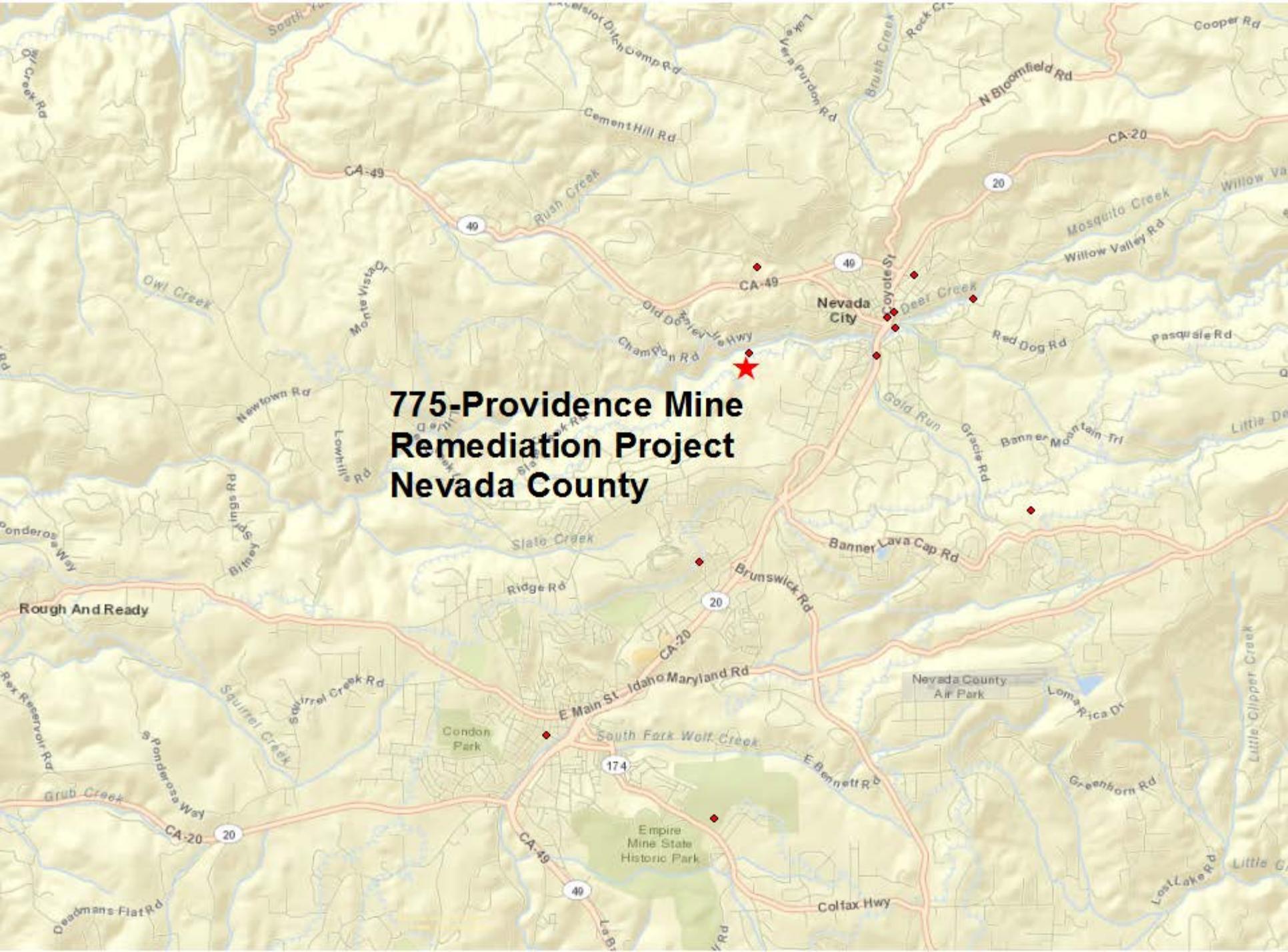


775-Providence Mine Remediation Project Nevada County



**STATE OF CALIFORNIA
SIERRA NEVADA CONSERVANCY**

**Sierra Nevada Conservancy Grant Program
Safe Drinking Water, Water Quality and Supply, Flood Control,
River and Coastal Protection Bond Act of 2006 (Proposition 84)**

Applicant: Sierra Streams Institute

Project Title: Providence Mine Remediation Project

Subregion: Central

County: Nevada

SNC Funding: \$342,211.00

Total Project Cost: \$551,715.00

Application Number: 775

Final Score: 91

PROJECT SCOPE

The Providence Mine Site is located in the northwestern portion of a 38-acre property owned by the city of Nevada City (APN 05-100-87), known as the “Environs Property”. The site is located adjacent to Deer Creek, a tributary of the Yuba River, approximately one (1) mile downstream of downtown Nevada City, California. The property is the subject of a US Environmental Protection Agency (EPA) funded Brownfields cleanup effort to remove lead, arsenic and cadmium, for which a Removal Action Workplan was developed in August 2013. The California Department of Toxic Substances Control (DTSC) has provided technical assistance to Sierra Streams Institute and the City of Nevada City with regulatory oversight and California Environmental Quality Act (CEQA) permitting for the project.

The SNC funding will complement \$200,000 from US EPA to complete the cleanup and stabilization of the eastern portion of the waste rock pile, stabilize and fill the mine shaft area, revegetate the site for erosion control, continue an ongoing study of native plants’ uptake of heavy metals, and develop interpretive signage about the remediation for The Environs Trail that crosses through the area.

The project supports the goals of Proposition 84 and of the Sierra Nevada Conservancy (SNC) by contributing to the protection and restoration of rivers and streams, their watersheds and associated land, water and other natural resources. The project targets Deer Creek, a drinking water source for Nevada City, and provides for its protection by preventing erosion of contaminated material resulting from historic gold mining practices.

PROJECT SCHEDULE

DETAILED PROJECT DELIVERABLES	TIMELINE
Engineering evaluation and Landslide stabilization design report	November 2014
Engineering evaluation report and shaft plug design	November 2014
Interpretive sign (draft)	December 2014
Subcontracts (Mobilization/Demobilization, Excavation, Gabion wall, Shotcrete Facing, Plug Construction, Engineering and Const Mangt, City of Nevada City, Interpretive Sign install)	December 2014
Shaft plug/As-Built plans	March 2015
Monitoring Field Reports (monthly)	March 2015 and monthly
Monitoring Plan	May 2015
Field Reports and compaction test results during shaft backfill	May - July 2015
2 Reports: Microbial Community Characterization and Plant Selection; Preliminary Amendment, Uptake Erosion Control	July 2015
Erosion Control and revegetation As-Built diagrams	August 2015
Retaining wall and shotcrete facing As-Built diagrams	August 2015
Final Phytoremediation Report	June 2016
Lab Reports	July 2016
Operation and Maintenance Agreement (CofNC)	July 2016
Six month Progress Reports	April 2015, October 2015, April 2016, October 2016
FINAL PAYMENT/FINAL PAYMENT REQUEST	March 1, 2017

PROJECT COSTS

PROJECT BUDGET CATEGORIES	TOTAL SNC FUNDING
Direct*	
Project Management	\$40,000.00
Staff Scientists	\$25,000.00
Contract Work (Mobilization/Demobilization, Excavation, Gabion Wall, Shotcrete Facing, Plug Construction, City of Nevada City)	\$160,075.00
Consultants (Engineering and Construction Management, Geotechnical Study)	\$16,500.00
Construction Materials Testing	\$10,000.00
DTSC Oversight	\$7,500.00
Revegetation Plants and Supplies	\$6,000.00
Erosion Control Materials	\$5,000.00
Indirect**	
Monitoring Staff	\$10,000.00
Monitoring Supplies	\$10,000.00
Heavy Metal Sampling	\$5,000.00
Publications, Printing, Public Relations, Interpretive Signage	\$2,500.00
Administrative***	
Overhead @ 15%	\$44,636.00
GRAND TOTAL	\$342,211.00

* Direct: Direct costs are expenses necessary to acquire, construct, or to adapt property to a new or different use, or to improve property including land, buildings and equipment. The property/expense must have a useful life longer than one year.

** Indirect: Expenses involve ongoing operations, repair or maintenance costs, regardless of whether the repair or maintenance may last more than one year.

*** Administrative: Expenses associated with the administration of a project and may not exceed 15 percent of the total SNC grant request for direct and indirect costs.

PROJECT LETTERS SUPPORT/OPPOSITION

- Support
 - City of Nevada City

PROJECT PERFORMANCE MEASURES

There are four Performance Measures common to all grants. In addition, grantees are required to include between one and three project-specific measures. Performance Measures listed here represent those proposed by applicants and may be modified through further discussion with SNC Staff.

- Acres of Land Improved or Restored
- Linear Feet of Stream Bank Protected or Restored
- Mass of Pollutant Reduced Per Year

NOTICE OF DETERMINATION

To: Office of Planning and Research
State Clearinghouse
P.O. Box 3044, 1400 Tenth Street, Room 212
Sacramento, CA 95812-3044

From: Sierra Nevada Conservancy
11521 Blocker Drive, Suite 205
Auburn, CA 95603

Subject: **FILING OF NOTICE OF DETERMINATION IN COMPLIANCE WITH SECTION 21108 OR 21152 OF THE PUBLIC RESOURCES CODE**

Project Title: Providence Mine Remediation Project (SNC 775)

State Clearinghouse No.: SCH # 2014062072

Project Location: The proposed project is a one-half (0.5)-acre area within a 2.64-acre Brownfield Assessment Site owned by Nevada City in the northwest portion of a 38-acre parcel (Assessor's Parcel Number [APN] 05-100-87), adjacent to Deer Creek, north and east of Providence Mine Road, approximately 0.8 mile west of State Route (SR) 20, approximately 0.6 mile south of SR-49, west of Zion Street, one mile downstream from downtown Nevada City, Nevada County, California. Township (T) 16 North (N), Range (R) 9 East (E), Sections 11, 12, and 13. Approximate Latitude / Longitude: 39° 15' 32.60" N / 121° 02' 05.23" W.

County: Nevada County

Project Description: The Sierra Streams Institute is requesting \$342,211 in funding from the Sierra Nevada Conservancy's Proposition 84 Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Grant Program to begin to implement the Removal Action Workplan (RAW) approved by the Department of Toxic Substances Control for this Nevada City property in order to eliminate a significant source of contamination resulting from historic gold mining practices at the Providence Mine Remediation Project area in Nevada City, Nevada County, California. This project would plug the existing mine shaft depression; excavate loose, unstable mine waste in the eastern slope down to native soil; stabilize the active landslide on the eastern slope by installing an earth retaining structure (gabion wall); and stabilize the mine waste slope by revegetating and regading. The proposed project would also install interpretive signs to introduce the public to the history and legacy of the Providence Mine. The project would cleanup the abandoned Providence Mine, protecting water quality and public health (Deer Creek is a drinking water source) and resulting in the safe reuse as a recreational trail corridor.

As Lead Agency a Responsible Agency under the California Environmental Quality Act (CEQA), the Sierra Nevada Conservancy has approved the above described project on September 4, 2013, and has made the following determinations regarding the above described project:

1. The project will will not have a significant effect on the environment.
2. A Negative Declaration Mitigated Negative Declaration Environmental Impact Report (EIR) accompanied by an Initial Study (CEQA Guidelines Section 15177) was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures were were not made a condition of project approval.
4. A mitigation reporting or monitoring plan was was not adopted for this project.
5. A Statement of Overriding Considerations was was not adopted for this project.
6. Findings were were not made pursuant to the provisions of CEQA.

This is to certify that the Mitigated Negative Declaration, with attached Initial Study, Mitigation Monitoring and Reporting Plan, and record of project approval are available to the General Public at the following location:

Sierra Nevada Conservancy
11521 Blocker Drive, Suite 205
Auburn, CA 95603

Jim Branham

Executive Officer

(530) 823-4670
Phone #

TO BE COMPLETED BY OPR ONLY

Date Received For Filing and Posting at OPR:

**RESPONSIBLE AGENCY
ENVIRONMENTAL DETERMINATION**

PROJECT INFORMATION

1. Project Title:
Providence Mine Remediation Project (SNC 775)
2. Responsible Agency Name and Address:
Sierra Nevada Conservancy
11521 Blocker Drive, Suite 205
Auburn, CA 95603
3. Contact Person and Phone Number:
Matthew Daley, Program Coordinator (530) 823-4698
4. Project Location:
The proposed project is a one-half (0.5)-acre area within a 2.64-acre Brownfield Assessment Site in the northwest portion of a 38-acre parcel (Assessor's Parcel Number [APN] 05-100-87), adjacent to Deer Creek, north and east of Providence Mine Road, approximately 0.8 mile west of State Route (SR) 20, approximately 0.6 mile south of SR-49, west of Zion Street, one mile downstream from downtown Nevada City, Nevada County, California. Township (T) 16 North (N), Range (R) 9 East (E), Sections 11, 12, and 13. Approximate Latitude / Longitude: 39° 15' 32.60" N / 121° 02' 05.23" W.
5. Project Sponsor's Name and Address:
Sierra Streams Institute
431 Uren Street, Suite C
Nevada City, CA 95959
6. General Plan Designation:
Open Space Preserve (OS)
7. Zoning:
Open Space
8. Description of Project:
The Sierra Streams Institute is requesting \$342,211 in funding from the Sierra Nevada Conservancy's Proposition 84 Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Grant Program to begin to implement the Removal Action Workplan (RAW) in order to eliminate a significant source of contamination resulting from historic gold mining practices at the Providence Mine Remediation Project area in Nevada City, Nevada County, California. This project would plug the existing mine shaft depression; excavate loose, unstable mine waste in the eastern slope down to native soil; stabilize the active landslide on the eastern slope by installing an earth retaining structure (gabion wall); and stabilize the mine waste slope by revegetating and regarding. The proposed project would also install interpretive signs to introduce the public to the history and legacy of the Providence Mine. The project would cleanup the abandoned Providence Mine, resulting in the safe reuse as a recreational trail corridor and protecting stream (Deer Creek) health.

The inclined mine shaft depression would be cleared of vegetation and organic debris. This would include clearing and grubbing of underbrush, trees less than six inches in diameter at breast height (DBH), and the removal of up to 12 trees greater than six inches DBH. The woody material would be chipped and used as mulch on-site. An exploratory excavation would be advanced at the base of the east end of the depression to determine the presence of a previously installed plug, voids or open inclined shaft. A concrete plug would be installed at the base of the collapsed shaft depression prior to depositing material in order to prevent migration of backfilled mine waste down the shaft.

Accessible areas of loose, unstable mine waste in the eastern slope would be excavated to native soil surface using special excavation techniques suitable for the extremely steep slopes in the area. Excavation would be limited to areas above the 100-year flood elevation for Deer Creek and would include the mine waste from the eastern slope as well as landslide debris fan. Excavated mine waste from the eastern slope and slide debris fan would be placed as fill in the shaft depression.

An earth retaining structure (gabion wall) would be installed adjacent to Deer Creek at the toe of the landslide on the eastern slope, above the 100-year flood elevation. The gabion wall would be approximately 30 feet long, 3 feet wide, and 9 feet high. A shotcrete facing would be applied to the exposed landslide scarp face to minimize erosion and promote long-term stabilization of the landslide.

The mine waste slope would be stabilized by revegetation as well as regrading by excavation and on-site placement, in order to reduce the slope gradient and eliminate the potential for erosion into the creek. Erosion control and revegetation would include the installation of anchored coir fiber mats and rolls, hydroseeding or other methods to accelerate plant growth would reduce the extent of erosion and contamination during and after construction. Native vegetation, particularly plants with known capacity to uptake target contaminants, would be used for revegetation.

During the proposed project activities, any stockpiles would be covered with an anchoring system and vehicles and other equipment would not be allowed to travel or stage near the stockpiles. Signs would be posted on the project site to alert visitors on prohibited activities while on the premises.

9. Surrounding Land Uses and Setting:

The project area is within the City of Nevada City boundaries, and is surrounded by the following land uses: Open Space Preserve (OS), Employment Center (EC), Rural (R), and Single Family (SF). Deer Creek flows adjacent to the northern project boundary.

10. Other public agencies whose approval is required:

- California Department of Fish and Wildlife (CDFW)
- Nevada City Department of Public Works
- Nevada City Planning Department
- Northern Sierra Air Quality Management District (NSAQMD)
- California Air Resources Board (CARB)
- California Department of Toxic Substance Control (DTSC)*
- *Approved the Mitigated Negative Declaration (CEQA)

PROJECT BACKGROUND

The proposed project is located on the Providence Mine site. The Providence Mine was one of the largest and most productive gold mines in the Sierra, with excavation of approximately \$20 million worth of gold that was extracted between 1851 and 1918. Once abandoned, the mine structures and shaft were abandoned and the forest vegetation began to grow in and around the abandoned mine. This masked the toxic areas left from the mining activities. The entire 38-acre parcel, known as the Environs Site, was acquired by the City of Nevada City in 1983 to be used as open space. The property has been the subject of extensive restoration and recreational development over the past four years. Recreational development in the area includes the development of a trail system, which includes the Environs Trail.

Providence Mine was the subject of a U.S. Environmental Protection Agency (EPA) Brownsfield assessment, which was completed in 2009 by the City of Nevada City. The samples during the assessment revealed high levels of three main constituents of concern: lead, arsenic, and cadmium.

The cleanup of Providence Mine consists of several phases. The California Department of Toxic Substance Control (DTSC) has finalized a Site Characterization Report and Final Removal Action Workplan (RAW) for the proposed project site. The DTSC acted as Lead Agency under CEQA in June 2014 and prepared an Initial Study and adopted a Mitigated Negative Declaration in August 2014.

The proposed project would cleanup the abandoned Providence Mine, resulting in the safe reuse as a recreational trail corridor, the revegetation of the area with native plants, and the protection of water quality, and ultimately the protection of stream (Deer Creek) health.

PREVIOUS ENVIRONMENTAL DOCUMENTATION

Providence Mine Cleanup Project Initial Study/Mitigated Negative Declaration
Department of Toxic Substance Control, *Providence Mine Cleanup Project Initial Study/Mitigated Negative Declaration*. SCH 2014062072. August 2014.

Basic Features of the Project

The goal of the proposed project is to cleanup the abandoned Providence Mine, resulting in the safe reuse as a recreational trail corridor, the revegetation of the area with native plants, and the protection of water quality, and ultimately the protection of stream (Deer Creek) health.

The Providence Mine Cleanup Project Initial Study/Mitigated Negative Declaration (IS/MND) includes environmental impact analysis as related to the implementation of the RAW, which includes: (1) plugging the existing mine shaft depression; (2) excavating loose, unstable mine waste in the eastern slope down to native soil; (3) stabilizing the active landslide on the eastern slope by installing an earth retaining structure (gabion wall); and stabilize the mine waste slope by revegetating and regrading.

Permits that are anticipated for the proposed project include the CDFW (Lake and Streambed Alteration Agreement 1602 Permit), CDFW (Riparian Vegetation Mitigation Monitoring Plan), City of Nevada City (Tree Removal Plan, Grading and Erosion Control Plan), NSAQMD (Rule 401 [Visible Emissions], Rule 402 [Nuisance], Rule 403 [Fugitive Dust]), and California Air Resources Board (Portable Equipment Registration).

Impacts Identified Relevant to the Sierra Nevada Conservancy Grant Request

The action before the Sierra Nevada Conservancy is providing \$342,211 from the Sierra Nevada Conservancy's Proposition 84 Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Grant Program to fund the implementation of the Removal Action Workplan (RAW) in order to eliminate a significant source of contamination resulting from historic gold mining practices at the Providence Mine Remediation Project area in Nevada City. The Providence Mine Cleanup Project IS/MND identifies potential resource impacts related to air quality, biological resources, cultural resources, greenhouse gas emissions, and hydrology and water quality. Specifically, the proposed project may result in temporary increases in air pollutants, including greenhouse gas emissions, during proposed project activities,; the indirect disturbance of Deer Creek (riparian area disturbance); temporary habitat disruption; temporary disturbance of special-status plant and animal species; the potential to inadvertently disturb unknown cultural resources or human remains during ground-disturbing activities. Based on the IS/MND, the project would not cause any additional significant effects on the environment not previously examined in the Providence Mine Cleanup Project IS/MND. The project proponent would implement measures identified in the IS/MND, and described below, to lessen potential impacts to air quality, biological and cultural resources, greenhouse gas emissions, and hydrology and water quality.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact.

- | | | |
|--|--|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology / Soils |
| <input checked="" type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards / Hazardous Materials | <input checked="" type="checkbox"/> Hydrology / Water Quality |
| <input type="checkbox"/> Land Use / Planning | <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise |
| <input type="checkbox"/> Population / Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Transportation / Traffic | <input type="checkbox"/> Utilities / Service Systems | <input type="checkbox"/> Mandatory Findings of Significance |

DETERMINATION (To be completed by the Responsible Agency)

On the basis of this evaluation:

The SNC Board determined that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by, or agreed to by, the project proponent. An **INITIAL STUDY/MITIGATED NEGATIVE DECLARATION** was prepared that adequately analyzed the action for which the Sierra Nevada Conservancy will provide grant funding, mitigation measures have been incorporated into the project, and the SNC Board has adopted findings pursuant to CEQA Guidelines Sections 15096(h) and 15091. The California Department of Toxic Substance Control, as the lead agency, also adopted a Mitigation Monitoring and Reporting Program that identifies the timing of mitigation measures and which parties will be responsible for implementing them; the SNC is not responsible for implementing any of these measures and is not proposing any additional mitigation measures.

Signature

Date

Jim Branham

Printed Name

Executive Officer

Title

Sierra Nevada Conservancy

Responsible Agency

**CALIFORNIA ENVIRONMENTAL QUALITY ACT
RESPONSIBLE AGENCY
STATEMENT OF FINDINGS**

Project Title: Providence Mine Remediation Project (SNC 775)

State Clearinghouse Number: SCH# 2014062072

Project Location: The proposed project is a one-half (0.5)-acre area within a 2.64-acre Brownfield Assessment Site in the northwest portion of a 38-acre parcel (Assessor's Parcel Number [APN] 05-100-87), adjacent to Deer Creek, north and east of Providence Mine Road, approximately 0.8 mile west of State Route (SR) 20, approximately 0.6 mile south of SR-49, west of Zion Street, one mile downstream from downtown Nevada City, Nevada County, California. Township (T) 16 North (N), Range (R) 9 East (E), Sections 11, 12, and 13. Approximate Latitude / Longitude: 39° 15' 32.60" N / 121° 02' 05.23" W.

Description of Project: The Sierra Streams Institute is requesting \$342,211 in funding from the Sierra Nevada Conservancy's Proposition 84 Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Grant Program to begin to implement the Removal Action Workplan (RAW) in order to eliminate a significant source of contamination resulting from historic gold mining practices at the Providence Mine Remediation Project area in Nevada City, Nevada County, California. This project would plug the existing mine shaft depression; excavate loose, unstable mine waste in the eastern slope down to native soil; stabilize the active landslide on the eastern slope by installing an earth retaining structure (gabion wall); and stabilize the mine waste slope by revegetating and regading. The proposed project would also install interpretive signs to introduce the public to the history and legacy of the Providence Mine. The project would cleanup the abandoned Providence Mine, resulting in the safe reuse as a recreational trail corridor and protecting stream (Deer Creek) health.

Findings: Pursuant to Public Resources Code Section 21002.1(d) and CEQA Guidelines Section 15096(g) and (h), the Sierra Nevada Conservancy (SNC), as a Responsible Agency, has reviewed and considered the following documents prepared by the Lead Agency (CEQA):

Department of Toxic Substance Control, *Providence Mine Cleanup Project Initial Study/Mitigated Negative Declaration*. SCH 2014062072. August 2014.

Using its independent judgment, the SNC makes the following finding:

The above listed document: a) adequately addresses the potential impacts of the project, and b) is adequate for use by the Sierra Nevada Conservancy (SNC) for assessing the potential impacts of funding the grant request now before the SNC for approval.

The Sierra Nevada Conservancy hereby makes the following findings regarding the significant effects of the proposed project, pursuant to Public Resources Code 21081 and Section 15091 of the State CEQA Guidelines.

1. AIR QUALITY

The proposed project would cleanup the abandoned Providence Mine, resulting in the safe reuse as a recreational trail corridor, the revegetation of the area with native plants, and the protection of water quality, and ultimately the protection of stream (Deer Creek) health. The implementation

of the RAW would require temporary, ground disturbing activities, that could create fugitive dust. Equipment used for the proposed project could produce particulate matter 10 microns or less in diameter and/or 2.5 microns or less in diameter (PM₁₀ and PM_{2.5}), as well as ozone precursors, including nitrogen oxides (NO_x) and reactive organic gases (ROGs). These emissions from the proposed project activities would have the potential to exceed the NSAQMD's threshold limits for air pollutants. Impacts are considered potentially significant. The IS/MND for the Providence Mine Cleanup Project covers air quality impacts for the proposed project and provides mitigation measures. Those mitigation measures that apply specifically to the proposed project are listed below.

Finding: Changes or alterations have been required in, or incorporated into, the project that mitigate or avoid significant effects on the environment.

Facts in Support of the Finding: The Sierra Nevada Conservancy concurs with the lead agency that the following mitigation measures will reduce the project's environmental effects to a less-than-significant level.

Mitigation Measures:

MM-3.1 Standard Mitigation Measures to Reduce PM₁₀ and PM_{2.5} include the following:

- During grading, ground disturbance or excavation operations, fugitive dust emissions will be controlled by regular watering or other dust preventative measures.
- Dust monitoring (visible monitoring) will be conducted to determine whether contaminated soils are released off-site during remedial work, to protect on-site workers, and to ensure the project complies with the state and federal air quality regulations. Work will be stopped if dust is visible or present in the worker breathing zone or Site boundary.
- Work areas and haul routes will be periodically swept to prevent dust generation during soil hauling activities.
- All grading or open excavating activities shall cease when winds exceed 15 miles per hour averaged over one (1) hour.
- Plastic sheets or tarps will be used to cover stockpiled soil and may be used to cover other exposed areas, if necessary.
- If dust levels cannot be controlled to below action levels with implementation of these measures, the work will stop until additional controls are implemented to reduce dust generation from the work area.

MM-3.2 Standard Mitigation Measures to reduce ozone and ozone precursors. Project activities including excavation, grading, backfilling, and soil transport that require the use of heavy equipment and trucks will generate ozone and ozone precursor(s). The following standard mitigation measures will reduce the amount of ozone and ozone precursors (NO_x and ROG) generated by the project:

- Reducing heavy equipment idling time. Reduce diesel equipment idling time to no more than 10 minutes of inactivity.
- Reducing truck idling time. Reduce truck idling time to a maximum of five (5) minutes while on-site waiting to load or unload.

- Use properly sized equipment. Equipment engines too large for an application burn more fuel by adding unnecessary weight. In addition, drivers may be prone to use the excess horsepower needlessly, causing additional fuel consumption. An undersized engine easily becomes overworked, leading to excess fuel consumption and accelerated engine wear. Equipment selection will be based on the anticipated requirements of the remedial action.
- Improving equipment maintenance. Improper wheel alignment and improperly inflated tires on trucks can adversely affect fuel efficiency by three (3) to four (4) percent. Hauling will be maintained in accordance with the manufacturer's recommendations. Truck drivers will be instructed to check their tire inflation in accordance with tire manufacturer's recommendations.
- Improving operator training. Example – An excavator operator who needlessly shifts hydraulic levers to lift additional weight when the equipment is already operating at its maximum capacity can save 225 gallons of fuel a year by eliminating this practice one (1) hour per day. During Site health and safety meetings, equipment operators will be provided with an overview of ways to minimize excessive fuel consumption.
- Use heavy equipment and trucks that are either equipped with a diesel oxidation catalyst and diesel particulate filter or that meet Tier 3 emissions standards.
- Where possible, use transport trucks with a model year of 2006 or newer.

MM-3.3 The NSAQMD adopted Rule 226 (Dust Control), which addresses fugitive dust emissions and applies to construction Sites (CARB, 2008). The General requirements of Rule 226 state, "any person shall take all reasonable precautions to prevent dust emissions. Reasonable precautions may include, but are not limited to, cessation of operations, cleanup, sweeping, sprinkling, compacting, enclosure, chemical or asphalt sealing, and use of wind screens or snow fences (CARB, 2008)." Several elements of Rule 226 have been incorporated into this document. The NSAQMD requires that specified projects submit a Dust Control Plan to the Air Pollution Control Officer before topsoil is disturbed on any project where more than one (1) acre of natural surface area is to be altered or where natural ground cover is removed. The Dust Control Plan will incorporate the use of reasonably available control measures to minimize fugitive dust. The project proponent will comply with the applicable provisions of NSAQMD Rule 226 for fugitive dust emissions, will consult with the NSAQMD regarding permitting requirements for the project, and will obtain all necessary permits prior to construction activities.

2. BIOLOGICAL RESOURCES

The proposed project would cleanup the abandoned Providence Mine, protecting the water quality of Deer Creek from mining contamination, resulting in the safe reuse of the area as a recreational trail corridor, and revegetating the area with native plants. Deer Creek, a water supply source, is adjacent to the project site and construction activities. The area is forest land, with riparian habitat. Special-status species that are known to occur in the region include: great grey owl, Cooper's hawk, northern goshawk, sharp-shinned hawk, willow flycatcher, California yellow warbler, yellow-breasted chat, tricolored blackbird, Pale Townsend's big-eared bat, greater western mastiff bat, spotted bat, Sierra Nevada red fox, and the California red-legged frog.

Proposed project activities would include removal of soils, construction of a gabion wall, removal of shrubs and trees, and work within the riparian area, but outside the 100-year floodplain. The

City of Nevada City Municipal Code Section 18 provides the requirements for tree removal and requires approval from the City's Planner for removal of trees greater than six inches DBH within the city limits.

Based on habitat surveys prepared for the IS/MND, no suitable habitat for any federal or state special-status species were observed to be present during. No special status species were identified during field reconnaissance. However, the proposed project area could potentially provide suitable habitat. The nearest special-status species observed on record is 10.3 miles southeast of the project site. CDFW has indicated that the lack of an occurrence within a 5- or 10-mile radius is not always the appropriate way to determine absence.

Based on surveys, there is suitable habitat and thus the potential for presence of bird species; however, there is no suitable habitat for any of the bat species, Sierra Nevada red fox, or California red-legged frog. Thus, mitigation is required to prevent disturbance to unknown special-status species in the area. In addition, based on conversations between DTSC and CDFW, mitigation measures to reduce potential impacts to the great grey owl and active nests for raptors and songbirds are required.

Impacts are considered potentially significant. The IS/MND for the Providence Mine Cleanup Project covers biological resources impacts for the proposed project and provides mitigation measures. Those mitigation measures that apply specifically to the proposed project are listed below.

Finding: Changes or alterations have been required in, or incorporated into, the project that mitigate or avoid significant effects on the environment.

Facts in Support of the Finding: The Sierra Nevada Conservancy concurs with the lead agency that the following mitigation measures will reduce the project's environmental effects to a less-than-significant level.

Mitigation Measures:

MM-4.1 (Sierra Stream Institute responsible for this mitigation measure, CDFW advisory) – A qualified biologist shall conduct a preconstruction survey prior to the beginning of construction activities. The biologist in consultation with CDFW will determine whether additional surveys will be needed during construction activities (and their recommended frequency). The biologist shall re-inventory animals and plants subject to vegetation clearance and/or grading for the occurrence of listed species and species of concern. The locations for listed plant and/or animal populations shall be flagged for avoidance. If special-status species are observed during any surveys, CDFW requests that California Natural Diversity Database (CNDDDB) forms be filled out and sent to Sacramento and a copy of the form be sent to CDFW. Instructions for providing data to the CNDDDB can be found at <http://www.dfg.ca.gov/biogeodata/cnddb/>.

MM-4.2 (Sierra Stream Institute responsible for this mitigation measure, CDFW advisory) – Avian surveys will be conducted each spring from along the Environs Trail, adjacent to the mine site. These have been ongoing since 2010. Surveys will follow the point-count protocols used by PRBO (Ballard et al., 2003), with slight modifications to adjust the distance between points to meet survey length and number of points surveyed criteria. If the project will occur during the nesting season (March 1 through

July 31), pre-construction surveys by a qualified avian biologist shall be conducted no more than two weeks prior to construction to verify the absence of nesting birds, and that the construction and potential disturbance zones do not support nesting migratory birds or raptors.

- MM-4.3** (Sierra Stream Institute responsible for this mitigation measure, CDFW advisory) – A qualified biologist shall conduct great grey owl surveys, following the protocol outlined in Beck and Winter (2000). Five night-time calling surveys will be conducted by June 15, 2014, and one visual meadow survey will be conducted between August 1 and October 15, 2014, to determine if any great grey owls are present in the project area. The results of these surveys will be provided to CDFW upon their completion. If any great grey owls are detected during this survey period, the biologist will immediately contact CDFW Staff Environmental Scientist Angela Calderaro.
- MM-4.4** (Sierra Stream Institute responsible for this mitigation measure, CDFW advisory) – If a qualified biologist discussed in Mitigation Measure 4.1 finds active nests (nests containing eggs or young) for raptors within a 0.5-mile radius from the site, then a no-disturbance buffer zone will be established around the nest site. Auditory and visual surveys for songbirds will follow those described in Ballard et al. 2003, and raptor surveys will follow the protocol of the WRFO Diurnal Raptor Survey Protocol (2012). The width of the buffer zone will be determined by the qualified biologist. The buffer zone will be delineated with exclusionary fencing and flagging and/or signage, as appropriate. Work will be allowed to continue as long as no abandonment behavior is noted by the biologist. No trees that contain active nests of birds shall be disturbed until all eggs have hatched and young birds have fledged without prior consultation and approval from a CDFW representative. No-disturbance buffer zone will be developed in conjunction with the CDFW. Surveys for nesting raptors and birds protected by the Migratory Bird Treaty Act must occur between February 1st and August 31st, no more than one week prior to the beginning of construction activities. If special-status species are observed during surveys, CDFW requests that CNDDDB forms be filled out and sent to Sacramento and a copy of the form be sent to CDFW. Instruction for providing data to the CNDDDB can be found at <http://www.dfg.ca.gov/biogeodata/cnddb/>.
- MM-4.5** (Sierra Stream Institute responsible for this mitigation measure, CDFW advisory) – Prior to beginning construction of landslide mitigation measures, a qualified wetlands biologist will delineate the 100-year flood hazard elevation along Deer Creek. Excavation and gabion wall construction will take place above the 100-year flood hazard elevation and no heavy equipment will enter the flood hazard zone. Construction will be confined to the dry season (June 15 - October 15). Best Management Practices (BMPs) including silt fencing and waddles (non-monofilament) placed between the gabion wall construction area and the active stream channel and will be removed after the gabion wall is complete.
- MM-4.6** (Sierra Stream Institute responsible for this mitigation measure, DTSC, CDFW advisory) – Construction Timing/Weather: The project will be implemented during periods of low stream flow and dry weather and shall be confined to the period of June 15 to October 15. Project activities will be times with awareness of precipitation forecasts and likely increases in stream flow. Project activities shall cease until all reasonable erosion control measures have been implemented prior to all storm events. No work shall occur during wet weather, defined as when 0.25 inches of

rain is forecast or occurs within a 24-hour period. Revegetation and erosion control work will not be confined to this time period.

- MM-4.7** (Sierra Stream Institute responsible for this mitigation measure, CDFW advisory) – The use of monofilament-based erosion blankets/netting material that could trap aquatic-dependent wildlife shall not be used within the stream zone or riparian zones of the Project Site.
- MM-4.8** (Sierra Stream Institute responsible for this mitigation measure, CDFW advisory) –If impacts to riparian and other sensitive natural communities are not avoidable, and on-site preservation is not possible, then habitat compensation shall be required at a 2:1 (two acres of preserved habitat for every acre impacted) impact preservation ratio. The Applicant shall prepare and implement riparian vegetation mitigation and monitoring plan for disturbed riparian habitat. The plan shall include:
- Onsite and/or offsite location(s) for replacement shrubs and trees.
 - Protection measures for replacement shrubs and trees that shall ensure that 80 percent of replacement plantings are alive five years following site revegetation.
 - Monitoring measures, including construction monitoring, by a qualified biologist, arborist, or ecologist.
- MM-4.9** (Sierra Stream Institute responsible for this mitigation measure, CDFW advisory) – The best available technology in BMPs to reduce sedimentation, erosion, water pollution, and dust to the greatest extent practicable shall be employed on all work sites during construction. A Grading and Erosion Control Plan shall be prepared by the contractor and submitted to the Nevada City Planning Department for approval prior to the start of project construction, including clearing and grubbing. In areas where wetlands are within 250 feet of the construction activities, erosion control measures and construction fencing shall be emplaced, monitored for effectiveness, and maintained throughout the construction operations.
- MM-4.10** (Sierra Stream Institute responsible for this mitigation measure, CDFW advisory) – Prior to working near wetlands and other waters of the U.S., all heavy equipment shall be closely examined for oil and fuel discharges. All equipment operated adjacent to these areas shall be checked and maintained daily, to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic life. Petroleum from project-related activities shall be prevented from contaminating the soil and/or entering the riparian areas. Any of these materials placed within or where they may enter the wetland habitats shall be removed immediately. Regulating agencies shall be notified immediately if a spill occurs, and shall provide consultation regarding clean-up procedures.
- MM-4.11** (Sierra Stream Institute responsible for this mitigation measure, CDFW advisory) – Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil, or other petroleum products, or any other substances which could be hazardous to aquatic life, resulting from project-related activities, shall be prevented from contaminating the soil and/or entering the riparian areas and other waters of the U.S. Any of these materials placed within or where they may enter these areas shall be removed immediately.
- MM-4.12** (Sierra Stream Institute responsible for this mitigation measure, DTSC, CDFW advisory) – The CDFW and DTSC shall be contacted after taking appropriate action

regarding emergency response in the event of an emergency on the project, which has the potential to affect listed species or significantly affect other wildlife species. During subsequent activities related to the emergency, the CDFW and DTSC may require additional biological resource protection measures.

MM-4.13 (Sierra Stream Institute responsible for this mitigation measure, DTSC, CDFW advisory) – Within 45 calendar days of completion of the project, a brief post-construction report shall be submitted to the CDFW and DTSC. The report shall include the following information:

- Dates that the project construction occurred.
- Pertinent data concerning the applicant's success in meeting biological mitigation measures and an explanation of failure to meet such measures, if any.
- Known occurrences of incidental take effects on listed species habitat including the specific number of habitat acres disturbed and specific number destroyed, if any.
- Any other pertinent information.

MM-4.14 (Sierra Stream Institute responsible for this mitigation measure, DTSC advisory) – Approval for tree removal will be obtained from the Nevada City, City Planner prior to the start of the project.

3. CULTURAL RESOURCES

The following prehistoric site types can be expected to occur within the general area based on the results of previous survey work and ethnographic accounts: major occupation sites, temporary encampments, bedrock milling stations, hunting blinds, lithic scatters, tool stone quarries, and mortuary sites. Historic resource types expected to occur within the proposed project vicinity include sites related to mining, water management, transportation (roads and railroads), logging, and early homesteads/settlements.

Record searches revealed that there are no known Native American cultural resources within the project site. The California Historical Resources Information System (CHRIS) record search identified no prehistoric cultural resources, but did identify eight listed historic-period cultural resources within the record search radius.

Providence Mine was established in 1852 and began operations between 1861 and 1867. It began being profitable in 1870 with changes in ore processing, and operated continuously from 1870 to 1895. Record searches and analysis of Sanborn Fire Insurance Maps and historic photographs show the Providence Mine Site as having two large buildings, including the hoisting works building, which covers the shaft area, a blacksmith shop, changing house, a waste dump area, and a quartz mill with associated structures.

Current site conditions are limited to a number of foundations in the mine features area to the west of the former shaft location. The shaft location now consists of an elongated depression approximately 60 feet by 20 feet and up to 15 feet deep. Scattered rusting metal debris was observed by DTSC staff in the mine waste rock area. No foundations or other mine features are apparent at the former mill site location.

Although Providence Mine may be eligible for the National Register of Historic Properties, the implementation of the RAW would result in no historic properties adversely affected in accordance with 36 Code of Federal Regulations (CFR) 800.5(d)(1). Additionally, no historic resources would undergo a substantial adverse change and be “materially impaired”, as defined by CEQA Guidelines, Section 15064.5(b)(2).

Impacts are considered potentially significant. The IS/MND for the Providence Mine Cleanup Project covers cultural resources impacts for the proposed project and provides mitigation measures. Those mitigation measures that apply specifically to the proposed project are listed below.

Finding: Changes or alterations have been required in, or incorporated into, the project that mitigate or avoid significant effects on the environment.

Facts in Support of the Finding: The Sierra Nevada Conservancy concurs with the lead agency that the following mitigation measures will reduce the project’s environmental effects to a less-than-significant level.

Mitigation Measures: The Sierra Stream Institute is responsible for implementing the following mitigation measures prior to initiating remediation activities.

MM-5.1 - A qualified archaeologist will be identified to respond to accidental discoveries during ground-disturbing activities. A qualified archaeologist will need to be HAZWHOPER trained and currently field certified to enter the exclusion zone.

MM-5.2 - The extant of historic features will be fenced off and flagged for avoidance by the qualified archaeologist.

MM-5.3 - A qualified professional architectural historian and/or archaeologist will conduct cultural resources orientations for all construction Site workers.

MM-5.4 - Prepare a cultural resource protection plan to address unforeseen discoveries during project activities. DTSC will be immediately notified and participate in the implementation of any mitigation measures deemed necessary to record and/or protect the historical and/or cultural resource(s) in accordance to 36 CFR Part 800.13 and CEQA Guidelines Section 15064.5

4. GREENHOUSE GAS EMISSIONS

As discussed in Item 1, *Air Quality*, above, excavation equipment for removal of impacted soil and vehicle emissions during excavation and transportation activities would cause greenhouse gas (GHG) emissions. No stationary sources or operational emissions would be generated by the proposed project. GHG emissions directly generated during construction activities would result in short-term impacts. The proposed project is located within the jurisdiction of the NSAQMD, which has a significance threshold of 900 metric tons of carbon dioxide equivalent (CO₂e) per year. The proposed project activities would have negligible GHG emissions.

However, with the NSAQMD in a designated nonattainment for State PM₁₀ and Nevada County is designated nonattainment for ozone standards. Therefore, impacts are considered potentially significant. The IS/MND for the Providence Mine Cleanup Project covers greenhouse gas

emission impacts for the proposed project and provides mitigation measures. Those mitigation measures that apply specifically to the proposed project are listed below.

Finding: Changes or alterations have been required in, or incorporated into, the project that mitigate or avoid significant effects on the environment.

Facts in Support of the Finding: The Sierra Nevada Conservancy concurs with the lead agency that the following mitigation measures will reduce the project's environmental effects to a less-than-significant level.

Mitigation Measures:

MM-7.1 The following measures will be used at the Project Site during project activities to minimize the generation of GHG emissions include:

- Reducing heavy equipment idling time. Reduce diesel equipment idling time to no more than 5 minutes of inactivity.
- Reducing truck idling time. Reduce truck idling time to a maximum of 5 minutes while on-site waiting to load or unload.
- Properly sized equipment. Equipment engines too large for an application burn more fuel by adding unnecessary weight. In addition, drivers may be prone to use the excess horsepower needlessly, causing additional fuel consumption. An undersized engine easily becomes overworked, leading to excess fuel consumption and accelerated engine wear. Equipment selection will be based on the anticipated requirements of the remedial action.
- Improving equipment maintenance. Improper wheel alignment and improperly inflated tires on trucks can adversely affect fuel efficiency by 3 to 4 percent. Hauling trucks will be maintained in accordance with the manufacturer's recommendations. Truck drivers will be instructed to check their tire inflation in accordance with the manufacturer's recommendations.
- Improving operator training. Example – An excavator operator who needlessly shifts hydraulic levers to lift additional weight when the equipment is already operating at its maximum capacity can save 225 gallons of fuel a year by eliminating this practice 1 hour per day. During the tailgate safety meetings, equipment operators will be provided overview training on ways to minimize excessive fuel consumption.

5. Hydrology/Water Quality

The proposed project would cleanup the abandoned Providence Mine, resulting in the safe reuse as a recreational trail corridor, the revegetation of the area with native plants, and the protection of water quality, and ultimately the protection of stream (Deer Creek) health. Deer Creek is adjacent to the project site and construction activities. No ephemeral drainages or stormwater structures are located on-site. Deer Creek generally flows toward the west, to its confluence with the Yuba River approximately 17 miles downstream. Groundwater at the project site is typically encountered within bedrock fractures.

Groundwater would not be impacted because excavation activities would not extend to the depth of groundwater. Excavation activities would occur above the 100-year flood hazard elevation of Deer Creek and would not be performed during the rainy season (November through May). The

proposed project's excavation activities would not alter existing drainage patterns nor would they alter Deer Creek.

The proposed project would be required to obtain a Lake and Streambed Alteration Agreement (1602 Permit) through CDFW in order to address potential disturbance during construction of a gabion wall at the toe of the landslide on the eastern slope, above the 100-year flood elevation. No excavation, fill placement, or other disturbance would occur within the Deer Creek stream channel or below the 100-year flood hazard elevation.

Water quality impacts would be less than significant with the installation of the erosion control measures as identified within the IS/MND for the Providence Mine Cleanup Project both within the Mitigation Measures, as well as within the DTSC's best management practices (BMPs).

Because of the close proximity to Deer Creek and the need for the 1602 Permit, impacts are considered potentially significant. The IS/MND for the Providence Mine Cleanup Project covers hydrology and water quality impacts for the proposed project and provides mitigation measures. Those mitigation measures that apply specifically to the proposed project are listed below.

Finding: Changes or alterations have been required in, or incorporated into, the project that mitigate or avoid significant effects on the environment.

Facts in Support of the Finding: The Sierra Nevada Conservancy concurs with the lead agency that the following mitigation measures will reduce the project's environmental effects to a less-than-significant level.

Mitigation Measures: Implement Mitigation Measures 4.5 through 4.13 discussed in Item 2, *Biological Resources*, above.

Certification:

I hereby certify that the statements furnished above present the data and information used to support the findings made herein pursuant to California Code of Regulations, Title 14, Section 15091 or 15096(h), and the facts, statements, and information presented herein, are true and correct to the best of my knowledge and belief.

Signature _____

Date _____

Name Jim Branham

Title Executive Officer

a. Project Description

Project Summary

The Providence Mine Remediation Project is an effort to restore the abandoned Providence Mine site along Deer Creek in Nevada City, as part of a long-term effort to protect stream health and to return the site to safe reuse as a recreational trail corridor. Deer Creek is the source of the city's drinking water and remains one of the most highly impacted waterways in the Sierra, with dozens of abandoned gold mines along its 34 mile length as well as extensive diversions and three dams. Providence Mine, located a mile downstream from downtown Nevada City on the banks of Deer Creek, was a highly productive gold mine from which \$20 million worth of gold was extracted between 1851 and 1919. Once abandoned, the mine structures and shaft were left to crumble, and forest took over the once bustling industrial site, masking but not healing the toxic damage. The 38 acre parcel known as the Environs on which the mine sits was acquired by the city in 1983 for use as open space, and is used for hiking and fishing access. A new trail system within the Environs was recently completed with funds from Sierra Nevada Conservancy, which will link to the nine mile Deer Creek Tribute Trail system on both sides of Deer Creek via a planned new pedestrian bridge. The trail system will include a spur that runs alongside Providence Mine once the abandoned mine site is made safe for the public.

Providence Mine was the subject of a US EPA Brownfields assessment completed in 2009 by Sierra Streams Institute in partnership with the City of Nevada City. 29 of 31 samples taken from the large waste rock pile adjacent to the creek revealed high levels of all three constituents of concern, namely lead, arsenic and cadmium, with lead levels at a maximum of 550ppm. The waste rock pile is over 350' long and highly prone to erosion. In the eastern portion of the waste rock pile, which is the subject of this proposal, the slope is extremely steep and unstable, and includes an active landslide. Eroded material from the pile is entering the creek, contaminating the water and harming the fish and other wildlife.

The cleanup of Providence Mine consists of the following phases: i. Assessment; ii. Development of Remediation Action Workplan (RAW); iii. Hazardous waste removal from mining features area; iv. Regrading, soil placement, erosion control, and revegetation of west slope of mine waste pile; v. Mitigation of shaft depression area; vi. Regrading, soil placement, erosion control, and revegetation of east slope of mine waste pile; and vii. Mitigation of active landslide. Phases i-iv are funded by the US EPA. In this proposal, we seek funding of approximately \$342,211 for phases v.-vii, in which we plan to regrade and stabilize approximately 100' of steep, erodible mine waste slope along Deer Creek including an active land slide, and to plug and fill a collapsed mine shaft.

The overall **goal** of the Providence Mine Remediation Project is to protect Deer Creek by eliminating a significant source of contamination resulting from historic gold mining practices, with resulting water quality improvements that extend to downstream waterways.

Specific **goals** of the project are as follows:

1. Mitigation of mining contamination: a) Stabilize the steep and unstable waste rock pile along Deer Creek; and b) Remove the public hazard posed by the open mine shaft.
2. Water quality improvements: a) Reduce contamination entering Deer Creek; and b) Improve water quality downstream of the site
3. Native revegetation: a) Plant native plants with aggressive root systems to stabilize soil; b) Reduce erosion from slope; c) Restore native biodiversity; and d) Introduce native grasses and other plants known to accumulate the target contaminants through application of phytoremediation methods
4. Recreational Benefits: Protect recreational users of the area from incidental exposure to toxins, in particular lead, arsenic and cadmium.
5. Economic Benefits: 1. Enhance Nevada City's recreational appeal by restoring the Environs; 2. Increase hiking opportunities in the vicinity of tourism-dependent downtown Nevada City; 3. Increase pedestrian traffic for businesses in the downtown area.
6. Alignment with SNC Program Goals: The project clearly aligns with SNC's mission and addresses SNC's "triple bottom line" of environmental, economic and social well-being, by protecting Deer Creek, source of Nevada City's drinking water, while enhancing recreational and tourism opportunities. Specific SNC program areas addressed by the project are: 1. Provide increased opportunities for tourism and recreation by restoring public open space close to downtown Nevada City; 2. Protect, conserve and restore the region's physical and living resources by improving complexity of native vegetation and water quality; 3. Protect and improve water quality by stabilizing an erodible and contaminated mine waste pile along Deer Creek; 4. Undertake efforts to enhance public use and enjoyment of lands owned by the public by reducing risk of exposure to contamination for recreational users of city-owned open space and by creating interpretive signage that explains the history, environmental impact, and restoration of Providence Mine.
7. Consistency with Prop 84 goals: The project directly supports the goals of Proposition 84 by contributing to the protection and restoration of rivers, streams, their watersheds and associated land, water, and other natural resources. The project targets Deer Creek and provides for its protection by preventing erosion into the creek of contaminated material resulting from historic gold mining.

8. Contribution to SNC Action Plan items: The project fulfills an action plan item identified in the 2013-14 Action Plan, by improving water quality through removal of toxins associated with historic abandoned mines and preventing them from entering Deer Creek.

Location: The Providence Mine site is located in the northwestern portion of a 38 acre property owned by the city of Nevada City, which comprises APN 05-100-87, and is known as the Environs Property. The site is located to the north and east of Providence Mine Road along the south side of Deer Creek, approximately one mile downstream of downtown Nevada City, California.

Scope: The property is the subject of a US EPA-funded Brownfields cleanup, for which a Draft Removal Action Workplan was finalized in August 2013. Sierra Streams Institute on behalf of the City of Nevada City entered into a Voluntary Cleanup Agreement with CA DTSC to provide regulatory oversight and CEQA permitting. US EPA funds are being applied to cleanup of the mine area and the western portion of the waste rock pile. Sierra Nevada Conservancy funding is requested to complete the cleanup and stabilization of the eastern portion of the waste rock pile, stabilize and fill the mine shaft area, revegetate the site for maximum control of erosion, continue a study of the effectiveness of native plants to uptake heavy metals, and develop interpretive signage.

b. Workplan and Schedule Narrative

The cleanup for this site will implement a Removal Action Workplan (RAW) developed from the recommendations outlined in the Providence Mine Phase II Final Report completed as part of the Brownfield Hazardous Substances Community-wide Assessment Grant awarded to Nevada City in 2006. The draft RAW was completed in August 2013 with DTSC approval pending, expected December 2013.

The draft RAW includes and details the following activities for the project elements for which SNC funding is requested:

1. Mine shaft plug

The inclined mine shaft depression will first be cleared of vegetation and organic debris. An exploratory excavation will be advanced at the base of the east end of the depression to determine the presence of a previously installed plug, voids or open inclined shaft. If warranted, a concrete plug or retaining wall will be constructed to prevent migration of backfilled mine waste down the shaft.

2. Mine waste excavation and onsite placement

Accessible areas of loose, unstable mine waste in the Eastern Slope will be excavated to the native soil surface using special excavation techniques suitable for the extremely steep slopes in

this area. Excavation will be limited to areas above the 100-year flood elevation. Re-grading of the eastern slope will not be possible due to the slope's steepness and the proximity of the top of the slope to the shaft depression placement area. A portion of the debris fan at the toe of the active landslide above the 100-year flood elevation will also be excavated. Excavated mine waste from the Eastern Slope and slide debris fan will be placed as fill in the shaft depression.

3. Landslide stabilization

Landslide mitigation will be performed to stabilize the active landslide on the Eastern Slope and limit further erosion of mine waste into Deer Creek. Additional engineering evaluation will be performed to finalize landslide mitigation design. An earth retaining structure will be installed at the base of the slide and above the 100-year flood elevation. This will be a Gabion wall constructed from rock-filled wire baskets. Additionally, a shotcrete facing will be applied to the slide scarp face.

4. Erosion control and revegetation

The mine waste slope will be stabilized by revegetating as well as regrading by excavation and on-site placement, in order to reduce the slope gradient and eliminate the potential for erosion into the creek. The use of best management practices including installation of anchored coir fiber mats and rolls, hydroseeding or other methods to accelerate plant growth will reduce the extent of erosion and contamination during and after construction. Native vegetation, particularly plants with known capacity to uptake target contaminants, will be used in revegetation efforts. Please see attached Providence Mine Erosion Control and Revegetation Plan for details and plant list.

As part of the revegetation effort, we propose applying the findings of a pilot phytoremediation study conducted in the Environs in 2011-2012. "Phytoremediation" refers to methods that use plants to solve environmental problems. This particular case focuses on phytoextraction (the use of plants to physically extract contaminants from the soil) and phytostabilization (the use of plants to render contaminants chemically stable and less prone to movement), as well as simple erosion control by plants with substantial root systems. The pilot study demonstrated significant uptake of lead, arsenic, and cadmium in three native plants: Fescue, Purple Needlegrass (the state grass of California), and Sunflower. Fescue and Needlegrass also showed significant root growth in the contaminated soil, indicating potential for stabilizing erosion prone slopes in heavy metal contaminated areas.

The focus of the next phase of the study will be to characterize the microbial community associated with the selected plants, both mycorrhizal and bacterial, to determine whether augmenting the microbial community with the use of amendments will increase the plant's uptake capacity along with its growth rate, total biomass production, and root length and strength. We hypothesize that use of inexpensive amendments will significantly increase uptake

of contaminants and root length and strength, making this potentially a highly effective strategy for implementation across the rest of the site and at future cleanup sites.

Finally, we will create an interpretive sign that will introduce the public to the history and legacy of Providence Mine. The signage will coordinate with the signage created as part of the Environs Trail and the greater Tribute Trail system.

Workplan:

<p>1. Project Management</p> <p>1.1 Convene project team meetings</p> <p>1.2 Finalize workplan and budget</p> <p>1.3 Draft and finalize subcontracts/grants</p> <p>1.4 Manage project budget</p> <p>1.5 Submit financial and performance reports</p> <p>1.6 Draft and submit final report</p> <p>1.7 Coordinate and manage implementation</p>
<p>2. Mitigation of Shaft Depression Area</p> <p>2.1 Engineering evaluation and shaft plug design</p> <p>2.2 Geotechnical evaluation and engineering</p> <p>2.3 Clear, grub and prepare shaft depression for backfill</p> <p>2.4 Plug shaft opening with concrete</p> <p>2.5 Back fill with non-hazardous contaminated soil excavated from landslide and eastern slope area cleanup</p>
<p>3. Mitigation of East Slope of Waste Rock Pile</p> <p>3.1 Excavate loose and unstable mine waste from slope</p> <p>3.2 Implement erosion control measures and revegetate with native plants identified in phytoremediation study</p>
<p>4. Land slide Mitigation</p> <p>4.1 Complete geotechnical engineering evaluation and design</p> <p>4.2 Excavate debris fan at toe of slide</p> <p>4.3 Install earth retaining structure (gabion or concrete retaining wall) at toe of slide above 100 year flood elevation</p> <p>4.4 Install shotcrete facing on slide scarp</p> <p>4.5 Oversee engineering and construction</p>
<p>5. Interpretive Signage</p> <p>5.1 Develop, produce and install one interpretive sign describing Providence Mine history, environmental impacts, and remediation efforts</p>
<p>6. Phytoremediation Study and Revegetation</p> <p>6.1 Differentiate microbial communities found at the site via polymerase chain reaction (PCR) amplification</p> <p>6.2 Assess the effect on root and shoot growth, biomass production and metal uptake of enhanced microbial communities compared with control microbial communities</p> <p>6.3 Revegetate East Slope using most productive combinations identified in assessment</p> <p>6.4 Conduct final monitoring and assessment to validate impact of revegetation with the</p>

selected combinations on slope stability and plant vigor
7. Pre-, Mid- and Post-Project Monitoring
7.1 Monthly water quality monitoring at three sites upstream, within and downstream of the project area
7.2 Periodic heavy metal sampling at three sites before, during and after implementation
7.3 Storm sampling of sediment at three sites during each significant storm event for two years
7.4 Development and implementation of Operations and Maintenance Agreement with DTSC
7.5 Periodic terrestrial and avian wildlife usage surveys before, during, and after implementation

Detailed Project Deliverables	Timeline
Task 1	
Finalized workplan and budget	May 2014
Finalized subcontracts/grants	July 2014
Financial and performance reports to SNC	November 2014, May 2015, November 2015, May 2016
Draft Final Report	September 2016
Final Report	November 2016
Task 2	
Engineering evaluation report and shaft plug design recommendations	June 2014
Shaft Plug As-Built	August 2014
Daily Field Reports and compaction test results during shaft backfill	August-September 2014
Task 3	
Daily Field Reports during mine waste excavation	August, 2014
Erosion control and re vegetation As-built diagrams	November, 2014
Task 4	
Engineering evaluation and Landslide stabilization design recommendations	June, 2014
Daily Field Reports during construction	August - September, 2014
Retaining wall and shotcrete facing As-Built diagrams	August 2014
Task 5	
Interpretive Sign draft	December 2014

Contract with sign manufacturer	January 2015
Sign Installation As-Built	May 2015
Task 6	
Microbial Community Characterization and Candidate Plant Selection Report	July 2014 (email update)
Preliminary Amendment, Uptake, Erosion Control Report	October 2014 (email update)
Final Phytoremediation Report	June 2016
Task 7	
Monitoring Plan	May 2014
Monitoring Field reports	May 2014 and then monthly
Analytical Laboratory reports	July 2016
Operation and Maintenance Agreement	July 2016

c. Restrictions, Technical/Environmental Documents and Agreements Narrative

There are no known property restrictions or encumbrances that could adversely impact project completion. The overall project developed by Sierra Streams Institute with project partner the City of Nevada City is in the advanced planning stages with US EPA funding and DTSC oversight.

The property is owned by the city of Nevada City, who awarded a subgrant (attached) to Sierra Streams Institute to implement the cleanup of the Providence Mine site.

The Environs are restricted to open space use. Our project supports this restriction. There are no other known restrictions, easements or mineral rights.

The project implementation will be guided by the Removal Action Workplan, developed by Sierra Streams Institute with approval pending from DTSC.

d. Organizational Capacity Narrative

Project partners have the experience, expertise and capacity to complete the proposed project. **Sierra Streams Institute** (SSI) is a non-profit watershed science organization, founded in 1996 as Friends of Deer Creek to monitor Deer Creek on behalf of Nevada City during the construction of a road bridge over the creek. Since our founding, we have collected 13 years of monthly water quality monitoring data and have implemented numerous projects that address the issues affecting the creek, successfully working within time and budget constraints. We have successfully completed several assessment and remediation efforts throughout the watershed, including abandoned mine assessment of city owned properties, restoration of

Stiles Mill abandoned mine site (completion scheduled in October 2013), numerous revegetation projects and gravel augmentation for restoration of salmon habitat. SSI staff includes biologists, botanist, geologist, hydrologist and chemist, all with considerable expertise in project management. Among SSI's board members and volunteers are a microbiologist, hydrogeologist, former agency head at the State Water Quality Control Board, and the former manager of Nevada City's wastewater treatment plant. The proposed project will be managed by Kyle Leach, Professional Geologist, who has managed the cleanup of Stiles Mill mine site in Nevada City, developed the Removal Action Workplan for Providence Mine, and is project manager for the US EPA-funded cleanup of Providence Mine. Mr. Leach brings twenty years of assessment and remediation experience in a variety of abandoned mine land projects.

Project partner **Nevada City** is a small city that enjoys successful working relationships with local non-profits to complete projects. The City has over 150 years of experience managing projects for the public. Sierra Streams Institute has partnered with the city on many projects over the course of eighteen years, including abandoned mine assessment and remediation projects, watershed restoration, trail development, and extensive water quality monitoring.

Sierra Streams has established excellent working relationships with a number of local contractors with relevant expertise, including **Holdrege & Kull**, a Nevada City-based engineering firm who assisted with the Removal Action Workplan and will provide geotechnical expertise for modifications to the RAW and for site design plans. **Porter Engineering** will provide assistance preparing project plan, specifications, and cost estimates for project implementation. Two local firms, **Hansen Brothers** and **Robinson Enterprises**, experienced in implementation of cleanup including working in highly contaminated conditions, will be requested to bid on project implementation.

e. Cooperation and Community Support Narrative

The project was developed as a collaborative partnership with the **City of Nevada City**, the owners of the land on which the mine is located. The City of Nevada City entered a subgrant agreement with Sierra Streams Institute for implementation of the Providence Mine cleanup. Throughout the assessment and plan development period, the community has been engaged in the project through frequent public meetings at City Hall. There is widespread support of efforts to assess and remediate our mining legacy. Project progress will be communicated by media releases, Sierra Streams Institute website updates, updates at city council meetings, DTSC community participation mailings, and communication through the **Tribute Trail Forum**, an organization of stakeholders that meets quarterly to discuss issues related to the Deer Creek Tribute Trail.

We have consulted with **The Sierra Fund** on methodology employed in their mining reclamation work, with a guided site visit to their Humbug Creek Watershed Assessment and Management

Plan project. We have also engaged the services of local engineering firm **Holdrege and Kull**, who have prepared geotechnical recommendations and a Human Health Risk Assessment for the Providence Mine site.

Abandoned mine land remediation in the Deer Creek watershed was identified as a key priority of the Deer Creek Restoration Plan (2011), developed by **SSI, The Sierra Fund**, and **the Maidu**, with SNC funding.

Sierra Nevada AmeriCorps Partnership provides service members to our organization each year, and fully supports the conservation and restoration goals of this project. AmeriCorps members will assist with revegetation planning.

The local community has been involved since the project's inception in 2005 with the proposed reuse of the Providence Mine area as a recreational interpretive trail. Construction of the completed sections of the Tribute Trail, to which the Providence Mine loop will connect, was accomplished using volunteer labor organized by trail partners, with community outreach coordinated by the Tribute Trail Forum. Trail development has required many neighborhood meetings throughout the project planning and implementation stages, and extensive media coverage in the local and regional media.

The Nisenan Tribe is a project partner on the Sierra Nevada Conservancy-funded Tribute Trail project, which targets the left bank of Deer Creek including the Providence Mine site. The role of the tribe in this project is to develop interpretive signage that educates trail users on the ten thousand year history of the tribe in the Deer Creek watershed. The tribe has identified the remediation of its ancestral lands as its highest priority.

f. Long term Management and Sustainability Narrative

DTSC requires that a Land Use Covenant (Deed Restriction) be placed on the property after completion of remediation to limit future land use to recreational or open space uses. DTSC will also require an Operation and Maintenance Agreement which will include yearly inspection reports documenting the continuing integrity of the remediation efforts. Sierra Streams Institute will continue monitoring water quality in Deer Creek upstream and downstream of the project site in perpetuity, with thirteen years of monthly data collected to date.

The Environs property in which Providence Mine is located is owned by the City of Nevada City and was originally acquired to be opened up for recreational use as open space. Accordingly, the city Parks and Recreation Department has oversight of the property in perpetuity, with an interest in protecting the value of the resources.

**SIERRA NEVADA CONSERVANCY
PROPOSITION 84 - DETAILED BUDGET FORM**

Project Name: Providence Mine Remediation Project

Applicant: Sierra Streams Institute

SECTION ONE DIRECT COSTS	Year One	Year Two	Year Three	Year Four	Year Five	Total
Project Management Costs	\$30,000.00	\$10,000.00				\$40,000.00
Staff scientists	\$15,000.00	\$10,000.00				\$25,000.00
Contractor: Mobilization/Demobilization	\$22,000.00					\$22,000.00
Contractor: Excavation	\$19,250.00					\$19,250.00
Contractor: Gabion wall	\$21,450.00					\$21,450.00
Contractor: Shotcrete Facing	\$78,375.00					\$78,375.00
Contractor: Plug Construction for Mine Shaft	\$14,000.00					\$14,000.00
Consultant: Engineering and Construction Management	\$6,500.00					\$6,500.00
Construction Materials Testing	\$10,000.00					\$10,000.00
Consultant: Geotechnical Study	\$10,000.00					\$10,000.00
DTSC oversight	\$5,000.00	\$2,500.00				\$7,500.00
Revegetation plants and supplies	\$5,000.00	\$1,000.00				\$6,000.00
Erosion control materials	\$4,000.00	\$1,000.00				\$5,000.00
Contractor - City of Nevada City	\$3,000.00	\$2,000.00				\$5,000.00
DIRECT COSTS SUBTOTAL:	\$243,575.00	\$26,500.00	\$0.00	\$0.00	\$0.00	\$270,075.00

SECTION TWO INDIRECT COSTS	Year One	Year Two	Year Three	Year Four	Year Five	Total
Staff time for monitoring	\$5,000.00	\$5,000.00				\$10,000.00
Monitoring supplies	\$5,000.00	\$5,000.00				\$10,000.00
Heavy Metal Sampling	\$3,000.00	\$2,000.00				\$5,000.00
Publications, Printing, Public Relations, interpretive signage	\$1,500.00	\$1,000.00				\$2,500.00
						\$0.00
INDIRECT COSTS SUBTOTAL:	\$14,500.00	\$13,000.00	\$0.00	\$0.00	\$0.00	\$27,500.00
PROJECT TOTAL:	\$258,075.00	\$39,500.00	\$0.00	\$0.00	\$0.00	\$297,575.00

SECTION THREE Administrative Costs (Costs may not to exceed 15% of total Project Cost) :						Total
Overhead at 15%	\$38,711.00	\$5,925.00				\$44,636.00
						\$0.00
						\$0.00
						\$0.00
						\$0.00
ADMINISTRATIVE TOTAL:	\$38,711.00	\$5,925.00	\$0.00	\$0.00	\$0.00	\$44,636.00
SNC TOTAL GRANT REQUEST:	\$296,786.00	\$45,425.00	\$0.00	\$0.00	\$0.00	\$342,211.00

SECTION FOUR						
OTHER PROJECT CONTRIBUTIONS	Year One	Year Two	Year Three	Year Four	Year Five	Total
<i>List other funding or in-kind contributors to project (i.e. Sierra Business Council, Department of Water Resources, etc.)</i>						
US EPA Brownfields cleanup grant	\$200,000.00					\$200,000.00
Water quality monitoring volunteers (mon	\$4,752.00	\$4,752.00				\$9,504.00
						\$0.00
						\$0.00
						\$0.00
						\$0.00
Total Other Contributions:	\$204,752.00	\$4,752.00	\$0.00	\$0.00	\$0.00	\$209,504.00

NOTE: The categories listed on this form are examples and may or may not be an expense related to the project. Rows may be added or deleted on the form as needed. Applicants should contact the SNC if questions arise.

* Operating Costs should be allocated to the percentage that is applicable to the grant based on your cost allocation methodology and cannot exceed 15% of your total project costs.

Sierra Streams Institute

COST ALLOCATION PLAN

The purpose of this cost allocation plan is to summarize, in writing, the methods and procedures that this organization will use to allocate administrative costs to various programs, grants, contracts and agreements.

Direct costs are those that can be identified specifically with a particular final cost objective. Indirect costs are those that have been incurred for common or joint objectives and cannot be readily identified with a particular final cost objective.

Only costs that are allowable, in accordance with the cost principles, will be allocated to benefiting programs by Sierra Streams Institute.

The general approach of Sierra Streams Institute in allocating costs to particular grants and contracts is as follows:

- A. All allowable direct costs are charged directly to programs, grants, activity, etc.
- B. Allowable direct costs that can be identified to more than one program are prorated individually as direct costs using a base most appropriate to the particular cost being prorated.
- C. All other allowable general and administrative costs (costs that benefit all programs and cannot be identified to a specific program) are allocated to programs, grants, etc. using a base that results in an equitable distribution.

ALLOCATION OF COSTS

The following information summarizes the procedures that will be used by Sierra Streams Institute beginning October 1, 2013:

- A. Compensation for Personal Services – Documented with timesheets showing time distribution for all employees and allocated based on time spent on each program or grant. Salaries and wages are charged directly to the program for which work has been done. Costs that benefit more than one program will be allocated to those programs based on the ratio of each program's salaries to the total of such salaries (see Example 1). Costs that benefit all programs will be allocated based on the ratio of each program's salaries to total salaries (see Example 2).
 1. Fringe benefits (FICA, UC, and Worker's Compensation) are allocated in the same manner as salaries and wages. Health insurance, dental insurance, life and disability and other fringe benefits are also allocated in the same manner as salaries and wages.
 2. Vacation, holiday, and sick pay are allocated in the same manner as salaries and wages.
- B. Travel Costs – Allocated based on purpose of travel. All travel costs (local and out-of-town) are charged directly to the program for which the travel was incurred. Travel costs that benefit more than one program will be allocated to those programs based on the ratio of each program's salaries to the total of such salaries (see Example 1). Travel costs that benefit all

programs will be allocated based in the ratio of each program's salaries to total salaries (see Example 2).

- C. Professional Services Costs (such as consultants, accounting and auditing services) – Allocated to the program benefitting from the service. All professional service costs are charged directly to the program for which the service was incurred. Costs that benefit more than one program will be allocated to those programs based on the ratio of each program's expenses to the total of such expenses (see Example 3). Costs that benefit all programs will be allocated based on the ratio of each program's expenses to total expenses (see Example 4).
- D. Office Expense and Supplies (including office supplies and postage) – Allocated based on usage. Expenses used for a specific program will be charged directly to that program. Postage expenses are charged directly to the extent possible. Costs that benefit more than one program will be allocated to those programs based on the ratio of each program's expenses to the total of such expenses (see Example 3). Costs that benefit all programs will be allocated based on the ratio of each program's expenses to total expenses (see Example 4).
- E. Equipment – Sierra Streams Institute depreciates equipment when the initial acquisition costs exceeds \$500. Items below \$500 are reflected in the supplies category and expensed in the current year. Unless allowed by the awarding agency, equipment purchases are recovered through depreciation. Depreciation costs for allowable equipment used solely by one program are charged directly to the program using the equipment. If more than one program uses the equipment, then an allocation of the depreciation costs will be based on the ratio of each program's expenses to the total of such expenses (see Example 3). Costs that benefit all programs will be allocated based on the ratio of each program's expenses to total expenses (see Example 4).
- F. Printing (including supplies, maintenance, and repair) – Expenses are charged directly to programs that benefit from the service. Expenses that benefit more than one program are allocated based on the ratio of the costs to total expenses. Costs that benefit more than one program will be allocated to those programs based on the ratio of each program's expenses to the total of such expenses (see Example 3). Costs that benefit all programs will be allocated based on the ratio of each program's expenses to total expenses (see Example 4).
- G. Insurance – Insurance needed for a particular program is charged directly to the program requiring the coverage. Other insurance coverage that benefits all programs is allocated based on the ratio of each program's expenses to total expenses.
- H. Telephone/Communications – Telephone or communications expenses that benefit more than one program will be allocated to those programs based on the ratio of each program's expenses to the total of such expenses (see Example 3). Costs that benefit all programs will be allocated based on the ratio of each program's expenses to total expenses (see Example 4).
- I. Facilities Expenses – Allocated based upon usable square footage. The ratio of total square footage used by all personnel to total square footage is calculated. Facilities costs related to general and administrative activities are allocated to program based on the ratio of program square footage to total square footage (see example 5).
- J. Training/Conferences/Seminars – Allocated to the program benefitting from the training, conference or seminar. Costs that benefit more than one program will be allocated to those

programs based on the ratio of each program's salaries to the total of such salaries (see Example 1). Costs that benefit all programs will be allocated based on the ratio of each program's salaries to total salaries (see Example 2).

- K. Other Costs (including dues, licenses, fees, etc.) – Other joint costs will be allocated on a basis determined to be appropriate to the particular costs. (Grantee should describe methodology for applicable costs).

Example 1

Expense Amount = \$5,000

Costs that benefit two or more specific programs, but not all programs, are allocated to those programs based on the ratio of each program's personnel costs (salaries & applicable benefits) to the total of such personnel costs, as follows:

Grant	Personnel Costs	Percent	Amount Allocated
A	\$ 20,000	20%	\$1,000
C	\$ 30,000	30%	\$1,500
E	\$ 50,000	50%	\$2,500
TOTAL	\$100,000	100%	\$5,000

Example 2

Expense amount = \$10,000

Costs that benefit all programs are allocated based on a ratio of each program's personnel costs (salaries & applicable benefits) to total personnel costs as follows:

Grant	Personnel Costs	Percent	Amount Allocated
A	\$ 20,000	10%	\$1,000
C	\$ 30,000	15%	\$1,500
E	\$ 50,000	25%	\$2,500
All other programs	\$ 100,000	50%	\$5,000
TOTAL	\$200,000	100%	\$10,000

Example 3

Expense amount = \$4,000

Costs that benefit two or more specific programs, but not all programs, are allocated to those programs based on the ratio of each program's expenses (direct costs other than salaries & benefits) to the total of such expenses, as follows:

Grant	Expenses	Percent	Amount Allocated
A	\$ 20,000	20%	\$800
C	\$ 30,000	30%	\$1,200
E	\$50,000	50%	\$2,000
TOTAL	\$100,000	100%	\$4,000

Example 4

Expense Amount = \$8,000

Costs that benefit all programs will be allocated based on a ratio of each program's salaries to total salaries as follows:

Grant	Salary	Percent	Amount Allocated
A	\$ 20,000	10%	\$ 800
C	\$ 30,000	15%	\$ 1,200
E	\$ 50,000	25%	\$ 2,000
All other programs	\$ 100,000	50%	\$ 4,000
TOTAL	\$200,000	100%	\$8,000

Example 5

Facilities Expense Amount = \$10,000

Facilities costs are allocated based on square footage. Square footage for each program and general administrative activity is considered in the analysis. General and administrative facilities costs are further allocated to each program based on the square footage of each grant program to the total square footage of all grant programs. The calculation is as follows:

Grant	Personnel Costs	Percent	Amount Allocated
A	\$ 20,000	10%	\$1,000
C	\$ 30,000	15%	\$1,500
E	\$ 50,000	25%	\$2,500
All other programs	\$ 100,000	50%	\$5,000
TOTAL	\$200,000	100%	\$10,000

LONG TERM MANAGEMENT PLAN
for
PROVIDENCE MINE SITE
APN 05-100-87
Nevada City, California



Providence Mine in Nevada City, 1893, looking southeast. Champion Mine is at left, Deer Creek is in the foreground

Prepared by:

Sierra Streams Institute
431 Uren Street, Suite C
Nevada City, California 95959

October, 2013

The purpose of the long term management plan is to ensure sustainability of the remediation of Providence Mine for at least ten years.

1 INSTITUTIONAL CONTROLS

Signs will be placed at the two site access points at the eastern and western edges of the Mining Features Area to inform the public that mine waste with elevated metals concentrations is present on the site. California Department of Toxic Substance Control will be consulted regarding sign language. To provide additional human health protection, Land Use Covenants will be established for areas of the site where elevated concentrations of Constituents of Potential Concern will remain in place under proposed soil or existing vegetative cover. Future land use will be restricted to recreational use or open space. California Department of Toxic Substances Control will likely require an Operations & Maintenance agreement to include yearly monitoring and reporting of the integrity of the fill and signage. In addition, deterrent plants such as thorny shrubs or poison oak will be planted at potential access points from the Mining Features Area to the Waste Rock Area. Sierra Streams Institute does not anticipate that permanent fence installation will be required.

2 LAND USE COVENANT AGREEMENT FOR ON-SITE PLACEMENT AREA

A Land Use Covenant agreement and Operations & Maintenance agreement are recommended for the on-site placement area and all areas where mine waste is to be left in place beneath cover soil or vegetation. Land Use Covenant agreements are intended to protect public health and the environment by: 1) preventing inappropriate land use, 2) increasing the probability that the public will have information about residual contamination, 3) disclosing information for real estate transactions about residual contamination, 4) ensuring that long-term mitigation measures are carried out by protecting the engineering controls and remedy; and 5) ensuring that subsequent owners assume responsibility for preventing exposure to contamination.

In practice, the Environs property is owned in perpetuity by the City of Nevada City as recreational open space and it is not anticipated that there will be a change in ownership or land use.

3 DEED RESTRICTION

No specific deed restriction has been proposed for the site at this time. Sierra Streams Institute anticipates that details of a deed restriction will be negotiated between the City of Nevada City and California Department of Toxic Substances Control based on the outcome of the site cleanup.

Deed restriction pertaining to the project would comply with the following general provisions:

1. No activities that will disturb the mine waste within the on-site placement area or beneath other covered areas (e.g., excavation, grading, removal, trenching, filling, earth movement or mining) shall be allowed on the property without a soil management plan approved by California Department of Toxic Substances Control.
2. Restriction of the land use within the on-site placement area is to be established by Land Use Covenant agreement between the property owner and California Department of Toxic Substances Control. Successive owners, heirs and assignees are to be expressly bound by the covenant.
3. Prior to the sale, lease or sublease of the property containing the on-site placement area, the owner, lessor, or sublessor shall give the buyer, lessee, or sublessee notice that hazardous substances are located in the area.
4. The land use controls shall be incorporated by reference in each and all deeds and leases for the property.
5. The owner shall provide notice to California Department of Toxic Substances Control not later than 30 days after any conveyance of any ownership interest in the property containing the on-site placement area (excluding mortgages, liens, and other non-possessory encumbrances). California Department of Toxic Substances Control shall not, by reason of the covenant, have authority to approve, disapprove, or otherwise affect proposed conveyance, except as otherwise provided by law or by administrative order.
6. The Land Use Covenant shall be recorded in the County of Nevada.
7. The terms of the deed restriction run with the land and will continue in perpetuity unless a variance is granted or unless terminated. The property owner agrees to pay California Department of Toxic Substances Control's costs in administering the deed restriction.
8. An Operations & Maintenance agreement will establish requirements for monitoring, reporting and financial assurance.
9. Periodic monitoring of the cover soil and vegetation and annual reporting to California Department of Toxic Substances Control will continue to be required after any future recreational development is complete. Periodic monitoring of sign posting, and annual reporting to California Department of Toxic Substances Control will be required.

4 OPERATIONS AND MAINTENANCE AGREEMENT

California Department of Toxic Substances Control requires an Operations & Maintenance agreement, as set forth in CCR Title 22, including Sections 66264.147, 66265.143, 66265.145 and 66265.147. The Operations & Maintenance Agreement will

include annual monitoring of the integrity of the remedial measures, a letter report including pictures to be sent to California Department of Toxic Substances Control.

5 REVEGETATION AND EROSION CONTROL

Erosion control and re-vegetation will be provided by installing coir fiber blankets on graded or unstable slopes steeper than 2:1, H:V. The coir fiber blankets will be installed in an anchor trench at the top of the slopes. Stakes will also be installed to keep the blankets in place. Soil amendments and seed would be installed under the blankets.

Re-vegetation efforts will begin as soon as possible after excavation, slope grading and completion of soil cover placement and will include all areas where cover soil is placed. Sierra Streams Institute's restoration ecologist will be consulted regarding plant selection. Erosion control measures such as coir fiber mats will also be placed as needed on disturbed slopes prone to erosion including regraded areas of the Western Mine Waste Slope and areas where mine waste has been excavated on the Eastern Mine Waste Slope.

Please see Providence Mine Erosion Control and Revegetation Plan for details.

6 VISUAL INSPECTION

Visual inspection of the erosion control measures and revegetation success will be conducted during implementation and then by trained volunteers in conjunction with monthly water quality monitoring in perpetuity and periodic storm sampling for the life of the project. Concerns with erosion control and native revegetation will be reported to Sierra Streams Institute geologist and ecologist for action as indicated. A qualified engineer will check the integrity of the gabion wall and waste rock pile every six months for 10 years.

7 LONG TERM MONITORING

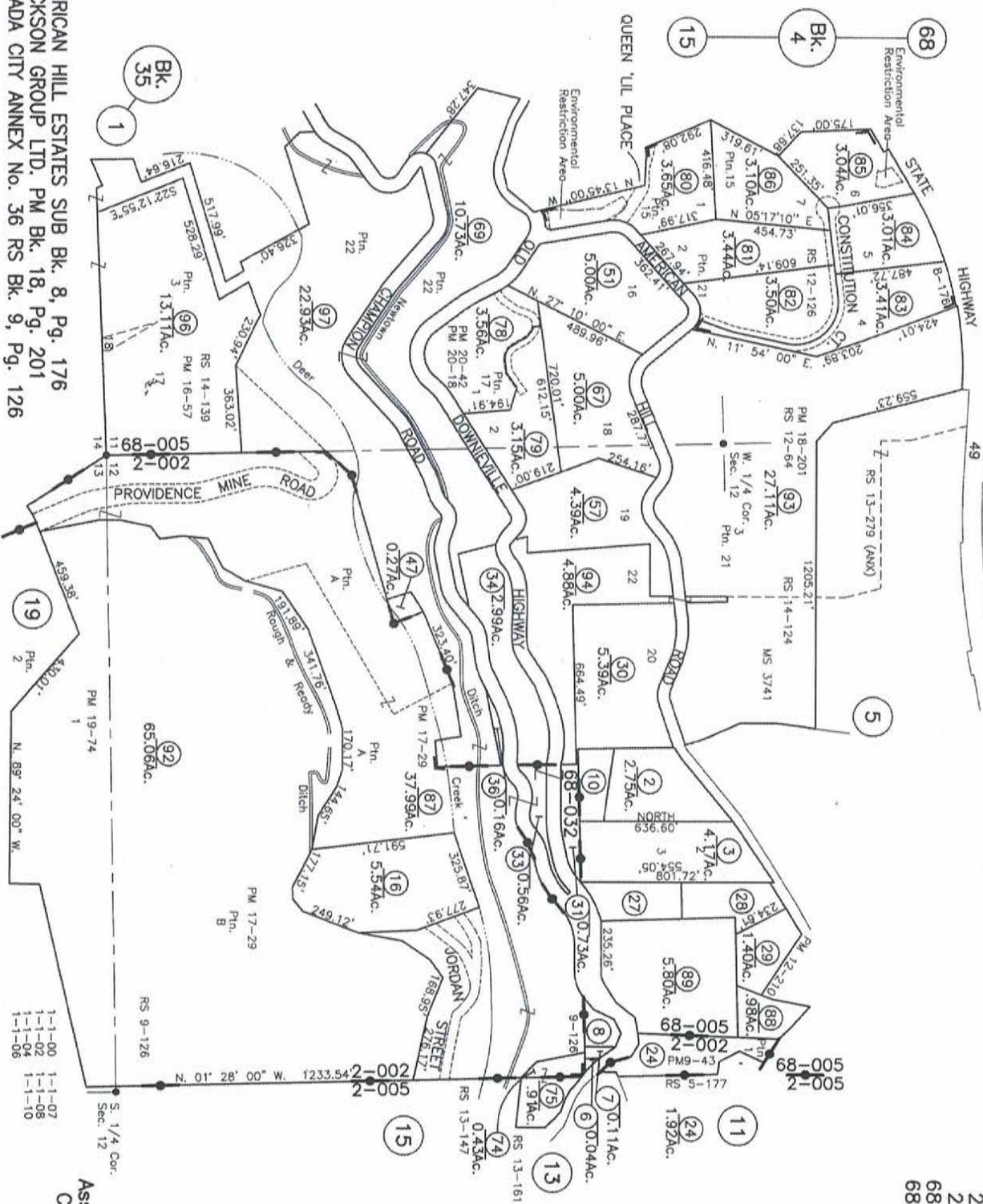
Please see Providence Mine Monitoring Plan for details.

PTN. SEC'S 11, 12 & 13, T. 16 N., R. 8 E., M.D.B. & M.

Tax Area Code

5-10

- 2-002
- 2-005
- 68-005
- 68-032

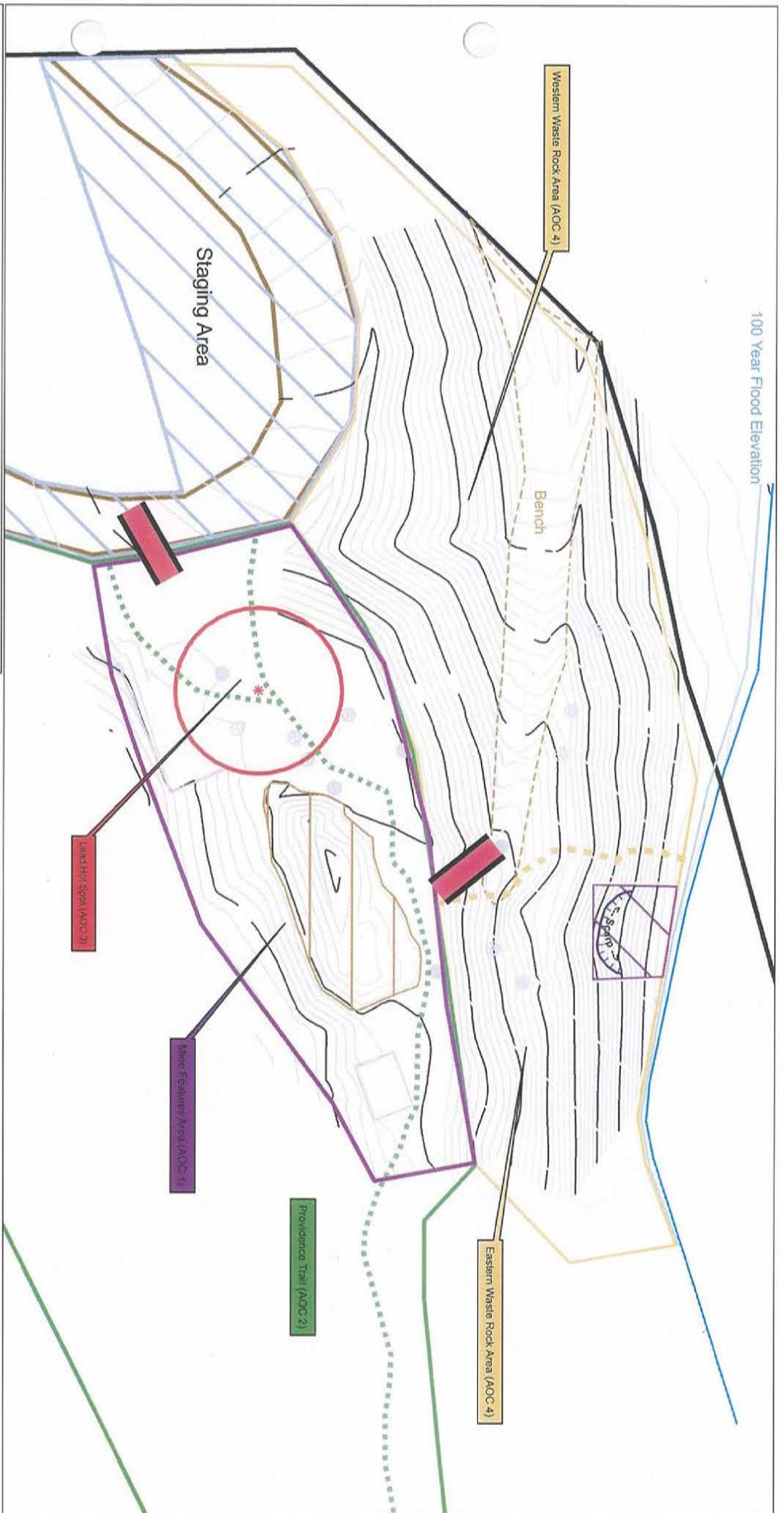


ASSESSOR'S PARCEL MAP
 This map was prepared for assessment purposes only. No liability is assumed for errors or omissions. The assessor is not responsible for the accuracy of the information shown on this map, and the assessor is not responsible for the accuracy of the information shown on this map, and the assessor is not responsible for the accuracy of the information shown on this map.

Assessor's Map Bk. 5-Pg. 10
 County of Nevada, Calif.
 1999
 LAST UPDATE 1-13-11
 NW 10/99

AMERICAN HILL ESTATES SUB Bk. 8, Pg. 176
 ERICKSON GROUP LTD. PM Bk. 18, Pg. 201
 NEVADA CITY ANNEX No. 36 RS Bk. 9, Pg. 126

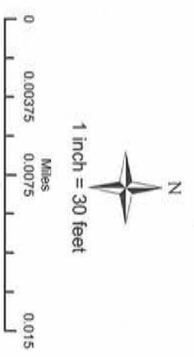
100 Year Flood Elevation

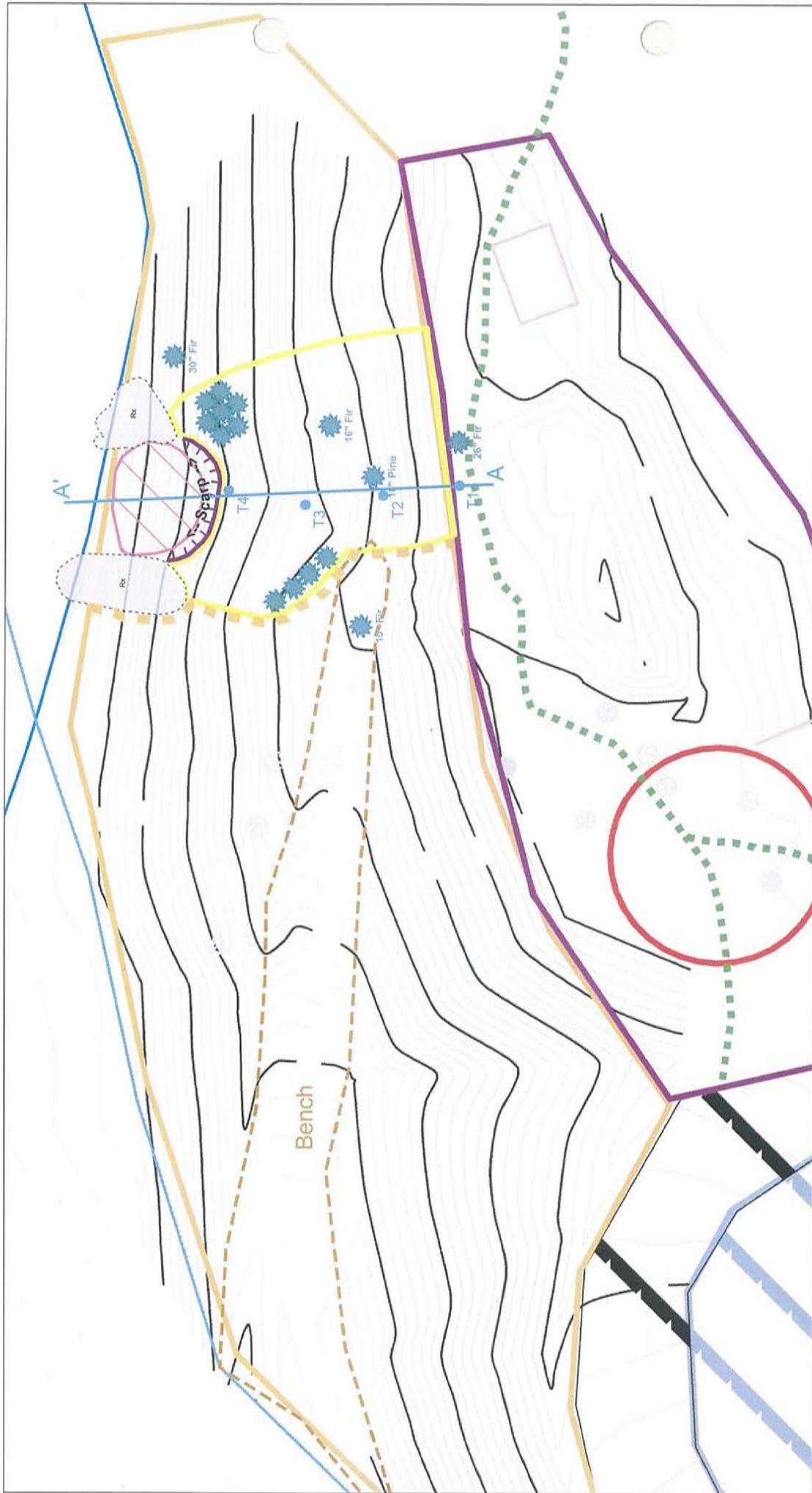


Legend

Deer Creek (May 2013)	Slope Regrading Area
Property Line	Landslide Repair Area - TBD by ongoing engineering study
Providence Mine Road	Fill Placement Area with Soil Cover
Rock Walls	Mine Features Area (AOC 1) - Limited excavation and soil placement
Temporary Access Ramps	Providence Trail (AOC 2) - No disturbance except limited aggregate placement in AOC 1
Top Scarp	Hot Spot (AOC 3) - Excavation and Backfill Area
Western/Eastern Waste Rock Divide	Waste Rock Area (AOC 4) - Excavation and on-site placement in AOC 1
Bench	
Staging Area	

Sierra Streams Institute
 Brownfields Cleanup - Providence Mine
 Figure 7 - Grading Map
 APN: 05-100-87
 Nevada City Quadrangle
 T16N; R9E; Sec 11, 12, 13



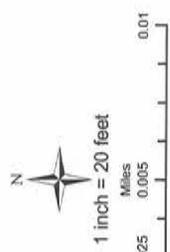


Legend

- Deer Creek (May 2013)
- Property Line
- Top Scarp
- Transsect A-A' Sample Points
- Transsect A-A'
- Western/Eastern Waste Rock Divide
- Bench
- Debris Fan
- Rock Outcrops
- Rock Walls
- Slagging Area
- Trees
- Waste Rock Above Slide
- Mine Features Area (AOC 1)
- Providence Trail (AOC 2)
- Lead Hot Spot (AOC 3)
- Waste Rock Area (AOC 4)

Sierra Streams Institute
 Brownfields Cleanup - Providence Mine
 Figure 5: Eastern Waste Rock Area

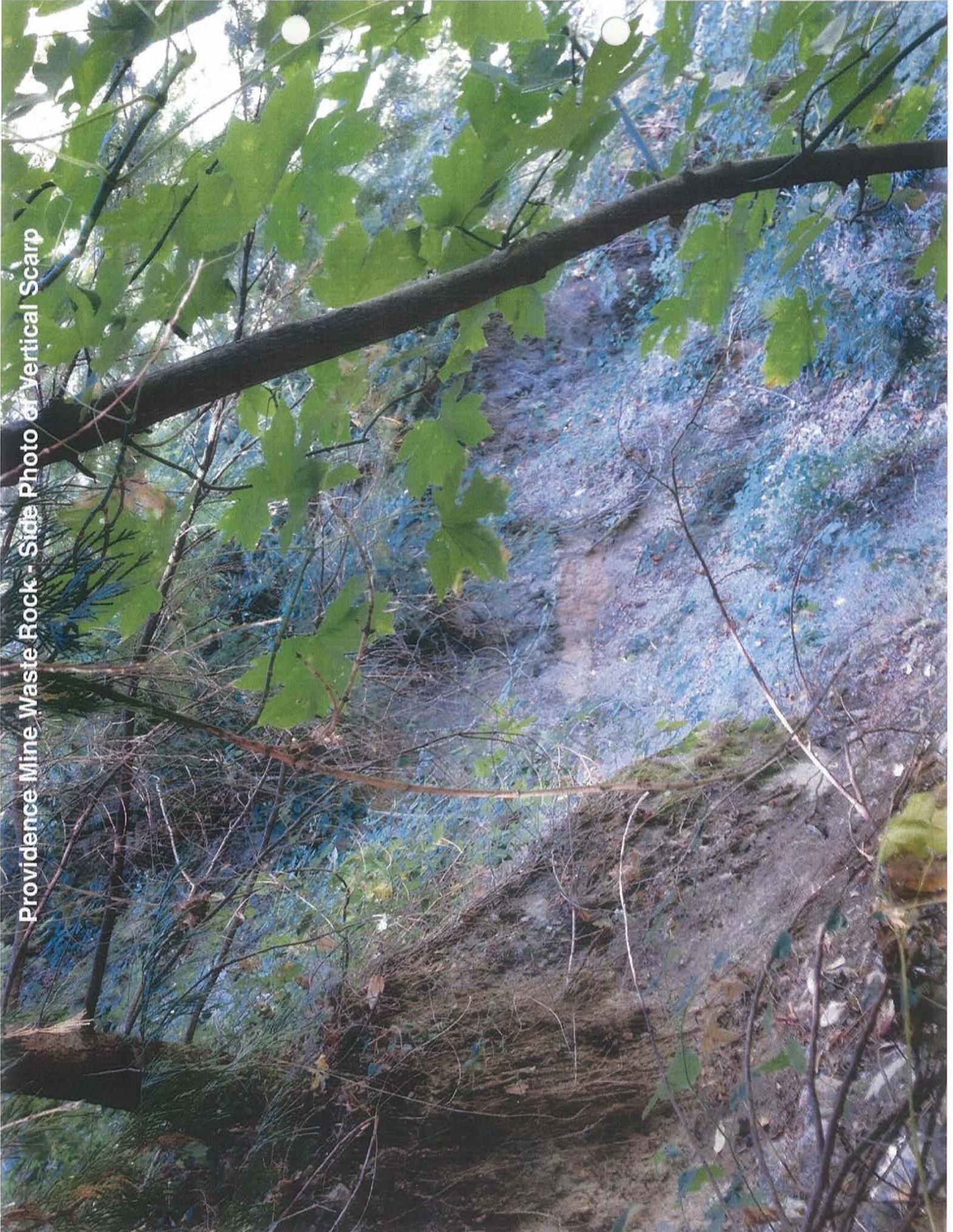
APN: 05-100-87
 Nevada City Quadrangle
 T16N; R9E; Sec 11, 12, 13





Providence Mine Waste Rock - Looking downslope to Deer Creek

Providence Mine Waste Rock - Side Photo of Vertical Scarp





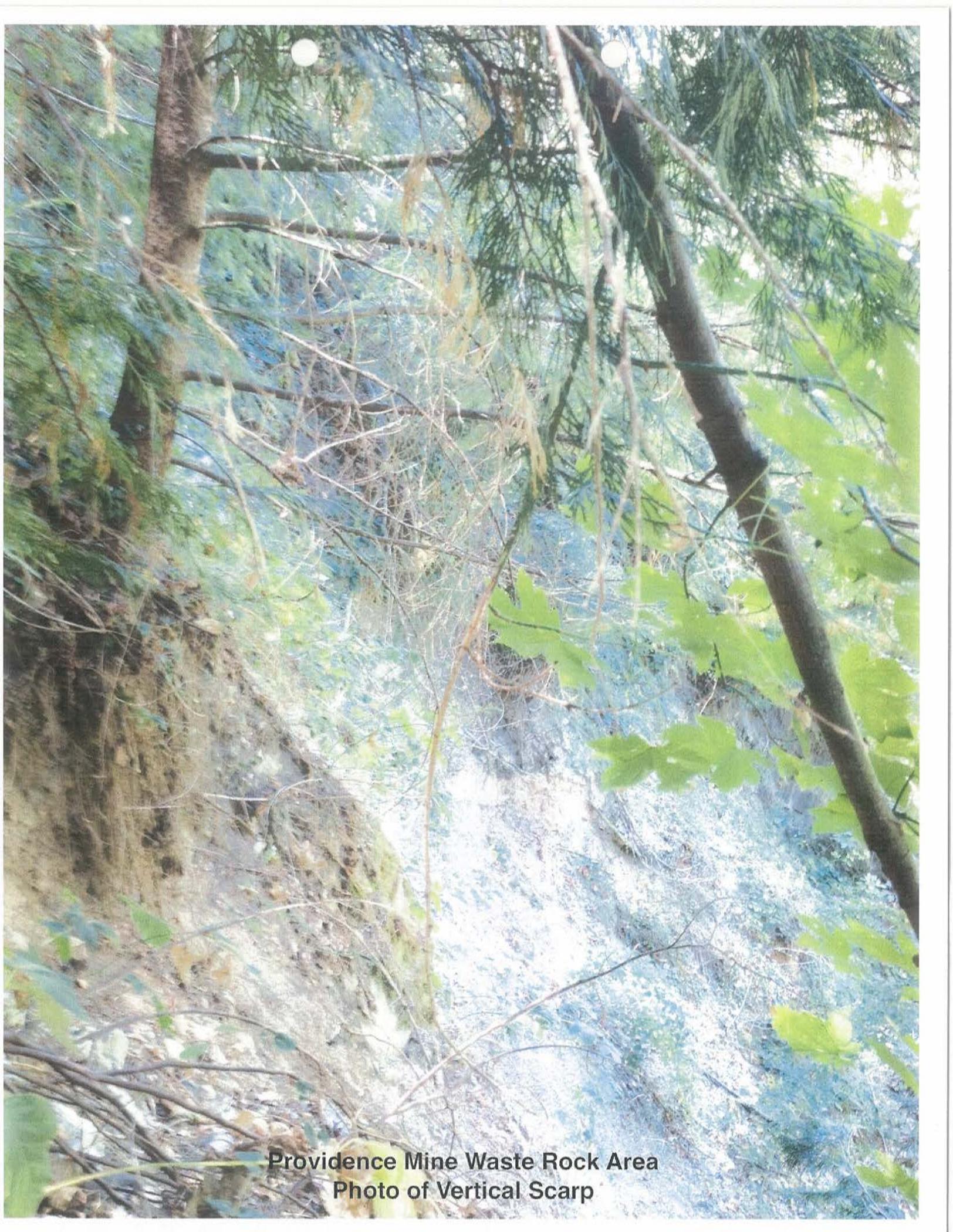
Providence Mine Waste Rock - Looking Upslope from the Vertical Scarp

Providence Mine Site, - View of Shaft and Fill Placement Area





Providence Mine Waste Rock Area
Accessing the Site via the steep, eroding waste rock slope



**Providence Mine Waste Rock Area
Photo of Vertical Scarp**

Mine Features Area and Trail

Hot Spot

Trai Access
Point

Western
Waste

Rock
Area

Deer Creek

Providence Mine Rd



Mine Features Area, Trail, Hot Spot

Leaver Mine Rd

Waste Rock Area

Deer Creek





Providence Mine Waste Rock Area - Downslope view to Deer
Creek from the top of the vertical scarp



City of Nevada City

October 14, 2013

Ms. Joanne Hild
Executive Director
Sierra Streams Institute
431 Uren Street Suite C
Nevada City, CA 95959

Dear Joanne,

On behalf of the city of Nevada City, I am pleased to affirm our support for the ongoing effort to clean up the Providence Mine abandoned mine site.

In 2010, Sierra Streams Institute entered into a subgrant agreement with the City of Nevada City for the purpose of implementing the US EPA Brownfields-funded cleanup of the Providence Mine site. This grant is funding the cleanup of the mine features area and the western portion of the waste rock area. With further funding from Sierra Nevada Conservancy, it will be possible to complete the cleanup and stabilization of the extremely steep and erosion-prone eastern portion of the waste rock area along Deer Creek, as well as plug and fill the mine shaft.

The City of Nevada City purchased the property in which Providence Mine is located in 1983 with the intention of preserving it as recreational open space. With the completion of the abandoned mine land cleanup, the recreational values of the property will be restored, while protecting the habitat in the Deer Creek watershed.

Thank you for pursuing funding to enhance Nevada City's open spaces, and we look forward to a successful application for funding this important project that will protect Nevada City and the Deer Creek watershed.

Sincerely,

David Brennan
City Manager

MONITORING PLAN
for
PROVIDENCE MINE SITE
APN 05-100-87
Nevada City, California



Providence Mine in Nevada City, 1893, looking southeast. Champion Mine is at left, Deer Creek is in the foreground

Prepared by:

Sierra Streams Institute
431 Uren Street, Suite C
Nevada City, California 95959

October, 2013.

This Monitoring Plan for Providence Mine Site was developed by Sierra Streams Institute to ensure the long-term effectiveness of the proposed remediation of Providence Mine in Nevada City, California. The purpose of monitoring is to measure the overall health of the stream, specifically ensuring that the restoration is preventing erosion into the creek, including contamination by sediment, heavy metals, and nutrients. Monitoring will occur before, during and after implementation to confirm long term effectiveness and to provide comparison with pre-project conditions.

Outline of monitoring activities and parameters:

Monthly Water Quality Monitoring:

- Dissolved oxygen
- Specific conductivity
- pH
- Turbidity
- Water temperature
- Bacteria
- Nutrients including nitrates and phosphates
- Visual observation of BMPs and erosion control measures

Twice Yearly Biological Sampling:

- Benthic macroinvertebrates
- Algae

Visual Observation

- Erosion control measures
- Vegetation
- Gabion wall integrity

Heavy Metal Sampling:

- Total Suspended Solids
- Mercury
- Lead
- Cadmium
- Arsenic
- Visual observation of BMPs and erosion control measures

Vegetation Monitoring

- Visual assessment of vegetation twice yearly (spring and fall)

1 SURFACE WATER QUALITY

Surface water quality monitoring will follow standard methods outlined in the "Citizen Water Monitoring Quality Assurance Project Plan for the Yuba Watershed Monitoring Committee" (2008), available at: <http://www.friendsofdeercreek.org/documents-1/DeerCreekQAPP.pdf>. Specific parameters are dissolved oxygen content, specific conductivity, pH, turbidity, water temperature, bacteria and nutrients including nitrates and phosphates.

Water quality monitoring of Deer Creek will occur on a monthly basis before, during, and after project implementation activities, upstream and downstream of the project site. Monitoring will be conducted by trained citizen volunteers and Sierra Streams Institute staff. Upstream monitoring will occur at SSI monitoring site 4, located upstream of Providence Mine and established in 2000 for the purpose of obtaining baseline data to assist in determining watershed changes over time. This is one of 18 sites throughout the watershed established to assess watershed health. Site 4 will serve as a control site, unimpacted by Providence Mine. A new monitoring site 4b will be established immediately downstream of Providence Mine to monitor disturbance during implementation and to validate long term effectiveness of the restoration as measured in water quality improvement.

In addition to site 4b, Sierra Streams Institute has monthly water quality monitoring data since November 2000 for site 5, located approximately 5 miles downstream of Providence Mine.

Erosion control measures and BMPs in place during and after project implementation will ensure that there are no project-related impacts to the stream.

2 BENTHIC MACROINVERTEBRATES

Biological monitoring parameters will allow for confirmation of project effectiveness, by comparing data upstream and downstream of the project site before and after the implementation. It is not anticipated that the project will have any impact on macroinvertebrate composition, because erosion control measures will keep all soil from entering creek.

Benthic macroinvertebrate monitoring will follow standard methods outlined by the Surface Water Ambient Monitoring Program (SWAMP) in the "Standard Operating Procedures for Collecting Benthic Macroinvertebrate Samples and Associated Physical and Chemical Data for Ambient Bioassessments in California" (2007), available at:

http://swamp.mpsl.mlml.calstate.edu/wp-content/uploads/2009/04/swamp_sop_bioassessment_collection_020107.pdf

Macroinvertebrates In the field: Benthic macroinvertebrate sampling will occur at the 150m SWAMP reaches at sites 4b and 4c upstream and downstream respectively of Providence Mine, before and after project construction activities. Sampling will take place once in June and October each year and will continue as part of Sierra Streams Institute's twice yearly macroinvertebrate sampling program in perpetuity.

Macroinvertebrates In the lab: Samples will be hand sorted and identified to family or order.

Data Analysis: Metrics and statistical analyses will be calculated based on the family identification.

3 ALGAE

Algae monitoring will be completed in conjunction with benthic macroinvertebrate sampling (see 2 above). Algae monitoring will follow standard methods outlined by the SWAMP in "Standard Operating Procedures for Collecting Stream Algae Samples and Associated Physical Habitat and Chemical Data for Ambient Bioassessments in California" (Fetscher et al., 2009), available at: http://swamp.mpsl.mlml.calstate.edu/wp-content/uploads/2010/06/SWAMP_SOP_Algae_Field_Collection_050110.pdf

4 VISUAL OBSERVATION

Visual observations during project implementation activities will document the presence or absence of soil migrating past the proposed wall location. Photos will be taken to document pre and post project conditions. Visual observations will be conducted during project implementation and in conjunction with monthly water quality monitoring (see 1 above). The project geologist and ecologist will train citizen monitors to evaluate the integrity of erosion control measures and verify the successful establishment of native plantings. In the event of erosion concerns or failure of native plants to become established, monitors will report to the relevant staff at Sierra Streams for a formal evaluation by the staff restoration ecologist and/or geologist. Further visual observations will be conducted in conjunction with storm sampling to evaluate the effectiveness of BMPs and erosion control measures.

5 HEAVY METAL SAMPLING

Additional water quality monitoring will be conducted upstream and downstream of the project site during three major storm events each year, including the "first flush" (first

major storm after the dry season) for the two year life of the project. In addition to the water quality parameters noted above in 1, we will also analyze storm water samples for Total Suspended Solids and a panel of heavy metals (constituents of concern lead, cadmium and arsenic as well as mercury). Storm sampling upstream and downstream of the project site will allow us to evaluate whether Providence Mine is contributing to water quality impacts and loading of heavy metals, as well as to gauge the extent of erosion resulting from high flow events.

In addition to storm sampling and visual observations of erosion on the project site, soil and sediment samples will be analyzed for the target heavy metals before and after project construction activities, to determine if heavy metal contaminants are migrating from the project site, indicating a need for additional erosion control measures.

6 VEGETATION MONITORING

Project areas that are disturbed during mine waste remediation activities will be revegetated following installation of erosion control measures. Revegetation of targeted areas will ensure longevity of soil stabilization methods, reduce threat of erosion into Deer Creek, and improve habitat health.

Following project implementation, twice yearly assessments each spring and fall will monitor the success of revegetation efforts. Surveys will specifically investigate vegetation establishment, survival, recruitment, and percent vegetative cover. Installed erosion control measures will be examined to assess efficacy and longevity, while potential erosion areas of concern will be monitored closely. Repeated monitoring will ensure long-term effectiveness of mine waste and erosion mitigation efforts

7 NAME AND CONTACT INFORMATION FOR SUPERVISING PERSONNEL

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Providence Mine Remediation Project Erosion Control and Revegetation

Project Implementation

Existing slopes within the project area drop steeply down to the banks of Deer Creek. Mine waste and contaminated soils throughout the site are distributed across these erosion-prone hillsides. The Providence Mine Remediation Project will address these threats to water quality and human health through removal of existing exposure pathways. Careful project implementation will ensure that contaminated soils and mine waste are removed from potential human contact and erosion is mitigated throughout the site. As specified in the Draft Removal Action Workplan for Providence Mine Site (August 2013) the proposed mine waste and erosion remediation actions are as follows:

1. Excavation of mine waste from eastern mine waste slope and deposition into shaft depression
2. Contaminated sediment excavation from debris fan at toe of active landslide and deposition into shaft depression
3. Installation of cover soil over mine waste placed within shaft depression
4. Installation of earth retaining structure at base of landslide area to prevent sediment transport into Deer Creek, a wire-basket rock Gabion wall or concrete retaining wall will be constructed above the 100-year flood elevation
5. Installation of shotcrete-facing on near-vertical scarp of landslide
6. Implementation of erosion control and revegetation measures throughout project area

Erosion Control Techniques

In order to ensure that the Providence Mine Remediation Project effectively mitigates existing erosion concerns and reduces future risk of slope instability, the following practices* will be implemented:

1. Installation of Rolled Erosion Control Product (coir netting, Type B or C), anchored with incrementally-spaced wooden stakes. Netting will be installed using standard top-trench methodology and horizontal layering to ensure maximum efficacy.
2. If deemed necessary to ensure long-term soil stabilization, installation of welded wire mesh (2 x 6") onto coir netting, affixed with soil anchors.
3. Placement of coir fiber rolls onto installed soil stability measures to minimize sediment transport and slow water flow throughout exposed slopes. Coir rolls will be anchored with wooden stakes according to slope stabilization standards (10 foot spacing for 2:1



Providence Mine Remediation Project Erosion Control and Revegetation

slopes, 15 foot spacing for 4:1 slopes).

4. Following installation of erosion control measures, hydroseed exposed slopes with a mixture of native grass seed, fiber, and tackifier. Grass seed should include fast-growing annual native grasses, and competitive perennial native bunchgrasses.

* Erosion control techniques are suggested for slopes 2:1 (H:V) or flatter. Near-vertical landslide scarp will be treated with shotcrete-facing in conjunction with Gabion wall construction.

Revegetation Techniques

Project areas that are disturbed during mine waste remediation activities will be revegetated following installation of erosion control measures. Revegetation of targeted areas will ensure longevity of soil stabilization methods, reduce threat of erosion into Deer Creek, and improve habitat health. Native plant revegetation will be implemented according to the following guidelines:

1. Revegetation efforts will utilize chosen native plant palette. Selected species will be tested for successful on-site establishment and vigor during phytoremediation pilot studies.
2. Hydroseeding on slopes with installed erosion-control measures will feature mix of native grass seed. Species will be selected for fast-growing and fast-rooting growth properties.
3. Hydroseeding plant palette will include a mix of annual grass species (selected to quickly establish cover) and deep-rooting perennial grass species (selected for slope longevity).
4. On slopes 2:1 or less, rooted shrub vegetation (plugs) will be installed following placement of coir netting. These areas will be additionally treated with a light seeding of fast-growing grass and forb species, ensuring a diverse below-ground rooting network for maximal slope stability.

Erosion Control and Revegetation Monitoring

Following project implementation, repeated assessments will monitor the success of revegetation efforts. Surveys will specifically investigate vegetation establishment, survival, recruitment, and percent vegetative cover. Installed erosion control measures will be examined to assess efficacy and longevity, while potential erosion areas of concern will be monitored closely. Repeated monitoring will ensure long-term effectiveness of mine waste and erosion mitigation efforts.

Providence Mine Remediation Project
Erosion Control and Revegetation

Revegetation Plant Palette

<i>Species</i>	Common name	Growth type	Wetland indicator status	Habitat	Habitat notes	Additional notes
<i>Achillea millefolium</i>	yarrow	Perennial herb	FACU	Meadows	Full sun / moist soil	Dry upland area; flowering
<i>Artemisia douglasiana</i>	California mugwort / Douglas sagewort	Perennial herb	FAC	-	Shade / moist soil	Rhizomatous Open to shady areas, often in drainages
<i>Bromus carinatus</i>	California brome	Annual grass	-	Pine forest, woodland, grassland	-	Valued for ease of establishment in revegetation projects
<i>Chamaebatia foliolosa</i>	mountain misery / bearclover	Shrub	-	-	Well-drained, sun, shade	Flowers in July, seed requires cold stratification: 28-84 days
<i>Elymus glaucus</i>	blue wildrye	Perennial herb / bunchgrass	FACU	-	Shade tolerant	Good for streambank restoration, excellent for reseeding in disturbed forests
<i>Elymus triticoides</i>	alkali rye, creeping wildrye, beardless wild rye	Perennial herb / bunchgrass	FAC	Pine forest, woodland, grassland	-	Primarily used in streambank and riparian stabilization
<i>Festuca rubra</i>	red fescue	Perennial herb / bunchgrass	FAC	-	Shade tolerant	Excellent soil-binder, used extensively for stabilizing slopes, banks, cuts, and fills. Vigorous growth during phytoremediation pilot study.



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<i>Species</i>	Common name	Growth type	Wetland indicator status	Habitat	Habitat notes	Additional notes
<i>Lonicera hispidula</i>	pink honeysuckle	Vine or shrub	FACU	Streambanks / slopes	Full sun / dry slope or riparian environ	Bank stabilizing, Canyons, streambanks, woodland
<i>Muhlenbergia rigens</i>	deer grass	Perennial herb / bunchgrass	FACW	Wetland – riparian	Full sun / moist soil	Stabilizing bunchgrass; mid-slope and upland area Valuable soil-stabilizer with extensive root system
<i>Stipa pulchra</i>	purple needle grass	Perennial herb / bunchgrass	-	slopes	-	Highly valued as an erosion-control bunchgrass Long-living, able to establish coarse-root systems in poor soil conditions. Successfully established during onsite pilot phytoremediation study.
<i>Symphoricarpos mollis</i>	trailing / creeping snowberry	Shrub	-	-	-	Sprawling, branches often rooting

Note: Hydroseeding applications will include grass species listed in bold font