Perpetua Resources

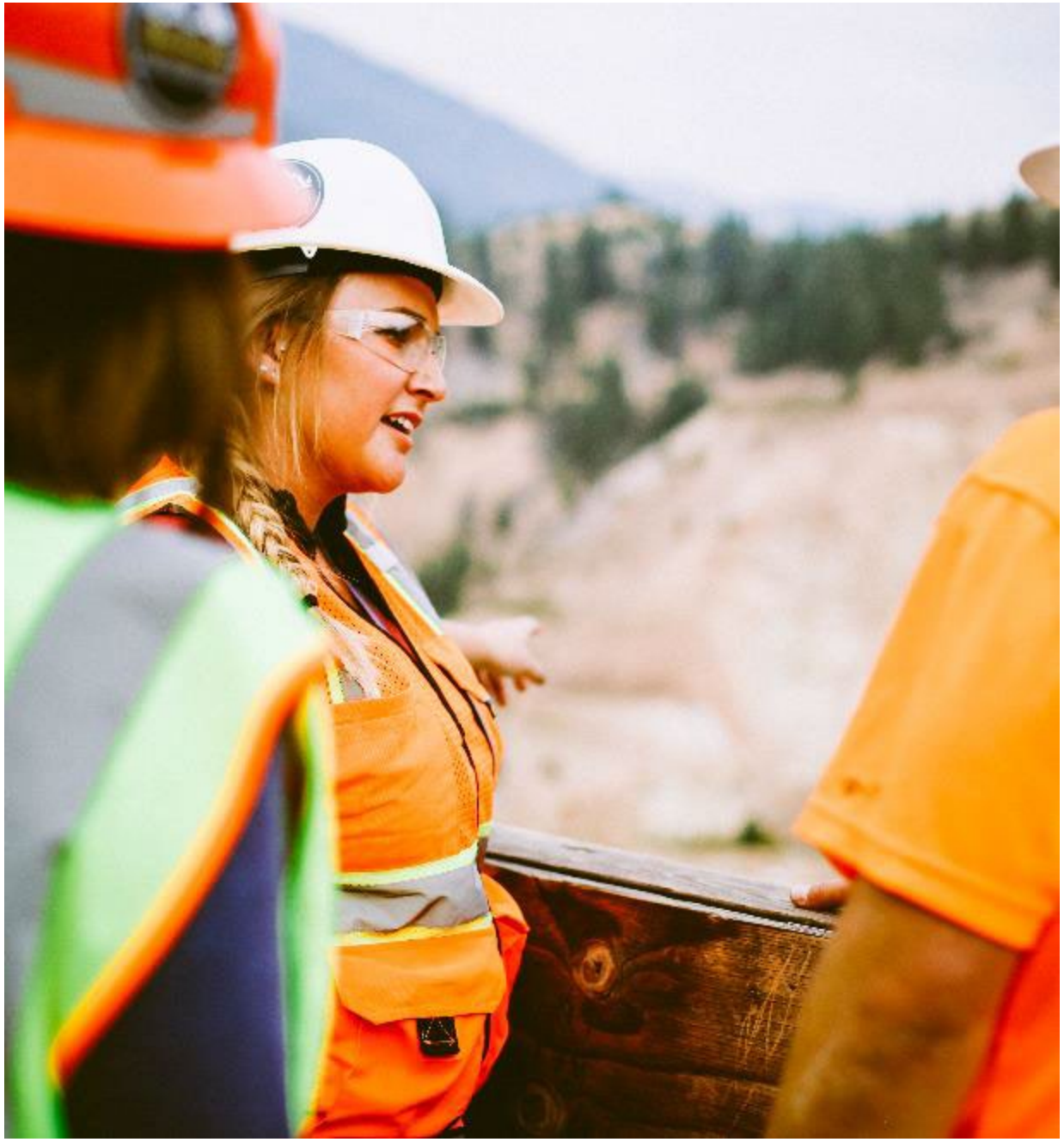
November 2022

NASDAQ:PPTA
TSX:PPTA

PERPETUA RESOURCES

Responsible Mining. Critical Resources. Clean Future.

www.perpetuaresources.com



YOUR VOICE COUNTS

COMMENT PERIOD CLOSES JANUARY 10, 2023

1. STAY INFORMED

OFFICE HOURS: We are virtual!
Sign up: www.PerpetuaResources.com/webinars

BRIEFINGS: We will Zoom to you.
Schedule a briefing: Community@perpetua.us

2. SHARE YOUR SUPPORT

3. COMMENT TODAY

www.SupportStibnite.com

FORWARD-LOOKING STATEMENTS

Information and statements contained in this presentation that are not historical facts are "forward-looking information" or "forward-looking statements" (collectively, "Forward-Looking Information") within the meaning of applicable Canadian securities legislation and the United States Private Securities Litigation Reform Act of 1995. We use words such as "may," "would," "could," "should," "will," "likely," "expect," "anticipate," "believe," "intend," "plan," "forecast," "outlook," "project," "estimate" and similar expressions suggesting future outcomes or events to identify forward-looking statements or forward-looking information. Forward-Looking Information includes, but is not limited to, information concerning the business of Perpetua Resources Corp. (the "Company"), the Stibnite Gold Project (the "Project"), including but not limited to statements with respect to results of the FS (as defined below); disclosure regarding possible events, conditions or financial performance that is based on assumptions about future economic conditions and courses of action; the timing and impact of future activities on the Project, including but not limited to the ability to address legacy features left by previous operators; our and Ambri, Inc.'s ("Ambri") ability to perform under the supply agreement described in this presentation, which agreement is subject to certain conditions, including completion of the permitting process for the Project, commencement of commercial production of antimony, identification of one or more refiners to transform our antimony concentrate into antimony metal, and mutual agreement on certain material terms, including volume and pricing; the anticipated economic, environmental and other benefits of the Project; the viability of the Project; development and operating costs in the event that a production decision is made; success of exploration, development and environmental protection, closure and remediation activities; permitting time lines and requirements; requirements for additional capital; requirements for additional water rights and the potential effect of proposed notices of environmental conditions relating to mineral claims; risks and opportunities associated with the Project; planned exploration and development of properties and the results thereof; planned expenditures, production schedules and budgets and the execution thereof. Statements concerning mineral resource and mineral reserve estimates may also constitute Forward-Looking Information to the extent that they involve estimates of the mineralization that may be encountered if the Project is developed. In preparing the Forward-Looking Information herein, the Company has applied several material assumptions, including, but not limited to, that any additional financing needed will be available on reasonable terms; the exchange rates for the U.S. and Canadian currencies will be consistent with the Company's expectations; that the current exploration, development, environmental and other objectives concerning the Project can be achieved and that its other corporate activities will proceed as expected; that the current price and demand for gold and antimony will be sustained or will improve; that general business and economic conditions will not change in a materially adverse manner and that all necessary governmental approvals for planned activities on the Project will be obtained in a timely manner and on acceptable terms; the continuity of the price of gold and other metals, economic and political conditions and operations; that the circumstances surrounding the COVID-19 pandemic, although evolving, will stabilize or at least not worsen; and the assumptions set out in the FS. Forward-Looking Information involves known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of the Company to be materially different from any future results, performance or achievements expressed or implied by the Forward-Looking Information. Such risks and other factors include, among others, the industry-wide risks and project-specific risks identified in the FS; risks related to the availability of financing; operations and contractual obligations; changes in exploration programs based upon results of exploration; changes in estimated mineral reserves or mineral resources; future prices of metals and minerals; availability of personnel and equipment; equipment failure; accidents, effects of weather and other natural phenomena and other risks associated with the mineral exploration industry; environmental risks, including environmental matters under US federal and Idaho rules and regulations; impact of environmental remediation requirements and the terms of existing and potential consent decrees on the Company's planned exploration and development activities on the Project; certainty of mineral title; community relations; delays in obtaining governmental approvals or financing; the Company's dependence on one mineral project; the nature of mineral exploration and mining and the uncertain commercial viability; the Company's lack of operating revenues; governmental regulations and the ability to obtain necessary licenses and permits; risks related to prior unregistered agreements, transfers or claims and other defects in title to mineral projects; currency fluctuations; changes in environmental laws and regulations and changes in the application of standards pursuant to existing laws and regulations; risks related to dependence on key personnel; COVID-19 risks to employee health and safety and a slowdown or temporary suspension of operations in geographic locations impacted by an outbreak; and estimates used in budgeting and financial statements proving to be incorrect; as well as those factors discussed in the Company's public disclosure record. Although the Company has attempted to identify important factors that could affect the Company and may cause actual actions, events or results to differ materially from those described in Forward-Looking Information, there may be other factors that cause actions, events or results not to be as anticipated, estimated or intended. There can be no assurance that Forward-Looking Information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Because it is not possible to predict or identify all such factors, this list cannot be considered a complete set of all potential risks or uncertainties. Accordingly, readers should not place undue reliance on Forward-Looking Information. For further information on these and other risks and uncertainties that may affect the Company's business, see the "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" sections of the Company's filings with the SEC, are available at www.sec.gov and with the Canadian securities regulators, which are available at www.sedar.com. Except as required by law, the Company expressly disclaims any obligation to update the Forward-Looking Information herein.

CAUTIONARY NOTE & TECHNICAL DISCLOSURE

The presentation has been prepared by Perpetua Resources management and does not represent a recommendation to buy or sell these securities. Investors should always consult their investment advisors prior to making any investment decisions. All references to "dollars" or "$" shall mean United States dollars unless otherwise specified.

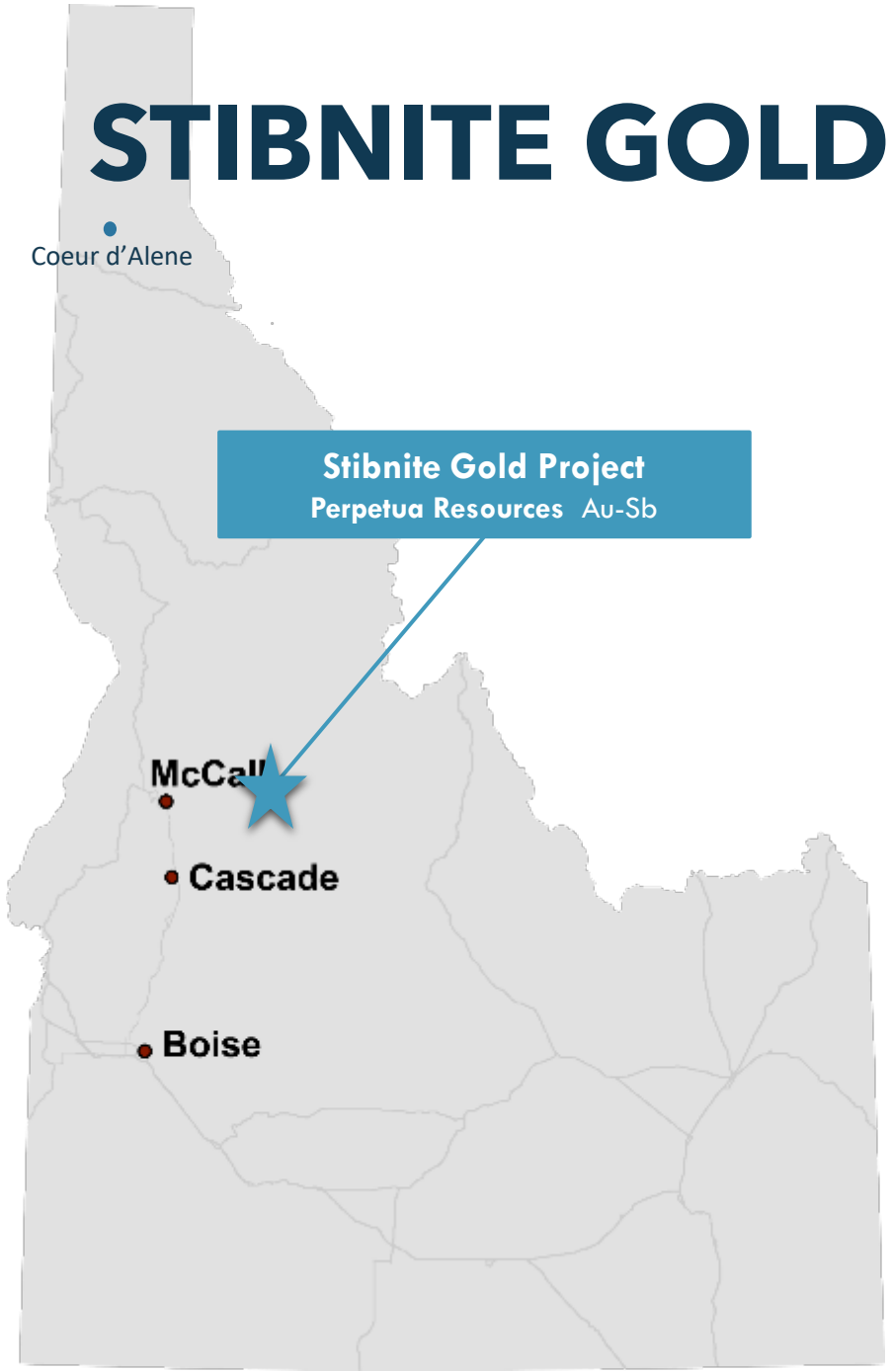
The material scientific and technical information in respect of the Stibnite Gold Project in this presentation, unless otherwise indicated, is based upon information contained in the technical report titled "Stibnite Gold Project, Feasibility Study Technical Report, Valley County, Idaho" dated effective December 22, 2020 and issued January 27, 2021 (the "FS" or "2020 Feasibility Study"). The 2020 Feasibility Study was prepared in accordance with National Instrument 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101"). NI 43-101 is a rule developed by the Canadian Securities Administrators that establishes standards for all public disclosure an issuer makes of scientific and technical information concerning mineral projects. These standards differ from the mining property disclosure rules specified in Subpart 1300 of Regulation S-K under the United States Securities Act of 1933 ("Subpart 1300") promulgated by the SEC. Accordingly, information concerning mineral deposits from the 2020 Feasibility Study set forth herein may not be comparable with information made public by companies that report in accordance with U.S. standards.

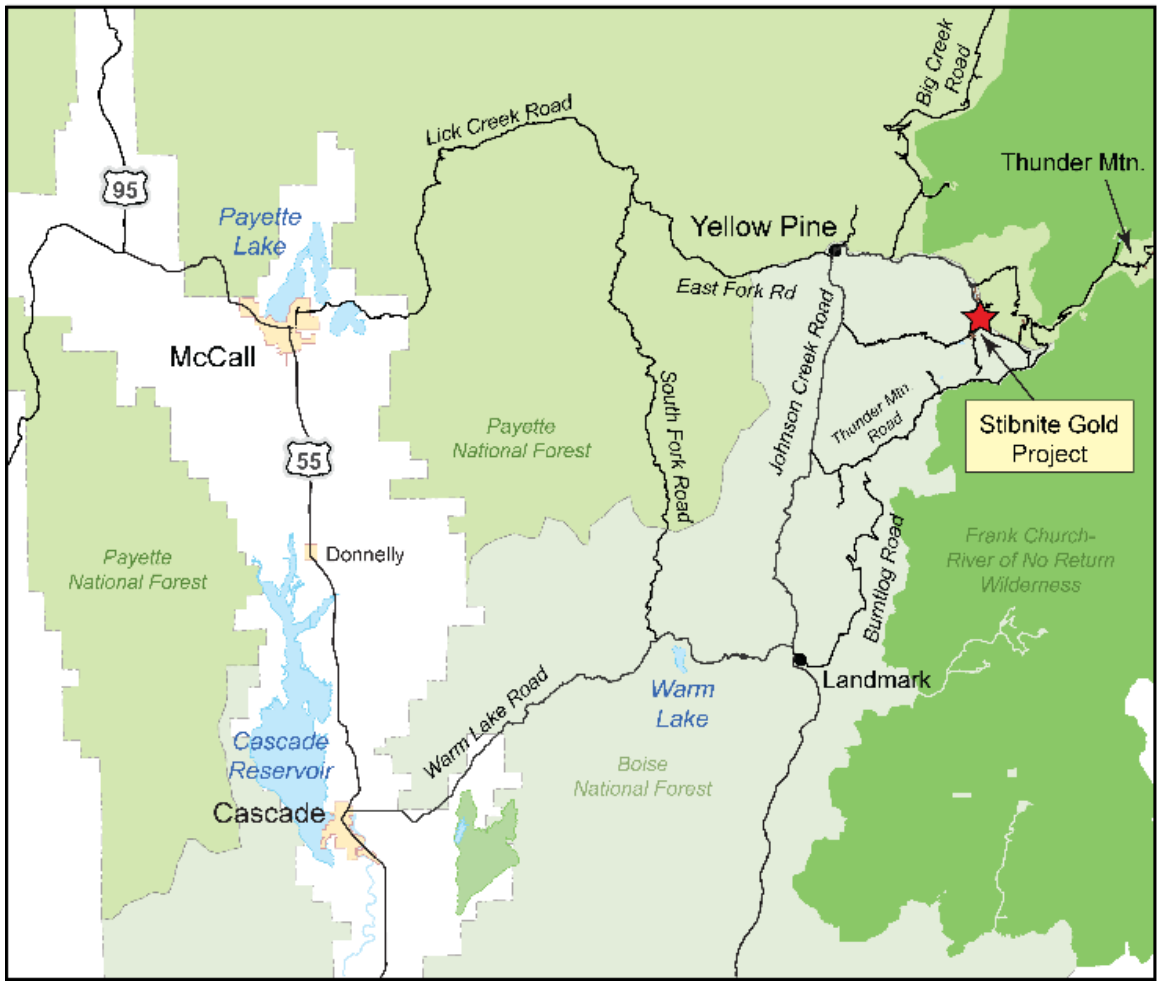
The Company has issued its inaugural Technical Report Summary (the "TRS"), dated as of December 31, 2021, and amended as of June 6, 2022, developed for the Stibnite Gold Project in accordance with the mining property disclosure rules specified in Subpart 1300 promulgated by the SEC. The TRS summarizes, in accordance with the mining property disclosure rules specified in Subpart 1300, the FS, which was completed under NI 43-101, with the following notable differences between the FS and the TRS:

- *The TRS Mineral Resource estimates were developed based on a gold price of $1,500/oz versus the $1,250/oz gold price assumed for the FS. The change in gold price results from higher trailing average gold prices at the date of preparation for the respective reports.*
- *The Measured Mineral Resources in the FS were reclassified to Indicated Mineral Resources in the TRS due to differences in Subpart 1300 versus NI 43-101 Mineral Resources classification guidelines.*
- *The Proven Mineral Reserves from the FS were reclassified as Probable Mineral Reserves for the TRS resulting from the reclassification of the Measured Mineral Resources to Indicated Mineral Resources due to differences in Subpart 1300 versus NI 43-101 Mineral Resources classification guidelines.*
- *The TRS is classified as a Preliminary Feasibility level study whereas the FS was classified as a Feasibility level study. This change was driven by the Subpart 1300 requirement that a compliant Feasibility level TRS include a capital cost contingency allowance no greater than 10%, whereas the initial capital cost estimate for the FS included a more conservative allowance at approximately 15%.*

All other technical analyses, design information, capital and operating cost information, economic analyses, permitting and legal assumptions, conclusions and recommendations are consistent between the TRS and the FS. Readers are encouraged to read the TRS and the Company's Current Report on Form 8-K filed with the SEC on January 3, 2021, as amended by the Company's Current Report on Form 8-K/A filed with the SEC on June 8, 2022, which are available under the Company's profile on EDGAR. Readers are also encouraged to read the FS, which is available on the Company's website and under the Company's profile on SEDAR, for detailed information concerning the Project. See also "Regulatory Information" at the end of this presentation.

STIBNITE GOLD PROJECT





THE STIBNITE GOLD PROJECT

We can take an area abandoned after 100 years of mining activity and use a sustainable approach to restore the environment and develop a modern mining project that can help power a lower carbon future through critical mineral production.

THE PERPETUA WAY

RESPONSIBLE. RESTORATIVE. CRITICAL.

We are driven by the understanding that building a strong and successful business starts with doing business the right way.

We know that economic success and environmental success are inseparable.

We designed our project to restore the environment, create opportunity and benefit communities.

NEW PERSPECTIVES

ENVIRONMENT SOCIAL RESPONSIBILITY GOVERNANCE (ESG)

Perpetua Resources is changing the face of mining.

- ✓ Community Agreement in 2018
- ✓ Adopted ESG policy in 2019
- ✓ Updated ESG policy in 2021
- ✓ Published GHG emissions inventory 2021
- ✓ Citizen's water monitoring program 2021
- ✓ Annual Sustainability Reporting
- ✓ 65k+ Trees Planted
- ✓ 8+ years No Reportable Spills
- ✓ Dark Skies commitments

2021 ESG Commitments

- ✓ Publish Sustainability Roadmap

Note: Numbers reflect Perpetua Resources Idaho, Inc. staff and board members as of January 2022

WORKING TOGETHER

Community Agreement

Through a community agreement signed in 2018, the **Stibnite Advisory Council** brings together communities across central Idaho to discuss the challenges and opportunities presented by the Stibnite Gold Project.

- ✓ Direct access to company leadership
- ✓ Monthly meetings
- ✓ Identify opportunities and solutions
- ✓ Address questions or concerns
- ✓ Citizen's Water Monitoring Initiative (2021)

VILLAGE OF YELLOW PINE + CASCADE + DONNELLY + NEW MEADOWS + RIGGINS + COUNCIL + ADAMS COUNTY + IDAHO COUNTY

2021 SUSTAINABILITY REPORTING

100%
Safe Fuel Hauls
(since 2009)

1,000+
Community Presentations
(since 2015)

100%
of Employees participated in compliance and business integrity training
(in 2021)

44%
Energy at Stibnite from Solar Power
(in 2021)

81%
Employees based in Idaho
(as of Dec 2021)

67%
Female Executive Management
(as of May 2022)

$50k
In scholarships for local students
(since 2015)

33%
Diverse Board Members
(as of May 2022)

https://perpetuaresources.com/wp-content/uploads/Perpetua-Resources-2021-Sustainability-Report.pdf

SUSTAINABILITY ROADMAP

In 2022, Perpetua Resources published a **Sustainability Roadmap** to define our commitments to continually improve our environmental performance, build partnerships with communities and govern the company.

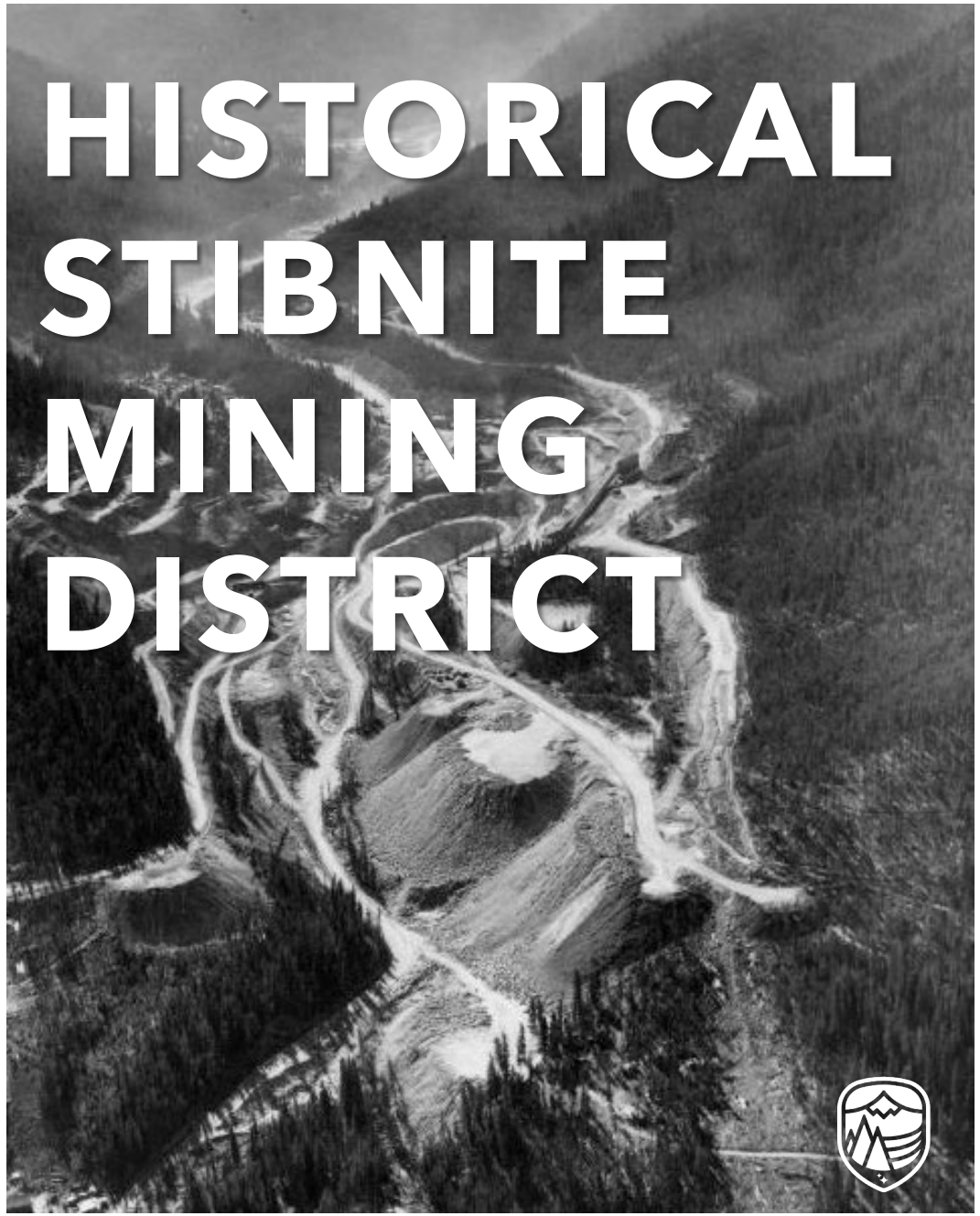
Improve and protect water quality.	Conserve water.	Limit our footprint.	Be a responsible link in the clean energy supply chain.
Nurture connections with tribal communities & identify opportunities to collaborate.	Foster an open and transparent relationship with local communities.	Create economic partnerships that sustain beyond the life of the mine.	Work with communities & regulators to refine environmental outcomes of the Stibnite Gold Project.
Develop a diverse and inclusive team.	Disclose and report current and future ESG emissions.	Set science-based GHG emissions target.	Protect our people and our communities.

Adopt a long-term Environment, Social and Governance (ESG) reporting framework.

https://perpetuaresources.com/wp-content/uploads/2022-Perpetua-Sustainability-Roadmap.pdf

RESTORE AN ABANDONED SITE

HISTORICAL STIBNITE MINING DISTRICT



1890s
The Thunder Mountain gold rush brings mining to the area

1900-1930
The town of Stibnite is established

1938
Mining at Yellow Pine pit stops salmon migration upstream

1941-1950
Antimony & tungsten declared critical & strategic minerals for the war effort, mining for both occurs at Stibnite.

1953-1960
With WWII & the Korean War over, mining slowed and Stibnite slowly faded

1960s
Earthen dam failure resulting in hundreds of tons of sediment eroding into surrounding streams & rivers, even to this day

1970s-1990s
Periodic gold mining by multiple owners and operators

1990s-2000s
All mining stopped, limited reclamation by owners, operators and state and federal government.

2009-2011
Land ownership consolidated by Midas Gold (now Perpetua Resources). Geology & environment within the Stibnite Gold Project area is studied.

neutral by the Americas.
It was Germany's use of high-velocity, armor-piercing projectiles with the tungsten carbide core that almost made the north African campaign a successful one.
Tungsten production in China began in 1914, and it has been the largest tungsten producer. During the Sino-Japanese War its flow of tungsten was disrupted and stockpiles accumulated in Indochina. One of the great coups of the rearmament race was made by the United States when it purchased this entire stock and delivered it to this country just prior to Pearl Harbor. In the
"In the opinion of the Munitions Board, the discovery of that tungsten mine at Stibnite, Idaho in 1942 shortened World War II by at least 1 year and saved the lives of a million American soldiers."
The US Senate Congressional Record, 1956
NORTHWEST LEAD COMPANY
For Freedom's Sake
BM-124

HISTORICAL LEGACY

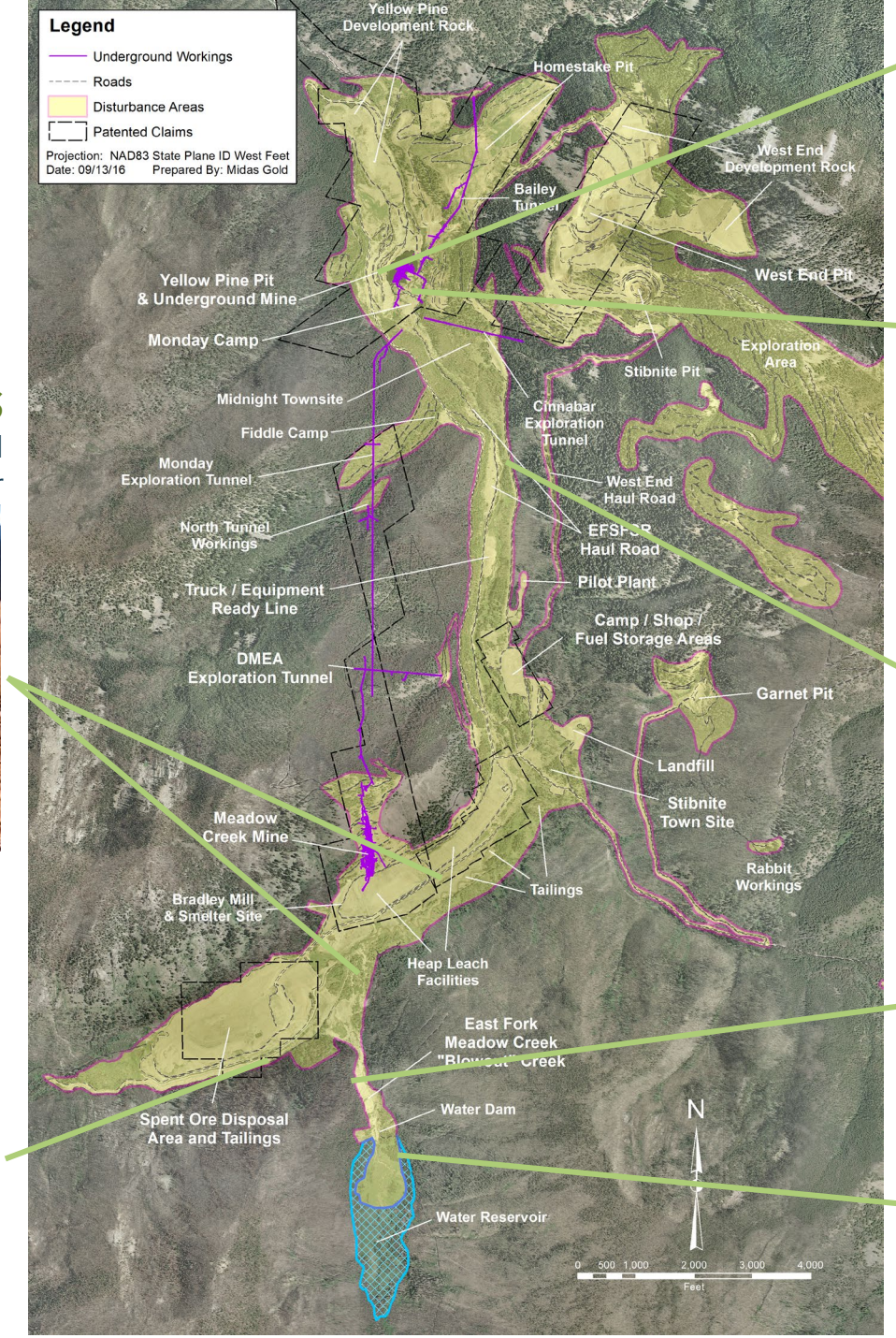
After 100+ years of mining activity, many environmental legacies remain.

TAILINGS

10.5 million tons of legacy spent ore and unlined tailings interact with ground and surface water

MEADOW CREEK

4,900 ft rock lined ditch with limited habitat function



YELLOW PINE PIT

The East Fork of the South Fork dumps into a legacy mine pit. Currently, ~80 feet of sediment has collected at the bottom

FISH PASSAGE

Fish migration is blocked by the Yellow Pine pit

HABITAT

13,000+ ft poor habitat quality

BLOWOUT CREEK

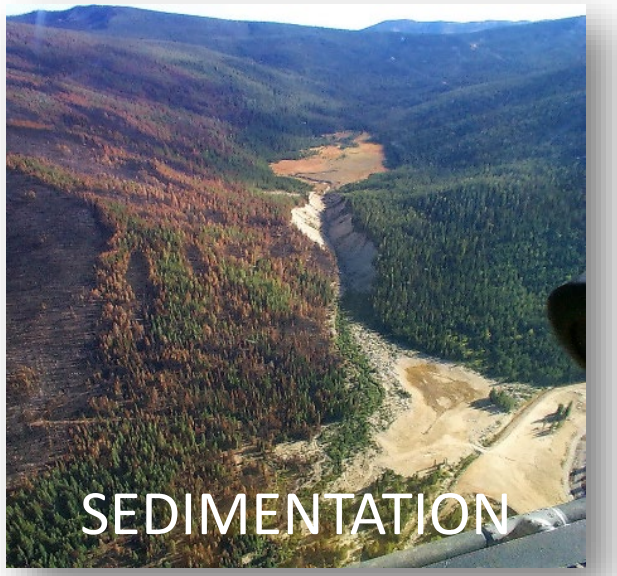
Largest source of sedimentation in the watershed

BLOWOUT CREEK VALLEY

14-foot drop in water table, loss of wetlands function

RESTORATION OF BROWNFIELDS SITE

SOLUTIONS FOR THE ENVIRONMENT



Early repair of the largest source of sedimentation

Pick up, reprocess, reuse and safely store 10.5M tons of tailings and spent ore

Re-establish fish migration and provide permanent river restoration

LEGACY

During the World War II era, the East Fork of the South Fork of the Salmon River (EFSFSR) was diverted to facilitate mining of the Yellow Pine pit, cutting off fish passage.

TODAY

The East Fork of the South Fork of the Salmon River flows directly into the Yellow Pine pit, blocking fish passage.

CURRENT CONDITIONS

Existing Yellow Pine pit

East Fork South Fork Salmon River (EFSFSR) dumps into the Yellow Pine pit.

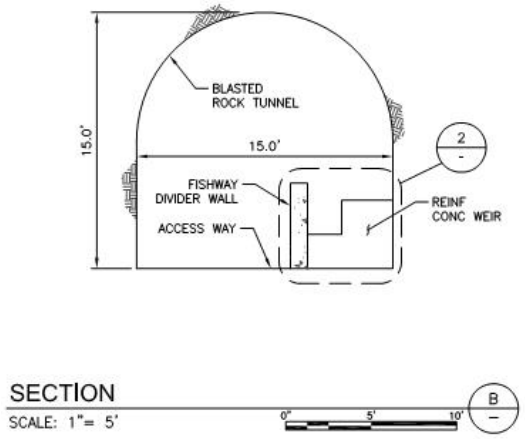
Fish passage blocked for over 80 years.

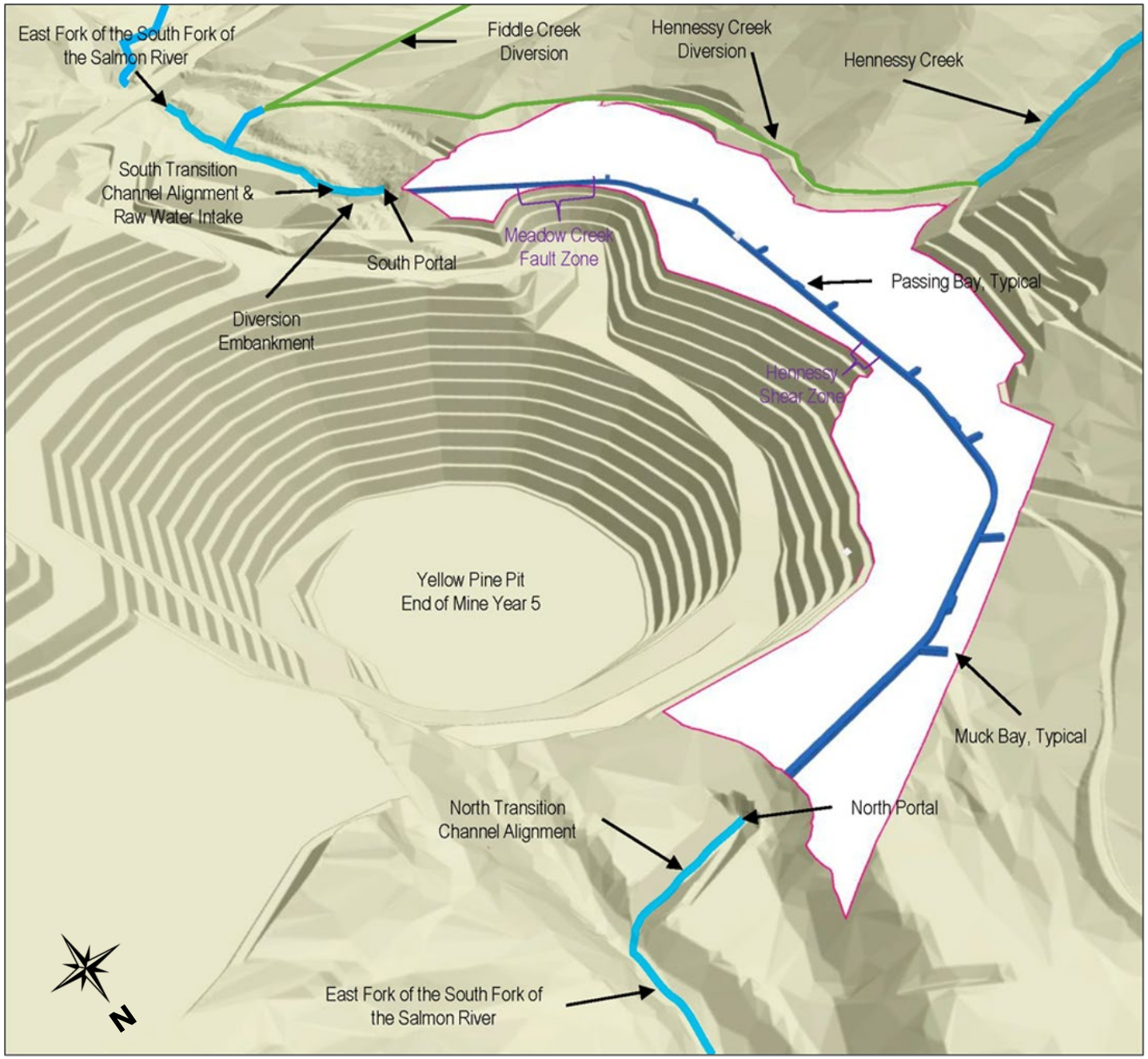
Sediment from Blowout Creek settles in Yellow Pine pit

DURING MINING

EFSFSR Tunnel Passage

- Immediate fish passage for approximately 15 years.
- Proven technologies for passage, monitoring and restoration.
- Passage for all 3 key species – chinook salmon, bull trout and steelhead to miles of stream habitat currently blocked.





EFSFSR: East Fork South Fork Salmon River

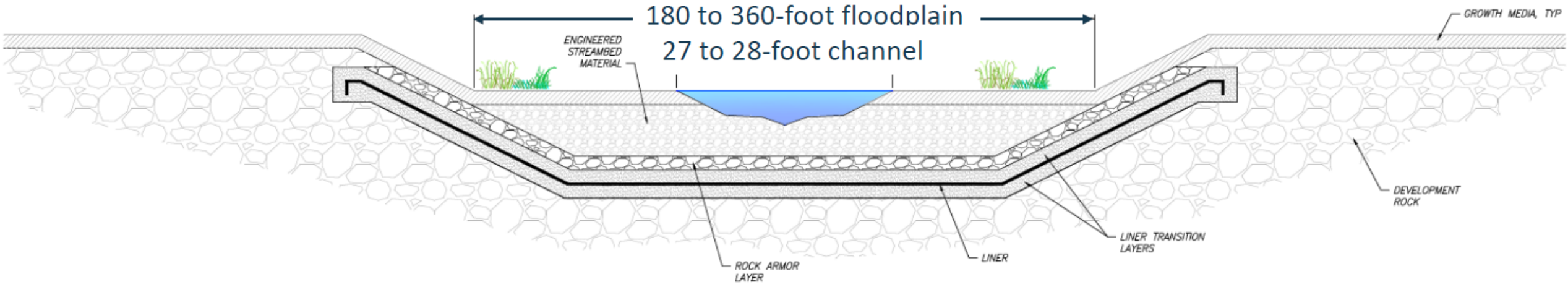
EFSFSR: East Fork of the South Fork of the Salmon River

YPP: Yellow Pine pit

EFSFSR OVER YPP

Proposed Stream Liner

- 180 to 360-foot-wide floodplain
- Liner buried 11-16 feet

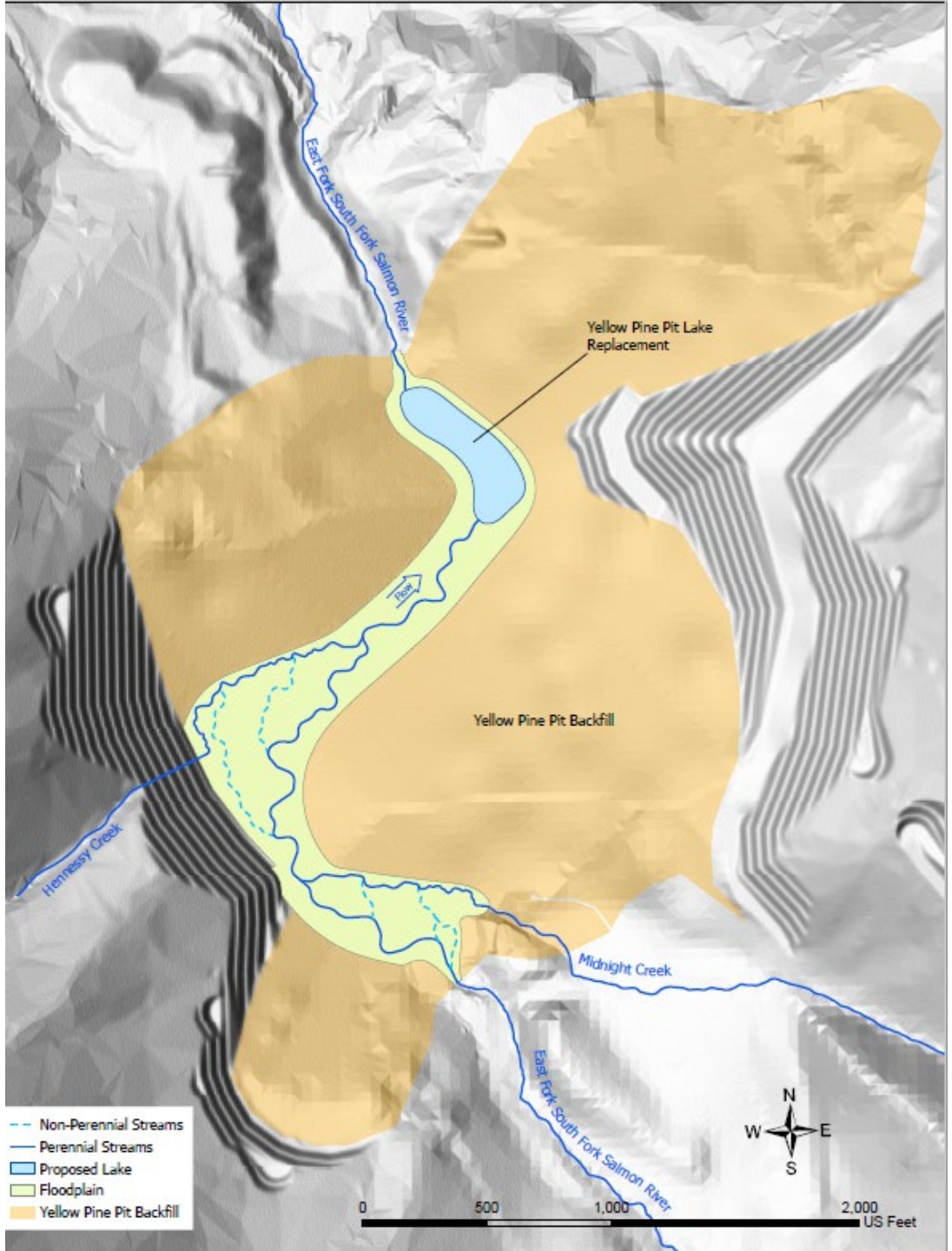


Drawing Not to Scale

Proposed Stream Liner Details (DRAFT)						
Reach	Mine Facility	Approximate Liner Width (ft)*	Layers of Material Over the Liner			Total Liner Depth Below the Floodplain Surface (ft)
			Protection (Transition) Layer (ft)	Armor Layer (ft)	Stream Bed and Floodplain Material (ft)	
EF3	Yellow Pine pit	170 to 345	1.0 to 3.0	5.8 to 6.0	4.2 to 6.8	11.0 to 15.8
HC2						
MN2						

EFSFSR RESTORATION

OVER BACKFILLED YPP



EFSFSR: East Fork of the South Fork of the Salmon River

YPP: Yellow Pine pit

River and Fish Passage Restored

PERMANENT FISH ACCESS restored for the first time in 80 years.

HABITAT RESTORATION built into project beginning in year 7.

LEGACY

Water reservoir failed in 1965.

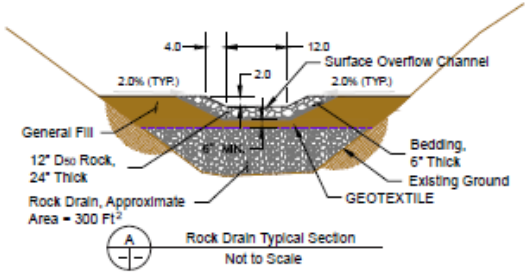
TODAY

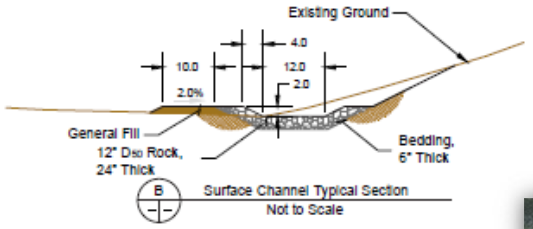
The failed reservoir is the most significant source of sediment in the watershed. It degrades water quality and fish habitat and diminishes wetland functionality.

BLOWOUT CREEK RESTORATION

CURRENT

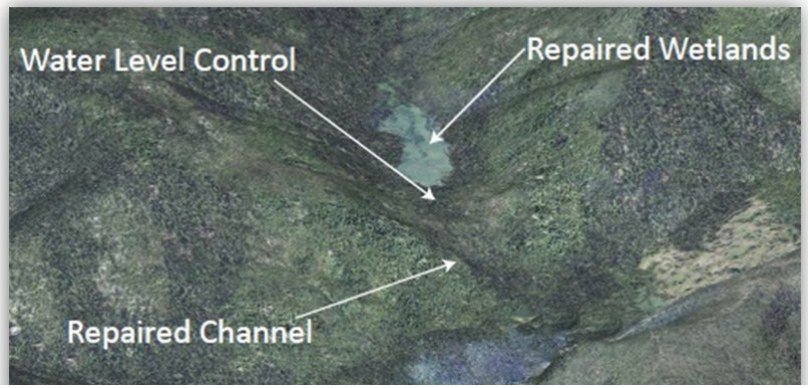
INTERMEDIATE





IMPROVEMENTS

- ✓ Improve water quality in Meadow Creek and EFSF Salmon River.
- ✓ Improve habitat conditions.
- ✓ Raise water table in the hanging valley by 14 ft
- ✓ Stabilize the water table
- ✓ Reestablish wetlands habitat.



LEGACY

Tailings (beige) were covered with spent heap leach ore (brown) after being deposited, unlined, in the Meadow Creek Valley.

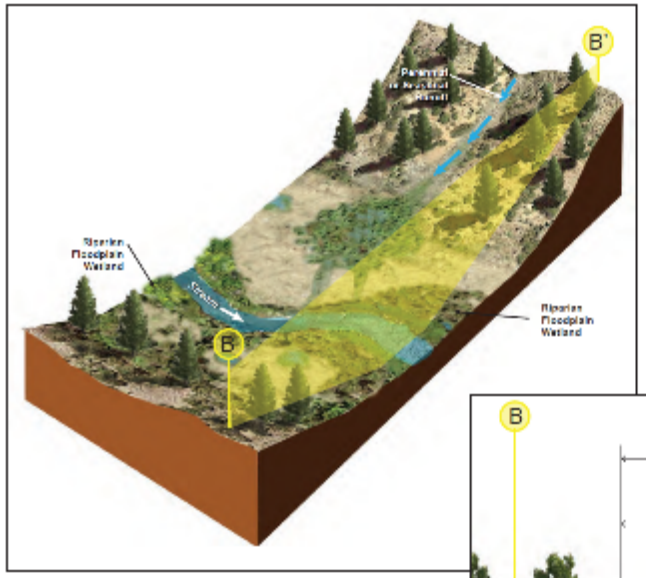
TODAY

Revegetation attempts have been made; however, legacy materials continue to degrade water quality and leach metals into the surface water and groundwater.

REMOVE & REPROCESS LEGACY TAILINGS

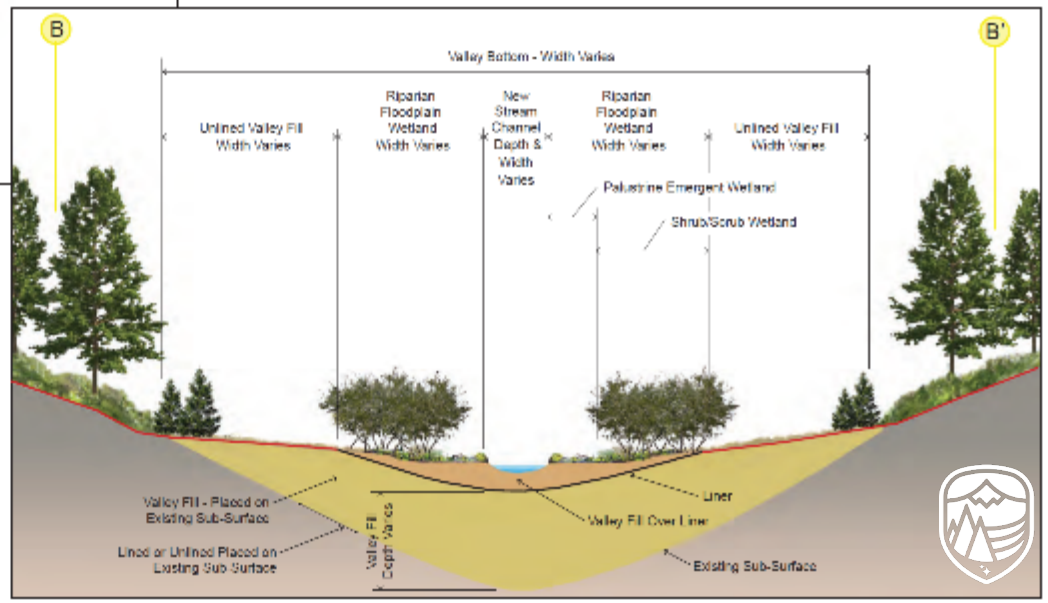
CURRENT

RESTORATION



Reprocess 3 million tons of historical tailings & **repurpose** the 7.5 million tons of spent heap leach ore, removing an existing potential source of water degradation.

Restoration follows construction and operation of TSF and Hangar Flats DRSF within portions of the SODA footprint.



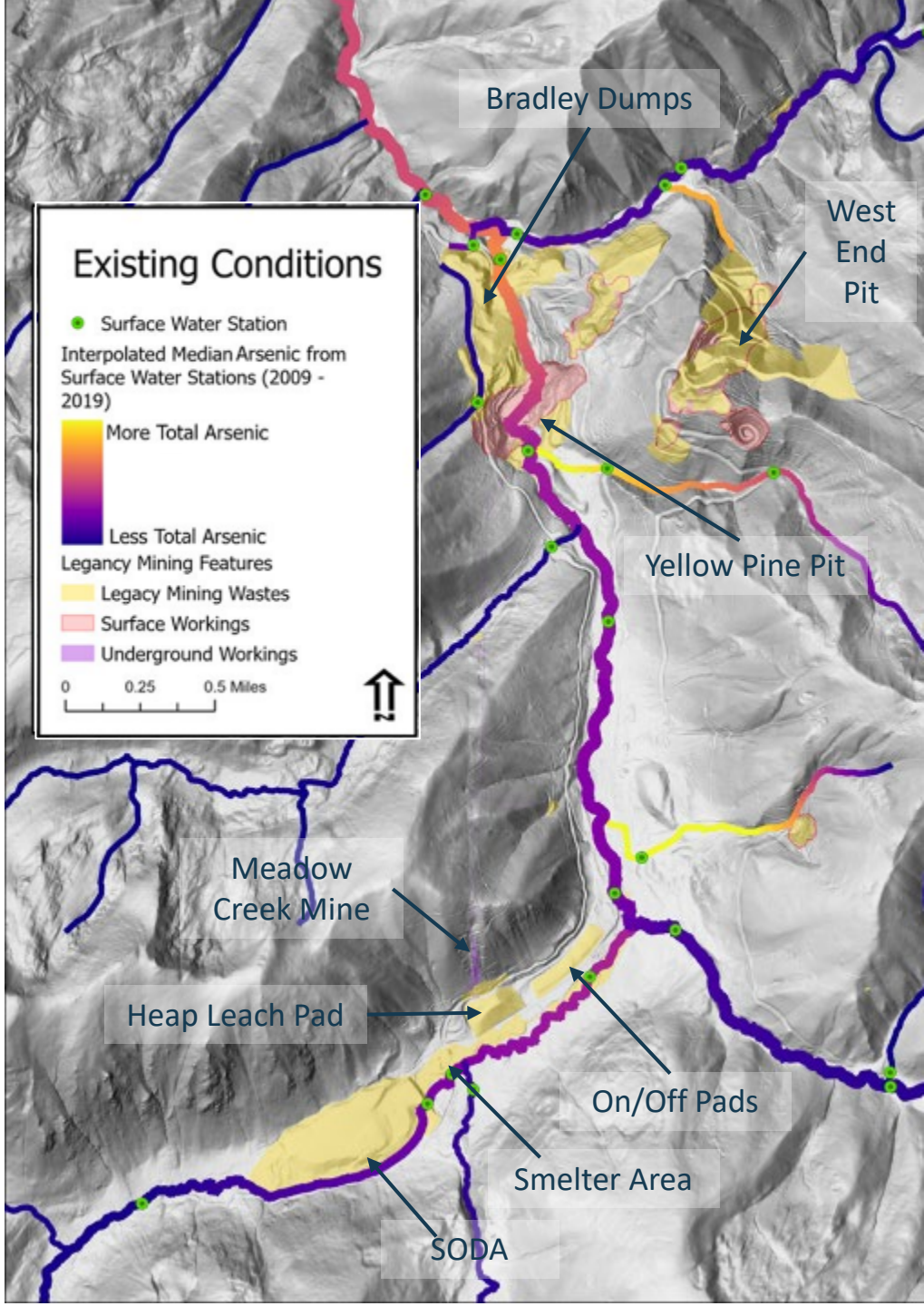
RIPARIAN FLOOD PLAIN WETLAND B-B'

NOT TO SCALE

TSF: Tailings Storage Facility | **DRSF**: Development Rock Storage Facility | **SODA**: Spent Ore Disposal Area

WATER QUALITY TODAY

Meadow Creek Valley, circa 1940s



COMMITTMENT TO EARLY RESTORATION

The Administrative Settlement Agreement and Order on Consent (ASAOC) is necessary to allow a third-party to voluntarily address environmental conditions at an abandoned mine site.

The ASAOC does not approve mining activity, it <u>only</u> provides for cleanup activity of legacy waste and is separate from the NEPA process reviewing the Stibnite Gold Project

SOLUTIONS START NOW

Perpetua Takes Action to Restore the Site

Perpetua signed an ASAOC with federal agencies in 2021, in order to perform agreed upon early actions to improve water quality conditions at Stibnite.

Comprehensive Clean Up: Immediate, time-critical needs are addressed over 4 years; once the Stibnite Gold Project is permitted, and all parties agree, the Agreement allows for a comprehensive site cleanup.

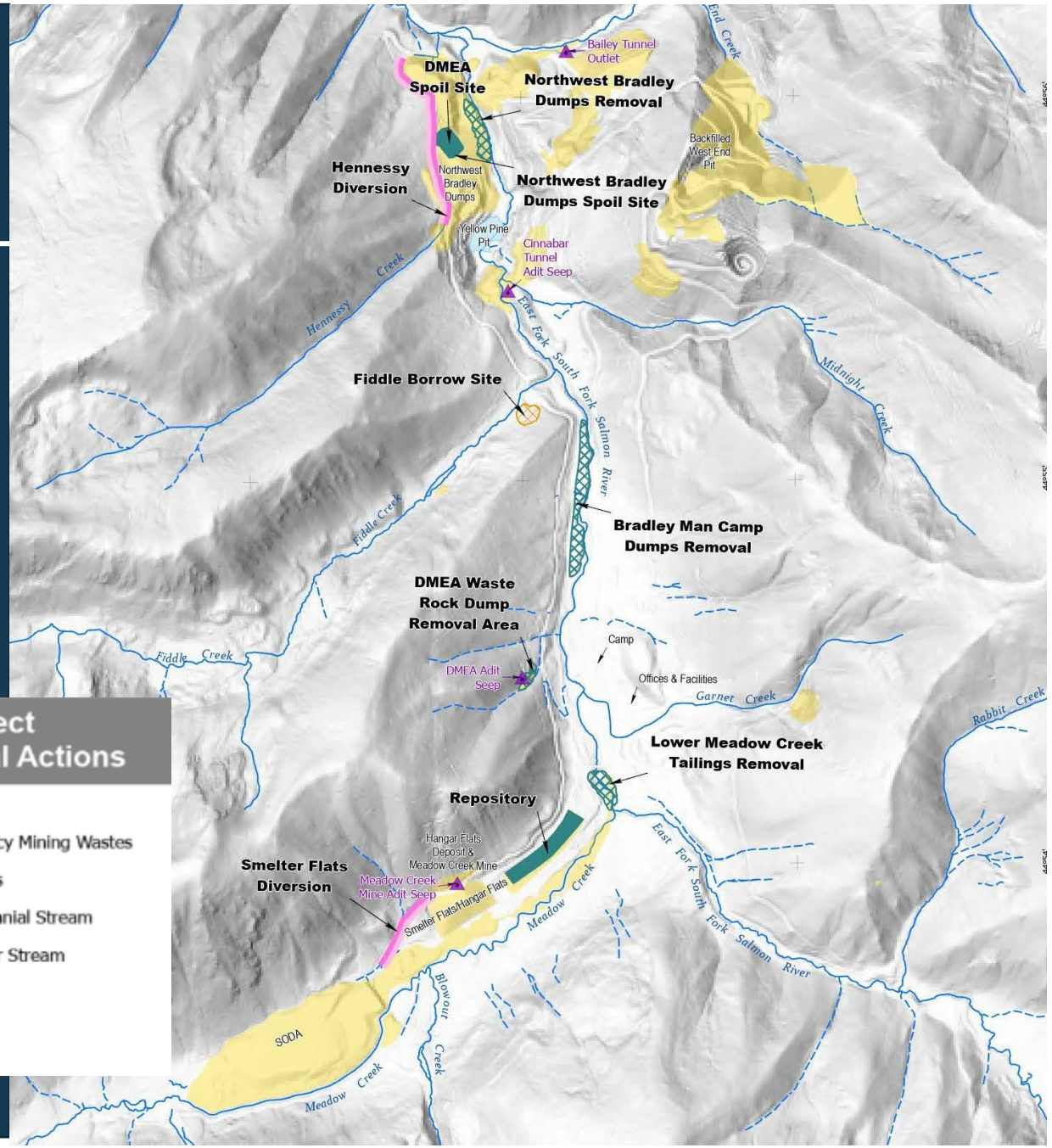
Phase 1: The first phase of work began in July 2022.

ASAOC: Administrative Settlement Agreement and Order on Consent

CLEANUP STARTS TODAY

A PATH FORWARD FOR STIBNITE

In a signed agreement with federal agencies, Perpetua has volunteered to remove and safely store 325,000 tons of legacy tailings & waste and divert and line streams to help keep clean water clean.



INDUSTRY AND THE ENVIRONMENT CAN **WORK TOGETHER**

ECONOMY + ENVIRONMENT

Invest $1 billion in Idaho

Provide well-paid jobs to Idahoans

Grow economic opportunity with an estimated $43 million in direct annual payroll during operations & $86 million in local and state taxes*

Reprocess historical tailings

Restore fish passage

Repair historically impacted waterways

Remediate areas contributing to water degradation

Rehabilitate habitat and natural vegetation

Reuse materials on site

*Based on the 2014 Pre-Feasibility Study

IDAHO JOBS

IN IDAHO, ~2 INDIRECT JOBS CREATED FOR EVERY DIRECT JOB IN MINING.

~ 2-3-year construction period*

Approx. **600-700 direct jobs in Idaho**

Average wage**: $70,000**

Average annual **payroll ~ $34 million**

~ 12-15-year operating life*

Approx. **500-600 direct jobs in Idaho***

Average wage**: $80,000***

Average annual **payroll ~$42 million**

** (Life of mine average)*

~ 3-5-year final reclamation and closure*

Approx. **50-200 direct jobs in Idaho**

Average wage: **$60,000**

NOTE: Based on the 2014 PFS, which is intended to be read as a whole and sections should not be read or relied upon out of context. The information in this presentation is subject to the assumptions, exclusions and qualifications contained in the PFS and FS. See "Regulatory Information" at the end of this presentation.

~$1 BILLION INVESTMENT

~$1 billion total construction and investment
37 miles of road: new and upgraded roads including 5 bridges
72 miles of transmission line: new and upgraded 138 kV power line and 5 new substations
57,000 cubic yards concrete
5,580 tons of rebar
7,730 sq ft of masonry
9,555 tons of structural steel: 106,000 sq ft steel decking, 3,200 linear ft ladders and stairs, 26,500 linear ft handrail, 768,000 sq ft. roofing and siding

** Information is based on the 2014 PFS which is intended to be read as a whole, sections should not be read or relied upon out of context. The information in this presentation is subject to the assumptions, exclusions and qualifications contained in the PFS. See "Regulatory Information" at the end of this presentation.*

ECONOMIC OPPORTUNITIES

DIRECT BENEFITS*

- $232 million in average annual expenditures
- $42 million in annual payroll (operations)
- $329 million in federal corporate income taxes
- $86 million in state and local taxes and mine license fees
- $3.8 million in local taxes for schools, government, law enforcement, etc

DIRECT, INDIRECT AND INDUCED BENEFITS*

- $506 million in Federal Taxes
- $218 million in State and Local Taxes
- $152 million in sales transactions in the regional economy
- $298 million annually in sales transactions in Idaho

$88M spent in Idaho 2014-2021

COASTLINE Equipment

Rocky Mountain SIGNS
McCall, Idaho 634-2045
Stickers, Banners, Window Graphics, Magnets, Vehicle Graphics, etc

COUGAR DAVE'S FOOD & SPIRITS

LEGACY Seeds

MOUNTAIN TECH PERFORMANCE

BOB BATE FORD
Ford
Cascade, Idaho

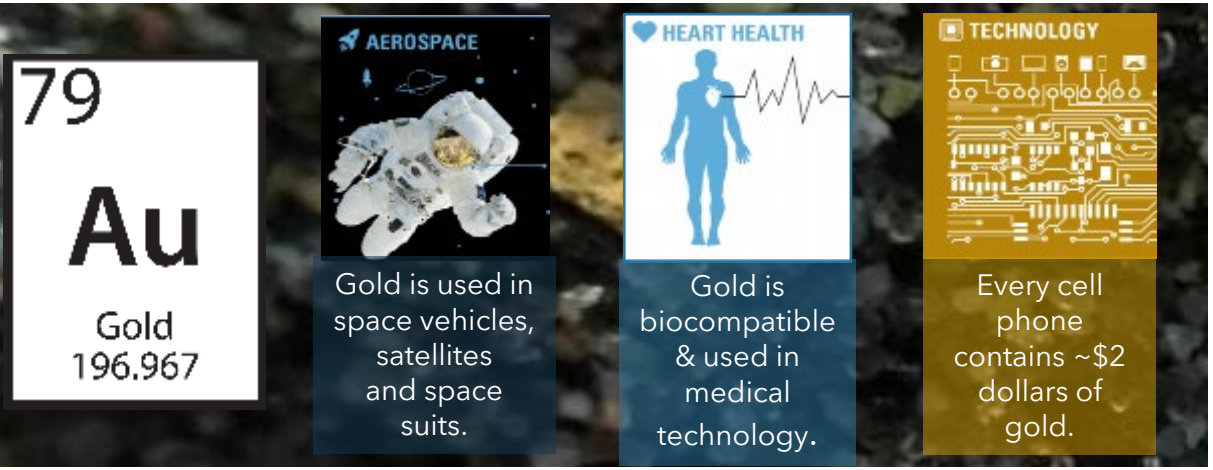
** Information is based on the 2014 PFS which is intended to be read as a whole, sections should not be read or relied upon out of context. The information in this presentation is subject to the assumptions, exclusions and qualifications contained in the PFS. See "Regulatory Information" at the end of this presentation.*

CRITICAL RESOURCES

GOLD

4.8 MILLION OUNCES OF GOLD (Reserve)

Total resource ~6 million ounces.



The **Stibnite Gold Project** would be the 4th largest US gold operation by grade and likely produce between ~4-5 million ounces of gold. *

Half of all gold is used for jewelry. Other uses include currency and industrial purposes, in aerospace, technology and medical equipment.

ANTIMONY

148 MILLION POUNDS OF ANTIMONY (Reserve)

Total resource ~206 million pounds

The **Stibnite Gold Project** would be the only domestic source of antimony mined in the U.S.

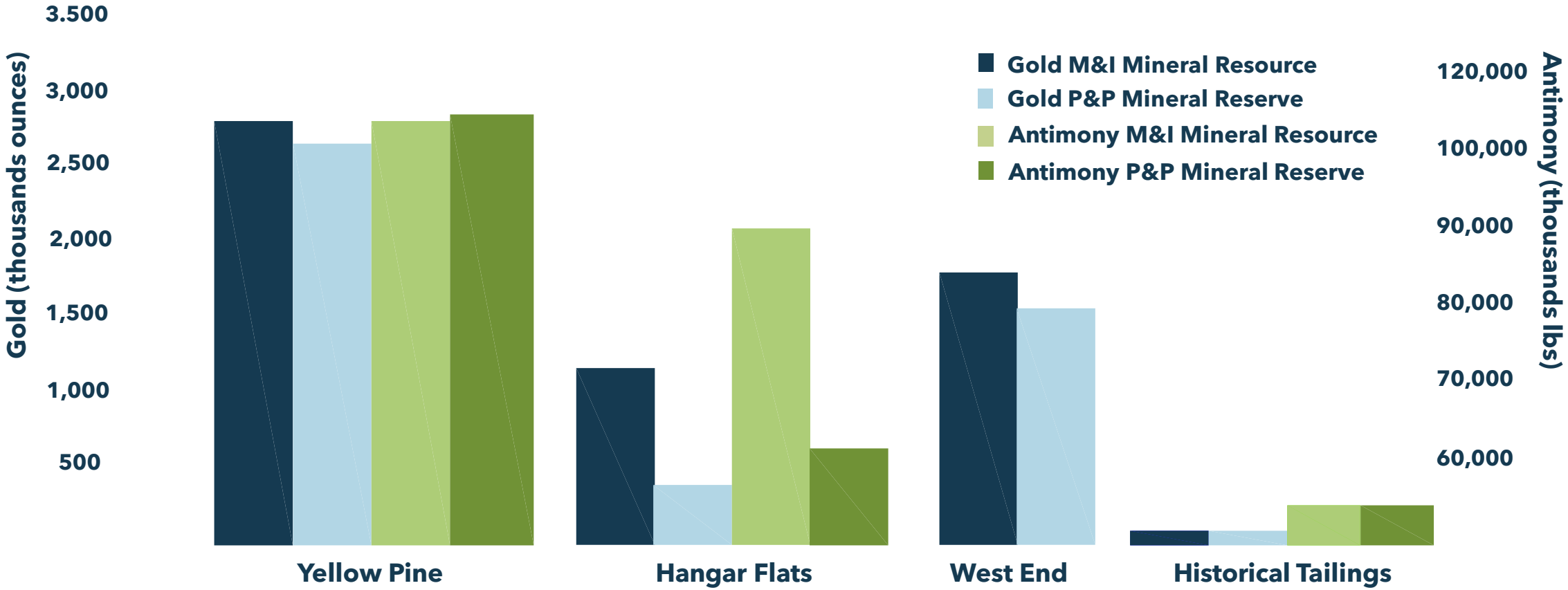
Critical for the defense and technology sectors, the United States uses **57 million pounds** of antimony each year, but we are **heavily dependent on China** to supply this strategic mineral.

**Based on the 2020 Feasibility Study ("FS") which is intended to be read as a whole and sections should not be read or relied upon out of context. The information in this presentation is subject to the assumptions, exclusions and qualifications contained in the FS. See "Regulatory Information" at the end of this presentation. For a summary of differences between the FS and TRS, see "Cautionary Note and Technical Disclosure" at the beginning of this presentation*

MINERAL RESOURCES & RESERVES[1]

Proven & Probable Mineral Reserves[2]:
4.8 Mozs Gold @1.43 g/t
148 Mlbs antimony at 0.06% contained in 104 Mt

Measured & Indicated Mineral Resources[3]:
6.0 Mozs Gold @1.42g/t
206 Mlbs antimony at 0.07% contained in 132 Mt



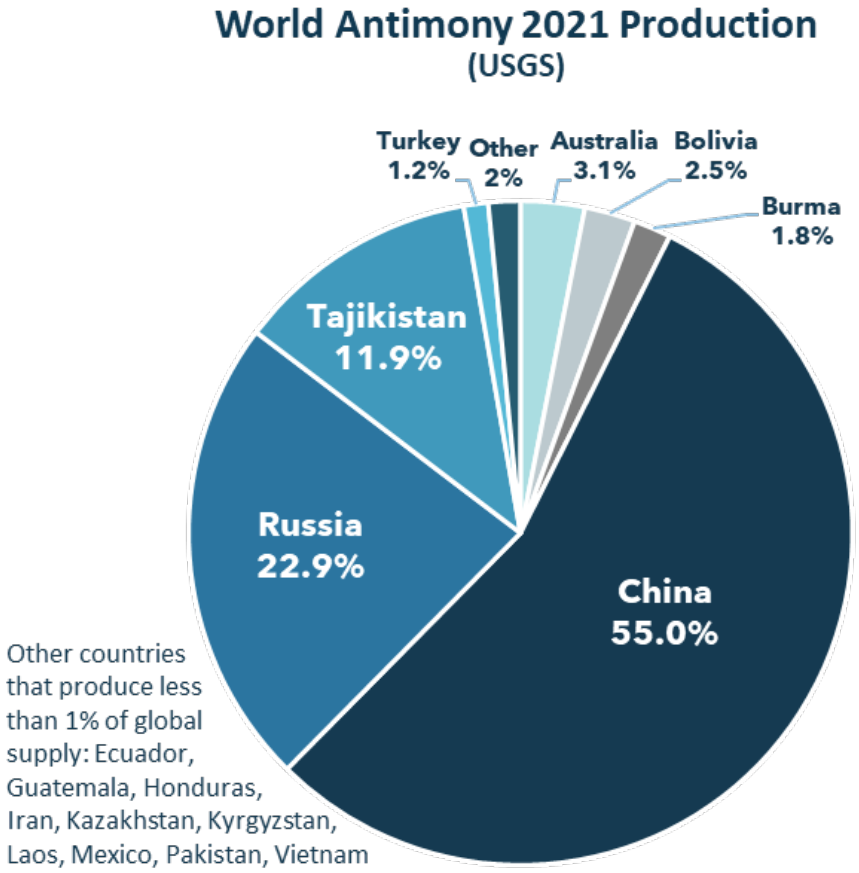
[1] Based on the 2020 Feasibility Study (FS) which is intended to be read as a whole and sections should not be read or relied upon out of context. The information in this presentation is subject to the assumptions, exclusions and qualifications contained in the FS. See "Regulatory Information" at the end of this presentation. For a summary of differences between the FS and TRS, see "Cautionary Note and Technical Disclosure" at the beginning of this presentation. The Mineral Reserves are contained within the Mineral Resources.
[2] Mineral Reserves were calculated using an Au price of $1600/oz and Sb price of $3.50/lb and variable cut off grade of 0.39-0.49 g/t Au. The Proven Mineral Reserves from the 2020 FS were reclassified as Probable Mineral Reserves for the TRS.
[3] Mineral Resources were calculated using a $1250/oz Au price and sulfide cut off grade of 0.45 g/t Au and oxide COG of 0.4 g/t Au based on the 2020 Feasibility Study. Based on a gold price of $1,500/oz in the TRS, Mineral Resources increased to 6.3Mozs @1.33 g/t using a sulfide cut off grade of 0.40 g/t Au and oxide cut off grade of 0.35 g/tAu. The Measured Mineral Resources from the 2020 FS were reclassified to Indicated Mineral Resources in the TRS due to differences in the S-K 1300 versus NI 43-101 Mineral Resources classification guidelines.

POWERING
THE FUTURE

US CRITICAL MINERAL SUPPLY CHAIN RISK.

Critical Minerals are metals and non-metals essential to economic and national security and are vulnerable to supply chain disruptions

- Antimony is one of 50 federally listed critical minerals
- China & Russia dominate the world antimony supply (>70%)
- U.S. has no mined antimony production.
- Perpetua Resources would provide the only mined source of antimony in the U.S.
- 2022 National Defense Authorization Act noted concern that non-allied nations control the U.S. supply of antimony and called for reporting on the national stockpile of antimony



Source: 2022 USGS Mineral Commodity Summaries

Perpetua Resources is estimated to produce ~35% of U.S. annual demand[1]

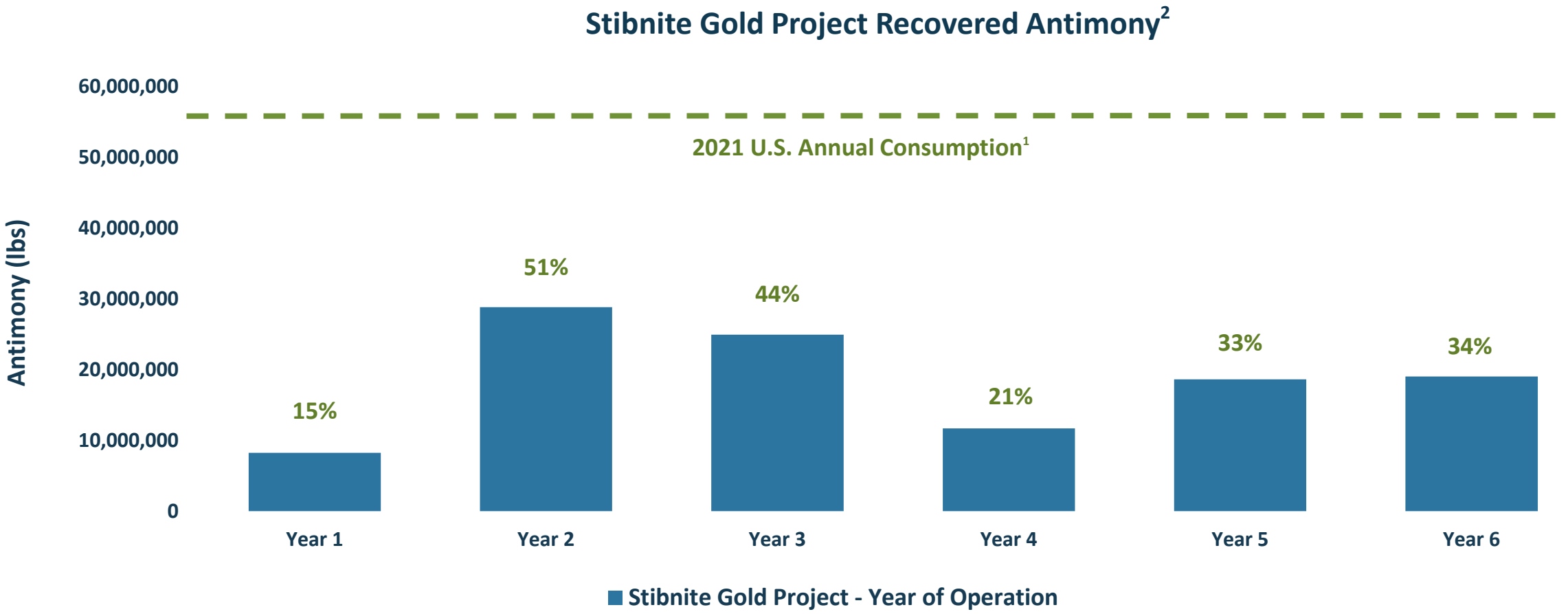
1. *Based on the first 6 years of the 2020 Feasibility Study (FS) which is intended to be read as a whole and sections should not be read or relied upon out of context. The information in this presentation is subject to the assumptions, exclusions and qualifications contained in the FS. See "Regulatory Information" at the end of this presentation.*

ANTIMONY SUPPLY

Figure 9: China's Share of Global Primary Production (1990-2018)[34]

Source: White House Report, 100-Day Supply Chain Reviews (2021), Department of Defense, Review of Critical Minerals and Materials

EXPECTED TO AVERAGE ~35% OF U.S. DEMAND[1,2]



Perpetua Resources plans to re-establish domestic antimony production, protecting America's future

1. *Source: 2022 USGS Antimony commodity summary*
2. *Based on the 2020 Feasibility Study (FS) which is intended to be read as a whole and sections should not be read or relied upon out of context. The information in this presentation is subject to the assumptions, exclusions and qualifications contained in the FS. See "Regulatory Information" at the end of this presentation. For a summary of differences between the FS and TRS, see "Cautionary Note and Technical Disclosure" at the beginning of this presentation.*

CRITICAL FOR THE AMERICAN FUTURE

ANTIMONY (Sb): A "critical mineral" that is vital to U.S. national security and will support the transition to a green economy

Night Vision Goggles

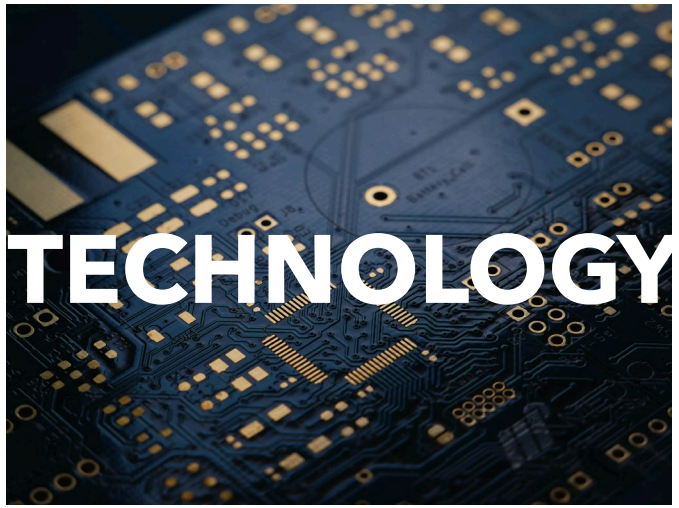
Military Clothing

Infrared Sensors

Hardening Lead: Bullets & Shrapnel

Armor Piercing Projectiles

Ammunition Primers



Circuit boards

Semi-conductors

Electrical switches

Fluorescent lighting

High-quality clear glass

Copper wiring insulation

Lead-acid batteries

Liquid-metal batteries

Solar panels

Wind turbines

Source: https://ambri.com/

AMERICAN INNOVATION & AMERICAN MINERALS

LIQUID METAL BATTERY

The liquid metal battery fundamentally changes the way power grids operate and enables the transition to carbon-free power grids.

MISSING PIECE FOR NET ZERO GRID

Ambri's antimony-based, liquid metal battery is the large-capacity, low-cost, reliable, responsible, stationary energy storage for the future.

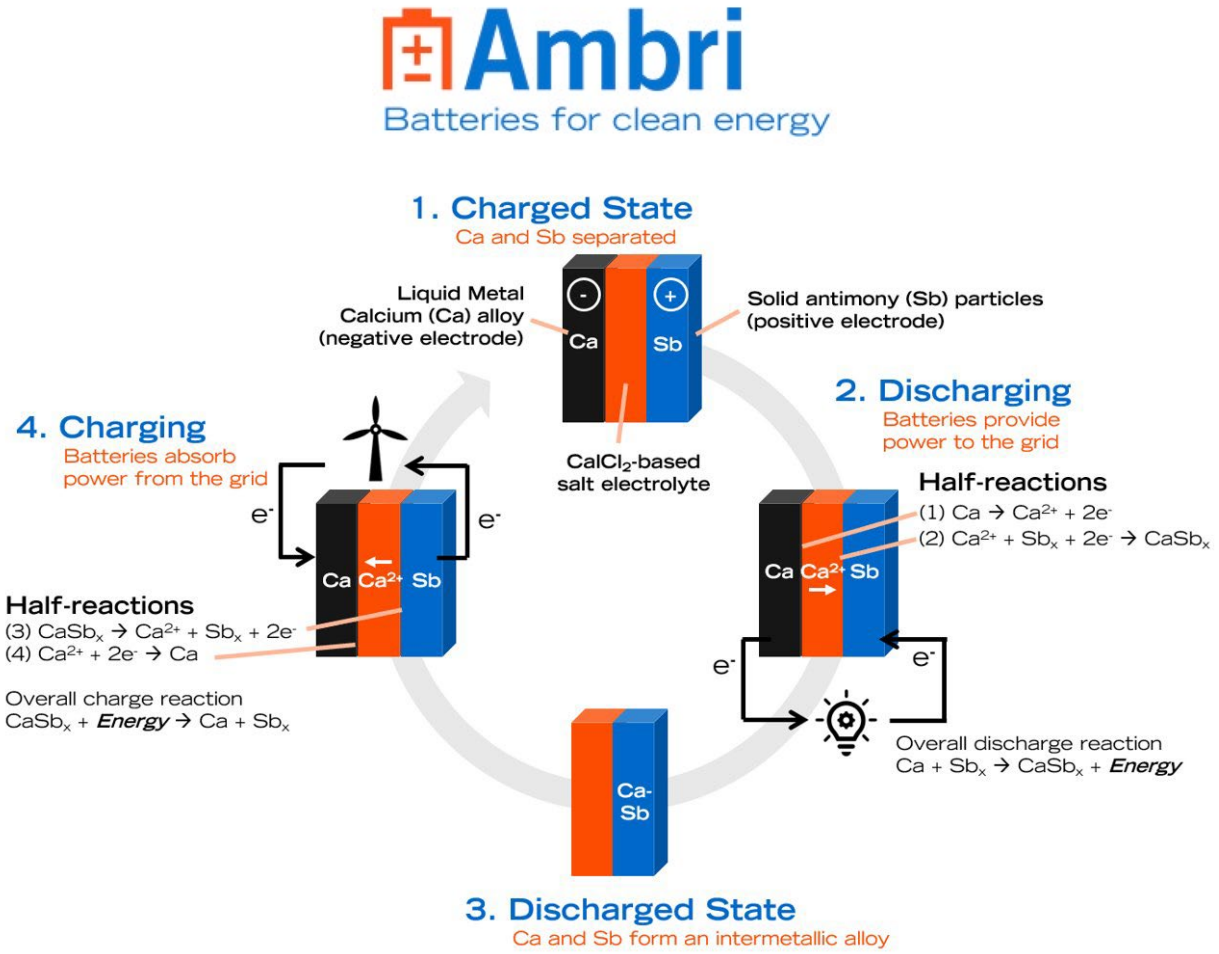
ANTIMONY AND CALCIUM: Developed by a team from MIT, the liquid metal battery technology relies on a calcium ally anode, molten salt electrolyte and a cathode of solid antimony.

HIGH-CAPACITY: Grid scale, daily cycle, modular to meet gigawatt deployment.

LONG-LIFE: 20+ year useful life.

LOWER COST: 30-50% below equivalent lithium-ion (2020-2030).

IMMEDIATE: <500 millisecond response time.



RESPONSIBLE, SECURE SOURCE of ANTIMONY

MISSING PIECE FOR DECARBONIZED GRID

- Perpetua has committed to supply a portion of the antimony from the Stibnite Gold Project to Ambri, the liquid metal battery company.
- **The current commitment of antimony from the Project can power over 13 Gigawatt hours of energy storage.**
- Perpetua and Ambri will also partner to identify opportunities to reduce carbon emissions through renewable energy generation combined with battery storage during operations

INFRASTRUCTURE

STIBNITE GOLD LOGISTICS FACILITIES

Scott Valley, Administrative and Transportation Facility

IN-TOWN JOBS

Human Resources

Purchasing & Accounting

Administration & Management

Warehousing & Storage

Laboratory

REDUCE TRAFFIC

Use as point of transportation for staff and site load consolidation

Reduces dust and sediment generated by vehicles

Reduces risk of accidents along route

Reduce greenhouse gas emissions

SITE ACCESS

CURRENT ROUTE (Johnson Creek Alternative)

The current travel routes to Stibnite, via Johnson Creek or South Fork Road to Yellow Pine and Stibnite.

STUDIES EVALUATED

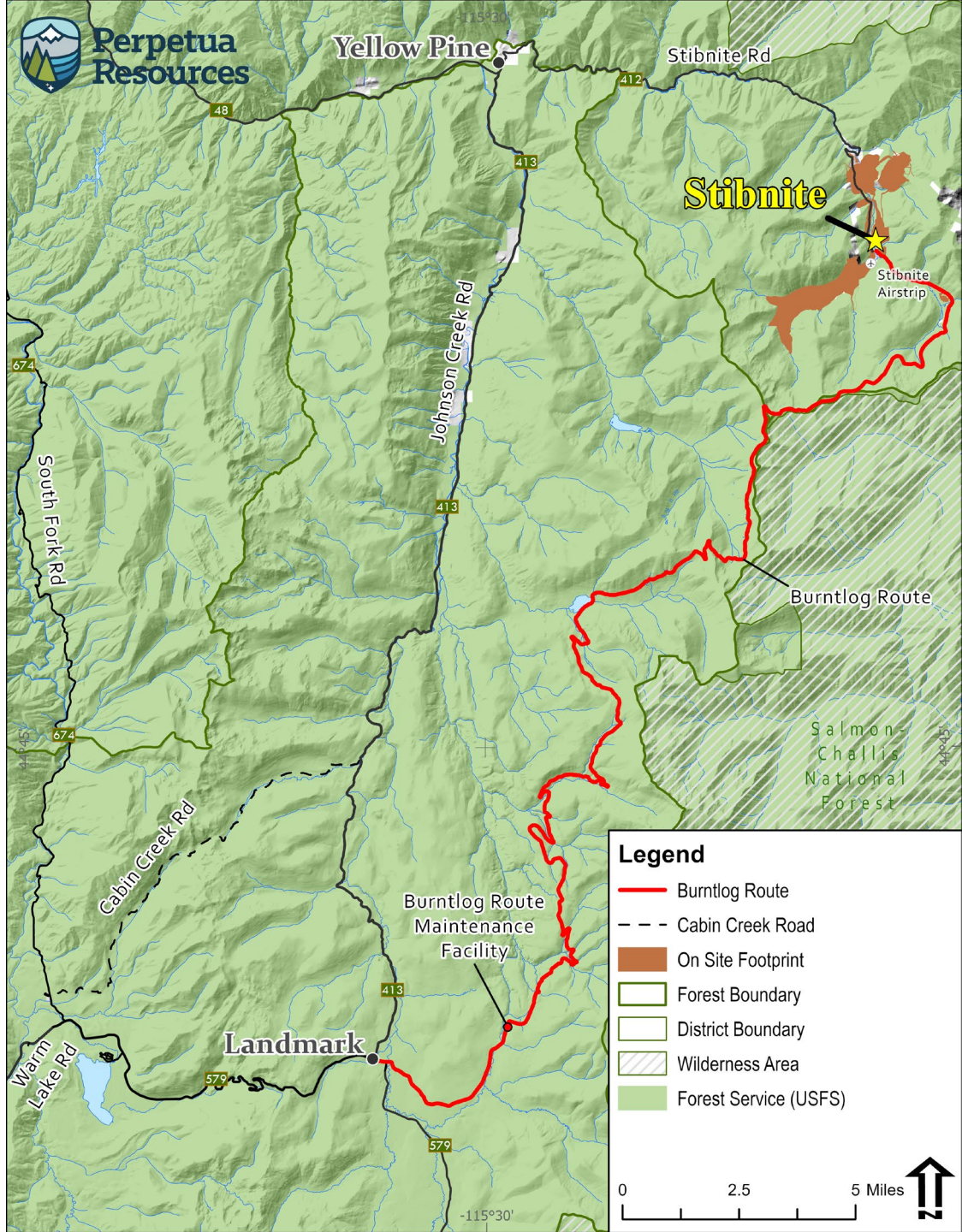
- Proximity to fish-bearing waterways
- Impact on residents and recreationalists
- Safety risks to employees

PREFERRED ALTERNATIVE, THE BURNTLOG ROUTE PROMOTES SAFETY

- 23 miles improving existing Burntlog Road (FS 447)
- 15 miles of new road
- 2 miles improving existing Thunder Mountain Road (FS 375)
- Avoids travel along waterways
- Provides Year-round access

"The Burntlog Route would avoid environmental and human health and safety risks associated with the Johnson Creek Route which passes through identified areas for avalanches, landslides, and floods... and would decrease the potential for spill risk adjacent to fish-bearing streams."

SDEIS Ch2 pg. 2-18



TRANSPORTATION PLAN

- Concentrate traffic 6am-8pm Mon-Fri
- Bus workforce from Logistics Facility to project site (Estimate 90% of workforce)
- Approximately 25 round trips per day
- Pilot vehicles will accompany fuel & sensitive loads
- Bypass downtown McCall
- Perpetua Resources will address upgrades at HWY 55 at Warm Lake, Boydston and Dienhard

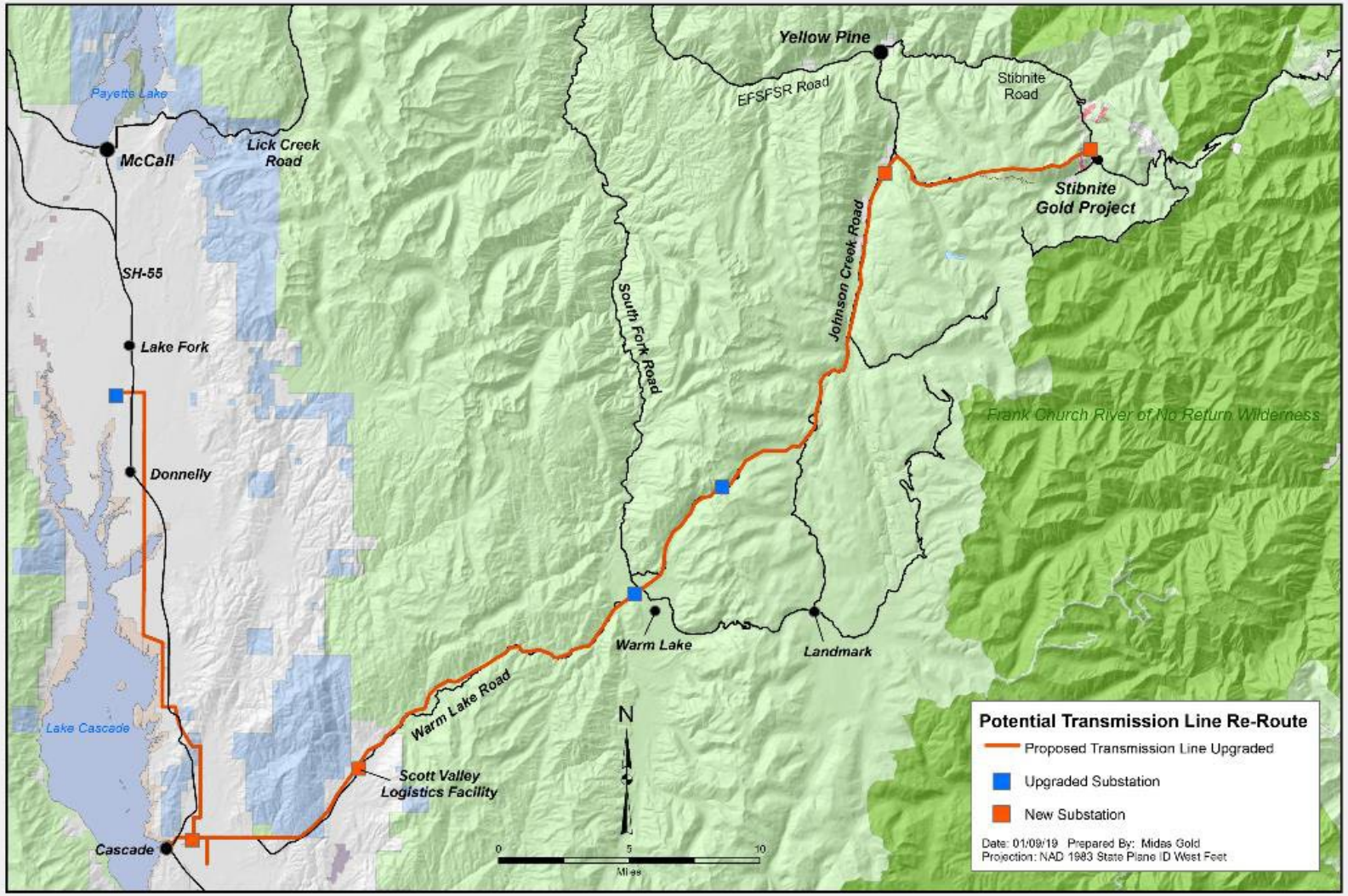
BENEFITS:

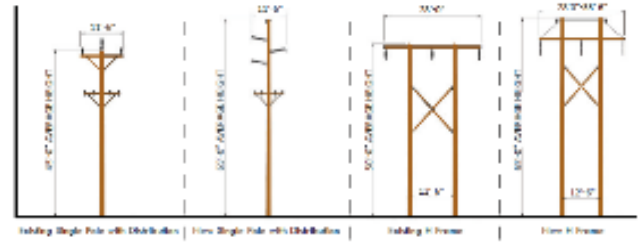
Less traffic
Less dust
Lower accident risk
Lower spill risk
Less noise

The Stibnite Gold Project represents an estimated 1-3% increase in 2017 traffic levels on Highway 55.

TRANSMISSION LINE UPGRADE

Project will upgrade ~72 miles of transmission line at company's expense

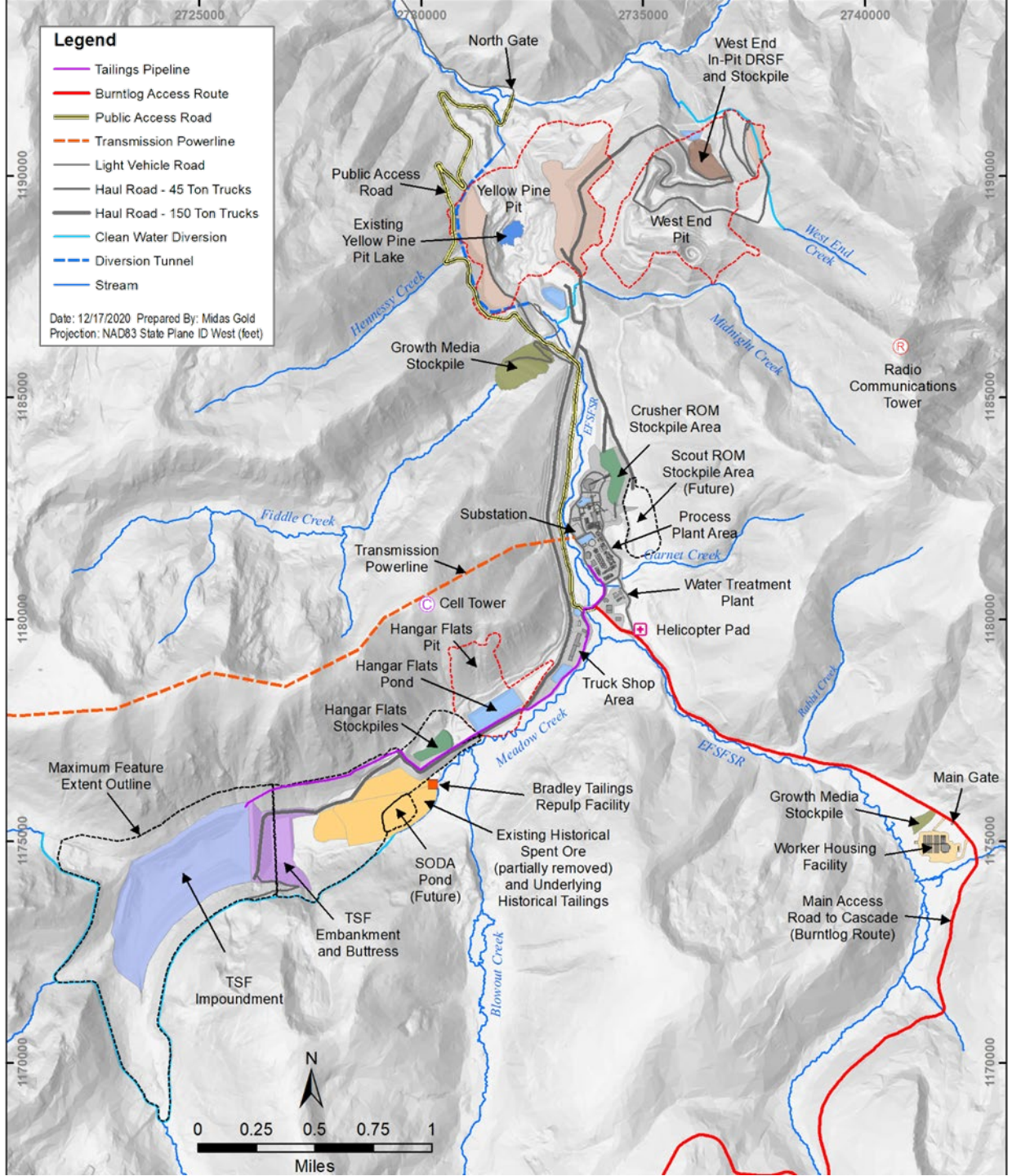




INCREASED POWER AND RELIABILITY

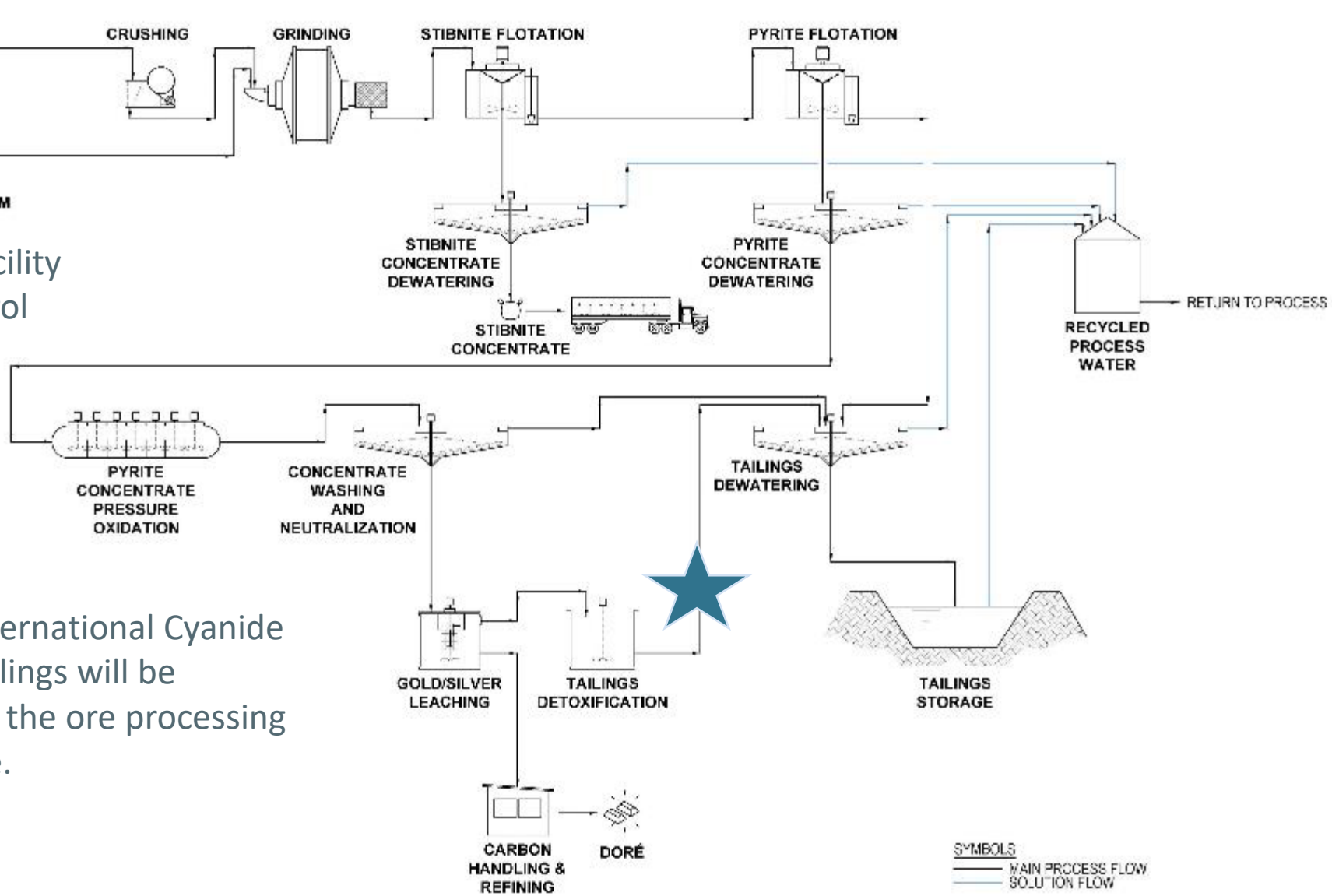
- Upgrade current 69-kV to 138-kV
- New and upgraded substations
- Costs will be incurred by Company, not Idaho Power rate payers.
- We proposed changes to the route to reduce environmental impact and improve location for local residents.

MINE SITE LAYOUT



ORE PROCESSING

- ✓ Ore processing inside a facility allows for additional control and reduced exposure.
- ✓ In accordance with the International Cyanide Management Institute, tailings will be neutralized before leaving the ore processing facility to ~10ppm cyanide.



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TAILINGS SAFETY 101

THE STIBNITE GOLD PROJECT TAILINGS STORAGE FACILITY WILL BE:

Best Practice For Tailings Facility Design

- ✓ Downstream constructed
- ✓ Made with compacted rockfill
- ✓ Fully lined

No known failures for facilities with these design characteristics

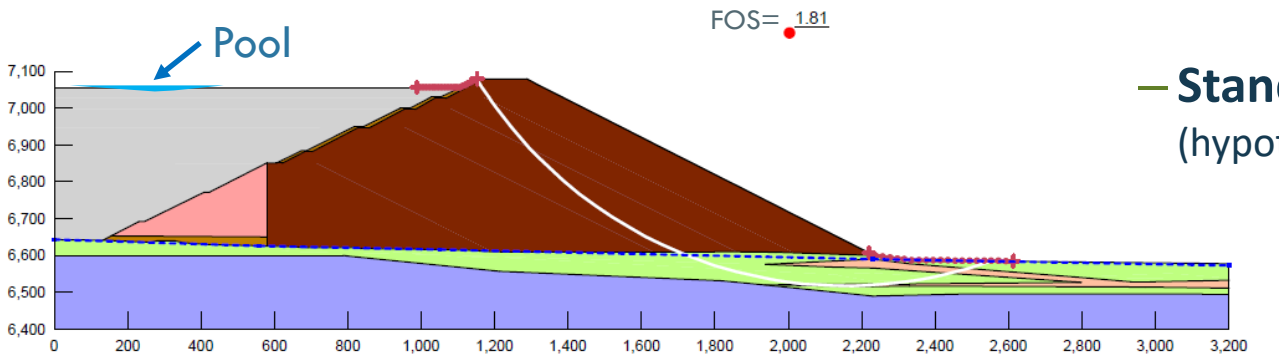
- ✓ Reviewed by an independent expert
- ✓ Buttressed to double the factor of safety

Added benefits

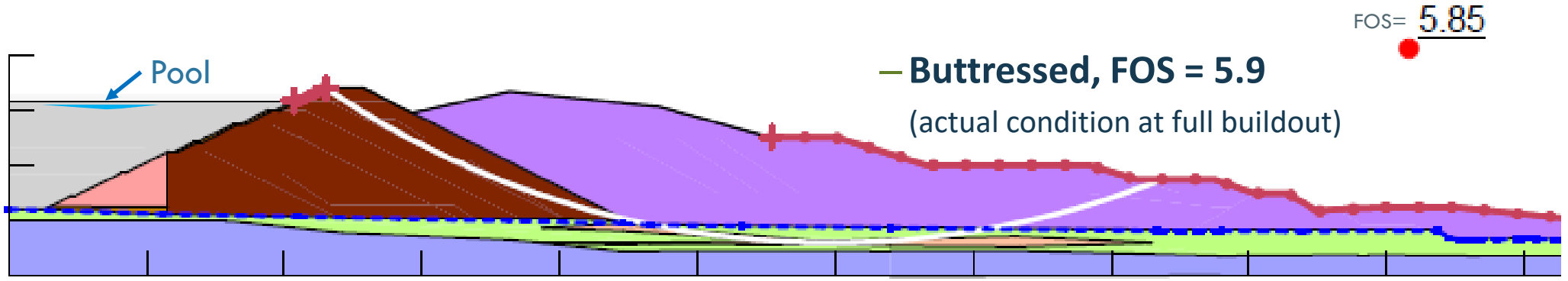
- ✓ Designed and regulated in the U.S.
- ✓ 90% contained by mountains

SGP TAILINGS FACILITY DESIGN

FOS: Factor of Safety



– **Standalone Dam, FOS = 1.8**
(hypothetical only)

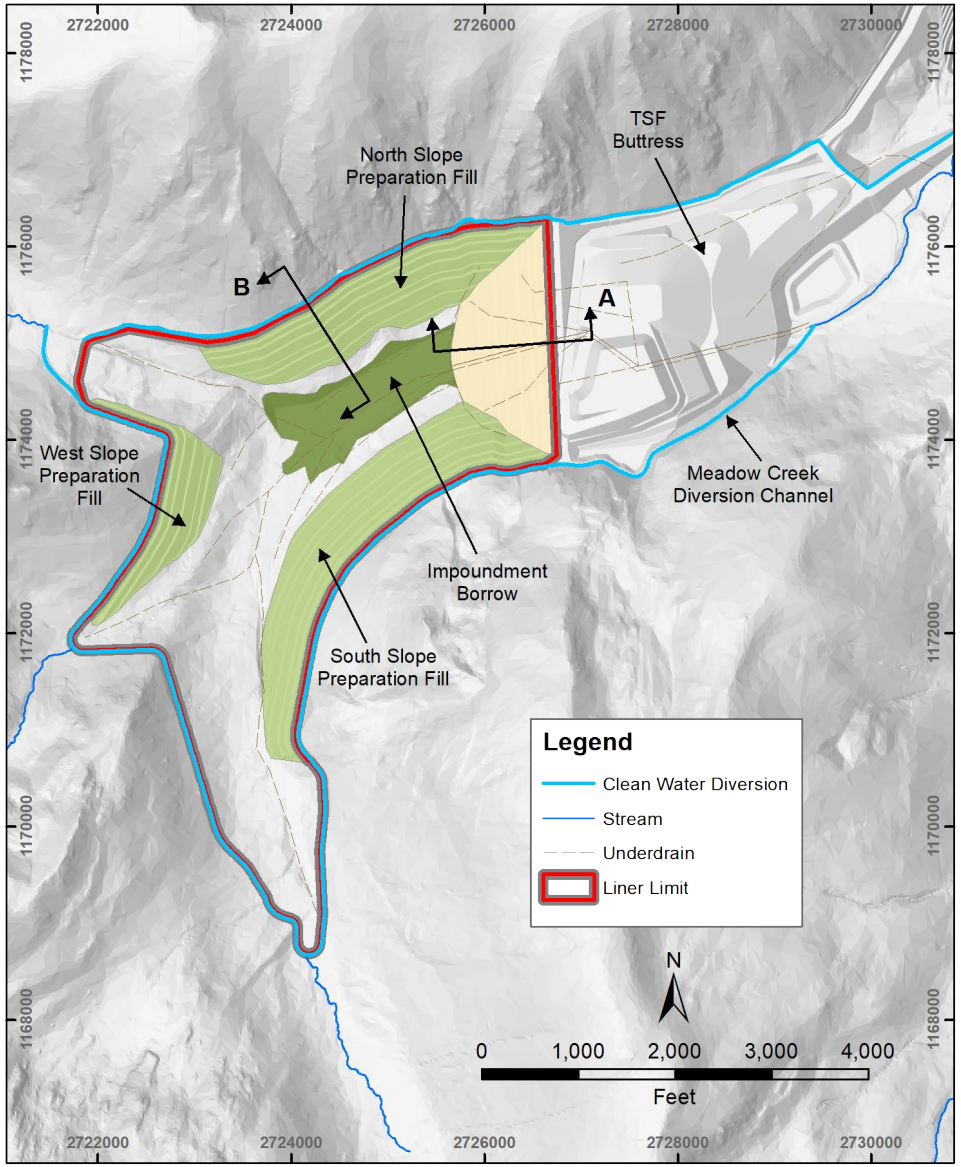


– **Buttressed, FOS = 5.9**
(actual condition at full buildout)

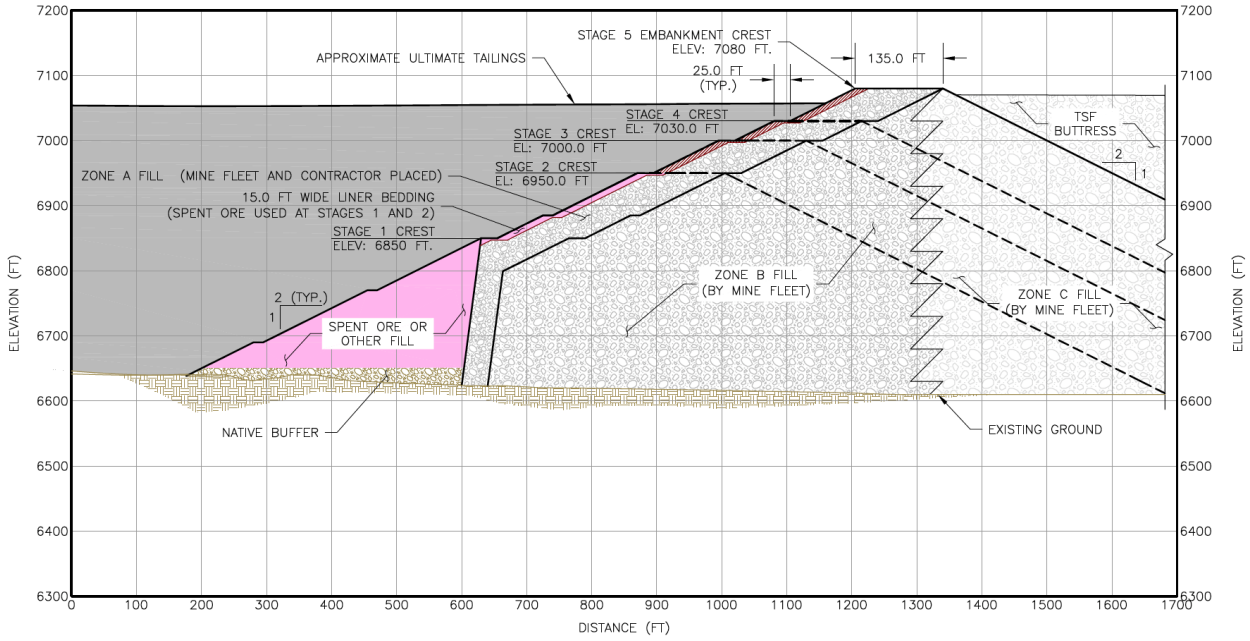
Meets or Exceeds Regulatory Standards
(Static FOS 1.5)

Rock Buttress At Least Doubles Required FOS
(at all stages)

TSF/BUTTRESS DESIGN CONFIGURATION



- ✓ Rockfill with downstream raises to maintain freeboard
- ✓ Composite-lined
- ✓ Surface water diverted
- ✓ Underdrains
- ✓ Over-liner drainage/pore pressure relief



TSF: Tailings Storage Facility

FINANCIAL ASSURANCE

MAKING SURE FUNDING FOR RESTORATION IS AVAILABLE INCASE OF DEFAULT

Before mining can begin, we must set aside protected funds to guarantee the reclamation of the project.

1. Laws have recently changed; projects must now set aside funding for reclamation calculated based on the **actual cost of reclamation and closure** which includes on site-specific conditions and **third-party contractor costs.** The calculation also includes an extra percentage for contingency and long-term water treatment.

2. Perpetua has suggested that financial assurance for the Stibnite Gold Project incorporate **restoration standards** where possible.

3. Financial Assurance for the Stibnite Gold Project will be **evaluated in phases and reviewed** at a minimum of every five years to ensure the amounts are correct and adaptive.

4. Perpetua will **not** be using a **"Corporate Guarantee"** as a tool for financial assurance and instead will look to traditional forms like bonding and trust.

REGULATORY PROCESS

The Plan of Restoration & Operations (PRO)

6 YRS of Study and Engineering

2016 Regulatory Review under NEPA started

2020 Public Comment Period for the DEIS

2022 Supplemental Draft EIS anticipated

2023 Record of Decision anticipated in late 2023/early 2024

PLAN DESIGNED TO PROVIDE:

- ✓ Natural resource restoration via private investment
- ✓ Restoration of salmon migration into upper EFSF Salmon River
- ✓ Over 500 direct well-paid jobs for Idahoans
- ✓ The only domestically mined source of antimony, a mineral of critical national significance

NEPA: National Environmental Policy Act
DEIS: Draft Environmental Impact Statement
EFSFSR: East Fork South Fork Salmon River

2020 DEIS CONCLUSIONS
(BENEFITS)

23% Increase in Stream Functional Units
(Appendix D, Table 8-1)

40% Increase in Wetland Functional Units
(Appendix D, CMP Table 8-2).

Increased Fish Population through removing migration barriers *(Ch 4.12 Fish Resources – 4.12-33-39)*

Net 7-20+ miles of ADDITIONAL stream habitat Chinook = net 12 miles | Bull trout = net 7 miles | up to 20 miles for smolts and juveniles

Water Quality Improvement through removing legacy tailings *(Ch. 4 Section 4.9)*

Removing historical barriers to fish migration will assist the population.
(Ch 4.12 Fish Resources – 4.12-33-39)

Removing legacy materials will improve water quality.
(Ch. 4 Section 4.9)

Concurrent Restoration reduces risks.
(Ch. 4 Section 4.9)

Mitigation and Restoration will address impacts.
(Appendix D, Table 8-1, 8-2) (Appendix D, Table 8-1) ((Ch4 Sections 4.11.2.3.1.1 and 4.11.2.3.1.2; Tables 4.11-7 and 4.11-8; p. 4.11-24 and 4.11-26.)

WHAT WE HEARD

- **Improve water quality**
- **Reduce water temperature**
- **Reduce the project footprint**

Based on public and agency feedback on the Draft EIS, Perpetua submitted project refinements to the USFS in December of 2020. The improvements create better environmental outcomes and are responsive to public input. The agency has decided to advance the improved project design forward for additional public review.

PROJECT IMPROVEMENTS

Improved Water Quality permanent water treatment is no longer needed through elimination of Fiddle DRSF, added liners, etc.

Improved Water Temperature to reach levels closer to or even below baseline.

10% reduction in total volume mined (44 million tons)

70% reduction in Hangar Flats pit size (the pit can be completely backfilled)

7% reduction in disturbance from open pits (37 acres)

168-acre reduction in disturbance without Fiddle DRSF

DRSF: Development Rock Storage Facility

PERMITTING – NEXT STEPS

EIS: Environmental Impact Statement
DEIS: Draft Environmental Impact Statement
FEIS: Final Environmental Impact Statement
NOA: Notice of Availability
PRO: Plan of Restoration and Operations
ROD: Record of Decision

GAINING MOMENTUM WITH NEAR-TERM CATALYSTS

Perpetua Resources

Recent Accomplishments:

- ✓ Signed agreement to begin legacy waste cleanup (Jan 2021)
- ✓ US listing on NASDAQ approved (Feb 2021)
- ✓ Signed Antimony agreement with Ambri (Aug 2021)
- ✓ Completed $57.5M equity financing (Aug 2021)
- ✓ Launched Sustainability Roadmap (Apr 2022)
- ✓ Awarded Department of Defense funding (Sep 2022)
- ✓ Completed initial legacy cleanup activities (Oct 2022)
- ✓ Supplemental Draft EIS published (Oct 2022)

Anticipated Milestones[1]:

- ❑ SDEIS Comment Period Closes (January 2023)
- ❑ Final Environmental Impact Statement & Draft Record of Decision (mid 2023)[2]
- ❑ Final Record of Decision (late 2023 / early 2024)[2]
- ❑ Ancillary permits & financing (early 2024)
- ❑ Construction, legacy restoration (2024)
- ❑ Commercial operations, ongoing restoration (2027)

[1] See forward-looking statements at the beginning of this presentation
[2] Reflects management's latest expectations based on USFS schedule published in October 2022.

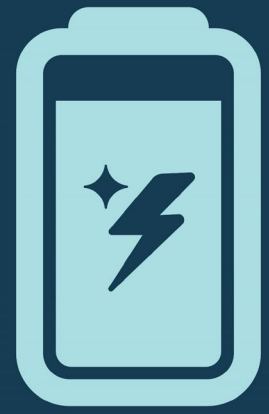
PERPETUA RESOURCES

RESPONSIBLE. RESTORATIVE. CRITICAL.

Responsible Approach

Abandoned Mine Restoration

Critical Mineral Production



Clean Energy Battery Storage

THANK YOU.

Perpetua Resources

www.perpetuaresources.com

REGULATORY INFORMATION

The FS was compiled by M3 Engineering & Technology Corporation ("M3") in accordance with NI 43-101 under the direction of independent qualified persons (as defined in NI 43-101) ("Independent QPs"). Independent QPs for the FS include: Richard Zimmerman, SME-RM (onsite and offsite infrastructure, cost estimating and financial modeling) and Art Ibrado, P.E. (mineral processing) with M3; Garth Kirkham, P.Geo. (mineral resources) with Kirkham Geosystems Ltd.; Christopher Martin, C.Eng. (metallurgy) with Blue Coast Metallurgy Ltd.; Grenvil Dunn, C.Eng. (hydrometallurgy) with Hydromet WA (Pty) Ltd.; Chris Roos, P.E. (mineral reserves) and Scott Rosenthal P.E. (mine planning) with Value Consulting, Inc.; and Peter Kowalewski, P.E. (tailings storage facility and closure) with Tierra Group International, Ltd.

The TRS was compiled by M3 in compliance with Subpart 1300 promulgated by the SEC under the direction of Independent Qualified Persons (as defined in Subpart 1300) ("QPs"). QPs for the TRS include: Richard Zimmerman, SME-RM (onsite and offsite infrastructure, cost estimating, mineral processing, financial modeling) with M3; Garth Kirkham, P.Geo. (mineral resources) with Kirkham Geosystems Ltd.; Christopher Martin, C.Eng. (metallurgy) with Blue Coast Metallurgy Ltd.; Grenvil Dunn, C.Eng. (hydrometallurgy) with Hydromet WA (Pty) Ltd.; Scott Rosenthal P.E. (mine planning and mineral reserves) with Value Consulting, Inc.; and Peter Kowalewski, P.E. (tailings storage facility and closure) with Tierra Group International, Ltd.

The material scientific and technical information in respect of the Project in this presentation, unless otherwise indicated, is based upon information contained in the FS, with notable differences between the FS and the TRS identified. Readers are encouraged to read the TRS and the Company's Current Report on Form 8-K filed with the SEC on January 3, 2021, as amended by the Company's Current Report on Form 8-K/A filed with the SEC on June 8, 2022, which are available under the Company's profile on EDGAR. Readers also are encouraged to read the FS, which is available under the Company's profile on SEDAR and on the Company's website, for detailed information concerning the Project. All disclosure contained in this presentation regarding the mineral reserves and mineral resource estimates and economic analysis on the property is fully qualified by the full disclosure contained in the FS and the TRS.

Information of a scientific or technical nature in this presentation has been approved by Christopher Dail, AIPG CPG #10596, Exploration Manager for Perpetua Resources Idaho, Inc. and a qualified person (as defined in NI 43-101 and as defined in Subpart 1300).

All mineral resources have been estimated in accordance with CIM definitions, with notable differences to Subpart 1300 identified. Mineral resources are reported in relation to a conceptual pit shell to demonstrate potential for economic viability, as required under NI 43-101; mineralization lying outside of these pit shells is not reported as a mineral resource. Mineral resources are not mineral reserves and do not have demonstrated economic viability. Mineral resource estimates include inferred mineral resources that are considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as mineral reserves. It is reasonably expected that the majority of inferred mineral resources could be upgraded to indicated mineral resources.

The mineral resources and mineral reserves at the Stibnite Gold Project are contained within areas that have seen historic disturbance resulting from prior mining activities. In order for the Company to advance its interests at the Stibnite Gold Project, the Project will be subject to a number of federal, state and local laws and regulations and will require permits to conduct its activities.

See also "Cautionary Note" at the beginning of this presentation.

OTHER

Certain monetary amounts, percentages and other figures included in this presentation have been subject to rounding adjustments. Certain other amounts that appear in this presentation may not sum due to rounding.

PERPETUA RESOURCES

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