Sunset Mine Environmental Assessment

DRAFT FOR PUBLIC REVIEW AND COMMENT

PROJECT: SUNSET MINE DEWATERING PROJECT
LOCATION: RED LODGE, CARBON COUNTY, MONTANA
PREPARED BY: WWC ENGINEERING AND MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY ABANDONED MINE LANDS PROGRAM
DOCUMENT DATE: JUNE_, 2026

This Environmental Assessment (EA) is a draft document released by the Montana Department of Environmental Quality for public review and comment for 30 days from the date of posting. To be considered timely, all public comments must be in writing and received by DEQ AML Program, Attn: John Babock, P.O. Box 200901, Helena MT 59620 or e-mail to DEQMontanaAML@mt.gov, **by 5 p.m. on July 07, 2026.**

This EA reflects information, conditions, and analyses available as of June 4, 2026. DEQ will review and consider all timely comments received before making any final decisions on the proposed action.

This Environmental Assessment does not, by itself, authorize implementation of the proposed action. Final decisions will be made by DEQ and applicable agencies after consideration of public comments and any additional information received during the review period.

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1.0 AUTHORIZATION

Authorizing Statement

Under the Montana Environmental Policy Act (MEPA) and Administrative Rules of Montana (ARM) 17.4.607-, -through -610, the Montana Department of Environmental Quality (DEQ) must prepare an environmental review for actions that may affect the human environment. The Proposed Action for this environmental assessment (EA) is the Sunset Mine Dewatering Project, implemented by DEQ's Abandoned Mine Lands Program (DEQ AML) to relieve elevated groundwater caused by a failed historic mine drain in an abandoned mine, which resulted in structural flooding beginning in July 2024. Based on field observations, water quality data, and the Project's dewatering plan, the EA evaluates the Proposed Action Alternative, reasonable alternatives, and a No Action Alternative to determine potential impacts on the physical and human environment. After analyzing potential impacts under MEPA and its implementing rules, including the significance of any impacts under ARM 17.4.608, DEQ concludes that the Proposed Action would not significantly impact the human environment and therefore does not require additional environmental review.

DEQ Regulatory Oversight

DEQ administers the State's AML Program under authority delegated through Title IV of the federal Surface Mining Control and Reclamation Act (SMCRA). Title IV authorizes state reclamation programs to remediate hazards and environmental problems created by abandoned or inadequately reclaimed mine sites, provided those sites meet federal eligibility criteria. After submitting a Reclamation Plan in accordance with § 405 of SMCRA and 30 C.F.R. 884.13, Montana received approval from the U.S. Department of the Interior, establishing DEQ as the state agency responsible for administering AML reclamation activities and managing federal grants under 30 C.F.R. Part 886. In 1995, the federal Office of Surface Mining Reclamation and Enforcement (OSMRE) certified Montana's AML Program, allowing the State to use Title IV funding not only for coal-related hazards but also for non-coal abandoned mine features, including hard-rock mines. (The Sunset Mine was a coal mine.) DEQ implements the AML Program through its Waste Management and Remediation Division, as established in ARM 17.1.101(3)(e), which assigns to the Division the authority to reclaim abandoned mine lands and to mitigate associated environmental or public safety risks. Statutory authority for DEQ to receive and administer SMCRA Title IV grants is provided in § 82-4-1006, MCA. Additional authority for addressing abandoned or hazardous mine conditions is provided by Montana's mining statutes, including the Montana Strip and Underground Mining Act (§ 82-4-239, MCA), the Montana Metal Mine Reclamation Act (§ 82-4-371, MCA), and the Montana Opencut Mining Act (§ 82-4-445, MCA), which collectively empower DEQ to investigate, manage, and remediate abandoned mine impacts across the state.

2.0 PURPOSE AND NEED

Introduction

This EA was prepared in compliance with the National Environmental Policy Act (NEPA) of 1969, as amended, and the Council on Environmental Quality (CEQ) regulations (40 CFR §§1500–1508). DEQ, through DEQ AML, is the lead agency, in coordination with the City of Red Lodge (the City) and the U.S. Department of the Interior Office of Surface Mining Reclamation and Enforcement (OSMRE).

For NEPA purposes, the Office of Surface Mining Reclamation and Enforcement (OSMRE) is the federal action agency because it administers and approves SMCRA Title IV funding for this Project. This EA provides the environmental information that OSMRE will use in its NEPA analysis

and decision on whether to approve and fund the Proposed Action. An EA is appropriate under 40 CFR § 1501.3 because no significant effects are expected.

For MEPA purposes, DEQ is the State lead agency responsible for preparing this EA and making a determination under § 75-1-201, MCA and ARM 17.4.607 through 17.4.610.

This EA evaluates potential environmental, cultural, and socioeconomic impacts of implementing a permanent dewatering system and associated infrastructure improvements to address groundwater flooding associated with the Sunset Mine in Red Lodge, Carbon County, Montana.

The Sunset Mine Drainage Project responds to emergency groundwater flooding events that occurred in July 2024, which resulted in significant flooding at 221/217 Grant Avenue South. These events prompted the rapid installation of a temporary dewatering system to mitigate rising hydrostatic pressure believed to be caused by the failure of a historic abandoned mine drainage pipeline. This EA provides a comprehensive analysis of the potential environmental, cultural, and socioeconomic consequences associated with implementing a permanent dewatering solution and related infrastructure. It includes a comparative analysis of alternatives, including the No Action Alternative, and is intended to inform agency decision-making while ensuring full compliance with applicable environmental statutes and permitting requirements.

Background

Sunset Mine (the Site), located on the western edge of Red Lodge, Montana, was initially developed in the early 1900s for the mining of coal and was operated by the Northwestern Improvement Company until mining ceased in 1932. Historic documents indicate that persistent water infiltration posed an ongoing challenge to mining operations in this region. The portal, located immediately adjacent to a residential area, is sealed with a concrete bulkhead dating to 1907. In early July 2024, the City received reports of severe basement and garage flooding at 221/217 Grant Avenue South, located directly south of the bulkhead. Subsequent investigations conducted by City officials and DEQ AML ruled out a water line break and instead identified a probable failure of the historic abandoned mine drain system that had previously managed groundwater discharge through a gravity-fed pipe network into the municipal stormwater system.

This failure appears to have resulted from a combination of aging infrastructure, construction disturbances, and significant rainfall that increased infiltration in the area. Field inspections confirmed that groundwater was accumulating around the residential structure, exerting pressure on surrounding soils and foundations. The existing abandoned mine drain, a historic 8-inch clay-line pipe, is suspected of having failed and resulting in residential flooding. The location of the drain failure is unknown, but it is suspected of being under the residential structure at 221/217 Grant Avenue South. In response, DEQ AML coordinated the rapid installation of a temporary dewatering system consisting of a vertically placed 36-inch culvert sump fitted with filter fabric and surrounded by gravel to limit sediment intake. An initial 4-inch diesel pump system discharged groundwater at a rate of approximately 200 to 250 gallons per minute (GPM), which was later replaced with a 3-inch electric pump on a float-switch system operating at approximately 75 GPM. The discharge water is conveyed into the City's stormwater system and ultimately flows to Rock Creek.

Water quality monitoring indicates that the groundwater collected at the Site is not contaminated by mine workings but instead reflects influence from upgradient irrigation canals that have operated for over a century. Analytical results confirmed low turbidity and no exceedances of concern for common contaminants (Energy Laboratories, 2024). To support

ongoing operations, DEQ AML and its partners also installed piezometers to track water table elevations and flow responses and developed multiple contingency discharge locations to mitigate stormwater overflow risks.

Purpose and Need

The purpose of the Proposed Action is to establish a permanent and sustainable gravity drainage pipeline from the 36-inch diameter sump to the City's stormwater system to relieve elevated groundwater pressures, prevent flooding of adjacent residential properties, and ensure long-term protection of public and private infrastructure. The Proposed Action also aims to enable continuous monitoring of hydrologic conditions, safeguard water quality in nearby receiving waters, and comply with state and federal environmental discharge regulations. The agency's need for action is to protect public health and safety, prevent continued structural damage to residential properties, and fulfill DEQ AML Program responsibilities under SMRCRA Title IV to mitigate hazards associated with abandoned mine lands. The purpose of the Proposed Action is to provide a reliable, long-term groundwater management solution that reduces hydrostatic pressure near the abandoned mine portal and prevents recurrence of flooding conditions observed in 2024.

The need for the Project arises from the failure of a historic mine drainage feature that previously served to manage groundwater outflows from the abandoned Sunset Mine. With the drain now broken or structurally compromised, groundwater has increased in the vicinity of the residential structure and caused flooding damage in the basement. Field investigations suggest that the groundwater is primarily sourced from historic irrigation ditches and canals upslope of the Site, whose seepage contributes to shallow aquifer recharge. Without a functioning dewatering system, there is a significant risk that elevated groundwater could continue to flood the residential basement and cause continued or worsening structural damage to homes and utilities in the vicinity, potentially leading to safety hazards and expensive repairs. Providing a gravity discharge pipeline from the newly installed sump will alleviate the need to operate and maintain pumps to dewater the sump.

Additionally, as the Site is located within a residential neighborhood, unregulated discharge or inadequate groundwater control could overwhelm the City's stormwater system or cause new flooding concerns elsewhere. The proposed action provides a controlled means of managing this water through infrastructure improvements and consistent monitoring. Implementing this project will protect residents and property, reduce potential flooding, and fulfill DEQ's authorization under the Surface Mining Control and Reclamation Act (SMCRA) to address the hazards and environmental risks associated with the abandoned Sunset Mine.

Project Area

The Sunset Mine Drainage Project is located within the City of Red Lodge in Carbon County, Montana. More specifically, the Project Area is situated in the southwestern quadrant of the city near the intersection of Grant Avenue South and 14th Street West, within the residential West Side neighborhood. The center of the Project is located near the abandoned Sunset Mine portal, directly adjacent to the residential property at 221/217 Grant Avenue South. This portal is marked by a historic concrete bulkhead labeled "Sunset Mine June 23, 1907." The proposed infrastructure improvements extend into the alleyways and municipal easements surrounding the Project Site.

The proposed improvements span portions of Block 22, and the adjoining alleys and rights-of-way as identified in the Red Lodge Second Addition plat (see Figure 1 for a general location map). The dewatering sump and associated pumps are located within a privately owned backyard (Lot 4), while the discharge pipe routing crosses under Grant Avenue South and extends eastward into a stormwater manhole situated in the public alley between Grant Avenue

and Adams Street. The stormwater manhole discharges into the City's stormwater system and ultimately flows into Rock Creek. For a more detailed overview of the Project Area, please refer to the plat map provided in Appendix A.

The approximate geographic coordinates of the Project Area range from 45°11′07.8″ N, 109°15′47.0″ W (southern and western boundary at the mine portal and sump location) to 45°11′09.3″ N, 109°15′43.2″ W (eastern and downstream extent near the stormwater manhole discharge). The Project Area is located within the Lower Rock Creek Sub-watershed (Hydrologic

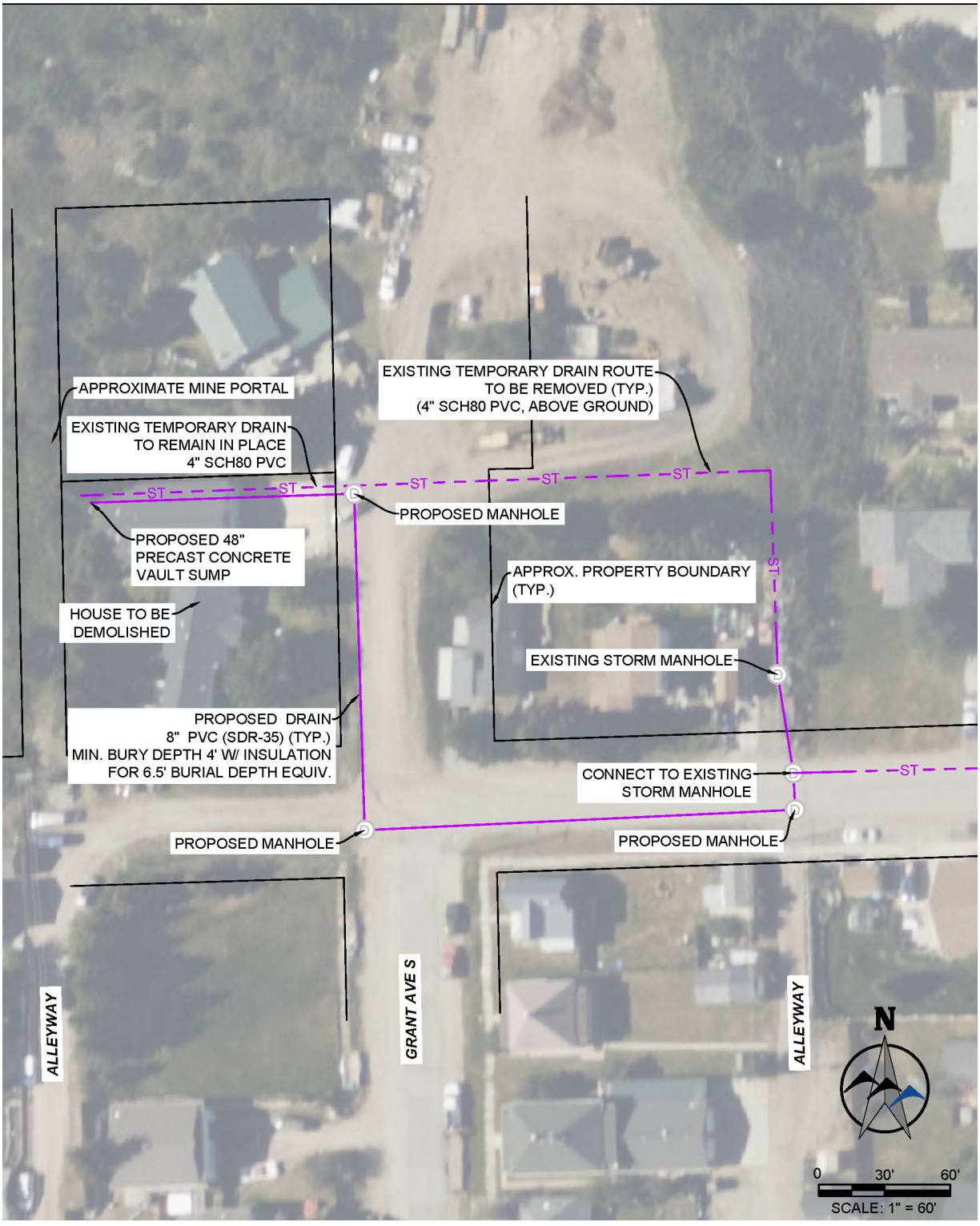

Figure 1. Site Location Map

Unit Code (HUC) 100700060101), part of the Clarks Fork of the Yellowstone River basin. The site is physically located in Section 27 of Township 07 South, Range 20 East.

The terrain in this portion of Red Lodge consists of gently rolling topography formed by historic alluvial processes and mining disturbances. Elevations across the Project Site range from approximately 5,620 to 5,635 feet above sea level. The Site is bordered to the west by a steeply rising bench, above which several historic irrigation canals are located. These canals are a major contributor to shallow groundwater recharge in the project area, as indicated by hydrologic studies and observed spring flows along the hillside.

The soil in the area includes loamy and gravelly materials with variable permeability. Subsurface conditions are influenced by historical fill material, mining voids, and buried utilities. The neighborhood is predominantly residential, with single-family homes, outbuildings, and alley access. There are no agricultural lands or sensitive biological habitats within the immediate vicinity of the Project Site. The climate is typical of south-central Montana, with cold winters, warm summers, and an average annual precipitation of 20 inches, some of which contributes to local groundwater levels and infiltration into historic mine workings (Montana DEQ AML, 2024).

The Project Area has been the focus of multiple site visits and technical investigations, including survey mapping, piezometer installation, and water quality sampling. These efforts have informed the layout and scope of the proposed improvements, all of which are confined to a limited urban footprint and make use of existing public infrastructure corridors wherever feasible.

Relationship to Land Use Plans, Policies, and Controls

The Sunset Mine Drainage Project is consistent with state, local, and federal environmental regulations and land use controls. The Project supports the objectives of DEQ AML and complies with the federal SMCRA, which authorizes reclamation activities to address safety and environmental hazards from abandoned mines. Discharge activities fall under the jurisdiction of the Montana DEQ Water Protection Bureau and are managed through compliance with Montana's Construction Dewatering General Permit (CDGP). Local coordination has occurred with the City of Red Lodge Public Works Department to ensure the use of existing municipal stormwater infrastructure is appropriate and permitted. The Site is zoned residential, and no changes in land use or zoning are anticipated. The Project is designed to be compatible with existing uses and neighborhood character.

Decisions to Be Made

Based on the findings of this EA and public and agency comments received, DEQ will decide under MEPA regarding whether the Proposed Action requires additional environmental review or whether this EA is sufficient. Separately, OSMRE will review this EA, consider any comments, and decide whether to adopt the analysis and issue its own Finding of No Significant Impact for the Proposed Action under NEPA or take other action as appropriate.

Timing of Implementation

The implementation of the Sunset Mine Drainage Project is anticipated to continue through the 2026 field season, with final infrastructure improvements and long-term monitoring systems installed by late summer or early fall of 2026. Initial emergency dewatering operations began in July 2024 and have since transitioned to a more stable, interim system.

The next phase involves formalizing this system by optimizing sump design, upgrading discharge conveyance infrastructure, and expanding groundwater monitoring capacity.

This timing has been selected to align with favorable seasonal conditions in Red Lodge, which typically include lower groundwater recharge rates in late summer and early fall following the peak irrigation and runoff season. Conducting construction and system upgrades during this window minimizes the potential for stormwater intrusion, reduces site access limitations due to snow or saturated ground, and enhances worker safety and efficiency.

The implementation schedule is also designed to avoid unnecessary disruption to residential activity and to coordinate with the City's seasonal infrastructure maintenance. Environmental and cultural resource sensitivity within the Project Area is low due to its urban setting, and no significant wildlife migration or habitat disturbance is anticipated. Timing considerations will also account for potential avoidance of high-flow periods in Rock Creek and ensure full compliance with municipal discharge standards and applicable environmental permits.

3.0 AGENCY AND PUBLIC INVOLVEMENT

Development of this EA has involved early and ongoing coordination with multiple stakeholders. DEQ AML has worked with the City of Red Lodge, affected homeowners, Olympus Technical Services (the Project contractor), and local survey and environmental professionals who contributed to site assessments, infrastructure design, and emergency response planning. Technical input and site data were shared among Project partners through meetings, emails, and field inspections beginning in mid-2024. In addition, DEQ coordinated with OSMRE, internal DEQ programs, State resource agencies, Carbon County, and nearby residents to gather information on site conditions, public safety and emergency response, water quality and biological resources, cultural resources, and local infrastructure, which helped shape the Proposed Action and environmental protection measures. Because the Project Areas is not located on Tribal lands and no Tribal cultural resources were identified, no Tribal governments were contacted as part of this EA. The EA will be posted on the DEQ website for public review and comment, and DEQ will review and consider all comments received in determining whether the Proposed Action would cause significant impacts that require further analysis.

4.0 PROPOSED ACTION AND ALTERNATIVES

Introduction

Under MEPA, agencies must evaluate a reasonable range of feasible and viable alternatives including the No Action Alternative that meet the Project's purpose and need, with the goal of objectively comparing environmental impacts to inform decision-making. As discussed in more detail below, several design concepts and alternatives were developed and evaluated for this Project as shown in the following sections.

No Action Alternative

Under the No Action Alternative, DEQ AML would not implement a formal dewatering system near the abandoned Sunset Mine portal, and the existing temporary sump and pump infrastructure would be removed or allowed to deteriorate. Without active groundwater

management, elevated groundwater elevations down-gradient from the mine would resume, likely causing renewed flooding of nearby residential properties, structural damage, and potential failure of local infrastructure. The absence of a managed discharge system would allow groundwater to accumulate and potentially emerge through uncontrolled pathways, increasing the risk to both private property and public utilities. Monitoring of groundwater levels and water quality would also cease, reducing the ability to detect issues or ensure compliance with environmental standards. This alternative would leave the Site and surrounding area vulnerable to recurring flooding and related issues including subsidence risk. While it avoids immediate construction impacts, the No Action Alternative presents long-term environmental, public safety, and regulatory risks, making it an impractical option for addressing the ongoing groundwater issues at the Site.

Alternatives Considered but Eliminated from Detailed Analysis

In addition to the Proposed Action and No Action Alternative, several alternatives were considered but eliminated from detailed analysis for the reasons described below:

- **Alternative Discharge Locations:** Alternative discharge points, including surface discharge to nearby undeveloped areas or infiltration systems, were considered but dismissed due to limited capacity, potential erosion, and lack of long-term reliability.
- **Pump-Only System:** Continued reliance on a mechanical pumping system without installation of a gravity conveyance pipeline was considered but eliminated due to higher long-term operational costs, increased maintenance requirements, and reduced system reliability.
- **Partial Dewatering System:** A reduced-scale system was considered but would not sufficiently mitigate groundwater levels to prevent flooding of adjacent residential structures.
- **Structural Repair, Flood-Proofing, or Retention of Existing Residence:** DEQ AML considered whether the existing residence could remain in place while the agency continued temporary dewatering, repaired flood damage, or implemented flood-proofing measures in and around the structure. This concept was dismissed because available information indicates that the failed historic mine drain may be located beneath the residence, meaning retention of the structure would prevent DEQ from obtaining the access necessary to fully investigate the failed drain, characterize subsurface conditions, and implement a permanent corrective action. In addition, geotechnical information indicates that voids likely exist in the immediate vicinity of the home and that the site is geologically unstable, creating an ongoing risk of subsidence, structural damage, and unsafe working conditions if the structure were left in place. Because this alternative would not allow DEQ to determine the precise cause and extent of the failure or to safely construct a permanent long-term remedy, it does not meet the Project's purpose and need and was eliminated from detailed analysis.

  These alternatives were not analyzed in detail because they do not meet the purpose and need for a reliable, long-term groundwater management solution.

Proposed Action Alternative

Under the Proposed Action Alternative (Proposed Action), the DEQ AML would acquire the affected property, completely remove the existing residential structure, and implement a permanent drainage solution near the abandoned Sunset Mine portal by installing an underground pipeline to convey mine adit water from the existing sump to the City of Red Lodge stormwater collection system This action is intended to eliminate the need for above-ground discharge and temporary pumping systems, minimize long-term risks to nearby residences, and

streamline groundwater management in a manner that is sustainable, low-maintenance, consistent with municipal standards, and publicly supported.

The Proposed Action would address elevated groundwater conditions associated with the historic mine workings, which have contributed to localized flooding, soil saturation, and infrastructure instability. Removal of the existing structure is necessary because the failed historic mine drain is suspected to be located beneath the residence, and DEQ requires unobstructed access to investigate subsurface conditions, determine the exact failure mechanism, and implement a permanent corrective action. Geotechnical information also indicates that voids likely exist in the immediate vicinity of the home, rendering the site geologically unstable and making retention of the structure incompatible with safe investigation, construction, and long-term site management. Removing the structure would therefore allow DEQ to safely access the affected area, correct the underlying drainage failure, and maintain the permanent dewatering infrastructure. The system would primarily rely on gravity flow through a buried pipeline, minimizing mechanical operation and long-term energy requirements.

4.1.1 Dewatering Infrastructure Overview

- **Mine Portal Sump Connection**: The existing vertical sump, constructed with a 36-inch culvert and filter gravel, would serve as the collection point for groundwater and adit water emerging from the abandoned Sunset Mine workings. The Proposed Plan includes primarily the interception and conveyance of the adit water via gravity, although electric pumps or replacement of the existing vertical sump with pre-cast structure could be considered in the final solution if the depth required for excavation at the sump will provide a hazard to the adjacent residence or geotechnical recommendations indicate the culvert pipe is insufficient to remain in place for longevity purposes. The sump is located immediately west of the northwest corner of the residential structure at 221/217 Grant Avenue S.
- **Underground Conveyance Alignment**: The pipeline would originate at the sump and extend east to Grant Avenue South, then proceed south along Grant Avenue South to 14th Street West. From there, the pipeline would extend west along the south side of 14th Street West to an alleyway located between Grant Avenue South and Adams Avenue South, where it would connect to the City stormwater system. This alignment utilizes public right-of-way, avoids conflicts with private property, and provides a direct and maintainable conveyance route.
- **Pipeline Installation**: The new pipeline is intended to be installed using standard open-cut excavation and backfilling methods. However, trenchless construction methods may be necessary to tie into the existing sump as it is 13 feet below ground surface and directly adjacent to a residential structure. The pipe material would be selected for durability and hydraulic capacity, suitable for conveying sustained baseflow from the mine adit. Pipe bedding and cover would conform to municipal and engineering standards to prevent settlement and maintain road integrity.

4.1.2 Environmental Protection Measures

- **Erosion and Sediment Control**: Construction activities would implement best management practices (BMPs) including silt fences, wattles, and stabilized construction entrances to prevent sediment from reaching storm drains or surface water. All disturbed areas would be stabilized with mulch or reseeded as necessary.
- **Surface Water Protection**: No construction will occur within waters of the U.S., and all drainage discharge will enter the municipal stormwater system in compliance with the

CDGP. Discharge would be monitored for turbidity and other parameters to ensure compliance with federal and State Clean Water Acts.

- **Vegetation and Habitat**: The Project Area is in a developed residential neighborhood with limited vegetation and no known sensitive species. Construction timing would avoid adverse impacts to migratory birds or other wildlife, although a qualified biologist would be available to consult in case of unexpected findings.
- **Cultural and Historic Resources**: The Sunset Mine portal and surrounding neighborhood will be reviewed for potential historical significance in consultation with the State Historic Preservation Office (SHPO). No ground disturbance is planned in previously undisturbed areas.

4.1.3 Proposed Construction Activities

1. **Site Preparation**: Acquisition of the affected property and demolition of the existing residential structure to allow investigation of the suspected drain failure beneath the residence, safe access to geologically unstable ground in the immediate vicinity of the structure, surveying and staking of the pipeline alignment, utility locates, and preparation of staging areas within the DEQ AML-owned parcel and public right-of-way.
2. **Trenching and Excavation**: Open-cut trenching along the alignment to the stormwater manhole (may require trenchless excavation to tie into the existing sump); excavation depths and widths will be minimized to reduce surface disruption.
3. **Pipe Placement and Backfilling**: Placement of the underground pipe with proper bedding, followed by backfilling and compaction to city specifications.
4. **Storm Sewer Tie-in**: Connection of the pipeline to the City stormwater system at the alleyway along 14th Street West between Grant Avenue South and Adams Avenue South, including any necessary structure modifications coordinated with the City.
5. **Restoration**: Replacement of asphalt, sidewalk, gravel road surfacing, and vegetation to original or improved condition; seeding or hydro-mulching of disturbed soils.
6. **Commissioning**: System testing, turbidity monitoring setup, and final inspection.

4.1.4 Site Access

Construction access would occur primarily within the acquired DEQ AML-owned parcel and along public rights-of-way including Grant Avenue South, 14th Street West, and the adjacent alleyway. No access through private property would be required. Temporary traffic control measures would be implemented as needed to maintain safe travel conditions during construction.

4.1.5 Project Benefits

- **Groundwater and Flood Mitigation:** The system would reduce groundwater levels and eliminate uncontrolled discharge, improving subsurface stability.
- **Risk Elimination:** Removal of the existing residence would eliminate ongoing exposure to flooding, structural damage, and associated health and safety concerns.
- **Infrastructure Efficiency:** Gravity-based conveyance would reduce reliance on mechanical pumping and minimize long-term maintenance and energy use.
- **Environmental Protection:** Controlled discharge to the municipal system would reduce erosion, sediment transport, and unmonitored runoff.
- **Public and Regulatory Consistency:** The project is consistent with municipal infrastructure planning and regulatory requirements.

4.1.6 Regulatory Compliance

The Proposed Action would comply with federal and State Clean Water Acts (CWA), particularly through continued coverage under Montana's CDGP. Visual and analytical discharge monitoring will be conducted as per permit terms. Coordination with the Montana State Historic Preservation Office (SHPO) would ensure the protection of potential historic resources at the mine portal. No threatened or endangered species are expected to be affected; however, consultations with the U.S. Fish and Wildlife Service (USFWS) would occur if needed. The Project would also align with local stormwater utility regulations and City infrastructure standards.

Other Alternatives Considered and Reasons for Dismissal

In addition to the Proposed Action and No Action Alternative, three additional alternatives were considered to address the drainage needs near the Sunset Mine portal. These alternatives were evaluated based on their technical and economic feasibility, environmental and social impacts, constructability, property access requirements, reasonableness, and consistency with Project goals. The alternatives considered would result in similar types of impacts to the human and physical environment, as each involves construction activities to install a pipeline within the Project Area. However, the Proposed (Preferred) Action Alternative avoids impacts to private property, provides the most efficient and cost-effective solution, and offers optimal conditions for long-term maintenance, thereby resulting in the least overall impact to the human and physical environment. After careful consideration, each additional alternative was dismissed for the specific reasons explained below.

4.1.7 Alternative 1 – Replace Existing Alignment Using Trenchless Methods

This alternative involved installing a new underground pipe following the alignment of the original mine drain, extending approximately 320 feet from the mine portal sump in a straight east-southeast direction to an existing stormwater manhole located roughly 50 feet north of 14th Street West and mid-block between Grant Avenue South and Adams Avenue South. The alignment would require trenchless construction methods such as horizontal directional drilling or pipe-bursting, as it passes directly beneath multiple private residential structures.

Reasons for Dismissal:

- **Private Property Impacts and Property Access Constraints**: The alignment would cross under several residential buildings and private yards, making it legally and logistically difficult to secure access and long-term easements.
- **High Construction Risk**: Boring beneath occupied structures carries substantial geotechnical and liability risks, particularly due to variable subsurface conditions and the presence of undocumented utilities or debris from historic mining activities.
- **Cost and Complexity**: Trenchless installation methods are significantly more expensive and require specialized contractors and equipment, increasing both upfront costs and the risk of construction complications.
- **Maintenance Limitations**: In the event of pipe failure or clogging, accessing and repairing the buried infrastructure beneath homes would be extremely challenging and invasive.

Due to these limitations, this alignment was deemed inferior to the Proposed Action and eliminated from further consideration.

4.1.8 Alternative 2 – North Property Line to Stormwater Manhole

This alternative proposed extending the pipeline approximately 310 feet due east from the mine portal sump along the north property line of 221/217 Grant Avenue South, then turning due south for approximately 90 feet to tie into the same stormwater manhole identified in

Alternative 1. The alignment would avoid buildings but still traverse several private properties, requiring standard trenching methods.

Reasons for Dismissal:

- **Private Property Impact**: Although not located beneath homes, this route would cross multiple backyards and privately owned parcels. The willingness of property owners to grant access is uncertain, and acquiring rights to proceed on multiple privately-owned parcels would likely be time-consuming and costly.
- **Disruption to Residents**: Construction would directly disturb multiple residential parcels, creating concerns about noise, access restrictions, and impacts to landscaping and fencing.
- **Complicated Construction Logistics**: Access for excavation equipment, spoil removal, and restoration activities would be limited in narrow backyard spaces, potentially increasing construction duration and cost. Low power lines and limited space due to the existing residence near the adit connection further complicate construction.
- **Uncertain Long-Term Maintenance Access**: Maintaining buried infrastructure on private property could pose future access challenges and legal constraints.

Given these unresolved property access issues and construction concerns, this alternative was dismissed.

4.1.9 Alternative 3 – North Property Line, Driveway, and 14th Street Alignment

This alignment would run approximately 130 feet due east from the mine portal sump along the north property line of 221/217 Grant Avenue South to an existing driveway, then turn south for about 140 feet to 14th Street West, continuing approximately 170 feet east to the same stormwater manhole described in Alternatives 1 and 2. This configuration uses a mix of private and public right-of-way and would require conventional trenching.

Reasons for Dismissal:

- **Partial Private Property Use**: Like Alternative 2, this alignment crosses multiple private parcels before reaching the driveway, and there is no assurance of property owner approval for construction or easement dedication.
- **Driveway Disturbance**: Routing the pipeline through a residential driveway would disrupt vehicle access and require full restoration, potentially triggering additional coordination and cost.
- **Increased Complexity**: The alignment involves multiple turns and transitions between property types, complicating construction staging, depth transitions, and restoration efforts. Low power lines and limited space due to the existing residence near the adit connection further complicate construction.
- **Less Direct Route**: Compared to the Proposed Action, this alignment is longer and less efficient, increasing material costs and the likelihood of future maintenance issues at pipe joints or turns.

Because of its added complexity, property access uncertainty, and indirect layout, this alternative was also dismissed.

4.1.10 Alternative 4 – West Property Line and 14th Street Alignment

This alignment would run approximately 150 feet due south from the mine portal sump along the west property line of 221/217 Grant Avenue South to 14th Street West, continuing approximately 300 feet east to the same stormwater manhole described in Alternatives 1 and

2. This configuration uses a mix of private and public right-of-way and would require conventional trenching.

Reasons for Dismissal:

- **Unstable Geotechnical Conditions:** The west side of the residence is characterized by saturated hillside conditions, resulting in reduced soil strength and increased risk of slope instability during excavation and trenching activities.
- **Steep Slope Constraints:** The steep gradient of the hillside west of the residence presents significant construction challenges, including increased risk of slope failure, difficult excavation conditions, and the need for additional stabilization measures.
- **Limited Access and Equipment Constraints:** The narrow workspace between the residence, hillside, and overhead power lines severely limits equipment maneuverability, increasing the risk of damage to the existing structure and posing potential safety hazards, including electrocution risk to construction personnel.
- **Construction Risk and Complexity:** These combined constraints would complicate construction staging, increase safety risks, and likely require specialized methods, resulting in higher costs and reduced constructability.

Because of the geotechnical instability, slope-related risks, and limited safe access for construction, this alternative was dismissed. A geotechnical report prepared by Andrew Pilskalns, P.E. confirmed this information (Pilskalns, 2026).

4.1.11 Summary of Evaluation

All three alternatives were thoroughly reviewed but ultimately dismissed in favor of the Proposed Action due to a combination of construction risk, private property disturbance, access uncertainties, and maintenance concerns. The Proposed Action Alternative, routing the pipeline from the mine portal sump due south to 14th Street West, then east in public right-of-way to an existing stormwater manhole, was selected as the Preferred Alternative for the following key reasons:

- It avoids disturbance to private property, using the most direct route into the public right-of-way.
- It allows for straightforward construction using standard excavation techniques.
- It provides ease of access for long-term maintenance and monitoring.
- It is supported by the affected property owner where the sump is located.

This alternative strikes the optimal balance between constructability, community acceptance, environmental protection, and technical performance.

5.0 AFFECTED ENVIRONMENT & ENVIRONMENTAL IMPACTS

This section analyzes potential environmental effects/impacts of the Proposed Action Alternative in the context of site-specific conditions at the Sunset Mine. Impact assessments are categorized as significant or non-significant under 40 CFR 1508.27, and cover direct, indirect, and cumulative effects.

To implement § 75-1-201, MCA, DEQ uses the criteria in Administrative Rule of Montana (ARM) 17.4.608 to determine the significance of impacts associated with the Proposed Action. DEQ evaluates potential impacts to the physical and human environment to determine whether they may be direct, cumulative, or secondary. ARM 17.4.609(d) and (e). Evaluated resources and considerations include, but are not limited to, groundwater hydrology, stormwater

infrastructure, public health and safety, and cultural features such as the historic mine portal and associated structures.

The analysis identifies both short- and long-term effects, with distinctions made between beneficial and adverse impacts. Special attention is given to groundwater drawdown and recharge rates, flow routing into the municipal stormwater system, and risks associated with potential structural failures. The evaluation includes potential inconsistencies or alignments with local land use plans and tribal interests, though no direct tribal policies apply to the Project Site.

The environmental review reflects coordination between DEQ AML, the City of Red Lodge, adjacent landowners, and WWC Engineering throughout project scoping and design, with supporting data from water quality sampling, flow rate monitoring, and historical investigations. Impacted environments and resource-specific analyses are detailed in the subsections that follow.

Topography and Physiography

Affected Environment

The Sunset Mine Project Area is situated within the City of Red Lodge, Montana, on a gently sloping bench that transitions to the valley floor along Rock Creek. Elevations range from approximately 5,600 to 5,645 feet above mean sea level. The terrain exhibits moderate relief, characterized by urban residential development interspersed with open yards and disturbed ground associated with historic mining activity. Subsurface features include former mine workings and a collapsed portal area with variable backfill conditions, contributing to minor surface irregularities and localized settlement.

The area is underlain by glacial till and colluvial materials, with some hummocky topography resulting from subsurface collapse or historical disturbance. Surface water drainage generally trends east toward the municipal stormwater system and Rock Creek. Shallow depressions and buried utilities influence surface flow paths, and historic drainage structures, including a collapsed mine drain, have altered the natural hydrologic connectivity. No significant geologic hazards (e.g., landslides, seismic instability) are present; however, localized flooding and hydraulic head pressure have caused structural impacts to residential buildings near the former mine portal.

No Action Alternative

Under the No Action Alternative, existing topographic features and drainage conditions would persist. Groundwater levels behind the bulkhead may continue to rise seasonally, exacerbating hydrostatic pressure on subsurface structures and increasing the risk of basement flooding and structural degradation. Without intervention, current terrain instability associated with groundwater discharge could worsen, potentially leading to additional land subsidence or increased sediment transport into the City's stormwater infrastructure.

Proposed Action Alternative

Implementation of the Proposed Action Alternative would involve targeted excavation and grading activities associated with structure removal, sump installation, trenching for conveyance infrastructure, and backfill operations. These actions would result in localized and temporary topographic disturbance.

Direct Impacts:

- **Surface Disturbance (Short-Term):** Minor alterations to ground elevation would occur during sump installation (to depths of approximately 15.5 feet), pipeline trenching, and

removal of the existing residential structure. These disturbances would be localized and confined to DEQ-owned property and municipal easements.

- **Demolition-Related Topographic Change (Short-Term):** Removal of the existing residence and associated features (e.g., foundation, driveway) would temporarily alter local surface conditions and micro-topography within the DEQ AML-owned parcel.
- **Drainage Interruptions (Short-Term):** Temporary disruption of surface water pathways may occur during construction, potentially resulting in localized ponding or minor erosion in the absence of control measures.
- **Soil Compaction (Short-Term):** Construction equipment may compact soils near the sump and along trench alignments, temporarily reducing infiltration capacity in disturbed areas.
- **Restored and Reconfigured Surface Conditions (Long-Term):** Disturbed areas would be regraded and restored following construction; however, removal of the structure may result in a slightly modified surface condition compared to pre-project residential grading.
- **Reduced Hydrostatic Pressure (Long-Term):** Operation of the dewatering system would lower groundwater elevations in the immediate vicinity, reducing pressure on adjacent structures and decreasing the risk of localized flooding or structural impacts.

Secondary Impacts:

- **Temporary Sediment Transport (Short-Term):** Minor sediment mobilization could occur downstream of disturbed areas during construction if erosion controls are not fully effective, potentially affecting nearby drainage pathways.
- **Improved Drainage Function (Long-Term):** Installation of the conveyance system would result in more controlled and consistent discharge to the municipal stormwater system, reducing the likelihood of uncontrolled runoff or sedimentation beyond the Project Area.
- **Localized Topographic Adjustment Post-Demolition (Long-Term):** Removal of the residential structure and restoration of the parcel would result in a simplified and more uniform surface condition, reducing localized irregularities associated with previous development.
- **Localized Changes in Groundwater Flow (Long-Term):** Dewatering may result in minor redistribution of groundwater flow patterns in surrounding areas; however, these changes are expected to be limited in extent and would not significantly affect regional groundwater conditions.

Mitigation Measures:

All disturbed areas would be backfilled, compacted, and regraded to original or improved conditions. Temporary erosion and sediment controls (e.g., wattles, silt fences) would be used during construction, and revegetation with grass or mulch would follow site disturbance. Trenching and grading would be aligned with existing surface contours to preserve drainage efficiency and minimize long-term impacts to topography.

Geology, Minerals and Paleontology

Affected Environment

The Sunset Mine Project Area is underlain by sedimentary rock formations typical of the central Beartooth Foothills, predominantly consisting of interbedded sandstones, shales, and minor

coal seams of the Fort Union Formation (Paleocene). Overlying these bedrock units are unconsolidated Quaternary deposits of glacial till, colluvium, and anthropogenic fill associated with past mining and residential development. These surficial materials exhibit variable compaction and permeability, influencing localized groundwater movement and infiltration rates.

The Site includes historic underground mine workings from the Sunset Mine, which operated intermittently from the early 1900s until 1932. Coal extraction was limited and primarily shallow, with most mineral resources in the area now considered economically exhausted. Remnants of former mine infrastructure (e.g., the 1907 bulkhead and buried drain system) remain subsurface and present structural and hydrologic complications due to unknown conditions and undocumented alterations over the last century.

No significant geologic hazards such as active faults, landslides, or expansive soils are known in the immediate area. Subsurface conditions, however, reflect instability in certain locations due to voids or compromised fill near the former mine portal.

The potential for paleontological resources in the Project Area is considered low. While the Fort Union Formation is regionally known for plant fossils and some vertebrate remains, the highly disturbed nature of the Site from historic mining, urban development, and utility installation has likely destroyed or obscured any in-situ paleontological context.

Site-specific geotechnical investigations conducted for this Project indicate that subsurface conditions in the immediate vicinity of the existing residence at 221/217 Grant Avenue South are affected by historic mine workings and fill. The historic abandoned mine drain is suspected to have failed beneath or immediately adjacent to the residence, and geotechnical evaluation concluded that voids likely exist in this area, resulting in localized geologic instability and an elevated risk of subsidence or settlement. These conditions constrain feasible construction methods and are a primary factor in the decision to remove the existing structure to allow safe investigation and permanent correction of the failed drain.

No Action Alternative
Under the No Action Alternative, no excavation or disturbance of geologic materials would occur beyond ongoing natural weathering and erosion. Subsurface instability associated with historic mine voids may persist, and uncontrolled groundwater flow may continue to mobilize fine sediments through fractures or mine conduits. No further assessment or preservation of mineral or paleontological resources would occur, and public safety risks linked to geologic uncertainty would remain unresolved.

Proposed Action Alternative
The Proposed Action Alternative includes structure demolition, limited excavation for sump construction, pipe trenching, and utility connections, with maximum depths of approximately 15.5 feet.

Direct Impacts:

- **Subsurface Exposure (Short-Term):** Excavation would expose glacial till and fill materials; shallow bedrock may be encountered locally but would not be removed or modified.
- **Potential Void Encounter (Short-Term):** There is a low risk of intercepting legacy mine voids or collapsed structures, which could require stabilization or rerouting during construction.
- **Sediment Mobilization (Short-Term):** Trenching could temporarily expose unconsolidated soils to erosion if not properly managed.

- **Geotechnical Stabilization (Long-Term):** Dewatering and sump installation are expected to reduce hydrostatic pressure on the subsurface, improving long-term ground stability.
- **No Resource Extraction (Long-Term):** The project does not involve the extraction or commercial use of mineral resources.
- **Negligible Impact on Paleontological Resources (Long-Term):** Due to the limited excavation depth, previously disturbed site conditions, and lack of scientifically significant finds, no adverse impacts to paleontological resources are anticipated.

Secondary Impacts:

- **Localized Changes in Subsurface Moisture (Long-Term):** Dewatering may slightly alter subsurface moisture conditions adjacent to the project area, which could influence soil properties or consolidation over time.
- **Settlement Response (Long-Term):** Reduction in groundwater pressure could result in minor soil consolidation in previously saturated zones, potentially causing negligible ground settlement in localized areas.
- **Down-Gradient Sediment Transport (Short-Term):** If sediment mobilization occurs during construction, minor downstream deposition could occur beyond the immediate disturbance area, though this would be temporary and controlled with best management practices.

In the long term, the Proposed Action would reduce subsurface instability associated with elevated groundwater and the failed historic mine drain by establishing controlled drainage and allowing safe access to assess and remediate unstable materials near the former residence.

Mitigation Measures:

Construction monitoring would occur to identify any voids, unexpected geologic features, or anthropogenic materials. If fossil material is encountered during excavation, work in the area would be halted, and the Montana State Historic Preservation Office (SHPO) would be consulted for proper treatment protocols. Erosion and sediment control BMPs would be employed throughout ground-disturbing activities to minimize transport of geologic materials. Given the localized and shallow nature of the proposed excavation, long-term impacts on geologic, mineral, and paleontological resources are expected to be negligible.

Air Quality

Affected Environment

The Sunset Mine Project Area lies within the City limits of Red Lodge, Montana, and is designated as an attainment area for all criteria pollutants regulated under the National Ambient Air Quality Standards (NAAQS). Air quality in the region is generally good due to limited industrial activity, a small population base, and prevailing meteorological conditions that promote dispersion. The primary contributors to localized emissions include residential wood burning, vehicle traffic, and occasional windblown dust from disturbed surfaces or unpaved roads. As in most Montana communities, particulate matter (PM_{10} and $PM_{2.5}$) represents the pollutant of greatest concern during short-term events such as dry summer conditions, winter wood-burning periods, or periods of high wind. No continuous air quality monitoring stations are located directly within the project vicinity. However, ambient conditions are assumed to be typical of small urban communities in Montana, where pollutant levels remain below federal thresholds. There are no major sources of hazardous air pollutants (HAPs) or Title V permitted

facilities near the Project Site. Odor complaints or dust nuisances have not been documented in the vicinity of the Project Site.

No Action Alternative
Under the No Action Alternative, no construction or active disturbance would occur. Existing air quality conditions would remain unchanged, and emissions would continue to reflect background levels associated with residential and vehicular activity. Intermittent dust generation from exposed soils near the former mine portal may contribute minimally to localized particulate matter. The ongoing need for diesel-powered dewatering equipment (if left in place) could produce very small, localized emissions of PM_{10}, $PM_{2.5}$, and combustion byproducts; however, these levels would remain below regulatory thresholds and would not contribute measurably to regional ambient air quality.

Proposed Action Alternative
The Proposed Action Alternative includes ground-disturbing activities such as structure demolition, excavation for sump installation, trenching for discharge conveyance, and limited material handling.

Direct Impacts:

- **Dust Generation (Short-Term):** Excavation, grading, demolition of the existing structure, and soil stockpiling may result in temporary increases in particulate matter (PM_{10} and $PM_{2.5}$), particularly during dry or windy conditions. Coarse particles (PM_{10}) would primarily be generated during soil handling, while finer particles ($PM_{2.5}$) may be produced in smaller quantities from diesel exhaust and disturbed soil surfaces.
- **Equipment Emissions (Short-Term):** Construction machinery, demolition equipment, and diesel-powered pumps may emit minor quantities of combustion-related pollutants, including $PM_{2.5}$, nitrogen oxides (NO_x), carbon monoxide (CO), and small amounts of volatile organic compounds (VOCs). These emissions would be temporary and limited to the construction period.
- **Localized Odors (Short-Term):** Fuel use and diesel equipment operation may produce transient odors in the immediate project area; these would be minor and short-lived.
- **Demolition-Related Emissions (Short-Term):** Removal of the existing residential structure may generate short-term increases in particulate matter and minor emissions from demolition equipment; these effects would be temporary and localized.
- **Negligible Operational Emissions (Long-Term):** Following construction, ongoing dewatering operations would generate little to no air emissions, particularly if gravity flow is utilized. If electric pumps are used, emissions would remain minimal and indirect.
- **Dust Stabilization (Long-Term):** Post-construction restoration and re-vegetation would reduce exposed soil surfaces, thereby minimizing long-term dust generation.
- **No Long-Term Emission Sources (Long-Term):** The project would not introduce permanent stationary sources of air pollutants; therefore, no sustained particulate matter or criteria pollutant impacts are anticipated.

Secondary Impacts:

- **Temporary Downwind Air Quality Effects (Short-Term):** Windborne dust generated during demolition, excavation, and trenching could result in minor, short-term increases in particulate matter concentrations in areas immediately adjacent to the Project Area.

- **Localized Exposure to Emissions (Short-Term):** Nearby residents, pedestrians, or workers may experience brief exposure to construction-related exhaust emissions and odors, though these effects would be temporary and dissipate quickly.

Regional Air Quality Effects (Long-Term): Long-term air quality effects are expected to be negligible, as the project would not introduce new emission sources and may reduce reliance on diesel-powered pumping if gravity flow is implemented.

Mitigation Measures:
Dust control measures would be implemented during construction, including the application of water to disturbed surfaces, minimizing exposed soil areas, and covering soil stockpiles. Vehicle and equipment speeds within the construction zone would be controlled to limit dust entrainment, and idling of construction equipment would be minimized to reduce $PM_{2.5}$ emissions. All machinery would comply with applicable emissions standards. Fuel handling would follow best management practices to avoid leaks and unnecessary vapor emissions. With these measures in place, project-related PM_{10} and $PM_{2.5}$ impacts are expected to be minor, localized, and temporary, and would not affect attainment status or degrade regional air quality.

Hydrology

Affected Environment
The Sunset Mine Project Area is located within the Rock Creek watershed in Red Lodge, Montana. Surface water hydrology is influenced by a combination of natural runoff patterns, historic mining infrastructure, and urban development. The topography generally slopes eastward toward Rock Creek, which is the primary receiving water body for the area's stormwater runoff. There are no established drainages, waterways, or floodplains within the Project Area (FEMA, 2011). A FEMA floodplain firmette map is provided in Appendix B.

The Site includes legacy mine infrastructure, including a buried mine drain associated with the historic Sunset Mine portal. This drain historically conveyed groundwater by gravity into the municipal stormwater system. However, a suspected failure of the drain around July 2024 led to elevated groundwater levels and flooding of a residential structure adjacent to the portal. In response, a dewatering system was installed to reduce hydrostatic pressure and direct flows safely to the city's stormwater network.

Groundwater in the area is shallow and influenced by seasonal recharge, especially from leaking irrigation canals on the bench above the project area. The primary source of groundwater entering the mine workings is thought to be canal seepage and hillside springs. Groundwater quality monitoring has indicated no contamination attributable to mining activity, with pH near neutral and turbidity below 2 NTU in recent sump discharge samples (Energy Laboratories, 2024).

No Action Alternative
Under the No Action Alternative, no modifications to site hydrology would occur. Groundwater levels behind the bulkhead may continue to rise seasonally, exacerbating basement flooding and structural damage due to pressure buildup. Uncontrolled discharge from the flooded property may continue to enter City infrastructure in an unmanaged fashion, potentially overwhelming capacity or mobilizing sediment. Without active management, stormwater routing inefficiencies and the risk of property damage would persist.

Proposed Action Alternative

The Proposed Action Alternative includes improved dewatering operations and associated infrastructure to manage groundwater and redirect flow into the municipal stormwater system.

Direct Impacts:

- **Excavation and Dewatering (Short-Term):** Temporary changes in groundwater elevation may occur during sump construction and initial drawdown. Construction activities may also cause minor, localized disruption of overland flow if not properly managed.
- **Turbidity and Erosion (Short-Term):** Soil disturbance during demolition, excavation and trenching could increase sediment transport into nearby drainage pathways in the absence of appropriate erosion and sediment controls.
- **Demolition-Related Runoff Changes (Short-Term):** Removal of the existing structure may temporarily alter surface runoff patterns within the DEQ-owned parcel until final grading and stabilization are completed.
- **Lowered Groundwater Elevation (Long-Term):** Dewatering would reduce hydrostatic pressure behind the former mine portal, minimizing risks of groundwater expression, soil saturation, and reducing the potential for localized subsurface instability.
- **Controlled Discharge (Long-Term):** Conveyance of sump water to the City stormwater system would provide a consistent and controlled discharge pathway, reducing the potential for uncontrolled overland flow and localized flooding.
- **Improved Water Quality Management (Long-Term):** Routine monitoring of sump discharge (e.g., turbidity, oil sheen) would ensure compliance with Construction Dewatering General Permit (CDGP) requirements and protect receiving waters.

Secondary Impacts:

- **Downstream Sediment Transport (Short-Term):** If sediment is mobilized during demolition, excavation, or trenching, minor and temporary increases in turbidity could occur downstream of the Project Area, though these effects would be minimized through implementation of best management practices.
- **Altered Flow Contributions to Stormwater System (Long-Term):** Routing groundwater discharge to the municipal stormwater system may result in minor increases in flow volume within the system and at its outfall to Rock Creek. However, these changes are expected to be small relative to existing flows and would not measurably affect downstream hydrology.
- **Localized Groundwater Flow Redistribution (Long-Term):** Sustained dewatering may slightly alter local groundwater flow patterns adjacent to the Project Area, but these effects would be limited in extent and would not significantly influence regional groundwater conditions.

Mitigation Measures:

Hydrologic impacts will be minimized through the use of filter fabric around the sump (and pump intakes if gravity dewatering is not possible) to prevent sediment transport. Discharge routing has been designed via piping to avoid erosion, and piezometers have been installed to monitor groundwater behavior. Erosion and sediment control BMPs would be employed during all ground-disturbing activities. If water quality degradation is detected, flow may be temporarily diverted into the City sewer system for treatment. These strategies will ensure that the Project would maintain or improve current hydrologic conditions while protecting local infrastructure and water quality.

Groundwater/Surface Water Interactions

Affected Environment

The Sunset Mine Project Area lies within the Rock Creek watershed in Red Lodge, Montana, where hydrology is shaped by a combination of natural hillslope processes, historic mining infrastructure, and urban development. The local topography slopes generally eastward toward Rock Creek, the primary receiving water for stormwater originating from surrounding residential areas. There are no natural surface-water channels, wetlands, or FEMA-regulated floodplains within the immediate project area (FEMA, 2011). A FEMA floodplain firmette map is provided in Appendix B.

Groundwater and surface water interactions at the Site are influenced heavily by legacy mining features. The historic Sunset Mine portal includes a buried mine drain, installed more than a century ago, that once conveyed groundwater by gravity into the municipal stormwater system. This mine drain functioned as an engineered pathway that intercepted shallow groundwater and springs along the hillside. A suspected failure of the drain around July 2024 caused groundwater to accumulate behind the portal bulkhead, resulting in rising hydrostatic pressure and flooding of the adjacent residential structure. In response, DEQ AML installed a dewatering sump and pump system to reestablish controlled drainage to the City's stormwater network.

Groundwater conditions in the project area are influenced by infiltration from irrigation canals located upslope, historic mine workings, and local precipitation events. Monitoring data collected from installed piezometers indicate groundwater elevations fluctuate seasonally, with higher levels occurring during irrigation periods and spring runoff. Available monitoring data indicate groundwater levels respond rapidly to pumping, with observable recovery following cessation of pumping. Hydraulic gradients generally trend from upslope irrigation areas toward the residential area and mine portal. Available data support the conclusion that irrigation canal leakage is a primary source of groundwater in the area. However, some uncertainty remains regarding the relative contribution of other sources, including precipitation and subsurface flow pathways associated with historic mine workings.

s. These features contribute to sustained groundwater inflow into the mine workings and the dewatering sump. Monitoring and water quality testing of sump discharge show neutral pH and turbidity consistently below 2 NTU (Energy Laboratories, 2024), indicating that the water represents uncontaminated shallow groundwater rather than mine-impacted drainage. Groundwater elevations fluctuate seasonally, with higher levels observed during periods of active canal flow and during storm events that contribute to rapid infiltration through hummocky hillslope soils.

No Action Alternative

Under the No Action Alternative, no improvements to groundwater or surface water management would occur. Groundwater would continue to accumulate behind the mine portal bulkhead during seasonal recharge cycles, increasing hydrostatic pressure on structures and utilities. Continued flooding of the affected residence is likely, as is uncontrolled overland discharge that may enter the municipal stormwater system at unpredictable rates and locations. Persistent saturation may accelerate sediment mobilization into stormwater conveyances, reduce system efficiency, and elevate maintenance requirements for both the City and property owners. Without intervention, existing hydrologic inefficiencies, including unmanaged seepage and lack of drainage capacity, would remain unchanged and the risk of property damage would persist.

Proposed Action Alternative

The Proposed Action Alternative includes continued operation of the dewatering sump, improvements to groundwater conveyance routing, and associated stormwater management infrastructure to safely redirect intercepted groundwater into the municipal stormwater system.

Direct Impacts:

- **Excavation and Dewatering (Short-Term):** Sump construction and initial drawdown may temporarily alter groundwater elevations near the mine portal. Ground-disturbing activities may also redirect small volumes of overland flow if not properly controlled during construction.
- **Turbidity and Erosion (Short-Term):** Soil disturbance during demotion, excavation, and trenching could increase sediment mobility, which may enter local drainage pathways without appropriate best management practices (BMPs).
- **Demolition-Related Surface Water Interaction (Short-Term):** Removal of the existing structure may temporarily alter infiltration and runoff patterns within the DEQ AML-owned parcel until final grading and stabilization are completed.
- **Lowered Groundwater Elevation (Long-Term):** Sustained dewatering would reduce hydrostatic pressure behind the mine portal bulkhead, limiting groundwater expression, soil saturation, and localized subsurface instability.
- **Controlled Discharge (Long-Term):** Directing sump discharge into the municipal stormwater system would reduce uncontrolled seepage and minimize the likelihood of overland flooding. The stormwater network would continue to convey flows to Rock Creek, maintaining predictable hydrologic routing.
- **Improved Water Quality Management (Long-Term):** Routine turbidity and oil-sheen monitoring under the Construction Dewatering General Permit (CDGP), along with the use of filter fabric around the sump and pump intake, would reduce sediment entrainment and ensure that the Project does not contribute pollutants to the stormwater system or Rock Creek.

Secondary Impacts:

- **Downstream Water Quality Effects (Short-Term):** If sediment is mobilized during construction, minor and temporary increases in turbidity could occur downstream of the Project Area, though these effects would be minimized through BMP implementation.
- **Altered Groundwater-Surface Water Interactions (Long-Term):** Sustained dewatering may slightly reduce localized groundwater contributions to surface expressions such as minor seepage zones or drainage pathways; however, these changes are expected to be limited in extent and would not measurably affect overall watershed hydrology.
- **Incremental Changes to Stormwater System Flows (Long-Term):** Routing groundwater discharge into the municipal stormwater system may result in small increases in flow volume conveyed to Rock Creek, but these increases are expected to be minor relative to existing system capacity and background conditions.

Mitigation Measures

Hydrologic impacts will be minimized through the use of filter fabric around the sump and pump intakes to prevent sediment entrainment into the discharge stream. Discharge piping routes flows into a reinforced stormwater manhole to prevent erosion or scour at the outfall. Piezometers installed throughout the site allow ongoing monitoring of groundwater elevations

and response to pumping. Erosion and sediment control BMPs such as wattles, silt fence, and stabilized construction entrances, will be used during all ground-disturbing activities to prevent sediment migration into stormwater pathways. If monitoring indicates water quality degradation, flows may be temporarily redirected into the municipal sewer system for treatment at the wastewater plant. Collectively, these measures ensure that the Project would maintain or improve current groundwater and surface water conditions while protecting local infrastructure, property, and downstream water quality.

Alluvial Valley Floors

Not Applicable.

Wetlands and Riparian Zones

Affected Environment

The Sunset Mine Project Area is in a developed residential neighborhood in Red Lodge, Montana, and does not contain any delineated wetlands or mapped riparian habitat. A review of the U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) maps and field observations confirm the absence of jurisdictional wetlands or hydrophytic vegetation within or adjacent to the project footprint. The nearest riparian corridor is associated with Rock Creek, located approximately 0.25-mile east of the project site, and is separated from the area by urban infrastructure and stormwater conveyance systems. A map from the NWI wetlands inventory is provided in Appendix C.

No springs, seeps, or surface water features with riparian characteristics were identified within the immediate project limits. Groundwater discharge observed near the historic mine portal is managed through a constructed sump and is not associated with natural wetland formation.

No Action Alternative

The No Action Alternative would not result in impacts to wetlands or riparian zones, as none are present within the area of potential effect.

Proposed Action Alternative

Construction and dewatering activities are confined to upland disturbed areas and do not intersect wetland or riparian features. Dewatered groundwater is conveyed into existing City stormwater infrastructure, which eventually discharges to Rock Creek via permitted outfalls, with no direct interaction with riparian habitat. No direct, secondary, or cumulative impacts are anticipated.

Mitigation Measures

None required. As no wetlands or riparian zones occur within the project area, no wetland delineation, permitting, or compensatory mitigation is necessary.

Soils

Affected Environment

The Sunset Mine Project Area lies within the City of Red Lodge, Montana, and is underlain by a mix of glacial till, colluvial deposits, and anthropogenic fill associated with historic mining and residential development. Soils in the area are generally classified as primarily Thiel-Bynum association with a minor amount of Charlos loam within urban land complexes, with altered profiles that limit natural structure and fertility. These soils exhibit variable compaction, texture, and drainage characteristics due to past excavation, backfilling, and construction activities. Soils information provided by the NRCS Web Soil Survey is provided in Appendix D.

Shallow soils near the former mine portal have been disturbed repeatedly over the past century. The surface consists of a mix of native loam, imported fill, and debris from past infrastructure installation. Subsurface soil in the sump area exhibits moderate to low permeability, with occasional lenses of gravel and sandy material that facilitate lateral groundwater movement. Soils upslope of the project area are more intact and exhibit higher infiltration rates but contribute to recharge of the shallow groundwater system.

No soils of statewide or local agricultural importance are present within the urbanized project footprint. Soil erosion risk is generally low due to gentle slopes, existing vegetation, and hardened surfaces, though temporary exposure during construction could increase sediment mobility. The NRCS assigns "T-values" (soil erosion tolerance values) to indicate the maximum rate of annual soil loss that allows sustained soil productivity. The mapped soil units in the project vicinity (Thiel, Bynum, and Charlos loam where present) generally carry T-values ranging from 3 to 5 tons per acre per year, reflecting moderate tolerance to erosion under natural conditions. Within the Project Area, however, functional erosion tolerance is reduced due to past disturbances that have altered soil structure, compacted upper horizons, and introduced fill materials with variable stability. Areas disturbed during historical mining and subsequent residential development exhibit lower resistance to soil detachment and diminished ability to recover from episodic erosion.

Because the Project Area is highly urbanized and consists largely of disturbed soils, even modest increases in runoff or prolonged saturation can exceed these functional erosion thresholds. Elevated groundwater levels near the mine portal and residential structures have reduced soil shear strength and increased susceptibility to internal erosion and sediment mobilization, particularly during periods of peak groundwater discharge or storm events. Construction activities that expose bare soils, if unmanaged, could temporarily elevate erosion rates beyond the mapped T-values; however, with properly implemented best management practices (BMPs), erosion rates can be maintained well below tolerance levels.

No Action Alternative

Under the No Action Alternative, existing soil conditions would remain unchanged. However, persistent groundwater discharge and seasonal flooding could degrade soil structure near the flooded residence, leading to localized erosion, loss of soil stability, and long-term deterioration of site conditions. Persistent saturation reduces soil shear strength, promotes internal erosion, and increases the likelihood that soil loss will exceed the functional erosion tolerance (T-values) of 3–5 tons per acre per year identified for soils in the area. As soils remain inundated, their load-bearing capacity would decline, potentially contributing to foundation instability and localized sloughing. Fine sediments could continue to mobilize into nearby drainage pathways as groundwater resurfaces, and long-term oversaturation may prevent soils from recovering structural integrity. Without corrective action, erosion rates could exceed sustainable thresholds, resulting in ongoing deterioration of soil and site conditions.

Proposed Action Alternative

The Proposed Action Alternative involves structure demolition, localized excavation for sump installation, trenching for conveyance lines, and minor grading in previously disturbed soils.

Direct Impacts:

- **Soil Disturbance (Short-Term):** Excavation for the dewatering sump, demolition of the existing structure, and pipeline trenching would disrupt soil structure and expose loose material to erosion, particularly during wet conditions. During active construction, erosion rates could temporarily exceed mapped soil loss tolerance (T-values) if soils are left unprotected, especially during storm events or periods of high groundwater.
- **Soil Compaction (Short-Term):** Use of heavy equipment may compact surface soils, reducing infiltration capacity and affecting short-term soil function and future vegetative growth. Compaction may also temporarily reduce soil resilience to erosion.
- **Sediment Transport (Short-Term):** Temporarily exposed soils may contribute sediment to nearby drainage pathways and the stormwater system if not properly controlled; however, best management practices (BMPs) would be implemented to minimize sediment loss and maintain erosion rates within acceptable limits.
- **Demolition-Related Soil Disturbance (Short-Term):** Removal of the existing structure and associated features (e.g., foundation, driveway) would result in additional localized soil disturbance and temporary exposure of subsurface materials.
- **Soil Stabilization (Long-Term):** Following construction, regrading and reestablishment of vegetative cover would restore soil structure and stability, improving infiltration and reducing erosion potential. Once stabilized, soil loss is expected to remain below T-values, supporting long-term soil health.
- **Improved Soil Strength (Long-Term):** Dewatering would reduce soil saturation near the former mine portal, improving soil strength and structural stability. Reduced moisture conditions would decrease the potential for chronic erosion and enhance overall soil function.
- **No Farmland Impact (Long-Term):** The project area does not contain prime, unique, or locally important farmland soils; therefore, no agricultural soil resources would be lost or degraded.

Secondary Impacts:

- **Down-Gradient Sediment Deposition (Short-Term):** If sediment is mobilized during construction, minor and temporary deposition could occur in areas downstream of the Project Area; these effects would be minimized through BMP implementation.
- **Localized Changes in Soil Moisture Regimes (Long-Term):** Sustained dewatering may reduce subsurface moisture levels adjacent to the Project Area, resulting in minor changes to soil properties such as consolidation or permeability; these effects are expected to be limited in extent.
- **Improved Resistance to Erosion (Long-Term):** Reduced soil saturation and improved vegetative cover may enhance long-term soil resistance within and immediately adjacent to the Project Area.

Mitigation Measures:

Erosion and sediment control BMPs will be implemented during construction, including silt fencing, wattles, and stabilized staging areas. Disturbed areas will be backfilled, compacted to appropriate engineering standards, and re-vegetated with native grasses or mulch to restore infiltration and prevent erosion. Post-construction decompaction (e.g., tilling or aeration) will be conducted as needed to restore soil health. With these measures, these actions will maintain soil loss rates well within NRCS T-value thresholds, ensuring that soil-related impacts are expected to be minor and temporary.

Public Health and Safety

Affected Environment

The Project Area is in a residential neighborhood in Red Lodge, Montana, where public health and safety concerns are primarily related to flooding, aging subsurface infrastructure, and legacy mine features. In July 2024, elevated groundwater levels, likely exacerbated by canal seepage and failure of a historic mine drain, led to basement and garage flooding at a residence near the abandoned Sunset Mine portal. Water intrusion caused structural damage, posed electrical hazards, and raised concerns about mold and indoor air quality. Local emergency responders, including the Red Lodge Fire Department and City Public Works, were engaged during initial flooding events to evaluate electrical safety, protect property, and coordinate with DEQ AML.

The abandoned mine portal itself is located behind a retaining wall with a marked concrete bulkhead and is not secured from public access. Nearby urban development, including residences and utility corridors, is situated directly above or adjacent to undocumented mine voids. This presents a low but persistent risk of land subsidence or infrastructure failure. Emergency access is available via public streets and alleys, and the City of Red Lodge has coordinated closely with DEQ AML to monitor conditions and manage risks. Coordination among DEQ AML, City of Red Lodge Public Works, and emergency services has included contingency planning for renewed flooding, pump failure, or sudden changes in groundwater elevation.

Investigations following the July 2024 flooding concluded that the historic abandoned mine drain has likely failed beneath or immediately adjacent to the residence at 221/217 Grant Avenue South, contributing to elevated groundwater, basement flooding, and hydrostatic pressure on foundations and surrounding soils. Geotechnical evaluation indicates that voids likely exist in the immediate vicinity of the structure and that subsurface conditions are unstable, creating an elevated risk of continued structural damage or localized subsidence if flooding and high groundwater levels persist. These conditions present a public safety concern for occupants, neighboring properties, and utility infrastructure in the immediate area. Water quality testing of the sump discharge has indicated no contamination from mine materials, with pH levels near neutral and low turbidity, alleviating concerns of chemical exposure; however, continued groundwater intrusion into residential structures without intervention could still present safety hazards, create unsanitary living conditions, and exacerbate risks associated with unstable subsurface conditions.

No Action Alternative

Under the No Action Alternative, the public health and safety risks associated with groundwater intrusion would remain unaddressed. Periodic flooding could continue to damage residential structures, increase the risk of electrical malfunctions, and create environments conducive to mold growth. The structural integrity of subsurface features near the bulkhead would remain uncertain, increasing the risk of gradual subsidence or pipe collapse. The lack of proactive groundwater control and infrastructure stabilization would pose ongoing safety concerns for nearby residents and first responders.

Proposed Action Alternative

The Proposed Action Alternative would actively manage groundwater levels through continued dewatering operations, improving residential safety.

Direct Impacts:

- **Construction Hazards (Short-Term):** Temporary risks include potential injury from demolition activities, excavation equipment, tripping hazards, and restricted access

around active construction zones. These risks would be managed through implementation of signage, barriers, and standard construction safety protocols.

- **Noise and Vibration (Short-Term):** Operation of construction and demolition equipment may generate short-term noise and minor vibration in the immediate project area; these effects would be temporary and managed in accordance with local regulations.
- **Temporary Emergency Access Adjustments (Short-Term):** Construction activities, including trenching and equipment staging, may temporarily alter emergency access routes; however, coordination with the City and emergency services would ensure that access is maintained or alternative routes are provided.
- **Flood Risk Reduction (Long-Term):** Operation of the dewatering system would maintain groundwater at safe elevations, reducing hydrostatic pressure on foundations and preventing recurring flooding, thereby improving structural safety for nearby properties.
- **Reduced Health Hazards (Long-Term):** Removal of the existing structure and reduction of groundwater intrusion would eliminate conditions conducive to mold growth and damp environments, reducing potential health risks within the project area.
- **Infrastructure Stability (Long-Term):** Stabilized groundwater conditions would reduce stress on underground utilities and infrastructure near the mine portal, supporting long-term public safety.
- **Hazard Elimination Through Structure Removal (Long-Term):** Demolition of the existing residence would eliminate ongoing exposure to flooding, structural instability, and associated safety risks at the site.
- **Improved Site Predictability (Long-Term):** Consistent groundwater management would result in more stable site conditions, reducing the likelihood of unexpected flooding or structural instability.

Secondary Impacts:

- **Temporary Public Disruption (Short-Term):** Construction and demolition activities may result in minor, temporary disruptions to nearby residents, including increased traffic, noise perception, or limited access near work areas.
- **Short-Term Exposure to Construction Risks (Short-Term):** Individuals in proximity to the Project Area may experience brief exposure to construction-related hazards (e.g., noise, equipment movement), though these would be localized and controlled through safety measures.
- **Enhanced Community Safety (Long-Term):** Reduction in groundwater-related hazards and removal of a chronically impacted structure would decrease the likelihood of emergency incidents, contributing to improved neighborhood safety.
- **Improved Emergency Response Conditions (Long-Term):** More predictable site conditions and reduced risk of sudden flooding or ground instability would support safer and more effective emergency response in the surrounding area.

Mitigation Measures:

Construction would follow OSHA safety standards, and public access would be restricted in work areas. The sump system and discharge route would be designed to prevent accidental exposure to open water or electrical equipment. Continued monitoring of groundwater elevations and discharge quality will ensure ongoing protection of human health. Emergency contact procedures have been established with the City of Red Lodge and DEQ staff. An emergency response plan, including contact protocols, pump failure procedures, and coordination with City Public Works and emergency services, has been established to ensure rapid response to unexpected conditions such as power outages, pump malfunction, or sudden increases in

groundwater levels. DEQ AML and the City would maintain updated emergency contacts and implement contingency pumping strategies as needed. With these precautions, the Proposed Action Alternative is expected to substantially enhance public health and safety outcomes at the site.

Vegetation

Affected Environment

The Sunset Mine Project Area is situated in an urban residential setting in Red Lodge, Montana, where native vegetation has been largely replaced by lawns, ornamental landscaping, and disturbed ground associated with past mining, residential construction, and utility installation. Vegetative cover in the immediate project footprint consists of mowed turfgrass, ruderal species, and patches of bare soil or gravel where disturbance has occurred. Trees and shrubs are present along property boundaries, but no significant native plant communities or ecological habitats remain.

No federal or state-listed threatened, endangered, or sensitive plant species have been documented within the project area. A review of the Montana Natural Heritage Program (MNHP) database (MNHP 2024) and field reconnaissance confirms the absence of rare or protected vegetation. The presence of invasive or noxious weeds is minimal but may occur sporadically in disturbed zones.

No Action Alternative

Under the No Action Alternative, existing vegetation would remain largely unchanged. However, continued groundwater discharge and surface flooding could lead to localized dieback of turf and ornamental species due to saturation stress. Long-term, consistent ponding may promote the establishment of opportunistic species or weedy vegetation in poorly drained areas.

Proposed Action Alternative

The Proposed Action Alternative involves ground disturbance for sump construction, structure demolition, trenching, and utility installation within previously developed or disturbed areas.

Direct Impacts:

- **Vegetation Removal (Short-Term):** Small areas of turfgrass and ornamental plantings would be temporarily removed during excavation and construction activities within the Project Area.
- **Soil Disruption (Short-Term):** Disturbance of soils would disrupt root structures, resulting in temporary loss of vegetative cover and increased susceptibility to erosion or colonization by opportunistic species.
- **Vegetation Removal Associated with Structure Demolition (Short-Term):** Removal of the existing residence and associated landscaping would result in additional localized vegetation loss within the DEQ-owned parcel.
- **Vegetation Recovery (Long-Term):** Disturbed areas would be regraded and re-vegetated with native or compatible species, restoring vegetative cover and contributing to long-term soil stabilization.
- **Improved Vegetative Conditions (Long-Term):** Groundwater management would reduce oversaturation of soils, allowing existing vegetation to recover more uniformly and reducing long-term stress on ornamental plants and root systems.

Secondary Impacts:

- **Temporary Weed Establishment (Short-Term):** Disturbed areas may be susceptible to colonization by invasive or opportunistic plant species prior to successful re-vegetation, though this would be minimized through restoration and maintenance practices.
- **Localized Changes in Vegetation Health (Long-Term):** Reduced soil saturation may alter moisture availability for vegetation adjacent to the Project Area, potentially improving plant vigor in previously saturated areas.
- **Enhanced Vegetative Stability (Long-Term):** Improved soil conditions and drainage may support vegetation establishment over time, reducing erosion potential beyond the immediate disturbance area.

Mitigation Measures:
Vegetation removal will be minimized to the extent practicable. Following construction, all disturbed areas will be reseeded or replanted with native grasses or low-maintenance landscaping appropriate for the site. Mulch or erosion control matting may be applied to promote establishment and prevent sediment loss. Construction staging and access will be restricted to designated zones to minimize unnecessary vegetative disturbance. Noxious weeds will be managed with periodic spraying. No impacts to sensitive or protected plant species are expected.

Fish and Wildlife

Affected Environment
The Sunset Mine Project Area is located in a residential zone of Red Lodge, Montana, with limited habitat value for fish and wildlife due to historic disturbance, ongoing urban activity, and a lack of native vegetation. The area is characterized by developed lots, paved streets, maintained lawns, and fragmented green spaces. Wildlife observed or expected in the area is typical of urban-adapted species such as raccoons, skunks, deer, squirrels, and various birds (e.g., magpies, robins, sparrows).

There are no surface water bodies within the project area that support aquatic life. The nearest perennial stream is Rock Creek, located approximately 0.25-mile east of the site, which supports populations of native and introduced fish species. However, there is no direct hydrologic connection between the construction zone and Rock Creek aside from municipal stormwater conveyance infrastructure. Dewatered groundwater is discharged through storm drains and treated according to general permit requirements before entering the stream.

A review of the Montana Natural Heritage Program (MNHP) and U.S. Fish and Wildlife Service (USFWS) databases indicates no federally or state-listed threatened or endangered wildlife species within the project footprint. The potential for habitat use by sensitive species is extremely low due to the urban setting and absence of intact ecological features.

No Action Alternative
Under the No Action Alternative, Site conditions would remain largely unchanged. Minor urban wildlife use would continue, and unmanaged flooding could create standing water that temporarily attracts nuisance species such as mosquitoes or rodents. Groundwater discharge would continue to enter the stormwater system untreated, though no significant adverse impacts to fish or wildlife are expected.

Proposed Action Alternative
The Proposed Action Alternative includes demolition, excavation, dewatering, and infrastructure installation within a previously disturbed and developed area.

Direct Impacts:

- **Temporary Disturbance (Short-Term):** Noise, vibration, demolition activities, and increased human activity during construction may temporarily displace urban wildlife or reduce use of nearby vegetation for foraging or shelter within the Project Area.
- **Loss of Cover (Short-Term):** Limited removal of vegetation may temporarily reduce available cover for small mammals and birds during active construction.
- **Demolition-Related Disturbance (Short-Term):** Removal of the existing structure may result in additional short-term disturbance to urban-adapted wildlife species present within or adjacent to the Project Area.
- **Habitat Restoration (Long-Term):** Following construction, disturbed areas would be restored to pre-project conditions, maintaining existing levels of vegetative and structural complexity and resulting in no long-term loss of habitat.
- **Improved Drainage Conditions (Long-Term):** Dewatering would reduce the formation of standing water, limiting conditions that could support nuisance or opportunistic species.
- **No Impact to Aquatic Life (Long-Term):** Controlled discharge to the City's stormwater system would ensure that water entering Rock Creek meets permit requirements, avoiding measurable impacts to fish populations or aquatic habitats.

Secondary Impacts:

- **Short-Term Displacement of Wildlife (Short-Term):** Wildlife may temporarily relocate to adjacent areas outside the Project Area during demolition and construction activities; these effects would be localized and reversible.
- **Minor Changes in Habitat Use (Long-Term):** Improved drainage and reduced soil saturation may slightly alter habitat conditions for species that utilize moist or saturated environments; however, these changes would be limited in extent and would not affect overall habitat availability.
- **Indirect Effects on Aquatic Systems (Long-Term):** Because discharge is regulated and monitored, any indirect effects to downstream aquatic habitats are expected to be negligible, with no measurable change to water quality or habitat conditions in Rock Creek.

Mitigation Measures:
Construction activities would be limited to daylight hours to minimize disruption to nocturnal species. Vegetation would be restored post-construction to maintain incidental habitat use. Discharge monitoring would ensure compliance with turbidity and oil/grease thresholds to protect downstream aquatic resources. With these measures, the project would be expected to have minimal and temporary impacts on fish and wildlife.

Special Status Species (Including Threatened and Endangered Species)

Affected Environment

The Sunset Mine Project Area is located within the City of Red Lodge, Montana, in a fully developed residential neighborhood with no known occurrences of federally or state-listed threatened, endangered, or candidate species. A review of the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system and the Montana Natural Heritage Program (MNHP) database confirms that no designated critical habitat or known habitat for special status species is present within or adjacent to the project site. A copy of the US Fish and Wildlife Service iPac report is provided in Appendix E. The Montana Natural

Heritage Program report is provided in Appendix F. A review of the Montana Sage Grouse Habitat Conservation Map (Appendix G) shows that the Project Area is not within designated sage grouse habitat.

The Project Area lacks suitable habitat features such as riparian zones, grassland expanses, or undisturbed forest patches that might support sensitive species. Additionally, prior Site disturbance from historical mining, utility installation, and urban infrastructure has further reduced any potential for supporting threatened or endangered wildlife or plant species.

A review of available species occurrence data from the Montana Natural Heritage Program (MTNHP), U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system, and local biological records indicates that no federally listed threatened, endangered, or candidate species are known to occur within the immediate Project footprint, which consists of previously disturbed urban lands within the City of Red Lodge. The Project Area lacks suitable habitat for listed species such as grizzly bear (*Ursus arctos horribilis*), Canada lynx (*Lynx canadensis*), and piping plover (*Charadrius melodus*), and no critical habitat for any federally protected species is designated in or near the Project Site. Occurrence databases identify several sensitive or special-status species within the broader Rock Creek drainage and surrounding foothill habitats, primarily avian and aquatic species associated with intact riparian corridors or higher-elevation forested habitats, none of which possess habitat components within the developed, residential setting of the Project Area. Due to the highly modified environment, absence of native vegetation communities, and lack of riparian or aquatic habitat features within the Project footprint, the likelihood of occurrence for special-status species is considered low to negligible.

No Action Alternative
Under the No Action Alternative, there would be no change in Site conditions, and no effect to special status species would be expected. No habitat creation, enhancement, or degradation would occur.

Proposed Action Alternative
The Proposed Action Alternative involves structure demolition and localized ground disturbance for sump and pipeline installation in previously developed and altered areas.

Direct Impacts:

- **No Direct Impacts to Special Status Species (Short-Term):** No special status species or suitable habitat have been identified within the Project Area; therefore, demolition, construction and dewatering activities would not result in direct impacts.
- **No Direct Impacts to Critical Habitat (Long-Term):** The Proposed Action would not affect any federally or state-listed species or designated critical habitat, and no direct habitat modification would occur.

Secondary Impacts:

- **No Indirect Impacts to Special Status Species (Short-Term):** Given the absence of suitable habitat and species presence, demolition and construction-related disturbances (e.g., noise, human activity) would not indirectly affect special status species.
- **No Indirect Impacts to Regional Species or Habitat (Long-Term):** Groundwater management and surface restoration would not alter regional habitat availability, ecological connectivity, or species dynamics; therefore, no indirect impacts to special status species are anticipated.

Mitigation Measures:

No species-specific mitigation is required. However, if protected wildlife or plant species are observed during construction, work would be halted and the USFWS and Montana Fish, Wildlife & Parks would be consulted to determine appropriate action. General best management practices for erosion control and revegetation would be followed to maintain ecological stability.

Land Use

Affected Environment

The Sunset Mine Project Area is located within the municipal boundaries of Red Lodge, Montana, in a residential neighborhood composed primarily of single-family homes. Land use in the immediate vicinity is urban and fully developed, with a mix of public rights-of-way, private yards, and underground infrastructure (Carbon County, 2024). The affected parcels are zoned for residential use, and no commercial, agricultural, or industrial land uses occur within the project footprint.

The area surrounding the former Sunset Mine portal includes paved streets, utilities, landscaped yards, and accessory structures such as garages and sheds. Historic mining activity, including the buried portal and mine drain infrastructure, predates current zoning regulations but remains a subsurface land use legacy affecting property function and drainage. The City of Red Lodge maintains the stormwater infrastructure receiving the dewatered flow from the site, consistent with existing municipal utility land use.

There are no public lands, parks, or recreational open spaces within the project boundaries. No existing land use plans, zoning ordinances, or adopted community development goals would be altered or adversely affected by the proposed project.

No Action Alternative

Under the No Action Alternative, existing land use patterns would remain unchanged. However, ongoing groundwater intrusion could diminish the functionality and value of affected residential properties due to repeated flooding, structural damage, and subsurface instability. Long-term inaction may deter property maintenance or improvements and create conflicts with the intended residential use of the land.

Proposed Action Alternative

The Proposed Action Alternative would result in removal of the existing residential structure and implementation of infrastructure to stabilize site conditions and support compatible surrounding land uses.

Direct Impacts:

- **Temporary Access Restrictions (Short-Term):** Demolition and construction activities may temporarily restrict driveway access and/or utility connections during sump installation and trenching within the Project Area.
- **Visual and Noise Disturbance (Short-Term):** Demolition and construction activities may temporarily alter the visual character and acoustic environment for nearby residents.
- **Land Use Preservation (Long-Term):** Removal of the existing residence would eliminate residential use of the Project Area, resulting in a transition to a non-residential, infrastructure-managed parcel.
- **Infrastructure Compatibility (Long-Term):** Project improvements are consistent with existing municipal infrastructure and compatible with surrounding residential land uses.
- **Removal of Residential Function (Long-Term):** Demolition of the structure would permanently remove a single residential unit from the local housing inventory.

- **No Change in Zoning (Long-Term):** The Project does not require variances or rezoning and would not alter land use classifications or neighborhood character.

Secondary Impacts:

- **Temporary Disruption to Residential Use (Short-Term):** Nearby residents may experience short-term inconvenience due to demolition and construction-related access limitations, noise, or visual.
- **Enhanced Long-Term Land Use Stability (Long-Term):** By eliminating groundwater-related hazards and stabilizing site conditions, the Project may support long-term compatibility of surrounding residential land uses.
- **Improved Infrastructure Reliability (Long-Term):** Enhanced drainage and groundwater management may indirectly reduce the likelihood of future disruptions to utilities or property access in the surrounding area.

Mitigation Measures:
Construction activities would be coordinated with adjacent property owners to minimize access disruptions. Disturbed areas will be restored to pre-construction conditions or better, with re-vegetation and grading to match existing contours. All work would be conducted in accordance with City and State permitting requirements to ensure compatibility with established land use policies. Overall, the Project aligns with local land use designations and supports long-term residential functionality and safety.

Energy Resources

Affected Environment
Energy use within the Sunset Mine Project Area is typical of a small residential neighborhood in Red Lodge, Montana, and is primarily associated with household electricity, residential heating, and municipal utility services. The Project Area is fully served by NorthWestern Energy's electrical distribution network, with overhead and underground service lines present along Grant Avenue and adjacent streets. Energy consumption in the vicinity is relatively low and dominated by residential demand, with no commercial or industrial energy users located within the project footprint. Existing municipal utilities (water, sewer, and stormwater) rely on standard electrical and mechanical systems operated by the City but are not considered significant energy-intensive infrastructure. Prior to installation of the current dewatering system, a temporary diesel-powered pump was used intermittently during emergency response actions; however, this equipment has been replaced by a more efficient electric pump tied into the residential power grid. No renewable energy systems, district heating facilities, or high-energy industrial processes occur within or near the Project Area.

No Action Alternative
Under the No Action Alternative, no new energy consumption or infrastructure changes would occur; however, prolonged groundwater intrusion may necessitate continued use of emergency pumping equipment or intermittent electrical dewatering by property owners or the City. This could result in inefficient, unplanned energy use over time. Persistent saturation and damage to residential structures may also increase household energy demands due to moisture-related heat loss, reduced insulation performance, and increased use of fans or heaters for drying. While overall energy impacts would remain low, they would be unmanaged and could become locally significant for affected properties.

Proposed Action Alternative
The Proposed Action Alternative involves implementation of a primarily gravity-based dewatering system with limited construction equipment use and potential supplemental electric pumping if needed

Direct Impacts:

- **Construction Equipment Energy Use (Short-Term):** Demolition of the existing structure, excavation, trenching, and material handling would require temporary use of diesel-powered machinery, resulting in short-term fuel consumption and associated energy use within the Project Area.
- **Temporary Electrical Demand (Short-Term):** System installation, testing, and construction-related water management activities may result in a temporary increase in electrical usage.
- **Efficient Dewatering Operations (Long-Term):** The system would primarily rely on gravity flow to convey groundwater, with limited or intermittent use of electric pumping if necessary, resulting in low and predictable energy demand.
- **Reduced Emergency Energy Use (Long-Term):** Stabilizing groundwater conditions would eliminate the need for emergency pumping or ad hoc homeowner-operated equipment, reducing unplanned and inefficient energy consumption over time.
- **Reduction in Residential Energy Use (Long-Term):** Removal of the existing residence would eliminate ongoing household energy consumption at the Project Area, resulting in a minor net reduction in baseline energy demand.
- **No Increase in Baseline Energy Demand (Long-Term):** The Project would not introduce permanent facilities or infrastructure that would materially increase local or regional energy demand.

Secondary Impacts:

- **Short-Term Fuel Supply and Transport Demand (Short-Term):** Temporary use of diesel-powered equipment may result in minor increases in fuel delivery and associated transportation energy use beyond the immediate Project Area.
- **Localized Electrical Load Effects (Short-Term):** Short-term increases in electrical demand during construction may result in minor, localized increases in load on the existing utility system, though these would be negligible relative to overall capacity.
- **Long-Term Energy Efficiency Benefits (Long-Term):** Implementation of a gravity-based system would reduce reliance on energy-intensive pumping, resulting in lower long-term energy use for groundwater management.
- **Reduced Indirect Energy Use from Damage Prevention (Long-Term):** Preventing flooding and infrastructure damage may indirectly reduce future energy use associated with repairs, reconstruction, and emergency response activities.

Mitigation Measures

Construction activities would be scheduled to minimize unnecessary equipment operation and fuel consumption. Contractors would be required to follow best management practices for energy efficiency, including minimizing idling and maintaining equipment to manufacturer specifications. The electric dewatering system would utilize automatic controls to reduce energy use to the minimum necessary for groundwater management. Upon completion, disturbed areas would be restored, and all equipment removed, ensuring that the Project's long-term energy footprint would remain low. Overall, the Proposed Action Alternative is

consistent with local and regional energy use patterns and would not adversely affect energy availability, reliability, or conservation goals.

Cultural Resources

Affected Environment

The Sunset Mine Project Area is located in an urban residential neighborhood in Red Lodge, Montana, with a history of early 20th-century coal mining activity. The most notable historic feature in the vicinity is the former Sunset Mine portal, constructed in 1907 and now sealed with a concrete bulkhead. While no standing historic structures remain, the subsurface mine infrastructure and portal area are associated with the local coal mining heritage and are potentially eligible for consideration under the National Register of Historic Places (NRHP) due to their association with regional industrial development.

A Class III cultural resource inventory was not required due to the previously disturbed and urbanized condition of the project area. Coordination with the Montana State Historic Preservation Office (SHPO) and DEQ AML determined that the Proposed Action Alternative would have no adverse effect on known cultural resources. No tribal cultural sites, traditional cultural properties, or sacred sites have been identified within the project footprint. No Tribes were consulted for this Project because the Site is located on private and municipal lands within the City of Red Lodge and does not include Tribal Lands or known Tribal cultural resources. A letter from Montana SHPO is provided in Appendix H.

No Action Alternative

Under the No Action Alternative, the abandoned Sunset Mine portal and associated historic subsurface features would remain undisturbed. However, the continued deterioration of surrounding conditions due to groundwater intrusion could lead to indirect impacts, including subsidence or structural degradation of historically significant subsurface features.

Proposed Action Alternative

The Proposed Action Alternative would involve structure demolition, minor excavation and sump installation in previously disturbed areas near the sealed mine portal.

Direct Impacts:

- **Ground Disturbance Near Portal (Short-Term):** Excavation would occur adjacent to, but not within, the historic mine portal area. No structural components of the mine would be removed, altered, or directly impacted by construction activities.
- **Risk of Unanticipated Discoveries (Short-Term):** Due to the Site's industrial history, there is a low potential for encountering buried artifacts or subsurface features during excavation or demolition; however, any discoveries would be addressed in accordance with applicable cultural resource protection procedures.
- **Removal of Non-Historic Structure (Short-Term):** Demolition of the existing residence, which is not historically significant, would not affect any resources eligible for listing in the National Register of Historic Places (NRHP).
- **Protection of Historic Features (Long-Term):** Groundwater management would reduce hydrostatic pressure and moisture-related degradation, helping to preserve the structural integrity of the mine portal and associated subsurface features.
- **No Adverse Effect (Long-Term):** The Montana State Historic Preservation Office (SHPO) has determined that the Project would not adversely affect any resources eligible for listing in the National Register of Historic Places (NRHP).

Secondary Impacts:

- **Reduced Risk of Indirect Damage (Long-Term):** By stabilizing groundwater conditions and reducing the potential for erosion or subsurface collapse, the Project would indirectly protect nearby historic features from long-term degradation.
- **Minimal Risk of Indirect Disturbance (Short-Term):** Construction activities may result in minor, temporary vibrations or ground disturbance in the vicinity of historic features; however, these effects are expected to be negligible and would not affect structural integrity.

Mitigation Measures:
If cultural materials or human remains are encountered during excavation, work in the immediate area would cease, and SHPO and appropriate tribal representatives will be contacted in accordance with State and federal laws. Construction will proceed only after consultation and appropriate treatment measures are implemented. All work would comply with Section 106 of the National Historic Preservation Act and applicable State cultural resource protection regulations. With these measures, the Project would avoid and help protect cultural resources associated with the abandoned Sunset Mine.

Visual Resources

Affected Environment
The Sunset Mine Project Area is located within a developed residential neighborhood in Red Lodge, Montana, characterized by single-family homes, manicured lawns, paved streets, and utility corridors. The visual setting is typical of small-town residential zones, with no designated scenic vistas, view corridors, or visually sensitive areas. The abandoned Sunset Mine portal is located behind a retaining wall and is not visible from public rights-of-way, contributing minimally to the overall viewshed.

The surrounding neighborhood features a mix of architectural styles, mature trees, and decorative landscaping. Existing visual conditions are shaped by utility infrastructure, fencing, outbuildings, and yard improvements. Existing visual conditions are influenced by residential lighting, including porch lights, driveway fixtures, and limited street lighting consistent with a quiet residential setting. No high-intensity lighting sources or commercial lighting installations are present in the immediate area. The area does not fall within a designated scenic overlay district or a protected visual resource area under local planning guidelines. No notable aesthetic landmarks or historically significant visual features are located within the viewshed of the proposed project activities.

No Action Alternative
Under the No Action Alternative, there would be no change in the visual character of the area. However, continued unmanaged groundwater discharge may lead to visible water accumulation, saturated lawns, and property degradation, which could detract from the aesthetic quality of nearby residences over time. In the event of emergency pumping during future flooding events, temporary lighting may be required for night operations, creating intermittent and unplanned visual disruptions for nearby residents.

Proposed Action Alternative
The Proposed Action Alternative involves structure demolition, excavation, connection to the existing sump, and conveyance infrastructure construction, which would temporarily affect the visual setting in localized areas.

Direct Impacts:

- **Temporary Visual Disruption (Short-Term):** Demolition activities, construction equipment, open trenches, stockpiled materials, and exposed soils would be visible

during Project implementation. These effects would be temporary and confined to active work zones.

- **Construction Lighting (Short-Term):** If construction or emergency-related work occurs outside normal daytime hours, portable task lighting may be used. Lighting would be directed downward and shielded to minimize spillover; however, short-term increases in ambient light levels may be noticeable in the immediate Project Area.
- **Vegetation Disturbance (Short-Term):** Removal of small areas of turfgrass or landscaping may create localized visual contrast during construction.
- **Demolition-Related Visual Change (Short-Term):** Removal of the existing structure would result in a noticeable but temporary change in visual character until final grading and site restoration are completed.
- **Visual Restoration (Long-Term):** Disturbed areas would be regraded and revegetated with grass or compatible plantings, resulting in a stable and maintained site condition consistent with surrounding land uses.
- **No Permanent Visual Features (Long-Term):** The Project does not include new above-ground structures or permanent lighting. Infrastructure would be below grade, and the site would remain free of visible structural development following restoration.
- **Improved Aesthetics (Long-Term):** Removal of the existing residence and implementation of a controlled drainage system would eliminate visible water damage and surface saturation, resulting in a more stable and visually consistent site conditions.

Secondary Impacts:

- **Temporary Visual Effects Beyond Work Area (Short-Term):** Demolition and construction activities may be visible from adjacent properties and streets, resulting in minor, short-term changes to the broader viewshed.
- **Short-Term Light Spill Perception (Short-Term):** Even with shielding, nearby residents may perceive slight increases in nighttime illumination during off-hours work; these effects would be temporary and localized.
- **Long-Term Visual Consistency (Long-Term):** Restoration of disturbed areas and absence of permanent structures would maintain visual continuity with surrounding residential land uses.
- **Change in Viewshed Character (Long-Term):** Removal of the existing residence would result in a minor change to the immediate viewshed; however, this change would be localized and would not adversely affect overall neighborhood visual quality.
- **Enhanced Neighborhood Appearance (Long-Term):** Reduction in standing water, seepage, and associated landscape damage may indirectly improve the overall visual quality of nearby properties.

Mitigation Measures:

Construction areas would be limited to the smallest practical footprint to reduce visual impacts. Materials and equipment would be removed promptly following construction, and all disturbed surfaces would be reseeded or otherwise stabilized to blend with the surrounding landscape. If fencing or landscaping is removed, it would be replaced in coordination with property owners. Any temporary lighting used during construction or emergency operations would employ downward-facing, shielded fixtures to minimize glare, light spillover, and nighttime visual disturbances. Lights would be turned off when not required for safety. With these measures, visual impacts would be expected to be minimal and temporary, with long-term benefits to neighborhood appearance.

Noise

Affected Environment

The Sunset Mine Project Area is located in a quiet residential neighborhood in Red Lodge, Montana, where ambient noise levels are typically low and consistent with suburban settings. Common sources of noise include vehicular traffic, lawn maintenance, domestic animals, and seasonal outdoor activities. There are no commercial or industrial facilities generating significant noise near the project site, and no sensitive receptors such as hospitals or schools are located within the immediate vicinity.

Existing dewatering pumps have been in operation intermittently since July 2024, with noise levels reported as minimal due to proper placement and residential-scale equipment. Noise-sensitive receptors include adjacent homeowners whose properties may be temporarily affected by elevated sound levels during construction.

No Action Alternative

Under the No Action Alternative, no new sources of noise would be introduced. Existing ambient noise levels would remain unchanged, though intermittent pump operations may continue without infrastructure upgrades. Noise associated with emergency flood mitigation, such as portable sump pumps or generator use, may become more frequent or intrusive if flooding worsens.

Proposed Action Alternative

The Proposed Action Alternative includes demolition, short-term construction activities and ongoing dewatering using gravity systems.

Direct Impacts:

- **Construction Noise (Short-Term):** Demolition, excavation, equipment operation, and material transport would temporarily elevate noise levels during daytime hours. These effects would be most noticeable during trenching, sump installation, and pipe placement activities.
- **Localized Noise Effects (Short-Term):** Increased noise levels would be confined to active work zones and managed by limiting operations to standard daytime hours (e.g., 7:00 AM to 7:00 PM).
- **Demolition-Related Noise (Short-Term):** Removal of the existing structure would generate short-term increases in noise levels above typical construction activity; these effects would be temporary and localized.
- **Low-Noise Operation (Long-Term):** Permanent dewatering systems, if required, would utilize submersible or insulated pumps located below grade or within screened enclosures to minimize operational noise. If gravity dewatering is implemented, no operational noise would be generated.
- **Return to Baseline Noise Conditions (Long-Term):** Following construction, noise levels would return to typical neighborhood conditions, with no measurable long-term increase in ambient noise levels.

Secondary Impacts:

- **Temporary Noise Perception Beyond Work Area (Short-Term):** Construction and demolition noise may be perceptible beyond the immediate Project Area, affecting nearby residences or streets. However, these effects would be temporary and diminish with distance.

- **Short-Term Disturbance to Nearby Receptors (Short-Term):** Nearby residents or wildlife may experience temporary disturbance due to elevated noise levels during construction, though impacts would be limited in duration and extent.
- **Long-Term Noise Environment Stability (Long-Term):** With minimal or no operational noise, the Project would maintain existing neighborhood sound conditions and may indirectly reduce intermittent noise associated with emergency pumping or flooding-related response activities.

Mitigation Measures:
Construction would occur during daylight hours and would comply with City noise ordinances. Equipment with functional mufflers will be used, and idling will be minimized. Residential-grade or sound-dampened pumps will be selected for long-term operation, and noise-reducing barriers or enclosures will be installed as needed. If gravity dewatering can be accomplished, no pumps will be utilized. Public notices will be provided to nearby residents prior to the start of construction. With these measures in place, noise impacts would be temporary and minor.

Transportation

Affected Environment
The Sunset Mine Project Area is located in a residential section of Red Lodge, Montana, bounded by Grant Avenue, 14th Street, and McGillen Avenue. These are two-lane local roads with low traffic volumes and are primarily used for neighborhood access. Streets in the vicinity are paved and maintained by the City of Red Lodge. There are no major highways, arterial roads, or designated truck routes within the immediate project area (City of Red Lodge, 2025).

On-street parking is available, and traffic is light, consisting mostly of residents and service vehicles. The alleyway south of the impacted residence is used occasionally for storage and utility access. No transit routes, pedestrian-heavy crossings, or designated bike lanes are present. Emergency vehicle access is available from multiple directions and is not expected to be impeded by the Project.

No Action Alternative
Under the No Action Alternative, no construction-related traffic would occur. However, ongoing groundwater discharge and flooding may lead to recurring access limitations to private residences or result in emergency utility repairs that temporarily disrupt transportation routes. Continued flooding could also deteriorate pavement conditions, especially in the alleyway where sump discharge currently occurs.

Proposed Action Alternative
The Proposed Action Alternative includes localized construction and equipment mobilization, with limited disruption to residential traffic patterns.

Direct Impacts:
- **Temporary Lane Closures (Short-Term):** Construction activities, including demolition, sump excavation and pipeline trenching, may temporarily restrict access to portions of Grant Avenue South, 14th Street West, or adjacent alleys within the Project Area.
- **Construction Traffic (Short-Term):** Equipment operation and material deliveries (e.g., skid steers, delivery trucks) would result in minor increases in construction-related vehicle traffic; these activities would be intermittent and limited in duration.
- **Reduced Parking Availability (Short-Term):** On-street parking near active work zones may be temporarily unavailable during construction periods.

- **No Change to Road Layout (Long-Term):** Following construction, all roads, alleys, and access points would be restored to pre-project conditions with no permanent changes to roadway configuration.
- **Improved Transportation Infrastructure Conditions (Long-Term):** By reducing groundwater-related flooding and subsurface instability, the Project would improve long-term durability of streets and alleys, supporting consistent access and reducing maintenance needs.

Secondary Impacts:

- **Temporary Traffic Delays (Short-Term):** Minor, short-term delays may occur on nearby streets due to construction activity, equipment movement, or temporary access restrictions extending beyond the immediate work area.
- **Temporary Changes in Traffic Patterns (Short-Term):** Drivers, residents, and service vehicles may utilize alternate routes during construction, resulting in minor and localized shifts in traffic patterns.
- **Improved Long-Term Access Reliability (Long-Term):** Reduction in flood risk and improved roadway stability may indirectly enhance reliability of transportation access for residents, emergency services, and utilities in the surrounding area.

Mitigation Measures:

Traffic control measures (e.g., cones, signage, temporary barriers) would be used to direct local traffic safely around work areas. Access to homes and driveways would be maintained whenever possible, and residents would be notified in advance of any temporary closures. Construction activity would be staged to minimize disruption and avoid blocking emergency vehicle routes. With these measures, transportation impacts would be minimal and temporary.

Hazardous and Solid Waste

Affected Environment

The Sunset Mine Project Area is in a residential neighborhood in Red Lodge, Montana, with no known active or historical hazardous waste generators within the Project footprint. The Site does not include any facilities regulated under the Resource Conservation and Recovery Act (RCRA), nor is it listed on the EPA's Superfund National Priorities List or the Montana DEQ's list of contaminated sites.

The former Sunset Mine portal, sealed in 1907, is located beneath a residential property, but historical mining in the area was limited to coal extraction and did not involve ore processing, chemical treatment, or waste stockpiling. Groundwater quality testing conducted during recent dewatering efforts revealed no contamination consistent with hazardous materials. Samples showed low turbidity, neutral pH, and no detectable metals of concern, indicating the absence of legacy mining-related pollution.

Solid waste generated in the area consists of typical residential refuse, collected under municipal waste services. No hazardous or industrial waste streams are present at the Site under existing conditions.

No Action Alternative

Under the No Action Alternative, no hazardous or solid waste would be generated. However, persistent groundwater flooding may cause water damage to building materials and contents, which could eventually result in the disposal of contaminated or mold-affected solid waste. Prolonged basement saturation may also lead to the degradation of stored household chemicals, increasing the risk of minor environmental or health hazards.

Proposed Action Alternative
The Proposed Action Alternative includes structure demolition, sump excavation, conveyance infrastructure installation, and equipment operation that may generate limited construction-related waste.

Direct Impacts:

- **Construction Debris Generation (Short-Term):** Demolition of the existing structure and construction activities would generate typical solid wastes, including excavated soils (spoils), removed pipe materials, packaging, and minor amounts of concrete or asphalt from surface restoration. These materials would be managed and disposed of in accordance with applicable regulations.
- **Potential Encounter of Contaminated Materials (Short-Term):** Although hazardous materials are not expected, demolition of the existing structure and excavation near historic mine features or legacy infrastructure presents a low potential for encountering previously unknown contamination. Any suspect materials would be visually screened and managed in accordance with appropriate handling and disposal requirements.
- **No Operational Waste Generation (Long-Term):** The permanent dewatering system would operate without generating solid or hazardous waste under normal conditions.

Secondary Impacts:

- **Off-Site Waste Transport and Disposal (Short-Term):** Demolition and construction-related wastes would be transported to appropriate disposal or recycling facilities, resulting in minor, temporary increases in waste handling activities.
- **Reduced Long-Term Waste Generation (Long-Term):** By eliminating a chronically impacted structure and stabilizing site conditions, the Project would reduce the potential for future waste generation associated with water damage, emergency repairs, or repeated material replacement.

Mitigation Measures:
All construction-related solid waste would be collected and disposed of at a licensed municipal landfill. Any contaminated soil or debris encountered during excavation would be screened and, if necessary, tested and disposed of in accordance with Montana DEQ and RCRA requirements. No hazardous materials would be stored or used on-Site beyond fuel for equipment, which would be stored in sealed containers and handled using best practices to prevent spills. With these measures, hazardous and solid waste impacts would be minimal and fully managed.

Greenhouse Gases

Per Executive Order 14154, Climate Change is no longer required for federal analysis. However, this analysis is required under MEPA.

Affected Environment
The Sunset Mine Project Area is located within a residential neighborhood in Red Lodge, Montana, where greenhouse gas (GHG) emissions are generally limited to typical community sources such as vehicle traffic, home heating, electricity consumption, and small-scale construction activities. There are no industrial facilities, commercial operations, or utility plants within the project footprint that emit significant quantities of carbon dioxide (CO_2), methane (CH_4), or nitrous oxide (N_2O). The area is not identified as a localized emissions "hot spot," and overall GHG emissions are considered representative of small Montana municipalities with low population density and limited economic activity. Existing dewatering operations utilize an electric pump system tied into the local utility grid, resulting in minimal and predictable indirect GHG emissions associated with power generation.

The Project Area contains no natural features, such as wetlands, peat soils, or significant vegetation stands, that function as major carbon sinks. Residential yards maintain a modest level of carbon sequestration through lawn grasses and ornamental landscaping, though these contributions are minimal at the Project scale. Current GHG contributions from the Site are therefore limited and consistent with baseline community emissions.

No Action Alternative

Under the No Action Alternative, no construction or additional infrastructure would be implemented. Greenhouse gas emissions would remain limited to existing residential and utility-related sources. However, continued groundwater intrusion could require prolonged or intermittent use of emergency pumps or homeowner-operated dewatering equipment, potentially increasing localized energy consumption and associated indirect GHG emissions. Persistent flooding may also impair the energy efficiency of affected structures by increasing moisture levels, potentially raising heating or ventilation requirements and resulting in slightly elevated household GHG emissions.

Proposed Action Alternative

The Proposed Action Alternative includes demolition, construction, and installation activities that would temporarily increase GHG emissions during the implementation phase but result in negligible long-term emissions.

Direct Impacts:

The Proposed Action would require the use of diesel-powered construction equipment to demolish portions of the existing structure and install a permanent gravity-drain system to restore drainage from the Sunset Mine workings to the City of Red Lodge stormwater system. Construction activities would include excavation, trenching, pipe installation, stormwater system tie-ins, backfilling, grading, and surface restoration along the revised alignment. Gasoline-powered support vehicles would also be used for employee transportation and movement of materials and supplies. Based on anticipated construction activities and equipment usage, diesel and gasoline fuel consumption for the Proposed Action is estimated to be approximately 1,400 to 3,400 gallons, with an anticipated average consumption of approximately 2,500 gallons during construction.

Fuel consumption was estimated based on the anticipated type and quantity of construction equipment, expected hours of operation, haul distances, and duration of construction activities. The equipment list and operational assumptions were derived from project planning information, discussions with project personnel, and the anticipated methods necessary to complete demolition, excavation, and installation of the gravity drainage system as shown in the table below. Equipment anticipated to be used during construction includes excavators, skid steers, loaders, dump trucks, compactors, service vehicles, and temporary bypass pumping equipment as needed during installation. Fuel consumption may vary depending on weather conditions, groundwater conditions, equipment efficiency, and construction sequencing.

Equipment / Vehicle Type	Anticipated Use	Estimated Usage	Anticipated Fuel Used
Excavator	Demolition, trench excavation, pipe installation	80–160 hours	700 - 1,400 gal diesel

Equipment / Vehicle Type	Anticipated Use	Estimated Usage	Anticipated Fuel Used
Skid steer / loader	Material handling, grading, cleanup	40–80 hours	150 - 350 gal diesel
Dump trucks	Hauling demolition debris, excavated material, bedding, and backfill	300–800 miles	300 - 800 gal diesel
Compactor / roller	Backfill compaction and surface restoration	20–40 hours	75 - 175 gal diesel
Service / support vehicles	Crew transportation, inspections, material movement	500–1,000 miles	100 - 250 gal gasoline
Temporary bypass pump	Temporary groundwater control during installation	40–120 hours	100 - 400 gal diesel
Total			**1,425 - 3,375 gal diesel**

For this analysis, greenhouse gas (GHG) emissions are defined as carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O), which are the primary GHG species associated with combustion of gasoline and diesel fuel. The combustion of diesel fuel during construction activities would release GHGs primarily in the form of CO2, with smaller quantities of CH4 and N2O, as well as trace amounts of volatile organic compounds (VOCs) and other combustion byproducts. The Proposed Action would generate GHG emissions primarily from mobile combustion sources such as construction equipment and support vehicles. There would be no long-term stationary combustion sources associated with operation of the completed project because the gravity-drain system would function without the need for continuous diesel-powered pumping.

Construction activities associated with the Proposed Action are anticipated to occur over approximately four to seven weeks and would be temporary and limited in geographic extent. Because fuel consumption and associated emissions would be short-term and limited to construction activities necessary to complete demolition, excavation, pipe installation, and site restoration, anticipated GHG emissions from the Proposed Action would be minor and temporary in nature. This review does not include an assessment of GHG impacts in quantitative economic terms, otherwise known as evaluating the social cost of carbon. Instead, the analysis qualitatively evaluates potential GHG emissions and their anticipated impacts consistent with applicable Montana environmental review practices. Using the Environmental Protection Agency's (EPA) GHG Emissions Calculator for Mobile Sources, the Proposed Action would produce between 14.5 and 34.4 metric tons of CO2e."

- **Construction Equipment Emissions (Short-Term):** Demolition of the existing structure, along with operation of diesel-powered construction equipment would generate short-term greenhouse gas emissions, including carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), associated with fuel combustion during excavation, trenching, and material handling activities.
- **Temporary Electricity Use (Short-Term):** Testing and commissioning of the dewatering system would result in a temporary increase in electricity demand, producing minor indirect GHG emissions associated with regional energy generation.
- **Demolition-Related Emissions (Short-Term):** Removal of the existing residence would generate additional short-term GHG emissions from demolition equipment and transport of demolition debris.
- **Minimal Operational Emissions (Long-Term):** The dewatering system would primarily rely on gravity flow, with limited or intermittent use of electric pumping if necessary, resulting in minimal ongoing indirect GHG emissions associated with electricity use.

Secondary Impacts:

- **Indirect Emissions from Energy Production (Short-Term):** Increased electricity demand during construction and system startup would result in minor upstream GHG emissions from power generation sources within the regional grid.
- **Avoided Emissions from Emergency Pumping (Long-Term):** By stabilizing groundwater conditions, the Project would eliminate the need for repeated emergency pumping using portable diesel-powered equipment, reducing future GHG emissions.

  Reduced Long-Term Site Energy Demand (Long-Term): Removal of the existing residence and implementation of a passive or low-energy dewatering system would result in a minor net reduction in long-term site-related energy use and associated GHG emissions.

Mitigation Measures

Construction contractors would adhere to best management practices that reduce GHG emissions, including minimizing equipment idling, using well-maintained engines, and optimizing material transport efficiency. Electric pumps would continue to be used instead of diesel-driven systems to reduce long-term carbon emissions. The Project does not require fuel storage on-site beyond typical construction needs, and no stationary combustion sources will be installed as part of the work. Given the small scale of construction and the limited scope of operational energy use, GHG impacts associated with the project would be minimal, temporary, and fully manageable.

Socioeconomics

Affected Environment

The Sunset Mine Project Area is located within the city of Red Lodge, Montana; a small community with a population of approximately 2,300 residents. The local economy is driven by tourism, small businesses, construction, and public services. The Project Area itself is primarily composed of single-family residential homes, with no commercial or industrial operations located within or immediately adjacent to the footprint. Over the last decade, the community has experienced modest growth in seasonal residency, short-term rentals, and housing demand associated with tourism and second-home ownership. These trends have contributed to

increased pressures on the local housing market, with rising home values and limited availability of long-term rental units.

The affected residence near the abandoned Sunset Mine portal has historically functioned as a residential dwelling. It currently is a rental property with two units, including a main long-term residential unit on the south side of the structure and a second unit above the garage that was previously used as a short-term rental (Airbnb). Since groundwater intrusion began in July 2024, the upper garage unit has been unrentable; the main south unit has remained occupied.

Median household income and employment rates in Red Lodge are comparable to State averages, and the area does not contain any identified low-income or minority communities under Executive Order 12898 (Environmental Justice). The affected residences are privately owned and represent a modest segment of the City's housing stock. Recent groundwater intrusion near the historic Sunset Mine portal has damaged at least one home, resulting in significant repair costs and reduced property usability. These impacts have created an economic burden for affected homeowners and raised concerns among nearby residents.

No Action Alternative
Under the No Action Alternative, continued flooding and groundwater intrusion could further damage private property, increase homeowner repair costs, and reduce property values in the affected area. For rental properties, continued flooding may prolong future displacement of tenants, reduce rental inventory within the neighborhood, and increase financial losses for property owners. Neighborhood investment could decline as homeowners delay maintenance or improvements due to unresolved uncertainty. Public infrastructure managers could also face added liability risks associated with unmanaged groundwater conditions and continued structural deterioration. No short-term economic activity or employment would be generated.

Proposed Action Alternative
The Proposed Action Alternative would involve demolition of the existing structure, construction and infrastructure improvements that may result in short-term economic benefits and long-term stabilization of neighborhood conditions.

Direct Impacts:

- **Temporary Employment (Short-Term):** Construction activities would generate minor, short-term employment opportunities for contractors, laborers, and equipment operators within the Project Area.
- **Local Economic Activity (Short-Term):** Procurement of materials, equipment, and services would result in modest, short-term economic activity benefiting local suppliers and service providers.
- **Removal of Residential Asset (Long-Term):** Demolition of the structure would result in the permanent loss of two residential units at this property: one long-term rental unit on the south side and one short-term rental unit above the garage that has already been out of service due to flooding. This represents a minor reduction in the local housing and short-term rental stock.
- **Change in Land Use Outcome (Long-Term):** Removal of the existing residence would eliminate residential use of the property, while stabilizing site conditions and preventing further economic losses associated with recurring groundwater damage.
- **Displacement of tenants:** Because the existing residential structure would be demolished, the long-term tenants in the main south unit would relocate to other housing, and the upper garage unit would remain unavailable for short-term rental use.

Secondary Impacts:

- **Avoided Long-Term Costs (Long-Term):** By stabilizing groundwater conditions and eliminating a chronically impacted structure, the Project would reduce future repair, maintenance, and emergency response costs for the City and surrounding properties.
- **Housing Availability (Long-Term):** Removal of the existing residence would result in a minor reduction in local housing and short-term rental supply; however, eliminating a chronically impacted structure would reduce long-term maintenance burdens and support overall neighborhood stability.
- **Increased Community Confidence (Long-Term):** Reduction of flood risk and improved infrastructure reliability may enhance homeowner confidence, potentially encouraging property maintenance, reinvestment, and neighborhood cohesion.
- **Broader Economic Stability (Long-Term):** Stabilization of site conditions and reduction in groundwater-related risks may indirectly support the local tax base and reduce economic disruption associated with property damage or displacement.

Mitigation Measures:
No mitigation is required for socioeconomic effects. Outreach and coordination with adjacent property owners will continue throughout the project to ensure transparency and responsiveness to concerns. The project supports long-term community resilience by stabilizing site conditions and reducing groundwater-related risks to surrounding residential properties, while providing relocation assistance to displaced tenants as required by law.

Environmental Justice

This section evaluates whether the Proposed Action would result in disproportionately high and adverse human health or environmental effects on minority or low-income populations consistent with Executive Order 12898 and NEPA guidance. The Project Area is located within a residential neighborhood in the City of Red Lodge; demographic characteristics were evaluated using U.S. Census Bureau American Community Survey (ACS) data for the census block group that includes the Project Area. Available data indicate that the block group population is predominantly non-Hispanic White, with minority and low-income population percentages that are similar to or lower than county-wide averages. The Proposed Action would involve short-term construction activities and long-term groundwater management improvements that are localized in extent and are expected to reduce flooding risk and improve public safety for all nearby residents. No relocations, changes in land use, or other project elements would concentrate adverse effects on any minority or low-income population, and no disproportionately high and adverse effects on such populations have been identified.

Affected Environment
The Sunset Mine Project Area is in a residential neighborhood in Red Lodge, Montana, where land use is fully developed and primarily dedicated to single-family housing. The short-term use of the land is residential occupancy, and the long-term productivity of the area is tied to its continued suitability for safe habitation, property maintenance, and infrastructure functionality.

Historic coal mining occurred in the early 1900s and ceased by 1932, leaving behind a sealed abandoned mine portal and undocumented subsurface voids. These legacy features do not currently contribute to any productive use of the land but have recently begun to interfere with residential utility through groundwater intrusion and flooding. Without corrective action, continued water-related damage may reduce the long-term livability and structural integrity of affected properties.

No Action Alternative

Under the No Action Alternative, short-term land uses would remain unchanged, but the long-term productivity of the area could decline. Persistent flooding and subsurface instability may lead to structural damage, reduced property values, and higher maintenance costs. Over time, this could reduce the functional utility of residential lots and strain public infrastructure and emergency response resources.

Proposed Action Alternative
The Proposed Action Alternative would involve temporary land disturbance for structure demolition, sump construction and drainage improvements to support long-term site stability and infrastructure reliability while improving usability of surrounding properties.

Direct Impacts:

- **Temporary Land Disruption (Short-Term):** Demolition and construction activities would require excavation, equipment access, and staging areas, access routes, and normal residential use within the Project Area. These disturbances would be short in duration and confined to active work zones.
- **Temporary Residential Inconvenience (Short-Term):** Residents may experience short-term visual, noise, and access-related disruptions during demolition and construction. These effects would be temporary and cease upon completion of construction.
- **Change in Site Use (Long-Term):** Removal of the existing residence would eliminate residential use of the Project Area, resulting in a stable, non-residential site condition managed for drainage and infrastructure purposes.
- **Infrastructure Stability (Long-Term):** Long-term productivity of the land would improve through protection of homes, utilities, and surface infrastructure from groundwater-related damage.
- **Removal of Residential Function (Long-Term):** Demolition of the residential structure would result in the permanent loss of residential use within the Project Area.
- **No Loss of Future Land Use (Long-Term):** The Project would not preclude future use or redevelopment of the land subject to potential limitations and is consistent with existing land use designations.

Secondary Impacts:

- **Short-Term Effects on Adjacent Use (Short-Term):** Temporary construction-related disturbances may extend slightly beyond the immediate Project Area, resulting in minor, short-term effects on adjacent residential use.
- **Enhanced Long-Term Property Usability (Long-Term):** By reducing groundwater-related risks, the Project would indirectly improve long-term usability and reliability of residential properties in the surrounding area.
- **Shift in Local Land Use Function (Long-Term):** The Project would result in a localized shift from residential use to infrastructure-focused land management within the Project Area, without affecting broader neighborhood land use patterns.
- **Improved Infrastructure Longevity (Long-Term):** Stabilization of groundwater conditions may indirectly extend the service life of nearby infrastructure, supporting sustained land productivity.

Mitigation Measures:
Disturbed areas will be restored post-construction to original or improved conditions, including grading, reseeding, and landscaping. Construction will be scheduled and staged to minimize

inconvenience. The project will not alter zoning, development rights, or future land use potential. Overall, the Proposed Action Alternative supports the long-term productivity of the area while ensuring short-term disruptions are minimal and temporary.

Unavoidable Adverse Impacts

Affected Environment

The Sunset Mine Project involves targeted construction and dewatering activities within a developed residential neighborhood in Red Lodge, Montana. While impacts have been minimized through design and best management practices, some temporary and localized adverse effects are unavoidable due to the nature of excavation, equipment operation, and utility work in close proximity to homes.

No Action Alternative

Under the No Action Alternative, unavoidable adverse impacts would stem from continued flooding and groundwater-related damage to private property and public infrastructure. These impacts include structural degradation, potential health risks from mold or dampness, and reduced neighborhood stability. Inaction would also allow the deterioration of subsurface conditions that could affect long-term land use and public safety.

Proposed Action Alternative

The Proposed Action Alternative would result in short-term and minor adverse impacts associated with demolition, construction and infrastructure installation.

Direct Impacts:

- **Noise and Dust (Short-Term):** Demolition and construction equipment would generate temporary noise, vibration, and dust during excavation and grading activities within the Project Area. These effects may cause minor, short-term nuisance conditions for nearby residents.
- **Vegetation Disturbance (Short-Term):** Small areas of turfgrass and ornamental landscaping would be temporarily removed or disturbed during construction and would require time to reestablish.
- **Traffic and Access Disruption (Short-Term):** Temporary restrictions to roadways, driveways, or access routes may occur during trenching and equipment mobilization.
- **Visual Intrusion (Short-Term):** Demolition and construction equipment, open trenches, and material stockpiles would temporarily alter the visual character of the Project Area.
- **Minimal Physical Alteration (Long-Term):** Buried infrastructure, including the sump and associated piping, would remain in place following construction; however, these features would not be visible at the surface or interfere with future land use.
- **Permanent Loss of Residential Structure (Long-Term):** Removal of the existing residence represents an irreversible change to the Project Area, resulting in the permanent loss of a single residential use. Tenant displacement.
- **Periodic Maintenance Disturbance (Long-Term):** The dewatering system would require occasional inspection and maintenance, resulting in infrequent and minor site disturbances.

Secondary Impacts:

- **Temporary Off-Site Nuisance Effects (Short-Term):** Noise, dust, and visual changes may extend slightly beyond the immediate Project Area, resulting in minor and temporary nuisance conditions for adjacent properties.
- **Temporary Changes in Local Circulation (Short-Term):** Access restrictions may lead to minor, short-term changes in traffic patterns or circulation routes in nearby areas.

- **Short-Term Reduction in Aesthetic Quality (Short-Term):** Demolition and construction activities may temporarily affect the perceived visual quality of the surrounding neighborhood beyond the immediate work zone.
- **Negligible Long-Term Secondary Effects (Long-Term):** Aside from the localized change in site use associated with structure removal, infrastructure would be below grade and maintenance activities would be infrequent, no measurable long-term indirect adverse impacts to surrounding properties or land uses are anticipated.

Mitigation Measures:
All unavoidable impacts would be mitigated through best practices, including erosion control, dust suppression, construction hour limitations, and restoration of disturbed areas. Post-construction, the Site would be returned to pre-Project conditions or better, with full re-establishment of vegetation and access. Public notification and coordination with residents would minimize disruptions and support community acceptance.

Prime Farmlands

Not Applicable.

MEPA Significance Analysis (ARM 17.4.608(1)(a)–(g))

See Section 7 below.

6.0 ENVIRONMENTAL CONSEQUENCES

NEPA requires the assessment of cumulative impacts, which are the result of the incremental effect of an action when added to other past, present, and reasonably foreseeable future actions. The cumulative impacts of the Proposed Action Alternative are evaluated across a range of environmental, cultural, and socioeconomic factors, including the impacts on topography, soils, water, wildlife, cultural resources, public services, and more. Environmental impacts were evaluated based on the intensity, duration, geographic extent, and likelihood of occurrence. Where quantitative data were available, they were used to support impact determinations. In cases where quantitative data were limited, impacts were evaluated qualitatively using best professional judgment and available monitoring information.

For water and aquatic resources, the appropriate spatial scale for evaluating cumulative effects is the Lower Rock Creek sub-watershed (HUC 100700060101), which includes the City of Red Lodge and downstream reaches that receive municipal stormwater discharges. Within this watershed, reasonably foreseeable actions include continued residential infill and redevelopment in Red Lodge, routine maintenance and minor upgrades to municipal stormwater infrastructure, and ongoing operation of irrigation canals upslope of the Project Area. These actions may incrementally increase impervious surface area, alter runoff patterns, and contribute to stormwater volumes and associated pollutant loads entering Rock Creek. The incremental contribution of the Proposed Action to these watershed-scale cumulative effects is minor because project-related flows are small relative to existing stormwater discharges, are routed through existing municipal infrastructure, and are subject to water quality controls and monitoring under the Construction Dewatering General Permit.

Topography and Physiography

Past and Present Actions
Topography in the Sunset Mine Project Area has been shaped by a combination of natural benchland formation and human activity associated with historic coal mining and residential development. Excavation for the Sunset Mine in the early 20th century altered subsurface stability and may have caused minor landform subsidence over time. Subsequent urban

development; including utility installation, yard landscaping, and driveway grading; has further modified the surface, creating artificial contours and compacted soils. The failure of a buried mine drain has contributed to groundwater accumulation and minor settlement near the former portal. Current land use is residential, with maintained lawns and surface features consistent with an urban setting.

Reasonably Foreseeable Actions
Future changes in the project vicinity may include residential improvements, utility work, and municipal infrastructure projects (e.g., stormwater upgrades, alley or roadway maintenance), which could involve minor regrading. Ongoing groundwater management and climate-driven runoff variability may also increase the need for localized drainage and erosion control.

Cumulative Impacts
The Proposed Action would result in minor, localized changes to surface conditions within an already disturbed urban setting. These include:

- **Localized Grade Adjustments:** Demolition, excavation, and backfilling would result in minor, one-time changes to microtopography within the site and along the pipeline corridor.
- **Improved Drainage Function:** Stabilizing surface contours and directing runoff to storm infrastructure may reduce ponding and erosion over time.
- **Minor Surface Alteration:** Localized changes to soil structure and infiltration may occur but would be typical of urban infrastructure development.

The Proposed Action would improve slope and surface stability by addressing groundwater-related risks and, when combined with other urban activities, would support stable, managed topographic conditions.

Under the No Action Alternative, elevated groundwater and hydrostatic pressure would persist, leading to continued seepage, soil instability, and potential structural damage, resulting in degraded and less stable conditions incompatible with long-term residential use.

Geology, Minerals, and Paleontology

Past and Present Actions
The geologic setting of the Sunset Mine Project Area has been influenced by both natural geologic processes and historic human activity. The site lies atop Paleocene sedimentary formations, primarily the Fort Union Formation, overlain by glacial till and colluvium (MBMG, 2019). The most significant geologic disturbance was the construction and operation of the Sunset Mine in the early 1900s, which included shallow coal extraction and development of mine adits and drains. Although the mine closed in 1932, residual effects include voids, settlement-prone fill, and altered subsurface drainage. Present-day land use includes residential development over and adjacent to the mine area, with periodic utility installation and grading contributing to shallow soil disturbance. To date, no paleontological resources or economically valuable mineral deposits have been discovered or documented within the project site.

Reasonably Foreseeable Actions
Future ground disturbance in the area is expected to be limited to small-scale residential and municipal infrastructure activities (e.g., utility work, roadway or stormwater improvements), which may involve localized excavation into disturbed soils. No new mining or extractive activities are anticipated, and the potential for encountering intact geologic, mineral, or paleontological resources remains extremely low due to the highly disturbed urban setting.

Cumulative Impacts
Historic mining and urban development have resulted in a localized loss of natural geologic structure and stratigraphic integrity within the Project Area. The Proposed Action would occur within this already disturbed context and would not introduce significant new impacts. Cumulative impacts include:

- **Disturbed Stratigraphy:** Past mining and development have disrupted natural geologic layering; demolition and construction would result in minor, localized disturbance without altering overall conditions.
- **Geotechnical Stability Improvement:** Dewatering and drainage improvements would reduce hydrostatic pressure and improve subsurface stability in mine-affected areas. Dewatering and construction activities would also permit direct investigation of the suspected drain failure zone beneath the existing residence and adjacent yard, including identification and remediation of any voids or unstable fill materials. Removing the structure and accessing this zone are expected to reduce the potential for future subsidence or differential settlement associated with historic mine workings.
- **Minimal Resource Loss:** No known mineral or paleontological resources are present; therefore, cumulative loss of scientific or extractive value is negligible.

Cumulative impacts are minor, and the Proposed Action would contribute to improved geologic stability within an already disturbed urban environment. Overall, the Proposed Action is expected to improve geologic stability in the Project Area by lowering groundwater levels, addressing the failed mine drain beneath the former residence, and allowing remediation of localized voids, while additional disturbance remains minor, shallow, and confined to already disturbed urban soils."

Under the No Action Alternative, existing geologic instability associated with elevated groundwater and legacy mining conditions would persist or potentially worsen over time, resulting in continued or increased risk to subsurface integrity and surface structures.

Air Quality

Past and Present Actions
Air quality in the Sunset Mine Project Area has historically been shaped by a mix of natural conditions and small-scale human activity. Red Lodge, Montana, is classified as an attainment area for all National Ambient Air Quality Standards (NAAQS), with no major industrial sources of emissions. Past coal mining operations at the Sunset Mine, which ceased in the 1930s, contributed minimally and temporarily to local air emissions. In the decades since, residential heating (including wood burning), vehicle traffic, and construction have been the primary localized emission sources. Presently, air quality remains good, with occasional short-term increases in particulate matter (PM10/PM2.5) during dry, windy periods or during road and utility work.

Reasonably Foreseeable Actions
Future actions in the area are expected to include small-scale residential and municipal infrastructure activities (e.g., utility work, roadway or stormwater improvements), which may generate short-term dust and equipment emissions. No new long-term emission sources are anticipated. Regional air quality may continue to be influenced by wildfire smoke and seasonal inversions, independent of site-specific activities.

Cumulative Impacts

Cumulative air quality impacts from past, present, and reasonably foreseeable actions are expected to be minor and localized. These include:

- **Short-Term Emissions:** Demolition and construction-related dust and equipment exhaust would temporarily add to background sources but remain within typical urban levels.
- **Minimal Long-Term Emissions:** The project would not introduce permanent emission sources; the primarily gravity-based system would generate little to no ongoing emissions.
- **Regional Conditions:** Air quality trends would continue to be driven by broader regional factors rather than site-specific activities.

The Proposed Action would result in negligible cumulative air quality impacts, with short-term effects minimized through standard dust control and equipment practices.

Under the No Action Alternative, existing air quality conditions would largely remain unchanged, with no new emissions introduced but continued potential for minor, intermittent emissions associated with emergency response activities.

Hydrology

Past and Present Actions

Hydrologic conditions in the project area have been shaped by natural groundwater movement, historic mining activity, and modern urban development. The installation of a mine drain in 1907 originally allowed groundwater to flow passively through the sealed Sunset Mine portal into the municipal stormwater system. Over time, urbanization; including impervious surface development, street grading, and utility installations; altered surface runoff patterns and reduced infiltration. In mid-2024, suspected failure of the buried abandoned mine drain caused groundwater to back up behind the bulkhead, resulting in flooding of a residential structure and continuous surface discharge. Presently, a temporary dewatering system maintains groundwater at safe levels and directs flow into the city's stormwater network.

Reasonably Foreseeable Actions

Future hydrologic modifications may include continued use and periodic maintenance of the dewatering system, potential extension of drainage infrastructure, and broader City stormwater upgrades. Seasonal variation in groundwater recharge from upslope irrigation canals and hillside springs is expected to persist. Climate change may influence groundwater levels through altered precipitation and runoff patterns, increasing the need for adaptive groundwater and stormwater management. No significant new hydrologic alterations are planned for the area beyond infrastructure upkeep.

Cumulative Impacts

Cumulative hydrologic impacts from past, present, and reasonably foreseeable actions are expected to remain minor and localized. These include:

- **Altered Groundwater Flow:** Legacy mine features and subsurface infrastructure have modified shallow groundwater movement; the Proposed Action would operate within this system while improving localized control.
- **Surface Drainage Modification:** Urban development has redirected runoff to engineered systems; the Project would further integrate site drainage by conveying groundwater to the municipal stormwater system via the alley connection.
- **Stabilization Through Dewatering:** Groundwater management would reduce localized saturation, seepage, and instability associated with historic mine conditions.

- **Stormwater System Capacity:** The Project would introduce a minor, controlled increase in discharge to the City system, which is expected to remain within existing capacity.

The Proposed Action would provide a net benefit to site-specific hydrologic conditions by improving drainage and reducing uncontrolled groundwater discharge within an already modified urban watershed.

The No Action Alternative would allow elevated groundwater levels and uncontrolled seepage to persist, continuing to contribute to localized flooding, infrastructure stress, and reduced hydrologic stability within the modified urban watershed.

Groundwater/Surface Water Interactions

Past and Present Actions

Groundwater and surface water interactions in the Project Area have been shaped by a combination of natural hillslope hydrology, historic mining activity, and subsequent residential development. The installation of the mine drain in 1907 allowed groundwater entering the Sunset Mine portal to flow passively into the City's stormwater system for more than a century. As the neighborhood developed, additional impervious surfaces, roadway grading, and utility trenching modified infiltration patterns and redirected overland flow into engineered conveyances. In mid-2024, suspected failure of the buried abandoned mine drain caused groundwater to accumulate behind the bulkhead, leading to basement flooding, increased pore pressure in surrounding soils, and uncontrolled discharge onto public streets. A temporary electric dewatering system currently maintains groundwater at safe elevations, stabilizes surrounding soils, and directs collected groundwater to the municipal stormwater network.

Reasonably Foreseeable Actions

Future hydrologic conditions are expected to continue to be influenced by seasonal recharge from upslope irrigation canals, hillside springs, and snowmelt infiltration. Continued operation and periodic maintenance of the dewatering system are reasonably foreseeable, along with potential upgrades to City stormwater conveyances as part of broader infrastructure planning. Over time, urban infill or roadway resurfacing may incrementally modify surface runoff patterns. Climate-driven shifts in precipitation intensity, snowpack behavior, and groundwater recharge could alter the timing and magnitude of shallow groundwater movement in the area, potentially increasing the need for adaptive groundwater management strategies. No major new hydrologic alterations are currently proposed aside from routine infrastructure maintenance.

Cumulative Impacts

Cumulative groundwater and surface water impacts from the Proposed Action Alternative include:

- **Subsurface Flow Management:** The Proposed Action would manage groundwater movement influenced by the mine portal and subsurface features by reducing hydraulic head and controlling localized flow conditions.
- **Integration with Urban Drainage:** The Project would operate within the existing urban runoff system by directing groundwater discharge into engineered stormwater infrastructure.
- **Hydrologic Stabilization:** The Proposed Action would reduce hydrostatic pressure, prevent uncontrolled seepage, and minimize flooding risk to residential structures.
- **Stormwater System Considerations:** The Project would add a minor, controlled contribution to the municipal stormwater system, which may be considered in future capacity planning as development continues.

The Proposed Action would provide a net environmental benefit by stabilizing groundwater conditions and preventing uncontrolled surface discharge. When combined with past and foreseeable actions, it would enhance localized hydrologic resilience within an already modified urban watershed.

The No Action Alternative would allow uncontrolled groundwater discharge and elevated water levels to persist, increasing the potential for continued surface seepage, structural impacts, and reduced hydrologic resilience within the already modified urban watershed.

Alluvial Valley Floors

Not Applicable.

Wetlands and Riparian Zones

Past and Present Actions

The Sunset Mine Project Area lies within a developed residential section of Red Lodge, Montana, where no wetlands or riparian zones have been identified. Historically, the area was subject to coal mining and later urban development, both of which permanently altered natural surface and subsurface hydrology. Past grading, utility installation, and paving removed any natural wetland-forming conditions and fragmented potential riparian connectivity to nearby water bodies. Presently, the area contains no mapped wetlands in the U.S. Fish and Wildlife Service National Wetlands Inventory (NWI), and various field reviews have confirmed the absence of hydrophytic vegetation, hydric soils, or wetland hydrology within or near the project footprint. The closest riparian corridor is Rock Creek, approximately 0.25 mile east, and is hydrologically disconnected from the site by municipal infrastructure and topographic barriers.

Reasonably Foreseeable Actions

Future land use in the area will continue to be residential, with no foreseeable actions that would create, enhance, or degrade wetlands or riparian zones. Minor drainage improvements or dewatering infrastructure maintenance may continue, but all activities are expected to occur within previously disturbed uplands. The City may implement regional stormwater upgrades, but these are unlikely to affect jurisdictional waters or support new riparian habitat in this highly developed setting.

Cumulative Impacts

Cumulative impacts to wetlands and riparian zones in the broader Red Lodge area have primarily resulted from historical mining, road construction, and residential development, which eliminated many small or intermittent drainage features. At the Project scale, cumulative impacts would negligible due to the complete absence of wetland or riparian resources. Key considerations include:

- **No Direct or Secondary Impacts:** The Project avoids all jurisdictional waters and floodplains.
- **No Loss of Habitat:** No wetlands or riparian vegetation will be removed or altered.
- **No Change to Hydrologic Connectivity:** Dewatered groundwater would be conveyed through existing stormwater infrastructure, avoiding uncontrolled runoff to natural drainageways.

In combination with past and present urbanization, the Proposed Action Alternative does not contribute to additional loss or degradation of wetland or riparian resources. Therefore, cumulative impacts to these resources would not be applicable.

Under the No Action Alternative, existing conditions would persist and would not result in additional loss or degradation of wetland or riparian resources; therefore, cumulative impacts to these resources would not be applicable.

Soils

Past and Present Actions

Soils in the Sunset Mine Project Area have been significantly modified by historical mining, urban development, and repeated ground disturbance. Early 20th-century coal mining disrupted native soil profiles through excavation, backfilling, and subsurface void formation. Subsequent residential development; including home construction, landscaping, and utility installation; introduced fill material, compacted soils, and removed native vegetation. As a result, surface soils in the area are largely urban land complexes characterized by poor structure, reduced infiltration, and low fertility. Previous sump installation and trenching for dewatering infrastructure have further disturbed shallow soils, though these impacts are confined to small work zones.

Reasonably Foreseeable Actions

Future soil disturbance in the area is likely to be limited to routine infrastructure maintenance, localized regrading, or landscaping improvements on residential properties. Continued use of the dewatering system may require occasional excavation or backfill but will not affect large soil areas. There are no foreseeable agricultural, industrial, or large-scale construction projects in the neighborhood that would increase the scale or severity of soil impacts. Climate change may increase the frequency of intense rainfall events, raising the potential for erosion on exposed or compacted surfaces.

Cumulative Impacts

Cumulative impacts on soils from the Proposed Action Alternative include:

- **Previously Disturbed Soils:** The Project would occur within soils already altered by historic mining, demolition, grading, and urban development, with additional disturbance confined to the affected parcel and pipeline corridor.
- **Temporary Compaction and Erosion Risk:** Demolition and construction activities may temporarily increase soil compaction and erosion potential; however, these effects would be short-term and managed with BMPs.
- **Improved Soil Stability:** Dewatering would reduce soil saturation near the mine portal, improving soil strength and reducing long-term instability associated with flooding.
- **Stabilization Through Restoration:** Post-construction reseeding and surface restoration would enhance vegetative cover, reduce erosion, and support recovery of soil function.

While cumulative soil impacts are moderate within the project footprint, the Proposed Action Alternative would incorporate mitigation strategies to reduce future degradation and support long-term soil stability in this urban setting.

Under the No Action Alternative, existing soil degradation associated with saturation, compaction, and erosion would persist or worsen over time, resulting in continued reduced soil stability and function within the Project Area.

Public Health and Safety

Past and Present Actions

The public health and safety conditions in the Sunset Mine project area have been shaped by historic mining, residential development, and recent groundwater-related incidents. The former Sunset Mine was sealed in the 1930s, but subsurface voids and a buried mine drain remain beneath the neighborhood. In mid-2024, suspected failure of the abandoned mine drain

caused groundwater to rise behind the bulkhead, resulting in structural flooding, mold growth, electrical hazards, and degraded indoor air quality at a nearby residence. In response, DEQ AML and the City of Red Lodge coordinated with WWC Engineering to install a dewatering system that mitigates immediate risks. Present conditions remain stable but dependent on continued groundwater management.

Reasonably Foreseeable Actions
Future public health and safety measures may include maintenance of the dewatering system, periodic monitoring, and coordination with City public works and emergency services. Additional municipal infrastructure work (e.g., stormwater or roadway improvements) may occur. Emergency response planning is expected to continue, although reliance on mechanical pumping would be limited. No high-risk facilities or vulnerable populations are located in the immediate Project Area.

Cumulative Impacts

- Cumulative impacts on public health and safety in the area include:
- **Addressing Legacy Subsurface Risk:** The Proposed Action would reduce geotechnical and hydrologic hazards associated with historic mining by controlling groundwater, allowing DEQ to investigate the suspected failed historic mine drain beneath or immediately adjacent to the residence, and facilitating remediation of unstable subsurface conditions, including likely voids in the immediate vicinity of the structure.
- **Elimination of Residential Exposure:** Removal of the existing structure would eliminate ongoing exposure to flooding, mold, structural instability, and potential subsidence risk within the Project Area, while also providing the access necessary to determine and permanently correct the underlying drainage failure.
- **Risk Reduction through Remediation and Preparedness:** The Proposed Action, alongside past emergency response and municipal support, greatly reduces the likelihood of recurring public safety issues. The establishment of emergency response procedures including after-hours contact protocols, pump failure contingencies, and monitoring schedules further minimizes overall risk.
- **Enhanced Awareness and Monitoring:** Continued coordination among DEQ, the City, and adjacent property owners would support proactive monitoring and improved long-term safety management.

In combination with past and current actions, the Proposed Action Alternative would be a key step in reducing cumulative public health and safety risks by correcting the underlying drainage failure, reducing groundwater-related structural hazards, and stabilizing geotechnically compromised ground in this residential setting.

Under the No Action Alternative, cumulative public health and safety risks associated with mine-influenced groundwater conditions would persist or increase, maintaining the potential for recurring flooding, structural damage, and related hazards in the residential area.

Vegetation

Past and Present Actions
Vegetation in the Sunset Mine project area has been extensively altered by historic mining and ongoing urban development. Original native plant communities, likely consisting of mixed grassland and riparian species near Rock Creek, were removed during early 20th-century mine development and subsequently replaced by residential landscaping. Present vegetation consists of turfgrass, ornamental shrubs, and weedy ruderal species in disturbed or unmaintained areas. The installation of utilities, roads, and residential structures has further fragmented vegetative cover and reduced ecological function. The temporary dewatering system and recent sump

excavation have resulted in the localized removal of lawn vegetation but have not affected any native or protected plant species.

Reasonably Foreseeable Actions
Future ground-disturbing activities will likely remain limited to small-scale landscaping, utility maintenance, or sump system upgrades. These actions may temporarily disturb vegetation but are expected to occur within previously developed areas. Native plant restoration is not anticipated, although post-construction reseeding or planting may improve erosion resistance and aesthetic quality. The likelihood of natural recolonization by native species is low due to soil disturbance, urban barriers, and competition from common plants.

Cumulative Impacts
Cumulative impacts on vegetation in the project area include:

- **Previously Altered Vegetation:** The Proposed Action would occur within areas already dominated by maintained turf and ornamental vegetation, with minimal additional disturbance.
- **Temporary Disturbance:** Demolition and construction activities may temporarily reduce vegetative cover and habitat quality within the Project Area.
- **Continued Managed Landscape:** Vegetation would remain primarily managed (e.g., lawns and landscaping), with limited ecological habitat value.

  Restoration and Stabilization: Post-construction revegetation would reestablish ground cover, reduce erosion, and support long-term soil and vegetation stability.

The cumulative effect of past, present, and future actions has resulted in a stabilized but ecologically simplified urban vegetative environment. The Proposed Action Alternative would have negligible long-term impacts on vegetation and includes mitigation to restore ground cover in affected areas.

Under the No Action Alternative, existing vegetation conditions would persist, with continued stress from saturated soils and limited potential for improved vegetative stability or recovery in affected areas.

Fish and Wildlife

Past and Present Actions
Historic coal mining and urban development in the Sunset Mine project area have significantly reduced natural habitat for fish and wildlife. The original landscape likely supported small mammals, birds, and amphibians typical of foothill grassland and riparian zones. These habitats were removed or degraded during early 20th-century mining operations, followed by the construction of residential homes, paved roads, and utility infrastructure. Present wildlife in the area consists mainly of urban-adapted species such as deer, squirrels, raccoons, skunks, and common birds like magpies and robins. There are no water bodies within the project footprint that support aquatic life, and the nearest fish-bearing stream (Rock Creek) is hydrologically isolated from the site by municipal stormwater systems.

Reasonably Foreseeable Actions
Future activities in the area are expected to continue within the existing residential and municipal context, with no anticipated development of natural habitat or changes in land use that would attract new wildlife. Maintenance of the dewatering system and possible minor utility upgrades may result in very limited and temporary displacement of urban wildlife. There are no foreseeable projects that would increase habitat connectivity or expand fish-bearing aquatic systems near the Project Area.

Cumulative Impacts
Cumulative effects to fish and wildlife include:

- **Previously Disturbed Habitat:** The Proposed Action would occur within an already developed and fragmented environment with limited wildlife habitat.
- **Temporary Disturbance:** Demolition and construction activities may temporarily displace urban-adapted wildlife within the Project Area.
- **Limited Habitat Value:** Existing conditions support primarily generalist species, and the Project would not substantially alter habitat availability or connectivity.
- **Restoration of Disturbed Areas:** Post-construction revegetation would reestablish ground cover and maintain existing low-level habitat conditions without further degradation.

The cumulative impact of historical land use conversion and urbanization has limited wildlife presence and eliminated aquatic habitat. The Proposed Action Alternative would have minor, temporary effects on local urban wildlife and no impact on fish or sensitive species.

Under the No Action Alternative, existing degraded and fragmented habitat conditions would persist, with no improvement in habitat quality or stability for wildlife in the Project Area.

Special Status Species (Including Threatened and Endangered Species)

Past and Present Actions
Past coal mining, urban development, and utility installation in the Sunset Mine Project Area have permanently altered the landscape and eliminated suitable habitat for federally or state-listed threatened, endangered, or sensitive species. Native vegetation and natural hydrology that may have once supported special status species have been replaced by housing, paved roads, ornamental landscaping, and stormwater infrastructure. According to reviews of the U.S. Fish and Wildlife Service (USFWS) IPaC system and the Montana Natural Heritage Program (MNHP), no listed species or critical habitat exist within the project footprint. Field reconnaissance conducted in support of project planning confirmed the absence of special status plants or animal species on-site.

Reasonably Foreseeable Actions
Future activities in the area will remain limited to residential maintenance, sump operation, and minor infrastructure improvements. These are not expected to create or restore habitat for special status species. Urban development patterns and disturbed soils prevent natural recolonization, and there are no planned conservation or habitat enhancement efforts within the immediate vicinity. Therefore, the potential for future impacts; either positive or negative; on special status species remain negligible.

Cumulative Impacts
Cumulative impacts to special status species are as follows:

- **No Known Species Presence:** The area has no documented occurrences of threatened or endangered species.
- **No Critical Habitat:** The Project Site lies outside of any designated or proposed critical habitat.
- **No Habitat Restoration Potential:** Current land use and site conditions preclude the return of conditions necessary to support listed species.

- **No Adverse Effects from Project:** The Proposed Action involves only short-term disturbance to the affected property, driveways, streets, and utility corridors, with no effect on listed species or their habitats.

The Proposed Action Alternative, when considered with past and foreseeable actions, would have **no impact** on special status species. A "No Effect" determination is appropriate under Section 7 of the Endangered Species Act.

Under the No Action Alternative, cumulative conditions would remain unchanged, with no effect on special status species or designated critical habitat due to the absence of suitable habitat in the Project Area.

Land Use

Past and Present Actions

The Sunset Mine Project Area was historically used for underground coal mining in the early 20th century. Following mine closure in 1932, the area was gradually redeveloped into a residential neighborhood within the City of Red Lodge. Urban land use replaced the former industrial landscape, with residential zoning and city infrastructure; including streets, utilities, and stormwater systems; fully established by the mid-20th century. Present land use consists entirely of single-family residential homes, accessory structures, and associated infrastructure. No commercial, industrial, or agricultural land use exists in or near the project area, and the proposed dewatering and drainage improvements are consistent with existing city planning and zoning designations.

Reasonably Foreseeable Actions

Future land use in the Project Area is expected to remain residential. Anticipated actions may include routine property maintenance, utility upgrades, or localized stormwater improvements, all within the scope of existing land use controls. The City of Red Lodge has no plans to rezone or redevelop the area, and there are no known proposals for incompatible development. Climate adaptation strategies, such as infrastructure hardening or green stormwater features, may be implemented over time but will remain consistent with the current residential setting.

Cumulative Impacts

Cumulative land use impacts from the Proposed Action Alternative include:

- **Consistent with Existing Residential Use:** The Proposed Action would occur within an area already converted to residential use and would not alter land use patterns.
- **Integration with Urban Infrastructure:** The Project would support existing utilities and drainage systems by improving groundwater management.
- **No Land Use Conflicts:** The Proposed Action aligns with zoning regulations and supports the intended residential function by mitigating groundwater hazards.
- **Support for Neighborhood Stability:** By reducing groundwater-related risks, the Project would help maintain surrounding property conditions and neighborhood stability.

The Proposed Action Alternative would result in a minor change in site-specific land use, is consistent with current and future land use, and would contribute positively to the cumulative stability and resilience of the surrounding residential area.

Under the No Action Alternative, ongoing groundwater issues would continue to degrade property conditions, potentially undermining residential land use stability and long-term neighborhood viability.

Energy Resources

Past and Present Actions

Energy use in the Project Area has historically been limited to residential electricity and heating demands associated with single-family homes in Red Lodge, Montana. No industrial or large commercial energy consumers are located within the neighborhood. Past emergency response efforts during the July 2024 groundwater event included temporary use of diesel-powered dewatering pumps, which increased short-term fuel consumption and associated emissions. Presently, the Site relies on a more efficient electric pump system tied into the local utility grid, resulting in predictable and relatively low energy requirements. Overall, past and present actions indicate that the area has maintained consistent, modest energy demand typical of a residential neighborhood, with no significant strain on regional energy infrastructure.

Reasonably Foreseeable Actions
Future energy use in the Project Area is expected to remain low and associated with municipal infrastructure and surrounding residential activities. Occasional maintenance of the dewatering system and ongoing utility or stormwater improvements may contribute minor energy demand. No substantial new energy sources or demands are anticipated, and regional trends (e.g., climate-driven changes in energy use) would not be project-specific. Long-term climate trends, such as hotter summers or increased storm intensity, may influence household energy needs and could modestly affect electricity consumption citywide, though such changes are unlikely to alter energy use within the Project Area in a meaningful or project-specific manner.

Cumulative Impacts
Cumulative effects on energy resources from the Proposed Action Alternative include:

- **Low-Energy System Operation:** The Proposed Action would primarily rely on gravity flow, with limited or intermittent electric pumping, resulting in minimal long-term energy demand.
- **Minimal Additional Demand:** Project-related energy use would be a small, predictable electrical load that is well within existing utility capacity.
- **Reduced Fossil Fuel Use:** By eliminating the need for emergency diesel pumping, the Project would lower cumulative fuel consumption and associated emissions.
- **Reduced Site Energy Demand:** Removal of the existing residence would eliminate ongoing household energy use at the Project Area.

When considered with past and foreseeable actions, the Proposed Action Alternative would result in no significant adverse cumulative impacts to local or regional energy resources. Instead, the Project would support efficient energy use, reduces the potential for energy-intensive emergency pumping, and aligns with long-term residential energy patterns in the community.

Under the No Action Alternative, continued reliance on emergency or inefficient groundwater management practices would result in higher cumulative energy use and increased dependence on fossil fuel–based systems over time.

Cultural Resources

Past and Present Actions
The Sunset Mine Project Area has been subject to substantial land disturbance associated with early 20th-century coal mining, followed by mid-century residential development. The most notable cultural resource is the sealed portal of the former Sunset Mine, constructed in 1907 and associated with the region's coal mining history. While this feature is not currently listed on the National Register of Historic Places (NRHP), it may be considered eligible due to its industrial significance. Past actions including mining, utility trenching, and construction have likely disturbed or destroyed any other archaeological or historical resources that may have

once existed on-site. Coordination with the Montana State Historic Preservation Office (SHPO) and DEQ's Abandoned Mine Lands (AML) Program has confirmed that no known traditional cultural properties, sacred sites, or eligible structures aside from the mine portal exist within the Project Area.

Reasonably Foreseeable Actions
Future activities in the area are expected to remain within the scope of residential maintenance, utility repair, and sump operation, all within previously disturbed ground. These activities are unlikely to uncover or impact cultural resources. Should additional infrastructure work occur near the historic portal, SHPO consultation would continue as standard practice. No tribal concerns were raised during Project scoping and no additional cultural surveys are anticipated unless subsurface discoveries are made.

Cumulative Impacts
Cumulative impacts to cultural resources for the Proposed Action Alternative include:

- **Previously Disturbed Context:** The Proposed Action would occur within an area already heavily disturbed by historic mining and urban development, with low potential for intact archaeological resources.
- **Protection of Mine Portal:** Groundwater management under the Proposed Action would help preserve the structural integrity of the mine portal by reducing moisture-related degradation.
- **Low Potential for New Impacts:** Due to existing disturbance and absence of known resources, the Project would not contribute to additional impacts on cultural resources.
- **Compliance and Protection Measures:** Coordination with SHPO and adherence to inadvertent discovery protocols would ensure any potential cultural resources are appropriately managed.

The Proposed Action Alternative would support the long-term preservation of the only known historic feature, the mine portal, while avoiding or minimizing risk to any remaining undocumented cultural resources.

Under the No Action Alternative, ongoing groundwater-related degradation could continue to adversely affect the integrity of the historic mine portal over time, resulting in a gradual increase in cumulative risk to cultural resources.

Visual Resources

Past and Present Actions
The visual character of the Sunset Mine Project Area has evolved from an early 20th-century mining site to a fully developed residential neighborhood. The original landscape was altered by coal mining operations, which included excavation, portal construction, and grading. These visual impacts were later obscured as the mine was sealed, and the area was redeveloped for housing. Residential streets, lawns, fencing, driveways, and mature vegetation now define the local viewshed. The sealed Sunset Mine portal is located behind a retaining wall and is not visible from public rights-of-way. Existing lighting in the neighborhood is limited to standard residential fixtures (porch lights, driveway lighting) with low illumination levels typical of small-town residential areas. There are no designated scenic corridors, visual resource protection overlays, or historically significant viewpoints in or around the project area.

Past emergency dewatering operations occasionally required temporary nighttime task lighting to support pump installation and monitoring. These lighting sources were short-term, portable, and localized but represented a noticeable departure from the neighborhood's typically low

nighttime light intensity. Present conditions reflect normal residential lighting levels, with no ongoing use of temporary work lights.

Reasonably Foreseeable Actions
Future activities in the area are expected to maintain or slightly improve overall visual conditions through routine landscaping, home maintenance, and minor public infrastructure work. Maintenance or repair of the dewatering system may necessitate short-term use of portable lighting during emergency operations or after-hours work, particularly if sudden increases in groundwater levels require immediate response. Such lighting would be temporary, limited in duration, and positioned to ensure worker safety while minimizing glare or spillover onto adjacent properties. No long-term above-ground installations or permanent lighting structures are anticipated that would alter the nighttime lighting environment or affect neighborhood character.

Cumulative Impacts
Cumulative visual impacts are minimal in this context, due to the built-out nature of the neighborhood and the integration of infrastructure into existing visual patterns. These include:

- **Modified Visual Setting:** Removal of the existing residence would result in a localized change in the immediate viewshed, while remaining consistent with surrounding urban and infrastructure features.
- **Temporary Visual Disturbance:** Demolition and construction activities may cause short-term visual changes, including equipment, exposed soils, and minor lighting, consistent with typical urban maintenance.
- **Visual Stabilization Through Restoration:** The Proposed Action includes full restoration of disturbed areas (e.g., regrading, reseeding), ensuring long-term visual consistency.
- **Permanent Visual Changes:** All project components will be located below grade or screened, with no permanent lighting installations or changes to the visual landscape. The only permanent visual change is removal of the residential structure.

The Proposed Action Alternative and related foreseeable activities would not significantly contribute to adverse cumulative effects on visual resources or lighting conditions. The area's residential character will be maintained, with improved visual conditions expected following the resolution of groundwater-related damage.

Under the No Action Alternative, existing visual conditions would persist, including continued evidence of groundwater-related impacts such as surface staining or landscape degradation, resulting in no improvement to overall visual quality.

Noise

Past and Present Actions
The Sunset Mine Project Area is located in a quiet residential neighborhood of Red Lodge, Montana, where ambient noise levels are generally low. Historically, noise from early 20th-century coal mining operations would have included machinery and transport activity, but these ceased permanently by 1932. Since then, the area has been developed for residential use, with typical noise sources limited to local vehicle traffic, yard maintenance, and occasional construction. Recent installation and operation of dewatering pumps introduced minor intermittent sound, but the use of residential-grade or insulated equipment has kept current noise levels well within community norms.

Reasonably Foreseeable Actions
Future noise in the Project Area is expected to remain limited to short-term construction or maintenance associated with residential and municipal infrastructure activities. Operation of a

primarily gravity-based dewatering system would generate negligible long-term noise. No new long-term or high-intensity noise sources are anticipated in the area.

Cumulative Impacts
Cumulative noise impacts for the Proposed Action Alternative are minimal and consistent with a quiet, low-density urban setting. These include:

- **Temporary Construction Noise:** Demolition and construction activities would result in short-term increases in daytime noise, consistent with typical urban infrastructure work.
- **Minimal Operational Noise:** Any dewatering system components would generate little to no long-term noise, particularly if gravity flow is utilized.
- **Stable Noise Environment:** The Project would occur within an existing residential setting where cumulative noise levels remain low and below nuisance thresholds.
- **No Permanent Noise Sources:** The Proposed Action will not introduce any permanent noise-generating infrastructure or alter existing land use compatibility.

The cumulative effect of noise from past, present, and reasonably foreseeable actions is negligible. The Proposed Action Alternative includes short-term construction activity that would be limited to daytime hours.

Under the No Action Alternative, existing noise conditions would remain unchanged, with no additional sources introduced but also no reduction in intermittent noise associated with ongoing groundwater issues or emergency response activities.

Transportation

Past and Present Actions
Transportation infrastructure in the Sunset Mine Project Area has evolved from historic mining access routes to modern residential streets. The original mine site was accessed via unimproved tracks, which were later replaced by paved roads and alleys as Red Lodge expanded and residential development replaced industrial land uses. Today, local roads such as Grant Avenue, McGillen Avenue, and adjacent alleys provide access to single-family homes and city utilities. Traffic is light and primarily consists of local residents, delivery vehicles, and service providers. The area has no transit service or designated bike lanes, and no major traffic generators exist in the immediate vicinity. Temporary construction for sump installation in 2024 caused brief lane closures and minor access limitations but did not affect emergency response or long-term circulation.

Reasonably Foreseeable Actions
Future transportation activity in the neighborhood is expected to remain low-volume and local in nature. Minor utility upgrades, road resurfacing, and continued maintenance of the dewatering system may result in occasional short-term access restrictions or detours. No major roadway expansions, traffic signal installations, or new development projects are planned in the area. Emergency services and maintenance access will continue to rely on the existing grid of local streets.

Cumulative Impacts
Cumulative transportation impacts for the Proposed Action Alternative include:

- **Minimal Traffic Increase:** The Proposed Action would generate minor, short-term construction traffic consistent with typical residential infrastructure work.
- **Temporary Construction Disruption:** Project activities may cause brief access limitations or minor delays but would not affect emergency response or long-term circulation.

- **Maintained Road Conditions:** Any temporary impacts to road surfaces would be addressed through standard restoration practices following construction.
- **No Long-Term Changes:** The project does not modify the roadway layout, introduce new vehicle types, or require traffic control beyond the construction phase.

The Proposed Action Alternative contributes to minor short-term transportation impacts typical of localized residential infrastructure projects. With appropriate traffic control and staging, cumulative impacts on transportation will remain negligible.

Under the No Action Alternative, existing transportation conditions would persist, with continued potential for roadway and access disruptions associated with groundwater-related damage and maintenance needs.

Hazardous and Solid Waste

Past and Present Actions

The Sunset Mine Project Area has no known history of hazardous material storage, waste disposal, or industrial chemical use. Early 20th-century coal mining operations were limited in scale and did not involve ore processing or the use of hazardous substances. Following mine closure, the Site was redeveloped for residential use, and waste generation has been limited to typical household solid waste streams managed under municipal services. Recent excavation and sump installation generated minor amounts of spoil material and construction debris, all of which were handled using standard disposal practices. Water quality testing of groundwater discharged from the sump has shown no evidence of contamination, and no regulated hazardous substances have been detected.

Reasonably Foreseeable Actions

Future activities associated with sump operation or utility maintenance may result in the generation of small quantities of solid waste (e.g., piping, soil, packaging materials), but no hazardous waste is anticipated. Should additional excavation occur, there is a low potential for encountering legacy materials (e.g., buried debris) from past residential or mining activity, though this risk is minimal given previous site investigations. The Site is not listed on any state or federal hazardous site registries, and no new waste-generating facilities are proposed.

Cumulative Impacts

Cumulative impacts from hazardous and solid waste for the Proposed Action Alternative include:

- **Minimal Hazardous Waste Risk:** The Proposed Action would occur in an area with no known contamination, resulting in low potential for hazardous waste impacts.
- **Controlled Construction Waste:** Solid waste generated during demolition or construction would be minimal and managed in accordance with applicable regulations and standard disposal practices.
- **Low Risk to Human Health:** Project activities would not introduce hazardous materials or increase exposure risks to the public or environment.
- **Negligible Contribution to Waste Stream:** The Project would contribute only minor, short-term waste to the regional system and would not affect long-term waste management conditions.

The Proposed Action Alternative, when combined with past and foreseeable activities, would not present any significant cumulative impacts related to hazardous or solid waste. All project waste would be handled and disposed of in accordance with local, state, and federal regulations.

Under the No Action Alternative, existing conditions would persist with no additional waste generation, but the potential for increased solid waste from recurring property damage and maintenance would remain.

Greenhouse Gases

Per Executive Order 14154, Climate Change is no longer required for analysis. However, this analysis is still required for MEPA.

Past and Present Actions

Past and present activities in the Project Area have generated only minimal greenhouse gas (GHG) emissions, consistent with typical residential neighborhoods in Red Lodge, Montana. Existing sources include home heating, personal vehicle use, and routine municipal services such as snow removal and waste collection. During the July 2024 groundwater flooding event, temporary use of diesel-powered pumps increased short-term CO_2, CH_4, and N_2O emissions associated with combustion. Since installation of the electric dewatering system, operational GHG emissions have declined due to lower energy intensity and reliance on grid-supplied electricity rather than diesel generators. No industrial facilities, commercial boilers, or high-energy processes are present in the project vicinity. Overall, past and current actions indicate that GHG contributions from the project area remain low and consistent with small-town residential emission profiles.

Reasonably Foreseeable Actions

Future GHG emissions in the Project Area are expected to remain modest and associated with surrounding residential activity, vehicular travel, and municipal infrastructure work. Occasional construction (e.g., utility, roadway, or stormwater improvements) may generate short-term emissions. Operation of the primarily gravity-based dewatering system would result in minimal ongoing emissions. Broader climate trends may influence regional emissions but would not substantially affect site-specific conditions.

Cumulative Impacts

Cumulative GHG impacts from the Proposed Action Alternative include:

- **Minor Construction Emissions:** Demolition and construction activities would generate short-term GHG emissions from equipment use and material transport.
- **Reduced Fossil Fuel Use:** Elimination of emergency diesel pumping would reduce cumulative fuel consumption and associated emissions.
- **Minimal Operational Emissions:** The primarily gravity-based system would result in negligible long-term emissions, with only minor indirect emissions from intermittent electricity use if needed.
- **Avoided Future Emissions:** By preventing flooding, the Project would eliminate the need for repeated emergency response activities that generate additional GHG emissions.
- **Reduced Site Energy Demand:** Removal of the existing residence would eliminate ongoing household energy use at the Project Area.

When combined with past and reasonably foreseeable actions, the Proposed Action Alternative would not contribute any significant adverse cumulative impacts to GHG emissions. Instead, it would provide a long-term net benefit by reducing reliance on emergency diesel pumping and supporting stable, energy-efficient residential conditions.

Under the No Action Alternative, continued reliance on emergency pumping and unresolved groundwater issues would result in higher cumulative greenhouse gas emissions over time compared to the Proposed Action Alternative.

Socioeconomics

Past and Present Actions

The Sunset Mine Project Area, now a residential neighborhood in Red Lodge, Montana, has transitioned from early 20th-century coal mining activity to stable urban development. Historically, mining supported regional employment but ceased operations in 1932, with no long-term economic base remaining from extractive industries. Presently, the neighborhood contributes to the local housing market and supports the City's service-based economy. Present socioeconomic conditions in Red Lodge are shaped by tourism, service-sector employment, construction trades, and a growing reliance on seasonal and long-term rental housing. The neighborhood contributes to the City's housing supply, including a mix of owner-occupied residences and rental properties that support local workforce and tourism-related demand. In July 2024, flooding due to groundwater buildup at the sealed mine portal caused structural damage to a residence, resulting in unexpected financial burden, displacement, and repair costs for the affected homeowner. This event also raised concerns about long-term property value stability and utility infrastructure resilience.

Reasonably Foreseeable Actions

Future socioeconomic conditions in the area are expected to remain stable, with continued residential use in surrounding properties and limited infrastructure investment. No large-scale development or population growth is anticipated. Ongoing municipal infrastructure improvements and groundwater management may support neighborhood stability. Localized construction activities may provide minor, short-term economic benefits through labor and material demand.

Cumulative Impacts

Cumulative socioeconomic effects the Proposed Action Alternative include:

- **Economic Risk Reduction:** The Project would reduce the potential for future costs associated with groundwater damage and infrastructure impacts.
- **Preservation of Surrounding Property Values:** Improved site stability and reduced flood risk would support property values in the surrounding neighborhood.
- **Minor Reduction in Housing Availability:** Removal of the existing residence would result in a localized loss of one housing unit, with negligible effect on overall housing supply.
- **Limited Construction-Related Economic Activity:** Demolition and construction would provide modest, short-term economic benefits.
- **Long-Term Cost Avoidance:** Reducing groundwater-related damage would lower future repair and emergency response costs for the City and nearby properties.

The Proposed Action Alternative contributes positively to socioeconomic conditions by addressing a significant infrastructure and livability issue. When considered alongside past and foreseeable public investments, it would support neighborhood stability, economic resilience, and the long-term functionality of residential properties.

Under the No Action Alternative, continued groundwater impacts would likely result in ongoing property damage, reduced property values, and increased financial strain on homeowners and the City, negatively affecting long-term socioeconomic stability.

Environmental Justice

Per Executive Order 14154, Environmental Justice is no longer required for analysis.

Short-Term Uses and Long-Term Productivity

Past and Present Actions
The Sunset Mine Project Area was originally used for underground coal extraction in the early 20th century, which altered subsurface conditions and disrupted natural landforms. Following mine closure in 1932, the area transitioned to residential development, establishing long-term land use focused on housing and public infrastructure. Presently, the area is fully built-out with single-family homes and local streets. In 2024, groundwater flooding linked to the sealed mine portal disrupted residential land use, temporarily rendering one home uninhabitable and reducing the functional use of other affected property.

Reasonably Foreseeable Actions
Future actions are expected to include municipal infrastructure maintenance, utility upgrades, and ongoing groundwater management in the surrounding area. These activities may result in short-term disturbance but would support long-term functionality. No major shifts in land use or productivity are anticipated beyond localized infrastructure improvements.

Cumulative Impacts
Cumulative impacts to short-term use and long-term productivity for the Proposed Action Alternative include:

- **Temporary Construction Disruption:** Demolition and construction would result in short-term disturbances to access and local conditions within the Project Area and along the construction corridor.
- **Change in Site Use:** Removal of the existing residence would result in a localized shift from residential use to an infrastructure-managed condition.
- **Improved Long-Term Productivity:** By reducing groundwater impacts, the Project would protect structures and infrastructure, supporting area property use and value.
- **Maintained Neighborhood Function:** The Project remains consistent with zoning and planning goals and would support continued productivity of the surrounding residential area.

The Proposed Action would support sustainable land use by minimizing short-term impacts while improving long-term infrastructure stability and drainage conditions, with only minor contributions to stormwater flows and negligible cumulative impacts. Based on this analysis, the Proposed Action would not result in disproportionately high and adverse human health or environmental effects on minority or low-income populations.

Under the No Action Alternative, ongoing groundwater impacts would continue to disrupt residential use and degrade property conditions, resulting in reduced long-term productivity and diminished stability of the affected properties.

Unavoidable Adverse Impacts

Past and Present Actions
Historic coal mining and subsequent urban development in the Sunset Mine Project Area have caused irreversible changes to landform stability, soil integrity, and subsurface conditions. These past activities introduced long-term risks such as groundwater migration, mine voids, and subsidence potential. Presently, residential infrastructure overlies these legacy features, and while mitigation measures (e.g., the dewatering system) reduce immediate hazards, some residual geotechnical uncertainties remain. Emergency installation of the sump system in 2024 involved soil disturbance and short-term visual and access impacts.

Reasonably Foreseeable Actions
Future utility maintenance may generate additional unavoidable short-term impacts, such as temporary excavation, vegetation removal, noise, and traffic disruption. Despite best

practices, these effects are inherent to urban infrastructure work and cannot be entirely eliminated. There is a low but persistent risk of encountering buried debris, undocumented subsurface features, or localized soil instability that may require additional remediation.

Cumulative Impacts
Unavoidable adverse impacts from the Proposed Action Alternative, in combination with past and foreseeable activities, include:

- **Temporary Land Disturbance:** Demolition and construction would result in short-term soil disturbance, including compaction and temporary loss of vegetative cover.
- **Noise and Dust:** Demolition and construction activity may contribute to brief increases in ambient noise levels and dust generation.
- **Visual Disruption:** Equipment staging, structure removal, open trenches, and disturbed roads may temporarily degrade neighborhood aesthetics.
- **Residual Geotechnical Risk:** Despite mitigation, the presence of legacy mine workings and altered subsurface drainage would continue to present a long-term background risk.

While these adverse effects are localized, short in duration, and minimized through mitigation, they are considered unavoidable in the context of managing subsurface legacy issues within a developed residential setting. The long-term benefit of hazard reduction and infrastructure protection outweighs these temporary impacts.

Under the No Action Alternative, unavoidable adverse impacts associated with groundwater intrusion, soil instability, and property damage would persist or worsen over time, contributing to increased cumulative degradation of site conditions.

Prime Farmlands

Not Applicable

Performance Standards and Monitoring Plan

1. **Groundwater Elevation Standards**

   Performance Metric: Maintain groundwater elevation at or below the critical threshold needed to prevent structural intrusion.

   - **Threshold:** Water level stays at least 12 inches below the recorded, pre-demolition lowest foundation elevation of the removed residence.
   - **Monitoring:**
     - Daily automated logging of sump pump operation cycles.
     - Weekly physical measurements from piezometers during first year; monthly thereafter.
   - **Significance Threshold (MEPA):**
     - Groundwater rises above established thresholds for more than 48 consecutive hours without an identifiable cause or corrective action.

2. **Pump Reliability and System Function (If Used)**

   Performance Metric: Dewatering system maintains routine operational capacity with minimal outages.

   - **Threshold:**
     - Pump uptime of ≥ 95% over a 30-day operating period.
     - No more than one unplanned outage lasting longer than 4 hours per quarter.
   - **Monitoring:**
     - Weekly visual inspection; quarterly performance review.

- Annual electrical and mechanical servicing.
- **Significance Threshold (MEPA):**
  - Repeated outages or system failures leading to uncontrolled groundwater release, requiring additional emergency pumping or posing renewed risk to property.

3. **Discharge Quality and Compliance**

   Performance Metric: Discharge meets CDGP requirements and demonstrates no degradation to the municipal stormwater system.

   - **Threshold:**
     - Turbidity ≤ 100 NTU (per permit).
     - No detectable oil sheen.
   - **Monitoring:**
     - Daily visual assessments by field personnel.
     - Twice-monthly turbidity sampling.
   - **Significance Threshold (MEPA):**
     - Permit exceedances occurring more than twice in a 12-month period or any exceedance associated with environmental harm downstream.

4. **Emergency Response Readiness**

   Performance Metric: The Project Area maintains sufficient preparedness to respond to pump malfunction, power outages, or rapid groundwater rise.

   - **Threshold:**
     - Updated contact list for DEQ AML, City Public Works, and emergency responders maintained at all times.
     - Backup pump and generator availability within 4 hours of a failure event.
   - **Monitoring:**
     - Semiannual review of emergency protocols.
     - Annual emergency response exercise or drill.
   - **Significance Threshold (MEPA):**
     - Any instance in which delayed response results in property flooding, compromised utilities, or public safety hazard.

Adaptive Management

Adaptive management would be applied throughout implementation of the Proposed Action Alternative to ensure that Performance Standards are achieved and that the dewatering system, groundwater conditions, and discharge water quality continue to meet Project objectives. Adaptive management is an iterative process that uses monitoring data to guide timely adjustments in project operations, corrective actions, or maintenance needs.

Performance Standards for the Project would include:

- Maintaining groundwater levels below thresholds that prevent seepage or structural damage to nearby properties.
- Ensuring that discharge from the dewatering system remains clear, non-turbid, and free of oil or other contaminants, consistent with “minimal impact” monitoring requirements under the Construction Dewatering General Permit (CDGP).
- Ensuring that the reestablished drainage and long-term conveyance solutions operate effectively without causing erosion, nuisance flooding, or system failures.
- Maintaining public and property safety during construction, operation, and dewatering.

Monitoring results, including groundwater elevations from piezometers, pump operation cycles, flow rates, and discharge water quality data would be evaluated against these standards. A Dewatering Plan would be developed to include turbidity, visual conditions, and grab samples at the discharge point that would guide operational decisions and identify any required corrective measures. Water quality sampling results (e.g., nitrate, iron, phosphorus) collected from the dewatering discharge and nearby sources would also be used to verify continued compliance and to confirm that mine-related contaminants are not mobilizing as dewatering continues.

If monitoring identifies exceedances, performance deficiencies, or unexpected trends (such as rising groundwater levels, higher-than-expected turbidity, or changes in recharge behavior), DEQ AML would implement corrective actions. These may include adjusting pump rates, modifying pump intake screening, altering discharge routing, performing maintenance on the sump or pipelines, or temporarily diverting flow to the city sewer system if contamination is detected. Adaptive management actions would be documented and coordinated with the City of Red Lodge. The approach would ensure that the Project remains responsive to field conditions, protects nearby properties, and maintains compliance with environmental and safety standards throughout the life of the dewatering and long-term drainage improvements.

7.0 MEPA/NEPA SIGNIFICANCE DETERMINATION

This section evaluates the overall significance of the impacts of the Proposed Action and No Action Alternative, applying both the Montana Environmental Policy Act (MEPA) significance criteria in ARM 17.4.608(1)(a) through (g) and the National Environmental Policy Act (NEPA) context and intensity factors in 40 CFR § 1501.3(d). The analysis is based on the affected environment and environmental consequences summarized in Sections 4.0 and 5.0, including direct, indirect, and cumulative effects on the physical and human environment.

7.1 MEPA Significance Criteria (ARM 17.4.608)

ARM 17.4.608(1)(a)–(g) establishes seven criteria for determining the significance of impacts to the quality of the human environment. Each criterion is addressed below for the Proposed Action.

(a) The severity, duration, geographic extent, and frequency of occurrence of the impact.

As described in Sections 5.1 through 5.25, construction-related impacts under the Proposed Action would be minor in severity, limited in geographic extent to a small urban project footprint, and short-term in duration. Temporary adverse effects would include demolition of one residence, localized noise, dust, traffic disruption, and minor soil and vegetation disturbance, all of which would be mitigated through best management practices and site restoration. Long-term effects would be beneficial because the Project would reduce groundwater levels, mitigate structural flooding, and improve neighborhood stability by replacing temporary pumping with a permanent gravity conveyance system. No resource would experience an adverse impact of sufficient severity, duration, geographic extent, or frequency to rise to the level of significance under ARM 17.4.608(1)(a).

(b) 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.

The modest construction-related impacts described above are reasonably certain to occur, but they are well-understood, temporary, and subject to standard construction controls and permit conditions that provide reasonable assurance they will remain minor. There is reasonable assurance that more severe impacts—such as long-term water quality degradation, substantial soil erosion, or widespread damage to municipal infrastructure—will not occur because the Project is confined to previously disturbed rights-of-way, flows will be managed within the existing stormwater system under applicable permits, and monitoring and adaptive management will be implemented. Accordingly, the probability and nature of likely impacts do not indicate significance under ARM 17.4.608(1)(b).

(c) The growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative impacts.

The Proposed Action is a maintenance-type infrastructure improvement designed to manage groundwater associated with historic mine workings and does not create new access, capacity, or services that would induce growth or development beyond what is already reasonably foreseeable in the City's residential zoning and land use plans. At a watershed scale, reasonably foreseeable actions in the Rock Creek basin include continued residential infill, routine municipal infrastructure upgrades, and ongoing irrigation canal operations; the incremental contribution of the Project to these cumulative effects is minor because project flows are small relative to existing stormwater discharges, occur through existing municipal infrastructure, and are subject to water quality controls under the Construction Dewatering General Permit. The Project does not meaningfully contribute to growth-inducing effects or adverse cumulative impacts that would be considered significant under ARM 17.4.608(1)(c).

(d) The quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources or values.

The Project Area is a developed residential neighborhood that lacks unique, rare, or particularly fragile environmental resources. There are no wetlands, riparian areas, alluvial valley floors, prime farmlands, or designated critical habitats within the project footprint, and no threatened or endangered species or other special-status species are expected to be adversely affected. Rock Creek receives stormwater discharges under existing municipal infrastructure, and Project-related flows will not measurably alter water quality or aquatic habitat beyond the current condition. Given the absence of highly unique or fragile resources and the limited magnitude of impacts, the Project's effects are not significant under ARM 17.4.608(1)(d).

(e) The importance to the state and to society of each environmental resource or value that would be affected.

The Project affects primarily local resources—residential structures, city streets and alleys, and municipal stormwater utilities—that are important to the City of Red Lodge and affected homeowners but are not of unusual statewide or regional importance. The Project supports broader state and societal values by reducing public health and safety risks associated with

flooded residences and unstable mine-affected ground, consistent with DEQ's responsibilities under SMCRA Title IV and Montana's abandoned mine reclamation statutes. Because affected resources are not of such statewide importance that minor, localized impacts would be significant in a MEPA sense, this criterion is not triggered.

(f) 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 actions.

The Project involves site-specific mitigation of groundwater flooding at a single abandoned mine portal and does not establish a programmatic approach, binding policy, or precedent that would commit DEQ to future actions with significant impacts. Future AML projects will continue to be evaluated on a case-by-case basis through MEPA and, where applicable, NEPA, and nothing in this decision would limit the range of alternatives or level of review for other projects. Therefore, the Proposed Action does not set a precedent for future actions with significant impacts under ARM 17.4.608(1)(f).

(g) Potential conflict with local, state, or federal laws, requirements, or formal plans.

As detailed in Sections 2.5 and 6.6, the Proposed Action is consistent with applicable local zoning and land use designations, complies with state and federal water quality and waste management statutes, and will be implemented under required permits and approvals, including the Construction Dewatering General Permit and municipal authorizations. The Project does not conflict with any formally adopted land use plans, water quality standards, or other environmental requirements, and therefore does not raise significance concerns under ARM 17.4.608(1)(g).

MEPA Conclusion

Considering the criteria in ARM 17.4.608(1)(a) through (g) and the analysis presented in Sections 4.0 and 5.0, DEQ concludes that the Proposed Action will not significantly affect the quality of the human environment. Preparation of an environmental impact statement is not required under MEPA.

7.2 NEPA Significance Determination (40 CFR § 1501.3)

Under NEPA, an agency determines the appropriate level of review by considering the significance of effects in terms of context and intensity as described in 40 CFR § 1501.3(d). For this Project, the context is local: the Project Area is limited to a small portion of the City of Red Lodge, and the effects are restricted to the immediate neighborhood and municipal infrastructure. At this scale, the intensity of effects is low because impacts are primarily short-term construction-related disturbances and long-term mitigation of existing groundwater hazards, with no highly uncertain, unique, or controversial risks identified.

The analysis in Sections 5.1 through 5.25 demonstrates that the Proposed Action would not cause significant effects to public health, safety, or the environment, would not adversely affect historic properties or cultural resources, would not disproportionately impact low-income or minority populations, and would not adversely affect threatened or endangered species or designated critical habitat. The Project does not contribute

meaningfully to adverse cumulative effects when considered with other past, present, and reasonably foreseeable actions in the Rock Creek watershed. Based on this record, the Proposed Action is not expected to result in significant effects on the human environment as that term is used in NEPA and the CEQ regulations.

Accordingly, preparation of an environmental impact statement is not required under NEPA, and this environmental assessment will support the issuance of a Finding of No Significant Impact (FONSI) for the Proposed Action.

7.3 CONSULTATION

7.3.1 List of Agencies, Organizations, and Individuals Consulted

Preparation of this EA included coordination with federal, State, and local agencies, as well as affected property owners and nearby residents. Consultation focused on agencies and stakeholders with jurisdiction, technical expertise, or a direct interest in groundwater management, public safety, stormwater infrastructure, cultural resources, and biological resources in the Project Area.

DEQ coordinated with the Office of Surface Mining Reclamation and Enforcement (OSMRE) regarding Project eligibility, funding, and NEPA review because OSMRE is the federal action agency for the SMCRA Title IV funding decision. DEQ also reviewed biological, wetlands, and jurisdictional waters information using U.S. Fish and Wildlife Service (USFWS) IPaC materials, National Wetlands Inventory mapping, and site-specific observations to confirm that the Project is not expected to affect listed species, critical habitat, wetlands, or other waters requiring federal permitting.

At the State level, DEQ coordinated internally among the Abandoned Mine Lands Program, Water Protection Bureau, and other relevant programs regarding dewatering discharge, water quality monitoring, solid waste handling, and construction best management practices. DEQ also consulted with the Montana State Historic Preservation Office (SHPO) regarding potential effects to historic properties, including the Sunset Mine portal, and used information from Montana Fish, Wildlife & Parks (FWP), the Montana Natural Heritage Program (MTNHP), the Montana Department of Natural Resources and Conservation (DNRC), and the Montana Bureau of Mines and Geology (MBMG) to evaluate wildlife, hydrogeologic, and geologic conditions in the Project Area.

Local coordination occurred primarily with the City of Red Lodge, including Public Works and Planning staff, regarding stormwater system tie-ins, right-of-way use, traffic control, restoration standards, and ongoing emergency response planning. Carbon County emergency services and planning staff were also informed of the Project to help ensure continued emergency access and consistency with local land use considerations.

DEQ also coordinated with affected property owners, adjacent residents, contractors, and local technical consultants during Project scoping and design. Their input helped inform site access planning, property acquisition, construction timing, restoration expectations, and measures to reduce disruption in the neighborhood.

Where the term "consultation" is used in the subsections below, it refers to coordination, information sharing, or requests for agency or stakeholder input appropriate to each entity's role and does not imply formal government-to-government Tribal consultation unless expressly stated.

7.3.1.1 Federal Agencies

DEQ coordinated with OSMRE regarding Project scope, AML eligibility, and the federal NEPA process. DEQ also reviewed USFWS IPaC information and other available biological data to evaluate potential effects on federally listed species and critical habitat and concluded that the Project is not expected to adversely affect those resources. In addition, DEQ reviewed wetlands mapping, site conditions, and discharge routing to confirm that the Project would occur in uplands and previously disturbed urban rights-of-way and would not require a Section 404 permit from the U.S. Army Corps of Engineers.

7.3.1.2 State Government Agencies

State coordination included internal review by DEQ programs responsible for abandoned mine lands, water quality, and related environmental compliance. DEQ also coordinated with SHPO on cultural resource considerations and with FWP and MTNHP on wildlife and special-status species information. DNRC provided input regarding hydrogeologic conditions and water rights considerations, and MBMG information helped inform the Project's understanding of local geology, mine features, and subsurface conditions.

7.3.1.3 Local Governments and Organizations

The City of Red Lodge was a key local partner throughout Project development. Coordination with the City addressed use of the municipal stormwater system, construction access, traffic control, right-of-way restoration, and emergency planning related to flooding and infrastructure protection. Carbon County emergency and planning personnel were also kept informed, as appropriate, regarding public safety and access considerations.

7.3.1.4 Non-Governmental Organizations (NGOs) and Community Stakeholders

DEQ coordinated directly with affected property owners and nearby residents because the Project is located in an established residential neighborhood and directly responds to flooding and subsurface instability affecting private property. DEQ also coordinated with contractors and technical consultants involved in site investigation, design, and implementation. Input from these stakeholders helped shape Project design, construction sequencing, restoration planning, and measures intended to reduce neighborhood disruption while addressing the underlying drainage problem.

7.4 COMPLIANCE WITH STATUTES, REGULATIONS, AND EXECUTIVE ORDERS

7.4.1 Regulatory Compliance and Permitting

The Proposed Action for the Sunset Mine Dewatering Project must comply with a range of federal, State, and local statutes, regulations, and executive orders to ensure the protection of environmental resources, cultural properties, and public health. The Project is funded under DEQ AML and implemented by the Montana Department of Environmental Quality (DEQ) with federal oversight by the Office of Surface Mining Reclamation and Enforcement (OSMRE). This section outlines key regulatory requirements and the project's compliance actions.

7.4.2 National Environmental Policy Act (NEPA)

NEPA is the federal law that requires federal agencies to consider the environmental effects of their actions and reasonable alternatives before making decisions. For this Project, the Office of Surface Mining Reclamation and Enforcement (OSMRE) is the federal action agency because it administers and approves SMCRA Title IV funding used to implement the Proposed Action. This EA was prepared by DEQ, in coordination with OSMRE, to provide the environmental information OSMRE needs to comply with NEPA and the Council on Environmental Quality regulations at 40 CFR parts 1500–1508.

OSMRE will review this EA, consider public and agency comments, and determine whether to adopt the analysis and issue its own Finding of No Significant Impact (FONSI) or take other action under NEPA. Based on the analysis of direct, indirect, and cumulative impacts in Sections 4.0 and 5.0, and the MEPA/NEPA significance discussion in Section 7, DEQ and OSMRE anticipate that the Proposed Action will not result in significant environmental effects and that an environmental impact statement is not required.

7.4.3 Montana Environmental Policy Act (MEPA)

Compliance: MEPA is a statutorily mandated process in which a State of Montana agency conducts an environmental review before deciding on a non-exempt State action that may impact the human environment. As the lead implementing agency, Montana DEQ has directed this EA to be prepared to meet MEPA standards, including descriptions of the Purpose and Need for the Proposed Action, the affected environment, alternatives considered, the Proposed Action Alternative, analyses of potential direct, secondary, and cumulative impacts to the human and physical environments, mitigation measures where appropriate, and public transparency.

7.4.4 Clean Water Act (CWA), Section 402 – Montana Pollutant Discharge Elimination System (MPDES)

Compliance: The dewatering discharge from the sump system is regulated under Montana's delegated NPDES authority. DEQ issued a General Permit Authorization for short-term construction-related dewatering under the MPDES program. Discharge monitoring and BMPs (e.g., erosion control, filtration) are in place to ensure water quality standards are maintained.

7.4.5 Clean Water Act, Section 404

Compliance: The U.S. Army Corps of Engineers reviewed the Project and determined that no waters of the U.S. or jurisdictional wetlands are affected. No Section 404 permit is required.

7.4.6 Montana Water Quality Act

Compliance: Dewatering activities must not violate Montana surface water quality standards. Discharge from the sump system flows into the municipal stormwater system and eventually to Rock Creek. Water quality sampling confirms that turbidity, pH, and total suspended solids are within applicable thresholds, ensuring compliance with state law.

7.4.7 Endangered Species Act (ESA)

Compliance: The U.S. Fish and Wildlife Service (USFWS) IPaC tool confirmed no listed species or designated critical habitat are present in the project area. A "No Effect" determination was made, and no further consultation is required.

7.4.8 Montana Nongame and Endangered Species Conservation Act

Compliance: No state-listed species or critical habitats are affected by this project. Montana Fish, Wildlife & Parks (FWP) was consulted during Project scoping and raised no concerns regarding fish or wildlife habitat impacts.

7.4.9 National Historic Preservation Act (NHPA), Section 106

Compliance: The Montana State Historic Preservation Office (SHPO) reviewed the Project under Section 106 and confirmed a finding of "No Adverse Effect" related to the historic Sunset Mine portal. SHPO consultation records are included in Appendix H. Inadvertent discovery procedures will be followed if cultural resources are encountered during excavation.

7.4.10 Montana State Antiquities Act

Compliance: DEQ coordinated with SHPO in compliance with the Montana State Antiquities Act to ensure cultural resources are protected. No known cultural sites are located within the active work zone.

7.4.11 Executive Order 13175 – Consultation with Indian Tribal Governments

Executive Order 13175 directs federal agencies to engage in government-to-government consultation with federally recognized Tribal governments when proposed federal actions may have substantial direct effects on Tribal communities, lands, resources, or treaty rights. For this Project, OSMRE is the federal action agency responsible for determining whether government-to-government consultation is required under Executive Order 13175 as part of its NEPA process. DEQ provided OSMRE with information about the Project's location, scope, and potential effects to support OSMRE"s consultation responsibilities. The Project Area is located within a fully developed residential neighborhood on private and municipal lands, and no Triabl lands or known Tribal cultural resources are present in the immediate vicinity. OSMRE will determine whether to initiate or document formal government-to-government consultation with any Tribes as part of its separate decision-making process under NEPA and SMCRA Title IV. Executive Order 11988 – Floodplain Management. Based on this context, no Tribal consultation was conducted for the Proposed Action.

Compliance: The Project Area lies outside FEMA-designated floodplains. Nevertheless, the design mitigates potential drainage and ponding issues using topographic grading and surface stabilization.

7.4.12 Resource Conservation and Recovery Act (RCRA)

Compliance: No hazardous waste is generated. Construction waste, including excavated material and packaging, is disposed of at licensed facilities. Any contaminated material encountered will be handled per DEQ solid waste and RCRA regulations.

7.4.13 Montana Solid Waste Management Act

Compliance: All solid waste generated by construction will be managed in accordance with DEQ requirements. The contractor is responsible for transporting waste to a state-licensed solid waste disposal facility.

7.4.14 Occupational Safety and Health Administration (OSHA) Regulations

Compliance: All Site work complies with OSHA standards for trenching, excavation, confined space entry, and worker safety. A Site-specific health and safety plan (HASP) is in place.

7.4.15 City of Red Lodge Local Regulations

Compliance: All site work, work within City right-of-way, and utility connections would comply with City of Red Lodge local regulations and requirements.

List of Contributors

The development of the Sunset Mine Drainage Project Environmental Assessment involved collaboration among State and federal agencies, local officials, environmental professionals, and community stakeholders. Their input and expertise were essential in preparing a thorough and accurate assessment of potential environmental and community impacts.

- **Montana Department of Environmental Quality (DEQ), Abandoned Mine Lands (AML) Program**
    - Provided Project leadership, funding administration, and environmental compliance oversight.
    - Coordinated environmental review, interagency consultation, and documentation under NEPA and MEPA.
    - Technical contributors included AML Project Managers, Environmental Specialists, and Public Outreach staff.
- **Office of Surface Mining Reclamation and Enforcement (OSMRE)**
    - Oversight agency over DEQ AML, ensuring federal compliance with NEPA and SMCRA.
    - Provided technical review and guidance on EA content, scope, and regulatory integration.
- **Montana State Historic Preservation Office (SHPO)**
    - Reviewed potential impacts to historic and cultural resources.
    - Contributed archaeological and cultural compliance expertise under NHPA and Montana Antiquities Act.
- **City of Red Lodge**
    - Supported planning, design, and integration of the dewatering system into municipal infrastructure.
    - Contributed insights from Public Works and Planning staff on stormwater routing, construction staging, and public safety coordination.
- **WWC Engineering (Project Engineers and Environmental Consultants)**
    - Led Project design, hydrologic assessments, civil engineering, and technical coordination.
    - Prepared environmental documentation, resource impact evaluations, and mitigation recommendations.
    - Provided field oversight and stakeholder engagement support.
- **Montana Fish, Wildlife & Parks (FWP)**
    - Provided technical input on wildlife habitat and species of concern.

- Confirmed absence of impacts to state-listed species or high-value wildlife areas.

- **Montana Department of Natural Resources and Conservation (DNRC)**
  - Reviewed water rights implications and groundwater conditions.
  - Provided hydrologic data and confirmed no additional permitting requirements.
- **Affected Property Owners and Adjacent Residents**
  - Offered critical Site-specific input on flooding impacts, construction concerns, and neighborhood access.
  - Participated in field discussions and supported development of the final sump design and restoration approach.
- **Carbon County Emergency Services and Local Stakeholders**
  - Ensured continuity of emergency access and risk mitigation for nearby residents.
  - Assisted with construction planning and contingency coordination.

Table of Required Permits and Authorizations

Permit / Authorization	Issuing Agency	Purpose	Status
Montana Pollutant Discharge Elimination System (MPDES) - General Permit for Construction Dewatering	Montana Department of Environmental Quality (DEQ)	Authorizes discharge of groundwater from sump system into municipal stormwater infrastructure; ensures compliance with state water quality standards.	**Issued (2025)**
Stormwater Pollution Prevention Plan (SWPPP)	Montana Department of Environmental Quality (DEQ)	Required under the Montana Pollutant Discharge Elimination System (MPDES) Construction General Permit to manage and prevent stormwater runoff from construction and dewatering activities from causing sediment or pollutant discharges	**To be prepared and submitted prior to the initiation of discharge to stormwater system**
Section 106 Review - National Historic Preservation Act	Montana State Historic Preservation Office (SHPO)	Determines impacts on cultural and historic properties; required for federal funding.	**Completed - No Adverse Effect (2025)**
City of Red Lodge Utility Connection Approval	City of Red Lodge Public Works Department	Allows sump discharge to connect to municipal stormwater infrastructure; ensures infrastructure compatibility.	**Approved (2025)**
Right-of-Way / Street Use Authorization	City of Red Lodge (Planning / Public Works)	Temporary access and staging in public rights-of-way during construction.	**To be issued prior to construction**
Solid Waste Disposal Authorization	Licensed Local Disposal Facility (per DEQ standards)	Ensures proper disposal of excavation spoils and construction debris in accordance with state solid waste regulations.	**Ongoing as needed**
Construction Safety Compliance	Occupational Safety and Health Administration (OSHA)	Compliance with federal safety standards for trenching, excavation, and equipment operation.	**Contractor Responsibility**

8.0 CONCLUSION AND FINDINGS

DEQ AML concludes that the Proposed Action for managing groundwater at the Sunset Mine Project Area, as described in the Proposed Action Alternative, would result in negligible to minor short-term direct, secondary, and cumulative impacts on the human and physical environment. Direct impacts would occur primarily during excavation, sump connection, and conveyance system installation, which are expected to last only a few days to several weeks depending on site conditions and construction sequencing. Secondary impacts such as temporary soil disturbance, minimal increases in particulate emissions, or brief visual and lighting changes may persist until final site stabilization, re-vegetation, and completion of system monitoring. Long-term cumulative impacts are expected to be overwhelmingly beneficial, as reducing groundwater elevation, addressing subsurface instability associated with historic mine features, and improving stormwater management will enhance neighborhood stability, public safety, and environmental resilience for decades.

As described in the MEPA/NEPA Significance Determination, any anticipated adverse impacts associated with the Proposed Action Alternative would be minor in scope, short in duration, fully mitigable, and limited in geographic extent. No sensitive environmental resources, threatened or endangered species, culturally significant properties, or critical habitat areas would be adversely affected. The long-term benefits of the Project, including reduced flood risk, improved groundwater control, enhanced infrastructure reliability, and strengthened emergency response preparedness, substantially outweigh any temporary construction-related effects.

The Proposed Action, implemented through the Proposed Action Alternative, would produce net beneficial outcomes by improving hydrologic stability, protecting human health and safety, supporting neighborhood socioeconomic conditions, and addressing damage to residential structures affected by the 2024 groundwater event. Based on the analysis conducted and consistent with ARM 17.4.608(1) and (2), DEQ AML finds that the Proposed Action would not constitute a major action significantly affecting the quality of the human environment under MEPA.

This environmental assessment provides the analysis DEQ relies on to make its determination under MEPA and that OSMRE will use to inform its decision under NEPA. DEQ anticipates issuing a determination that no further environmental review is required under MEPA, and OSMRE will determine whether to adopt this EA and issue a Finding of No Significant Impact for the Proposed Action under NEPA.

Based on the analysis contained in this environmental assessment, DEQ has determined that the Proposed Action would not cause significant adverse effects on the quality of the human environment. The identified adverse effects are localized, short term, and capable of being avoided, minimized, or mitigated through the design features, best management practices, permit conditions, monitoring commitments, and adaptive management measures described in this EA. When considered in context and intensity, the impacts of

the Proposed Action are not significant within the meaning of NEPA and the CEQ regulations at 40 CFR § 1501.3(d). Likewise, applying the significance criteria in ARM 17.4.608(1)(a) through (g), DEQ concludes that the Proposed Action will not significantly affect the quality of the human environment under MEPA. Accordingly, preparation of an environmental impact statement is not required. This EA supports OSMRE's issuance of a Finding of No Significant Impact under NEPA and DEQ's determination of non-significance under MEPA, and because no further MEPA analysis is required, an Environmental Impact Statement will not be prepared.

Prepared by WWC Engineering and DEQ AML Environmental Project Officers John Babcock and Amy Schmechel.

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John Babcock Date
AML Environmental Project Officer

Approved by:

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Jorri Dyer – Section Supervisor Date
Department of Environmental Quality

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