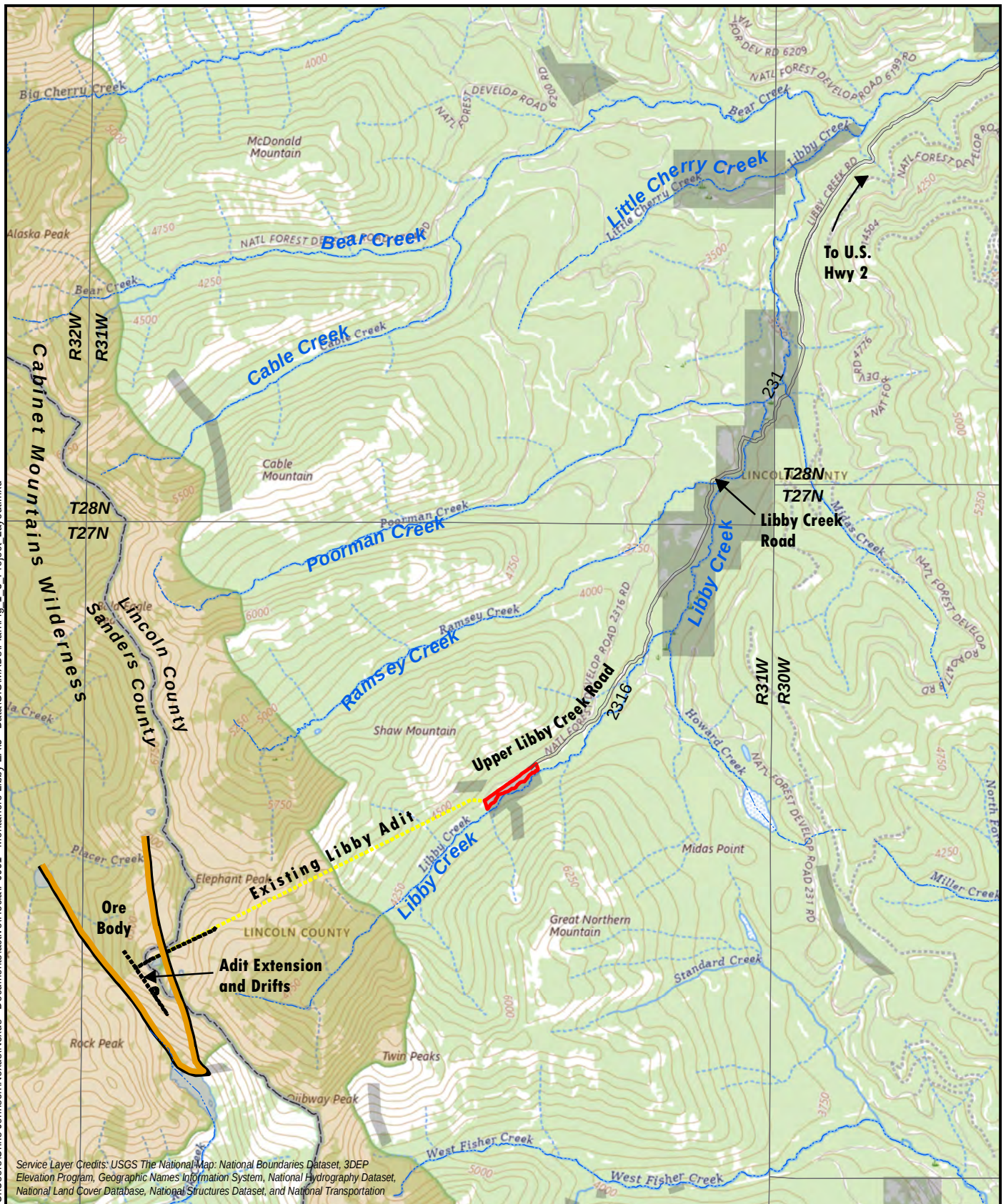
Location Map
Libby Exploration Project
Plan of Operations
Lincoln County, Montana
FIGURE 1-1



- Project Area
- Private Land
- Fence
- Waste Rock Storage Area (WRSA)

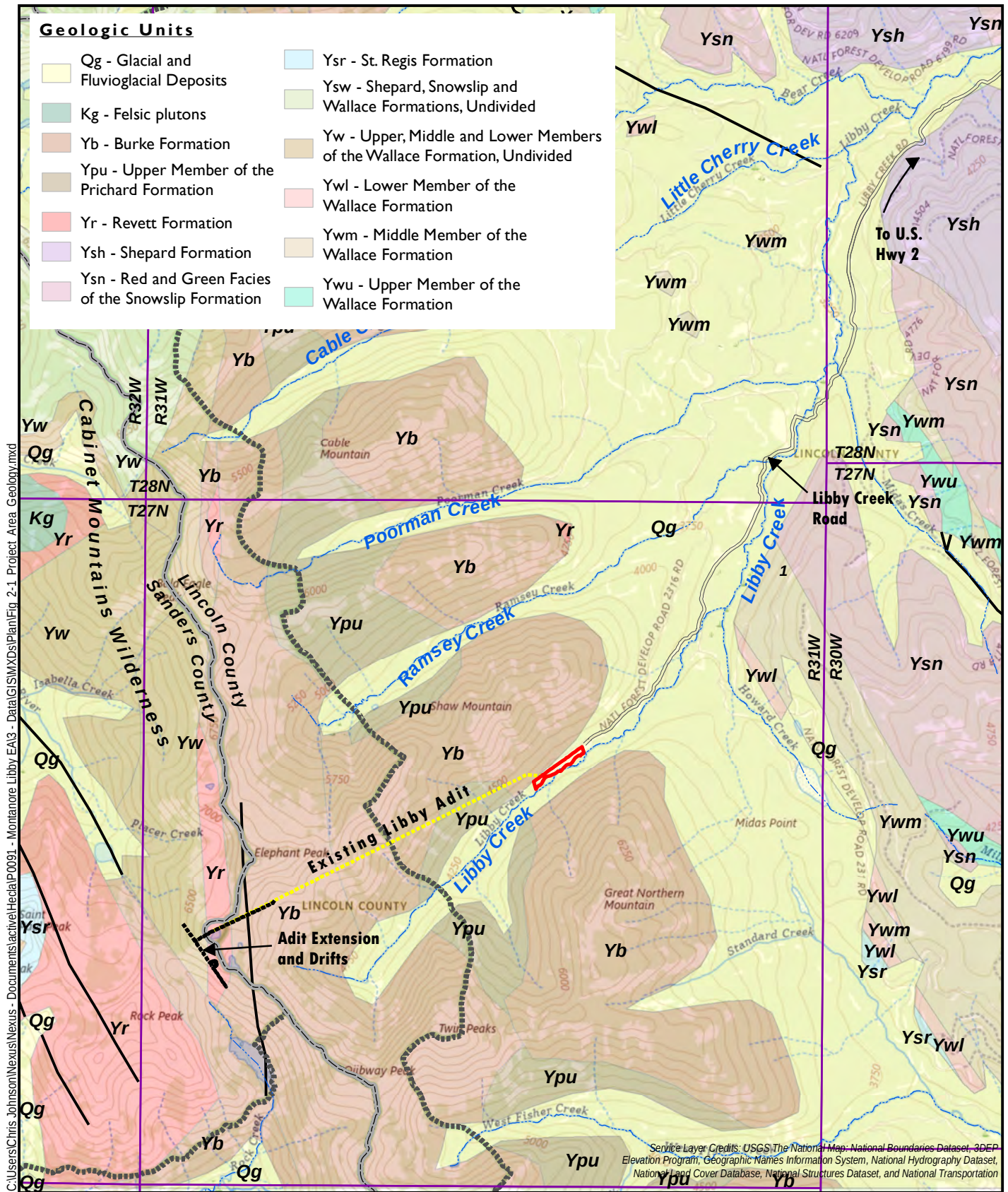
Existing Project Area Layout
 Libby Exploration Project
 Plan of Operations
 Lincoln County, Montana
 FIGURE 1-2

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- Project Area
- Private Land

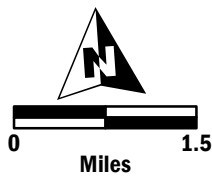
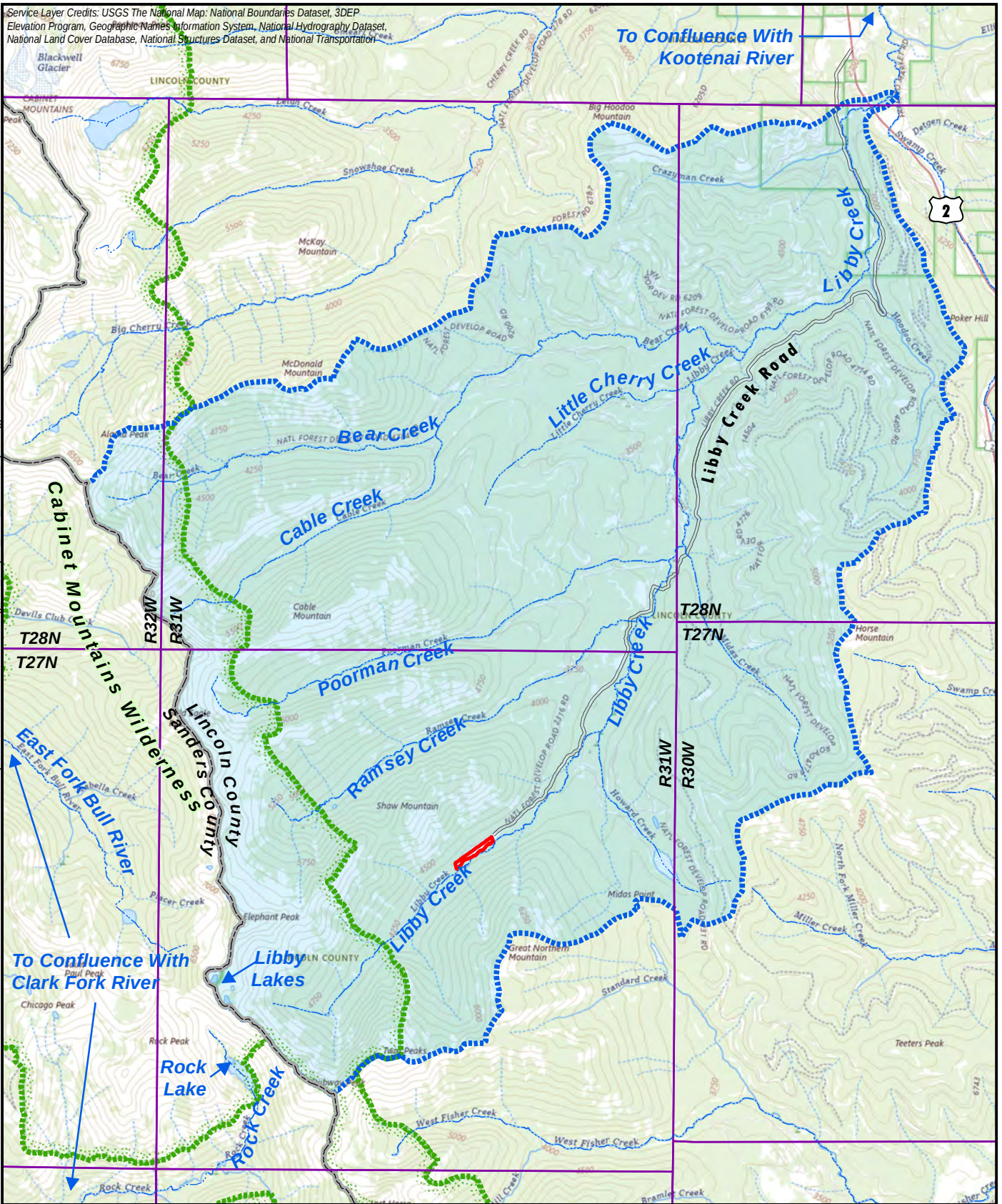
Project Layout
Libby Exploration Project
Plan of Operations
Lincoln County, Montana
FIGURE 1-3



Project Area Geology
Libby Exploration Project
Plan of Operations
Lincoln County, Montana
FIGURE 2-1

Service Layer Credits: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation

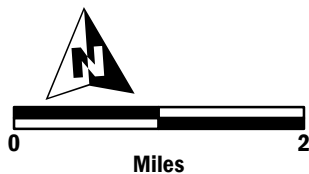
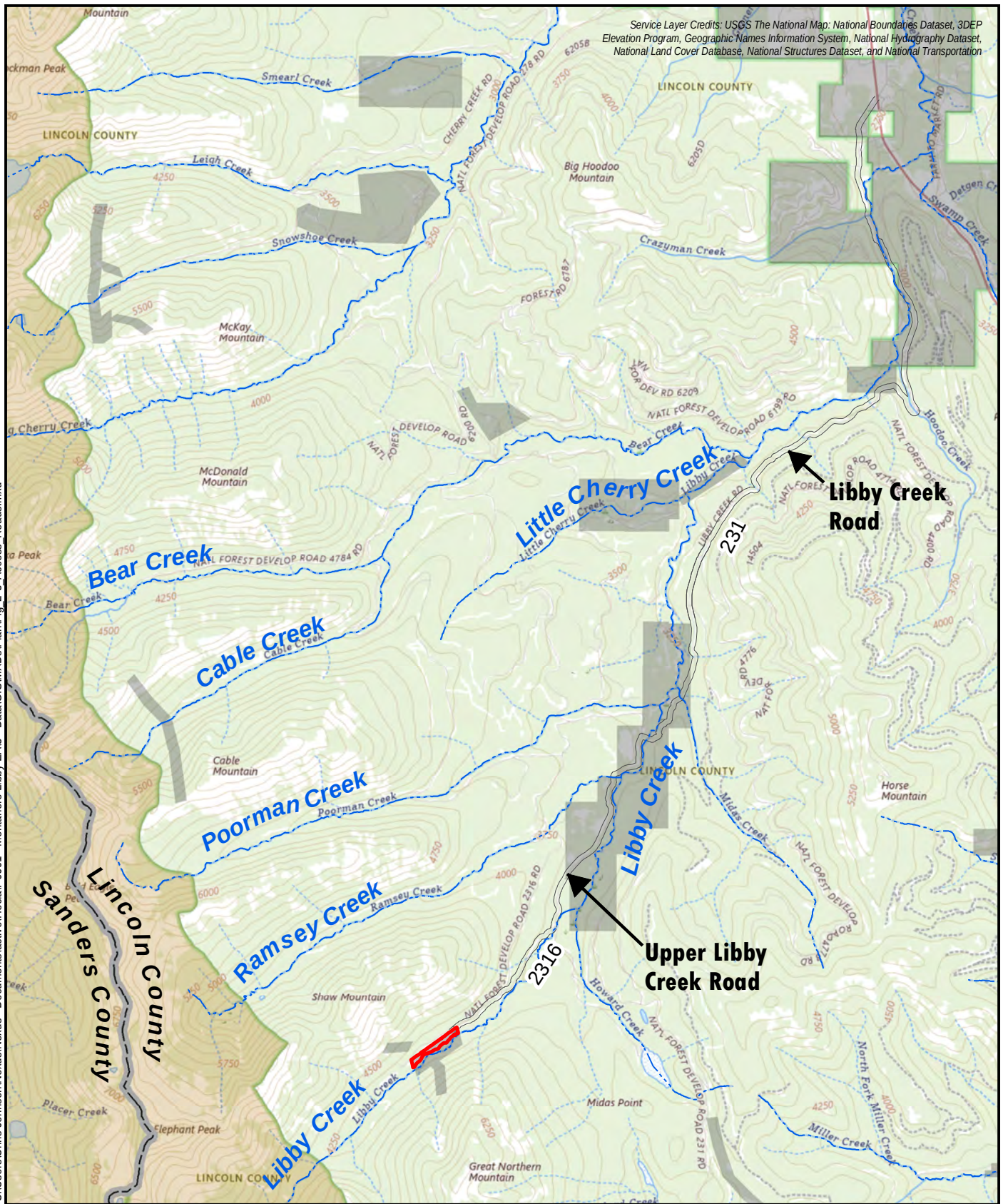
C:\Users\Chris Johnson\Nexus - Documents\active\Hecla\p0091 - Montanore Libby - Data\GIS\MXDs\Plan\Fig 2-2 Project Area Surface Hydrology.mxd



- Project Area
- - - Cabinet Mountains Wilderness
- - - Upper Libby Creek Watershed HUC 12 - 170101010801
- ~ Streams

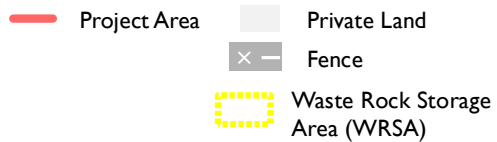
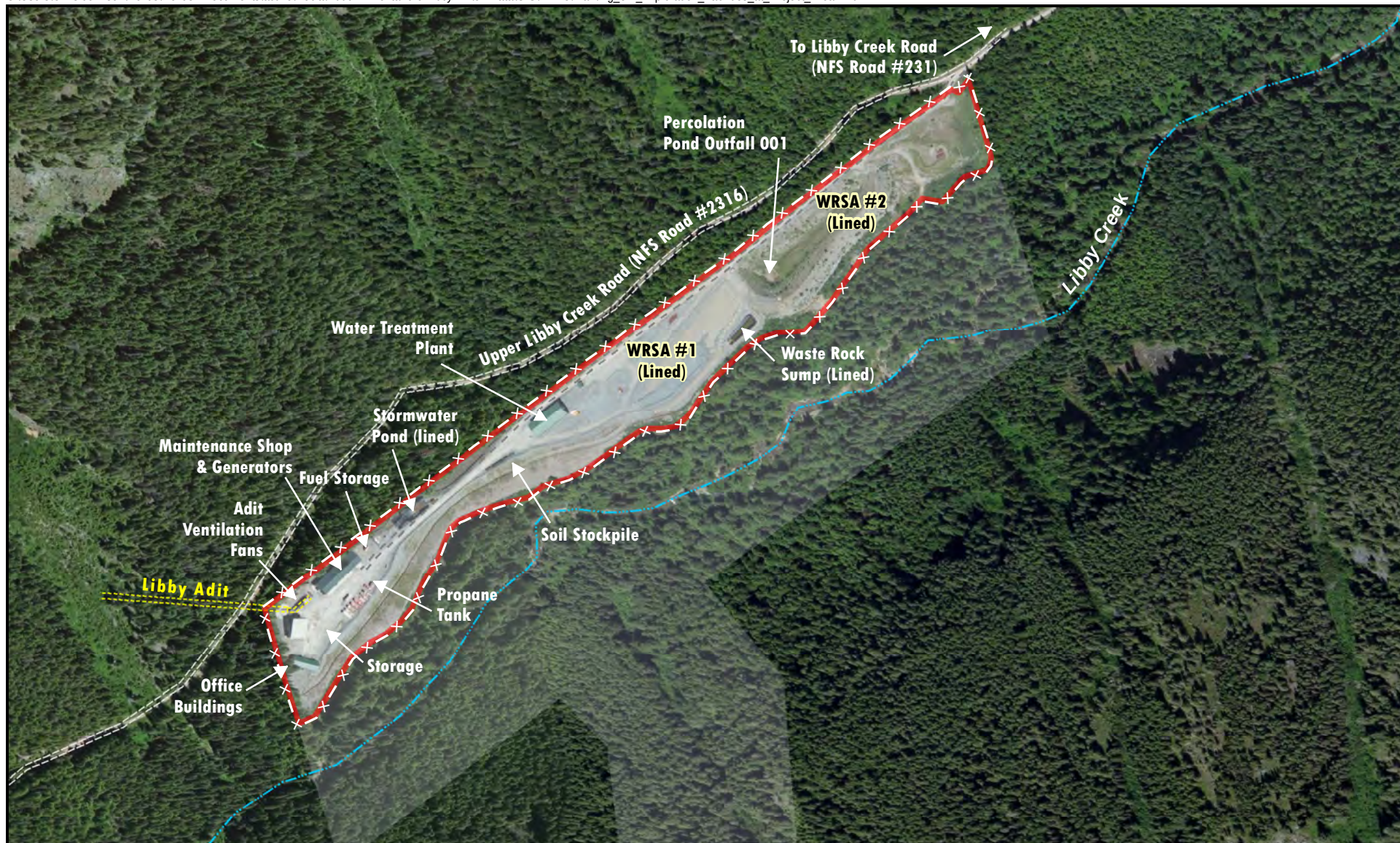
Project Area Surface Hydrology
Libby Exploration Project
Plan of Operations
Lincoln County, Montana
FIGURE 2-2

C:\Users\Chris Johnson\Nexus - Documents\active\Hecla\p0091 - Montanore Libby EA3 - Data\GIS\MXDs\Plan\Fig 2-3 Access Roads.mxd

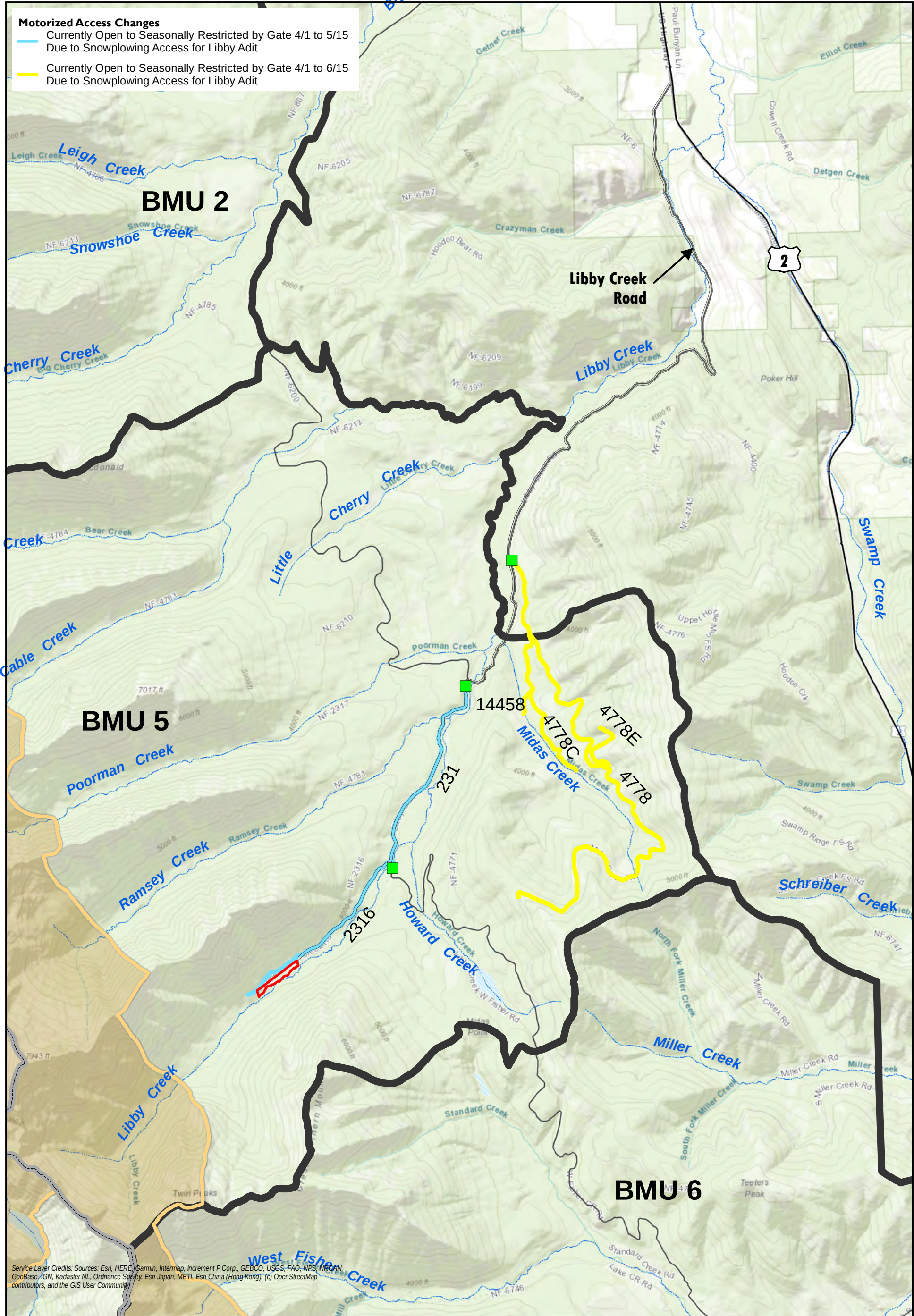


- Project Area
- Private Land

Access Roads
Libby Exploration Project
Plan of Operations
Lincoln County, Montana
FIGURE 2-3

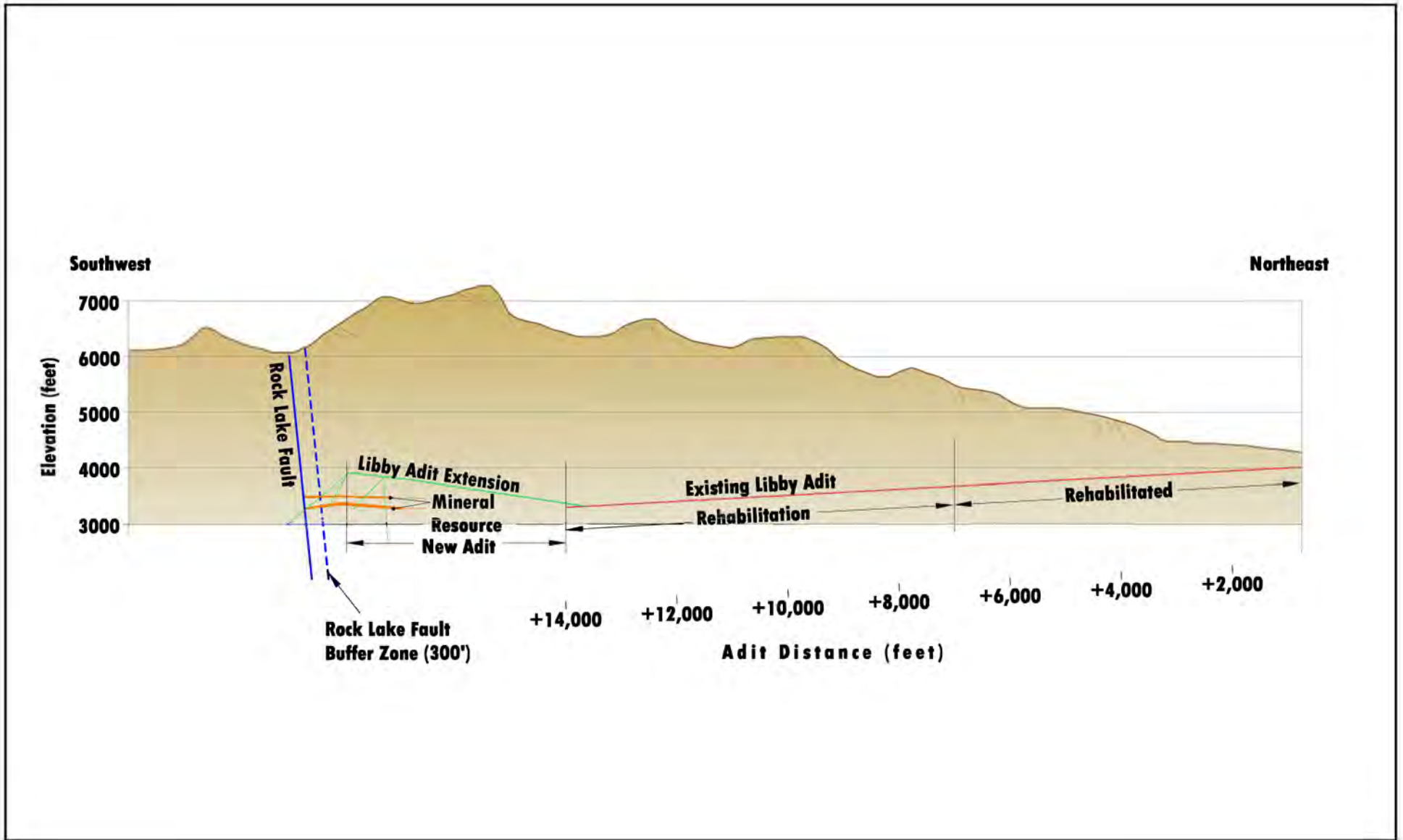


Exploration Facilities
at the Project Area
Libby Exploration Project
Plan of Operations
Lincoln County, Montana
FIGURE 3-1



- Project Area
- Seasonal Closure Gates
- County Boundary
- Access Route
- Bear Management Unit (BMU)

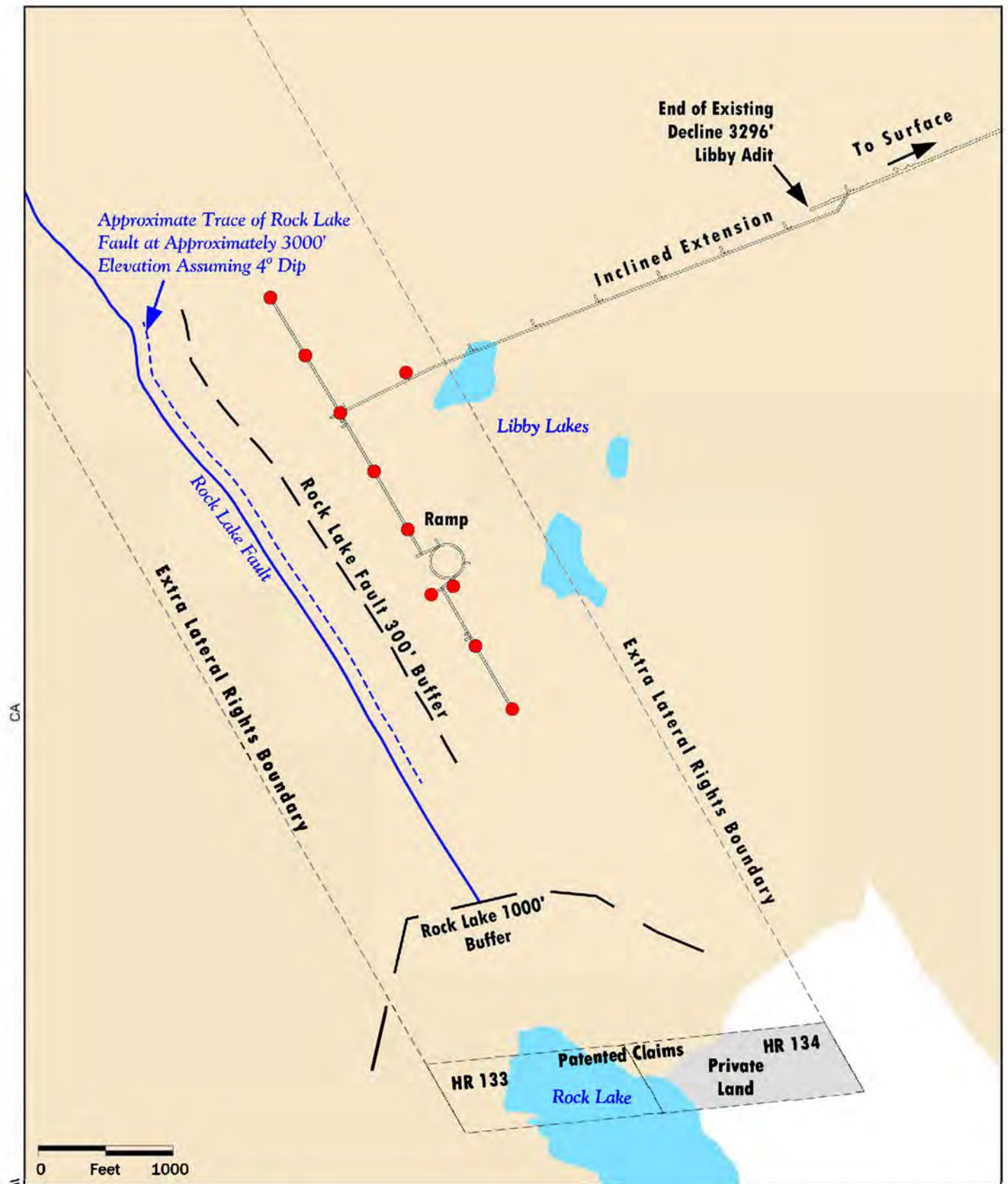
Road Access Changes
Libby Exploration Project
Plan of Operations
Lincoln County, Montana
FIGURE 3-2



0 Feet 2500



Libby Adit Extension and Drift Construction
 Libby Exploration Project
 Plan of Operations
 Lincoln County, Montana
FIGURE 3-3



- Approximate Location of Drill Stations
- Cabinet Mountains Wilderness

Underground Construction and Exploration Schematic
 Libby Exploration Project
 Plan of Operations
 Lincoln County, Montana
 FIGURE 3-4

APPENDIX A

Transportation Plan

Libby Exploration Project Transportation Plan

Montanore Minerals Corporation
Lincoln County, Montana

Prepared for:

*U.S. Department of Agriculture
Kootenai National Forest*

Prepared by:

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34524 U.S. Highway 2
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December 2024

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LIST OF ACRONYMS

AADT	Annual Average Daily Traffic
CMW	Cabinet Mountains Wilderness
KNF	Kootenai National Forest
MDEQ	Montana Department of Environmental Quality
MDT	Montana Department of Transportation
MFWP	Montana Fish, Wildlife, and Parks
MMC	Montanore Minerals Corporation
MSHA	Mine Safety and Health Administration
NFSR	National Forest System Road
OSHA	Occupational Safety and Health Administration
Plan	Transportation Plan
PPE	Personal Protective Equipment
Project	Libby Exploration Project
SDS	Safety Data Sheets
SPCC	Spill Prevention Control and Countermeasure
U.S.	United States
USDOT	United States Department of Transportation
WRS	Waste Rock Sump
WRSA	Waste Rock Storage Area
yd ³	cubic yards

1.0 INTRODUCTION

Montanore Minerals Corporation (MMC) prepared this Transportation Plan (Plan) to describe the activities that will be implemented regarding transportation of MMC's employees and delivery of supplies to support the Libby Exploration Project (Project). The Project is located approximately 20 aerial miles south of the city of Libby, in Lincoln County, Montana near the Cabinet Mountains of northwestern Montana (Figure 1-1). The copper-silver ore body for the Project is located beneath the Cabinet Mountains Wilderness (CMW). Project activities will occur at the Libby Adit Site, which consists of the existing Montana Department of Environmental Quality (MDEQ)-permitted disturbance area (Project area), underground beneath the CMW, and along National Forest System Roads (NFSRs) used for access: Libby Creek Road (NFSR 231) and Upper Libby Creek Road (NFSR 2316). Access changes implemented in 2007 would continue through Libby Adit closure on NFSR 231, NFSR 2316, Midas-Howard Creek Road (NFSR 4778) and spurs, Midas-Howard Creek C Lower Segment (NFSR 4778C), Midas-Howard Creek Road E (NFSR 4778E), and Midasize Road (NFSR 14458) (Figure 1-2).

The Project will consist of the following main elements:

- Dewatering and rehabilitation of approximately 7,000 feet of the Libby Adit. This activity will occur underground beneath Kootenai National Forest (KNF)-administered land.
- Underground construction including an extension of the Libby Adit by approximately 4,200 feet and construction of lateral drifts to conduct exploration activities. This activity will occur beneath KNF-administered land.
- Expansion of the existing Waste Rock Storage Area (WRSA #1) to increase the storage capacity of the facility by 77,000 cubic yards (yd³). This activity will occur on private land.
- Construction of a new lined WRSA #2 with a storage capacity of approximately 87,000 yd³. This activity will occur on private land.
- Construction of a new lined 360,000-gallon capacity Waste Rock Sump (WRS). This activity will occur on private land.
- Relocation of a soil stockpile to accommodate construction of WRSA #2. This activity will occur on private land.
- Continued access to the Project area using existing Forest Service roads.
- Seasonal road closures to reduce impacts on grizzly bear (*Ursus arctos horribilis*) spring range.

During the Project, MMC employees, contractors, suppliers, and visitors will access the Project area from United States (U.S.) Highway 2, approximately 9.3 miles east of the Libby city limit boundary, traveling on NFSR 231 and NFSR 2316.

Figure 1-1. General Location Map

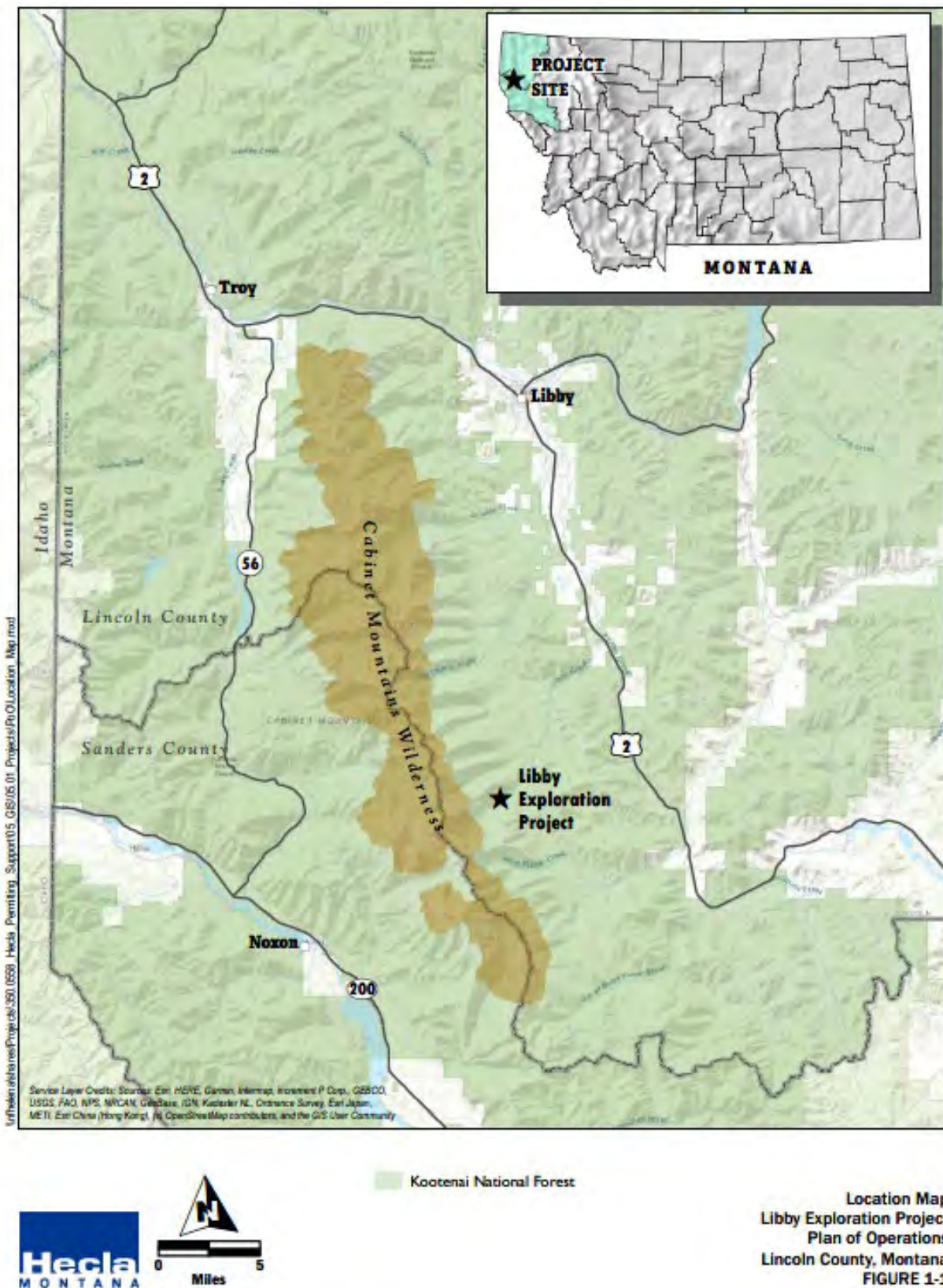
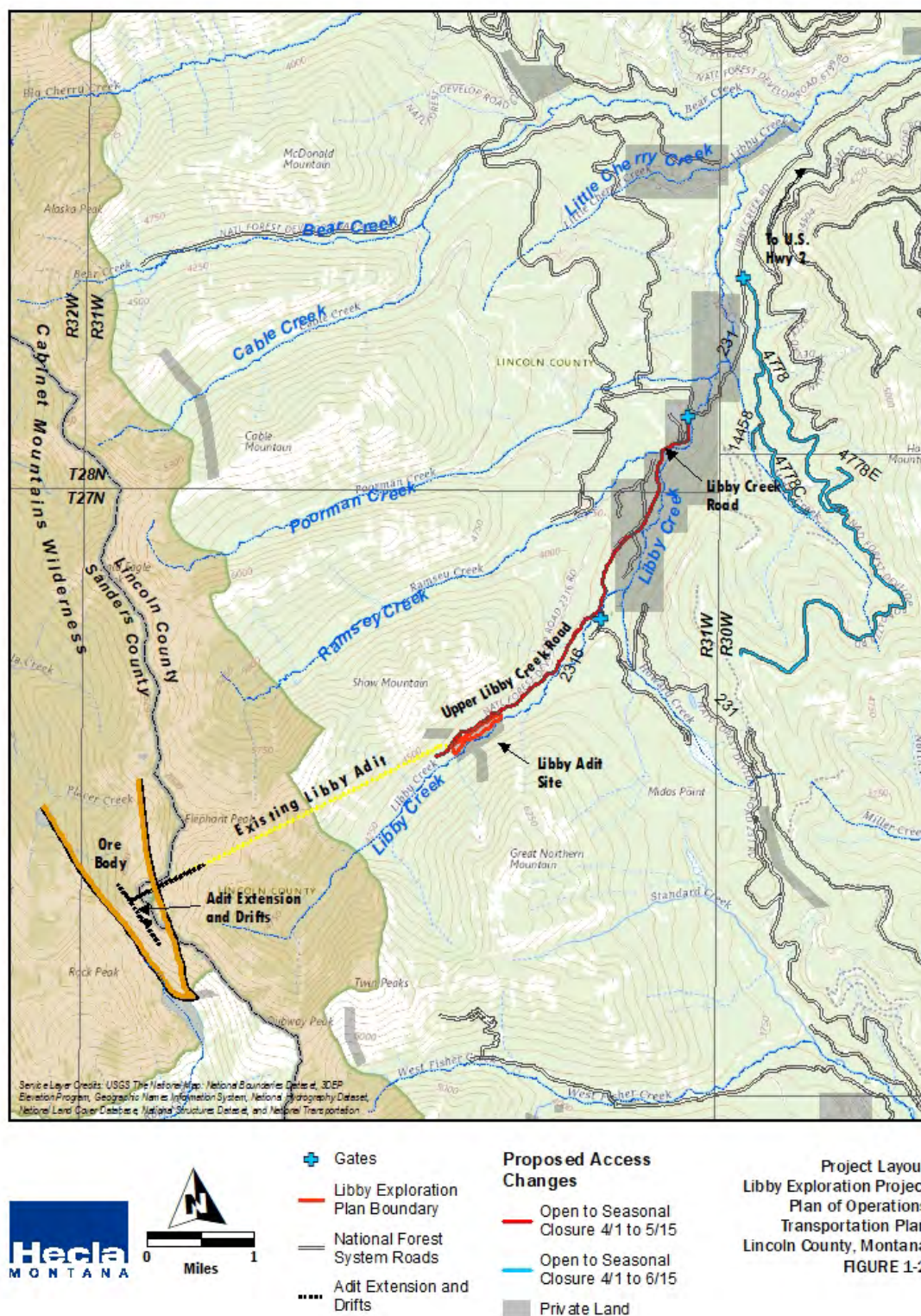


Figure 1-2. Exploration Project Layout



2.0 PLAN OBJECTIVES

The primary objective of the various elements presented in this Plan is to minimize vehicular traffic associated with the Project between U.S. Highway 2 and the Project area to reduce or avoid impacts caused by such traffic on wildlife and fisheries. Of primary importance through implementation of this Plan is for MMC to reduce the risk for wildlife mortality due to vehicle collisions as well as minimize parking requirements in the Project area.

3.0 COMPATIBILITY WITH MONTANA AND LINCOLN COUNTY PLANS

This section provides an assessment of the compatibility of this Plan with others promulgated by the Montana Department of Transportation (MDT) and Lincoln County. The intent of MMC is that this Plan be consistent with and not contradictory to these other road plans in the vicinity of the Project area.

3.1 MONTANA DEPARTMENT OF TRANSPORTATION

The MDT is responsible for the safe, cost-effective operation of Montana's state highway and road systems. The MDT System Action Process coordinates the review of proposed projects that could potentially impact Montana's transportation system.

MDT controls access to U.S. Highway 2, which is a Non-Interstate National Highway and the northernmost U.S. highway. This road is a major all-weather, two-lane highway that traverses northern Montana from east to west, providing access to the communities of Troy, Libby, and Kalispell, among other residences. For U.S. Highway 2 east of Libby, the Annual Average Daily Traffic (AADT) in 2022 was 2,660 vehicles, of which 115 (or approximately four percent of the total traffic) were weighted commercial vehicles.

Given the minor amount of traffic associated with the Project, MDT does not require any special approach access on U.S. Highway 2 to NFSR 231.

3.1 LINCOLN COUNTY

The initial portion of NFSR 231, approximately 2.5 miles from its junction with U.S. Highway 2, is maintained by Lincoln County. MMC will coordinate with Lincoln County on road use, as appropriate and as needed.

4.0 PROJECT ACCESS

MMC will use NFSR 231 and NFSR 2316 as the primary year-round access to the surface facilities in the Project area. MMC will snowplow NFSR 231 and NFSR 2316 to maintain access during the winter. The Forest Service will seasonally restrict access to these roads by non-MMC traffic.

A seasonal road closure of a 2.3-mile portion of NFSR 231 and a 2.2-mile portion of NFSR 2316 will continue to be implemented to reduce disturbance to grizzly bear spring range between April 1 and May 15, except for authorized administrative use, including MMC and its contractors. NFSR 4778 and spurs will continue to be seasonally closed to all motorized traffic, including over-snow vehicles, from April 1 to June 15. After reclamation and closure, seasonal access changes and snowplowing will cease. NFSRs 231, 2316, and 4778 and spurs will be returned to pre-2007 motorized access status (open to motor vehicles, including over-snow vehicles).

Traffic including MMC staff, contractors, and deliveries associated with the dewatering and rehabilitation portion of the Project (years 1 to 2) is anticipated to average 34 trips per week with each trip consisting of two passes along U.S. Highway 2, NFSR 231, and NFSR 2316 between the project area and Libby, Montana. This will be a total of 1,760 trips per year for the first two years. For the exploration and reclamation portions (years 3 to 11) of the Project, there will be approximately 48 trips per week for a total of 2,490 trips per year. During the monitoring portion of the Project (years 12 to 16), there will be about 12 trips per year.

4.1 EMPLOYEES AND CONTRACTORS

To minimize traffic associated with the Project between U.S. Highway 2 and the Project area, MMC's employees and contractors will ride-pool using vans or busses for transportation. MMC will establish and maintain a parking area at the Montanore Libby office (or other appropriate location) for employees and contractors to collect and be transported to the Project area.

Due to specific responsibilities and in consideration of potential emergency situations, MMC and contractor management personnel will use individual vehicles for transportation to the site. MMC will encourage its management personnel and its contractor management personnel to carpool to the site, to the extent practicable, given their job responsibilities. These vehicles will be individually authorized for use on the Project site by MMC. Parking for these company-authorized vehicles will be available in the Project area along with limited parking for visitors and government personnel.

4.2 SUPPLIES

During the Project, fuel, explosives, and various other operational supplies will be delivered to the Project area on a regular basis by contractors/vendors who will check-in with MMC representatives before proceeding to the site. MMC will establish a supply staging area in Libby to consolidate shipments to the Project area to limit traffic on Libby Creek Road and Upper Libby Creek Road (NFSR 231 and NFSR 2316). The transportation hub will be in a convenient location in Libby, most likely the Kootenai Business Park. Supplies and materials will be shipped by truck primarily from Libby, Kalispell, Missoula, and Spokane.

MMC will schedule delivery of operational materials and supplies needed for the Project during day shift, Monday through Friday, unless there is an emergency on the weekend requiring an expedited shipment of parts or materials for equipment repair.

Transportation of supplies and products will comply with United States Department of Transportation (USDOT) regulations, which require transport vehicles to be routinely inspected, maintained in proper working condition, and safely operated. Appropriate and required placards will be affixed to loads requiring them. Safety equipment and Personal Protective Equipment (PPE), as may be required by USDOT, MDT, and the U.S. Mine Safety and Health Administration (MSHA), will be made available in supply transport vehicles and maintained in proper working order.

Table 4-1 presents a summary of material and supplies needed during the Project, along with estimated quantities (stored and per shipment) and delivery frequency.

Table 4-1. Materials and Supplies Transported to Project Area

Name	Area Used	Delivery Vehicle	Estimated Site Storage Quantity	Estimated Annual Use	Estimated Shipment Quantities	Estimated Frequency of Supply Deliveries
Diesel fuel	Underground and Surface Equipment	Tanker Truck	10,000 gal	500,000 gal	4,000-5,000 gal	100-125 trips/year
Gasoline	Surface	Tanker Truck	5 gal containers	200 gal	20-25 gal	8-10 trips/year ⁽¹⁾
Propane	Surface & Ventilation	Tanker Truck	1,000 gal	3,000 gal	1,000 gal	3 trips/year
Antifreeze, oil, hydraulic fluid, grease, degreasers, and solvents	Shop	Flatbed or Enclosed Delivery Truck	150-200 gal	2,000 gal	150-200 gal	10-15 trips/year
Oxygen and acetylene	Shop	Flatbed or Enclosed Delivery Truck	3,000 ft ³	8,000 ft ³	1,500 -2,000 ft ³	4-5 trips/year
Explosives: blasting agents, emulsions, detonation cord, detonators, and delays	Underground	Flatbed or Enclosed Delivery Truck	(2)	(2)	(2)	(2)
Drilling fluids ⁽³⁾	Underground and Surface	Flatbed or Enclosed Delivery Truck	4,000-5,000 gal	40,000-50,000 gal	2,000 gal	20-25 trips/year
Water treatment materials and chemicals ⁽⁴⁾	Water Treatment Plant	Flatbed or Enclosed Delivery Truck	4,000-5,000 gal	30,000-40,000 gal	2,000 gal	15-20 trips/year
Hydrated Lime	Water Treatment Plant	Flatbed or Enclosed Delivery Truck	15,000-20,000 lb	20,000 lb	10,000 lb	2 trips/year
Miscellaneous supplies and materials ⁽⁵⁾	Surface and Underground	Flatbed or Enclosed Delivery Truck	variable	variable	variable	50-100 trips/year
Estimated Trips for Supplies and Materials to the Libby Adit						212-305 trips/year ⁽⁶⁾

Abbreviations: gal = gallons; ft³ = cubic feet; lb = pounds

¹ One of the site supervisors will probably bring the gas containers to the site in their pickup truck.

² The U.S. Office of Homeland Security discourages mine operators to report explosive quantities.

³ Fluids used for exploration and geotechnical drilling will include choline chloride, mineral oil, anionic polyacrylamide, vegetable oil, and copolymer of sodium acrylate.

⁴ Materials and chemicals to be used at the Water Treatment Plant will include sodium hypochlorite, sulfuric and hydrochloric acid, and flocculent.

⁵ Miscellaneous supplies and materials to be used at the site will be rock bolts, wire mesh, steel, epoxy and resin, shotcrete, grout and associated additives, wood and timber, spare parts, cleaning supplies, and office supplies.

⁶ Based on a 260 day per year delivery window to the Project area (5 days/week for 52 weeks/year), the average weekly estimated supply trips to the site will be from approximately 4 to 6, which will be approximately 1 trip per day. However, these estimates represent a long-term average, and it can be expected that supply delivery will be variable, meaning that there may be more trips on any given day, while other days will not experience a delivery. In addition, this estimate is for supplies and materials needed at the Project area to conduct exploration activities, and does not represent traffic associated with the workforce, vendors, contractors, government personnel, and visitors.

The transport, handling, and storage for some of the major consumables are discussed below.

- Diesel Fuel – A tanker truck will deliver diesel fuel to the Project area where the fuel will be transferred to above-ground storage tanks, constructed with secondary containment. Diesel fuel will be used for on-site power generators and most mobile site equipment.
- Gasoline – Many of the light and supply vehicles used in the Project area will use gasoline, but these vehicles will be fueled in Libby, unless there is an emergency. Because certain mobile site equipment will use gasoline, MMC will have portable small gasoline containers for such equipment. These gas containers will be stored in the shop with gasoline obtained in Libby.
- Oils/Lubricants – Various oils and lubricants will be required for equipment maintenance. These products will be delivered by the vendor and stored in approved containers located within or directly adjacent to the maintenance shop facility. Used petroleum products and solvents will be collected in approved containers and transported off site by qualified vendors.
- Antifreeze – Antifreeze (50/50 premix) will be required for use in certain equipment. Antifreeze will be delivered by the vendor in approved containers that will be stored within or directly adjacent to the temporary maintenance shop facility. Used antifreeze will be collected in approved containers, transported off site, and disposed through qualified vendors.
- Solvents and miscellaneous chemicals – Various types of solvents will be needed for parts cleaning in the maintenance shop. The solvents will be delivered by vendors and stored in approved storage containers within or directly adjacent to the shop. Water treatment chemicals will be stored at the water treatment plant.
- Explosives – Explosives will be delivered to the site by vendors and stored in secured and approved magazines. MMC expects to use blasting emulsion products, along with detonating cord, cast primers and blasting caps. Transportation of explosives are regulated by the USDOT, the U.S. Justice Department's Bureau of Alcohol, Tobacco, Firearms, and Explosives, the U.S. Office of Homeland Security, and MSHA.

5.0 SAFETY

Ensuring safety is maintained for employees, visitors, and the public using the various roads described above is of primary importance to MMC. Safety measures have developed relative to Project-related road use to protect employees, visitors, and the public, the environment, various stakeholders, and wildlife.

5.1 ENVIRONMENTAL PROTECTION – TRANSPORT ON FOREST SERVICE ROADS

MMC will require suppliers and transporters to maintain Safety Data Sheets (SDSs) for cargo delivered to the site. Contractors and vendors must transport fuel, oils/lubricants, chemicals, and explosives to the project area in certified containers and vehicles that comply with associated regulations and guidelines of the USDOT, the U.S. Occupational, Safety and Health Administration (OSHA), Forest Service, MDOT, MSHA, and Lincoln County. MMC will maintain spill response supplies including items such as absorbent pads, control berms, and straw waddles at the Project area.

To minimize traffic associated with the Project between U.S. Highway 2 and the Project area, MMC will implement its transportation plan which is included in the Plan of Operations. Employees and contractors will ride-pool using vans or busses for transportation to the project area. MMC will establish a supply staging area in Libby, Montana to consolidate shipments to the project area. The transportation plan specifies that exceptions to staging and consolidation of supplies would include full-load shipments, expedited shipments to repair equipment, and other emergencies as described in the transportation plan. MMC will implement the transportation plan until reclamation and closure are completed.

Using private vehicles to travel to and from the work site would be restricted except as approved in the transportation plan.

MMC will limit speeds for all Project-related vehicles to 25 miles per hour or less along NFSR 231 and NFSR 2316.

As appropriate to specific loads and shipments, and to comply with appropriate regulations, MMC or the transporter will provide a pilot vehicle to escort trucks to the site and post appropriate signage to alert the public of truck traffic.

MMC maintains a Spill Prevention, Control, and Countermeasure (SPCC) Plan with procedures for responding to accidental spills and releases of petroleum products and other chemicals. MMC will maintain SDSs at the Project area. The SPCC Plan addresses the storage and use of fuel and other chemicals in the Project area and describes specific measures to respond to spills and releases at the site. MMC will follow the procedures in the SPCC Plan to protect the environment, to safeguard the health of the on-site workforce and the public, and to comply with federal and state regulations.

Fuel, explosives, and various other operational supplies will be delivered to the Project area on a regular basis by contractors/vendors. MMC will establish a supply staging area in Libby to consolidate shipments to the Project area to limit traffic on Libby Creek Road and Upper Libby Creek Road. Supplies and materials will be shipped by truck primarily from Libby, Kalispell, Missoula, and Spokane. MMC will schedule delivery of operational materials and supplies needed for the Project during day shift, Monday through Friday, unless there is an emergency that occurs on the weekend requiring an expedited shipment of parts or materials.

Snowplowing will continue to be conducted as needed in the winter months, generally between October and May, along 9.6 miles of NFSR 231 and NFSR 2316, under the USFS Road Use Permit for this Project. MMC will be responsible for repairing any damage to roads and road infrastructure associated with snow plowing including damage to road surface, guardrails, bridges, etc.

A 2.3-mile portion of NFSR 231 and all of NFSR 2316 (2.2 miles) will continue to be seasonally restricted to all motor vehicles, including over-snow vehicles, between April 1 and May 15, except for authorized administrative use, including MMC and its contractors. At the beginning of the seasonal road closure periods, MMC would close and lock the two gates on NFSR 231 and the gate on NFSR 4778. During the seasonal road closure period along NFSR 231 and NFSR 2316, April 1 to May 15, MMC and its contractors would close and lock the lower gate on NFSR 231 once they pass through to prevent unauthorized motorized access beyond the gate and maintain public road use restrictions. Training would be provided to ensure all staff understand how to operate the gate without allowing any unauthorized motorized access. MMC would periodically monitor the gates during the closure periods. If the gates are found to be non-functional, MMC would repair the gates. By December of each year, MMC would submit an annual summary report to the USFS, for the duration of the Project, describing any required repairs to the gates or observations of unauthorized motorized access during the closure periods.

5.2 PUBLIC SAFETY – TRAFFIC FOR THE EXPLORATION PROJECT

NFSR 231 and NFSR 2316 are both public roads. MMC will inform employees, contractors, and suppliers, as part of their site orientation and annual refresher training, of the importance of adhering to the 25-mile per hour speed limit and safe driving practices on these access roads. In the Project area, MMC will manage and/or restrict unauthorized public access to the work site during the Project to further enhance public and worker safety.

5.3 WILDLIFE MORTALITIES – ACCESS ROADS

MMC will monitor the number of big game animals killed by vehicle collisions along NFSR 231 and NFSR 2316 for as long as these roads are snowplowed duration of the Project and report findings annually to the USFS and the Montana Fish, Wildlife, and Parks (MFWP). The numbers of animals killed by vehicle collisions will be reviewed by the USFS, in cooperation with MFWP, and if necessary, mitigation measures will be developed and implemented to reduce mortality risks.

MMC will monitor and report within 24 hours all Canada lynx, wolf (*Canis sp.*), moose (*Alces americanus*), elk (*Cervus canadensis*), and wolverine mortalities (*Gulo gulo*), and immediately report all grizzly bear and black bear (*Ursus americanus*) mortalities as described in the mandatory reporting system within Project area and along the same access roads for the life of the Project. If a threatened or endangered species mortality occurs, MMC will be required to haul future road-killed animals to a disposal location approved by MFWP, if deemed necessary by the grizzly bear specialist or law enforcement officer to avoid additional grizzly bear or other threatened and endangered species mortality.

MMC will not use salt during winter snowplowing operations to avoid attracting big game. To eliminate attractions to bears and other predators, MMC will remove road-killed animals along NFSR 231 and NFSR

2316. Road-killed animals will be moved at least 50 feet beyond the right-of-way clearing or as far as necessary to be out of sight of the road or to a disposal location approved by MFWP as soon as they are encountered. On the lower portion of Libby Creek Road within the Chronic Wasting Disease management area, MMC will haul road-killed deer, elk, and moose carcasses to the Libby Landfill.

5.4 OVERSIZE / OVERWEIGHT LOADS

MMC will notify the Forest Service and the Lincoln County Sheriff, if any oversize or overweight vehicles, will be required for material or supply delivery to the Project area. In addition, MMC will obtain any required overweight vehicle permits from the Forest Service for bridge and culvert crossings.

6.0 PLAN REVIEW

MMC will review this Plan on an annual basis and make appropriate adjustments or revisions, as needed. MMC will provide the Forest Service with a revised document, as necessary.

APPENDIX B

Monitoring Plan

APPENDIX C

Wildlife Management Awareness Plan

Libby Exploration Project Wildlife Management Awareness Plan for Employees and Contractors

Montanore Minerals Corporation
Lincoln County, Montana

Prepared for:

*U.S. Department of Agriculture
Kootenai National Forest*

Prepared by:

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LIST OF ACRONYMS

MFWP	Montana Fish, Wildlife, and Parks
MMC	Montanore Minerals Corporation
MSHA	Mine Safety and Health Administration
Plan	Wildlife Management Awareness Plan
Project	Libby Exploration Project

1.0 INTRODUCTION

Montanore Minerals Corporation (MMC) prepared this Wildlife Management Awareness Plan (Plan) to address wildlife issues as they relate to the Libby Exploration Project (Project). The objectives of this Plan are to:

- Reduce the risk of human-caused mortality of threatened and endangered species
- Establish MMC procedures and protocols; and
- Develop employee and contractor awareness.

MMC is committed to operating the Project in a manner that provides protection of wildlife resources in the area. This Plan outlines MMC's approach to education, rules/procedures, and implementation process for employee and contractor awareness.

2.0 WILDLIFE ISSUES AND PROCEDURES/PROTOCOLS

In order to minimize human-wildlife conflicts for the exploration Project, MMC will implement the following:

- Prohibit firearms in company vehicles and on company property;
- Prohibit hunting on MMC property (including the Project area);
- Prohibit the feeding of animals;
- Provide bear-proof garbage containers in the Project area;
- Restrict private vehicles within the Project area;
- Require employees (including all management staff) to attend training related to living and working in grizzly bear habitat prior to starting work and at least once a year thereafter for the life of the Project;
- Maintain the wildlife exclusion fence surrounding the Project area; and
- Require all employees follow Kootenai National Forest mandatory food storage guidelines in the Project area.

2.1 FIREARMS ON COMPANY PROPERTY

The Mine Safety and Health Administration (MSHA) does not permit firearms on mining property, with the exception of security officers or designated employees. MMC will follow this rule as part of our policies for employees in the Project area. MMC security officers and designated employees possessing firearms will be limited in scope based on specific situations and conditions. If wildlife is posing a threat to employee safety, MMC will coordinate with the Montana Fish, Wildlife, and Parks (MFWP) to minimize the potential wildlife mortality while maintaining employee safety. This may include hazing and/or harassment techniques to deal with the situation. It is further assumed that the animal could be relocated as a primary measure to protect employees at the site. The taking of a problem animal would be limited to last resort and as authorized by MFWP.

MMC will be providing transportation to the Project area, eliminating the ability of employees to bring weapons on MMC property; thus removing the potential of hunting and/or poaching of wild game while commuting to and from the Project area. Employees caught violating these company rules during work hours and/or commuting will receive disciplinary action, up to and including termination. If MMC discovers a violation of hunting regulations, the incident will be reported to the appropriate MFWP officials.

2.2 FEEDING ANIMALS

MMC understands that Project activities are typically not an attractant to wildlife, but encounters may occur. To discourage human-wildlife interactions, proper management of garbage and controlled human-wildlife interaction will be implemented.

MMC will provide bear-proof garbage containers in the Project area to limit attraction of wildlife. Segregation of food containing garbage that could be an attractant to wildlife will be implemented within the Project area. MMC will remove food containing garbage on a daily basis following a “pack it in, pack it out” mentality regarding food containing garbage. All garbage removed from the site will be transported to Libby for disposal.

MMC will not tolerate employees feeding wild animals. Employees found violating this rule will be disciplined, up to and including termination.

Employees working in the Project area will be required to follow the Kootenai Food Storage Order which although is mandatory on National Forest System lands is not required on private lands; however, MMC is voluntarily following this order on their private land to minimize human-wildlife conflicts and reduce mortality risk to grizzly bears, and any food will be secured and removed from the work site daily.

All employees will be made aware through education and training of MMC’s rules pertaining to wildlife issues. All new employees will review and agree to the measures outlined in this Plan during orientation. Seasonal awareness of bear issues will be discussed at appropriate “tailgate safety talks” to remind employees of the wildlife issues. These safety talks occur regularly throughout the year and help keep employee awareness current for safety, environmental, and wildlife issues.

2.3 EMPLOYEE AWARENESS

MMC will incorporate these issues into employee training documents and will be part of regular discussions with employees to reinforce the importance of compliance with these provisions. Any violation of firearm rules could be cause for termination.

Because transportation is provided for employees to the Project area, inspections will occur daily as employees are transported to the site. Spot inspections could be implemented at MMC’s discretion.

The following are where wildlife awareness training will be discussed:

- MSHA Miner Safety Training;
- Site Hazard Recognition;
- New Hire Orientation;
- Environmental Awareness Discussions; and
- Annual MSHA Refresher Training.

2.4 NON-MMC EMPLOYEE / CONTRACTOR AWARENESS

For non-MMC employees or contractors that require access to the site, review and agreement to the measures outlined in this Plan are required before access to the site is granted. As stated previously, MSHA does not permit firearms on mining property, with the exception of security officers or designated employees, and MMC will implement this in the Project area. Inspection of non-MMC employee or contractor vehicles may occur following protocols outlined by MSHA.

2.4.1 Monitoring

As stated above, all persons requiring access to the Project area will be required to read and agree to the terms outlined in this Plan before they are given permission to access the site. Signature pages for this Plan will be kept at the office in Libby. Additionally, MMC and non-MMC personnel will hold weekly inspections to monitor conditions as they pertain to wildlife. Items such as garbage control, wildlife sightings, and employee training sessions will be documented, and completed inspection forms will be stored at the Libby office. Signature pages and inspection sheets will be made available for agency review upon request.

ACKNOWLEDGEMENT OF RECEIPT OF THE WILDLIFE MANAGEMENT AWARENESS PLAN:

I, the undersigned, have read and agree to the measures outlined in Montanore Minerals Corporation's Wildlife Management Awareness Plan.

Signature

Date