

Montana DEQ

Final Environmental Assessment

Proposed Hard Rock Mine Operating Permit No. 00202 C3,
Limited Liability Company



Contents

COMPLIANCE WITH THE MONTANA ENVIRONMENTAL POLICY ACT	1
BACKGROUND	1
PURPOSE AND NEED	2
PROPOSED ACTION ALTERNATIVE.....	2
Table 1: Summary of activities proposed in Operating Permit No. 00202.	3
1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE.....	7
Table 2: Reclamation Seed Mix.....	9
2. WATER QUALITY, QUANTITY, AND DISTRIBUTION.....	10
3. AIR QUALITY	14
4. VEGETATION COVER, QUANTITY AND QUALITY	14
5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS	15
6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES	16
7. HISTORICAL AND ARCHAEOLOGICAL SITES	17
8. AESTHETICS.....	17
9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY	18
10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES	19
11. HUMAN HEALTH AND SAFETY	19
12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION	19
13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT	20
14. LOCAL AND STATE TAX BASE AND TAX REVENUES.....	20
15. DEMAND FOR GOVERNMENT SERVICES.....	20
16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS	21
17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES.....	22
18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING.....	22
19. SOCIAL STRUCTURES AND MORES	22
20. CULTURAL UNIQUENESS AND DIVERSITY	23
21. PRIVATE PROPERTY IMPACTS	23
22. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES	25
ALTERNATIVES CONSIDERED	25
PREFERRED ALTERNATIVE	25
PUBLIC INVOLVEMENT	25
RESPONSE TO PUBLIC COMMENTS.....	26
OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION	26
CUMULATIVE IMPACTS	26
GEOLOGY	27

AIR QUALITY	28
TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS	29
UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES	29
NEED FOR FURTHER ANALYSIS AND SIGNIFICANCE OF POTENTIAL IMPACTS.....	30

Figures

Figure 1. Proposed Hard Rock Operating Permit No. 00202 Proposed Permit Boundary.....	5
Figure 2. Proposed Operating Permit Boundary and Proposed Five-Year Disturbance Area under Operating Permit No. 00202.	6
Figure 3. Soils Map for the Anaconda Bench Mine.....	8
Figure 4. Reclaimed Meadow below C3's Settling Ponds on June 16, 2018.....	11
Figure 5. View from the Anaconda Bench ore processing area looking north towards the catchment area above the process ponds.	12

**Montana Department of Environmental Quality
Air, Energy, & Mining Division
Mining Bureau
ENVIRONMENTAL ASSESSMENT**

COMPANY NAME: C3 Limited Liability Company
EA DATE: August 8, 2022
PROJECT: Anaconda Bench Mine
PENDING OPERATING PERMIT NO.: 00202
LOCATION: 46.272°, -113.623° **COUNTY:** Granite
PROPERTY OWNERSHIP: FEDERAL ___ STATE _____ PRIVATE X

COMPLIANCE WITH THE MONTANA ENVIRONMENTAL POLICY ACT

The Montana Environmental Policy Act (MEPA) requires preparation of an environmental impact statement for major actions taken by the State of Montana that may significantly affect the quality of the human environment. This environmental assessment (EA) is being prepared to determine whether the issuance of an operating permit to C3 Limited Liability Company (C3) by the Department of Environmental Quality (DEQ) is a major state action significantly affecting the quality of the human environment. The EA will examine the proposed action and alternatives to the proposed action and disclose potential impacts that may result from the proposed and alternative actions. DEQ will determine the significance of impacts and the need to prepare an environmental impact statement based on consideration of the criteria set forth in the Administrative Rules of Montana (ARM) 17.4.608.

BACKGROUND

C3 has applied for an operating permit, seeking authorization to continue mining sapphires at the Anaconda Bench Sapphire Mine. C3 has conducted mining at the site for the since 2002 under Small Miner Exclusion Statement (SMES) No. 46-119 and Exploration License No. 00628. The mine is located in Granite County, Montana in Sections 17, 20 (NW ¼, NE ¼, SE ¼), 16 (NW ¼), 21 (NW ¼, SW ¼), 08 (SE ¼, SE ¼, SE ¼), and 09 (SW ¼, SW ¼, SW ¼) of Township 06 North, Range 16 West. The site is approximately 22 miles west of Philipsburg via Montana Highway 38. From the junction of Montana Highway 1 and Montana Highway 38, it is 16 miles to the main access road. The mine is accessed via existing unpaved roads from mile marker 38.4 of Montana Highway 38.

The site has been historically mined for sapphires since the 1890s. Prior to C3's activities, the American Gem Corporation conducted large scale mechanized mining in Moffett Gulch, at the Dann Placer and on the Anaconda Bench from 1994 to 2000 in the proposed permit area.

In 2018, DEQ initiated a formal enforcement action against C3 for causing more than 5 acres of disturbance under its SMES, in violation of Section 82-4-303(30)(a), MCA. An inspection conducted on June 12, 2018, revealed that C3 had disturbed 24.9 acres, exceeding the 5-acre limitation allowed under its SMES. DEQ issued a violation letter to C3 on July 25, 2018, alleging the violation. The violation letter indicated that C3 could resolve the violation by either reclaiming the site to 5 acres or less or obtaining an operating permit. C3 contested the acreage delineation and requested another site inspection. DEQ conducted another site inspection on June 26, 2019. DEQ determined C3 had reclaimed one acre, reducing its area of disturbance to 23.9 acres, still in excess of the 5-acre limitation applicable to small miners. C3 has continued mining under its SMES.

In March of 2020, DEQ and C3 signed an Administrative Order on Consent (AOC), establishing a violation of Section 82-4-303(30)(a), MCA. C3 paid a penalty of \$3,640 under the terms of the AOC. The AOC required C3 to submit an operating permit application to DEQ.

C3 submitted its application for an operating permit, which will be denominated Operating Permit No. 00202 if issued, on July 14, 2020. C3 submitted additional information on December 7, 2020, February 12, 2021, April 12, 2021, and June 11, 2021, in response to DEQ's deficiency reviews. On August 12, 2021, DEQ determined that C3's application was complete and compliant, satisfying the substantive requirements of the Metal Mine Reclamation Act (MMRA). Accordingly, DEQ issued draft Permit No. 00202 on August 12, 2021. Under Section 82.4.337(1)(g), MCA, issuance of the draft permit as a final permit is the proposed state action subject to review under MEPA. DEQ issued a draft Environmental Assessment on June 15, 2022.

PURPOSE AND NEED

DEQ's purpose and need in conducting this environmental review is to act on C3's application for an operating permit authorizing the mining of sapphires in accordance with the MMRA.

PROPOSED ACTION ALTERNATIVE

A summary of the activities C3 would conduct under the Proposed Action is set forth in **Table 1**.

Table 1: Summary of activities proposed in Operating Permit No. 00202.

Summary of Proposed Activities in Operating Permit No. 00202	
General Overview	<p>The proposed application includes a proposed permit area of about 412 acres. The area permitted for disturbance within the permit boundary would be about 334 acres (Figure 1). Mining at the project area would occur for approximately 6 months of the year, from mid-April to mid-November, for approximately 66 years.</p> <p>The area surrounding the proposed permit area is primarily used for mining, logging and grazing. A significant portion of the proposed permit area was previously disturbed by historical mining for sapphires since the 1890s and large-scale mechanized mining by the American Gem Corporation between 1994 to 2000.</p> <p>Activities at the site would be a continuance of the current practice of placer mining to produce rough sapphires and sapphire-bearing gravel. The proposed mining would excavate pits to an average depth of 3-6 feet, and no more than 12 feet below ground surface. The removed soil is washed, screened and sorted at the jig plant located in the upper reaches of the Anaconda Gulch stream. C3 would use water impounded in ponds to process the ore. Washed sand and gravel, as well as slimes from the settling ponds, are returned to the pits as backfill and topsoil supplement, respectively. C3 would be required to conduct concurrent reclamation, completing reclamation not more than two years after completion of an area that is no longer being used for mining activities. No new access roads would be created.</p> <p>All lands disturbed by mining and not left for beneficial use of the landowner would be reclaimed to forest, pasture or cropland habitat suitable for wildlife habitat. All reclamation would be blended to the surrounding topography. No highwalls or pits would be left post mine.</p>
Proposed Dimensions and Quantities of Disturbance in Operating Permit No. 00202	
Current Disturbance	43.15 acres are currently disturbed.
Total new surface disturbance	Up to 334 acres, with 20.6 acres of proposed disturbance in the next 5 years (Figure 2).
Proposed Actions in Operating Permit No. 00202	
Duration and timing	<ul style="list-style-type: none"> • The project would be completed within approximately 66 years following issuance of Operating Permit No. 00202. • C3 is required to conduct concurrent reclamation, completing reclamation not more than two years after completion of an area that is no longer being used for mining activities. • Annual reclamation would include backfilling mined blocks and application of approved seed mix to the backfilled area. • Final reclamation of all surface disturbances would be required to be completed no later than 2 years following conclusion of the project. • Final reclamation would include pond reshaping, equipment removal, and final site contouring at the end of mine life.
Location and Analysis Area	<ul style="list-style-type: none"> • The proposed project would be located on private land about 15 miles west of Philipsburg, in Granite County, MT. • The area being analyzed as part of this environmental review includes the immediate project area (Figure 1) as well as immediate downstream water sources and neighboring lands surrounding the analysis area as reasonably appropriate for the impacts being considered.
Personnel Onsite	The mine would employ two seasonal workers and two fulltime staff.
Project Water Source	<ul style="list-style-type: none"> • Groundwater and Spring snowmelt would be impounded in the existing settling ponds. • The water used in the wash plant would be recirculated.

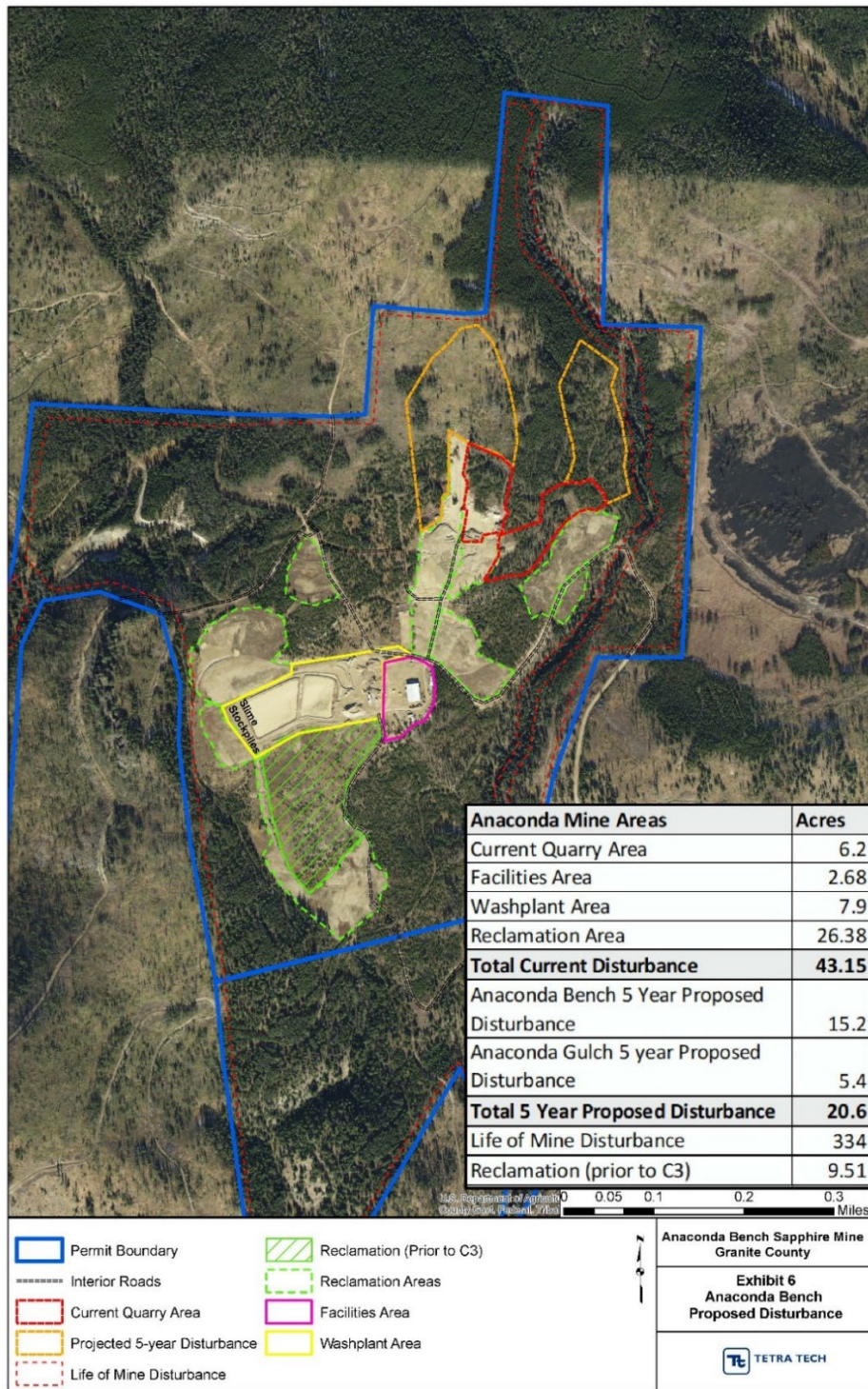
Proposed Actions in Operating Permit No. 00202 (continued)

Air Quality	<ul style="list-style-type: none"> • Water is introduced at the grizzly feeder, so no dust would be generated from the process plant. • Concurrent reclamation would limit the potential for blowing dust from the operating area. • Water would be used to suppress nuisance dust when required. • The power generator would be in compliance with Air Quality regulations.
Water Quality	<ul style="list-style-type: none"> • On January 11, 2022, C3 received a permit for authorization of stormwater discharges associated with industrial activities for the mining and processing at the Anaconda Bench Sapphire Mine from the Montana Department of Environmental Quality – Water Quality Division (DEQ-WQD). • C3 has prepared an industrial Stormwater Pollution Protection Plan (SWPPP) under Sector J, Standard Industrial Code (SIC) 1499. The SWPP is required to protect State waters from pollutants, primarily sediment. • C3 would install at least three shallow groundwater monitor wells around the settling ponds to measure water elevation.
Erosion Control and Sediment Transport	<ul style="list-style-type: none"> • Best management practices (BMP), including the installation of berms, sediment basins, erosion fabric, straw wattles and silt fence would be used to mitigate stormwater interaction with loosened soil near disturbance areas. The BMPs would be used to filter sediment from stormwater before it reaches a stream. • C3 would maintain 100-foot vegetated buffers along drainages to assist with filtering sediment from transported stormwater. • Small trees, brush and woody debris would be stockpiled prior to mining a block. The stockpiled material would be spread and placed to enhance vegetation growth and minimize sediment transport from stormwater runoff after mine blocks have been backfilled and graded. • Mine block areas would be backfilled with process plant reject material and stockpiled overburden, covered with stockpiled soil, graded to match the surrounding terrain and seeded.
Solid Waste	Refuse would be bagged, stored indoors, and properly disposed as needed.
Cultural Resources	<ul style="list-style-type: none"> • Mine activities are proposed on privately owned surface and mineral rights. On January 28, 2020, the Montana State Historic Preservation Office (SHPO) concluded there was a potential for the proposed mine to impact cultural properties. • Cultural resources are not expected to be impacted by the proposed mine plan. If archeological resources are encountered during mine operations, however, activities would be halted and the DEQ Mining Bureau and SHPO will be contacted.
Hazardous Substances	The following hazardous substances would be located at the project site: fuel, motor oil, hydraulic oil, gear oil, lubricating grease, antifreeze (ethylene glycol and propylene glycol), power steering fluid, brake fluid, and propane.
Reclamation Plans	<ul style="list-style-type: none"> • Mine block areas would be backfilled first with process plant reject material and stockpiled overburden and then topped with stockpiled soil. The mine block areas would be graded to match surrounding terrain and seeded. • The soil and overburden stockpile pads would be ripped and seeded. • Regraded and ripped areas would be seeded with an approved seed mix at a rate of 25 pounds per acre • Settling ponds would have the visible portion of liners cut and removed. The berms and banks surrounding the pond would be pushed into the ponds to create variable pond slopes and banks of a 5:1 slope or less. Sediment and other stockpiled material would be used to backfill sections of the pond to create irregular pond depths and bank profiles. The edges of the pond would be seeded. • The shop building, roads and reclaimed ponds would be left post mine for recreational activities and wildlife habitat.

Figure 1. Proposed Hard Rock Operating Permit No. 00202 Proposed Permit Boundary



Figure 2. Proposed Operating Permit Boundary and Proposed Five-Year Disturbance Area under Operating Permit No. 00202.



SUMMARY OF POTENTIAL PHYSICAL AND BIOLOGICAL IMPACTS

This impact analysis will identify and analyze direct and secondary impacts of the proposed operation on natural and social resources that are part of the human environment. Direct impacts occur at the same time and place as the action that causes the impact. Secondary impacts are a further impact to the human environment that may be stimulated, or induced by, or otherwise result from a direct impact of the action (ARM 17.4.603(18)). Where impacts would occur, the impacts analysis will estimate the duration and intensity of the impact.

The duration is quantified as follows:

- Short-term: Short-term impacts are defined as those impacts that would not last longer than the life of the project, including final reclamation.
- Long-term: Long-term impacts are impacts that would remain or occur following project completion.

The severity of the impacts is measured using the following:

- No impact: There would be no change from current conditions.
- Negligible: An adverse or beneficial effect would occur but would be at the lowest levels of detection.
- Minor: The effect would be noticeable but would be relatively small and would not affect the function or integrity of the resource.
- Moderate: The effect would be easily identifiable and would change the function or integrity of the resource.
- Major: The effect would alter the resource.

1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE

Are soils present, which are fragile, erosive, susceptible to compaction, or unstable? Are there unusual or unstable geologic features? Are there special reclamation considerations?

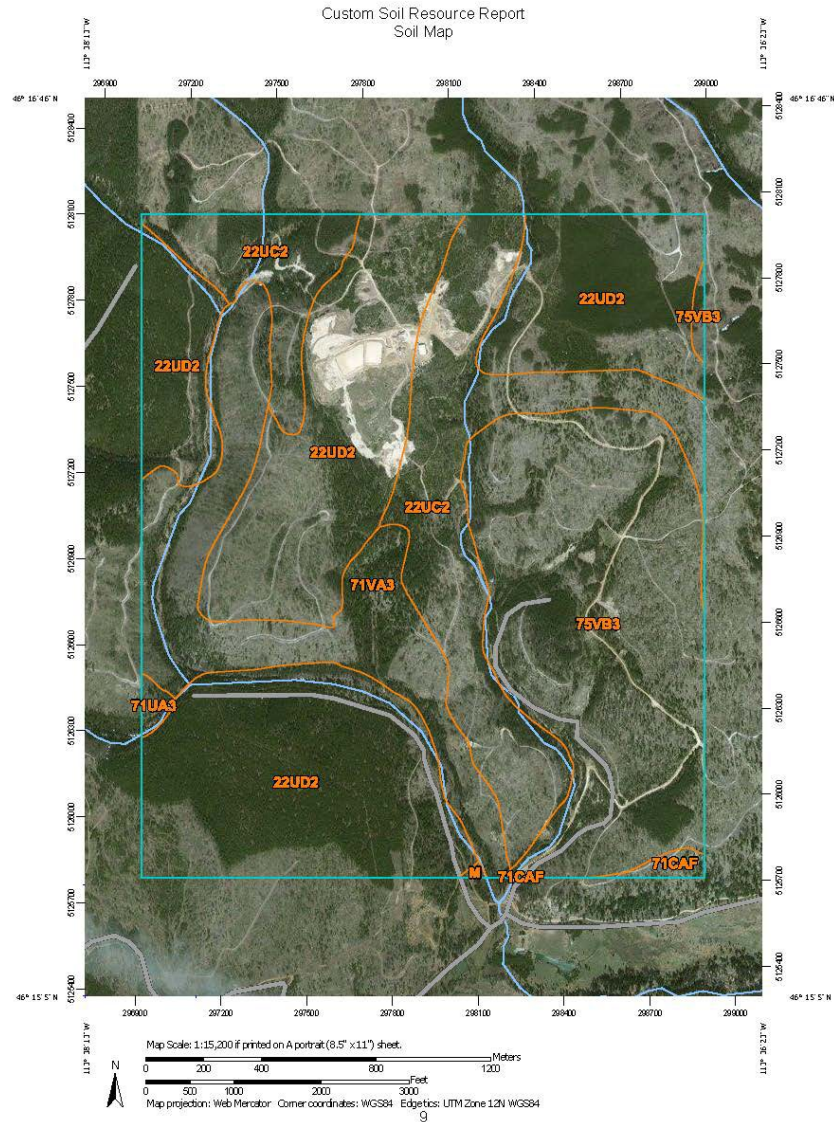
The area of the proposed mine would be located entirely on private land within the historic Rock Creek Mine District about 15 miles west of Philipsburg in Granite County, MT. The mine would be targeting alluvial sapphires from the Rock Creek Volcanic Field. The mine district and the project area have extensive historic and modern disturbances from mining and logging.

Impacts from sapphire ore mining under the Proposed Action would result in a disturbance of up to 334 acres within the 412-acre proposed permit area. As part of the mining process, following removal of the ore, reject material from the processing plant and stockpiled overburden would be backfilled into shallow quarries.

Loberg-Worock-Danaher (22UC2), Loberg-Elvick-Garlet (22UD2), and Worock-Elve (75VB3) families make up the majority of the soil types in the proposed permit area (**Figure 3**). These soils all have less than one inch of slightly decomposed plant material and loam over gravelly, cobbly or stony loam on glaciated mountain slopes. The sapphire ore in the proposed permit area varies in depth from 0 to 12 inches below the ground surface. C3 would salvage and stockpile the upper layer of the soil profile separately from any stockpiled overburden. Removal of the ore would alter the soil profile in the quarries by removing established vegetation, reducing soil structure and

disturbing the slightly decomposed plant material on the surface. This modification to the land surface would increase erosion potential of sediments in disturbed areas.

Figure 3. Soils Map for the Anaconda Bench Mine



C3 has proposed to use a variety of Best Management Practices (BMPs) to reduce the potential for erosion and sediment transport from areas disturbed by mining. C3's BMPs include the use of berms, v-ditches, straw wattles, hay bales and silt fences. Concurrent reclamation of mine disturbance would also reduce the potential for erosion and sediment transport. As mining is completed in the various shallow pits, C3 would spread stockpiled overburden in mined areas and contour the backfill to match the surrounding topography. Stockpiled soils would be spread over the backfill and seeds from an approved mix would be broadcast over the topsoil within 14 days of final contouring. C3 may use BMPs to filter sediment from storm water runoff from disturbed

areas until vegetation is established. C3 would also spread existing timber, woody debris and deadfall to create surface roughness and enhance vegetation growth to minimize sediment transport from stormwater runoff.

Direct Impacts:

No unusual or unstable geologic features are present, and no fragile or particularly erosive or unstable soils are present. Mining and processing of the sapphire bearing ore will remove sapphires from the proposed disturbance area.

The mine could result in erosion of some disturbed soil; however, the erosion potential is minor because of the use of BMPs during mining and reclamation. BMPs including, but not limited to, berms, v-ditches, straw wattles, hay bales, and silt fences may be used to mitigate stormwater interaction with loosened soil near each shallow mine pit. The BMPs would be designed to capture sediment before stormwater reaches a stream. Salvaged overburden and/or soil would be replaced after mining and then contoured to match the surrounding topography. Stripped timber, woody debris and deadfall would be spread to enhance vegetation growth and minimize sediment transport from stormwater runoff. Concurrent reclamation would include application of an approved seed mix (**Table 2**) at a rate of 25 pounds per acre. Impacts to soils would be short-term and minor and would not be significant because of reclamation activities.

Table 2: Reclamation Seed Mix.

Species	Percentage
Marco Polo Sheep Fescue	4%
Revenue Slender Wheatgrass	22%
White Dutch Clover	8%
Certified Critana Thickspike Wheatgrass	22%
Luna Pubescent Wheatgrass	22%
Certified Rosana Western Wheatgrass	22%
	Total: 100

The proposed project would have up to 334 acres of disturbance area. Previous mining activities under a small miner exclusion statement and exploration license have disturbed 43.15 acres and the proposed disturbance in the next five years is an additional 20.6 acres. During the first five years of mining, proposed mining activities would result in a total of 63.75 acres of disturbance.

Surface soil disturbance could allow for the establishment of weeds. Weed control is a condition of an operating permit and C3 would be required to control the spread of noxious weeds [MCA 82-4-336 (8)]. If noxious weeds are observed, the weeds would either be treated or physically removed. Prompt replacement of topsoil and woody debris would facilitate the growth environment for native seeded and planted species. The Weed Management plan was reviewed and approved by the Granite County Weed coordinator.

Due to the concurrent reclamation proposed and the commitment to use BMPs in disturbed areas, impacts to the geology, soil quality, stability and moisture would be short-term and minor.

Secondary Impacts:

There are no expected secondary impacts to the geology. Soil quality, stability and moisture are not expected to have secondary impacts due to the BMPs proposed by the applicant.

2. WATER QUALITY, QUANTITY, AND DISTRIBUTION

Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?

Groundwater

Upper reaches of the project area are in the headwaters of Anaconda Creek and the interaction between groundwater and surface water in this area is heavily modified from natural conditions by previous disturbance. Mining and logging have taken place within the proposed permit area nearly continuously since the early 1890s to the present day. Historic mining activity is evidenced by the presence of miles of hand dug ditches, numerous glory holes and cobble piles from hydraulic mining in the proposed permit area. Prior to C3's activities, the American Gem Corporation conducted large scale mechanized mining in Moffett Gulch, at the Dann Placer and on the Anaconda Bench from 1994 to 2000 in the proposed permit area.

Groundwater recharge occurs throughout the permit area due to the porous nature of the colluvial deposits. Historic and man-made features, including ditches, trenches, and hydraulic mining deposits control where groundwater surfaces or surface water infiltrates.

The interaction between ground and surface water is illustrated in the aerial photograph shown below which was taken above the Anaconda Bench portion of the proposed permit area in June 2018 (**Figure 4**). Part of the settling ponds are shown in the lower left-hand corner of the image. These ponds are partially lined and collect both shallow groundwater and spring snow melt. C3 would install at least three ground water monitoring wells adjacent to the process water ponds to determine groundwater elevation and monitor water quality.

Figure 4. Reclaimed Meadow below C3's Settling Ponds on June 16, 2018.



Groundwater continues to be intercepted and brought to the surface for storage through historic facilities including the settling ponds used by C3 to process sapphire ore. Groundwater is very shallow in the pond area, and it is likely the ponds were dug to below the groundwater table by previous operators to augment existing flow from springs. The consistent water level in the ponds during summer months indicates that some of the pond water is groundwater. Water remains in the ponds throughout the summer and fall even in dry years. During spring runoff an upgradient catchment area of approximately 70 acres adds surface water in the form of runoff and intercepted groundwater to the ponds which may exceed pond capacity in some years. **Figure 4** shows the area downgradient of the ponds following spring runoff. The downgradient edge of one pond is shown in the lower left corner of **Figure 4**. The ore processing area and the ponds are north of this meadow and upgradient. Overflow water travels generally from the pond toward the upper reach of Coal Creek in the upper right area shown in **Figure 4**. This meadow was mined and reclaimed from 2000-2010 and shows some of the features that control the groundwater - surface water interaction. The pond overflow partially infiltrates into the meadow and partly continues down Anaconda Gulch. Vegetation and the porous nature of the material used for reclamation filters the sediment load from surface water in the lower reaches of Anaconda Gulch prior to the confluence with Coal Gulch Creek.

The upper catchment area for both Anaconda Gulch and Coal Gulch Creek is shown in **Figure 5**. The upper catchment area for both Anaconda Gulch and Coal Gulch Creek includes land within the Beaverhead-Deerlodge National Forest and private lands. This upper catchment area is approximately 70 acres. The project area receives an average of 26.19 inches of precipitation annually with about 75% of that as snowfall.

Figure 5. View from the Anaconda Bench ore processing area looking north towards the catchment area above the process ponds.



A search of the Groundwater Information Center (GWIC) indicated that one domestic well is located over 1 mile from the project site. No impacts to this well are expected to occur due to the distance from the project area.

Direct Impacts:

Historic ditches and man-made ponds would continue to intercept and collect groundwater. Infiltration of spring runoff and discharge from the settling ponds may increase the sediment filtered in the unsaturated shallow gravel and soil deposits within the permit boundary. Monitor wells would be installed below the settling ponds to identify groundwater elevation and determine the extent to which groundwater is interacting with the ponds. Impacts to groundwater due to project activities would be short-term and minor.

Secondary Impacts:

No secondary impacts to water quality, quantity and distribution are expected.

Surface Water

The project area receives an average of 26.19 inches of precipitation annually. Anaconda Gulch Creek and Coal Gulch Creek are tributaries of the West Fork of Rock Creek and located within the proposed disturbance area. The mean annual flow below the confluence of Anaconda Gulch Creek and Coal Gulch Creek is calculated to be 1.35 cubic feet per second from a 6.3 square mile watershed area (USGS StreamStats, 2021). About 75% of the precipitation in the project area falls during the winter as snow. Snow melt usually occurs from the beginning of May until mid-June (USDA, NRCS, 2022).

The National Wetland Inventory identified small, isolated wetlands associated with Anaconda Gulch Creek and Coal Gulch Creek in the immediate project area. None are proposed to be disturbed as part of this project. The wetlands include emergent freshwater and riparian wetlands and occur along the creek beds within the proposed permit area.

Historic and man-made features including ditches, trenches, and hydraulic mining deposits control where groundwater surfaces or where surface water infiltrates. Spring snow melt is collected in the settling ponds and used for processing ore. The ore processing area is in the upper elevation of the proposed permit area. The catchment area for the ponds is approximately 70 acres in the headwaters of Anaconda Gulch. The interaction between ground water and surface water in the proposed permit area is a series of recharge and discharge areas which progress down Anaconda Gulch Creek and Coal Gulch Creek.

C3 has obtained MPDES Authorization MTR000714 under the Montana Pollutant Discharge Elimination System Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity (MSGP). The Montana Department of Environmental Quality's Water Protection Bureau reviewed C3's Storm Water Pollution Prevention Plan (SWPPP) under Sector J, Standard Industrial Code (SIC) 1499. Through the SWPPP and the Hard Rock Operating Permit Application, C3 has committed to implementing best management practices (BMPs) for controlling sediment. The SWPPP BMPs are as follows:

- Maintain a 100-foot vegetative buffer adjacent to Anaconda Gulch Creek and Coal Gulch Creek within the proposed permit boundary;
- Maintaining an earthen berm around the settling ponds;
- Install sediment capture basins, erosion fabric, straw wattles and silt fence near disturbance areas;
- Store raw materials with BMPs for sediment and erosion control;
- Maintain all surfaces around storage, industrial, and mining activity for grade to assure runoff does not leave the site and allows the run off to infiltrate within the mine boundary;
- Grade disturbed ground to provide erosion and sediment control as soon as it is practical;
- Reclaim disturbed ground as soon as final grade is reached by spreading woody debris and seeding (weather and season permitting); and,
- Stabilize disturbed ground that lies below the high-water table of the pond impoundments through safe gradient and erosion control techniques.

Direct Impacts:

Precipitation and project water would generally be expected to infiltrate into the porous shallow gravel and soil deposits. BMPs would be installed and maintained to aid in slowing water and sediment runoff which increases the settling out of sediment and infiltration of storm water before the storm water runoff reaches the creeks. Vegetative buffers adjacent to Anaconda Gulch Creek and Coal Gulch Creek would slow overland water flow which allows sediment to settle out of the water before it reaches the drainages. Surface water that may leave the site during significant storm events could carry sediment from disturbed soils. Minor direct impacts to surface water could occur due to project activities during peak runoff or extreme storm events.

Secondary Impacts:

No secondary impacts to water quality, quantity and distribution are expected.

3. AIR QUALITY

Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?

C3 proposes to use a water truck for dust abatement from vehicle traffic on dirt and gravel roads when necessary. Ore processing at the Anaconda Bench is a wet process with water from the settling ponds introduced at the grizzly and at subsequent stages of ore processing. Slash burning would not be performed. Electrical power would be supplied by a diesel-powered generator. The generator C3 currently proposes to be used at the site requires a Montana Air Quality Permit (AQP) pursuant to the Administrative Rules of Montana (ARM) 17.8.743 and ARM 17.8.744. C3 is in the process of purchasing a replacement generator with pollutant emission levels below the threshold which would require a permit. If C3 is unsuccessful in replacing the proposed generator with a low emission generator, C3 will be required to apply for an AQP.

Direct Impacts:

Dust particulate could be produced or become airborne during mining. Water would be introduced in the initial step of ore processing. All stages of ore processing handle a mixture of ore and water which enhances separation of sapphires from host rock and reduces dust emissions. Mechanized equipment would produce some exhaust emissions. Dust could also be produced while driving on/off site. The operator would be required to maintain compliance with Montana's law regarding the need to take reasonable precautions to control airborne particulate matter. Emissions from the diesel generator would either be below the emission level threshold for an AQP or be subject to AQP requirements.

Short-term negligible airborne emissions would be generated from this project from dust particulate and emissions from mechanized equipment produced from mining activities. Short-term negligible impacts to air quality would be regulated pursuant to the requirements of an AQP if the diesel generator is not replaced. The proposed project would have minor short-term impacts on air quality.

Secondary Impacts:

No secondary impacts to air quality are expected.

4. VEGETATION COVER, QUANTITY AND QUALITY

Will vegetative communities be significantly impacted? Are any rare plants or cover types present?

Land cover in the project area varies, but generally includes Lodgepole pine-dominated forest and woodland (MTNHP, 2020). Subalpine spruce, Douglas-fir, and Aspen are also present. A search of the MTNHP identified potential habitat for 25 vascular plant species of concern (SOC), two of which are also US Forest Service (USFS) sensitive or candidate species. Missoula Phlox, a USFS sensitive species, was recorded near the project area in 2015. Whitebark Pine has been observed adjacent to the proposed permit boundary and is a candidate for federal listing under the Endangered Species Act. Both the Missoula Phlox and Whitebark Pine have habitat ranges in most of western Montana. The quantity of disturbed habitat for these plants is minimal in nature due to

the vast habitat documented in western Montana and the relatively small size of the proposed mining disturbance.

Eighteen noxious or invasive plants have been identified in the greater project area.

Direct Impacts:

Surface soil disturbance could allow for the propagation of weeds. All surface disturbances would be reclaimed and seeded with an appropriate seed mix. Mine pits would be reclaimed concurrently as they are mined out. As soon as practicable mined areas would be backfilled with overburden, contoured to match the surrounding topography, covered with stockpiled soil and woody debris and seeded with a live, native seed mix. Final reclamation would include removal of the berms surrounding the settling ponds and recontouring the ponds with irregular bond depths and bank profiles for a post reclamation use of recreation and wildlife habitat. All other compacted areas surrounding the ore processing area would be ripped and seeded. After closure of the mine all disturbances would be reclaimed except the shop area, roads which would be used by the landowner.

Reclaimed areas would be seeded with a DEQ approved seed mix. Seed tags would be retained, and copies would be submitted to DEQ with the Annual Progress Report. Seedbed preparation would include broadcast seeding in the spring or fall. Reclamation vegetation would be monitored annual for success.

If the operating permit is approved, weed control during and after annual and final reclamation would be required until reclamation vegetation is established. Weed control would be a condition of an operating permit and C3 would be required to control the spread of noxious weeds. The project area would be subject to the noxious weed management plan as described in “Appendix F -Weed Management Plan” of the operating permit application. If noxious weeds are observed, the weeds would either be treated or physically removed to prevent further spread. Prompt replacement of topsoil and woody debris would facilitate the growth environment for native seeded and planted species. The Weed Management plan was reviewed and approved by the Granite County Weed coordinator. Based on concurrent reclamation plans and a commitment to implement a weed control plan, impacts to vegetative cover, quantity or quality resulting from this project would be short-term and minor.

Secondary Impacts:

No secondary impacts to vegetation cover, quantity and quality are expected.

5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS

Is there substantial use of the area by important wildlife, birds or fish?

The proposed project is bordered by the Pintler Ranger District of the Beaverhead-Deerlodge National Forest on the north and western sides. Additional mining claims border the project area on the east and southern sites. Most of the habitat in the immediate vicinity of the proposed project area is either Rocky Mountain Lodgepole Pine Forest (46%), Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland (17%), or Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland (9%). Historically mined and logged areas account for about 6% of the

immediate area. More regionally, the Pintler Ranger District is 850,000 acres. C3's proposed permit area is 3,500 acres or less than 0.05% of the land in the District.

Common wildlife such as elk, mule deer, moose, black bears, and mountain lions may use the project area and may be temporarily displaced while machinery and equipment are operating. Anaconda Gulch Creek and Coal Gulch Creek lack fish because they are small tributaries that have been heavily disturbed by historic mining such that the upstream movement of fish is blocked.

Direct Impacts:

Impacts to terrestrial, avian and aquatic life and habitats would potentially include temporary displacement of animals. However, habitat found within the project area is common throughout the larger ecosystem. Any displaced animals could find other suitable habitat nearby and return to the project area shortly after the project conclusion. Although some elk and other wildlife habitat may be impacted until the project disturbance is reclaimed, ample non-developed land exists around the proposed project area. Based on plans for concurrent reclamation and the proximity of abundant surrounding habitat, impacts to terrestrial, avian, amphibious, and aquatic life and habitat would be short-term and minor.

Secondary Impacts:

No secondary impacts to terrestrial, avian, and aquatic life and habitats stimulated or induced by the direct impacts analyzed above are expected.

6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES

Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Species of special concern?

A search of the MTNHP identified potential habitat for 103 mammal, reptile, invertebrate, bird, and amphibian species of concern (SOC), potential SOC, sensitive, or threatened species. No endangered species were identified. Habitat for these species is common and not unique to the proposed project area.

The following SOC are likely to occur in the region of the proposed project area: Wolverine, Fisher, Great Blue Heron, and Northern Goshawk. No wildlife SOC have been recorded near the project area. Three vegetative SOC have been observed adjacent to, but not near the proposed permit boundary: Missoula Phlox, Keeled Bladderpod, and Whitebark Pine.

There are some isolated wetlands located within the project area associated with Anaconda Gulch Creek and Coal Gulch Creek. None of the wetlands are proposed to be disturbed because of this project.

Direct Impacts:

The project is in a remote area. While potential habitat for threatened and endangered species may exist, the surrounding area is comprised of large undeveloped spaces including Beaverhead-Deer Lodge National Forest land. Similar habitat exists in large areas surrounding the proposed project area. The proposed project is seasonal, with activities planned from mid-April through mid-

November depending on weather conditions. Due to the seasonal nature of the proposed activities and the similar surrounding habitat, the impacts to SOC's would be short-term and negligible.

Impacts to unique, endangered, fragile, or limited environmental resources would potentially include temporary displacement of birds or mammals. Habitat within the project area is common throughout the larger ecosystem and any animals displaced could find other nearby suitable habitat and return to the project area shortly after the project conclusion.

Based on the common habitat available for the SOC likely to occur in or near the project area in the surrounding Beaverhead-Deer Lodge National Forest land, impacts to unique, endangered, fragile, or limited environmental resources would be short-term and negligible and would not be significant.

Secondary Impacts:

No secondary impacts to unique, endangered, fragile, or limited environmental resources that could be stimulated or induced by the direct impacts analyzed above are expected.

7. HISTORICAL AND ARCHAEOLOGICAL SITES

Are any historical, archaeological or paleontological resources present?

The Montana Cultural Resource Database under the State Historic Preservation Office (SHPO) indicates that historic sites and inventoried areas are present on at least portions of the project area. On January 28, 2020, the SHPO recommended that a cultural resource inventory be conducted to determine whether historic, archaeological or paleontological sites exist and if they would be impacted due to the proposed project. The project is located on private land. If archeological resources are encountered during mine operations, C3 would provide appropriate protections for any resources identified in the permit area. The operator would route equipment around the site of discovery, and promptly notify SHPO. The site of discovery would remain undisturbed, including a 100-ft buffer around the site of discovery, until a proper evaluation is made.

Direct Impacts:

The proposed mine would occur on private land. Some resources may be impacted as part of this project, however the impact to historical and archaeological sites would be short-term and negligible.

Secondary Impacts:

No secondary impacts to historical and archaeological sites are expected.

8. AESTHETICS

Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?

The proposed mine project would occur on private land. The project area would not be expected to be visible from public roadways that border the private land. The nearest year-round resident is at least 1.5 miles to the southeast of the project site. Final reclamation would be required to be completed within two years of the proposed project end unless a longer period of project disturbance was incorporated into the proposed Operating Permit.

Direct Impacts:

The proposed project may be visible to viewers located on public spaces at observation points that are unobstructed by topography or forested vegetation. Aesthetic impacts from the proposed mine project would not be excessive to receptors in the area due to the lack of public roads or trails near the proposed permit area. Concurrent reclamation would be completed annually in the quarry areas as mining is completed in a given mine block. Final reclamation would be required within two years of completion of the project unless a longer timeframe was approved by DEQ and incorporated into the proposed Operating Permit. Because the project area would only be visible from remote areas which are not accessed by public roads or trails, impacts to aesthetics would be short-term and negligible.

Secondary Impacts:

No secondary impacts to area aesthetics are expected because of the proposed work.

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

Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?

The proposed project would use water pumped from on-site settling ponds to process ore and operate a diesel-powered electrical generator to meet the electrical needs for the proposed mining activities. No other local resources would be used for this project. DEQ searched several websites and databases offered by the following entities for commercial activities or projects demanding the use of the limited environmental resources of land, water, air, or energy that would be impacted by the proposed project.

DEQ regulated projects located near the proposed project site include:

- Four Hard Rock Mining Exploration License projects are located within two miles of the proposed project site.
- One Hard Rock Mining Operating Permit is located about 0.5 miles to the south of the proposed project site.
- One proposed Hard Rock Mining Operating Permit is located adjacent to and east of the proposed project site.

As noted in the cumulative impacts analysis below, this project would add to the impacts of mining in the greater project area. All disturbance related to this project would be reclaimed at the conclusion of the project. The water used for processing ore would be recirculated through the settling ponds and would not be a consumptive use. Air quality impacts would be regulated through the Air Quality regulations. Energy use would be met by the operator owned electrical generators. No energy transmission infrastructure would be required by the projects in the area.

Direct Impacts:

Any impacts on the demand on environmental resources of land, water, air or energy would be short-term and negligible as a result of this project.

Secondary Impacts:

No secondary impacts to environmental resources of land, water, air, or energy are expected.

10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES

Are there other activities nearby that will affect the project?

DEQ searched the websites and databases offered by the following entities to identify nearby activities that may affect the project:

- Montana Department of Natural Resource and Conservation (DNRC);
- Montana Department of Transportation;
- Granite County;
- United States Department of Interior, Bureau of Land Management (BLM); and,
- United States Forest Service (USFS).

No other projects were identified when searching the above information resources.

Direct Impacts:

Impacts on other environmental resources are short-term and negligible and would not be significant because of this project and additional mining projects in the immediate vicinity.

Secondary Impacts:

No secondary impacts to other environmental resources are expected because of the proposed work.

11. HUMAN HEALTH AND SAFETY

Will this project add to health and safety risks in the area?

The applicant would be required to adhere to all applicable state and federal safety laws. Industrial work such as the work proposed by the applicant is inherently dangerous. The Mine Safety and Health Administration (MSHA) has developed rules and guidelines to reduce the risks associated with this type of labor. Few, if any, members of the public would be in the general project proximity during mine operations due to site-controlled access.

Direct Impacts:

Impacts to human health and safety would be short-term and negligible because of this project.

Secondary Impacts:

No secondary impacts to human health and safety are expected because of the proposed project.

12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION

Will the project add to or alter these activities?

Direct Impacts:

As noted in the cumulative impacts analysis below, this project would add to the impacts of mining in the greater project area; however, all disturbance related to this project would be reclaimed at the conclusion of the project. Concurrent reclamation would be completed annually in the quarry

areas as mining is completed in a given mine block. Final reclamation would be required to be completed within two years of completion of the project unless a longer timeframe was approved by DEQ and incorporated into the proposed operating permit. Impacts on the industrial, commercial, and agricultural activities and production in the area would be short-term and negligible.

Secondary Impacts:

No secondary impacts to industrial, commercial, and agricultural activities and production are expected because of the proposed work.

13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT

Will the project create, move or eliminate jobs? If so, estimated number.

The proposed project would employ two seasonal workers and two fulltime staff.

Direct Impacts:

Significant positive or negative impacts on quantity and distribution of employment would not likely result from this project. The project plan calls for up to 4 employees and/or contractors at the site. Half of the employees would be employed on a seasonal basis and all of the employees are expected to be composed of individuals already living in Granite County. No positive or negative direct impacts to employment are expected from this project.

Secondary Impacts:

No secondary impacts to the quantity and distribution of employment are expected because of the proposed project.

14. LOCAL AND STATE TAX BASE AND TAX REVENUES

Will the project create or eliminate tax revenue?

The sale of sapphires creates local jobs, providing tax revenue to the state and/or the federal government.

Direct Impacts:

Some positive, yet limited, benefit to the local and state economy could result from this project. However, due to the nature of the proposed mine and the limited number of expected employees (4), minimal tax revenue from income or expenses are expected from the proposed project. The impact to local and state tax base and tax revenue would be short-term and minor.

Secondary Impacts:

Minor beneficial secondary impacts to local and state tax base and tax revenues would be expected because of the proposed work.

15. DEMAND FOR GOVERNMENT SERVICES

Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc.) be needed?

Montana Highway 38 (MT-38)/Skalkaho Road (a paved State of Montana-maintained roadway) would be used to access the private roads associated with the proposed project. MT-38/Skalkaho Road continues west past the main entrance to the project area over Skalkaho Pass and into the Hamilton Valley. MT-38/Skalkaho Road is gated and closed for the winter months approximately one-half mile past the Anaconda Bench access road.

Fire protection would be provided by the Philipsburg Volunteer Fire Department, located about 15 miles directly to the east of the proposed project area. USFS lands surround the private land associated with the project area, and emergency response may also include the USFS. The Granite County Sheriff's Department and USFS may provide limited law enforcement presence to the surrounding area. Emergency Medical Services would be based in Missoula, MT, Philipsburg, MT, or Drummond, MT, located at least 20 miles from the project area.

The proposed project would employ up to 4 full-time and/or part-time employees on a seasonal basis. The annual average daily traffic information from the Montana Department of Transportation shows relatively low traffic load levels of four vehicles per day along Skalkaho Road. This traffic count is expected to be higher during the summer months due to recreational opportunities in the area and the opening of MT-38/Skalkaho Road over Skalkaho Pass.

Direct Impacts:

The proposed project would be located on private land. Impacts would be short-term and negligible and would not be significant on the demand for government services because of limited number of employees (4) and the seasonal nature of the work. All operations would be subject to local, seasonal restrictions as they apply.

Secondary Impacts:

No secondary impacts to the demand for government are expected because of the proposed work.

16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS

Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?

The proposed mine would occur entirely on private land. The project area would be subject to the Weed Management Plan proposed in the operating permit application and approved by the Granite County extension agent and received by DEQ on December 7, 2020.

Direct Impacts:

DEQ is not aware of any other locally adopted environmental plans or goals that would impact this proposed project or the project area. No impacts from or to locally adopted environmental plans and goals would be expected because of this project.

Secondary Impacts:

No secondary impacts to locally adopted environmental plans and goals are expected because of the proposed work.

17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES

Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?

The proposed mine would occur entirely on private land, with no access to public recreational opportunities. There are no designated wilderness or recreational areas in the vicinity of the project area. The Beaverhead-Deerlodge National Forest is within a mile to the west and borders the proposed mine to the north. There are no Forest Service roads open to motorized vehicles leading to the proposed permit area and no designated hiking trails in the vicinity.

Direct Impacts:

Based on the location of the proposed mine and the lack of public roads or trails, no impacts to the access or quality of recreational and wilderness activities would result from the project.

Secondary Impacts:

No secondary impacts to access and quality of recreational and wilderness activities are expected because of the proposed work.

18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING

Will the project add to the population and require additional housing?

Granite County had a population of 3,309 at the 2020 census. The proposed project area is remote, with the nearest residential house located at least 1.5 miles to the south of the project site. As noted above in “Section 13. Quantity and Distribution of Employment,” the proposed project would not be expected to add to or decrease the local population or employment. The proposed project would employ up to 4 full-time and/or part-time personnel, including subcontractors.

Direct Impacts:

Due to the seasonal nature of the proposed project and the proposed number of employees, no impact to population density and housing are expected from this project.

Secondary Impacts:

No secondary impacts to density and distribution of population or housing are expected because of the proposed work.

19. SOCIAL STRUCTURES AND MORES

Is some disruption of native or traditional lifestyles or communities possible?

There are no native or traditional lifestyles or communities near the proposed mine.

Direct Impacts:

The proposed mine would occur entirely on private land. Due to the low population density nearby and history of sapphire mining in this area, no impact to native or traditional lifestyles are expected.

Secondary Impacts:

No secondary impacts to social structures and mores are not expected because of the proposed work.

20. CULTURAL UNIQUENESS AND DIVERSITY

Will the action cause a shift in some unique quality of the area?

Direct Impacts:

The proposed project is in a historic mining district in an area with existing legacy mining disturbance. Due to the history of sapphire mining in this area, no impacts to cultural uniqueness and diversity are expected from this project.

Secondary Impacts:

No secondary impacts to cultural uniqueness and diversity are expected as a result of the proposed work.

21. PRIVATE PROPERTY IMPACTS

Are we regulating the use of private property under a regulatory statute adopted pursuant to the police power of the state? (Property management, grants of financial assistance, and the exercise of the power of eminent domain are not within this category.) If not, no further analysis is required. Does the proposed regulatory action restrict the use of the regulated person's private property? If not, no further analysis is required. Does the agency have legal discretion to impose or not impose the proposed restriction or discretion as to how the restriction will be imposed? If not, no further analysis is required. If so, the agency must determine if there are alternatives that would reduce, minimize or eliminate the restriction on the use of private property, and analyze such alternatives.

The proposed project would take place on private land owned by the applicant. DEQ's approval of Operating Permit No. 00202 with conditions would affect the applicant's real property. DEQ has determined, however, that the permit conditions are reasonably necessary to ensure compliance with applicable requirements under the Metal Mine Reclamation Act and demonstrate compliance with those requirements or have been agreed to by the applicant. Therefore, DEQ's approval of Operating Permit No. 00202 would not have private property-taking or damaging implications.

Montana's Private Property Assessment Act, Section 2-10-101, et seq., MCA establishes an orderly and consistent internal management process for state agencies to evaluate their proposed actions under the "Takings Clauses" of the United States and Montana Constitutions, as those clauses are interpreted and applied by the United States and Montana Supreme Courts.

Section 2-10-104, MCA required Montana's Attorney General to develop guidelines, including a checklist, to assist state agencies in identifying and evaluating proposed agency actions that may result in the taking or damaging of private property. In turn, Section 2-10-105(1) and (2), MCA set out a process for each State Agency to evaluate whether a State action may result in an unconstitutional taking of private property. Those provisions direct that:

- (1) Each state agency shall assign a qualified person or persons in the state agency the duty and authority to ensure that the state agency complies with this part. Each state agency action with taking or damaging implications must be submitted to that person or

persons for review and completion of an impact assessment. The state agency may not take the action unless the review and impact assessment have been completed, except that the action with taking or damaging implications may be taken before the review and impact assessment are completed if necessary to avoid an immediate threat to public health or safety.

(2) Using the attorney general's guidelines and checklist, the person shall prepare a taking or damaging impact assessment for each state agency action with taking or damaging implications that includes an analysis of at least the following:

- (a) the likelihood that a state or federal court would hold that the action is a taking or damaging;
- (b) alternatives to the action that would fulfill the agency's statutory obligations and at the same time reduce the risk for a taking or damaging; and,
- (c) the estimated cost of any financial compensation by the state agency to one or more persons that might be caused by the action and the source for payment of the compensation.

DEQ has utilized the Montana Attorney General's Checklist and analytical Flowchart revised in January 2011 to evaluate the legal impact to property rights resulting from the proposed project (Attachment 1). These flowchart questions have been applied by DEQ to the proposed project area, which takes place on private real property owned by the Permittee, C3, as follows:

- (1) Does the action pertain to land or water management or environmental regulation affecting private real property or water rights? Answer: Yes.
- (2) Does the action result in either a permanent or indefinite physical occupation of private property? Answer: No.
- (3) Does the action deprive the owner of all economically beneficial use of the property? Answer: No.
- (4) Does the action require a property owner to dedicate a portion of property or to grant an easement? Answer: No.
- (5) Does the action deny a fundamental attribute of ownership? Answer: No.
- (6) Does the action have a severe impact on the value of the property? Answer: No.
- (7) Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally? Answer: No.

Given the results from the legal flowchart questions, DEQ has determined that the permit conditions are reasonably necessary to ensure and demonstrate compliance with applicable requirements of the Metal Mine Reclamation Act, Section 82-4-301, et seq., MCA, and have been sought by the Applicant and private property Owner. Therefore, no taking or damaging of private

property rights will occur because of DEQ's approval of the Permit Application by the private property Owner, C3.

22. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES

Due to the nature of the proposed mine, and the limited project duration, no further direct or secondary impacts are anticipated from this project.

ALTERNATIVES CONSIDERED

In addition to the proposed action, DEQ also considered a no action alternative. Under the no action alternative DEQ would deny the approval of Operating Permit No. 00202. The applicant would lack the authority to mine for minerals on private land. The applicant would still be allowed to conduct casual use-level activities but would not be able to use mechanized equipment or reclaim the surface disturbance to below the five-acre limit for a Small Miner Exclusion Statement. Any potential impacts that would be authorized under Operating Permit No. 00202 would not occur. The no action alternative forms the baseline from which the impacts of the proposed action can be measured.

In addition to the proposed action alternative and the no action alternative, DEQ would usually consider an additional action alternative that incorporates mitigation measures identified by DEQ during preparation of the EA. However, in this instance DEQ engaged in a lengthy and in-depth analysis of the proposed action by C3 prior to the initiation of the environmental review for the permit application. DEQ issued three deficiency letters to C3 prior to determining its permit application to be complete and compliant. Mitigation measures that DEQ identified during the complete and compliance review were incorporated into the proposed action alternative.

PREFERRED ALTERNATIVE

ARM 17.4.617(9) requires DEQ to identify in an environmental assessment the agency's preferred alternative, if any, and the reasons for the preference. DEQ identifies the Proposed Action as the preferred alternative. Approval of the Proposed Action would be consistent with Montana's Air and Water Quality Acts and provide reclamation that is acceptable under the MMRA. The Proposed Action would not result in significant environmental impacts.

PUBLIC INVOLVEMENT

Public involvement for this proposed action consisted of internal and external efforts to identify substantive issues and/or concerns related to the proposed project. Notice of the Operating Permit application was published on March 11, 2022. No comments were received. Notice of the draft environmental assessment was published on June 15, 2022. Public involvement included a public comment period which ended on July 20. No comments were received.

Internal review of the environmental assessment document was completed by DEQ staff. The internal review included queries to the following websites/databases/personnel:

- Montana State Historic Preservation Office (SHPO);
- Montana Department of Natural Resource and Conservation (DNRC);
- Montana Department of Environmental Quality (DEQ);
- Montana Department of Transportation;

- Granite County;
- US Geological Society – Stream Stats;
- Montana Natural Heritage Program;
- Montana Cadastral Mapping Program;
- Montana Groundwater Information Center (GWIC);
- Montana Bureau of Mines and Geology; and,
- United States Forest Service (USFS).

RESPONSE TO PUBLIC COMMENTS

No comments have been received on the notice of the permit application or on the draft EA.

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION

The proposed project would be fully located on private land. All applicable state and federal rules must be adhered to, which may also include other state, federal, or tribal agency jurisdiction.

CUMULATIVE IMPACTS

Cumulative impacts are the collective impacts on the human environment within the borders of Montana of the Proposed Action when considered in conjunction with other past and present actions related to the Proposed Action by location and generic type. Related future actions must also be considered when these actions are under concurrent consideration by any state agency through pre-impact statement studies, separate impact statement evaluation, or permit processing procedures.

This environmental review analyzes the proposed project submitted by the applicant. Impacts from the project would be temporary, would be reclaimed at the conclusion of the project, and would not contribute to the long-term cumulative effects of mining in the area. Final reclamation would be required within two years of completion of the project unless a longer project disturbance was later incorporated into an Operating Permit. DEQ identified other mining or exploration projects in the area.

DEQ-regulated projects located near the proposed project site include:

- Four Small Miner Exclusion Statement (SMES) hard rock mining operations are located within two miles of the proposed project site;
- Two Hard Rock Mining Exploration License projects are located within two miles of the proposed project site;
- One Hard Rock Mining Operating Permit is located about 0.5 miles to the south of the proposed project site; and,
- One proposed Hard Rock Mining Operating Permit is located adjacent to and east of the proposed project site.

No other DNRC, BLM, or USFS regulated projects were identified in the project vicinity.

DEQ considered all impacts related to this project and secondary impacts that may result when considered in conjunction with other past and present actions related to the Proposed Action. The following resources are subject to cumulative impacts from approved and proposed mining

activities in the region of C3's Anaconda Bench Mine evaluated in this environmental assessment. The Hard Rock Mining Exploration License projects, the existing Hard Rock Mining Operating Permit No. 00044 (Meadow Holdings LLC's Yellow Dog Mine) and the proposed Hard Rock Operating Permit No. 00200 (Potentate Mining LLC's Sapphire Ranch Mine) have been analyzed for potential environmental impacts through the MEPA process. While the Small Miner Exclusion Statement (SMES) projects were not formally analyzed for potential environmental impacts through a MEPA process, the mining activities at the SMES sites are like the activities proposed at the Anaconda Bench Mine although at a smaller scale. The exploration license activity is limited to drilling boreholes within the boundaries of the approved and proposed operating permits.

The proposed and permitted sapphire mines are adjacent to each other and are surrounded by the Pintler Ranger District of the Beaverhead-Deerlodge National Forest with the exception of a few adjacent parcels which are privately held to the south and east of the permitted and proposed permit boundaries. All the private property parcels in this inholding are identified with property types of "Mining Claims" in the Montana Cadastral Property Records. The mining claims are in the geographic region of the Sapphire Mountains and have a long history of sapphire mining which began in the 1880s. The original miners primarily mined in the drainages of these mining claims with hydraulic mining and dramatically altered the streams within these claims by washing out stream bed sediments. The Pintler Ranger District is 850,000 acres. The combined proposed and existing permit boundaries for the mine operations is 3,500 acres or approximately 0.4% of the area in the Pintler Ranger District.

Cumulative impacts were evaluated for permitted and proposed disturbance associated with mining activities. Several resources in the human environment in the area were evaluated for potential cumulative impacts. Cumulative impacts were evaluated for the permitted mine, the proposed mines, the exploration project areas and the small miner exclusion statement areas (collectively referred to as "the mining activities").

GEOLOGY

Erosion from the mining activities would include erosion on existing roads, mined surfaces, logged areas and other historical disturbances in the mine claim areas.

Operators at the mining activities have or would stockpile soil prior to disturbing new ground. Stockpiled soil would be managed by the mines to reduce erosion of the resource until it is used for reclamation. Concurrent reclamation would occur annually as areas are mined out or at the end of mine life. Reclamation would include replacement of overburden, grading, soil cover placement, seeding, monitoring revegetation and weed control.

Legacy mining disturbance from both the late 1800s and the late 1900s provide examples of ground cover and forest regrowth in previously mined areas. Disturbance from the early 2000s in the proposed C3 permit area exhibits volunteer tree and a succession of ground cover species which has stabilized soil and sediment in reclaimed areas. Cumulative impacts to soils would be short term and minor because of stormwater management, soil stockpile management and concurrent reclamation.

Cumulative impacts to geologic resources (soils) would not be significant due to the use of BMPs

in soil handling and erosion control.

WATER QUALITY, QUANTITY, AND DISTRIBUTION

Impacts to ground water and surface water were analyzed separately in each of the environmental assessments for the mining activities. Within the mining activities area, historical disturbance from hydraulic mining has modified streams to the point where the standard descriptions of ground water and surface water interaction no longer apply. The streams within the mining activity areas have revegetated and stabilized to a “new normal” with surface water disappearing and reappearing for much of the length of the stream in Anaconda Creek, Coal Creek, and Sapphire Creek. It is only near the confluence of these creeks with the West Fork of Rock Creek that sustained surface water flow approximates “natural” conditions.

Surface Water

BMPs at the mines including but not limited to berms, v-ditches, straw wattles, hay bales, and silt fences may be used to mitigate stormwater interaction with loosened soil near disturbance areas and capture sediment before stormwater reaches streams. Vegetative buffers around creeks and streams within the mine area would reduce the speed of overland flow and allow sediment to drop out of the water before it reaches the stream.

Cumulative impacts to surface water would not be significant due to the use of BMPs for storm water runoff, the establishment of buffers around creeks and streams, and the historical modification of streams in the mine areas from hydraulic mining.

Groundwater

Monitor wells have been installed at the Meadow Holdings LLC’s Yellow Dog Mine and would be installed at C3’s Anaconda Bench Mine downgradient of process ponds that are under the direct influence of ground water to determine the connection of the pond water with groundwater and to monitor sediment. The contaminant of concern from the mining activities is suspended sediment. However, the suspended sediment is filtered from groundwater continuously due to the groundwater flow velocities and the ground’s ability to filter out suspended solids.

Cumulative impacts to groundwater resources would not be significant due to the natural filtration of suspended sediments.

AIR QUALITY

The mining activities would create airborne dust from handling overburden and ore and from driving on unpaved roads. Emissions from diesel generators including carbon monoxide-CO, hydrocarbons-HC, particulate matter-PM and nitrogen oxides-NOx would also be emitted. The mining activities are in an area designated as attainment. This means the air quality in the area meets or exceeds the national ambient air quality standards and permitting beyond basic emission permits for the operation of diesel generators is not required. Each operator has committed to managing road dust with the application of water on an as needed basis. Air quality permits for the diesel generators are in place at adjacent operations. C3 has committed to obtaining an air quality permit for their generator or upgrading to a generator with lower emissions. Ore mined from the mining activities area is handled using a wet process whereby water is introduced at the initial sorting stage. Dust generation is minimized at the mining activities with open/disturbed area (pits)

through concurrent reclamation.

Cumulative impacts to air resources would not be significant due to the use of water as dust suppressant in both the ore handling processes and on the haul roads and by the completion of annual concurrent reclamation.

VEGETATION COVER, QUANTITY AND QUALITY

C3's Anaconda Bench Mine, Meadow Holdings LLC's Yellow Dog Mine and the proposed Potentate Mining LLC's Sapphire Ranch Mine have all committed to performing annual reclamation and final reclamation by following plans to regrade disturbed areas and reseed them with native seed mixes. While impacts to vegetation cover would occur during mine life, concurrent annual reclamation at the mines would minimize the impacts. Vegetation in the mining activities area were historically altered from past mining and logging. The new disturbance caused by the mining activities would be reclaimed concurrently each year. Mine pits would be backfilled with overburden, contoured to match the surrounding topography, covered with stockpiled soil and woody debris, and seeded with a native seed mix. Final reclamation would include the removal of facilities not retained for landowner use. Compacted soil surrounding ore processing areas would be ripped and seeded.

Areas disturbed by mining the past 20 years have vegetation well established with a variety of native species of shrubs, grasses, and trees. The success of revegetation in areas mined historically show that impacts to vegetation cover would be short term. Cumulative impacts to vegetation would not be significant due to concurrent annual reclamation and final reclamation at the completion of the projects.

TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS

The mines are located on private land surrounded by public land managed through the Pintler Ranger District of the Beaverhead-Deerlodge National Forest. The Pintler Ranger District is 850,000 acres. The combined proposed and existing permitted areas for the mining activities is 3,500 acres or approximately 0.4% of the District area. The mining activities area where the mines are located have been disturbed historically by mining and logging activities. The reclaimed disturbance areas provide open meadow habitat and the local wildlife commonly use the mining activities area to forage. Concurrent annual reclamation of mine pits minimizes the impacts to wildlife habitat while the surrounding forest provides ample undisturbed habitat.

Cumulatively, more of these habitats would be disturbed than if the proposed project were viewed in isolation, but the cumulative impacts would not be significant given the amount of comparable habitat provided by the surrounding national forest.

UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES

No unique, endangered, fragile or limited environmental resources have been identified in the mining activities areas and no threatened or identified species of concern have been identified within the mining activities area. Some isolated wetlands located within the project area associated

with Sapphire Creek, Anaconda Gulch Creek and Coal Gulch Creek were identified. Disturbances to the wetlands within the permitted or proposed project areas have not been proposed.

The project is in a remote area and potential habitat for threatened species and SOC exists in the region of the mining activities area within the large undeveloped spaces of the Pintler Ranger District. Impacts to unique, endangered, fragile, or limited environmental resources would potentially include temporary displacement of birds or mammals in the mine disturbance areas. However, habitat within the mining activities area is common throughout the larger ecosystem and animals displaced could find other, nearby suitable habitat and return to the project area shortly after the project conclusion. Cumulatively, wildlife would avoid a greater area than if just the proposed project were considered. However, the activities within the mining activities area are seasonal, with activities planned from mid-April through mid-November depending on weather conditions. Due to the seasonal nature of the mines and the similar surrounding habitat, the impacts to SOC's would be short-term and negligible.

Based on the common habitat available for the SOC likely to occur in or near the project area in the surrounding Beaverhead-Deer Lodge National Forest land, cumulative impacts to unique, endangered, fragile, or limited environmental resources would be short-term and negligible and would not be significant.

NEED FOR FURTHER ANALYSIS AND SIGNIFICANCE OF POTENTIAL IMPACTS

When determining whether the preparation of an environmental impact statement is needed, DEQ is required to consider the seven significance criteria set forth in ARM 17.4.608, which are as follows:

1. The severity, duration, geographic extent, and frequency of the occurrence of the impact;
2. The probability that the impact will occur if the proposed action occurs; or conversely, reasonable assurance in keeping with the potential severity of an impact that the impact will not occur;
3. Growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative impacts;
4. The quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources and values;
5. The importance to the state and to society of each environmental resource or value that would be affected;
6. Any precedent that would be set as a result of an impact of the proposed action that would commit the department to future actions with significant impacts or a decision in principle about such future actions; and,
7. Potential conflict with local, state, or federal laws, requirements, or formal plan.

Under the Proposed Action, C3 would disturb up to 334 acres over an approximate 66-year period. C3 has already disturbed 43.15 acres and proposes to disturb up to 20.6 acres in the next five years for a total of 64 acres. C3 is required to perform concurrent reclamation and complete reclamation not more than two years after completion of an area that is no longer being used for mining activities. Final reclamation of all disturbances must be completed within two years of the end of the 66-year period. A significant portion of the proposed permit area was previously disturbed by historical mining for sapphires since the 1890s and large-scale mechanized mining by the

American Gem Corporation between 1994 to 2000.

Land cover in the project area varies, but generally includes Lodge-pole pine-dominated forest and woodland, with Subalpine spruce, Douglas-fir and Aspen also present. This habitat is common throughout the larger ecosystem and any animals displaced could find other nearby suitable habitat and return to the project area shortly after the project conclusion. Moreover, mining operations would not be conducted from mid-November through mid-April. Thus, there will be no displacement of wildlife due to human activity at the project area during this time. Concurrent and final reclamation would include reseeding disturbed land with a native seed mix. C3 would reclaim all disturbances to forest, pasture, or cropland habitat suitable for wildlife habitat.

Historic mining activity in the proposed permit area has modified both groundwater and surface water resources. Ditches and process ponds would continue to intercept groundwater and infiltration of spring runoff and discharge from the settling ponds may increase the sediment filtered in the unsaturated shallow gravel and soil deposits. Drainages in the proposed permit area have been modified by historical hydraulic mining. Creeks within these drainages may receive additional sediment load from disturbed areas during extreme storm events. Storm water control through BMPs and vegetative buffers around creeks would decrease the suspended sediment reaching surface water.

DEQ has not identified any significant impacts associated with the proposed mine activities on the environmental resources discussed above. Approval of Operating Permit No. 00202 does not set any precedent that commits DEQ to future actions with significant impacts or a decision in principle about such future actions. If the applicant submits another license or an operating permit application, DEQ is not committed to issuing those authorizations. DEQ would conduct an environmental review for any subsequent authorizations sought by the applicant that require environmental review. DEQ would make a permitting decision based on the criteria set forth in the Metal Mine Reclamation Act. Approval of Operating Permit No. 00202 does not set a precedent for DEQ's review of other applications for operating permits, including the level of environmental review. The level of environmental review decision is made based on a case-specific consideration of the criteria set forth in ARM 17.4.608.

Finally, DEQ does not believe that the proposed mine activities by the applicant have any growth-inducing or growth-inhibiting aspects or conflict with any local, state, or federal laws, requirements, or formal plans.

Based on a consideration of the criteria set forth in ARM 17.4.608, the proposed mine activities are not predicted to significantly impact the quality of the human environment. Therefore, preparation of an environmental assessment is determined to be the appropriate level of environmental review under MEPA.

Environmental Review Prepared By:

Betsy Hovda
Environmental Reclamation Specialist
Hard Rock Mining Section
Mining Bureau

Environmental Assessment Reviewed By:
Millie Olsen, Environmental Science Specialist

Approved by:



August 8, 2022

Signature

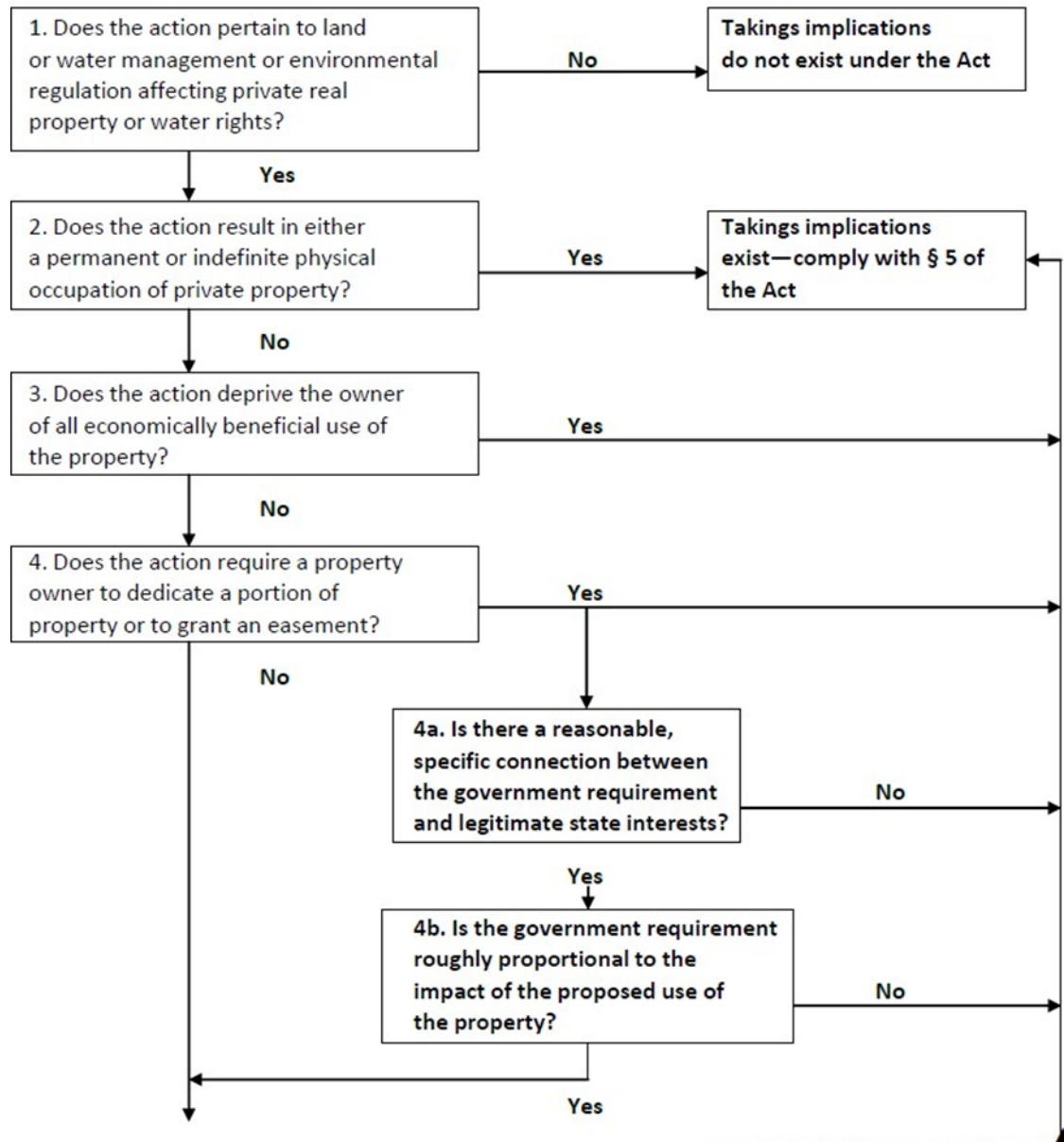
Date

Eric Dahlgren, Hard Rock Mining Section Supervisor
Mining Bureau

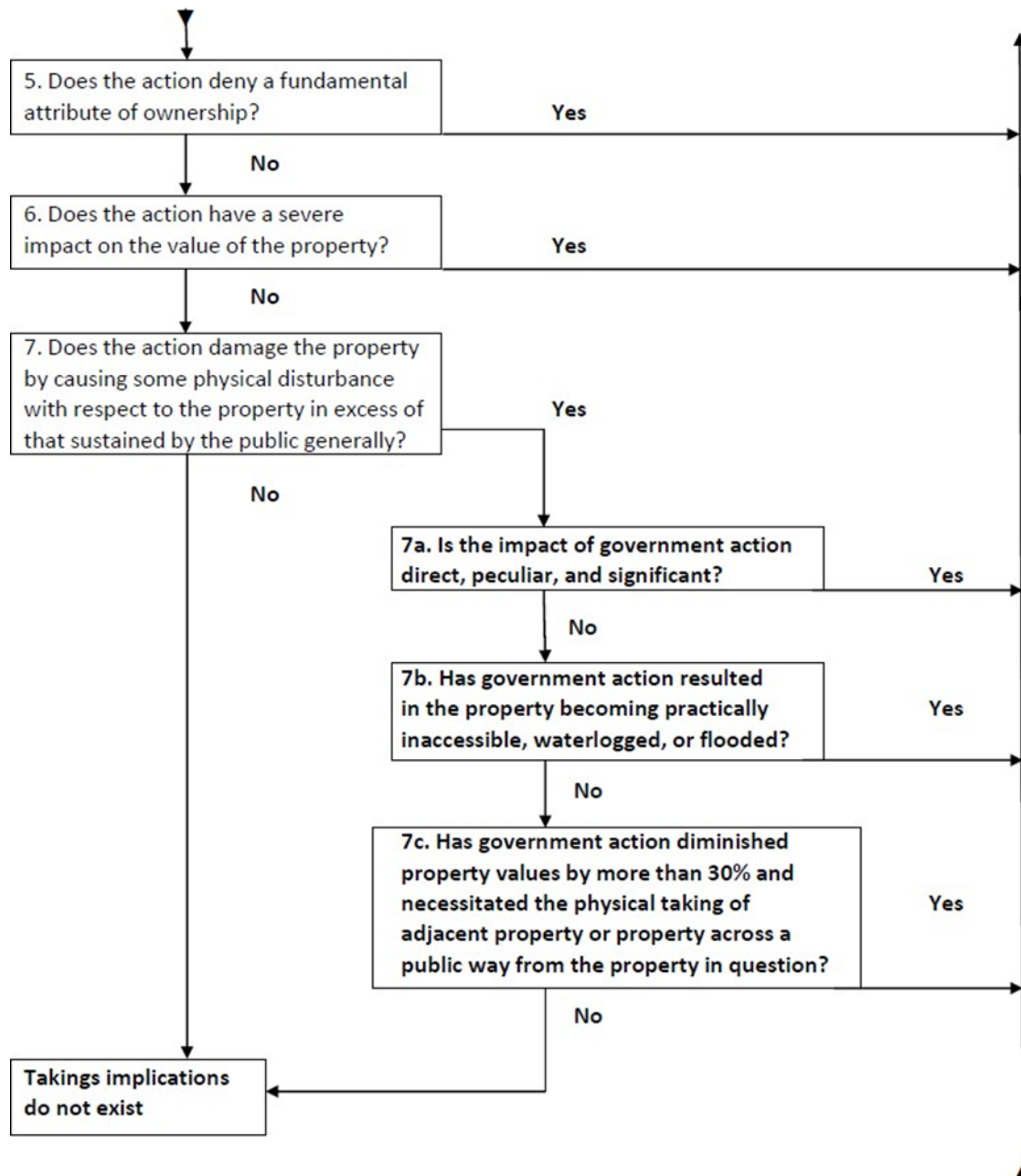
ATTACHMENT A:.
Montana Department of Justice
PRIVATE PROPERTY ASSESSMENT ACT CHECKLIST FLOWCHART
(January 2011)

Does the proposed agency action have takings implications under the Private Property Assessment Act?

START HERE:



CHECKLIST FLOWCHART January 2011



ATTACHMENT 1
Montana Department of Justice
PRIVATE PROPERTY ASSESSMENT ACT CHECKLIST
(January 2011)

Does the proposed agency action have takings implications under the private property assessment act?

YES

NO

1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?

2. Does the action result in either a permanent or indefinite physical occupation of private property?

3. Does the action deprive the owner of all economically beneficial use of the property?

4. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If the answer is **NO**, skip questions 4a and 4b and continue with question 5.]

4a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?

4b. Is the government requirement roughly proportional to the impact of the proposed use of the property?

5. Does the action deny a fundamental attribute of ownership?

6. Does the action have a severe impact on the value of the property?

7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?

[If the answer is **NO**, do not answer questions 7a-7c.]

- | | | |
|-------|-------|--|
| _____ | _____ | 7a. Is the impact of government action direct, peculiar, and significant? |
| _____ | _____ | 7b. Has government action resulted in the property becoming practically inaccessible, waterlogged, or flooded? |
| _____ | _____ | 7c. Has government action diminished property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question? |

Taking or damaging implications exist if **YES** is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 5, 6, 7a, 7b, 7c; or if **NO** is checked in response to questions 4a or 4b.

If taking or damaging implications exist, the agency must comply with Section 5 of the Private Property Assessment Act, Mont. Code Ann. § 2-10-105, to include the preparation of a taking or damaging impact assessment. Normally, the preparation of an impact assessment will require consultation with agency legal staff.