United States Department of Agriculture
Forest Service

Stibnite Gold Project

Draft Environmental Impact Statement

Forest Service, Region 4, Payette and Boise National Forests, Valley County, Idaho

August 2020

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Lead Agency:	USDA Forest Service
Cooperating Agencies:	U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, Idaho Governor's Office of Energy and Mineral Resources, Idaho Department of Lands, Idaho Department of Environmental Quality, Valley County
Responsible Official:	Linda Jackson, Forest Supervisor, Payette National Forest 500 N. Mission Street, Building 2, McCall, Idaho 83638 Phone: (208) 634-0700 Email: linda.jackson@usda.gov
For Information Contact:	Brian Harris, Public Affairs Officer, Payette National Forest 500 N. Mission Street, Building 2, McCall, Idaho 83638 Phone: (208) 634-6945 Email: brian.d.harris@usda.gov
Abstract:	This Draft Environmental Impact Statement (EIS) is a public document that discloses the direct, indirect, and cumulative effects of the proposed action and alternative actions for the Stibnite Gold Project. This document follows the format established in the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] Parts 1500–1508). It includes a discussion of the purpose and need for the proposal; alternatives to the proposal; the physical, biological, social and economic impacts of the proposed action and alternatives; and a listing of agencies and persons consulted. The document tiers to and incorporates by reference material in the Final EIS and record of decision (ROD) for the 2003 Land and Resource Management Plan (Forest Plan), as amended for the Payette National Forest, and the Final EIS and ROD for the 2010 Boise Forest Plan.
Submit Written Comments To:	**Linda Jackson, Payette Forest Supervisor** Stibnite Gold Project 500 N. Mission Street, Building 2, McCall, Idaho 83638

Submit Electronic Comments To: https://cara.ecosystem-management.org/Public/CommentInput?Project=50516

Please state "Stibnite Gold Project" in the subject line when providing electronic comments, or on the envelope when replying by mail. Electronic comments must be submitted in a common digital format such as plain text (.txt), rich text format (.rtf), Word (.doc, .docx) or PDF (.pdf).

Project Website: https://www.fs.usda.gov/project/?project=50516

Cover Photo Credits: Yellow Pine pit. Midas Gold, Stibnite Gold Project Plan of Restoration and Operations September 2016.

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USDA United States Department of Agriculture | Forest Service | Payette National Forest | 500 North Mission Street McCall, ID 83638 208-634-0700

File Code: 1950; 2810
Date: August 5, 2020

Dear Interested Party:

The Forest Service is seeking public comments on the Draft Environmental Impact Statement (DEIS) for the proposed Stibnite Gold Project (SGP). This document was prepared in accordance with the National Environmental Policy Act of 1969, as amended; the National Forest Management Act of 1976 (NFMA), 36 CFR 218; and all other applicable law, regulation, and policy. The DEIS considers approval of a plan of operations for mining, either as submitted by Midas Gold Idaho, Inc. or as reasonably modified to protect National Forest System (NFS) resources.

The proposed project is located on NFS lands that are open to mineral entry on the Payette National Forest (PNF) and Boise National Forest (BNF) on the Krassel and Cascade Ranger Districts, respectively. Components of the proposed project include the following: three open mine pits; ore processing facilities; development rock storage facilities; a tailings storage facility; a water treatment facility; access and haul roads; electrical transmission lines; and various other support facilities. The potentially affected area for the proposed project includes approximately 3,500 acres on federal, state, and private lands located in Valley County, Idaho.

Some of the proposed mining operations would be inconsistent with applicable PNF and BNF Forest Plan standards; therefore, project-specific amendments to the PNF and BNF Land and Resource Management Plans (LRMPs) would be required. The Notice of Intent (NOI) to prepare an EIS that was published on June 5, 2017 (82 FR 25759) indicated the possible need for plan amendments to address inconsistencies with Forest Plan standards, but the amendments that would be needed were not identified at that time. The proposed plan amendments are expected to be approved in the decision document for the Stibnite Gold Project and these plan amendments only apply to this project (36 CFR 219.14 paragraphs (a) and (c)). The details of the proposed amendments and which requirements of 36 CFR §§ 219.8 through 219.11 are likely to be directly related to the amendments, can be found in Appendix A of the DEIS.

The Environmental Protection Agency (EPA) published a Notice of Availability (NOA) for the DEIS in the Federal Register on August 14, 2020. Concurrent with the NOA of the DEIS publication in the Federal Register, a legal notice was published in the PNF and BNF newspaper of record, *The Idaho Statesman* on August 14, 2020 and a courtesy copy of the legal notice will also be provided to the McCall *Star-News* for publication on August 13, 2020. The legal notice serves as the public notification of information for the proposed plan amendments, as required in the 2012 planning rule (36 CFR 219.13(b)(2) and 36 CFR 219.16(a)(2)).

The Forest Service encourages the public to review and provide comments on the DEIS; comments received during the public comment period will be considered in the preparation of the Final Environmental Impact Statement (FEIS). The legally required comment period for a DEIS and for project-specific Forest Plan amendments is 45 days following the date of publication of the NOA and the legal notice, respectively. As the responsible official, I have decided to extend the comment period by 15 days leading to a total of 60 days following publication of the NOA and legal notice, given the level of documentation associated with this project. Mailed or electronic comments will be accepted; however, electronic submission of comments is encouraged. Mailed comments must be submitted to me at the

following address: Linda Jackson, Payette Forest Supervisor, 500 N. Mission Street, Building 2 McCall, Idaho 83638-3805. Please be advised that our offices are minimally staffed in response to Coronavirus (COVID-19) and hand-delivered comments are not being accepted at this time. Electronic comments must be submitted in a common digital format such as plain text (.txt), rich text format (.rtf), Word (.doc, .docx) or PDF (.pdf) to https://cara.ecosystem-management.org/Public/CommentInput?Project=50516.

All comments, including names and addresses when provided, are placed in the record and are available for public inspection and copying. The public may inspect comments received online via the public reading room at: https://cara.ecosystem-management.org/Public/ReadingRoom?project=50516.

The decision to approve the proposed project will be subject to the objection process identified in 36 CFR part 218 Subparts A and B. Only those who submit timely and specific written comments, as defined in §218.2, regarding the proposed project and project-specific plan amendments during a public comment period established by the responsible official are eligible to file an objection per §218.5. It is the responsibility of all individuals and organizations to ensure that their comments are received in a timely manner. For objection eligibility, each individual or representative from each entity submitting timely and specific written comments must either sign the comments or verify identity upon request per §218.24(b)(8). As provided by 36 CFR 219.59(b), the administrative review process of 36 CFR 218 also applies to the project-specific plan amendments.

The DEIS, NOA, legal notice and other project information is available on the project webpage at: https://www.fs.usda.gov/project/?project=50516. The project webpage provides you with tools to engage in the public comment process.

Virtual Open House Meeting

Due to current health precautions associated with COVID-19, the Forest Service is providing alternative measures for conducting public engagement. A Virtual Public Meeting Room using the open house format has been designed to conduct public engagement and solicit feedback on the Stibnite Gold Project DEIS. The Virtual Public Meeting Room will be available on August 24, 2020 at: https://www.fs.usda.gov/project/?project=50516&exp=meetingnoticeinfo and will remain open through the public comment period. Instructions for entry to the Virtual Public Meeting Room will be included in the link. Thank you for your understanding as we adopt these new measures during this time to comply with the current guidelines and slow the spread of COVID-19 in our community.

For additional information please contact Brian Harris, Payette National Forest Public Affairs Officer at (208) 634-6945 or brian.d.harris@usda.gov. Individuals who use telecommunication devices for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1–800–877–8339 between 8:00 a.m. and 8:00 p.m., Eastern Time, Monday through Friday.

Sincerely,

LINDA L JACKSON
Forest Supervisor

EXECUTIVE SUMMARY

ES 1.0 INTRODUCTION

The United States Department of Agriculture Forest Service (Forest Service), has prepared this Draft Environmental Impact Statement (EIS) for the proposed Stibnite Gold Project (SGP). The SGP proposes mining operations, including an open pit hard rock mine and associated processing facilities, located within Valley County in central Idaho on federal, state, and private lands (**Figure ES1-1**). The SGP would produce gold and silver doré, and antimony concentrate, for commercial sale by Midas Gold Idaho, Inc. (Midas Gold).

This Draft EIS has been prepared using an interdisciplinary approach pursuant to the National Environmental Policy Act (NEPA) in order to identify and analyze the probable environmental impacts from a reasonable range of action alternatives (including the proposed action), and the no action alternative. The Draft EIS affords interested parties and the public the opportunity to become informed and to comment. When finalized, the EIS will inform the federal decisions required for the SGP.

Under the authority of the Payette Forest Supervisor, the Forest Service is the lead agency for purposes of the SGP NEPA process and preparation of this Draft EIS. In addition, there are six cooperating agencies with jurisdiction over some aspect of the project by law or special expertise with respect to environmental effects that are addressed in the Draft EIS: U.S. Army Corps of Engineers (USACE); U.S. Environmental Protection Agency; Idaho Department of Lands; Idaho Department of Environmental Quality; Idaho Governor's Office of Energy and Mineral Resources; and Valley County, Idaho.

The Draft EIS and supporting documents are available on the project website at: https://www.fs.usda.gov/project/?project=50516.

ES 2.0 PROJECT OVERVIEW

The SGP Plan of Restoration and Operations submitted in September 2016 (Midas Gold 2016) (hereinafter referred to as plan of operations), and subsequent additional information and clarifications, serve as the baseline project description for the impact analysis in this Draft EIS. A detailed description of the SGP, based upon the plan of operations, is provided in Chapter 2 of the Draft EIS.

The SGP consists of a mine site and processing facilities, associated access roads, and off-site facilities located in Valley County, in central Idaho (**Figure ES1-1**). The mine site is located in the East Fork South Fork Salmon River (EFSFSR) drainage basin. The SGP area is a complex

blend of both remote wilderness lands with high recreational values and potential wilderness characteristics, and areas impacted by historical gold, silver, antimony, and tungsten mining, processing, and resulting legacy contamination. The potentially affected area, encompassing approximately 3,500 acres, is described in detail in Chapter 3 of the Draft EIS.

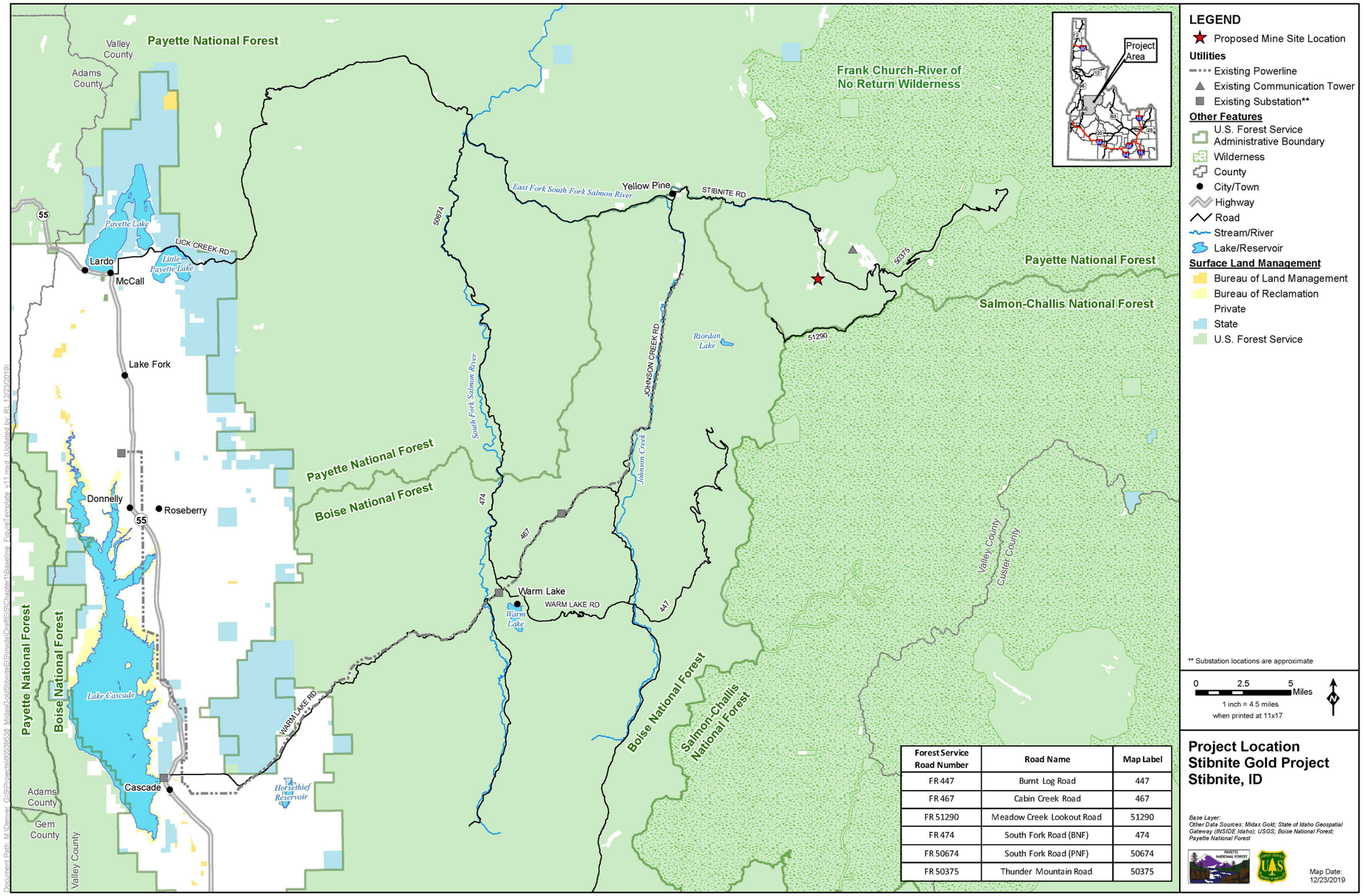
Midas Gold's plan of operations to conduct mining operations that produce gold and silver doré, and antimony concentrates, includes open pits, ore transportation equipment, ore processing facilities, development rock storage facilities, a tailing storage facility, a water treatment facility, road construction, electrical transmission lines, and various other facilities needed to support mining activities. The plan of operations incorporates closure and reclamation activities, and mitigation that may avoid, minimize, or compensate for adverse environmental effects caused by the SGP, and also incorporates actions that mitigate legacy contamination at locations within the mine site. Under the plan of operations, construction, operation, closure and reclamation phases of the SGP would take place over a period of approximately 20 years, not including the period of time required for long-term monitoring and maintenance. Environmental monitoring and maintenance would continue for as long as needed to demonstrate that the site has been fully reclaimed.

ES 3.0 CONNECTED ACTIONS

The SGP would require upgrades and new construction to electric infrastructure outside of the mine site and subject to different approvals. Changes to electric infrastructure include:

- Construction of two new substations (Scott Valley and Thunderbolt Tap) as well as a new switching substation near Cascade (Cascade switching station). The existing Scott Valley substation would be removed.
- Switching power to the village of Yellow Pine to come from the Johnson Creek substation instead of the Warm Lake substation.
- Upgrading approximately 64 miles of the existing 12.5-kilovolt and 69-kilovolt transmission lines between the Lake Fork and Johnson Creek substations to 138-kilovolt service. The right-of-way corridor would be 50 to 100 feet and existing structures would be replaced with taller structures along the existing right-of-way.
- Upgrading the substations located at Oxbow Dam, Horse Flat, McCall, Lake Fork, and Warm Lake.

Upgrades of the transmission line and access roads would require the Forest Service and the U.S. Bureau of Reclamation to amend existing Idaho Power Company special use permits and portions would cross Idaho State Trust Land and would require approval of the Idaho Department of Lands.



Forest Service Road Number	Road Name	Map Label
FR 447	Burnt Log Road	447
FR 467	Cabin Creek Road	467
FR 51290	Meadow Creek Lookout Road	51290
FR 474	South Fork Road (BNF)	474
FR 50674	South Fork Road (PNF)	50674
FR 50375	Thunder Mountain Road	50375

Figure Source: AECOM 2020

Figure ES1-1 Project Location

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ES 3.0 PURPOSE AND NEED

The purpose and need statement is an important element of the NEPA process that is used to identify and screen action alternatives. For this Draft EIS, the SGP plan of operations serves as the basis for determining purpose and need. Accordingly, the other action alternatives analyzed in the Draft EIS were developed based upon the plan of operations.

ES 3.1 Forest Service Purpose and Need

The Forest Service's purpose is to consider approval of the SGP plan of operations submitted by Midas Gold in September 2016, as supplemented, to mine and process gold, silver and antimony from deposits at the mine site in central Idaho for commercial sale.

The need for this action is to:

- Respond to Midas Gold's plan for development of the SGP to mine gold, silver, and antimony deposits in central Idaho;
- Ensure that the selected alternative, where feasible, would minimize adverse environmental impacts on National Forest System (NFS) surface resources;
- Ensure that, prior to approval, measures are included that provide for mitigation of environmental impacts and reclamation of the NFS surface disturbance;
- Ensure that the selected alternative would comply with other applicable federal and state laws and regulations.

The Forest Service purpose and need for action are established by the agency's responsibilities under the Organic Administration Act of 1897 (16 United States Code 478, 482, and 551) and the locatable minerals regulations at 36 Code of Federal Regulations (CFR) 228, subpart A, which set forth rules and procedures through which use of the surface of NFS lands in connection with operations authorized by the United States Mining Laws (30 United States Code 21-54), which confer a statutory right to enter upon the public lands to search for minerals, shall be conducted so as to minimize adverse environmental impacts on NFS surface resources.

ES 3.2 USACE Purpose and Need

The SGP plan of operations includes the discharge of dredge or fill material into waters of the United States (WOTUS), including wetlands. Accordingly, the USACE will be reviewing the proposed SGP utilizing this NEPA process to support a permit decision pursuant to Section 404 of the Clean Water Act (CWA) to either issue, issue with special condition, or deny a permit for the project. As a part of its review, the USACE is required by the CWA to independently consider and identify the activity's underlying purpose and need from the perspective of Midas Gold, as the applicant, and the perspective of the public. The USACE has determined that the overall purpose of the SGP is to mine gold, silver, and antimony from ore deposits associates with the mining claims and rights of Midas Gold in Valley County, Idaho. The USACE has

determined that the overall purpose of the SGP is to mine gold, silver, and antimony from ore deposits associated with the mining claims and rights of Midas Gold in Valley County, Idaho. USACE also has determined that the basic purpose is not “water dependent” as this term is defined for purposes of Section 404 of the CWA.

ES 4.0 FEDERAL DECISION FRAMEWORK

This NEPA process is to inform the federal decisions required for Midas Gold to proceed with the SGP. The leading federal decisions applicable to the SGP will be made by the Forest Service and the USACE. Midas Gold also must apply for and receive other federal, state, and local permits, which are identified in **Table 1.5-1** and in the plan of operations.

ES 4.1 Forest Service Decisions

As the responsible official acting on behalf of the Forest Service, the Payette Forest Supervisor will determine whether to approve the plan of operations for the SGP as submitted and supplemented, or whether to approve a modified plan based on all or portions of the other action alternatives considered in detail in the Final EIS, including mitigation. In making this decision, the Payette Forest Supervisor has discretion to determine whether the changes in the proposed plan of operations will be required prior to approval in order to meet the requirements of 36 CFR 228, subpart A, and other laws and regulations applicable to operations on NFS lands.

In addition, proposed project-specific amendments to the Payette National Forest Land and Resource Management Plan (Forest Plan) (Forest Service 2003) and the Boise National Forest Land and Resource Management Plan (Forest Service 2010), as described in **Appendix A,** have been analyzed in this Draft EIS. The Payette Forest Supervisor will determine whether to amend portions of the Payette National Forest Land and Resource Management Plan (Forest Service 2003), and the Boise Forest Supervisor will determine whether to amend portions of the Boise National Forest Land and Resource Management Plan as amended (Forest Service 2010), with respect to the SGP. These project-specific amendments would be one-time adjustments made according to the 2012 Planning Rule (36 CFR Part 219.13). Finally, SGP activities identified in the plan of operations would impact Meadow Creek Lookout Road within the Salmon-Challis National Forest. This road, in the area that would be impacted, is administered by the Payette National Forest (PNF) under the Challis National Forest Land and Resource Management Plan (Forest Service 1987). Accordingly, the Payette Forest Supervisor will determine whether the activities in this area are consistent with applicable standards and guides.

ES 4.2 USACE Decisions

The USACE regulates the discharge of dredged and/or fill material into WOTUS, including wetlands, pursuant to Section 404 of the CWA. Because the SGP plan of operations includes the discharge of dredged and/or fill material into WOTUS, Midas Gold must obtain a Department of Army permit (33 CFR 323) in order to proceed with the SGP. USACE w will evaluate the SGP

based upon the requirements of Section 404 of the CWA, including the Section 404(b)(1) Guidelines (40 CFR 230).

ES 5.0 PUBLIC AND TRIBAL ENGAGEMENT

The Forest Service published a Notice of Intent to prepare an EIS for the SGP in the Federal Register on June 5, 2017. The Notice of Intent initiated a 45-day scoping period that ended on July 20, 2017. During this time period, the Forest Service conducted five public meetings, including meetings in Cascade, McCall, Yellow Pine, and two in Boise, Idaho. In addition, legal notices were published June 2017 in The Idaho Statesman, Boise, Idaho (the newspaper of record) and The Star News, McCall, Idaho.

The Forest Service conducted government-to-government consultation regarding the SGP with three federally-recognized tribes: the Nez Perce Tribe; the Shoshone-Bannock Tribes; and the Shoshone-Paiute Tribes. This consultation was initiated with the Tribes through a notification letter from the Forest Service offering opportunities to participate in formal consultation, to participate in the NEPA process as cooperating agencies, or to routinely receive information about the SGP and the NEPA process. Details of the consultation process are included in Section 5.1.2, Tribal Consultation and Government-to-Government Consultation.

ES 6.0 SIGNIFICANT ISSUES

The Forest Service, in coordination with the cooperating agencies, and informed by the NEPA scoping process, tribal consultation, and public comment, has identified eight significant issues. These significant issues have been used to develop alternatives to the proposed action and mitigation measures. The following are the significant issues identified for the SGP:

- Surface Water and Groundwater – Construction and operation of mine infrastructure may impact water quality and quantity.
- Sensitive Plant Species – Construction and operation of mine infrastructure may impact habitat for sensitive plant species.
- Wetlands and Riparian Areas – Construction and operation of mine infrastructure may affect quantity of wetland (e.g., acres), impact ecological function, and fragment wetland habitat.
- Federally Listed Fish Species – Construction and operation of mine infrastructure may impact habitat for steelhead, salmon, and bull trout.
- Traffic – Construction, operation, and reclamation may affect traffic volumes, types of vehicles, and patterns of use.
- Public and Tribal Access – Construction and operation of mine infrastructure may impact public access to NFS lands, travel routes, and access to reserved tribal rights.

- Visual Quality – Construction and operation of mine infrastructure may impact scenic integrity and quality, and may result in change of the Forest Plan(s) Visual Quality Objectives.
- Idaho Inventoried Roadless Areas – Construction and operation of mine infrastructure in inventoried roadless areas may affect biophysical and social values of IRAs.

Chapters 3 and 4 of this Draft EIS also address additional resources and resource-use related issues that, while not identified as "significant," remain relevant physical, biological, and social impact considerations for discussion, analysis, and possible mitigation.

ES 7.0 ALTERNATIVES

NEPA requires consideration of a reasonable range of alternatives that can accomplish the purpose of and need for the proposed action. Consideration of alternatives also is pertinent to the USACE's CWA 404(b)(1) assessment, which requires an analysis of practicable alternatives to the proposed discharge into WOTUS. As used in this EIS, an action "alternative" is a complete package of operations, activities, and facilities that comprise a functioning mine project. A complete mining plan has several "component" parts, each necessary to allow production. In many instances, operational components may be further comprised of "subcomponents." The Forest Service and the cooperating agencies, informed by the NEPA scoping process, screened potential alternatives and component/subcomponent options based upon four criteria:

1. Does the alternative, including a combination of component options, meet the purpose and need of the project?
2. Could the alternative or component option potentially reduce environmental effects to at least one resource?
3. Is the alternative or component option technically feasible?
4. Is the alternative or component option economically feasible?

This iterative process lead to selection of three action alternatives in addition to the plan of operations submitted by Midas Gold. These four action alternatives, along with the no action alternative, are fully described in Chapter 2 and summarized in **Table 2.2-1**. Detailed analysis is included in Chapter 4 of this Draft EIS. Alternatives that were considered but eliminated from further study also are addressed in Section 2.8, Alternatives Considered, Carried Forward, or Eliminated From Further Study.

ES 7.1 ALTERNATIVE 1

Alternative 1 is based on Midas Gold's plan of operations and subsequent information and clarifications as briefly described in Section ES 2.0, Project Overview. Operations would occur on patented mining claims and other areas of federal public lands comprised of NFS lands that

are administered by the PNF. Supporting infrastructure corridors (access and transmission) are located in the Boise National Forest and non-federal lands.

Development of the mineral resources would include construction of access and haul roads within the mine site; construction of supporting infrastructure for the mine site; 3 open pits; ore processing; placement of tailings in a tailings storage facility (TSF) in the upper Meadow Creek valley; and placement of development rock in 4 development rock storage facilities (DRSFs). New access to the mine site would be provided by the proposed Burntlog Route. Electric power for the mine site and supporting infrastructure and facilities would be provided by constructing a new transmission line from the new Johnson Creek substation to the mine site. A logistics facility and a maintenance facility would be constructed along the access corridor.

Alternative 1 serves as an important baseline project description for impact analysis because the other action alternatives were developed in response to the proposed plan of operations. **Figure ES2-1** shows the main features of Alternative 1. **Table ES2-1** provides a summary of the land management and acreage for the four major components of Alternative 1: mine site, access roads, utilities, and off-site facilities.

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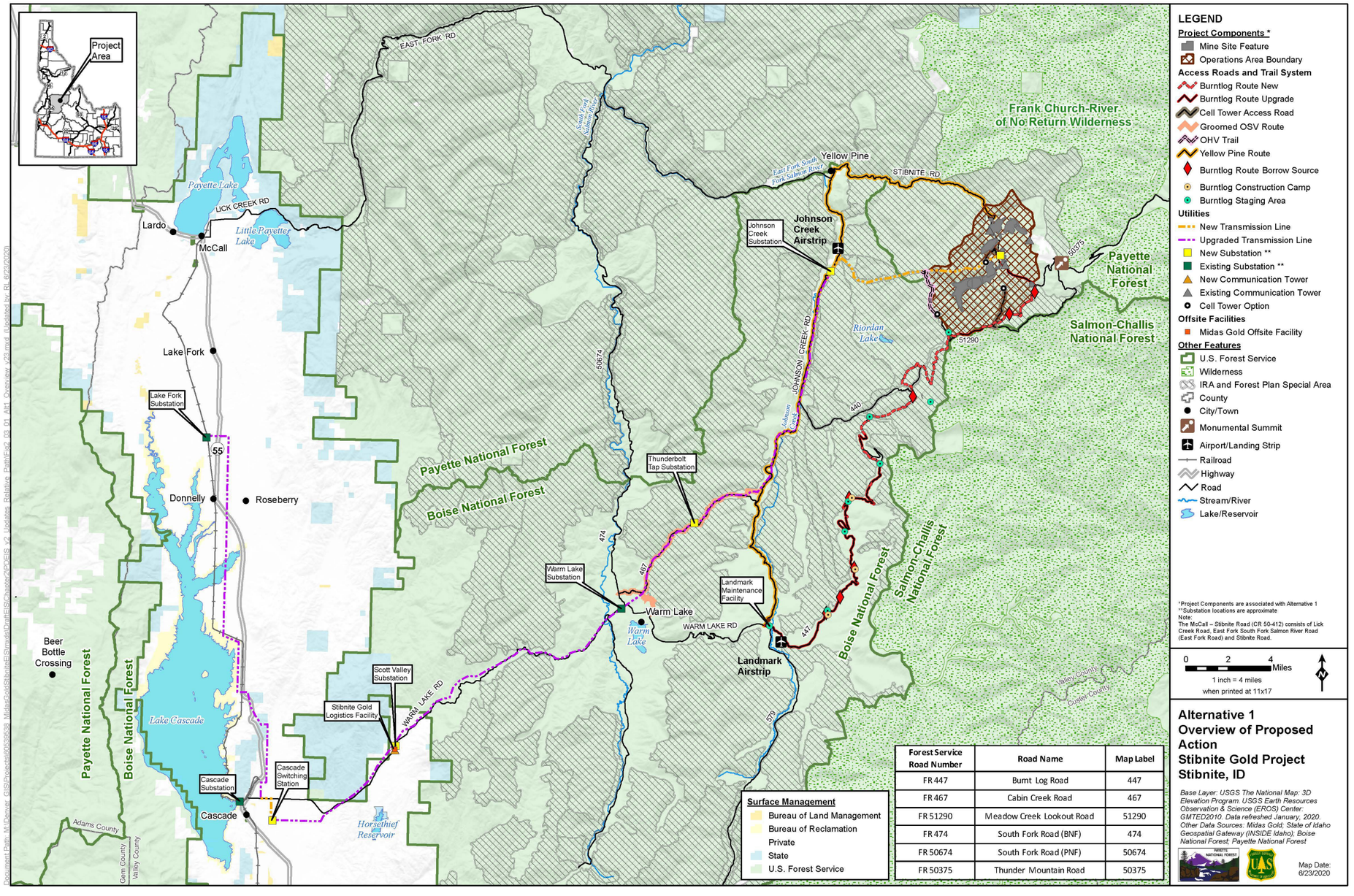

Figure Source: AECOM 2020

Figure ES2-1 Alternative 1 Overview of Proposed Action

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Table ES2-1 Land Management and Acreage by Major Components for Alternative 1

Component Subtotal	Private	State	Boise National Forest (BNF)	PNF	Bureau of Reclamation	Total Acres
Mine Site Subtotal	557	0	0	1,413[4]	0	**1,970**
Existing Access Roads Subtotal[1]	10	0	162	28	0	**200**
New Access Roads Subtotal	0	0	233	112	0	**345**
Utilities Subtotal[2]	288	62	523	92	25	**990**
Offsite Facilities Subtotal	25	0	3	0	0	**28**
Total[3]	**880**	**62**	**921**	**1,645[5]**	**25**	**3,533**

Table Source: AECOM 2020

Table Notes:

1 Existing access roads with minor to major improvements would be used for the SGP. Existing access roads acreages reflect the current road configurations. Any additional disturbance to widen existing roads is included in the new access roads subtotal.

2 Utilities affected acres include both existing utility corridors and access routes, and new utility corridors and access routes. Some existing utility access routes would be upgraded. Utilities affected acres include upgrades to utilities that are part of the Connected Actions.

3 Subtotals may not add to totals due to rounding.

4 Approximately 65 affected acres associated with surface exploration pads and temporary roads (mine site component) have unknown land ownership because the exact locations of these exploration areas are not yet known. The surface exploration acres are included in the PNF mine site subtotal.

5 Approximately 5 acres of land listed under the PNF is administered by the PNF but is within the boundary of the Salmon Challis National Forest.

ES 7.2 ALTERNATIVE 2

Alternative 2 represents a modified version of Alternative 1, primarily developed by Midas Gold, to provide additional avoidance and mitigation measures to address potential impact issues (Brown and Caldwell 2019). Although Alternative 2 is, in practical effect, the proposed action for which Midas Gold is now seeking federal approval, Midas Gold has not submitted a revised plan of operations with all the components of Alternative 1, but premised upon this Alternative 2. Accordingly, the description of Alternative 2 remains a derivative of Alternative 1 as detailed in the original plan of operations (Midas Gold 2016).

Development of the mineral resources would include construction of access and haul roads within the mine site; construction of supporting infrastructure for the mine site; 3 open pits; ore processing; placement of tailings in a TSF in upper Meadow Creek valley; and placement of development rock in 3 DRSFs. New access to the mine site would be provided by the proposed Burntlog Route. Public access would be provided through the mine site using one of two

proposed options. Electric power for the mine site and supporting infrastructure and facilities would be provided by constructing a new transmission line from the new Johnson Creek substation to the mine site. Two additional offsite support facilities would be constructed along access corridors.

Figure ES2-2 shows the main components under Alternative 2 and **Table ES2-2** provides a summary of the land management and acreage for the four major components: mine site, access road, utilities and off-site facilities.

Table ES2-2 Land Management and Acreage by Major Components for Alternative 2

Area Subtotal	Private	State	BNF	PNF	Bureau of Reclamation	Total Acres
Mine Site Subtotal	554	0	0	1,325[4]	0	**1,879**
Existing Access Roads Subtotal[1]	10	0	162	28	0	**200**
New Access Roads Subtotal		0	232	97	0	**329**
Utilities Subtotal[2]	265	76	532	92	19	**985**
Offsite Facilities Subtotal	25	0	5	0	0	**30**
Total[3]	**854**	**76**	**931**	**1,542[5]**	**19**	**3,423**

Table Notes:

1 Existing access roads with minor to major improvements would be used for the SGP. Existing access roads acreages reflect the current road configurations. Any additional disturbance to widen existing roads is included in the new access roads subtotal.

2 Utilities affected acres include both existing utility corridors and access routes, and new utility corridors and access routes. Some existing utility access routes would be upgraded. Utilities affected acres include upgrades to utilities that are part of the Connected Actions.

3 Subtotals may not add to totals due to rounding.

4 Approximately 65 affected acres associated with surface exploration pads and temporary roads (mine site component) have unknown land ownership because the exact locations of these exploration areas are not yet known. The surface exploration acres are included in the PNF mine site subtotal.

5 Approximately 5 acres of land listed under the PNF is administered by the PNF but is within the boundary of the Salmon-Challis National Forest.

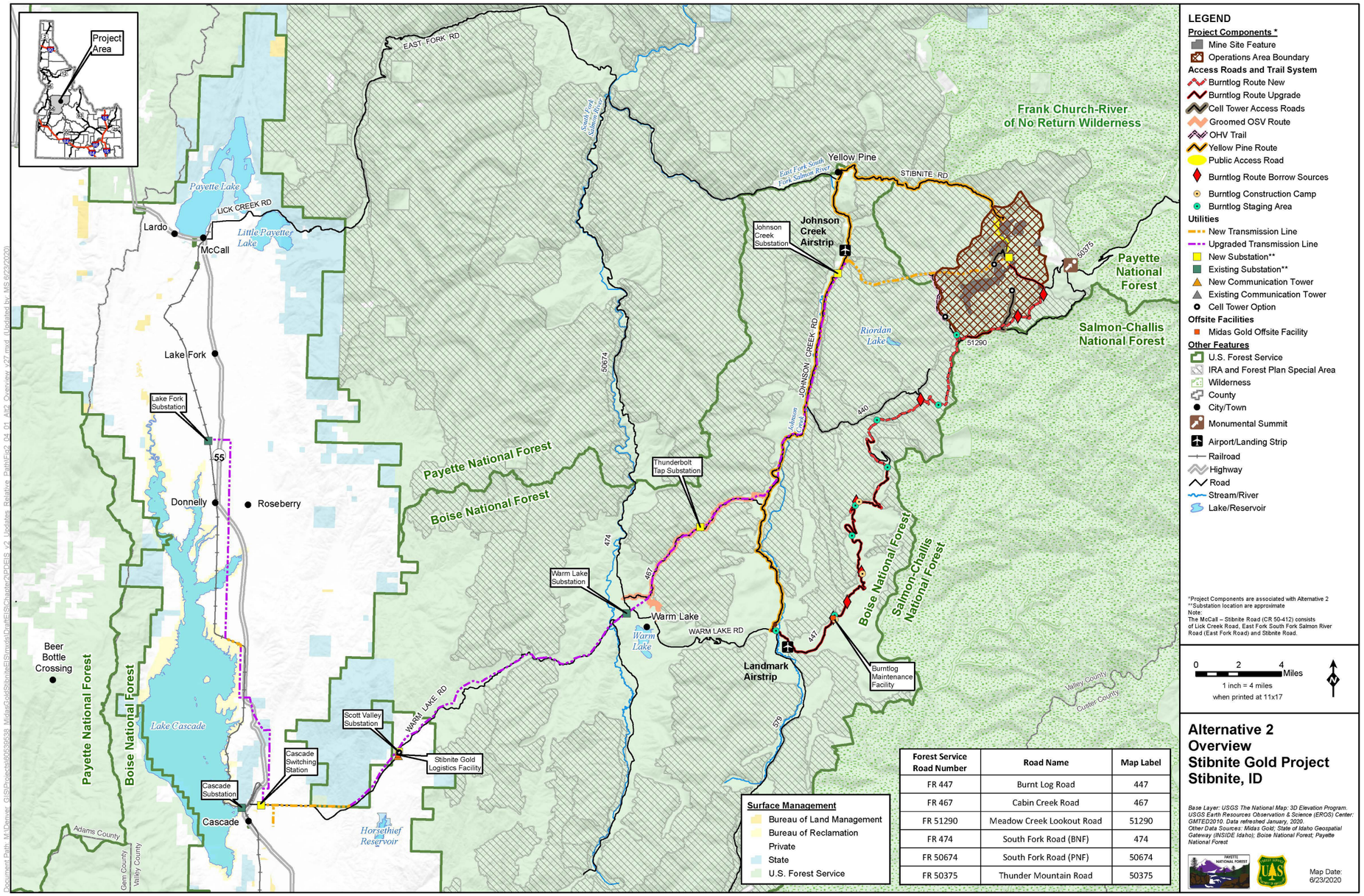

Figure Source: AECOM 2020

Figure ES2-2 Alternative 2 Overview

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ES 7.3 ALTERNATIVE 3

Alternative 3 was developed to evaluate the extent to which an alternative location for the TSF and a DRSF would avoid or reduce potential adverse impacts, primarily to WOTUS and federally-listed fish species. Under Alternative 3, the TSF and a DRSF would be located in the upper EFSFSR valley. Surface water management, access roads, and mine site facilities would be changed to accommodate relocation of the TSF and DRSF.

Figure ES2-3 shows the main components of Alternative 3. **Table ES2-3** provides a summary of the land management and acreage for the four major components: mine site, access road, utilities and off-site facilities.

Table ES2-3 Land Management and Acreage by Major Components for Alternative 3

Area Subtotal	Private	State	BNF	PNF	Bureau of Reclamation	Total Acres
Mine Site Subtotal	511	0	0	1,560[4]	0	**2,071**
Existing Access Roads Subtotal[1]	10	0	162	39	0	**211**
New Access Roads Subtotal	0	0	246	63	0	**310**
Utilities Subtotal[2]	287	62	524	92	25	**990**
Offsite Facilities Subtotal	25	0	3	0	0	**28**
Total[3]	**833**	**62**	**935**	**1,754[5]**	**25**	**3,610**

Table Notes:

1 Existing access roads with minor to major improvements would be used for the SGP. Existing access roads acreages reflect the current road configurations. Any additional disturbance to widen existing roads is included in the new access roads subtotal.

2 Utilities affected acres include both existing utility corridors and access routes, and new utility corridors and access routes. Some existing utility access routes would be upgraded. Utilities affected acres include upgrades to utilities that are part of the Connected Actions.

3 Subtotals may not add to totals due to rounding.

4 Approximately 65 affected acres associated with surface exploration pads and temporary roads (mine site component) have unknown land ownership because the exact locations of these exploration areas are not yet known. The surface exploration acres are included in the PNF mine site subtotal.

5 Approximately 19 acres of land listed under the PNF is administered by the PNF but is within the boundary of the Salmon Challis National Forest.

ES 7.4 ALTERNATIVE 4

Alternative 4 incorporates several independent component options developed by the Forest Service and the cooperating agencies to evaluate the potential to reduce adverse effects concerning many of the significant issues identified during scoping. The primary focus of

Alternative 4 is consideration of using an existing route for mine access (the Yellow Pine Route) instead of the Burntlog Route identified under Alternative 1. The Burntlog Route which would require approximately 17 miles of new road construction, including approximately 14 miles of new construction in inventoried roadless areas. The Yellow Pine Route would include public access through the mine site. Other modifications to mine site facilities and off-site facilities are proposed in Alternative 4.

Figure ES2-4 shows the main components of Alternative 4. **Table ES2-4** provides a summary of the land management and acreage for the four major components: mine site, access road, utilities and off-site facilities.

Table ES2-4 Land Management and Acreage by Major Components for Alternative 4

Area Subtotal	Private	State	BNF	PNF	Bureau of Reclamation	Total Acres
Mine Site Subtotal	560	0	0	1,429[4]	0	**1,989**
Existing Access Roads Subtotal[1]	11	0	91	21	0	**123**
New Access Roads Subtotal	0	0	77	17	0	**94**
Utilities Subtotal[2]	288	64	522	86	25	**984**
Offsite Facilities Subtotal	25	0	4	0	0	**29**
Total[3]	**885**	**62**	**694**	**1,553[5]**	**25**	**3,219**

Table Notes:

1 Existing access roads with minor to major improvements would be used for the SGP. Existing access roads acreages reflect the current road configurations. Any additional disturbance to widen existing roads is included in the new access roads subtotal.

2 Utilities affected acres include both existing utility corridors and access routes, and new utility corridors and access routes. Some existing utility access routes would be upgraded. Utilities affected acres include upgrades to utilities that are part of the Connected Actions.

3 Subtotals may not add to totals due to rounding.

4 Approximately 65 affected acres associated with surface exploration pads and temporary roads (mine site component) have unknown land ownership because the exact locations of these exploration areas are not yet known. The surface exploration acres are included in the PNF mine site subtotal.

5 Approximately 14 acres of land listed under the PNF is administered by the PNF but is within the boundary of the Salmon Challis National Forest.

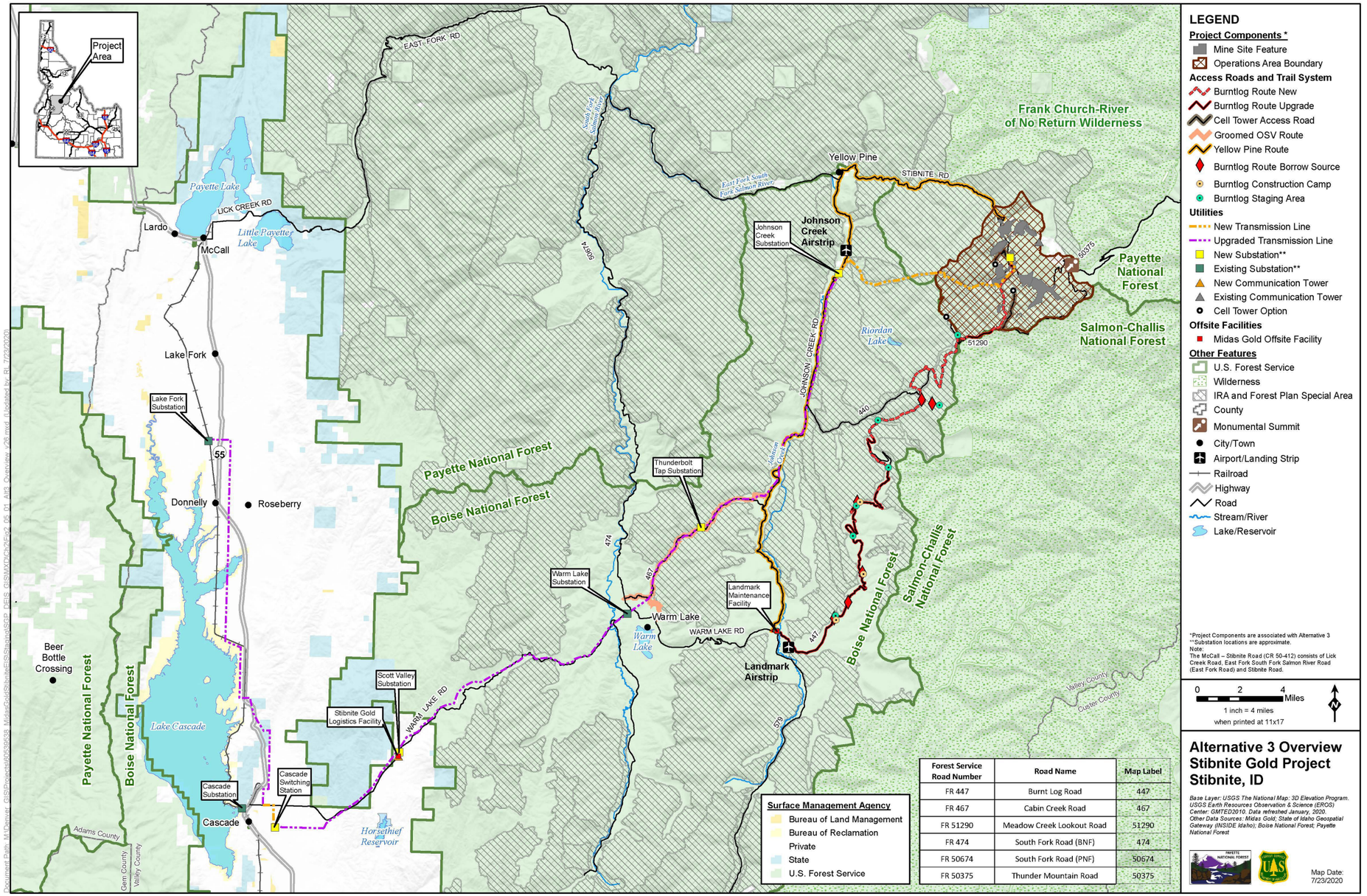

Figure Source: AECOM 2020

Figure ES2-3 Alternative 3 Overview

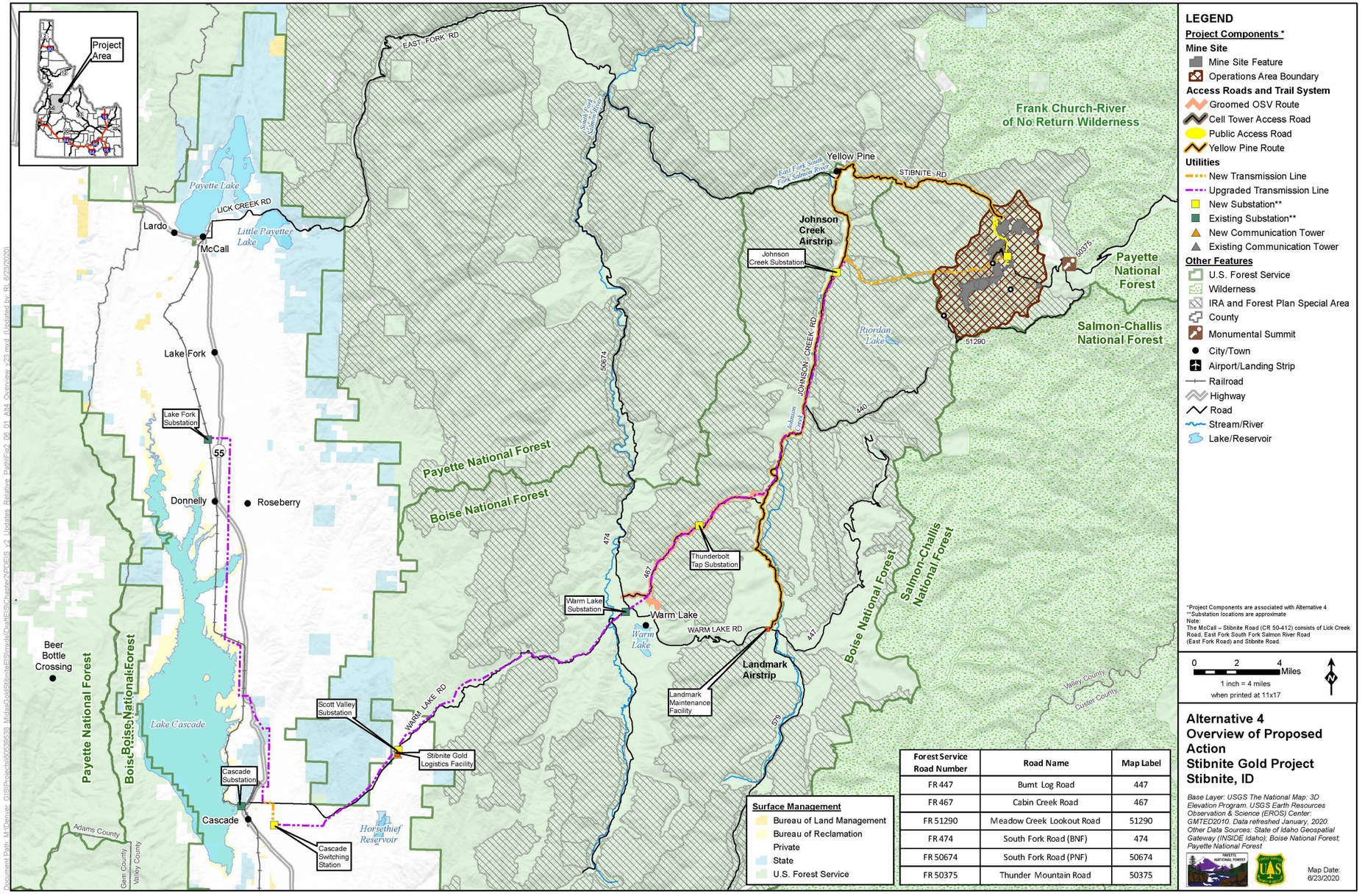

Figure Source: AECOM 2020

Figure ES2-4 Alternative 4 Overview of Proposed Action

ES 7.5 ALTERNATIVE 5

Alternative 5 is the No Action Alternative, which provides an environmental baseline for comparison of the action alternatives. Under the No Action Alternative, the mining, ore processing, and related activities under the action alternatives considered in this Draft EIS would not take place. However, existing and approved activities (i.e., approved exploration activities and associated reclamation obligations) would continue and Midas Gold would not be precluded from subsequently submitting another plan of operations pursuant to the General Mining Law of 1872.

ES 8.0 ENVIRONMENTAL CONSEQUENCES

Table ES4-1 provides a summary and comparison of the potential environmental impacts of the four action alternatives considered in detail and the No Action Alternative for the eight significant issues identified in Section ES 6.0 above. Detailed descriptions of potential impacts are presented in Chapter 4, Environmental Consequences.

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Table ES4-1 Summary and Comparison of the Potential Environmental Impacts Associated with the Significant Issues by Alternative

Issue	Indicator	Baseline Conditions	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Surface Water and Groundwater Quantity							
The SGP may cause changes in quantity of surface water and groundwater in all drainages within the analysis area.	Stream flow characteristics (daily, seasonal, annual).	Surface waters include: the EFSFSR, Rabbit Creek, Meadow Creek, East Fork Meadow Creek (also known as Blowout Creek), Garnet Creek, Fiddle Creek, Midnight Creek, Hennessy Creek, West End Creek, and Sugar Creek. Monthly average seasonal low flows: Meadow Creek between TSF and Hangar Flats pit = 2.7 cfs. Meadow Creek below the diversion and above EFSFSR (mine years 7-10) = 3.8 cfs.	Meadow Creek monthly average low flow during operations = 2.3 cfs (15% reduction from baseline conditions). The primary predicted impact: reduction in streamflow along Meadow Creek near the Hangar Flats pit and pit lake close to the end of the mine operation and early post closure. Simulated flows vary from no predicted change to a 45% reduction in low flows during the mine operational period. Flows vary from no predicted change to a 100% reduction during the early post- closure period. In most areas, groundwater in the alluvial aquifers recover within 10 years after the cessation of mining. Large areas of the bedrock aquifer are also expected to recover. However, there is less confidence about overall long-term recovery of the bedrock aquifer. .	Stream flow impacts partially mitigated for Meadow Creek in the vicinity of the Hangar Flats pit and pit lake relative to Alternative 1. Predicted stream low flows for Alternative 2 two times higher than the low flows under Alternative 1 during mine years 7 through 12. Across these years, the average monthly flow reduction relative to the existing conditions was predicted to be 32% for Alternative 2 and 47% for Alternative 1. In early post closure when the section of Meadow Creek is predicted to go dry under Alternative 1, predictions for Alternative 2 are a 26% reduction in the average monthly flow. Surface flows are generally predicted to recover to pre-mine conditions by approximately mine year 15 (3 years after operations cease).	Stream flow would be impacted by Alternative 3 within the analysis area. Simulated flows are similar to Alternative 1.	Stream flow would be impacted by Alternative 4 within the analysis area. Simulated flows are similar to Alternative 1.	Alternative 5 would result in no changes to existing stream flow characteristics.
The SGP may cause changes in quantity of surface water and groundwater in all drainages within the analysis area.	The extent, magnitude, and duration of groundwater level changes.	Groundwater flow in the analysis area occurs primarily in the Quaternary unconsolidated deposits filling the valleys and through the unconsolidated deposits covering the mountainsides.	Dewatering of the pits lowers groundwater levels in the alluvial and bedrock formations during the mining and post closure periods, and reduces flows in surface water streams that receive groundwater discharge. In most areas, groundwater in the alluvial aquifers recover within 10 years after the cessation of mining. Large areas of the bedrock aquifer are also expected to recover. However, there is less confidence about overall long-term recovery of the bedrock aquifer. Development of DRSFs and TSF within Meadow Creek valley would result in lowering water table levels by more than ten feet in some areas within their footprint, and in area close	The extended liner reduces stream loss from Meadow Creek near the Hangar Flats pit, and reduces that pit's dewatering rates by more than 25%. Partial backfill of Hangar Flats pit with West End Development Rock and diversion of Meadow Creek high flow to the pit lake reduces the time of filling the pit with water from the Hangar Flats pit lake.	The TSF and Hangar Flats DRSF constructed in the EFSFSR valley would lower groundwater levels within their footprint. Hangar Flats pit dewatering rates and the rate of water infiltrating via the RIBs somewhat higher compared to Alternative 1. Hangar Flats pit fills with water somewhat quicker.	The extent, magnitude, and duration of groundwater level changes would be similar to Alternative 1.	Alternative 5 would result in no changes to existing (baseline) groundwater flow conditions.

Issue	Indicator	Baseline Conditions	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
			around, during production and post closure periods.				
The SGP may affect water rights.	Change in water rights availability in the SGP area.	Four existing water rights at the mine site owned by Midas Gold.	No changes in water rights availability in the SGP area.	No changes in water rights availability in the SGP area.	No changes in water rights availability in the SGP area.	No changes in water rights availability in the SGP area.	No changes in water rights availability.
The SGP may affect water rights.	New water rights needed.	Existing water rights held by Midas Gold: 77-7285 - Groundwater right for storage and mining with diversion of 0.5 cfs for a maximum total usage of 39.2 acre-feet. 77-7141 – Groundwater right for domestic with diversion of 0.2 cfs for a maximum total usage of 11.4 acre-feet. 77-7293 – Surface water right for storage and mining for diversion of 0.25 cfs and a maximum total usage of 20 acre-feet. 77-7122 – Surface water right for storage and mining for diversion of 0.33 cfs for a maximum total usage of 7.1 acre-feet.	An additional 2.39 cfs and 1,730 acre-feet of groundwater rights needed to support ore processing. An additional 0.34 cfs and 10 acre-feet of groundwater rights needed for potable water supply. During drought conditions, temporary seasonal withdrawal of up to 5.63 cfs from groundwater. An additional water right for 3.47 cfs diversion of surface would be needed.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.	No new water rights required.
Surface Water and Groundwater Quality							
The SGP may affect soil and water resources through acid rock drainage and/or metals leaching from mineralized rock in the mine pits, DRSFs, and TSF.	Volume and disposition of mineralized waste generated.	No new mining waste generated.	Development Rock: • TSF embankment (61 MT). • Hangar Flats DRSF and TSF buttress (81 MT). • Fiddle DRSF (68 MT). • West End DRSF (25 MT). • Yellow Pine Pit backfill (111 MT). Tailings: • TSF (100 MT).	Development Rock: • TSF embankment (61 MT). • Hangar Flats DRSF and TSF buttress (81 MT). • Fiddle DRSF (68 MT). • Yellow Pine Pit backfill (111 MT). • Midnight Pit backfill (6 MT). • Hangar Flats Pit partial backfill (18 MT). • On-site lime generation (1 MT). Tailings: • TSF (100 MT).	Development Rock: • TSF embankment (61 MT). • EFSFSR DRSF and TSF buttress (81 MT). • Fiddle DRSF (68 MT). • West End DRSF (25 MT). • Yellow Pine Pit backfill (111 MT). Tailings: • EFSFSR TSF (100 MT).	Same as Alternative 1.	No new mining waste generated.
The SGP may affect soil and water resources through acid rock drainage and/or metals leaching from mineralized rock in the mine pits, DRSFs, and TSF.	Lithologic composition of final pit walls and exposure of potentially acid-generating material.	No known mapped extent of exposed lithologies in existing Yellow Pine and West End pits.	Area of Potentially acid-generating rock exposed in pit walls: • Hangar Flats Pit (37,076 m^2, 5.1% of total surface area). • West End Pit. (3,333 m^2, 0.4%). • Midnight Area Pit (262 m^2, 0.1%). • Yellow Pine Pit (120,424 m^2, 10.5%).	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.	Not applicable.

Issue	Indicator	Baseline Conditions	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
The SGP may affect soil and water resources through acid rock drainage and/or metals leaching from mineralized rock in the mine pits, DRSFs, and TSF.	Removal of legacy mine tailings and waste rock. Predicted leachate chemistry of development rock and tailings.	Legacy waste in Meadow Creek valley from historical mining operations, including SODA and Bradley tailings. Not Applicable.	SODA and Bradley tailings removed and repurposed. Development Rock: • Generally non-acid generating but capable of leaching arsenic, antimony, aluminum, manganese, sulfate, total dissolved solids, copper, cadmium and zinc above water quality criteria (Section 4.9.2.1.1.4). Tailings: • Anticipated tailings process water chemistry and leachate chemistry provided in **Table 4.9-9.**	SODA and Bradley tailings removed and repurposed. Same as Alternative 1.	No removal of SODA and Bradley Tailings. Same as Alternative 1.	SODA and Bradley tailings removed and repurposed. Same as Alternative 1.	No removal of SODA and Bradley Tailings. Not applicable.
The SGP may cause changes in surface water and groundwater quality.	Surface water quality parameters (e.g., pH, temperature, major ions, total dissolved solids, metals, sediment content, and organic carbon).	EFSFSR[1]: • Aluminum (0.010 to 0.016 mg/L). • Antimony (**0.012** to **0.031** mg/L). • Arsenic (**0.025** to **0.063** mg/L). • Copper (0.00023 to 0.00032 mg/L). • Mercury (2.4E-6 to 5.7E-6 mg/L). • Summer Max Temperature (13.4 to 17.4°C). Access Roads: • No mine-related traffic on existing Forest Service roads. Utilities: • No power line upgrades or new lines constructed.	EFSFSR Post Closure[1,2]: • Aluminum (0.003 to 0.014 mg/L). • Antimony (**0.009** to **0.026** mg/L). • Arsenic (**0.059** to **0.09** mg/L). • Copper (0.00005 to **0.00268** mg/L). • Mercury (**2.04E-4** to **3.9E-4** mg/L). • Summer Max Temperature (13.9 to 22.3°C). Access Roads: • Mine access roads would cross 71 different streams. • 1.69 miles (4 percent) of mine operations access route w/in 100 feet of streams. • Sedimentation and fugitive dust predicted to be within the normal range of properly maintained Forest Service roads. Utilities: • Mine utility work would cross 37 different streams. • Potential for transmission line-related erosion and sedimentation would be minimal.	EFSFSR Post Closure[1,2]: • Aluminum (0.007 to 0.018 mg/L). • Antimony (**0.009** to **0.026** mg/L). • Arsenic (**0.016 to 0.049** mg/L). • Copper (0.00005 to 0.00029 mg/L). • Mercury (5.9E-6 to **1.8E-5** mg/L). • Summer Max Temperature (13.9 to 21.7°C). Access Roads: • Mine access roads would cross 69 different streams. • 1.56 miles (4 percent) of mine operations access route within 100 feet of streams. • Sedimentation and fugitive dust likely lower than Alternative 1 due to approximate 31 percent reduction in heavy vehicle trips during mine operations. Utilities: • Mine utility work would cross 36 different streams. • Potential for transmission line-related erosion and sedimentation would be minimal.	EFSFSR Post Closure[1,2]: • Aluminum (0.00047 to 0.020 mg/L). • Antimony (**0.017** to **0.033** mg/L). • Arsenic (**0.083** to **0.13** mg/L). • Copper (0.000033 to **0.010** mg/L). • Mercury (**7.7E-5** to **0.00014** mg/L). • Summer Max Temperature (23 to 25.5°C). Access Roads: • Stream crossings same as Alternative 1. • 1.24 miles (2.8 percent) of mine operations access route within 100 feet of streams. Utilities: • Same as Alternative 1.	EFSFSR Post Closure: • Same as Alternative 1 Access Roads: • Mine access roads would cross 50 different streams. • 6.5 miles (16 percent) of mine operations access route within 100 feet of streams. • Sedimentation and fugitive dust similar in magnitude to Alternative 1, but would differ in location due to exclusive use of YPR for mine access. Utilities: • Same as Alternative 1 except for communication sites that would be constructed/maintained using helicopters, limiting the need for new access roads to these facilities.	Same as existing conditions.

Issue	Indicator	Baseline Conditions	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
The SGP may cause changes in surface water and groundwater quality.	Groundwater quality parameters (e.g., pH, major ions, total dissolved solids, metals).	TSF[1]: • pH (7.57). • Arsenic (0.006 mg/L). • Antimony (0.0020 mg/L). • Mercury (5.6E-7 mg/L). Hangar Flats DRSF[1]: • pH (6.90). • Arsenic (0.006 mg/L). • Iron (**2.63** mg/L). • Manganese (**2.63** mg/L). West End DRSF[1]: • pH (8.15). • Arsenic (**0.30 mg/L).** • Antimony (**0.019** mg/L). • Nitrate+nitrite (0.050 mg/L). Fiddle DRSF[1]: • pH (7.21). • Arsenic (**0.087** mg/L). Yellow Pine Pit Backfill[1]: • pH (**8.54**). • Arsenic (**0.32** mg/L). • Antimony (**0.010** mg/L). • Mercury (3.8E-6 mg/L).	TSF[1]: • pH (7.57). • Arsenic (0.007 mg/L). • Antimony (0.002 mg/L). • Mercury (1.8E-6 mg/L). Hangar Flats DRSF[1]: • pH (6.75). • Arsenic (**0.23** mg/L). • Iron (**1.75 to 2.01** mg/L). • Manganese (**2.41 to 2.50** mg/L). West End DRSF[1]: • pH (8.15). • Arsenic (0.**70** mg/L). • Antimony (**0.13** mg/L). • Nitrate+nitrite (0.05 to **19.7** mg/L). Fiddle DRSF[1]: • pH (7.45). • Arsenic (0.015 mg/L). Yellow Pine Pit Backfill[1]: • pH (**8.6 to 8.9**). • Arsenic (**2.12** mg/L). • Antimony (**0.45** mg/L). • Mercury (**0.0034** mg/L).	TSF: • Same as Alternative 1 Hangar Flats DRSF[1]: • pH (6.76). • Arsenic (**0.36** mg/L). • Iron (**1.69** mg/L). • Manganese (**2.39** mg/L). West End DRSF: • Eliminated (same as existing conditions). Fiddle DRSF[1]: • pH (7.37). • Arsenic (0.02 mg/L). Yellow Pine Pit Backfill[1]: • Same as Alternative 1. Midnight Area Pit Backfill[1]: • pH (**8.7 to 8.9**). • Arsenic (**2.2** mg/L). • Mercury (**0.0042** mg/L). • Antimony (**0.42** mg/L).	TSF[1]: • No change to existing groundwater conditions in the upper. EFSFSR EFSFSR DRSF[1]: • pH (7.1). • Arsenic (**0.089** mg/L). • All other constituents below groundwater standards. West End DRSF: • Same as Alternative 1. Fiddle DRSF: • Same as Alternative 1. Yellow Pine Pit Backfill: • Same as Alternative 1.	Same as Alternative 1.	Same as existing conditions.
The SGP may cause increased mercury methylation in adjacent waterbodies through SGP-related emissions and activities.	Predicted impact on methylmercury production.	Methylmercury *not detected* in 90 percent of baseline stream samples (<0.1 ng/L).	Post closure Methylmercury concentrations up to 7.8 ng/L in the EFSFSR without water treatment.	No detectable change in Methylmercury with water treatment.	Post closure Methylmercury concentrations up to 2.8 ng/L in the EFSFSR without water treatment.	Same as Alternative 1.	Same as existing Conditions.
Vegetation							
The SGP would remove whitebark pine individuals, and habitat conversion associated with the SGP would impact seed production, dispersal, and establishment of this species.	Number of acres of whitebark pine occupied habitat impacted by the SGP.	Approximately 2,310 acres of occupied whitebark pine habitat were identified within the analysis area.	Alternative 1 would remove an estimated 257.8 acres of occupied whitebark pine habitat (11.2% of occupied habitat in the analysis area). This would be the largest extent of removal under the action alternatives.	Alternative 2 would remove an estimated 243.2 acres of occupied whitebark pine habitat (10.5% of occupied habitat in the analysis area). This would be the second largest extent of removal under the action alternatives.	Alternative 3 would remove an estimated 237.2 acres of occupied whitebark pine habitat (10.2% of occupied habitat in the analysis area). This would be the second smallest extent of removal under the action alternatives.	Alternative 4 would remove an estimated 123.6 acres of occupied whitebark pine habitat (5.4% of occupied habitat in the analysis area). This would be the smallest extent of removal under the action alternatives.	None.

Issue	Indicator	Baseline Conditions	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
The SGP would remove whitebark pine individuals, and habitat conversion associated with the SGP would impact seed production, dispersal, and establishment of this species.	Estimated number of mature whitebark pine trees to be cut during SGP construction.	Approximately 2,310 acres of occupied whitebark pine habitat were identified within the analysis area.	An estimated 1,027 individual trees, 50 of which would be cone-bearing trees, would be removed under Alternative 1. This would be the largest number of total whitebark pine individuals removed and cone-bearing individuals removed under the action alternatives.	An estimated 997 individual trees, 15 of which would be mature, cone-bearing trees, would be removed under Alternative 2. This would be the second largest number of total whitebark pine individuals removed and the lowest number of cone-bearing individuals removed under the action alternatives.	An estimated 892 individual trees, 48 of which would be mature, cone-bearing trees, would be removed under Alternative 3. This would be the second smallest number of total whitebark pine individuals removed and the second highest number of cone-bearing individuals removed under the action alternatives.	An estimated 613 individual trees, 48 of which would be mature, cone-bearing trees, would be removed under Alternative 4. This would be the smallest number of total whitebark pine individuals removed and the second highest number of cone-bearing individuals removed (the same as Alternative 3) under the action alternatives.	None.
The SGP would impact known occurrences of sensitive and forest watch plant species.	Presence of known occurrences of special status plants or occupied habitat within 300 feet of the SGP disturbance area.	Rare Plant Geographic Information System Data are available for the SGP area (Idaho Fish and Wildlife Information System).	Alternative 1 would impact known occurrences of bent-flowered milkvetch, least moonwort, Sacajawea's bitterroot, Blandow's helodium, sweetgrass, and Rannoch-rush.	Same as Alternative 1.	Same as Alternative 1.	Alternative 4 would impact known occurrences of bent-flowered milkvetch, least moonwort and Sacajawea's bitterroot.	None.
The SGP would result in a direct loss of modeled potential habitat for sensitive and forest watch plant species.	Acres of modeled potential habitat for sensitive and forest watch plant species disturbed by the SGP.	Modeled potential habitat for special status plant species is available for the SGP area. Maps are included in **Appendix H-4**.	Alternative 1 would impact the largest extent of modeled potential habitat for scalloped moonwort, Cascade reedgrass, livid sedge, Idaho douglasia, Yellowstone draba, spoonleaf sundew, Kruckeberg's swordfern, Sierra sanicle, Tolmie's saxifrage, and Rannoch-rush. Alternative 1 would be equal to Alternative 2 in having the greatest extent of impacts to modeled potential habitat for bent-flowered milkvetch and swamp willow weed. Overall, Alternative 1 would impact the largest extent of modeled potential habitat for sensitive and forest watch species under the action alternatives.	Alternative 2 would impact the largest extent of modeled potential habitat for candystick, Shasta sedge, bulblet-bearing water hemlock, Blandow's helodium, sweetgrass, bank monkeyflower, and white beaksedge. Alternative 2 would be equal to Alternative 1 in impacting the largest extent of modeled potential habitat for bent-flowered milkvetch and swamp willow weed. Overall, Alternative 2 would impact the second largest extent of modeled potential habitat for sensitive and forest watch species under the action alternatives.	Alternative 3 would have the greatest extent of impacts to modeled potential habitat for slender moonwort and least moonwort, Sacajawea's bitterroot, Borch's stonecrop and Leiberg stonecrop, and short-style tofieldia. Overall, Alternative 3 would impact the second smallest extent of modeled potential habitat for sensitive and forest watch species under the action alternatives.	Alternative 4 would impact the largest extent of modeled potential habitat for beautiful bryum, green bug moss, giant helleborine orchid, and tufted penstemon. Overall, Alternative 4 would impact the smallest extent of modeled potential habitat for sensitive and forest watch species under the action alternatives.	None.
Wetlands and Riparian Areas							
Loss of wetland and riparian areas.	***Within the mine site focus area-*** Acres of wetland and riparian habitat lost through construction of Project alternative components – within the mine site.	There are 429 acres of wetlands delineated in the mine site focus area (**Table 3.11-3a**). Figures of these features and impacts under the alternatives are in **Appendix I**.	130.9 acres of wetlands would be lost at the mine site (31% of wetlands at the mine site) 675.6 acres of riparian areas would be lost at the mine site	131.2 acres of wetlands would be lost at the mine site (31% of wetlands at the mine site). 630.3 acres of riparian areas would be lost at the mine site.	132.3 acres of wetlands would be lost at the mine site (31% of wetlands at the mine site). 820.5 acres of riparian areas would be lost at the mine site.	130.2 acres of wetlands would be lost at the mine site (31% of wetlands at the mine site). 673.4 acres of riparian areas would be lost at the mine site.	None.
Loss of wetland and riparian areas.	***Within the off-site focus area -*** Acres of wetland and riparian habitat lost through construction of SGP alternative components.	Figures of these features and impacts under the alternatives are in **Appendix I**.	41.2 acres of wetlands would be lost within the off-site focus area. 453.5 acres of riparian areas would be lost within the off-site focus area.	31.3 acres of wetlands would be lost within the off-site focus area. 449.6 acres of riparian areas would be lost within the off-site focus area.	41.2 acres of wetlands would be lost within the off-site focus area. 472.6 acres of riparian areas would be lost within the off-site focus area.	28.0 acres of wetlands would be lost within the off-site focus area. 429.2 acres of riparian areas would be lost within the off-site focus area.	None.

Issue	Indicator	Baseline Conditions	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Impacts on wetland and riparian functions.	Functional units of wetlands, including high-value wetlands (i.e., Category I and II per Montana Wetland Assessment Method), lost due to SGP construction.	Existing Wetland Functions and Values of AAs assessed for the SGP are presented in **Appendix I** (**Table I-1-1**).	759.3 functional units would be lost, including 486.1 high-value functional units.	761.5 functional units would be lost, including 488.1 high-value functional units.	Based on partial availability of functional assessment data, 444.6 functional units would be lost, including 142.5 high-value functional units. However, as wetland functional assessment information is not available for wetlands potentially impacted by the EFSFSR DRSF and TSF (Alternative 3-specific components), the total functional units lost under Alternative 3 is not comparable to total functional units lost under other action alternatives.	756.3 functional units would be lost, including 485.4 high-value functional units.	None.
Wetland and riparian area fragmentation.	Number of wetlands crossed by new roads.	Figures of these features and impacts under the alternatives are in **Appendix I**.	139 wetlands would be crossed by new roads.	86 wetlands would be crossed by new roads.	181 wetlands would be crossed by new roads.	62 wetlands would be crossed by new roads.	None.
Wetland and riparian area fragmentation.	Total area (in acres) of wetlands that would be lost.	Extents of wetlands and riparian resources are presented in Chapter 3 (**Table 3.11-3a** through **Table 3.11-3e**). Figures of these features and impacts under the alternatives are in **Appendix I**.	172.2 wetland acres lost.	162.5 wetland acres lost.	173.4 wetland acres lost.	158.3 wetland acres lost.	None.
Alteration of wetland and riparian areas due to changes in water balance.	Wetland acres within indirect impact area that would be affected by groundwater drawdown (maximum extent of drawdown under all years).	Extents of wetlands are presented in Chapter 3. Figures of simulated alluvial drawdown at years 6, 7 and 12 are presented in Section 4.8 (**Figures 4.8-23** to **4.8-25**).	48.6 acres of wetlands would be affected by drawdown. The entirety of these wetlands also would be subject to direct impacts from alternative component construction.	46.7 acres of wetlands would be affected by drawdown. The entirety of these wetlands also would be subject to direct impacts from alternative component construction.	40.3 acres of wetlands would be affected by drawdown. The entirety of these wetlands also would be subject to direct impacts from alternative component construction.	48.6 acres of wetlands would be affected by drawdown. The entirety of these wetlands also would be subject to direct impacts from alternative component construction.	None.
Alteration of wetland and riparian areas due to changes in water quality.	Quantitative analysis of estimated changes in water quality parameters based on predictive water modelling in areas coincident with wetlands within the indirect impact area.	Refer to Water Quality section (Section 4.9) for anticipated baseline and predicted water quality parameters.	The SGP would impact water quality, which would in turn impact wetlands and RCAs. See Surface Water and Groundwater Quality section (Section 4.9).	Water quality effects on wetlands and riparian areas would be similar as under Alternative 1 though design features would minimize water quality impacts.	Water quality effects on wetlands and riparian areas would be similar to as described under Alternative 1 with slight differences due to location of SGP features. Alternative 3 would experience greater impacts to water quality from the lack of reprocessing of spent ore disposal area and Bradley tailings.	Water quality effects on wetlands and riparian areas would be similar as under Alternative 1, though no construction or use of Burntlog Route would eliminate water quality impacts in that area, but would increase the impacts along the Yellow Pine Route that is parallel and near EFSFSR and Johnson Creek.	None.

Issue	Indicator	Baseline Conditions	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Fish Resources and Fish Habitat							
The SGP may cause changes in fish habitat in the analysis area that may affect aquatic species, including federally listed fish species and aquatic habitat (e.g., critical habitat) and Management Indicator Species within and downstream of the SGP area.	Length (km) of stream and lake habitat directly impacted by removal.	Not applicable.	EFSFSR: 1.6 km. Fiddle Creek: 1.8 km. Meadow Creek: 5.6 km. East Fork Meadow Creek: 1.8 km. Yellow Pine Pit Lake: 1.9 hectares.	Same as Alternative 1.	EFSFSR: 9.5 km. Fiddle Creek: 1.8 km. Meadow Creek: 0.6 km. East Fork Meadow Creek: 7.7 km. Rabbit Creek: 0.8 km. Fern Creek: 0.6 km. Yellow Pine Pit Lake: 1.9 hectares.	EFSFSR: 2.9 km. Fiddle Creek: 1.8 km. Meadow Creek: 6.3 km. East Fork Meadow Creek: 1.8 km (surface diversion would incorporate step pool channel enhancements rather than a rock drain). Yellow Pine Pit Lake: 1.9 hectares.	No stream channel changes.
	Change in amount of total useable Chinook salmon Intrinsic Potential (IP) habitat in km.	18.61 km.	Loss of 1.78 km (9.6 percent).	Loss of 0.93 km (5 percent).	Loss of 5.17 km (27 percent).	Same as Alternative 1.	No changes from baseline.
	Direct loss of Chinook salmon critical habitat.	26.49 km.	Loss of 5.5 km (20.8 percent) – permanent barrier from Meadow Creek TSF/DRSF.	Loss of 5.5 km (20.8 percent) – permanent barrier from Meadow Creek TSF/DRSF.	Loss of 6.9.km (26.0 percent) – permanent barrier from EFSFSR TSF/DRSF.	Same as Alternative 1.	No changes from baseline.
The SGP may cause changes in fish habitat in the analysis area that may affect aquatic species, including federally listed fish species and aquatic habitat (e.g., critical habitat) and Management Indicator Species within and downstream of the SGP area.	Change in total useable steelhead trout IP habitat.	17.90 km.	Gain of 1.41 km (8 percent).	Gain of 2.3 km (13 percent).	Gain of 0.8 km (4.4 percent).	Same as Alternative 1.	No changes from baseline.
	Length of bull trout habitat (km).	<u>Baseline</u> Stream Reach 1: 10.45 km. Stream Reach 2: 15.10 km. Stream Reach 3: 16.15 km. Stream Reach 5: 41.70 km.	<u>Post-closure (EOY 112)</u> Stream Reach 1: 10.43 km. Stream Reach 2: 14.61 km. Stream Reach 3: 16.15 km. Stream Reach 5: 41.19 km.	<u>Post-closure (EOY 112)</u> Stream Reach 1: 10.92 km. Stream Reach 2: 14.72 km. Stream Reach 3: 16.16 km. Stream Reach 5: 41.80 km.	<u>Post-closure (EOY 112)</u> Stream Reach 1: 10.88 km. Stream Reach 2: 13.86 km. Stream Reach 3: 17.20 km. Stream Reach 5: 41.94 km.	Same as Alternative 1.	No changes from baseline.
	Bull trout occupancy probability (percent).	<u>Baseline</u> Stream Reach 1: 9.51%. Stream Reach 2: 6.27%. Stream Reach 3: 9.34%. Stream Reach 5: 8.31%.	<u>Post-closure (EOY 112)</u> Stream Reach 1: 8.40%. Stream Reach 2: 4.76%. Stream Reach 3: 8.81%. Stream Reach 5: 7.27%.	<u>Post-closure (EOY 112)</u> Stream Reach 1: 6.56%. Stream Reach 2: 4.37%. Stream Reach 3: 7.40%. Stream Reach 5: 6.11%.	<u>Post-closure (EOY 112)</u> Stream Reach 1: 7.16%. Stream Reach 2: 5.22%. Stream Reach 3: 3.77%. Stream Reach 5: 5.13%.	Same as Alternative 1.	No changes from baseline.
	Direct loss of bull trout critical habitat	17.11 km.	Loss of 4.7 km (27.5 percent).	Loss of 4.7 km (27.5 percent).	Loss of 11.9 km (69.5 percent).	Same as Alternative 1.	No changes from baseline.

Issue	Indicator	Baseline Conditions	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
	Change in access to bull trout lake habitat.	Bull trout can currently use the Yellow Pine pit lake.	The existing bull trout habitat in the Yellow Pine pit Lake would be permanently lost. Access to the Hangar Flats pit lake would begin in year 20; however, potentially warmer water temperatures and less foraging habitat in comparison to the Yellow Pine pit lake may make the lake habitat less suitable for bull trout.	Under Alternative 2, Meadow Creek would not be routed through the Hangar Flats pit lake so there would be no connection between Meadow Creek and the Hangar Flats pit lake except as occasional outflow from the lake through a channel that would reconnect with lower Meadow Creek downstream of the lake, which may be insufficient to provide for passage of bull trout for most of the year.	Alternative 3 would have similar conditions for bull trout access to lakes as Alternative 1.	The EFSFSR Tunnel would not be designed as fish passable, so bull trout would have no access to Hangar Flats pit lake habitat until after the EFSFSR stream is fully constructed in Mine Year 13.	Bull trout would continue to use Yellow Pine pit lake.
	Length of cutthroat trout habitat (km).	<u>Baseline</u> Stream Reach 1: 10.45 km. Stream Reach 2: 15.10 km. Stream Reach 3: 16.15 km. Stream Reach 5: 41.70 km.	<u>Post-closure (EOY 112)</u> Stream Reach 1: 10.43 km. Stream Reach 2: 14.61 km. Stream Reach 3: 16.15 km. Stream Reach 5: 41.19 km.	<u>Post-closure (EOY 112)</u> Stream Reach 1: 10.92 km. Stream Reach 2: 14.72 km. Stream Reach 3: 16.16 km. Stream Reach 5: 41.80 km.	<u>Post-closure (EOY 112)</u> Stream Reach 1: 10.88 km. Stream Reach 2: 13.86 km. Stream Reach 3: 17.20 km. Stream Reach 5: 41.94 km.	Same as Alternative 1.	No changes from baseline.
	Cutthroat trout occupancy probability (percent).	<u>Baseline</u> Stream Reach 1: 63.73%. Stream Reach 2: 64.06%. Stream Reach 3: 63.59%. Stream Reach 5: 63.79%.	<u>Post-closure (EOY 112)</u> Stream Reach 1: 64.40%. Stream Reach 2: 62.90%. Stream Reach 3: 63.65%. Stream Reach 5: 63.57%.	<u>Post-closure (EOY 112)</u> Stream Reach 1: 63.66%. Stream Reach 2: 63.90%. Stream Reach 3: 63.04%. Stream Reach 5: 63.51%.	<u>Post-closure (EOY 112)</u> Stream Reach 1: 63.37%. Stream Reach 2: 64.62%. Stream Reach 3: 62.83%. Stream Reach 5: 63.57%.	Same as Alternative 1.	No changes from baseline.
The SGP may cause changes in fish habitat in the analysis area that may affect aquatic species, including federally listed fish species and aquatic habitat (e.g., critical habitat) and Management Indicator Species within and downstream of the SGP area.	Changes in monthly discharge during the August-March low flow period (percent change in cfs).	Mean monthly discharge at baseline at 6 locations: EFSFSR above Meadow: 5.0 cfs. EFSFSR at Stibnite: 10.6 cfs. EFSFSR above Sugar Creek: 15.4 cfs. Sugar Creek: 11.7 cfs. Meadow Creek: 3.1 cfs. Meadow Creek MC-6: 5.3 cfs.	Change in mean monthly discharge from baseline to post-closure at 6 locations: EFSFSR above Meadow: -0.2%. EFSFSR at Stibnite: +1.3%. EFSFSR above Sugar Creek: -4.5%. Sugar Creek: -3.5%. Meadow Creek: -83.1%. Meadow Creek MC-6: +1.5%.	Change in mean monthly discharge from baseline to post-closure at 6 locations: EFSFSR above Meadow: +1.9%. EFSFSR at Stibnite: +2.5%. EFSFSR above Sugar Creek: +1.7%. Sugar Creek: -0.9%. Meadow Creek: -78.6%. Meadow Creek MC-6: +0.1%.	Change in mean monthly discharge from baseline to post-closure at 6 locations: EFSFSR above Meadow: -0.8%. EFSFSR at Stibnite: +2.7%. EFSFSR above Sugar Creek: +2.0%. Sugar Creek: -1.8%. Meadow Creek: -2.5%. Meadow Creek MC-6: +3.1%.	Same as Alternative 1.	Trends in baseline stream flows would continue.

Issue	Indicator	Baseline Conditions	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
	Changes in water temperature (ºC).	Summer Maximum Temperatures (ºC): Upper EFSFSR (above MC): 13.4. Meadow Creek (above EFMC): 17.9. Meadow Creek (below EFMC): 19.8. Middle EFSFSR (between Meadow and Fiddle Creeks): 17.4. Lower EFSFSR (between Fiddle and Sugar Creek): 17.4. EFSFSR downstream of Sugar Creek: 14.9.	Change in Summer Maximum from Baseline to post-closure (ºC): Upper EFSFSR (above MC): +0.5. Meadow Creek (above EFMC): +2.0. Meadow Creek (below EFMC): +1.4. Middle EFSFSR (between Meadow and Fiddle Creeks): +2.6. Lower EFSFSR (between Fiddle and Sugar Creek): +4.2. EFSFSR downstream of Sugar Creek: +4.4.	Change in Summer Maximum from Baseline to post-closure (ºC): Upper EFSFSR (above MC): +0.5. Meadow Creek (above EFMC): +4.8. Meadow Creek (below EFMC): +2.6. Middle EFSFSR (between Meadow and Fiddle Creeks): +2.4. Lower EFSFSR (between Fiddle and Sugar Creek): +3.3. EFSFSR downstream of Sugar Creek: +4.1.	Change in Summer Maximum from Baseline to post-closure (ºC): Upper EFSFSR (above MC): +9.0. Meadow Creek (above EFMC): +0.9. Meadow Creek (below EFMC): +1.4. Middle EFSFSR (between Meadow and Fiddle Creeks): +4.9. Lower EFSFSR (between Fiddle and Sugar Creek): +4.8. EFSFSR downstream of Sugar Creek: +4.5.	Same as Alternative 1.	Not applicable.
	Chinook Salmon - Changes in Lengths (km) of Stream Reaches within Temperature Threshold Categories at EOY 112 Note: + = added length within threshold from baseline; - = less length within threshold from baseline	Adult Migration - Lethal (1-week exposure) – (0.00 km) Adult Spawning - Field Observed Spawning Temperature – (16.72 km) Incubation/Emergence – Optimal – (4.99 km) Juvenile Rearing – Optimal – (16.72 km) Common Summer Habitat Use – Optimal – (16.72 km) Total Available Habitat – (16.72 km)	Adult Migration - Lethal (1-week exposure) – (+2.65 km) Adult Spawning - Field Observed Spawning Temperature – (-5.63 km) Incubation/Emergence – Optimal – (+2.58 km) Juvenile Rearing – Optimal – (-9.05 km) Common Summer Habitat Use – Optimal – (-9.05 km) Total Available Habitat – (-4.02 km)	Adult Migration - Lethal (1-week exposure) – (0.00 km) Adult Spawning - Field Observed Spawning Temperature – (-4.6 km) Incubation/Emergence – Optimal – (-0.58 km) Juvenile Rearing – Optimal – (-6.43 km) Common Summer Habitat Use – Optimal – (-6.43 km) Total Available Habitat – (-4.6 km)	Adult Migration - Lethal (1-week exposure) – (+6.49 km) Adult Spawning - Field Observed Spawning Temperature – (-6.11 km) Incubation/Emergence – Optimal – (-4.99 km) Juvenile Rearing – Optimal – (-11.13 km) Common Summer Habitat Use – Optimal – (-11.13 km) Total Available Habitat – (-4.5 km)	Same as Alternative 1	Not applicable
	Steelhead Trout – Changes in Lengths (km) of Stream Reaches within Temperature Threshold Categories at EOY 112 Note: + = added length within threshold from baseline; - = less length within threshold from baseline	Juvenile Rearing – Optimal – (2.13 km) Common Summer Habitat Use – Optimal – (2.13 km) Total Available Habitat – (2.13 km)	Juvenile Rearing – Optimal – (+5.54 km) Common Summer Habitat Use – Optimal – (+5.54 km) Total Available Habitat – (+10.57 km)	Juvenile Rearing – Optimal – (+8.16 km) Common Summer Habitat Use – Optimal – (+6.98 km) Total Available Habitat – (+9.99 km)	Juvenile Rearing – Optimal – (+3.46 km) Common Summer Habitat Use – Optimal – (+3.46 km) Total Available Habitat – (+10.09 km)	Same as Alternative 1	Not applicable
	Bull Trout - Changes in Lengths of Stream Reaches within Temperature Threshold Categories at EOY 112 Note: + = added length within threshold from baseline; - = less length within threshold from baseline	Adult Spawning – Functioning Appropriately – (1.61 km) Adult Spawning – Functioning at Risk – (8.69 km) Adult Spawning – Functioning at Unacceptable Risk – (18.69 km) Incubation/Emergence – Functioning at Unacceptable Risk – (28.99 km) Juvenile Rearing – Functioning Appropriately – (13.66 km) Juvenile Rearing – Functioning at Risk – (12.89 km)	Adult Spawning – Functioning Appropriately – (-1.61 km) Adult Spawning – Functioning at Risk – (-4.28 km) Adult Spawning – Functioning at Unacceptable Risk – (-7.01 km) Incubation/Emergence – Functioning at Unacceptable Risk – (-12.9 km) Juvenile Rearing – Functioning Appropriately – (-7.80 km) Juvenile Rearing – Functioning at Risk – (-10.31 km)	Adult Spawning – Functioning Appropriately – (-1.61 km) Adult Spawning – Functioning at Risk – (-4.28 km) Adult Spawning – Functioning at Unacceptable Risk – (-6.98 km) Incubation/Emergence – Functioning at Unacceptable Risk – (-12.87 km) Juvenile Rearing – Functioning Appropriately – (-7.25 km) Juvenile Rearing – Functioning at Risk – (-9.85 km)	Adult Spawning – Functioning Appropriately – (-1.61 km) Adult Spawning – Functioning at Risk – (-7.10 km) Adult Spawning – Functioning at Unacceptable Risk – (+0.13 km) Incubation/Emergence – Functioning at Unacceptable Risk – (-8.58 km) Juvenile Rearing – Functioning Appropriately – (-8.71 km) Juvenile Rearing – Functioning at Risk – (-6.95 km)	Same as Alternative 1	Not applicable

Issue	Indicator	Baseline Conditions	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
		Juvenile Rearing – Functioning at Unacceptable Risk – (2.44 km) Common Summer Habitat – Use – Spawning Initiation – (8.66 km) Total Available Habitat – (28.99 km)	Juvenile Rearing – Functioning at Unacceptable Risk – (+5.21 km) Common Summer Habitat – Use – Spawning Initiation – (-2.80 km) Total Available Habitat – (-12.9 km)	Juvenile Rearing – Functioning at Unacceptable Risk – (+4.23 km) Common Summer Habitat – Use – Spawning Initiation – (-2.25 km) Total Available Habitat – (-12.87 km)	Juvenile Rearing – Functioning at Unacceptable Risk – (+7.08 km) Common Summer Habitat – Use – Spawning Initiation – (-3.71 km) Total Available Habitat – (-8.58 km)		
	Changes in water chemistry (above analysis criteria), at the mine site	Refer to **Table 3.12-24** for baseline measurements.	Predicted post-closure exceedance by constituent of concern: Aluminum: No exceedance. Copper: EFSFSR – 0.00265 mg/L and Meadow Creek – 0.005 mg/L. Antimony: Exceedance at YP-T-27 (0.225 mg/L) and YP-SR-4 (0.051 mg/L). Arsenic: Exceeds at all but 2 nodes, highest concentration at YP-T-11:Fiddle Creek (0.79 mg/L). Mercury: Exceeds at all but 1 node, highest concentration at YP-T-6:West End Creek (9.0E-06).	During post-closure YP-SR-4 seasonally exceeds the analysis criteria for antimony, arsenic, and mercury. YP-SR-2, YP-T-11, and YP-T-6 exceed the analysis criteria for mercury.	Similar to Alternative 1, except the spent ore and legacy tailings in Meadow Creek Valley would not be removed. Chemical constituent levels in Meadow Creek would likely be similar to baseline conditions.	Same as Alternative 1.	No changes from baseline.
The SGP may affect fish species by degrading water quality in waterways adjacent to access roads.	Amount of increased traffic (average daily traffic).	Refer to **Table 3.16-2**.	Increases in AADT over baseline: Construction Phase = 65 vehicles. Operations Phase = 68 vehicles. Closure and Reclamation Phase = 25 vehicles. Post Closure Phase = 6 vehicles.	Increases in AADT over baseline: Construction Phase = 65 vehicles. Operations Phase = 50 vehicles. Closure and Reclamation Phase = 25 vehicles. Post Closure Phase = 6 vehicles. Water Chemical Delivery = 40 trucks per year (Operations and Closure and Reclamation phases).	Same as Alternative 1.	Same as Alternative 1 except the traffic level on Burnt Log Road would remain at baseline since it would not be used for mine site access. The access road traffic during operations would shift from the Burntlog Route to the Yellow Pine Route.	No change from baseline.

Issue	Indicator	Baseline Conditions	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
The SGP may affect fish populations through establishment of fish access upstream of the Yellow Pine pit.	Changes in migratory patterns of fish.	Several barriers exist on the EFSFSR and Meadow Creek, including the gradient barrier at the Yellow Pine pit lake, which currently blocks 10.4 km of Chinook salmon habitat, 8.8 km of steelhead trout habitat, and 39.7 km of bull trout and cutthroat trout habitat.	Fish passage at Yellow Pine pit lake would initially be provided in a the EFSFSR tunnel, then ultimately by backfilling the Yellow Pine pit and building a new stream channel over the top of the backfill, thereby providing permanent fish passage through the area. The Meadow Creek diversions and then construction and operation of TSF/DRSF and the construction/operation of the DRSF in Fiddle Creek would create new barriers to natural fish movement that would be permanent.	Same as Alternative 1, except Meadow Creek would be permanently routed around the Hangar Flats pit lake likely creating a barrier to bull trout lake habitat.	Same as Alternative 1, except the existing partial barrier in Meadow Creek would remain in perpetuity, blocking 9.5 km of fish habitat, and the TSF/DRSF would be located in the upper EFSFSR drainage where it would create a barrier that would permanently block 15.7 km of fish habitat to natural migration.	Same as Alternative 1, except the EFSFSR tunnel would not be designed as fish passable. Natural migration up or downstream through the Yellow Pine pit area would not be available until after full reclamation of the EFSFSR through the Yellow Pine pit area is complete in Mine Year 13. The Yellow Pine pit barrier would continue to block access to 10.4 km of Chinook salmon habitat, 8.8 km of steelhead habitat, and 39.7 km of bull trout and cutthroat trout habitat.	No change from baseline.
	Length of suitable habitat upstream of the Yellow Pine pit lake (km).	Chinook salmon IP modeled habitat:11.4 km Steelhead trout IP modeled habitat: 8.8 km. Bull trout and cutthroat trout OM habitat: 39.7 km.	Chinook salmon IP modeled habitat: 6.9 km. Steelhead trout IP modeled habitat: 8.9 km. Bull trout and cutthroat trout OM habitat: 39.8 km.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1, except that access to all fish habitat upstream of the Yellow Pine pit lake would remain blocked until Mine Year 13.	Same as Baseline.
The SGP may affect fish health through hazardous material spills at the mine site or along the access roads.	Length of Chinook salmon IP habitat within 91 meters of access routes.	Not applicable.	Yellow Pine Route: 36 km. Burntlog Route: 7.3 km. Warm Lake Road: 9.2 km.	Yellow Pine Route and Warm Lake Road, same as Alternative 1. Burntlog Route: 5.91 km.	Yellow Pine Route and Warm Lake Road, same as Alternative 1. Burntlog Route: 4.83 km.	Yellow Pine Route and Warm Lake Road, same as Alternative 1. Potential impacts would be for all phases of SGP. The Burntlog Route would not be constructed under Alternative 4.	Not applicable.
	Length of critical habitat for steelhead and bull trout within 91 meters of access routes.	Not applicable.	Yellow Pine Route: Steelhead Trout-32.3 km, and Bull Trout - 33.7 km. Burntlog Route: Steelhead Trout – 1.62 km, and Bull Trout – 8.87 km. Warm Lake Road: Steelhead Trout – 4.06 km, and Bull Trout – 9.05 km.	Yellow Pine Route and Warm Lake Road, same as Alternative 1. Burntlog Route: Steelhead Trout – 1.23 km, and Bull Trout – 7.67 km.	Yellow Pine Route and Warm Lake Road, same as Alternative 1. Burntlog Route: Steelhead Trout – 1.23 km, and Bull Trout – 5.74 km.	Yellow Pine Route and Warm Lake Road, same as Alternative 1. Potential impacts would be for all phases of SGP. The Burntlog Route would not be constructed under Alternative 4.	Not applicable.
Access and Transportation							
The SGP may affect access to public lands during mine construction, operations, and closure and reclamation.	Number, location, and description of changes in access due to new and improved roadways.	See **Table 3.16-1** and **Figure 3.16-1.**	- Burnt Log Road (plowed). - No public access through the mine site during operations. Loss of winter groomed OSV trail on Warm Lake Road to Landmark.	Same as Alternative 1 except: - Mine site public access during operations (Option 1 and 2) (not plowed). Rerouted Riordan Creek Segment on Burntlog Route (plowed).	Same as Alternative 1 except: EFSFSR TSF public access or mine access route upon closure and reclamation.	Same as Alternative 1 except: - no Burntlog Route, only Yellow Pine Route (plowed).	No change from baseline conditions.

Issue	Indicator	Baseline Conditions	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
The SGP may change the miles of roads and trails, the amount of use, and types of vehicles on each road or trail.	Miles of new road for public use.	Forest Service = 1,557 miles. Valley County = 278 miles. State = 131 miles.	Forest Service = no change. Valley County = 2.5 miles[1]. State = no change. Private = 15 miles[2].	Forest Service = no change. Valley County = 2.5 miles[1]. State = no change. Private = 13.5 miles (with an additional 3 to 4 miles through the mine site)[3].	Forest Service = 7.6-9 miles[4]. Valley County = 2.5 miles[1]. State = no change. Private = 19.6 miles[2].	Forest Service = no change. Valley County = 2.5 miles[1]. State = no change. Private = 4 miles through the mine site[5].	No change from baseline conditions.
The SGP may affect public safety on the roads used by mine vehicles during construction, operations, and closure and reclamation activities.	Approximate miles of roads used by mine vehicles.	Yellow Pine Route = 70 miles South Fork Salmon River Road = 83 miles. Burntlog Route = 0 mile (does not exist).	Yellow Pine Route = 70 miles. Burntlog Route = 73 miles.	Yellow Pine Route = 70 miles. Burntlog Route = 71 miles.	Yellow Pine Route = 70 miles. Burntlog Route = 75 miles.	Yellow Pine Route = 70 miles. Burntlog Route = 0 mile.	No change from baseline conditions.
The SGP may affect public safety on the roads used by mine vehicles during construction, operations, and closure and reclamation activities.	Change in traffic volume. (AADT).	Refer to **Table 3.16-2**.	Construction = 65 (45 HV). Operations = 68 (49 HV). Closure-Reclamation = 25 (13 HV). Post-Closure = 6 (0 HV).	Construction = 65 (45 HV). Operations = 50 (33 HV). Closure-Reclamation = 25 (13 HV). Post-Closure = 6 (0 HV). *Additional 40 truck trips (O and C-R) per year required to deliver chemicals for water treatment.	Same as Alternative 1.	Same as Alternative 1.	No change from baseline conditions.
The SGP may change the miles of roads and trails, the amount of use, and types of vehicles on each road or trail.	Change in amount of use.	See **Table 3.16-1** for existing roads.	**Yellow Pine Route** = 5 mine-related vehicles/hr (Construction). **Burntlog Route** = 5 mine-related vehicles/hr (Operations); 2 mine-related vehicles/hr (Closure-Reclamation).	Same as Alternative 1 except: **Burntlog Route** = 4 mine-related vehicles/hr (Operations).	Same as Alternative 1.	Same as Alternative 1 except all phases occurring on Yellow Pine Route.	No change from baseline conditions.
The SGP may affect public safety on the roads used by mine vehicles during construction, operations, and closure and reclamation activities.	Number of accidents, both current and projected.	Warm Lake Road = 8/year. Johnson Creek Road = 2/year. Stibnite Road = 1/year.	Midas Gold would implement safety measures to reduce accidents including radio communication.	On-site lime generation would result in fewer mine-related vehicle trips and a decrease in the likelihood of being in an accident.	Same as Alternative 1.	Yellow Pine Route has a steeper topography and terrain that would require wider roads, more cut/fill sections, and more switchbacks.	No change from baseline conditions.
The SGP may affect public safety on the roads used by mine vehicles during construction, operations, and closure and reclamation activities.	Change in emergency access.	N/A.	Additional access routes via public access through the mine site upon closure (Closure-Reclamation). Removal of Warm Lake OSV (Construction/Operations/Closure-Reclamation) and Johnson Creek OSV (Construction).	Same as Alternative 1 except: - public access through mine site.	Same as Alternative 1.	Same as Alternative 1.	N/A.

Issue	Indicator	Baseline Conditions	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Scenic Resources							
The SGP may cause changes to scenic resources.	Visual contrast.	Landscape is characterized by valley floors surrounded by mountains with steep terrain broken up by narrow gorges and streams. Vegetation includes grass and evergreens. Existing modifications include the existing mine site, forest roads, transmission lines, and residences in the western portion of the analysis area.	New disturbances within the footprint of existing modifications would appear similar to existing modifications but at a larger scale. Visual contrast would increase due to larger road width, more vegetation removal, and new retaining walls. New right-of-way for a new transmission line and wider right-of-way of the upgraded transmission line would introduce high visual contrast. SGP components would result in a high level of change to the characteristic landscape during operations; permanent changes, although less than during operations, would result.	Similar to Alternative 1, except there would be slightly less visual contrast from the mine site due to absence of West End DRSF, and residents of the Thunder Mountain Estates development would experience fewer changes due to location of the transmission line away from the development.	Similar to Alternative 1 except visibility of changes from the mine site would differ as the Hangar Flats TSF would be located in the EFSFSR drainage and not visible from the Meadow Creek Lookout. There would be no public access through the mine site and, therefore, no new viewing platform providing foreground views of the mine site. The new transmission line would result in a lower level of visual change than Alternative 1 where it would follow an existing access road.	Changes associated with the mine site would be the same as Alternative 1. There would be no visual changes from Burntlog Route, because that would not be constructed. Landscape changes would result from the upgrades to Yellow Pine Route. Visual change from utilities would be the same except for additional periodic impacts from helicopters during construction and maintenance activity for communications sites.	The landscape character would not be changed by mine site activity or new or improved access roads, transmission lines, or offsite facilities associated with the mine.
The SGP may cause changes to scenic resources.	SGP component visibility.	Nighttime lighting in the analysis area is minimal and generally limited to residential areas in the western portion of the analysis area.	Nighttime lighting would increase substantially in the mine site. Additional nighttime light sources would include the maintenance facilities and vehicle headlights as they travel on mine access roads.	Similar to Alternative 1, except lighting from vehicles would occur to a slightly different area as a result of the 5.28-mile re-route of Burntlog Route. Lighting from the maintenance facility would be further east due to the different location of the maintenance facility.	Similar to Alternative 1, except lighting from worker housing would be located further west in the East Fork Meadow Creek drainage. Effects to skyglow would be the same.	Similar to Alternative 1, except SGP vehicle lights from vehicles traveling to and from the mine site would occur along the Yellow Pine Route, north and west of the Burntlog Route.	Nighttime lighting in the analysis area would not change as a result of the mine site or associated traffic or maintenance buildings.
Inventoried Roadless Areas (IRAs)							
The SGP may impact roadless character in IRAs and lands contiguous to unroaded areas.	Miles and acres of new roads in IRAs or contiguous unroaded lands.	Thirteen IRAs within the analysis area are managed for roadless character.	During construction and mine operation a total of 17 miles (215 acres) of access roads within five IRAs (Meadow Creek, Horse Heaven, Black Lake, Burnt Log, and Reeves Creek). Within Meadow Creek, Black Lake, and Burnt Log IRAs, 1.5 miles of soil nail walls would be constructed in association with Burntlog Route. After mine closure 1.5 miles of retaining wall (soil nail wall) would remain within the IRAs.	During construction and mine operation a total of 13 miles (204 acres) of access roads within five IRAs (Meadow Creek, Horse Heaven, Black Lake, Burnt Log, and Reeves Creek). Within Meadow Creek, Black Lake, and Burnt Log IRAs, 0.5 miles of soil nail walls would be constructed in association with Burntlog Route. After mine closure, 0.5 miles of retaining walls, and 3.1 miles of access road for the new transmission line would remain within the IRAs.	Total of 17 miles (167 acres) of access roads within five IRAs (Meadow Creek, Horse Heaven, Black Lake, Burnt Log, and Reeves Creek). Within Meadow Creek, Black Lake, and Burnt Log IRAs, 1.5 miles of soil nail walls would be constructed in association with Burntlog Route. After mine closure 1.5 miles of retaining walls and 2.2 miles of Burntlog Route would remain in the IRAs.	No access roads within IRAs.	No new roads within IRAs.

Issue	Indicator	Baseline Conditions	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
The SGP may impact roadless character in IRAs and lands contiguous to unroaded areas.	Number and acres of proposed SGP facilities in IRAs or contiguous unroaded lands.	Thirteen IRAs within the analysis area are managed for roadless character.	Total of 752 acres of SGP facilities within six IRAs (Meadow Creek, Horse Heaven, Black Lake, Burnt Log, Caton Lake, and Reeves Creek). After mine closure 491 acres of TSF and DRSFs structures would remain in Meadow Creek and Horse Heaven IRAs.	Total of 740 acres of SGP facilities within six IRAs (Meadow Creek, Horse Heaven, Black Lake, Burnt Log, Caton Lake, and Reeves Creek). After mine closure 524 acres of TSF and DRSFs and transmission line structures would remain in Meadow Creek and Horse Heaven IRAs.	Total of 650 acres of SGP facilities within six IRAs (Meadow Creek, Horse Heaven, Black Lake, Burnt Log, Caton Lake, and Reeves Creek). After mine closure 455 acres of TSF and DRSFs structures would remain in Meadow Creek and Horse Heaven IRAs.	Total of 531 acres of SGP facilities within four IRAs (Meadow Creek, Horse Heaven, Caton Lake, and Reeves Creek). After mine closure 491 acres of TSF and DRSFs structures would remain in Meadow Creek and Horse Heaven IRAs.	No new facilities within IRAs.
Tribal Rights and Interests							
The SGP would impact tribal resources, restrict tribal access, and reduce viability and/or availability of culturally significant fish, wildlife, and plants.	Changes in tribal access due to the restricted access Operations Area Boundary.	Tribal access and use of the region has long-standing and on-going cultural importance and subsistence value. Currently there is no restricted access on NFS lands in the SGP area. Some restrictions are in place on private lands.	The SGP would restrict tribal access in the 3,533-acre SGP footprint and the 13,446 acres of public land within the Operations Area Boundary. Burntlog Route, a new off-highway vehicle connector, and new over-snow vehicle groomed trails would provide new and/or improved access to the SGP area and vicinity, which could have a positive impact by providing tribes year-round access to previously inaccessible traditional use areas. There would not be a public access road through the mine. Length of time of restricted access is 20 years. This could result in loss of tribal cultural practices important to tribal identity.	Same as Alternative 1, except for: • The SGP footprint would occupy 3,423 acres. • Public access would be provided through the mine site. The Riordan Creek Segment of the Burntlog Route could result in increased use of the Black Lake area and No Return Wilderness by recreational users, impacting tribal members if there is an actual or perceived decrease in their access to, availability, and/or quality of tribal resources.	Same as Alternative 1, except for: • The SGP footprint would occupy 3,610 acres. • The public land within the SGP Operations Area Boundary would occupy a larger area of 17,034 acres. • Closure and reclamation would include a permanent roadway around the TSF that would provide improved SGP area access.	Same as Alternative 1, except for: • The Project footprint would occupy 3,219 acres. • Burntlog Route would not be constructed. • Public access would be provided through the mine site. Stibnite Road would not be returned to its pre-mining width and traffic would be greatly reduced. This could encourage use of tribal resources east of the mine.	Except for the Golden Meadows Exploration mine site area, future access to subsistence resources and for cultural uses in the existing SGP area would remain unchanged.

Acronyms:

AADT = annual average daily traffic; cfs = cubic feet per second; °C = degrees Celsius; DRSF = development rock storage facility; EFSFSR = East Fork South Fork Salmon River; EOY = end of year; hr = hour; HV = heavy vehicles; IP = intrinsic potential; IRA = inventoried roadless area; km = kilometers (1 km = .62 mile); m^2 = meters squared; mg/L = milligrams per liter; MT = million tons; N/A = not applicable; NFS = National Forest System; ng/L = nanograms per liter; OHV = off-highway vehicle; OSV = over-snow vehicle; % = percent; SODA = spent ore disposal area; TSF = tailings storage facility

Table Notes Surface and Groundwater Quality:

1 **Bolded** concentration values exceed the respective water quality standard.

2 Concentration data for the EFSFSR represent the maximum annual average (Alternatives 1 and 2) or the average (Alternative 3) post closure concentrations predicted for the EFSFSR assessment nodes (YP-SR-10, YP-SR-8, YP-SR-6, YP-SR-4, and YP-SR-2), and do not include effects of water treatment. (Concentration summaries for each individual node by alternative are provided in **Figures 4.9-1, 4.9-12, 4.9-14**, and **Tables 4.9-10, 4.9-18,** and **4.9-22**). Although not discussed in the text of Section 4.9, Surface Water and Groundwater Quality, predicted concentrations are presented in the summary table above for aluminum since aluminum concentrations are relevant to the fish impacts analysis (Section 4.12, Fish Resources and Fish Habitat).

Table Notes Access and Transportation:

1 Additional miles of new road for public access post-closure would require revision to the existing FRTA easement with Valley County.

2 The newly constructed Burntlog Road would be a temporary road necessary for mining purposes (pursuant to 36 CFR 228A[f]). The duration for public access on private roads outside of the mine site (i.e., temporary mining access roads associated with the Project) when other public access roads are blocked by mine operations would only occur during the life of the mine.

3 The newly constructed Burntlog Road would be a temporary road necessary for mining purposes (pursuant to 36 CFR 228A[f]). The duration for public access on private roads outside of and through the mine site (i.e., temporary mining access roads associated with the Project) when other public access roads are blocked by mine operations would only occur during the life of the mine.

4 Additional miles of new road for public access post-closure attributed to the EFSFSR TSF public access or mine access routes.

5 During the life of the mine, mine traffic would utilize the existing road network. No new roads would be constructed outside of the mine site; however, public access would be provided on private roads through the mine site (i.e., temporary mining access roads associated with the Project) when other public access roads are blocked by mine operations for the duration of the Project.