COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

June 1, 2022

Brian Briggs
B.K. Briggs & Associates
2019 Otter Pond Circle
Montrose, CO 81401

RE: Need for State Reclamation Permit, B. K. Briggs & Associates, File No. M-2022-027

Dear Mr. Briggs:
On May 25, 2022 the Division of Reclamation, Mining and Safety (Division) received your correspondence responding the Division's inquiry, RE: "Is It Mining". The Division has assigned file number M-2022-027 to this project. Please display the file number on any correspondence regarding this specific project.

The information you provided indicates you will be conducting underground excavation for a resort, no extraction of mineralized material is proposed. Construction material produced from the underground excavation will be processed and used on site for structural fill and road base. No extracted material is proposed to leave the site. The project proposes to excavate approximately 1,200 cubic yards of material. The excavation activity will be conducted underground with a 2 cubic yard LHD and an underground haul truck. Surface equipment used will be a 1 cubic yard excavator, 2 cubic yard FEL, a diesel compressor and a diesel generator.

Based on the information contained in the correspondence it is the Division's opinion that no reclamation permit will be required from this agency at this time. However, other local, state, or federal permits may be required and it is recommended that you contact those agencies for further clarifications if you have questions. Please be advised that this opinion is being offered based on the information provided in your response. **Any significant deviation from the described activity, including removal for sale or trade of any excavated materials from its natural state could result in a review and possible reversal of this opinion.**

Please consider the following: if the Division receives different information or a written complaint regarding the proposed activities it is required by law to further investigate. If the investigation shows a possible violation of the Construction Materials Act and Rules an enforcement action would be initiated which could include civil penalties, a cease and desist order and obtaining a permit for the activities.

If you have any questions please contact me at (303) 866-3567 extension 8186

Sincerely,

Travis Marshall
Senior Environmental Protection Specialist

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

Date: 5/1/22

RE: Need for State Reclamation Permit: "Is It Mining?"

Name: B.K. Briggs & Associates

Street Address: 2019 Otter Pond Cir, Montrose CO 81401

Telephone: (970) 596 -1982 **Mobile:** ( )

Email Address: bbrigg@bkbassoc.com

Enclosed are pertinent sections of the Colorado Mined Land Reclamation Board (Board) Rules governing activities that do not require a reclamation permit. To determine if you need a permit for you proposed activity, first check Rule 1.2 which describes activities the Board has determined do not require state reclamation permits. If you find a match, you can proceed based on your interpretation of the rule, but at your own risk. If you are uncertain how the Rule may apply to your activity, you should answer the list of questions below with as much detail as possible. Please feel free to use additional paper, maps, and attachments to explain your project.

Please include in your determination request answers to the following questions:

1. Please provide the legal location of the proposed project and submit a site map that clearly delineates the location of the proposed extraction site and the location of the nearest city, town, and county location name.

Section: **Township:** **Range:** **PM**

Or NAD 27 GPS **X UTM** 259000E **Y UTM** 4195000N

Direction and Miles to nearest town/city: 0560 County Road 15 **County:** San Juan

2. Is the site of material extraction on public or privately owned property?

Public ☐ Private ☑

3. What type(s) of material or metal is/are proposed to be extracted and describe the physical nature of the site i.e., river terrace, rocky knob, in-stream gravel deposit, etc.?

Underground Excavation for Resort. No mineral extraction

4. What processing or extraction method(s) will be used on site? Include any equipment or chemical(s) that will be used in the processing and extraction of the materials.

None

5. Will the extracted material be hauled offsite or used on the same parcel of property where the material is extracted?

Waste rock will be used on site for construction materials

6. How will the extracted material be used on site?

Rock Gabion Fill and Expanded parking area

7. If the material is hauled offsite, where will it be hauled to and what it the intended use?

N/A

8. What is the approximate areal extent of the proposed extraction in acres?

1

9. To what approximate depth will the extraction extend?

N/A

10. In cubic yards, approximately how much material will be removed:

1200

11. Will material extraction involve the use of explosives?

Yes ☑ No ☐

12. Will site of extraction result in the exposure of tributary ground water?

Yes ☐ No ☑

13. Will either the landowner or the mine site operator receive any type of compensation, i.e., monetary, in-kind, haulage fees, etc., from the proposed material extraction?

Yes ☑ No ☐

14. Please supply a copy of any documents that will ensure that the area of extraction will be reclaimed to some beneficial land use once extraction activities have been completed.

15. Do you have permits for this activity from any other governmental agencies such as building, construction, or grading permits, and if so, what are they?

PUD with San Juan County for Resort Development

16. Are there state/federal/local agency participants in terms of funding?

Funding	Yes ☐	No ☑
Design	Yes ☐	No ☑

Percentages

State _____ Federal _____ Local Agency _____

17. What post mining land uses will be made of the extraction and why? (This question helps us determine the intent of the activity.)

~~Resort~~

18. What types and sizes of equipment will be used in the extraction?

~~Underground 2 CY LHD, 7 ton UG haul truck. Surface equipment 1 CY excavator, 2 CY FEL~~

Please send the completed questionnaire to the Division at the address above for review. The Board has directed the Division to make a decision based on the information you have supplied. We trust that the activities will be performed as represented. If we receive a complaint, we are required by law to conduct an inspection of the site. Which could result in a violation, a cease and desist order, and other corrective actions including submittal of a permit application.

If you have any questions, please contact the Division at (303)866-3567. Please feel free to visit our web site at: https: /colorado.gov/drms for further access to the full Act and Rules governing extraction of metals, non-metals, and construction materials in the State of Colorado.

Sincerely,

Division of Reclamation, Mining and Safety Staff

Enclosure: Rule 1.2 excerpt for Hard Rock Metal Mines and Construction Materials
Rule 1.2 excerpt for Hard Rock/Metal Mining

1.2 SCOPE OF RULES AND ACTIVITIES THAT DO NOT REQUIRE A RECLAMATION PERMIT

1.2.1 Specified by Rule

The Board has determined that certain types of activities do not need reclamation permits either because the excavated substance is not a mineral as defined in Section 34-32-103(7), Colorado Revised Statutes 1984, as amended or because the activity is not a mining operation as defined by Section 34-32-103(8), C.R.S. 1984, as amended. Such activities include the following:

(a) the exploration and extraction of natural petroleum in a liquid or gaseous state by means of wells or pipe;

(b) the development or extraction of coal (refer to the Colorado Surface Coal Mining Reclamation Act Section 34-33-101, et seq., C.R.S. 1984, as amended);

(c) smelting, refining, cleaning, preparation, transportation, and other off site operations not conducted on affected land;

(d) a custom mill.

1.2 ACTIVITIES THAT DO NOT REQUIRE A RECLAMATION PERMIT

Section 34-32.5-103(3) and (13)

1.2.1 Specified by Rule

The Board has determined that certain types of activities do not need reclamation permits either because the excavated substance is not a construction material as defined in Section 34-32.5-103(3), Colorado Revised Statutes 1984, as amended or because the activity is not a mining operation as defined by Section 34-32.5-103(13), C.R.S. 1984, as amended. Such activities include the following:

(a) the exploration and extraction of natural petroleum in a liquid or gaseous state by means of wells or pipe;

(b) the development or extraction of coal (refer to the Colorado Surface Coal Mining Reclamation Act Section 34-33-101, et seq., C.R.S. 1984, as amended);

(c) cleaning, preparation, transportation, and other off-site operations not conducted on permitted land; and

(d) the extraction of geothermal or groundwater resources.

1.2.2 Reserved

1.2.3 Reserved

1.2.4 Extraction or Exploration on Federal Lands

Any person who intends to extract or explore for construction materials on federal lands shall apply for a Mined Land Reclamation Board permit or submit a Notice of Intent to conduct exploration operations unless specifically exempted by the Board according to the provisions of this Subsection 1.2.

COLORADO
Department of Public
Health & Environment

CERTIFICATION TO DISCHARGE
UNDER
CDPS GENERAL PERMIT COR400000
STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES

Certification Number: **COR419462**

This Certification to Discharge specifically authorizes:

Owner Bonanza Boy LLC
Operator Bonanza Boy LLC
to discharge stormwater from the facility identified as

Silver Cloud

To the waters of the State of Colorado, including, but not limited to:

Mill Creek

Facility Activity :	Commercial Development, Non-structural and other development (i.e. parks, trails, stream realignment, bank stabilization, demolition, etc.)
Disturbed Acres:	0.73 acres
Facility Located at:	0560 Forest Service Road 821, Silverton CO 81433 San Juan County Latitude 37.871483 Longitude -107.743843
Specific Information (if applicable):	

Certification is issued and effective: 02/17/2023
Expiration date of general permit: 3/31/2024

This certification under the permit requires that specific actions be performed at designated times. The certification holder is legally obligated to comply with all terms and conditions of the permit.

This certification was approved by:
Randi Johnson-Hufford, Permits Unit 1 Manager
Permits Section
Water Quality Control Division

COLORADO
Department of Public Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

Colby Barrett, President
Bonanza Boy LLC
P.O. Box 992
Montrose, CO 81402

Colby Barrett, President
Bonanza Boy LLC
P.O. Box 992
Montrose, CO 81402

DATE: 2023-02-17

MEMO RE: Certification, Colorado Discharge Permit System
Permit No., COR400000, Certification Number: COR419462

DIVISION CONTACTS: Joseph Sturgeon, 303-691-4019, Joseph.Sturgeon@state.co.us

ATTACHMENTS: Certification COR419462, COR400000 General Permit

The Water Quality Control Division (the Division) has reviewed the application submitted for the **Silver Cloud** facility and determined that it qualifies for coverage under the CDPS General Permit for Stormwater Discharges Associated with Construction Activities (the permit). Enclosed please find a copy of the permit certification, which was issued under the Colorado Water Quality Control Act.

FEE INFORMATION: 0.73 acres

An application fee of $83 (50% of the annual fee) will be assessed for all new applications. Beginning July 1, 2019 an annual fee of $165 category 7, subcat - Stormwater Construction <1 acre disturbed [per CRS 25-8-502] will be assessed and invoiced every July for as long as the permit certification is in effect.

t is the responsibility of the permittee to submit a termination application when the permit is no longer needed. Fees are assessed and invoiced for every permit that is active July 1 of the fiscal year. Permits for which termination applications are received by June 30 of the current fiscal year will not be invoiced for the new fiscal year.

CERTIFICATION RECORDS INFORMATION:

The following information is what the Division records show for this certification.
For any changes to Contacts - Owner, Operator, Facility, or Billing - a "Notice of Change of Contacts form" must be managed through the Division's new platform called the Colorado Environmental Online Services (CEOS). The Notice of Change of Contacts form must be electronically signed by both the owner and the operator.

Facility: Silver Cloud — San Juan County
Construction Activities Commercial Development, Non-structural and other development (i.e. parks, trails, stream realignment, bank stabilization, demolition, etc.)

Owner *(receives all legal documentation pertaining to the permit certification):*
Colby Barrett, President
Bonanza Boy LLC
P.O. Box 992
Montrose, CO 81402
Phone number: 303-909-6083
Email: cbarrett17@gmail.com

Operator *(receives all legal documentation pertaining to the permit certification):*
Colby Barrett, President
Bonanza Boy LLC
P.O. Box 992
Montrose, CO 81402
Phone number: 303-909-6083
Email: cbarrett17@gmail.com

Facility Contact *(contacted for general inquiries regarding the facility):*
Brian Briggs, Consultant
B.K. Briggs & Associates
2019 Otter Pond Circle Montrose, CO 81401
Phone number: 970-596-1982
Email: bbriggs@bkbassoc.com

Bonanza Boy LLC.

Silver Cloud Project

STORMWATER MANAGEMENT PLAN (SWMP)

In Conformance with the Guidelines set by:
Colorado Department of Public Health and Environment
Water Quality Control Division

Date:
Prepared January 2023

STORMWATER MANAGEMENT PLAN (SWMP)

Facility Name:	Silver Cloud
Facility Type:	Lodge construction project
Date Initial Operations Started:	Est. April 2022
Facility Mailing Address:	Bonanza Boy LLC PO Box 992 Montrose, CO 81402
Facility Location Address:	0560 County Road 15 Silverton, Colorado

Management Approval Statement:

This SWMP plan is fully supported by the management of Bonanza Boy LLC. Bonanza Boy LLC will implement this plan and amend it as needed due to expansion, modifications and improvements at the facility. I certify under penalty of law that a completed Stormwater Management Plan, in compliance with Part I.B of the permit, has been prepared and implemented for my facility. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the Stormwater Management Plan is, to the best of my knowledge and belief, true, accurate, and complete, and implemented as written. I am aware that there are significant penalties for falsely certifying the completion of said SWMP. including the possibility of fine and imprisonment for knowing violations.

_____

Colby Barrett, President

Certifying Engineer's Statement:
This plan was prepared using sound engineering practices. I have examined the facility and this plan and find this plan conforms to the federal and state guidelines.

Name: Travis Leach, P.E.
Company: B.K. Briggs & Associates
State Registration No.: Colorado # 53458

Signature:

Date: January 19, 2023

SEAL

INTRODUCTION

This Stormwater Management Plan (SWMP) is prepared to mitigate potential impacts to Waters of the U.S. (Mill Creek) resulting from construction activities at the Silver Cloud Project by Bonanza Boy LLC. in San Juan County, Colorado. As an active construction project, the measures outlined in this Plan will significantly improve the stormwater management of the Silver Cloud and as such, will lessen the impact of sediment laden stormwater to Mill Creek, which is the receiving water. This impact is addressed in this Stormwater Management Plan, as well as the measures taken to mitigate said impact.

SITE DESCRIPTION

The Silver Cloud Project is located along Mill Creek along San Juan County Road 15 near Chattanooga. The project is approximately 6 miles southeast of Telluride, CO.

The site is bordered by Mill Creek to the South, mountains of the San Juan range to the West and North, with US 550 running near the east edge of the site. The Site Map is attached to this SWMP as **General Location Map.**

The center point of the property is located at latitude 37.871483 and longitude -107.743843.

The Silver Cloud is owned by Bonanza Boy LLC.

Bonanza Boy LLC
PO Box 992
Montrose, CO 81402

KEY ELEMENTS OF THIS PLAN

- *Stormwater* from rainfall or snowmelt will pass through the site on its way to Mill Creek. All disturbed areas have collection systems in place that will direct runoff to sediment ponds to prevent sediment discharge. See SWMP Map. There are upstream diversion ditches to direct runoff from above away from the construction site.
- ***Sediment is classified by the State as a potential pollutant***, therefore all disturbed area runoff will be collected in sediment ponds to prevent sediment being contributed to Mill Creek.
- The best method of managing site runoff water quality is to ***remove and properly dispose of any site contaminants*** that could be transported by stormwater runoff. All activities that could produce non-sediment pollutants will be contained with secondary containment and all other consumables will be stored in a storage connex to prevent discharge.
- *On-site Stormwater* (stormwater contacting the surface construction activity area of the site) shall be contained within the project site and routed to a sediment pond before being discharged into Mill Creek.
- All disturbed areas will drain to a sediment pond located on the site. See the SWMP Map for the flow directions from particular portions of the site.
- Any discharge of *On-Site Stormwater* to surface waters or to will be regulated through the Water Quality Control Division for discharges associated with construction projects for stormwater.

- Any discharge of ***On-Site Stormwater*** from the site shall be sampled and tested in accordance with the CDPHE Stormwater Permit.

- The only acceptable methods of managing on-site stormwater runoff are to contain it for ***Use in Operations***, for ***Infiltration*** into the ground, for ***Evaporation*** into the air, or ***Discharge*** to the Creek.

1. Description of Construction Activities

Bonanza Boy LLC. will conduct surface and underground construction operations at the Silver Cloud project site. Bonanza Boy LLC is permitted for the following uses on the property:

- Recreation lodge and facilities
- Surface support facilities
- Potable Water Treatment Plant
- Fuel & Lubricant Storage

Temporary surface facilities will include a laydown yard, mobile office trailer, storage connex, and a small parking area. Permanent surface facilities will include an above ground lodge, kitchen & staff building, and a small parking area. A brief description of each activity can be found below:

UNDERGROUND EXCAVATION

Bonanza Boy LLC will excavate new underground facilities to be used as recreational lodging. These facilities include an underground dining area and 6-10 rooms. Excavated unmineralized material will be used for construction purposes on site.

TEMPORARY SURFACE FACILITIES

The laydown yard will be for storage and assembly of construction materials.
The mobile office trailer will be for project management and team meetings.
The storage connex will be used to store consumables and construction materials out of inclement weather.
The small parking area will be for construction vehicles and equipment.

PERMANENT SURFACE FACILITIES

The above ground lodge will contain five total 4-person rooms, loft space, conference room, and employee housing.
The greenhouse will be used to sustainably grow food.
The small parking area will be for customer and company vehicles.
All facilities at Silver Cloud will be constructed within disturbance areas that will have runoff control systems. These facilities can be seen on the SWMP Map.

FUEL STORAGE

There will be one (1) double-walled five hundred (500) gallon diesel fuel storage tank on site during construction. The diesel tank will be located near the surface buildings as shown on the SWMP Plan Map. The diesel tank is fabricated with a double wall construction providing adequate secondary containment.

Lubricants used during construction will be stored in fifty-five (55) gallon drums. Drums will be situated within secondary containments that are capable of containing the largest container plus 10%.

2. Area Subject to Effluent Limitations Guidelines

The area subject to effluent limitations is Planned Disturbance Area 1: 0.73 acres, as shown on the SWMP Map. This is the main disturbance area of the site.

3. Site map

See Appendix C for General Location Map.
See Appendix C for SWMP Site Map.
See Appendix C for Typical Designs.

4. Stormwater Management Controls

a. SWMP Administrator

The SWMP Administrator is responsible for the daily Stormwater Management Plan (SWMP) administration at this site. This designated person is Bill Coughlin, who can be reached at 1-(970)-708-2139.

b. Identification of Potential Pollutant Sources and BMPs

The following potential pollutant sources have been identified:

- Final placement and temporary stockpiles of excavated material; and
- areas disturbed by construction equipment.

All stormwater within the disturbed area on site including the temporary stockpiles of excavated material, is routed to the sediment ponds on site by way of the collection ditches.

Best Management Practices (BMP's)/ Controls

This Stormwater Management Plan was developed to prevent degradation of stormwater from the Silver Cloud construction site. The Best Management Practices (BMP's) are intended to prevent generation of additional sediment from the site.

DRAINAGE BASIN TO SITE DISCHARGE POINT

As is seen from the SWMP Plan Map, there is 1 discharge point from a single pond. This sediment pond will contain the drainage from the entire construction area, the drainage area to the Sediment Pond is 0.73 acres. This is the vast majority of the disturbed area of the site. Water from disturbed areas flows to the pond using the collection ditches. No off-site areas drain to the sediment pond since Diversion ditches are employed to direct off-site runoff away from the construction site. The flow directions are shown on the SWMP Map.

DRAINAGE BASIN TO MILL CREEK

Mill Creek, upstream of the project, is highly mountainous and drains an area of approximately 3927 acres.

OFFSITE SOURCES

There are none for this site due to the diversion ditches. See SWMP Map for diversion ditch numbers and associated directional flows.

2. Materials Handling & Spill Prevention

It is anticipated that no stormwater discharges will occur for any stormwater events prior to being allowed to settle in the setting pond. The sediment pond is sized to a 10-year runoff event and will be constructed using best available construction. All petroleum products will be stored with secondary containment and a spill kit will be kept at on site. These best management practices will minimize the risks if a discharge occurs. A summary of estimated risks if a discharge were to occur is presented below:

Pollutant	Sediment Pond
Oil and Grease	Low
Total Dissolved Solids	Low
Total Suspended Solids	Low
pH (Outside Range 6.5 to 9.0)	Low

3. Sediment & Erosion Prevention

All areas exposed to sediment or with potential for erosion will require a control measure that will be defined during the maintenance/construction planning phase of each project at the site.

Sediment control BMPs located around the site will have a sediment barrier consisting of a row of entrenched and anchored erosion bales (straw bales). Erosion bales hold up to the extreme winter conditions at the project site. Life of the bales is approximately one year by the industry standard. Bales may be replaced sooner if the control provides inefficient support or does not intercept, slow, or detain the flow of storm water to allow sediment to settle and be trapped.

All erosion bales will be either wire-bound or string-tied, and will be installed so that bindings are oriented around the sides rather than along the tops and bottoms of the bales. In order to prevent water from escaping between the bales, the area will be filled with straw, therefore obtaining tight joints. Loose straw will be scattered over the area immediately uphill from an erosion bale barrier to increase barrier efficiency.

Inspections of bales will be conducted during weekly inspections. Repairs will be made promptly. Erosion/Sediment accumulation against the erosion bale barrier will be removed when it reaches half the exposed bale height.

Erosion logs (wattles) and silt fencing may also be utilized in the right application. All controls will be noted on the SWMP Map. Erosion logs and silt fencing will be installed to manufacturer's specifications and replaced as needed. All controls will be inspected during the weekly inspections and any deficiencies noted and corrected as soon as practically possible.

Controls will be located at two main areas on site. The toe of the historic waste rock dump will have controls placed along the south-east and east sides. The 2 trout ponds at the eastern edge of the site will have controls placed along the south-eastern and eastern edges. The locations of control measures are shown in Appendix C on the SWMP Site Map.

4. Other pollutant prevention measures.

No additional measures are required other than what is provided.

c. Preventive maintenance

These are the inspection and maintenance practices that will be implemented to control stormwater runoff quality:

- Weekly site inspections will be conducted to ensure that the sediment control structures are functioning correctly. This includes ditches, ponds and culverts.
- The sediment pond will be dewatered within 72 hours after a storm event to maintain pond capacity.
- The emergency spillways at each pond will be checked for erosion or sediment buildup.

d. Good housekeeping

The following good housekeeping practices will be employed at the site:

- Substances stored on-site will be stored in a neat, orderly manner in their appropriate containers.
- Open containers of non-hazardous materials shall be stored under a roof or other enclosure to prevent mixing with stormwater.
- The Project Manager is responsible for day-to-day site operations and directing spill prevention, cleanup, and reporting.
- Waste oil will be stored within a designated above ground storage tank or in covered areas to prevent mixing of stormwater and oil.
- If drip pans are used, they will be cleaned on a regular basis and not allowed to fill with stormwater.
- Hazardous materials will be stored in accordance with the Uniform Fire Code, and placards will be visible to identify the potential hazards. The classification of any material stored on-site shall be made by the fire department.

e. Spill prevention and response procedures

Spills on the Silver Cloud site are most likely to happen at the 500-gallon diesel tank or at a piece of equipment during maintenance. All of these containers will have secondary containment at least 110% of the full tank capacities. A 35-gallon spill kit will be kept on site near the 500 gallon tank and the storage connex in order to facilitate cleanup in case of a spill.

f. Employee Education

Bonanza Boy LLC., through the Project Manager, will train during Annual Refresher Training (ART) yearly and educate current and new employees on appropriate stormwater management, spill response, good housekeeping and materials storage practices. Best management practice training programs should also be conducted regarding improving the water quality of stormwater runoff.

Training logs will be kept in Appendix E.

5. Comprehensive Inspection

The SWMP Administrator will conduct regular inspections of the site for stormwater management controls, spill control, maintenance, and cleanup. Inspections during at least the Spring and Fall of each year shall be conducted and the records of such inspections shall be maintained in files at the site together with the SWMP Plan. The inspections shall incorporate a complete review of all BMP's outlined in this plan and will report on any BMP's which are not functioning and/or require maintenance. Any discharges which are out of compliance with the Discharge permit shall also be reported with corrective actions outlined.

6. Consistency With Other Plans

A general discharge permit has been obtained from CDPHE. If other permits affecting stormwater are required of the site in the future, the SWMP will be modified to ensure consistency. These plans will also maintain consistency with the County and DRMS permits.

FLOW MEASUREMENTS AND CALCULATIONS

STORMWATER DISCHARGE

Ditches which collect runoff from the entire disturbed area have been designed to direct the stormwater to a sediment pond. The pond will have two discharge devices: 1) is a 4" pipe with a valve that is normally shut and will only be opened after large storm events and 2) a trapezoidal emergency spillway built into the top of the embankment which will allow the pond to safely pass the 25-year peak flows through the pond. This pond will only be present for the construction life of the project, which is expected to be 5 years. After such time, the drainage areas leading to the pond will be fully reclaimed. It is important to note that these areas are now almost devoid of vegetation so that Bonanza Boy LLC will be significantly improving the long-term reclamation of the site and lessening the sediment load to Mill Creek.

During the life of this pond, it will likely never discharge during winter months and since it is built to fully contain the runoff from a 10-year storm event, it will hardly ever discharge during the rest of the year.

The flow data measured on site using the procedures described above will be recorded on the form below. The completed forms are available on site with this SWMP Plan.

Pond #_____								
Date of measurement	Avg. Velocity (if measured independently)	Height of flow (feet)	Flow in CFS from Weir equation		Cross sectional area (if measured independently)	Flow = A x Avg. Velocity	Person Taking Readings	Comments

Stormwater Calculations

Runoff Curve Numbers (CN) for Watershed Area Draining to Sediment Pond (6.995 acres)

Description	Hydrologic Soil Group	Area (acres)	CN
Disturbed Land	Group B Soils	0.73	66

An area of 0.73 acres will drain to the discharge point for the Pond for the worst-case disturbance of this site.

Hydrologic Soil Group

Group A Soils: High infiltration (low runoff). Sand, loamy sand, or sandy loam. Infiltration rate > 0.3 inch/hr when wet.

Group B Soils: Moderate infiltration (moderate runoff). Silt loam or loam. Infiltration rate 0.15 to 0.3 inch/hr when wet.

Group C Soils: Low infiltration (moderate to high runoff). Sandy clay loam. Infiltration rate 0.05 to 0.15 inch/hr when wet.

Group D Soils: Very low infiltration (high runoff). Clay loam, silty clay loam, sandy clay, silty clay, or clay. Infiltration rate 0 to 0.05 inch/hr when wet.

The storage volume to prevent discharge is calculated as the volume of the main pit above the water table. The water table lies greater than 5 feet below the surrounding surface. This scenario assumes that the pump is not working and the pit has filled to equilibrium level. The area of lower pit that will have the 5 feet of available height is calculated below:

The following areas were calculated using Google Earth.

Runoff Curve Number and Runoff

Project: Silver Cloud By: T Leach Date: 11/17/22
Location: 0560 County Road 15
Silverton, Colorado
1. Runoff Curve Number (CN)

Cover description	CN	Soil Type	Area	
Historically Disturbed Land, Disturbed (Poor)	66	B	0.73	

CN (weighted): 66.0

Total Area: 0.73 Acre

2. Runoff

Return Period:	10-Year
Rainfall, P:	3.50 in
Runoff, Q:	0.75 in
Runoff Volume:	0.046 Acre-Ft

The stormwater volume was determined using the calculations below as described in the "Procedures for Determining Peak Flows in Colorado", which includes and supplements Technical Release No. 55 "Urban Hydrology for Small Watersheds." Prior to discharge, sediment will be controlled by keeping the pit pump lower than the working area and by having gravel berms to prevent silty water from the pit bottom from entering the pit pump directly.

Engineer's Certification

I, Travis Austin Leach, being a Registered Professional Engineer in the State of Colorado, do hereby certify that this drawing has been completed by me or under my direct supervision and that it is true and correct to the best of my knowledge and belief.

2019 Otter Pond Circle
Montrose, CO 81401
(970) 596-1982
bbriggs@bkbassoc.com

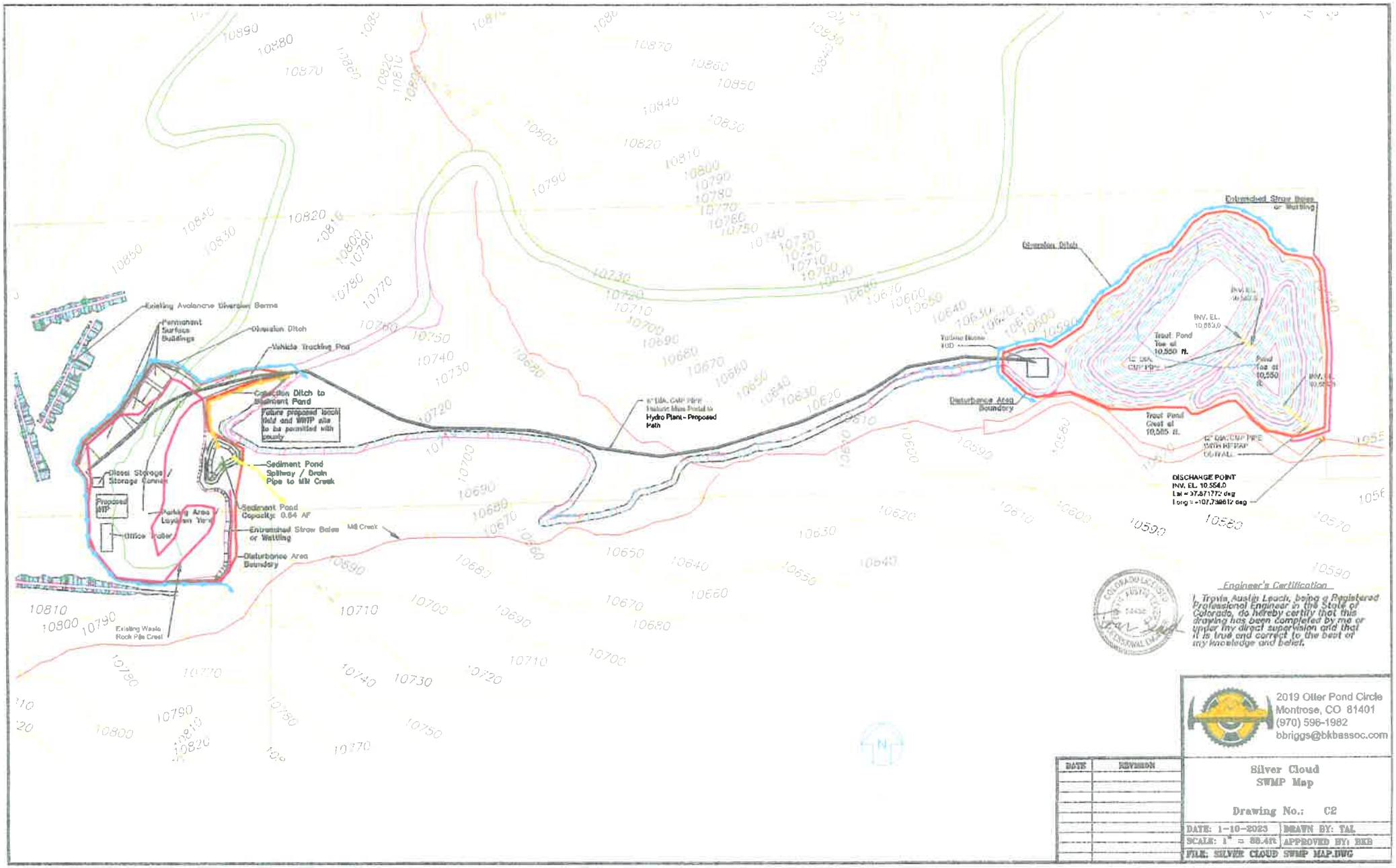
DATE	REVISION

Silver Cloud
General Location Map

Drawing No.: C1

DATE: 12-08-2022	DRAWN BY: TAL
	APPROVED BY: BKD

FILE: SILVER CLOUD SWMP MAP.DWG



Engineer's Certification

I, Travis Austin Leach, being a Registered Professional Engineer in the State of Colorado, do hereby certify that this drawing has been completed by me or under my direct supervision and that it is true and correct to the best of my knowledge and belief.

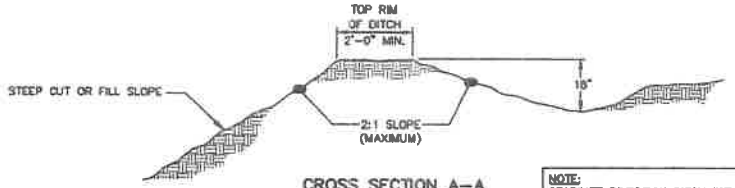
2019 Otter Pond Circle
Montrose, CO 81401
(970) 596-1982
bbriggs@bkbassoc.com

DATE	REVISION

Silver Cloud SWMP Map

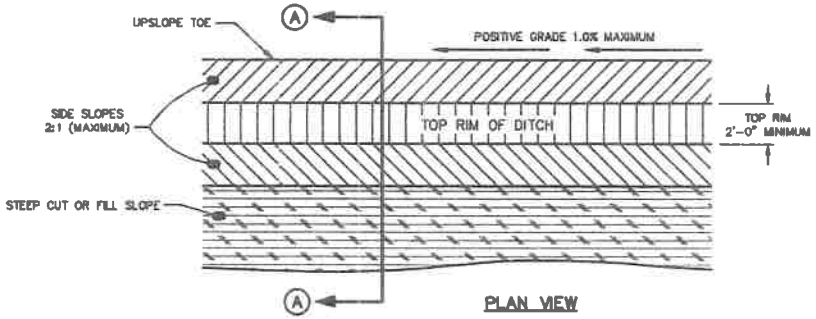
Drawing No.: C2

DATE: 1-10-2023	DRAWN BY: TAL
SCALE: 1" = 80.4ft	APPROVED BY: BKB
FILE: SILVER CLOUD SWMP MAP.DWG	



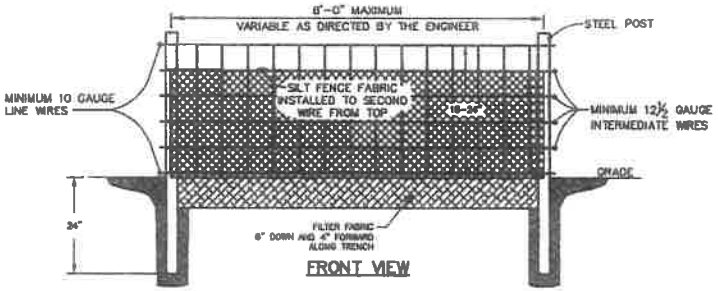
CROSS SECTION A-A

NOTE:
STABILIZE DIVERSION DITCH WITH TEMPORARY SEEDING AND EROSION CONTROL MATTING.



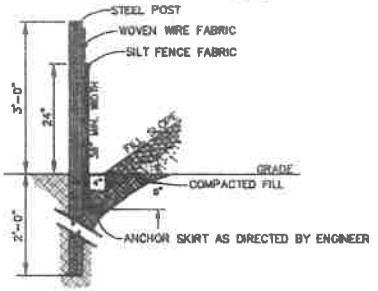
PLAN VIEW

STANDARD TEMPORARY DIVERSION DITCH



FRONT VIEW

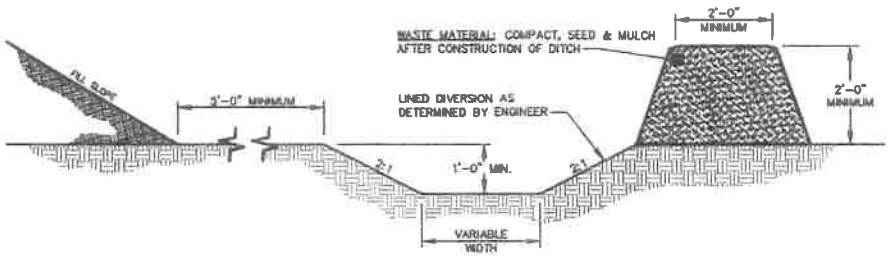
NOTES:
1) USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE PER 100 ft. OF FENCE AND NEVER IN AREAS OF CONCENTRATED FLOW.
2) OVERLAP 12 INCHES WHEN SPLICING FABRIC.
3) FOR REPAIR OF SILT FENCE FAILURES USE DETAIL 04000.23.



SIDE VIEW

STANDARD TEMPORARY SILT FENCE

NOTES:
1. TEMPORARY SILT DITCH TO BE USED WHERE TOE OF FILL SLOPES EXCEEDS 3 FEET IN VERTICAL HEIGHT AND ALONG STREAMS TO INTERCEPT FLOW AND/OR DIVERT TO A CONTROLLED OUTLET.
2. BERM SHALL BE RECONSTRUCTED WHEN DAMAGED BY EQUIPMENT OR COVERED BY FILL.



CROSS SECTIONAL VIEW

STANDARD TEMPORARY DIVERSION BERM

Engineer's Certification

I, Travis Austin Leach, being a Registered Professional Engineer in the State of Colorado, do hereby certify that this drawing has been completed by me or under my direct supervision and that it is true and correct to the best of my knowledge and belief.

2019 Otter Pond Circle
Montrose, CO 81401
(970) 596-1982
bbriggs@bkbassoc.com

DATE	REVISION

Silver Cloud
Typical Designs

Drawing No.: C3

DATE: 12-08-2022	DRAWN BY: TAL
	APPROVED BY: BKB
FILE: SILVER CLOUD SWMP MAP.DWG	

ENGINEER MOUNTAIN, INC.

*SOILS *RETAINING WALLS
*SEPTICS *FOUNDATIONS
*GRADING AND DRAINAGE
*SITE DEVELOPMENT

June 27, 2023

County Historic Impact Review Committee
Attn: David Singer, Scott Fetchenhier, Steve Rich
Cc: Alternate Beverly Rich
c/o Willy Tookey
1557 Greene Street
Silverton, Colorado 81433

EMI Job No. 2023-101

Subject: Proposed Silver Cloud Lodge/PUD, and Phase 1 2023/2024 Voluntary Clean Up (VCUP), Shelbyville Lode USMS No. 18168 et al, Mill Creek, near Chattanooga, Highway 550, San Juan County, Colorado.

Dear Willy and Members of the County Historic Impact Review Committee:

This letter is regarding proposed improvements on the Shelbyville Lode and adjacent mining claims, owned by Mr. Colby Barrett of Bonanza Boy LLC of Montrose. The project site is located on Mill Creek Road (County Road 15/US Forest Service Road 821) near Chattanooga on Highway 550 in San Juan County, Colorado.

The Applicant is requesting a letter of recommendations/requirements from the County Historic Impact Review Committee (HIRC).

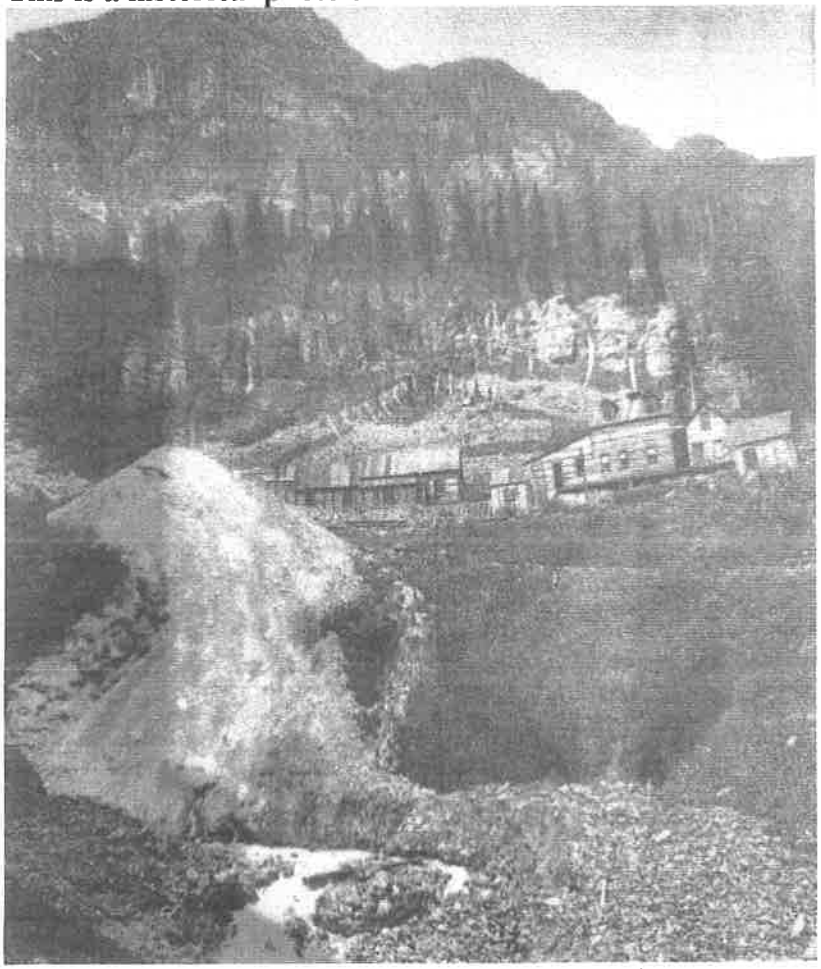
A future proposed lodge structure is located on the vacant **Shelbyville Lode**. The future proposed lodge is being designed to re-create the buildings that existed on the site approximately 100 years ago. The Applicant met with a few members of the San Juan County Historic Society in May, so you may already have some knowledge of this proposal. The Applicant has been thoroughly researching the site for the past few years through the local Archives. The Shelbyville Lode has a remnant of a historic brick foundation, which has been incorporated into the future lodge structure architectural design as an educational historic interpretive site. It is believed that the historic brick foundation may have once supported a metal boiler. The Shelbyville Lode also has a historic mine adit called the Silver Crown Mine, adjacent historic mine waste rock pile, and there are remnants of historic access roads/footpaths at/near the site.

A future proposed garage/employee housing structure is located on the vacant **Bonanza Boy Mill Site** at Chattanooga on Highway 550. The adjacent parcel has an existing structure known as the Artist Cabin, owned by the Stern family. There are no known historic features on the Bonanza Boy Mill Site. The original mineral survey plat for the Bonanza Boy Mill Site shows an old road going through it, which appears to currently serve as the existing driveway for the Bonanza Boy Mill Site and the adjacent Artist Cabin.

The Applicant has submitted a Sketch Plan Application for a proposed Planned Unit Development (PUD). The Applicant has also submitted a Land Use Permit Application, to request County permission to begin Phase 1 of the Proposed PUD, which is a proposed 2023/2024 mining reclamation Voluntary Clean Up (VCUP) project at the Silver Crown Mine on the Shelbyville Lode.

A **Cultural Resource Survey** is currently being prepared for these sites by Jon Horn of Alpine Archaeological Consultants Inc. of Montrose/Silverton. The Cultural Resource Survey is for submittal to the State Historic Preservation Office (SHPO). The Cultural Resource Survey will also be provided to you (County HIRC) and the San Juan County Historical Society (SJCHS).

This is a historical photo of the Silver Crown Mine on the Shelbyville Lode in Mill Creek:



Although the mining waste rock pile still exists, there are currently no buildings on the site. The Applicant is applying to rebuild the structures shown above, in the future, as part of a later phase of the Proposed PUD. At this time, **the immediate construction only includes a proposed mining reclamation VCUP project,** scheduled for summer 2023 and summer 2024.

Please refer to the attached plans and documents for additional information. The Owner/Applicant Colby Barrett of Bonanza Boy LLC can be reached at (303) 909-6083.

Please contact Engineer Mountain, Inc. if you have any questions.

Thank you,

Lisa M. Adair, PE
Engineer Mountain, Inc.

PO Box 526, 962 Reese Street, Silverton, Colorado 81433 - office (970) 387-0500 - cell (970) 946-2217

COLORADO CULTURAL RESOURCE SURVEY

Management Data Form

OAHP1400
Rev. 11/10

A *Management Data Form* should be completed for each cultural resource recorded during an archaeological survey. Isolated finds and revisits are the exception and they do not require a *Management Data Form*. Please attach the appropriate component forms and use continuation pages if necessary. Fields can be expanded or compressed as necessary.

1. **Resource Number**: 5SA407

2. **Temporary Resource Number**:

3. **Attachments (check as many as apply)**
- ☐ Prehistoric Archaeological Component
- ☒ Historic Archaeological Component
- ☐ Historic Architectural Component Form
- ☐ Linear Component
- ☒ Sketch/Instrument Map (required)
- ☒ U.S.G.S. Map Photocopy (required)
- ☒ Photograph(s) (required)
- ☐ Other, specify:

4. **Official determination (OAHP use only)**
- ☐ Determined Eligible NR\SR _____
- ☐ Determined Not Eligible NR\SR _____
- ☐ Nominated _____
- ☐ Need Data NR\SR _____
- ☐ Contributing to NR Dist.\SR Dist. _____
- ☐ Not Contributing to NR Dist.\SR Dist. _____
- ☐ Supports overall linear eligibility NR\SR _____
- ☐ Does not support overall linear eligibility NR\SR _____

I. IDENTIFICATION

5. **Resource Name**: Silver Crown Mine

6. **Project Name/Number**: Silver Crown Mine

7. **Government Involvement**: ☐ Local ☐ State ☒ Federal
Agency: FERC

8. **Site Categories** (check as many as apply):
Prehistoric: ☐ archaeological site ☐ paleontological site ☐ In existing National Register District
National Register District name:
Historic: ☒ archaeology site ☐ building(s) ☒ structure(s) ☐ object(s) ☐ In existing National Register District
National Register District name:

9. **Owner(s) Name and Address**: Bonanza Boy, LLC, PO Box 3387, Telluride, Colorado 81435

10. **Boundary Description and Justification**: Extent of observed site elements and artifacts.

11. **Site/Property Dimensions** Length: 92 m Width: 92 m Area: 2,914m^2 Acres (m^2/4047): 1.72
Area was calculated as: ☐ Length x Width (rectangle/square) ☐ Length x Width x 0.785 (Ellipse) ☒ GIS

II. LOCATION

12. **Legal Location**

PM	NM	Township	42N	Range	8W	Section	___	___ ¼	___ ¼
PM	___	Township	_____	Range	_____	Section	___	___ ¼	___ ¼
PM	___	Township	_____	Range	_____	Section	___	___ ¼	___ ¼
PM	___	Township	_____	Range	_____	Section	___	___ ¼	___ ¼

If section is irregular, explain alignment method: Unsectioned land

13. **USGS Quad**: Silverton, Colo. 1955 (1984) 14. **County**: San Juan

15. **UTM Coordinates**: Datum used ☐ NAD 27 ☒ NAD 83 ☐ WGS 84 Other:

A. Zone	13;	258622 mE	4195124 mN
B. Zone	___;	_____ mE	_____ mN
C. Zone	___;	_____ mE	_____ mN
D. Zone	___;	_____ mE	_____ mN

16. **UTM Source**: ☒ Corrected GPS/rectified survey (<5m error) ☐ Uncorrected GPS ☐ Map template

Management Data Form

Resource Number: 5SA407 **Temporary Resource Number**:

Other (explain):

17. **Site elevation** (feet): 10,800

18. **Address**: Lot: Block: Addition:

19. **Location/Access**: The site is on the northern side of Mill Creek west of Chattanooga on the southern side of Red Mountain Pass. The site is visible to the west from U.S. Highway 550. From the muleshoe curve just above Chattanooga on U.S. Highway 550, take a dirt road west for 0.55 miles to the site.

III. NATURAL ENVIRONMENT/SITE CONDITION

20. **General Description** (should include both on site as well as geographical setting with aspect, landforms, vegetation, soils, depositional environment, water, ground visibility): The mine is on a steep, rocky southeastern slope on the northern side of Mill Creek above its confluence with Mineral Creek at the former town of Chattanooga. The majority of the site is waste rock deposited from the mine. Above the mine, the area is mostly barren rock outcrops and angular rubble and with little soil. Sparse vegetation of willow, spruce, strawberry, corn lily, currant, thistle, raspberry, elderberry, columbine, dandelion, and other forbs are present. Gro9und visibility is very good except in the willows.

21. **Soil depth (cm) and description**: 0-20 cm dark brown rocky silt loam.

22. **Condition**

a. Architectural/Structural
- ☐ Excellent
- ☐ Good
- ☐ Fair
- ☒ Deteriorated
- ☐ Ruin

b. Archaeological/Paleontological
- ☐ Undisturbed
- ☐ Light disturbance
- ☐ Moderate disturbance
- ☒ Heavy disturbance
- ☐ Total disturbance

23. **Describe condition**: No buildings remain standing on the site. Deteriorated stone retaining walls are presnt at the base of the slope above the top of the waste rock that provided space for mine buildings. Two machinery mounts are present and a remnant of a board floor has survived. The mine adit has collapsed. Two rock wall avalanche deflectors remain in very good condition.

24. **Vandalism**: ☐Yes ☒ No
Describe:

IV. NATIONAL/STATE REGISTER ELIGIBILITY ASSESSMENT

25. **Context or Theme**: Industry: Precious Metal Mining 1880s-1940s

26. **Applicable National Register Criteria**:
- ☒ A. Associated with events that have made a significant contribution to the broad pattern of our history
- ☐ B. Associated with the lives of persons significant in our past
- ☒ C. Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
- ☐ D. Has yielded, or may be likely to yield, information important in history or prehistory
- ☐ Does not meet any of the National Register criteria
- ☐ Qualifies under exceptions A through G. List exception(s):

27. **Applicable State Register Criteria**:
- ☒ A. Property is associated with events that have made a significant contribution to history
- ☐ B. Property is connected with persons significant in history
- ☒ C. Property has distinctive characteristics of a type, period, method of construction or artisan
- ☐ D. Property is of geographic importance
- ☐ E. Property contains the possibility of important discoveries related to prehistory or history
- ☐ Does not meet any of the State Register criteria

28. **Area(s) of significance**: Mining

Management Data Form

Resource Number: 5SA407 **Temporary Resource Number**:

29. **Period(s) of significance**: 1906-1940s

30. **Level of significance**: ☐ National ☐ State ☒ Local

31. **Statement of significance**: The Silver Crown Mine (5SA407) is recommended eligible for inclusion in the NRHP under Criterion A and C. Under Criteria A, the site is significant as an important mine in the development of the Red Mountain Mining District from 1906–1909, though some work seems to have taken place in 1924 and 1925, and more consequential mining took place from 1946–1949. In addition, the Silver Crown Group of claims were important in the development of the nearby town of Chattanooga in the 1880s, though this is earlier than the mining that took place at the site. Under Criteria C, the site is important because its waste rock pile is a highly visible element of the mining landscape of the area, particularly from the major curve on U.S. Highway 550 east of the site. In addition, the avalanche deflectors on the site are excellent and intact examples of an innovative approach to protecting mining buildings at high elevation where devastating avalanches were a common occurrence.

32. **Statement of historic integrity related to significance**: The site has excellent integrity of location and setting, as it is an unmovable mine, and the area has seen virtually no change since mining ceased in the late 1940s. The design of the mine has fairly good integrity because the adit is still evident, though collapsed, and the waste rock that came from below ground is still present. The former mine buildings are not readily evident with remnants of retaining walls, two machinery mounts, and a remnant of a board floor being the only remaining evidence of improvements. The boarding house/office has been completely obliterated. The stone avalanche deflectors on the southwestern edge of the site and on the slope above to the northwest have excellent integrity. They are rare feature types, and their design is readily evident. The avalanche deflectors retain excellent integrity of materials and workmanship, though the remainder of the site lacks such integrity. The site retains its integrity of feeling, as it is readily identifiable as a mine, mostly because of the large, flt-topped waste rock pile. Integrity of association is very good because no other activities have taken place at the site except for mining.

33. **National Register Eligibility Field Assessment**: ☒ Eligible ☐ Not eligible ☐ Need data
Linear Segment Evaluation (if applicable): ☐ Supporting ☐ Non Supporting
34. **Status in an Existing National Register District**: ☐ Contributing ☐ Non-contributing
35. **State Register Eligibility Field Assessment**: ☒ Eligible ☐ Not eligible ☐ Need data
36. **Status in an Existing State Register District**: ☐ Contributing ☐Non-contributing

37. **National/State Register District Potential**: ☒ Yes ☐ No Describe: Red Mountain Mining District

38. **Cultural Landscape Potential**: ☒ Yes ☐ No Describe: The wast rock of the mine is highly visible from U.S. Highway 550 and is an improtant element of the area's mining landscape.

39. **If Yes to either 37 or 38, is this site**: ☒ Contributing ☐ Non-contributing Explain:

V. MANAGEMENT AND ADMINISTRATIVE DATA

40.**Threats to Resource**: ☐ Water erosion ☐ Wind erosion ☐ Grazing ☐ Neglect ☐ Vandalism
☒Recreation ☒ Construction ☐ Other (explain):

41. **Existing protection** ☐ None ☐ Marked ☐ Fenced ☐ Patrolled ☐ Access controlled
Other (specify):
Comments:

42. **Local landmark designation**: 43. **Easement**:

44. **Recorder's Management Recommendations**: Future activities at the Silver Crown Mine (5SA407) should endeavor to maintain the visual integrity of the waste rock pile as a part of the historic mining landscape of the area. The principal

view from U.S. Highway 550 is most important. In addition, the rock avalanche deflector walls above and on the southwestern side of the site should be left intact. The former locations of the two buildings on the site–the tunnel house and the boarding house/office–have poor to no integrity and require no further consideration as cultural resource elements of the site. The collapsed adit also has poor integrity and requires no preservation consideration. In addition, although some artifacts are present from the 1906–1909 period in the former area of the boarding house/office, these have been thoroughly disturbed by construction of the road to and beyond the site, probably in the 1940s. Because the context of the artifacts has been destroyed, they do not provide an opportunity for the recovery of important information about occupation and use of the site. No protective or preservation measures are necessary where these artifacts are present.

VI. DOCUMENTATION

45. **Previous actions accomplished at the site**: ☐ Tested ☐ Partial excavation ☐ Complete excavation

Date(s):

a. Excavations:

b. Stabilization: Date(s):

c. HABS/HAER documentation [date(s) and numbers]:

d. Other:

46. **Known collections/reports/interviews and other references (list)**: Curtis 2003 (Red Mountain Mining District}

47. **Primary location of additional data**: San Juan County Courthouse, Silverton, Colorado

48. **State or Federal Permit number**: Colorado State Archaeological Permit No. 80929

49. **Collection**: Artifact collection authorized: ☐ Yes ☒ No Were artifacts collected: ☐ Yes ☒ No
Artifact repository:

Collection method: ☐ Diagnostics ☐ Grab Sample ☐ Random Sample

Other (specify):

50. **Photograph Numbers**: SC-JH-1 #1-31

Files or negatives stored at: Alpine Archaeological Consultants, Inc., Montrose, Colorado

51. **Report title**: Recordation and Evaluation of the Silver Crown Mine (5SA407), San Juan County, Colorado

52. **Recorder(s)**: Jon Horn and Heather Prosser Date: 6/20/2023

53. **Recorder affiliation**: Alpine Archaeological Consultants, Inc.

Phone number/Email: (970) 249-6761 sites@alpinearchaeology.com

NOTE: Please attach a site map, a photocopy of the USGS 1:24000 map indicating resource location, and photographs.

1. **Resource Number**: 5SA407 2. **Temporary Resource Number**:
3. **Site Name:** Silver Crown Mine
4. **Does this form pertain to the site in general?** ☒ Yes ☐ No

If no, please supply a feature/structure number or name:

5. **Site, Component or Feature Type**: Historic Mine

6. Narrative History (based on archival research, expand as necessary):

Initial Establishment of the Silver Crown Group of Mining Claims

Five mining claims – the Silver Crown, Mountain Chief, Giant King, Wonderful, and Pride lodes – were initially located by R. J. Penoyer, J. S. Tharp, J. D. Crain, F. G. Barnett, Ed Finch, and Adelbert Parsell on September 15, 1879. These became known as the Silver Crown Group of claims. The locators sold the group of claims to E. E., Norton of Pennsylvania for $100,000 in November 1879 (Condry 2000; Curtis 2003). Norton involved Luther H. Buell in establishing the Silver Crown Mining Company, which was incorporated in New York on March 3, 1880, with $5,000,000 capital in $50 shares (San Juan County Clerk's Office, Records of Incorporation, Book 1 Page 127). Company officers were Norton as president, Buell as vice president, Gilbert L Cornell as treasurer, and R. A. Olmstead as secretary. The company owned five mining claims: the Silver Crown, Giant King, Mountain Chief, Wonderful, and Pride. Work was initiated during the summer of 1880 by mine superintendent E. T. Booth of New York to demonstrate the property's value prior to stock being offered for sale (*Lake City Mining Register*, July 2, 1880:2). In 1881, Buell became the president with Olmstead continuing as secretary. This appears to have been Buell's first investment in mining properties in the San Juan Mountains, and was probably the result of two of his brothers, Jonathan and Willard, being involved with mining in the area beginning in 1875 as principals in the Buffalo & San Juan Mining Company to operate mining properties in Poughkeepsie Gulch. That company was succeeded by the Colorado Mining & Land Company in 1877, which Jonathan Buell and others had also formed (Welles 1881:292-293; *Rocky Mountain News* [Denver], September 21, 1876:4; December 21, 1877:4; *Ouray Times,* December 29, 1877:1; *Silver World* [Lake City], October 15, 1881:3). The initial work on the claims of the Silver Crown Mining Company showed the vein on which the claims were situated to be quite valuable, so work continued over the winter under the direction of contractor Gus Crawford. Two development tunnels were dug: Development Tunnel 1 was on the western end of the Valley Lode, and Development Tunnel No. 2 was on the western end of the Mountain King Lode, which cut the Silver Crown vein on February 25, 1881 at a distance of 110 ft. from the tunnel mouth and 25 ft. below the surface. By October 1881, the two tunnels had a total length of 260 ft., but it was expected that an additional 200 ft. of tunnel would be necessary before the desired quantity and quality of ore would be reached (*Lake City Mining Register,* August 27, 1880:3; *Silver World* [Lake City], March 26, 1881:3; May 28, 1881:3; October 22, 1881:3).

By the end of 1882, the company felt certain enough of the value of their mining claims to have Mineral Survey plats prepared and to initiate the process of obtaining Mineral Entry Patents for their six claims. Luther Buell's nephew, Herbert L. Buell, the son of Willard, was the Deputy Mineral Surveyor that prepared the Mineral Survey plats for the claims in 1882 and 1883 (Table 1). Luther H. Buell was succeeded as president by G. L. Cromwell in 1882 and by James A. Bostwick in 1884. Olmstead continued as the secretary all of those years. In 1883, the *Colorado Mining Directory* noted that the property was developed by two tunnels. One was 115 ft. long that intersected the vein at a depth of 60 ft. and the other 180 ft. long that intersected the vein at a depth of 80 ft. In addition, the vein was exposed by five open cuts with 10-ft.-wide exposures. Ore was described as galena and arsenical copper in quartz that assayed at 45 percent lead and 40 oz. of silver per ton (Corregan and Lingane 1883:671). In the summer of 1884, it was reported that the main mine tunnel struck the vein at a distance of 200 ft. and had a 145-ft.-long drift along the vein (*Silver World* [Lake City], July 26, 1884:4).

Table 1. Mineral Surveys of Mining Claims of the Silver Crown Group.

MS No.*	Name	Survey Date	Patent Date	Patentee
558	Pride	11/28/1882	10/15/1884	Silver Crown Mining Co.
559	Wonderful	11/28/1882	10/15/1884	Silver Crown Mining Co.
560	Mountain Chief	11/28/1882	10/15/1884	Silver Crown Mining Co.
570	Valley	1/9/1883	10/15/1884	Silver Crown Mining Co.
1788	Silver Crown	10/3/1883	2/6/1889	Silver Crown Mining Co.
1789	Giant King	10/2/1883	2/6/1889	Silver Crown Mining Co.
18168	Shelbyville	11/10/1906	12/16/1907	Precious Metals Corp.

*Mineral Survey Number

Chattanooga

Each of the Silver Crown Group of mining claims had an associated mill site that were separate from the mining claims, being long Mill Creek and Mineral Creek north of the confluence of the two streams. Cabins were constructed on these mill site claims for accommodations for miners at the Silver Crown Group of claims and other mining claims in the area. Initially known as Silver Crown Camp, the growing community was also known as Sweetville, in 1882, named for promoter and Silverton assayer Edmund Sweet. With the growth of mining on upper Mineral Creek and over the divide toward Ouray, the Red Mountain Mining District was formed. The junction of Mineral and Mill creeks was aptly situated to act as a point of transfer of supplies and equipment from the end of the wagon road from Silverton onto pack animals that took them on their final leg to the more heavily developed part of the mining district on the Ouray side of the pass. Packer John C. Burnett established a livery and stables at Sweetville in 1882, and Sweet kept a saloon. Quickly, the settlement on the Silver Crown mill sites came to be more developed and the name of Chattanooga was attached to the post office when it was established there on April 4, 1883 (Nossaman 1998; Archimede 2004; Bauer 2007:9-10). Among those engaged in packing in the area was John "Jack" Dolan from Lawrence, Kansas. He and two companions were swept 50 ft. downhill with their pack animals by an avalanche at 3:30 in the afternoon on December 20, 1883, while packing supplies to the Silver Crown Mine. Dolan was killed. He was buried adjacent to Chattanooga, but his grave was unmarked until done so by the San Juan National Forest in 1994 (Peterson 1996:D-25; Find a Grave Memorial 6060697).

Chattanooga was platted with Main, First, and Second streets running east to west, and Water and Silver streets running north to south, Town lots sold for between $100 and $250 in 1883, and many mining supply and construction businesses, markets, dry goods stores, hotels, and saloons sprang up. The *Chattanooga Enterprise* newspaper printed a single issue in June 1883. By the end of 1883, a concentration mill was constructed by the Red Mountain Sampling and Concentrating Company at the junction of Mill Creek with Mineral Creek. The company was incorporated on May 7, 1883 by J. E. Downy, George W. Brown, M. J. McCloskey, and Henry B. Adsit with $50,000 in capital stock (*Rocky Mountain News* [Denver], May 8, 1883:3). Known as the Mineral Creek Concentrator or the Chattanooga Concentrator, it was a custom 30-ton-per-day mill operated by superintendent Richard A. Parker, formerly of Georgetown. The concentrator turned Chattanooga into a regional industrial destination for mixed and low-grade ores. It handled ore from nearby mines, but was a first destination for ore packed down from the Ouray side of the Red Mountain Mining District. Initially, the concentrator ran only on water power, but had a steam engine installed in summer 1884 so that it could operate when Mineral Creek did not provide sufficient water power. The upper levels of the Silver Crown Mine were leased to the owners of the concentrator, who ran the ore through their mill. The growth of the Red Mountain Mining District led Otto Mears to extend his toll road from Silverton to Chattanooga over Red Mountain Pass to Ouray. It made wagon transportation possible through the precipitous upper Uncompahgre Canyon in 1884. The improved road ran north from Silverton, crossed a bridge westward over Mineral Creek onto Main Street in Chattanooga, and then turned north on what may have been Silver Street before making a large horseshoe curve in its initial ascent toward Red Mountain Pass. With completion of the toll road, miners could choose whether to freight to Ouray or Silverton, but Silverton still had the upper hand because of the completion of the Denver & Rio Grande Railroad there in 1882, whereas the nearest railroad connection to Ouray was Montrose, another 35 miles away (*Colorado Daily Chieftain* [Pueblo], December 9, 1883:6; *San Juan Herald* [Silverton], May 22, 1884:3; *Silver World* [Lake City], May 24, 1884:3; Archimede 2004).

Most of the Red Mountain Mining District produced an abundance of silver ore throughout the 1880s that led Otto Mears to construct the Silverton Railroad beginning in the summer of 1887. The first six miles of the line was completed to Burro Bridge by January 28, 1888. The line continued through Chattanooga and over Red Mountain Pass to Ironton with its terminus reached at Albany at the head of the Uncompahgre Canyon on September 20, 1889. With completion of the railroad, Chattanooga's main purpose as a transfer and supply point for the mines of the Red Mountain Mining District was greatly diminished. Avalanches in 1888 and a devastating fire in 1892 resulted in considerable loss to the town. The

Panic of 1893 and crash of the price of silver resulted in a near cessation of mining at the Red Mountain mines through the rest of the 1890s, near abandonment of Chattanooga, and closing of its post office in June 1894. Another avalanche in 1898 left little standing in the town (Nossaman 1974; Archimede 2004; Bauer 2007:9-10).

The town saw a brief resurgence beginning in the early 1900s, mostly with mining that resumed at the Silver Ledge and Silver Crown mines and construction of a new mill by the Ledge Mining and Milling Company in 1902. This was not enough to prevent the Silverton Railroad from failing on November 3, 1904 and being reorganized as the Silverton Railway. Otto Mears regained control of the railway in 1909, but, after World War I, mining never resumed in the Red Mountain Mining District to the point of making the railroad profitable. The Silver Ledge Mill was destroyed by fire in 1917 and was replaced by ore loading facility on the railroad. The railroad ceased operations in in 1921 and was abandoned on June 17, 1922 (Nossaman 1974; Archimede 2004).

Silver Crown Group 1887-1910

The Silver Crown Mining Company was bankrupt by late 1887, and the receiver, Charles B. Safford, sold the Silver Crown Group of lode and mill sites to James H. Everett of Kingston, New York, in May 1888 for $100 (San Juan County Courthouse, County Clerk's Office, Deed Book 79, Page 524). Despite Otto Mears constructing the Silverton Railroad through Chattanooga at the time, the Silver Crown Group did not benefit. Everett leased the claims to John Bergin and others for one year in 1891 on a $25,000 bond (San Juan County Courthouse, County Clerk's Office, Deed Book 84, Page 507). All of the mining claims of the Silver Crown Group failed to have their 1890 taxes paid for them in 1891, suggesting that mining on the properties was not very productive (*Silverton Standard*, November 14, 1891:14). High transportation costs and the economic Panic of 1893 with its precipitous decline in silver prices resulted in the Silver Crown Group of claims remaining idle until 1900 with taxes unpaid through at least 1898 (*Silverton Standard*, September 2, 1899:11). Despite having the taxes on the properties going unpaid, Everett retained ownership. He let a contract on 200 ft. of tunnel in May 1900 to the owners of the Silver Ledge Mining & Milling Company, with the actual mining done by Miles McCue. Work continued through the summer of 1901 with supplies delivered by John Glanville (*Silverton Standard*, May 26, 1900:1; *Silverite-Plaindealer* [Ouray], August 24, 1900:4; *Plaindealer* [Ouray], Augusts 2, 1901:1).

In May 1901, Everett sold portions of the Mountain Chief and Wonderful mill sites to the Ledge Mining and Milling Co. for $500 (San Juan County Courthouse, County Clerk's Office, Book 85, Page 481) of which R. D. Thompson and T. E. Schwarz were principals. The reason for the sale was to provide sufficient space for a new Silver Ledge Mill to be constructed in May 1902, the earlier mill having been destroyed by fire (*Durango Semi-Weekly Herald,* January 6, 1902:1; *Silverton Standard*, March 22, 1902:1; May 7, 1902:1). The completed mill and its associated buildings extended onto portions of the two claims from the north. The company then had a Mineral Survey Plat (MS 16099) prepared for the Columbine Mill Site (and associated Oriental Lode) on December 7, 1902 in preparation for obtaining a Mineral Entry Patent for the claims. The Silver Ledge Mill was mostly on the Columbine Mill Site, which fit like a puzzle piece along the northern sides of the Mountain Chief and Wonderful Mill sites; it was patented on June 30, 1904.

In February 1905, Thomas J. Hurley purchased the Silver Crown Group of lode claims and their associated mill sites from Everett, less the mill sites that Everett had already sold. He also purchased the John and Forest Mines near Animas Forks from Everett (*Silverton Standard*, February 25, 1905:1). Thomas Jefferson Hurley was born May 2, 1847, in Peterborough, Canada, and moved to Rochester, New York, as a child with his parents. He reportedly enlisted as a private in the 8th New York Cavalry in 1861 and served until 1864. From 1868-1875, he was the Color Sergeant of the New York National Guard. His wife, Sarah Jane Walker, was born in New York in about 1850; they were married about 1871. They had several children, and their son, Thomas Jay Hurley, was born in Rochester in 1878. Sara reportedly died in 1885, and Hurley married widow Ann March Field on June 13, 1894; she was from Newton, Massachusetts. Hurley worked in wholesale clothing and dry goods businesses prior to 1880 when he became a stock broker and insurance salesman. He made sufficient money to begin investing in mining properties in the late 1890s. This enabled his son, Thomas Jay Hurley, the opportunity to work as a mine manager and superintendent at the mining properties he invested in (*Silverton Standard*, December 28, 1907:2).

Hurley's first mining experience in the San Juan Mountains was when he arranged with and English syndicate to invest in the Occidental Mine and its associated concentration mill near Gladstone as the Exploration Syndicate in 1898, of which he was the president. The company also had holdings in Mexico. By 1900, he was also the president of the Natalie Mining and Milling Company, which operated the Natalie Mine adjoining the Occidental; that company was incorporated in January 1901. The Hurley Tunnel on the Natalie Mine was named for him (*Silverton Standard*, May 28, 1898:1; July 30, 1898:1; October 27, 1900:2; January 19, 1901:6; *Silverton Weekly Miner & San Juan Democrat*, September 21, 1900:1). Later in 1901, the Ruby Basin Mining and Tunnel Company was formed with $1,000,000 capital to acquire the Ruby Group of claims on Lookout Mountain up Mineral Creek and the associated Ruby Basin Mill.

Incorporators included George W. Bausman, Joseph Bordeleau, and Frank B. Brown, and Thomas J. Hurley's son, T. Jay Hurley, was secretary (*Silverton Standard*, October 12, 1901:1; September 13, 1902:10; May 2, 1903:1, May 27, 1905:1; *Silverton Weekly Miner & San Juan Democrat*, October 23, 1903:1). The Hurleys began considering purchasing the Ruby Basin Group of claims as early as 1902 (*Silverton Standard*, May 7, 1904:1). In order to do so, Thomas J. Hurley formed the Mines Securities Corporation in New York in 1905. T. Jay Hurley was made manager of the mine and mill (*Silverton Standard*, May 7, 1904:1; *Rocky Mountain News* [Denver], November 18, 1905:12).

In order to operate the Silver Crown Group, Hurley formed the Precious Metals Corporation with Silverton attorney William A. Way and San Juan County Treasurer Thomas Annear with $3,000,000 in capital stock in November 1905. Way invested in other mining properties in the Silverton area and was later made a trustee of the Colorado School of Mines. Annear was a local businessman in Silverton who was elected to the Colorado State legislature as the representative from San Juan County from 1899-1902 and ran unsuccessfully for Lieutenant Governor in 1902. He moved to Denver in 1906 where he was the state Treasurer in the 1930s The three subsequently formed the Fifty Associates Mines Corporation in September 1906 to lease the Ruby Group and the Ruby Mill (*Rocky Mountain News* [Denver], November 18, 1905:12; September 22, 1906:10; *Steamboat Pilot* [Steamboat Springs], July 17, 1941:4). Both of these companies seem to have been operating prior to their incorporations. Hurley's son, T. Jay Hurley, was made the superintendent of both of the mining operations, and was largely responsible for managing his father's mining investments, particularly as Thomas J. Hurley spent much of 1905–1907 on trips to Europe, Egypt, and Britain. Initially, he was in charge of the Ruby Basin properties for the Mines Securities Corporation and continued in that position in 1904 when they were leased to the Fifty Associates Mines Corporation. With the formation of the Precious Metals Corporation, T. Jay Hurley split his time between the Ruby Group and the Silver Crown Group. By June 1906, the corporation had purchased all of the holdings of the Mine Securities Corporation and took over management of the Ruby Basin Mines (*Silverton Standard*, May 7, 1904:1; January 14, 1905:1; *Silverton Weekly Miner & San Juan Democrat*, June 1, 1906:1). The Ruby Group was a fully functioning mining property, but the Silver Crown Group was to be tackled entirely afresh. Though earlier mining had shown a large vein of valuable ore, it was considered to have been little developed, and the older workings had seen little work since initial mining in the early 1880s.

To help T. Jay Hurley at both of the mining properties, Robert McCart, Jr., a graduate of the Colorado School of Mines, was hired to be the engineer and metallurgist at both of the mines. McCart was later the mine superintendent at the Silver Lake Mine in 1907 and 1908 (*Silverton Standard*, June 3, 1905:2; May 11, 1907:1; January 7, 1908:3). Hurley had four mining engineers examine the 8–20-ft.-wide that ran for 9,000 ft. parallel to the gulch along Mill Creek on the Silver Crown Group of claims. According to assays done by Ricketts & Banks of New York, the ore contained 53.33% lead, 6.75% zinc, 1.07% copper, 0.05 oz. of gold per ton, and 12 oz. of silver per ton. Another assay on the mineral values was reported to show 15 per cent lead, 6 oz. of silver per ton, 0.25 oz. of gold per ton, and slight values of copper (*Silverton Standard*, August 25, 1906:1; *Silverton Weekly Miner & San Juan Democrat*, September 27, 1907:37). Once analysis of the ore was complete, Hurley began preparations for mining. Rather than use the earlier tunnels to access the vein, an entirely new tunnel was planned just north of the junction of the Mountain Chief and Valley lodes that became known as the Silver Crown Mine. It was expected to reach the vein at a substantial depth to facilitate mining as the tunnel proceeded westward. The tunnel was in the eastern portion of the linear arrangement of claims and provided close access to a spur that was being run from the Silverton Railroad up Mill Creek to within 1,000 ft. of the operation. Jessie Kramer, formerly the superintendent of the Silver Ledge Mine, was hired as the superintendent. Lumber and other materials were ordered and construction of the mine buildings started in June 1906 (*Silverton Standard*, May 19, 1906:1; *Durango Democrat*, June 10, 1906:1; *Silverton Weekly Miner & San Juan Democrat*, June 22, 1906:1). By August, the new office, compressor house, shops, and boarding house were ready for occupancy (Figure 1). "These buildings are all situated in a pleasant little nook in the mountain side a short distance from the track of the Silverton railroad, and absolutely safe from danger of snow slides, the careful manager taking special precaution as to their locations and construction for protection and comfort of his employes [sic]" (*Silverton Standard*, August 25, 1906:1). One of the safety precautions that Hurley took in siting the mine buildings was the construction of rock and board berms on the slope above the mine to deflect avalanches.

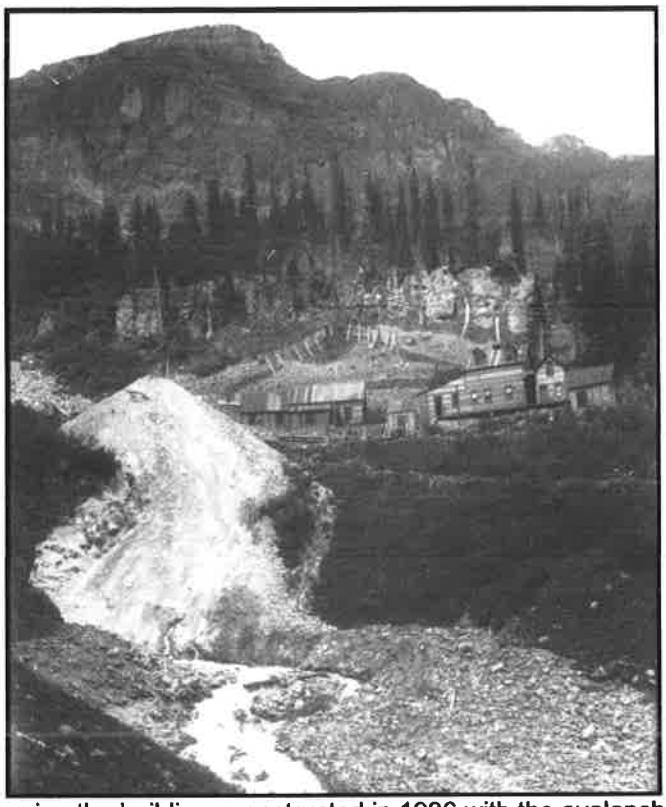


Figure 1. Silver Crown Mine showing the buildings constructed in 1906 with the avalanche splitting berms on the slope above.

Considering the ore values of the vein, Hurley planned to concentrate the ore coming from the mine. He negotiated unsuccessfully for the purchase of the Silver Ledge Mill in 1906 and 1907. His backup plan was to construct a mill of his own along the railroad spur that could be served by an aerial tramway from the mine. This failed to materialize, too. Neither of these plans mattered until mining was underway. The company installed electric motors to furnish power for the mine from the recently completed Tacoma Power Plant of the Animas Power and Water Company in the Animas River Canyon. The most important piece of equipment was a Rand air compressor with capacity to run 10 drills. The compressor arrived at the railroad station in Silverton in August 1906 and was waiting completion of the spur to the mine for delivery to the mine where the new compressor house awaited its arrival. With the arrival of the compressor and drills, it was expected that the number of men at work at the mine would increase and that about 300 ft. of tunnel could be dug per month. Once the vein was cut, every 1,000 ft. of tunnel was expected to expose 400,000 tons of ore for stoping (*Silverton Standard*, August 25, 1906:1; *Silverton Weekly Miner & San Juan Democrat*, September 27, 1907:37).

John Kramer was hired as the mine superintendent. He supervised the digging of a 500-ft.-long crosscut tunnel with a double ore-car track. Once the vein was struck, the course of the tunnel was planned to turn to follow the vein. The vein was struck in February 1907. Because the tunnel portal and the new mine buildings were not on the company mining claims, the Shelbyville Lode was located adjacent to the north of the Valley and Mountain Chief Lodes to encompass the improvements (Figure 2 and Figure 3). A Mineral Survey Plat was prepared on November 10, 1906 and the Mineral Entry Patent was granted on December 16, 1907 (Table 1). The name was taken from Shelbyville, Indiana, which was the home town of T. Jay Hurley's wife, Julia. They had married there on May 14, 1902 and came to Silverton to live while he oversaw his father's mining properties (*Silverton Standard*, December 29, 1906:1; February 16, 1907:1; *Silverton Weekly Miner & San Juan Democrat*, February 8, 1907:1; May 17, 1907:4). After the vein was reached by tunnel, two additional 500-ft.-long sections of tunnel were awarded to Jesse H. Kramer: the first in late April 1907 and the other in late May (*Silverton Standard*, April 27, 1907:1; June 1, 1907:1).

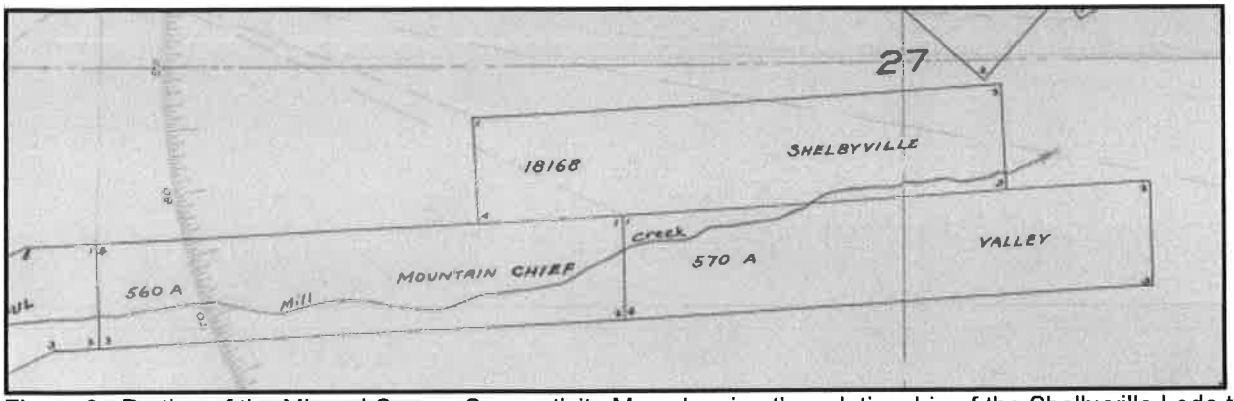


Figure 2. Portion of the Mineral Survey Connectivity Map showing the relationship of the Shelbyville Lode to the Mountain Chief and Valley lodes.

Everyone expected the Silver Crown Group to be highly productive in 1908. Unfortunately, Thomas J. Hurley died at his home in Brooklyn, New York, on December 15, 1907. His cause of death was reported to have been the result of an illness caused by exposure to a fire at the Long Beach Hotel, a resort hotel on the Atlantic shore of New York, on July 28, 1907 (*Silverton Standard*, December 28, 1907:2; January 18, 1908:1). T. Jay Hurley and his wife departed Silverton for New York in mid-January 1908 to settle his father's estate. They returned to Silverton for a month in March, at which time Hurley reportedly sold the holdings of the Precious Metals Corporation to John R. Allen of Brooklyn, New York. W. G. Clark was made the new mine superintendent. It is likely that the sale was only of Thomas J. Hurley's interest in the corporation, as the Precious Metals Corporation continued as the owner of the property. With completion of the sale, Hurley and his wife went to New Mexico to work on the Tri-Bullion Mine. By 1909, they were living in Albemarle, North Carolina, where he died on June 24, 1910 (*Silverton Weekly Miner & San Juan Democrat*, January 17, 1908:3; March 20, 1908:3; July 30, 1909:3; *Silverton Standard*, March 14, 1908:3; March 21, 1908:1; July 9, 1910:2).

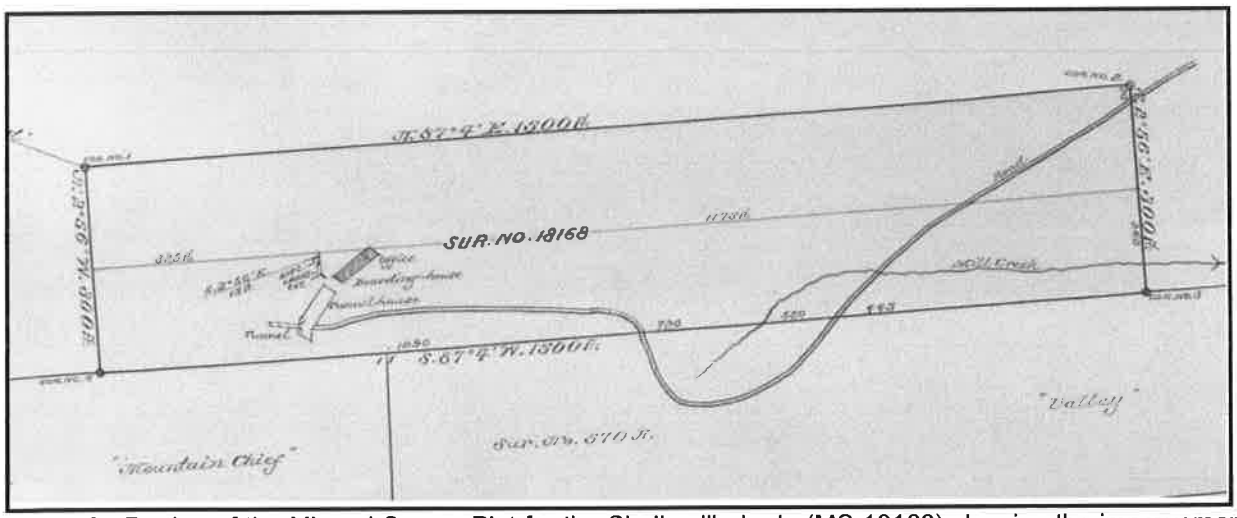


Figure 3. Portion of the Mineral Survey Plat for the Shelbyville Lode (MS 18168) showing the improvements made at the Silver Crown Lode as of November 1906.

With the departure of Hurley, Ralph L. Clark was made the manager and George C. Hill took over as superintendent of the mine. He had previously been the superintendent of the Shenandoah-Dives Mine in Cunningham Gulch. Hill put 15 men to work getting the mine ready for development work. By late April, it was reported that the tunnel on the property had reached the first ore of importance, and, by early June, work was being done around the clock by three shifts of miners (*Silverton Standard*, September 27, 1907:1; March 28, 1908:1; April 25, 1908:1; June 6, 1908:1; *Silverton Weekly Miner & San Juan Democrat*, February 19, 1909:1).

Fred Kuntz and Bob Reed were given a contract to dig 500 ft. of tunnel in late December 1908 and took out a second contract for the same amount of tunnel that they completed in July 1909. They spent 85 days working two shifts with power drills making 6 ft. per day on the second contract. By April 1909, the tunnel was reported to have been 3,000 ft. long (*Silverton Standard*, March 20, 1909:3; April 10, 1909:3; July 24, 1909:1; *Silverton Weekly Miner & San Juan*

Democrat, April 9. 1909:1). During this time, Hill resigned as superintendent in April 1909 and was replaced by Ellery W. Hunt. Hunt was a mining and civil engineer who had moved to Silverton from Rico early 1901 and was involved with several mining properties in the Silverton area. He had been hired as the consulting engineer for the Silver Crown property just before his appointment as superintendent, but does not seem to have served in that position for long (*Silverton Standard*, January 5, 1901:6; April 24, 1909:3). In July 1909, the company advertised for bids for a contract to dig 2,000 ft. of tunnel and for drifting from the tunnel. At that time, the tunnel was specified to be 6 ft. wide and 7 ft. tall. Specifications for the project were available at the law office of William N. Searcy and William A. Way and bids were to be delivered to George E. Purdy, the bookkeeper and assistant manager of the company (*Silverton Standard*, July 24, 1909:1). It does not appear that a contract was awarded, and the property went onto the delinquent tax rolls when the taxes for 1909 went unpaid (*Silverton Standard*, October 1, 1910:3).

Silver Crown Mines & Ore Treatment Company

On December 5, 1921, taxes on all of the property of the Precious Metals Corporation in Mill Gulch and elsewhere were paid for by Dorothy J. Force. The deed was requested and was to be issued on June 29, 1925. Dorothy Force was the wife of Charles E. Force, who formed the Silver Crown Mines & Ore Treatment Company to own, operate, and treat ores of the Silver Crown group in Mill Gulch. A contract for 200 ft. of tunnel was let on the Silver Crown Group in May 1924 to cut the vein. With the vein exposed, J. S. Coupal, a mining engineer from Boston, did an extensive examination of the ore in June and July 1925 and oversaw the installation of a compressor in August so that mining could proceed. Force hoped to open stoping stations in the tunnel and deliver ore to a planned 100-ton concentration mill near the mine with a hydro-metallurgical leaching plant in connection. The leaching plant was to use the Lindley Universal Process developed by Mrs. M. B. Lindley, a well-known research chemist and metallurgist of New York City. The process was marketed by the Lindley Reduction Corporation of Keyport, New Jersey, incorporated in Delaware on April 22, 1926 with $2,000,000 in capital stock (*Silverton Standard*, May 24, 1924:4; March 14, 1925:2; June 6, 1925:1; June 27, 1925:3; July 11, 1925:1; August 1, 1925:1, 2; August 8, 1925:1; January 9, 1926:2; Poor's Publishing Company 1926:314). Except for the initial investigative work, the project failed to materialize, taxes due for 1925 went unpaid, and the Silver Crown Mines & Ore Treatment Corporation was dissolved with the forfeiture of their charter (*Silverton Standard and the Miner*, July 27, 1935:2).

Later Ownership and Mining

Charles W. Jordan was issued a Certificate of Purchase when he paid the 1925 taxes and a deed was to be issued to him on October 18, 1935 (*Silverton Standard and the Miner*, June 29, 1935:2). This evidently did not take place, and Charles C. Goulding stepped in and paid the 1925 taxes with a Treasurer's Deed to be issued to him on February 23, 1943 (*Silverton Standard and the Miner*, October 30, 1942:5). Goulding then cleaned up the property and planned to do an inspection of the ore bodies once he got air into the workings (*Silverton Standard and the Miner*, May 14, 1943:1). This transfer seems to have taken place and Goulding took steps to quiet the title to the claims in 1946 (*Silverton Standard and the Miner*, April 14, 1946:4). A 1946 Colorado Bureau of Mines report noted that Smith Crane had a lease on the property and that a compressor was operated by a gasoline engine within a one-story wooden building. Housing of employees and the mine office was in Chattanooga, suggesting that the original boarding house/office at the mine was no longer present. It is likely that the access to the mine was improved with the construction of the current road to and beyond the site and that the boarding house/office were demolished with the construction of the road. C. A. Baker was reported as the mine operator in 1948 and Frank Ashcroft and A. J. Bennet as Silver Crown Mines, Inc. in 1949 (Bureau of Mines 1946; 1949; King and Allsman 1950:47). James Moffit and Herb Culp worked at the mine during the summer of 1948, both of whom moved to Chattanooga with their families. Strangely, Culp's car was stolen and plunged 60 ft. off an embankment at the mine. It landed on its wheels and was driven away (*Silverton Standard and the Miner*, May 14, 1948:3; June 18, 1948:1). Taxes continued to go unpaid through the 1950s, and the county attempted to sell the property in 1958 with no success. Grant Gifford purchased the tax certificate for the 1958 taxes and assigned it to H. C. Sprinkle, who requested that a Treasurers Deed be issued, which was planned to take place on June 27, 1963. Sprinkle evidently paid taxes on the property until 1968, when the property again was placed on the delinquent tax rolls (*Silverton Standard and the Miner*, July 20, 1951:3; February 21, 1958:2; August 1, 1958:2; December 11, 1959:3; March 8, 1963:3). Bonanza Boy, LLC obtained the Silver Crown Group of claims in 2020.

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7. **Is this site located in a NRHP historic landscape?** ☐ **Yes** ☒ **No; If yes, please describe**:

8. **Component or Feature Description (expand as necessary)**: The Silver Crown Mine (5SA407) is a small mining complex on private land at an elevation of 10,800 ft. The site includes a moderate-sized waste rock pile, a collapsed adit, stone retaining walls on the upslope side of a leveled area that at one time contained a large wooden tunnel house at the adit opening wherein an electric motor and compressor was situated, a heavily disturbed area that contains artifacts from an adjacent boarding house and office building that appears to have been demolished and displaced by later road building, and stone wall avalanche deflectors consisting of a single large wall on the southwestern end of the site and a large, complex, A-shaped configuration of stone walls on the steep slope in the western portion of the site. The site is on a steep, rocky, southeast-facing slope above Mill Creek. Its most prominent element is an irregularly shaped, flat-topped, yellowish waste rock pile that measures 14 x 155 ft., oriented north to south. A northeast-facing cleft in the waste rock between lobes of waste rock may have provided access onto the top of the waste rock from below, the base of which appears to correlate with a road shown on the 1906 Mineral Survey Plat for the Shelbyville Lode. The current access to the site is by way of a 10–12-ft.-wide winding dirt road that climbs westward along a steep, south-facing slope from the apex of a major curve on U.S. Highway 550 0.55 miles away. This road was evidently constructed using heavy equipment in the 1940s and made the earlier access obsolete, resulting in the upper portion of it that aligned with the mine portal being covered by waste rock by later mining.

The adit appears as a collapsed trench about 6 ft. wide and 16 ft. long that enters the steep east-facing slope in a west-southwest direction (240 degrees). Large boulders and cobbles comprised the fill. Mixed in are 8-x-8-in. posts and 3-x-8-in. and 3-x-12-in. planks that were used to frame the adit opening. Lying near the southeastern end of the adit trench is an 8-x-8-ft. expanded-metal gate with a welded angle-iron frame. Photos from the 2000 recording show the gate to have been standing, but the collapse behind underway. Water emanates from the adit.

fter about 30 ft., it runs southward along the western edge of the waste rock pile to a pool that evidently drains into the waste rock.

Three sections of stone retaining walls stabilized the slope above the waste rock and provided a northwestern edge of a leveled area for the tunnel house depicted in the historic photo and on the Shelbyville Lode Mineral Survey Plat. Except for a small remnant of floor on the northeastern end of the area, no evidence of the structure has survived except for a somewhat level overgrown area about 16 ft. wide. The southwesternmost retaining wall is southwest of the adit; it is a 16-ft.-long and up to 4-ft.-tall uncoursed wall of uncoursed boulders and cobbles. Some waste rock has been deposited in small piles southeast of the wall and artifacts scattered in the area include some 2-x-12-in. board fragments, wooden plank remnants, 1½-in.-diameter iron pipe, 1½-in.-diameter reinforced rubber hose, a rubber V-belt, and corrugated sheet metal fragments. Another section of retaining wall is northeast of the adit and stands 4–4½ ft. tall. The final section of wall is at the far northeaster end of the area, is 2½–3 ft. tall, and ends at what was likely the northeastern corner of the leveled area. It terminates at a berm that does not quite form a right angle. In the northeastern end of the leveled area are two machinery mounts. The southwestern mount is an 8-x-8 ft., U-shaped compressor mount that has a 5-ft.-long, 26-in.-wide cement-lined opening on the northeast side. It has a base of native stone set in cement mortar on top of which seven courses of common brick were laid, standing 20 in. tall. Projecting through the top of the brick are eleven 1-in-diameter iron mounting bolts within 2-in.-diameter iron pipe sleeves that probably were set flush with the top of the brick. The brick has seen considerable deterioration leaving the pipe sleeves quite exposed. Seven ft. away and offset to the northwest is a second machinery mount that measures 6-x-7-ft., oriented northeast to southwest, probably for the 75-horsepower electric motor that was known to have powered the compressor. It was probably offset to enable it to turn the compressor with a belt on pulleys. The mount is divided lengthwise into two parts by a 42-in. gap through the center. The northwestern side has a native stone and cement base on top of which seven courses of brick were laid, giving it a total height of 42 in., though it is highly deteriorated. Two ¾-in.-diameter mounting bolts extend through its top. The southeastern side is a stone and cement base on top if which is a concrete cap. Two 1-in.-diameter mounting bolts have been cut off flush with the top of the cap. Immediately northeast of the second machinery mount is a remnant of building floor. This is diagonal 1-x-6-in. board subfloor over which 1-x-4-in. ngue-and-groove flooring has been laid, all resting on a 3-x-8-in. floor joist.

Adjacent and to the southwest of the machinery mounts are sections of ore car rail and 4-in.-diameter compressed air iron pipe. Sections of the pipe are connected with pipe couplers marked "4XXX/5TGR/VICT/AULIC." According to the U.S. Patent Office, the Victaulic trademark was first used in 1920 for pipes and pipe fittings. It is a live trademark last renewed in 2015 by the Victaulic Company of America, Easton, Pennsylvania. It is likely that the pipe and rail represents the last period of mining at the site in the late 1940s. Other artifacts found in the area include window glass fragments, wire nails, a cast-iron stove top marked "No. 30" with an oval stove pipe opening, rotary-opened sanitary food cans, galvanized sheet metal, rolled galvanized sheet metal that has been soldered to form a pipe or nozzle, 2-in.-diamter iron pipe, white porcelain insulator fragments, and a light green rectangular bottle fragment.

The Shelbyville Mineral Survey Plat from 1906 and historic photos show a combination boarding house and office building in line and northeast of the tunnel house. This building has been completely destroyed by the construction of the current road to the site that has an apex of a switchback curve on the northeastern edge of the waste rock pile and continues upslope. The building was situated at the upper portion of the switchback and remnants are evident only as structural debris and artifacts from its residents in the road cut bank. These include wire nails, lumber fragments including from 8-x-8-in posts, corrugated sheet metal, window glass fragments, coal cinders, stoneware sewer pipe, coal-burning stove parts, heavy-gauge sheet metal, corrugated sheet metal, common brick, galvanized 1-in.diameter threaded pipe, 3-in.-diameter threaded iron pipe with an elbow, plain white earthenware dishware, enamelware cooking vessel, and purple vessel glass fragments, including one round bottle base marked "S. B. M." The manufacturer of this bottle is unknown, but dates between about 1885 and 1920 based on the purple glass.

The most innovative elements of the site are native stone walls built to deflect avalanches with the intention of protecting the mining buildings. The simplest of these is on the southwestern end of the site. It is a 15-ft.-wide, 110-ft.-long wall, made of angular native cobbles that is generally 5–6 ft. tall and rounded on the top, but is up to 10 ft. tall in a dip of the topography. The wall is situated on a ridgeline so that an avalanche running northward down the steep slope on the southern side of Mill Creek, crossing the creek, and running up the opposite side would be deflected upward and loose its impetus before reaching the mine buildings. The other deflector is more complex. It is situated on the steep, rocky, southeast-facing slope above and northwest of the mine complex. It consists of

Historic Archaeology Component Form

Resource Number: 5SA407 **Temporary Resource Number:**

›bble walls in an A-shape configuration with its apex to the northwest and its 110-ft.-long legs spreading outward to the south and east and having a 170-ft.-long connecting wall low between the legs. The walls are generally rectangular in cross-section, flat on top, 4–14 ft. wide, and stand up to 5 ft. in height. The walls of the legs decrease in height on their upper ends. Where the two outer legs are at ground level near their tops, a historic photo shows that board walls were constructed that were braced from below to extend the walls 30–40 ft. to their apex. Remnants of that board construction is scattered on the slope.

9. **Historic Component Date(s)**: 1906-1949
Justification and Sources Consulted: See historical narrative

10. **Component Function(s)**:

Original Use: Mine
Present Use: None

11. **Ethnic affiliation of occupants**: EuroAmerican

Justification and Sources Consulted: See historical narrative

12. **Historic Boundary Description**:

Justification and Sources Consulted: Extent of observed features and artifacts

13. **NRHP Area of Significance**: Industry - Mining
Justification and Sources Consulted: See historical narrative

14. **NRHP Period of Significance**: 1906-1949
Justification and Sources Consulted: See historical narrative

5. **Site, Component, or Feature Theme (use the Historic Archaeology Lexicon)**:

16. **Does this component or feature support the NRHP eligibility of the entire resource?**
☐ Yes ☐ No ☐ Undetermined ☒ N/A

Justification:

17. **Recorder(s)**: Jon Horn and Heather Prosser 18. **Date**: 6/20/2023

19. **Presence and Quantity of Artifacts** (add types as necessary)

a. Vessel Glass	Quantity	e. Cans	Quantity
Amber (1860s-present)		Beverage: all aluminum (post-1970)	
Purple (1885-1920)	4	Beverage: aluminum ends (post-1953)	
Aqua (ca. 1870-1920s)		Beverage: cone-top (1935-1960)	
Cobalt		Beverage: flat top, all-steel (1935-1970s)	
Colorless (ca. 1920s-present)		Beverage: pull tab (1962-1983)	
Light green (1860s-present)	1	Beverage: UPC code (post-1980)	
Milk/White (1890s-present)		Hole-in-cap: double-locked side seam (1890-1915)	
Olive green (early 1860s)		Hole-in-cap: lapped side seam (ca. 1880s-1900)	
Yellowish (1918-1950s)		Round quart motor oil: all metal (1933-1970s)	
		Round quart motor oil: paper-sided (late 1940s-late 1980s)	
		Sanitary can (1904 +)	2
		Sanitary ends, lapped side seam (1904+; very rare)	
		Sardine tin: lapped and soldered (pre-1910)	
b. Ceramics	**Quantity**	Sardine tin: one piece bottom (early 1900s +)	
Earthenware	2	Tobacco tin: complex friction lid (post 1948)	
Porcelain		Tobacco tin: simple friction lid (1907-1948)	
Refined Earthenware		Tobacco tin: upright pocket (late 1890s-1988)	
'oneware		Tobacco tin: hinged lid (ca. 1910-present)	
		Vent hole (hole-in-top) (1900-1980s)	
		Vent hole with two solder dots (hole-in-top) (1890s-early 1900s)	

Historic Archaeology Component Form

Resource Number: 5SA407 **Temporary Resource Number:**

c. Nails	Quantity		
Hand-made cut (wrought)		f. Structural Artifacts	Quantity
Machine-made cut		Adobe	
Railroad Spike		Brick, common	100
Wire	20	Brick, fire	
		Concrete: natural lime (pre-1915)	
d. Industrial Artifacts	**Quantity**	Concrete: Portland (post-1910)	
55-gallon drum		Corrugated sheet iron (post-1890)	
Animal shoe		Dimensional lumber	20
Automobile/Truck Part		Fieldstone	
Bailing wire		Hinge	
Barbed wire		Log: hewn	
Barrel hoop		Log: peeled	
Bracket		Log: raw	
Bucket		Sheet iron	
Cable/Wire rope		Stovepipe	
Cartridge: centerfire		Tarpaper	
Cartridge: rimfire		Timber bolt	
Cartridge: pin fire		Timber spike	
Cartridge: shotgun shell		Window glass: aqua (pre-1920)	10
Clinker		Window glass: colorless	
Coal cinders	20	Window glass: yellowish tint (1918-1950s)	
Electric light fixture			
Electrical wire			
Forge-cut iron scrap			
Horse tack/harness			
Iron scrap: cut sheet metal		g. Domestic Artifacts	Quantity
Iron scrap: forge-cut		Beads	
Lag bolt		Bed frame/springs	
Machine bolt		Buttons	
Machine part		Clothing	
Mine rail		Cookware	1
Nut: hex		Doll head	
Nut: jamb		Stove/parts (cast iron/tin)	1
Pipe	14		
Wagon parts			
Washer			

20. **Total assemblage size**: Or estimate: ☐ 0-10 ☐ 11-100 ☒ 101-1000 ☐ 1001-10,000 ☐ >10,000

21. **Artifact density**: ☐ High ☐ Medium ☒ Low Describe: See attached Historic Artifact Tables.

22. **Unique Artifact Descriptions.** Particularly important attributes are listed following the artifact class and standardized terminology can be found in the Appendix to the instructions. Expand or contract tables as necessary. All of these items should be included in the counts of the Artifact table above.

a. Glass: type, function, color, bottle part, manufacturing method, vessel style/contents, embossing/marking, dimensions, worked or modified?
Purple round bottle base marked "S. B. M." manufacturer unknown
b. Ceramics: type, function, surface treatment/glaze, color, shape, trademarks, decorations, dimensions.
c. Nails: type, function, dimensions.
d. Industrial: type, function, manufacturing method, marking, dimensions.
4" dia. Compressed air pipe with Victaulic coupler marked "4XXX/5TGR/VICT/AULIC"
Ore car rail
White porcelain insulator fragments
e. Cans: material type, side-seam, opening, vessel style/contents, embossing/marking, dimensions.
f. Structural: type, function, manufacturing method, marking, dimensions.
Milled lumber 8x8", 3x6", 1x6", 1x4"
Corrugated sheet metal

g. Domestic: type, function, manufacturing method, marking, dimensions.
h. Other/miscellaneous: type, function, manufacturing method, marking, dimensions.

23. **Are standing structures present on the site?** Yes ☐ No ☐

If yes, please complete Architectural Inventory Form(s)(1403)

24. **Feature Descriptions** Include a site map, to scale, with each feature listed below depicted on it. Please use the Historic Archaeology Lexicon for feature types. Insert rows and feature types into table as necessary. If desired, sort table by feature number.

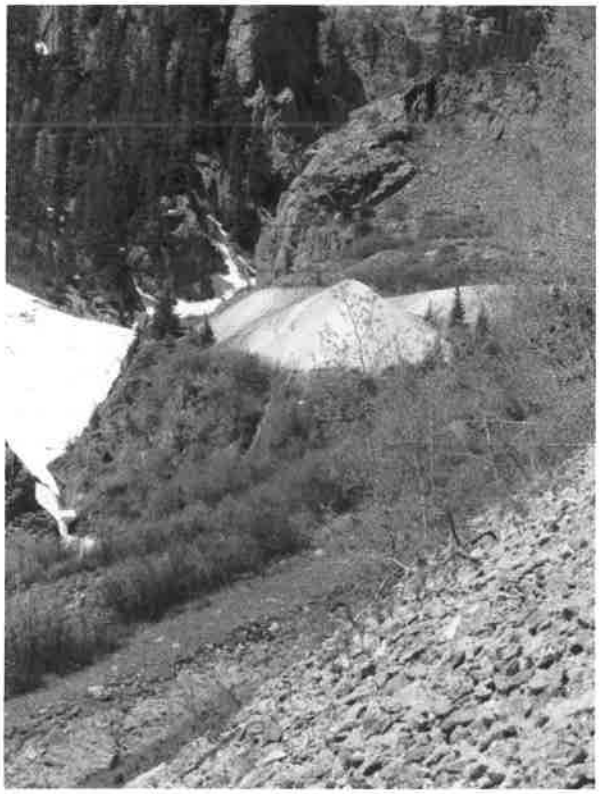
Feature Type (add others as necessary)	Feature Number/Name	Dimensions (feet / inches)	Description
Adit	Adit	6 x 16'	Collapsed with remnants of timbering
Trash scatter	Artifact Concentration	20' dia.	Disturbed artifact area
Waste rock pile	Waste Rock	145 x 200'	Waste rock pile
Machinery mount	Machinery Mount	8 x 8'	Stone, cement, brick compressor mount
Machinery mount	Machinery Mount	6 x 7'	Stone, cement, brick motor mount
Retaining walls	Retaining Wall	16', 25', and 35' long	Three remnants of retaining walls
Avalanche deflector	Avalanche Deflector	15 x 110'	Stone wall
Avalanche deflector	Avalanche Deflector	110', 110', and 170' long	Three stone walls in A-shaped configuration

25. **Potential for Additional Archaeological Information**

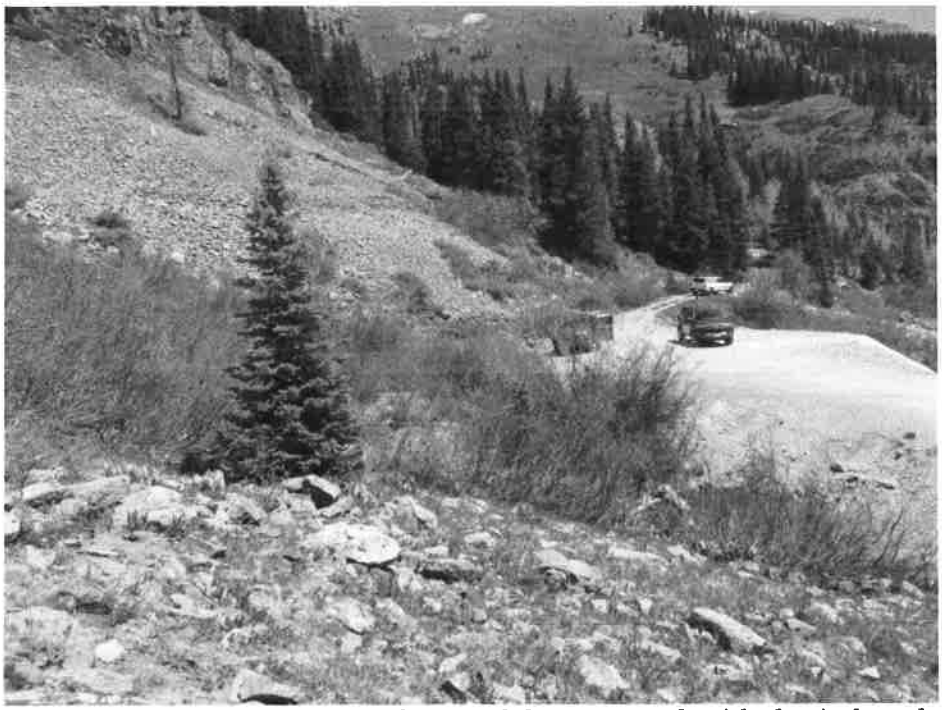
Is there potential for additional information? ☐ Yes ☒ No ☐ Unknown If yes or unknown describe below.

Potential Within:	Describe
a. Subsurface deposits within a structural feature	
b. Subsurface deposits outside a structural feature	
c. Trash area	
d. Privy pits	
e. Other	

5SA407. View of the site from the major bend on U.S. Highway 550 with Mill Creek to the right. View is to the west. Photo by Jon Horn, 6/20/2023.

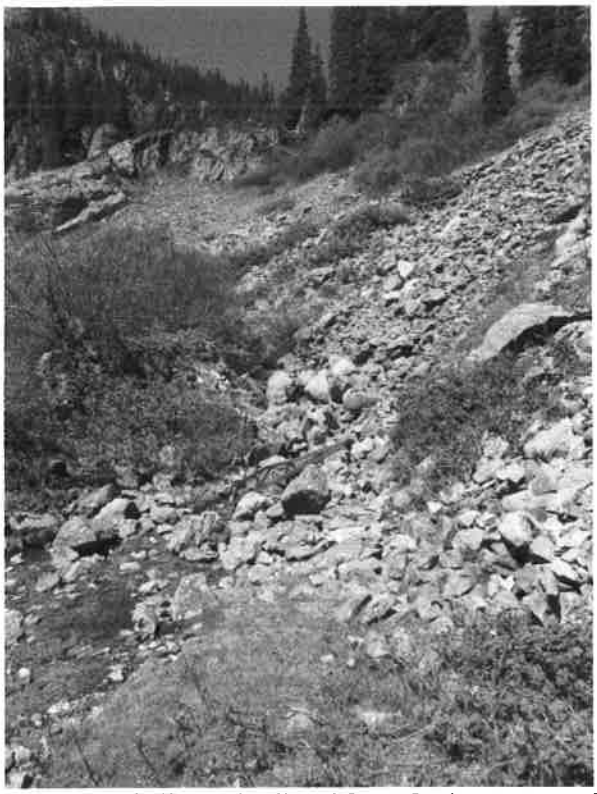


5SA407. Looking west-southwest at the site from the road leading to the site. Photo by Jon Horn, 6/20/2023.



5SA407. Looking north across the top of the waste rock with the A-shaped avalanche deflector on the slope to the left. The distant vehicle is on the upper portion of the road switchback. Photo by Jon Horn, 6/20/2023.

5SA407. Cleft through the waste rock at the top of the probable original route to the mine, looking southwest. Photo by Jon Horn, 6/20/2023.



5SA407. Collapsed adit with exclusion gate and post and plank framing debris, looking west. Photo by Jon Horn, 6/20/2023.

5SA407. Looking west at the collapsed adit with post and plank framing debris. Photo by Jon Horn, 6/20/2023.

5SA407. Exclusion gate disposed of below the adit. View is to the west. Photo by Jon Horn, 6/20/2023.

5SA407. Water from the adit ending in a small pond at the upper southwestern edge of the waste rock. View is to the west. Photo by Jon Horn, 6/20/2023.

5SA407. Looking west at the southernmost retaining wall. Photo by Jon Horn, 6/20/2023.

5SA407. Looking west at the central retaining wall remnant with ore car rail and compressed air pipe disposed on it. Photo by Jon Horn, 6/20/2023.

5SA407. Northernmost stone retaining wall remnant behind probable electric motor mount. View is to the north. Photo by Jon Horn, 6/20/2023.

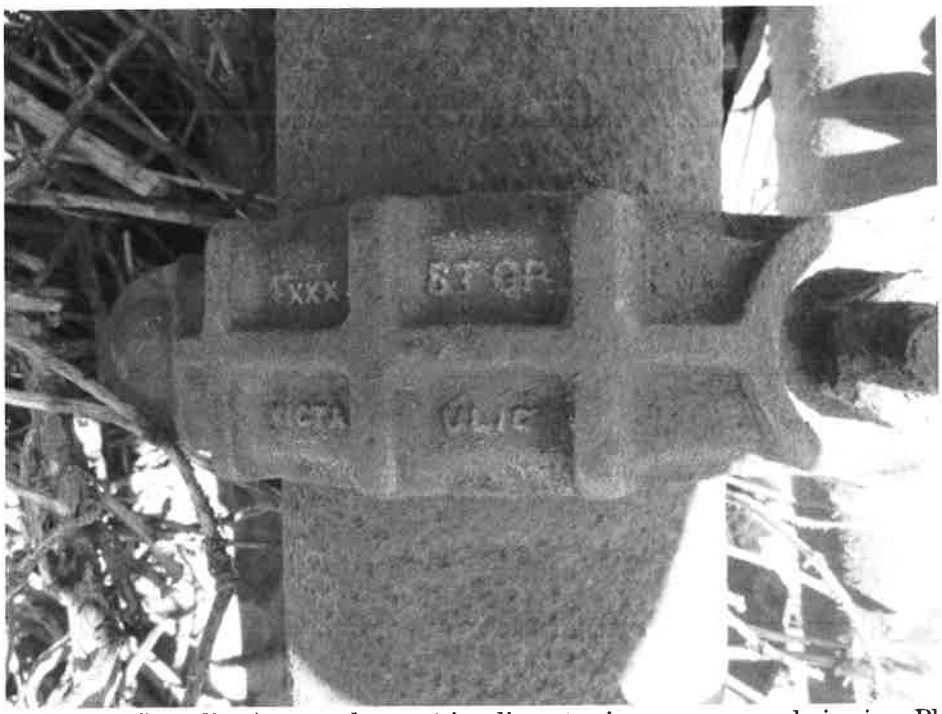
5SA407. Compressor mount to the left with the probable electric motor mount to the right, looking north-northwest. Photo by Jon Horn, 6/20/2023.

5SA407. Stone, cement, and brick compressor mount, looking south-southwest. Photo by Jon Horn, 6/20/2023.

5SA407. Looking north-northeast at the probable electric motor mount with the building floor remnant behind. Photo by Jon Horn, 6/20/2023.

5SA407. Building floor remnant showing diagonal 1-x-6-in. subfloor topped by 1-x 4-in. tongue and groove flooring set on 3 by 6-in. joist. View is to the north. Photo by Jon Horn, 6/20/2023.

5SA407. Looking northwest at 4-in.-diameter iron compressed air pipe and ore car rail adjacent to the compressor mount. Photo by Jon Horn, 6/20/2023.

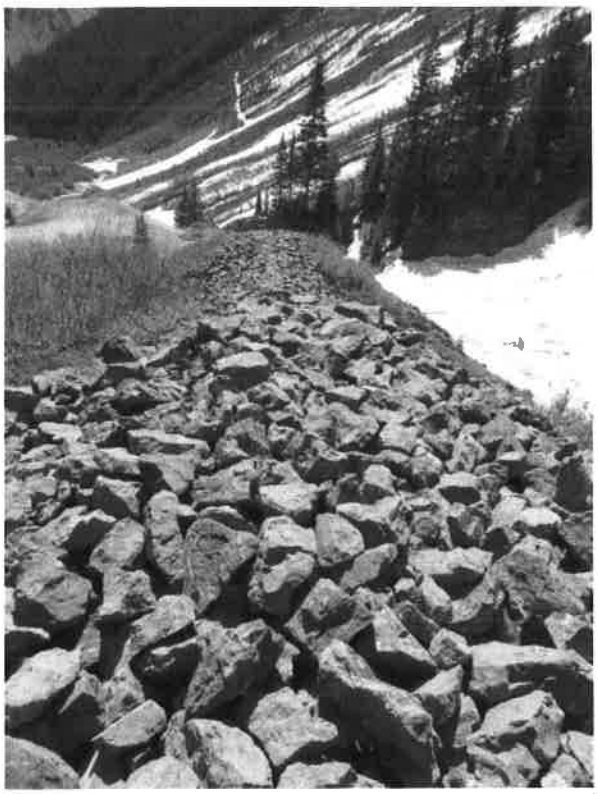


5SA407. Victaulic pipe coupler on 4-in.-diameter iron compressed air pipe. Photo by Jon Horn, 6/20/2023.

5SA407. Road switchback that has removed the boarding house/office and pushed it and artifacts downslope. View is to the north. Photo by Jon Horn, 6/20/2023.

5SA407. Looking southwest at the cut bank below the road switchback that contains heavily disturbed artifacts. Photo by Jon Horn, 6/20/2023.

5SA407. Looking west along the southern avalanche deflector wall. Photo by Jon Horn, 6/20/2023.

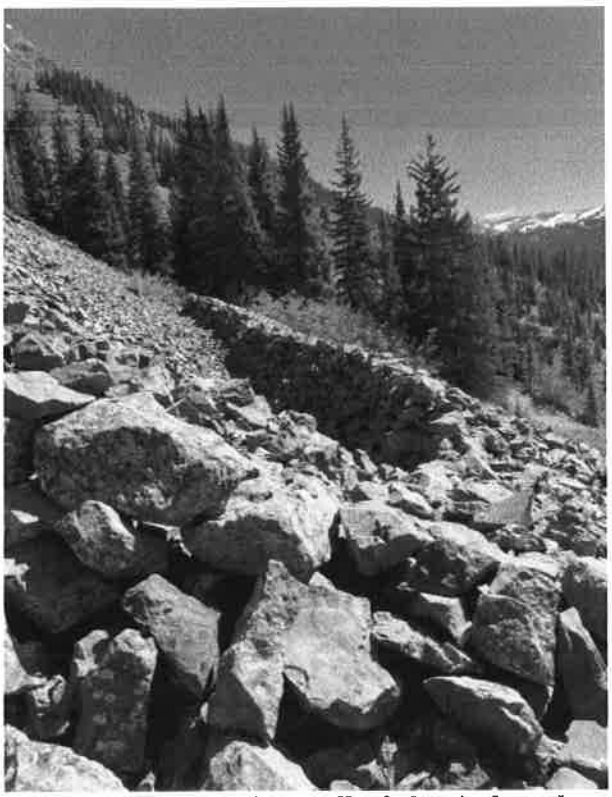


5SA407. Downslope view of the southern avalanche deflector wall, looking east-southeast. Photo by Jon Horn, 6/20/2023.

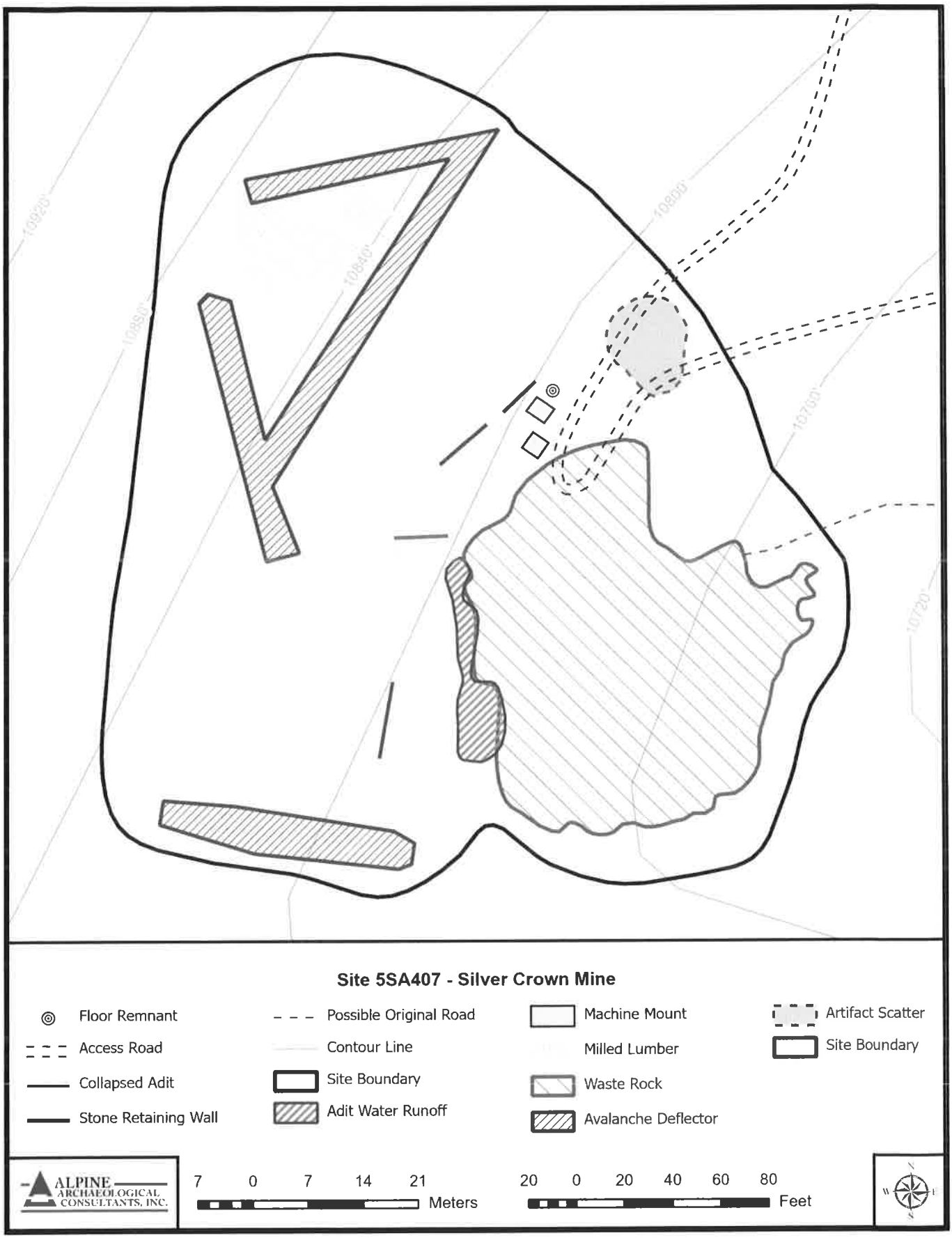
5SA407. View of the A-shaped avalanche deflector walls on the rocky slope west of the mine. View is to the west. Photo by Jon Horn, 6/20/2023.

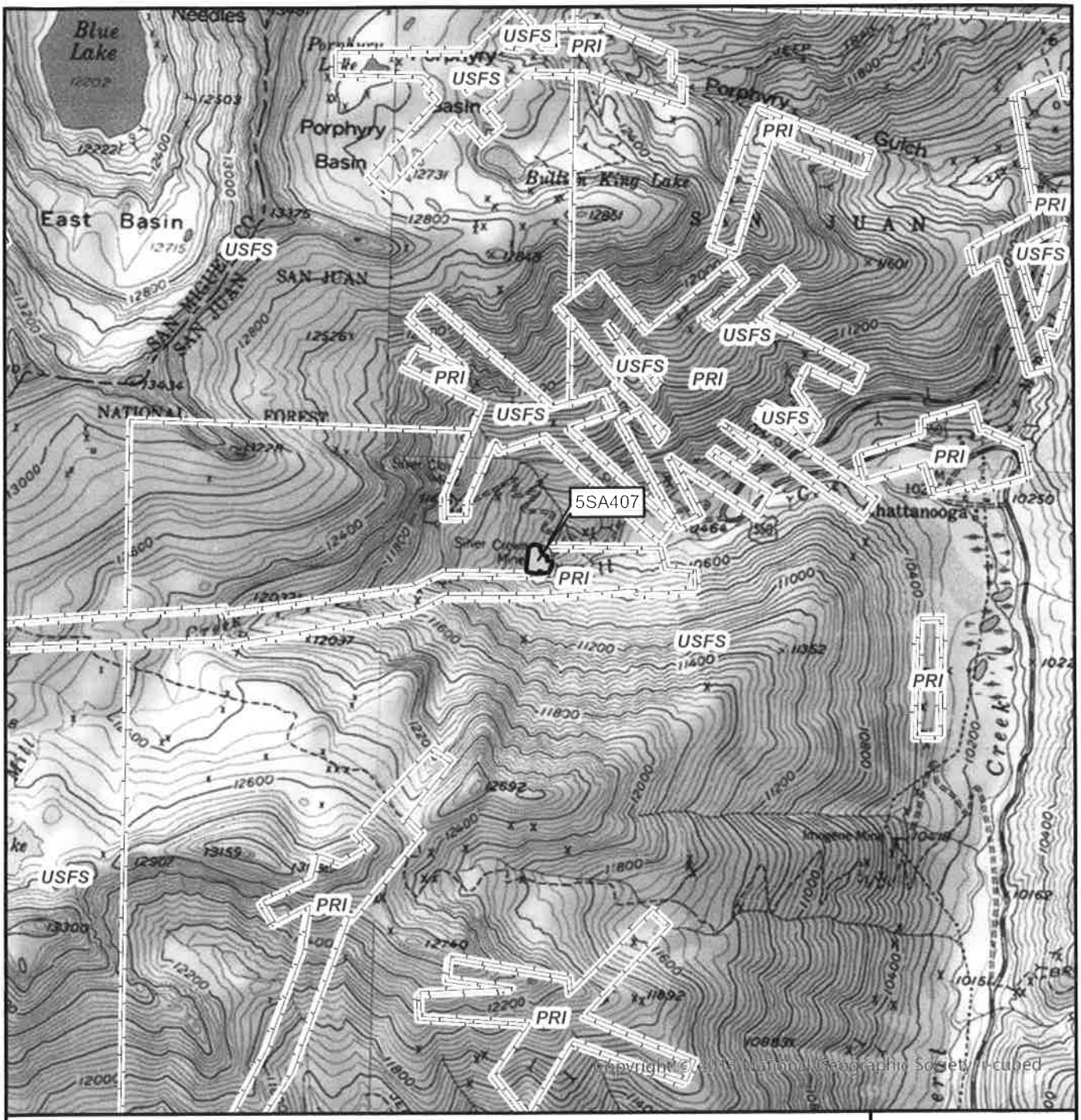
5SA407. A-shaped avalanche deflector walls looking north-northeast from the southern avalanche deflector wall. Photo by Jon Horn, 6/20/2023.

5SA407. Looking north-northwest along the western leg of the A-shaped avalanche deflector. Photo by Heather Prosser, 6/20/2023.



5SA407. The crossing wall of the A-shaped avalanche deflector, looking northeast. Photo by Heather Prosser, 6/20/2023.


Site 5SA407 - Silver Crown Mine
Floor Remnant
Access Road
Collapsed Adit
Stone Retaining Wall
Possible Original Road
Contour Line
Site Boundary
Adit Water Runoff
Machine Mount
Milled Lumber
Waste Rock
Avalanche Deflector
Artifact Scatter
Site Boundary
ALPINE ARCHAEOLOGICAL CONSULTANTS, INC.
7 0 7 14 21 Meters
20 0 20 40 60 80 Feet



Silver Crown Mine Project Results

Site Boundary

Project Area

Land Status

ALPINE ARCHAEOLOGICAL CONSULTANTS, INC.

0.25 0 0.25 0.5 Miles

0.5 0 0.5 Kilometers

1:24,000

USGS Topo Map: Silverton

N

CONTAINS PRIVILEGED INFORMATION – DO NOT DISTRIBUTE

RECORDATION AND EVALUATION OF THE SILVER CROWN MINE (5SA407), SAN JUAN COUNTY, COLORADO

by

Jonathon C. Horn
Principal Investigator

Alpine Archaeological Consultants, Inc.
P.O. Box 2075
Montrose, Colorado 81402-2075

Prepared for

Bonanza Boy, LLC
PO Box 3387
Telluride, Colorado 81435

Under the conditions of
Colorado State Archaeological Permit No. 80929
(expires February 29, 2024)

June 2023

LRE WATER
CONNECTING WATER TO LIFE

June 23, 2023

Scott Fetchenhier
District 2 County Commissioner
San Juan Board of County Commissioners
1557 Green St.
P.O. Box 466
Silverton, CO 81433

Subject: Bonanza Boy, Silver Cloud Lodge - Water Supply Plan

Dear Commissioner Fetchenhier,

Bonanza Boy LLC retained LRE Water to develop a water supply plan for Silver Cloud Lodge. This water supply plan describes a conceptual plan for how on-site water resources will be physically and legally developed to satisfy projected water demands for the Silver Cloud Lodge and corresponding site development and property improvements.

Property Description

The Silver Cloud Lodge will be located near Chattanooga in the upper Mill Creek Valley on approximately 254 acres of private land owned by Bonanza Boy. The Silver Cloud Lodge will be developed in Sections 22 and 27, Township 42 North, Range 8 West, of the New Mexico Principal Meridian (NMPM). Bonanza Boy's property is predominantly in the Mountain Zoning District with a portion of the property located in the Scenic Preservation Overlay District.

The vast majority of the proposed improvements will take place in two locations:

1. Near the Silver Crown Mine Portal on three contiguous claims (Shelbyville Lode USMS No. 18168, Valley Lode USMS No. 570, and the Mountain Chief Lode USMS 560); and
2. Down the valley near the Artist Cabin (Bonanza Boy Mill Site USMS No. 16677B), where Bonanza Boy owns surface and mineral rights.

Site Features

The proposed lodge structure will be a timber-frame building constructed on the footprint of the old Silver Crown mine historic buildings that once occupied the site. Although the project is intended as a quasi-commercial endeavor, the Silver Cloud Lodge will be designed to appear like a residential structure. The Silver Cloud Lodge is conceptually

envisioned to consist of an approximately 4,000 square-foot, two-story main structure; approximately 1,500 square-feet of attached/adjacent 1-story structures; and a small earth-sheltered solar greenhouse. It is being designed with the intention to recreate the historical buildings that existed on the site approximately 100 years ago. The adjacent Silver Crown Mine will be stabilized and developed for lodging use. For example, the old mine workings outside of the mineralized zone will be utilized to construct new tunnels, rooms, and portals. Between the Silver Crown Mine and the Silver Cloud Lodge, Bonanza Boy plans to build approximately ten guest rooms.

The proposed employee housing structure will be in the valley below, on property owned by Bonanza Boy near the existing Artist Cabin Red Mountain Pass (Artist Cabin) rental property (not owned by Bonanza Boy). The employee housing structure is conceptually envisioned to include a small parking area, a 1,000 square-foot garage, and a 1,000 square-foot employee housing unit above the garage. Bonanza Boy current anticipates that a limited number of employees will intermittently reside onsite.

After water is used for commercial and domestic purposes it will be piped into a septic treatment system. Returns from the septic treatment system, after treatment, will accrue to the Mill Creek watershed.

All future proposed buildings will be super-insulated, off-grid, and powered by a combination of solar, micro-hydro, and biomass energy, stored in both battery and hydrogen systems. Although a fossil fuel-based generator will be used at times during construction and as an emergency energy supply, the main power systems will be designed to be fully carbon-neutral.

In the future, additional features and property improvements may include stream restoration, constructed wetlands, reforestation efforts, trail improvement, dispersed tent campsites, climbing routes, and a possible via ferrata (fixed rope hiking trail) in the Mill Creek canyon. Plans to restore the Mill Creek stream ecosystem are being designed in coordination with the United States Forest Service, US Army Corps of Engineers, Colorado Department of Wildlife, Trout Unlimited, MSI HOA, and other local agencies with the aim of reintroducing native cutthroat trout into the area. These projects will provide much needed safe outdoor recreation opportunities and mining heritage tourism infrastructure to increase the tourism prospects between Silverton and Ouray and provide greater economic support to the area.

Water Resources at the Silver Cloud Lodge Site

Figure 1, attached, shows the location of the Silver Cloud Lodge and the water features. The Silver Cloud Lodge will be located near Mill Creek which is tributary to Mineral Creek; both creeks are tributaries to the Animas River in San Juan County. The site contains the historical Silver Crown Mine and Silver Crown Adit. The Silver Crown Mine produces water at an approximate rate of 30 gallons per minute (gpm). There also is an existing groundwater well on the site currently used by Artist Cabin, which is a rental property located on land adjacent to the Bonanza Boy property.

Bonanza Boy plans to appropriate water from Mill Creek and the Silver Crown Mine for the Silver Cloud Lodge and associated facilities. In the future, Bonanza Boy may develop springs and/or groundwater resources on the property. There is a sufficient quantity of water physically and legally available at the site for the planned beneficial uses.

Bonanza Boy's planned development at the site will be beneficial for the surrounding area. Bonanza Boy will complete a voluntary cleanup and redevelopment program (VCUP) to redirect the drainage from the Silver Crown Mine around into Mill Creek and cap and stabilize the waste rock pile on the site. As part of its site improvement plans, Bonanza Boy will create wetlands at the site populated by native riparian plants. Wetlands improve overall water quality, stabilize shorelines, and reduce erosion. Alongside the constructed wetlands, Bonanza Boy plans to make additional habitat improvements, including creating pools and deepening areas of Mill Creek, and introduce native trout species in partnership with Trout Unlimited.

Planned Appropriations

Bonanza Boy retained Brownstein Hyatt Farber Schreck, LLP (Brownstein) as water counsel to file a planned application in the Division 7 Water Court to appropriate conditional surface water rights for the Silver Crown Mine, conditional surface water direct flow rights on Mill Creek, conditional water storage rights, and a plan for augmentation. In the event that Bonanza Boy does not receive a final decree from the Water Court before it needs to begin using water at the site, Bonanza Boy will purchase and haul water to the site and/or apply for administrative approval of a Substitute Water Supply Plan (SWSP) to operate its claimed conditional water rights in the interim. Table 1 below summarizes the types of use associated with each diversion point or structure included on the Silver Cloud Lodge site. Further detail will be provided for each water right appropriation planned for the Silver Cloud Lodge.

Table 1. Silver Cloud Lodge Beneficial Uses

Structure/Water Body	Potential Beneficial Uses
Silver Crown Mine	Domestic, commercial, firefighting, power generation, recreation, piscatorial, wildlife, ice-making, storage, augmentation
Mill Creek Diversion	Power generation, recreation, piscatorial, wildlife
Constructed Wetland	Recreation, piscatorial, wildlife
Pond	Recreation, piscatorial, wildlife, augmentation

Conditional Surface Water Rights

Bonanza Boy intends to apply for conditional surface water rights for the Silver Crown Mine and the Mill Creek Diversion.

Structure: Silver Crown Mine
Appropriation Date: To be determined
Source: Water intercepted and collected by the mine tunnel, said water being tributary the Animas River in San Juan County
Rate: 30 gpm
Amount: ~3 - 5 acre-feet per year (AF/YR)
Uses: Domestic, commercial, firefighting, power generation, recreation, piscatorial, wildlife, ice-making, storage, and augmentation*

> * Domestic uses will include water used for the restrooms, showers, kitchen facilities, and drinking water at the Silver Cloud Lodge and employee housing/maintenance building, as well as potential dispersed campsites. Recreational uses currently refer to fishing and use in the proposed ice-climbing park; however, as discussed above, there are multiple additional projects that could be developed on the Silver Cloud Lodge's property that could potentially present additional recreational uses. Water used for storage will be diverted into a cistern for on-site regulation of flow or into a downstream pond which is yet to be developed.

Since the Silver Crown Mine is already owned by Bonanza Boy, no additional acquisition of the structure will be necessary independent of its inclusion in a water court application for conditional surface water rights.

Structure: Mill Creek Diversion
Appropriation Date: To be determined
Source: Mill Creek, tributary to the Animas River

Rate: To be determined
Amount: To be determined
Uses: Power generation, piscatorial, wildlife, and recreation*

*Small-scale hydropower will be generated on site using the water diverted from Mill Creek through the proposed structure. Bonanza Boy also anticipates using water from the Mill Creek diversion to generate hydrogen, which will be used for onsite energy needs. Recreational uses similarly refer to fishing and use in the proposed ice-climbing park, as well as other potential recreational development projects on the property.

Thus far in the administration of water rights in Division 7, a call has never been placed for Mill Creek, Mineral Creek, or the Animas River. As such, the water is legally available for appropriation with respect to the senior Mill Creek and Mineral Creek minimum instream flow rights. Any injury to these rights is intended to be mitigated as described throughout this letter. Bonanza Boy will be responsible for constructing a diversion structure in line with the State's measurement requirements.

Conditional Storage Rights

Additionally, Bonanza Boy will apply for conditional water storage rights for the volumes lost to evaporation from the constructed wetland reclamation area.

Structure: Constructed Wetlands
Appropriation Date: To be determined
Source: unnamed tributary to Mill Creek, tributary to Animas River
Amount: ~3.3 AF/YR*
Uses: Recreation, piscatorial, and wildlife

*This volume represents the amount of estimated evaporation associated with the wetlands given an approximate surface area of 1 acre.

Structure: Pond
Appropriation Date: To be determined
Source: unnamed tributary to Mill Creek, tributary to Animas River
Amount: ~3.3 AF/YR*
Uses: Recreation, piscatorial, wildlife, augmentation

*This volume represents the amount of estimated evaporation associated with the pond given an approximate surface area of 1 acre.

Augmentation Plan

Using Division of Water Resources records, LRE Water conducted a call analysis for Mill Creek, Mineral Creek, and the Animas River. No calls have been made to date. Bonanza Boy is aware of the senior instream flow rights on both Mill Creek and Mineral Creek. To ensure the Silver Cloud Lodge can replace depletions to the Animas River and its tributaries associated with any future out-of-priority diversions, Bonanza Boy will request an augmentation plan within its forthcoming Water Court application.

LRE Water and Brownstein have met virtually with the Southwestern Water Conservation District (SWCD) and representatives from La Plata County to discuss using the joint La Plata County and SWCD Animas Service Area Water Right (ASAWR) decreed in Case No. 06CW127 as a source of replacement water in the Silver Cloud Lodge's augmentation plan. Water decreed under the Case No. 06CW127 ASAWR can be used to cover depletions associated with surface diversions for domestic, wetland, pond evaporation, power, commercial, firefighting, recreational, ice-making, piscatorial, and augmentation uses, as well as any future non-exempt well pumping should Bonanza Boy apply for a non-exempt well permit. The ASAWR is approved for additional beneficial uses; however, only the relevant uses have been listed here.

To obtain title to a portion of the ASAWR, Bonanza Boy intends to file a Notice of Intent to Make Absolute application form with SWCD and apply the water to beneficial use. Once Bonanza Boy has applied the water to the beneficial uses, Bonanza Boy will file a new Division 7 Water Court application to make a portion of the Case No. 06CW127 ASAWR absolute. After a decree is issued, Bonanza Boy will send the decree to SWCD. SWCD will issue a quitclaim deed for the portion of the ASAWR made absolute by Bonanza Boy's beneficial uses.

Other replacement supplies may include melt of water used to produce ice for the future ice-climbing park and a small augmentation pond filled by water diverted when the Silver Crown Mine and/or Mill Creek direct flow rights are in-priority. If Bonanza Boy pursues these additional replacement supplies, it will appropriate the necessary associated rights in its forthcoming water court application.

Stakeholder Engagement

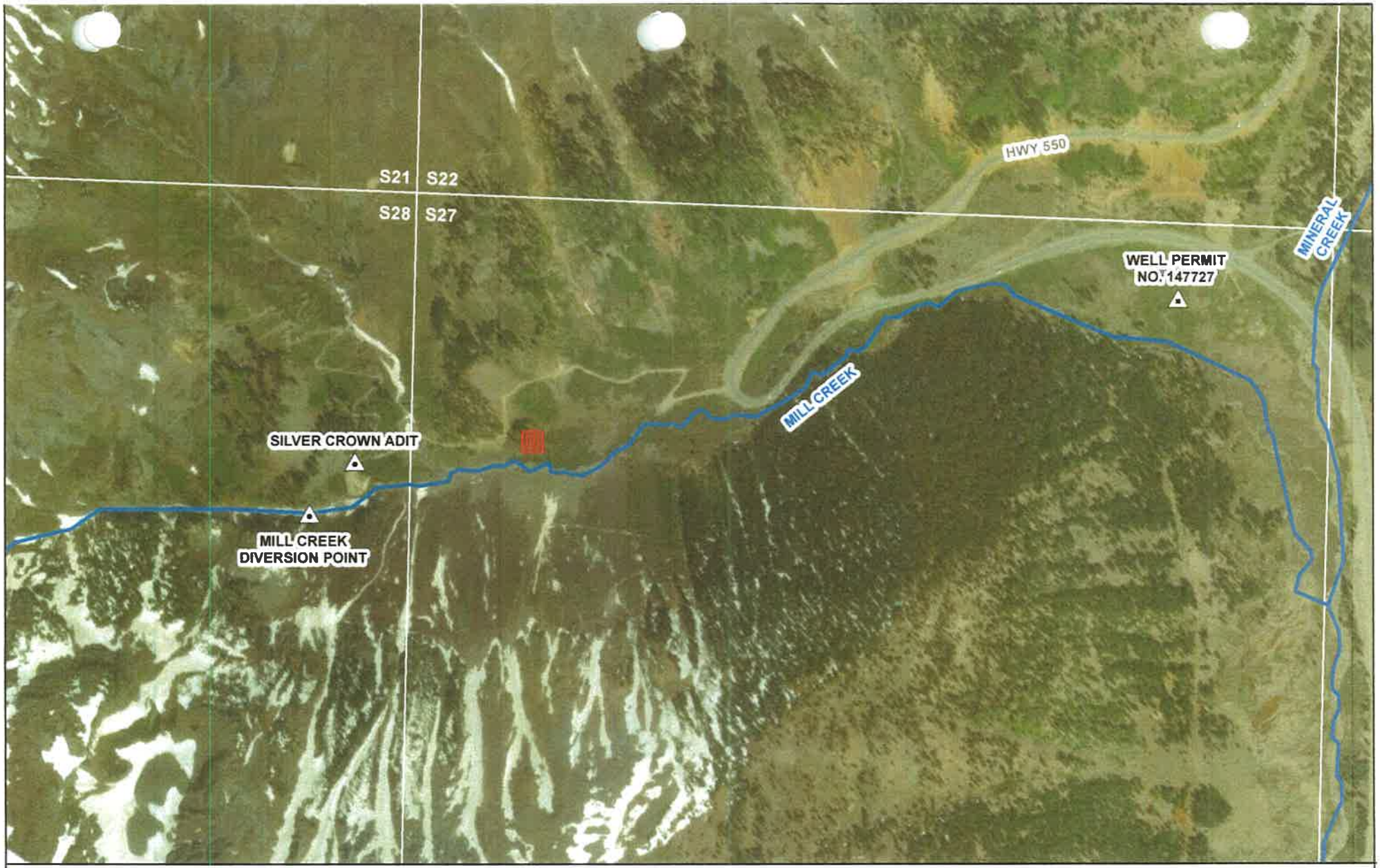
LRE Water and Brownstein have engaged with the SWCD and the Colorado Water Conservation Board (CWCB) regarding the Silver Cloud Lodge's water use plans to ensure there will not be any adverse impacts from the Silver Cloud Lodge's development. Bonanza Boy will continue to work collaboratively with both of these stakeholders and

engage with other interested parties in San Juan County as it refines the design of the Silver Cloud Lodge.

Please contact Mary Presecan at LRE Water with any questions or requests for further information.

Sincerely,

Mary Presecan, P.E., PMP
LRE Water



DIVERSION POINTS
(Locations of diversion points shown on Site Map are approximate.)

CONSTRUCTED WETLAND / POND
(Location is approximate.)

1673BZB | JUNE 2023

0 230 460 690 920 1,150 1,380 FT

SCALE 1:9,000 1 INCH = 750 FEET

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FIGURE 1
SILVER CLOUD LODGE
SITE MAP

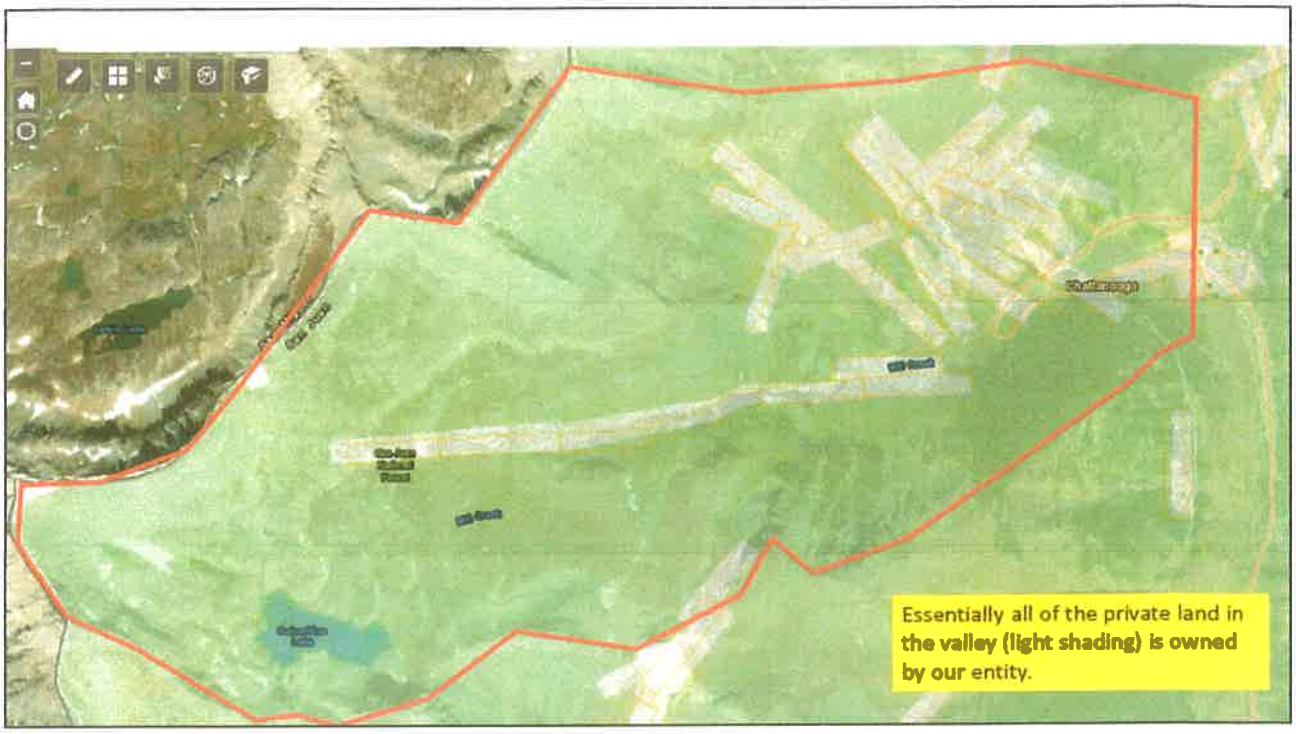
LRE WATER

Silver Cloud Lodge Water Impact Mitigation Plan

Chattanooga, CO

Location

Mill Creek Drainage/Silver Crown Valley Shown in Red. Situated between Telluride, Ouray, and Silverton.

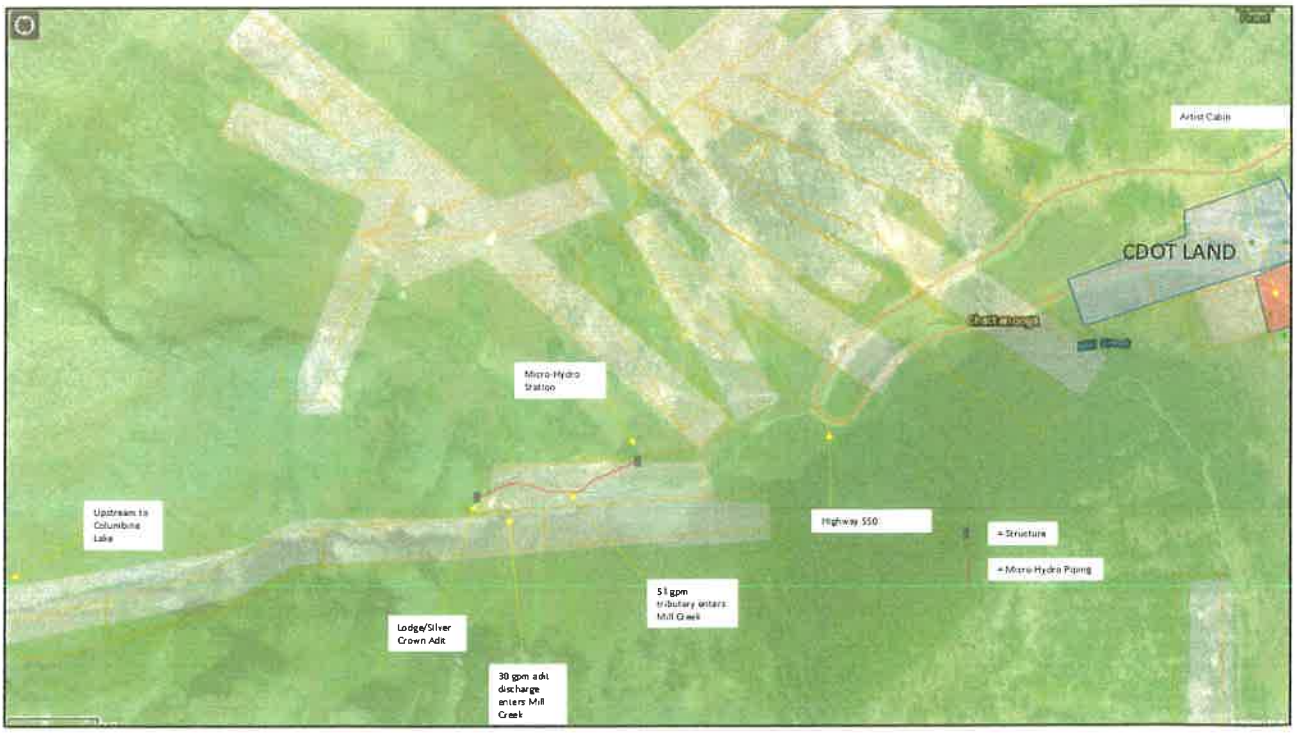


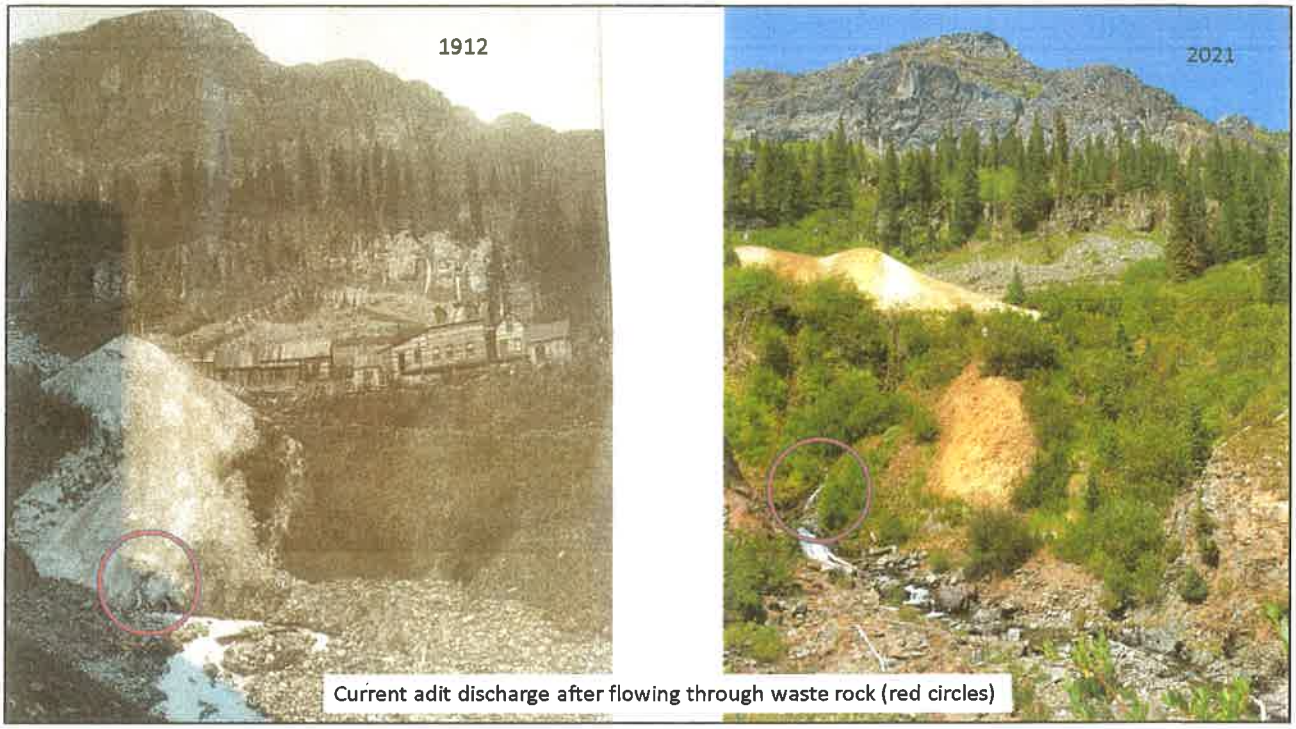
Mill Creek Status - Current

- Mill Creek flows from Columbine Lake through the valley until it joins Mineral Creek.
- The flow in Mill Creek is highly variable, but it does seem to flow all year. Based on EPA data, fall flow can be as low as 0.46 cfs in the lower valley where Mill Creek meets highway 550.
  - Above this intersection, there are at least 2 known water sources into Mill Creek:
    - An unamed tributary stream to the North that has been measured in the fall at 51 gpm (0.14 cfs).
    - An adit discharge from the Silver Crown Mine of approximately 30 gpm (0.08 cfs). This discharge has also been measured as high as 40 gpm (0.11 cfs). This water flows through the waste rock from the mine and then directly into Mill Creek.
  - Therefore, the flow upstream of the Silver Crown discharge can be as low as 0.24 cfs during dry periods (typically fall and winter).

Development Concept

- The Silver Cloud Lodge will be built inside the existing Silver Crown Mine, with restoration of the historic mine buildings outside the portal, returning the site to what it looked like in 1912.
- Inert rock from the underground lodge construction will be used to stabilize and cap the waste rock.
- The adit discharge water will be treated and used for domestic use, with the excess used for micro-hydro generation. It will no longer flow through the waste rock, but will be piped to a micro-hydro generation station farther down the valley and then returned to Mill Creek.
- Excess flow from Mill Creek will also be diverted and used for micro-hydro generation.
- In conjunction with Trout Unlimited and the USFS, the stretch of Mill Creek from the Silver Crown Mine to Highway 550 will receive habitat improvement (pools, weirs, revegetation, and prevention of continued waste rock erosion into the stream).
- During most months of the year (especially Spring and Summer) domestic and micro-hydro uses will not have an adverse impact to Mill Creek's flows. However, during low flow (<0.25cfs) times, any domestic use or use for micro-hydro could have a negative impact to Mill Creek, which needs to be completely avoided.

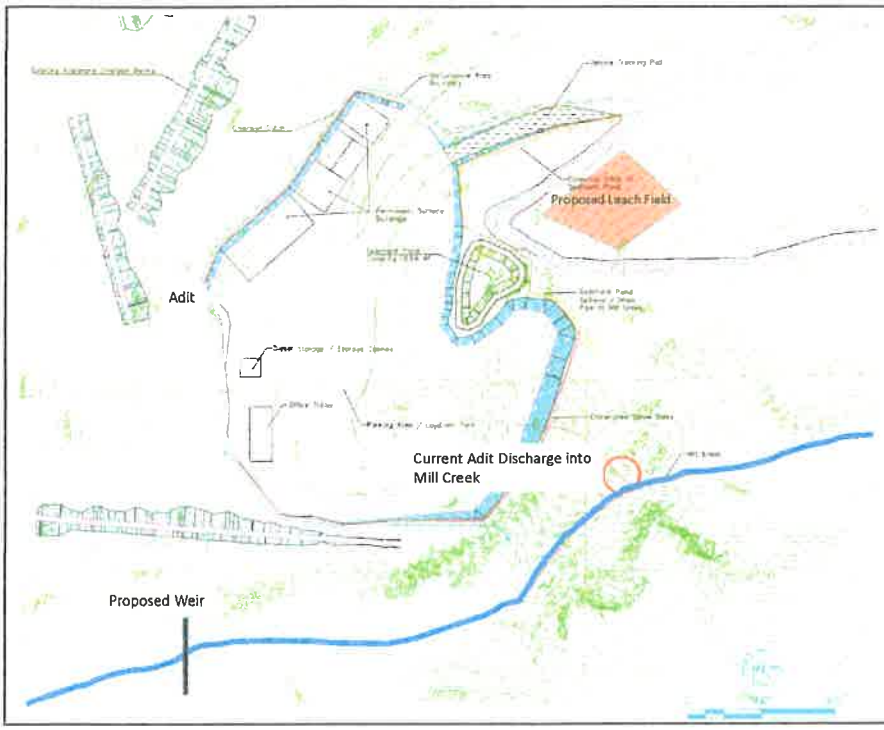




Current adit discharge after flowing through waste rock (red circles)

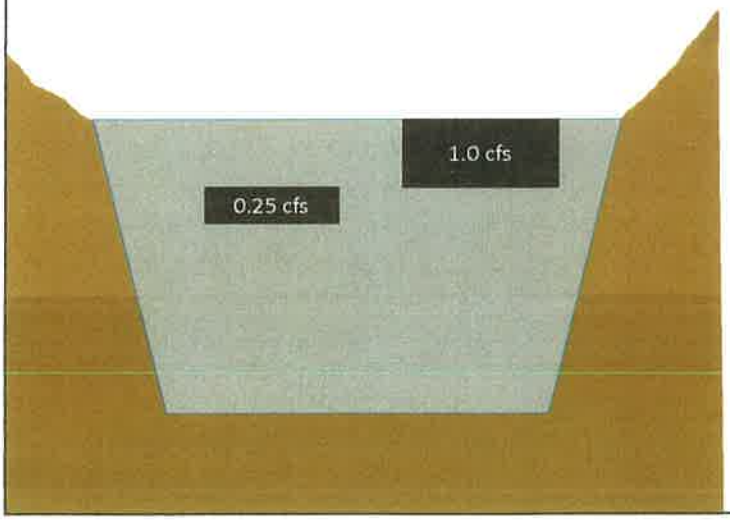
Solution

- Engineer a water system such that no net reduction to Mill Creek flows is possible during low-flow (<0.25 cfs) events. This would have 3 main elements:
  - Automatic Gating: Above the Silver Crown Mine, install a weir that first delivers 0.25 cfs to Mill Creek, the next ~1 cfs (based on preliminary design) to micro-hydro, and then delivers any flow above 1.25 cfs to Mill Creek.
  - Storage: Inside the mine, creating a small dam (perhaps 5-6' tall) to store around 0.25 af of water. Note that this storage would not be under pressure and would not be a "plug."
  - Non-Use or Recharge: When no Mill Creek water is being delivered to the micro-hydro (indicating that Mill Creek is flowing at or below 0.25 cfs) the Lodge would do two things:
    - Stop using *any* water (including from the mine adit water) to generate micro-hydro and switch to a diesel/propane generator for electrical needs, or only use stored water for micro-hydro; and
    - "Match" any water consumed in domestic use with stored water (note that this amount should be rather small, as most of the water used for domestic purposes will flow into a septic leach field that will discharge very close to where the adit discharge currently enters Mill Creek.
- These engineering controls will ensure that Mill Creek is not adversely impacted by Lodge operations during low-flow events. Indeed, coupled with the stream habitat restoration and rerouting of the adit flows out of the waste rock and the waste rock stabilization, the Lodge operations will have a considerable net *positive* effect on Mill Creek and the overall drainage.
  - Note that we also hope to reintroduce Colorado Native trout to the area as part of this restoration effort. Mill Creek is a perfect place for this reintroduction because non-native species cannot survive in Mineral creek to migrate upstream, making a natural barrier to allow native species to flourish.



The water that comes out of the adit currently runs into the waste rock. It will be rerouted for domestic uses at the Lodge and then into a septic leach field. The area where that adit water enters Mill Creek currently is within feet of where the septic leach field flows will reenter Mill Creek. This means that the only water "lost" to this stretch of Mill Creek would be 1. any water actually "consumed" by domestic use and 2. any adit discharge water that would be rerouted to generate hydroelectricity.

Graduated Weir Example



As the weir fills, the first 0.25 cfs goes to Mill Creek. As the water continues to rise, the next 1.0 cfs goes to micro-hydro generation. The remaining flow above this total 1.25 cfs goes into Mill Creek.

Also note that the flow equation for a rectangular weir is $Q = C_W \cdot L H^{1.5}$

Where:
Q = discharge over weir, cfs
L = length of the weir crest, ft
H = distance between water surface and the crest, ft
Cw = weir coefficient, typically 3.33 (1.84) for sharp-crested; 3.367 (1.83) for Cipolletti; 3.09 (1.7) for Broad-crested

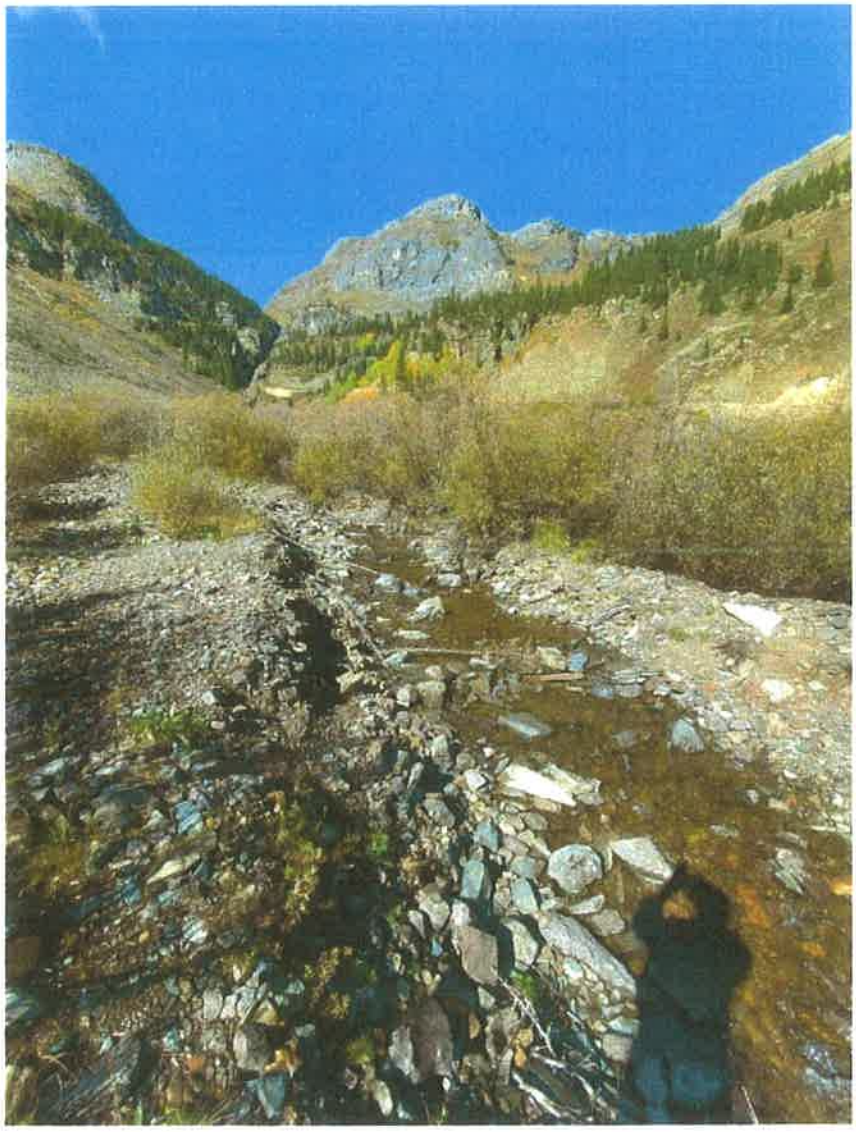
This means that the 0.25 cfs opening will deliver exactly 0.25 cfs when the water is at the top of the opening, but will actually deliver progressively more water as the water level rises into the 1.0 cfs channel.

Stream Restoration Examples: (adding pools/weirs) for trout habitat. This should also allow for additional storage/capacitance which will create resiliency during naturally-occurring low flow events.

Silver Crown

Report for Second Sampling Event

Third Quarter Sampling - Fall 2022



Prepared by:

Bill Coughlin, Western Stream Works, LLC

WESTERN STREAM WORKS
970.708.2139
RIDGWAY, COLORADO
Design • Build • Restore

Cover Photo: View up the Mill Creek valley, near downstream sampling location.

Introduction

Included is field data and lab results for three locations for Silver Crown sampling. There are additional sampl parameters, both field-filtered and unfiltered to meet the objectives provided by Jeff Kurtz, Geosyntec. Update descriptions for sample locations, edited from sample event one, are included. As requested, there are additional sampling locations from the first sampling event.

Requested flow volume data described below at four locations, italicized for reference.

Lab results for the sampling listed below for each location.

The three sample locations are:

1) Upstream Mill Creek
2) Downstream Mill Creek
3) Adit Discharge (previous BB Outlet)

The four flow volume locations are:

1) Adit discharge
2) Stream/waterfall tributary by road
3) Upstream Mill Creek
4) Downstream Mill Creek

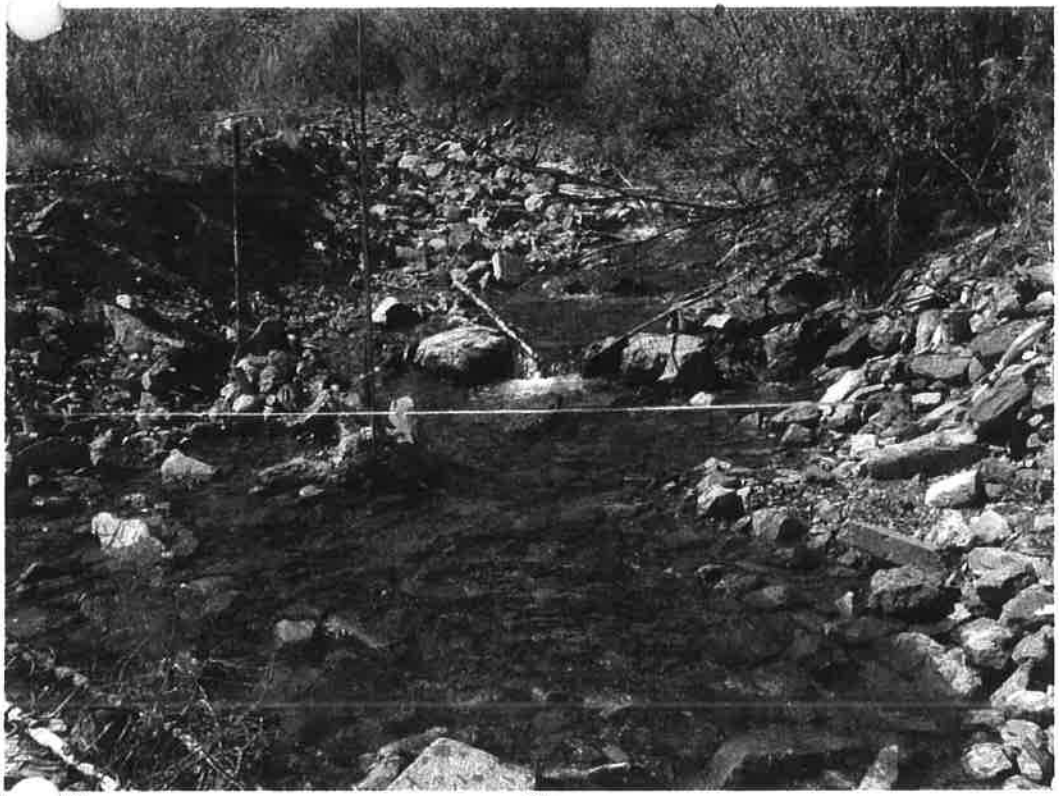
The sample locations and flow volume descriptions are as follows.

Sampling Location 1: Upstream Mill Creek

Water samples collected and field filtered as required.
Note: no photograph

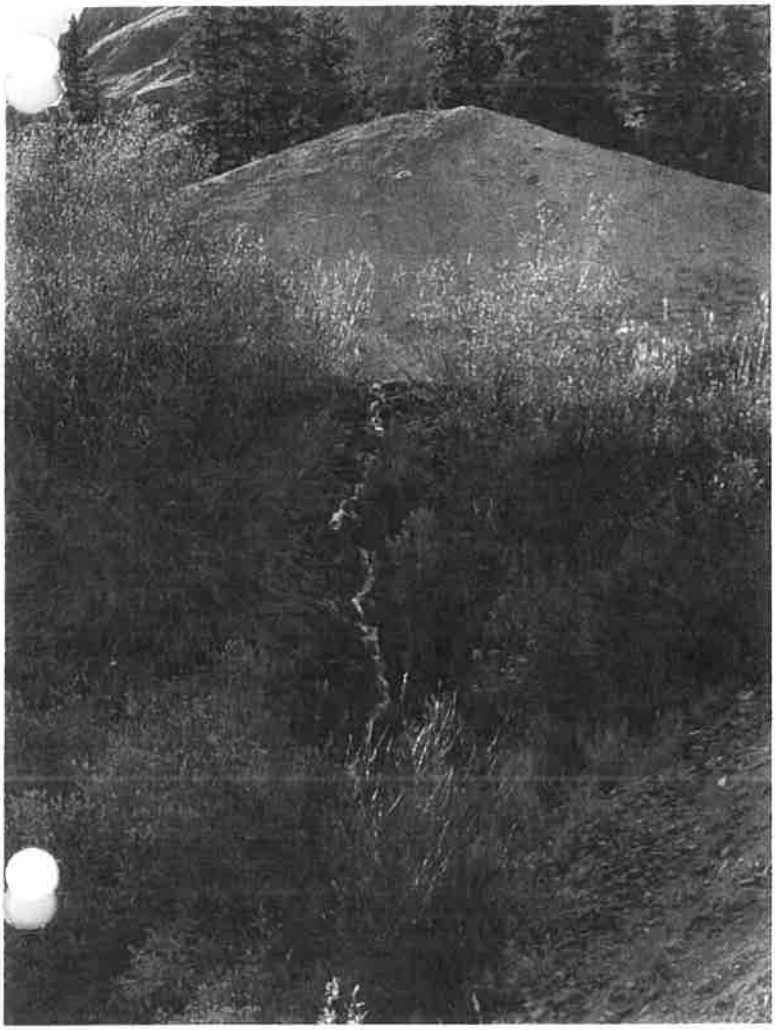
The discharge volume at time of sampling is estimated at 1.2 cubic feet per second.
The field measurement of pH was 8.18. Calibrated multimeter.
0.2 mV ORP
122 uS/cm
61 TDS ppm
7.38 C

Sample Location 2: Downstream Mill Creek



W gaging station Downstream Mill Creek
ter samples collected and field filtered as required.

Mill Creek discharge = 1.44 cubic feet per second.
Note: discharge volume was gaged several times averaging 1.44 c.f.s.
The field measurement of pH was 8.05. Calibrated multimeter
44.9 mV ORP
165 uS/cm
82 TDS ppm
9.53 C



Discharge below pile from Adit

Downstream Mill Creek directly below Adit Discharge confluence

Note: I hiked down and sampled here in an attempt to get as close to confluence as possible, but in future will sample at downstream gaging location, for consistency where EPA samples Mill Creek.

nple Location 3 Adit Discharge

t Discharge location

Previous BB Outlet, this is first good sample location below adit discharge, 20' downgradient from Silver Crow Adit.

Water samples collected and field filtered when required.

The discharge volume was 29 gpm, measuring with a 1" portable Parshall flume.
The field measurement of pH was 7.58, calibrated multimeter
Note: created level place to utilize flume and contained 99% of discharge within.
11.3 mV ORP
495 uS/cm
248 TDS ppm
9.61 C

Note: Sampled in clear water, some algae at location, slight iron hydroxide deposition. No oil or grease, no bacteria sheen, no phosphorus. Cleaned garbage.

Adit Discharge volume location. Discharge was gathered (during measurement) into a 1-inch portable Parshal f ıe was utilized for accuracy.

Above WSW attempted to gage flow from Adit, but volume too low for pygmy meter.

d to use Parshall flume.

Stream/waterfall by access road

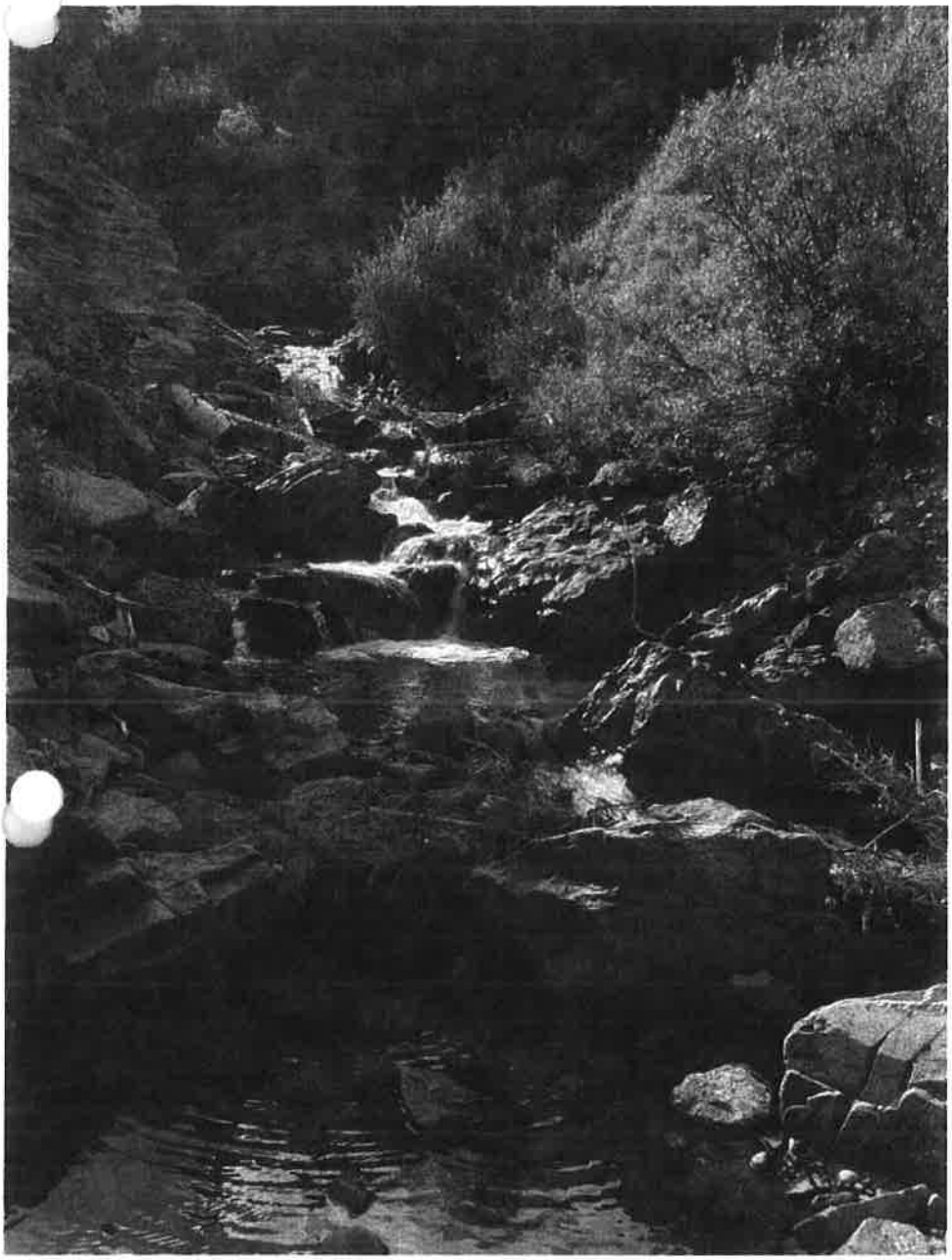
Discharge = 51.81 gallons per minute or just over .5 cfs

Utilized portable Parshall flume as accurately as possible, successful at harnessing estimated 97% of water flow through flume.

Conclusions

WSW will be providing data to Jeff Kurtz, Geosyntec for further analysis.

Notes regarding Stream Restoration:

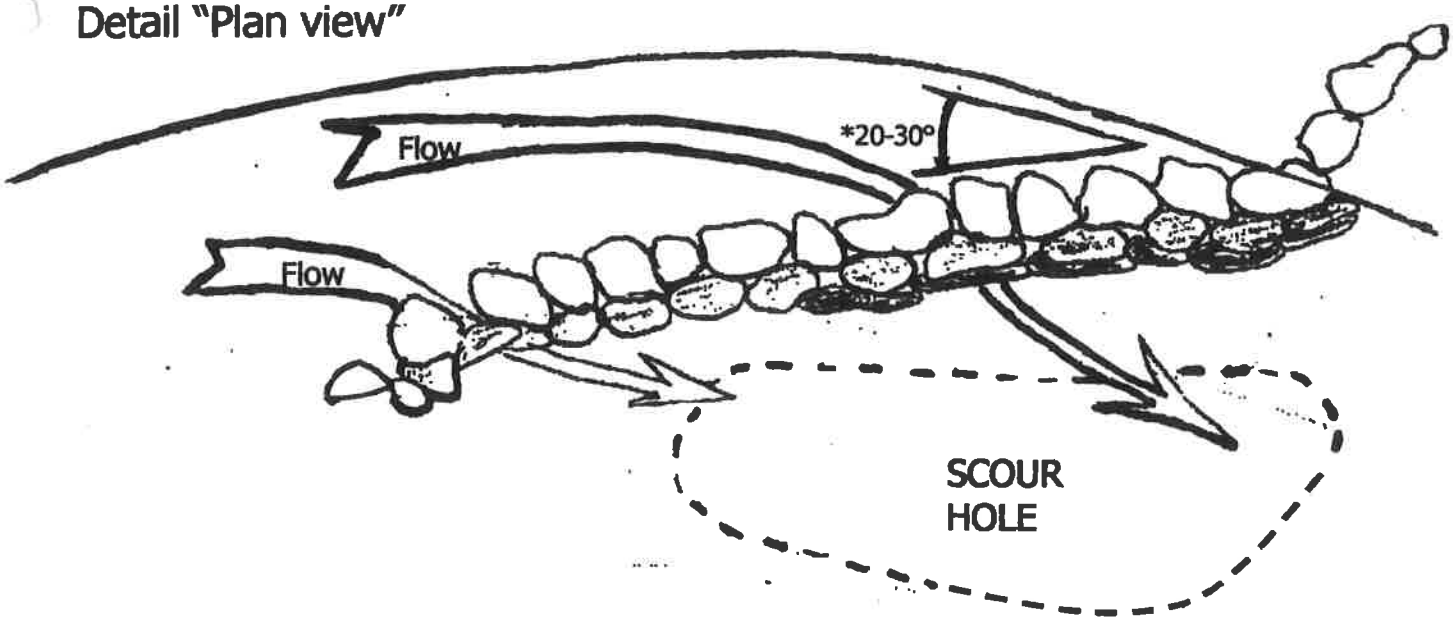


Pools within Mill Creek

Note regarding Stream Project: Existing instream pools below waterfall create example of what WSW will design downstream within Mill Creek Stream Enhancement Project.

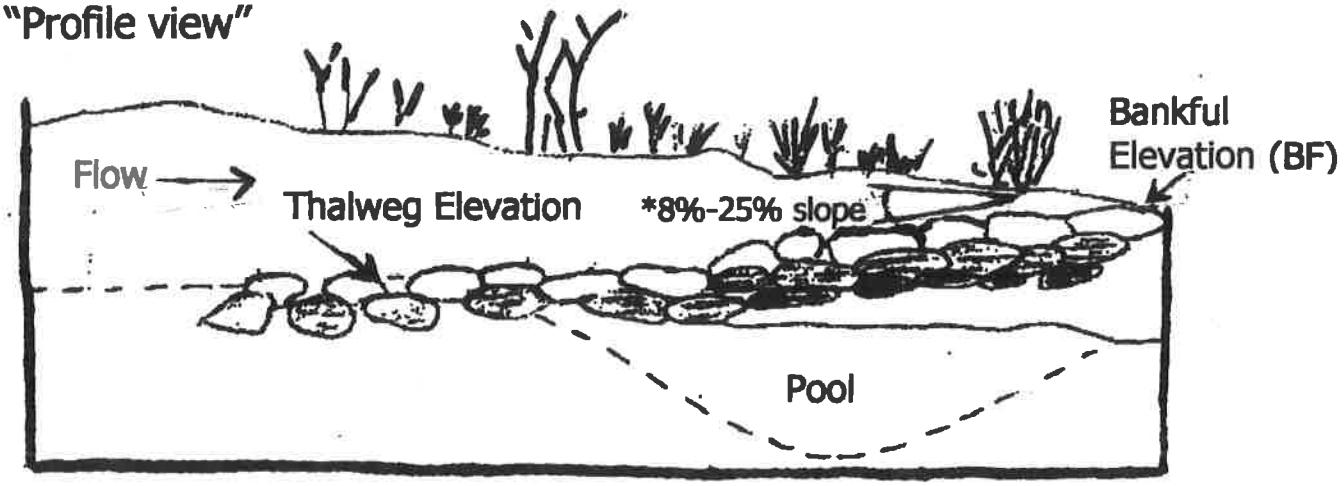
Note: For the stream to meander to left as it leaves the incised valley, it will require a WSW vane arm instream structure. A significant amount of bedload transfer occurs within channel at peak flow events. The channel will meander as it encounters deposition from high volume event. We can design-build instream structure for this, and it will create excellent trout habitat, see WSW vane arm detail below.

WSW Vane Arm Detail "Plan view"



*The angle of vane arm construction from the bank varies with individual location and conditions. The vane faces upstream and acts to roll the current center channel, away from the bank. The feature does not resist the erosive force of the river; it acts to make the path of least resistance back in the stream channel.

WSW Vane Arm Detail "Profile view"



*Slope of vane arm depending on conditions. The shorter the vane arm the steeper the slope. If the length is one third the channel width, we build an approximate 9%-12% slope. If the vane is intentionally shorter and "stubbier", it can still offer excellent bank protection, and slope angles of 20%-25% are common. Other field conditions can offer a combination of varying degrees of slope angle, to replicate natural symmetry.

To: **Bonanza Boy, LLC**

From: **Bill Coughlin, Western Stream Works**

Re: **Results of second sampling event September 19, 2022**

Date: **October 11, 2022**

Colby,
We have received the results from the lab for Sampling #2 at the Silver Crown.
WSW plans on re-sampling as requested.

There are three locations for sampling:

1) Mill Creek Upstream
2) Mill Creek Downstream
3) Adit Discharge (previous BB Outlet)

The lab-results for these locations are as follows.

Thank you,
Bill Coughlin

billcoughlin@westernstreamworks.com

weternstreamworks.com

(970)708-2139

CHEMTECH-FORD
LABORATORIES

10/7/2022

Work Order: 2211745
Project: Silver Crown - Sept. 2022 Sampling

Western Stream Works
Attn: Bill Coughlin
631 Sherman Street
Ridgway, CO 81432

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.

Approved By:

Certificate of Analysis

Western Stream Works
Bill Coughlin
631 Sherman Street
Ridgway, CO 81432

PO#:
Receipt: **9/21/22 11:40 @ 1.5 °C**
Date Reported: 10/7/2022
Project Name: **Silver Crown - Sept. 2022 Sampling**

Sample ID: **Upstream Millcreek**

Matrix: **Water**
Date Sampled: **9/19/22 17:30**

Lab ID: **2211745-0**

Sampled By: **Bill Coughlin**

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Aluminum, Total	ND	mg/L	0.05	EPA 200.7	9/27/22	9/27/22	
Arsenic, Total	ND	mg/L	0.0005	EPA 200.8	9/28/22	9/28/22	
Chromium, Total	ND	mg/L	0.0005	EPA 200.8	9/28/22	9/28/22	
Iron, Total	0.02	mg/L	0.02	EPA 200.7	9/27/22	9/27/22	
Mercury, Total	ND	mg/L	0.00015	EPA 245.1	9/28/22	9/28/22	
Selenium, Total	ND	mg/L	0.0005	EPA 200.8	9/28/22	9/28/22	
]lium, Total	ND	mg/L	0.0002	EPA 200.8	9/28/22	9/28/22	

Certificate of Analysis

Western Stream Works
Bill Coughlin
631 Sherman Street
Ridgway, CO 81432

PO#:
Receipt: **9/21/22 11:40 @ 1.5 °C**
Date Reported: 10/7/2022
Project Name: **Silver Crown - Sept. 2022 Sampling**

Sample ID: **Upstream Millcreek - Field Filtered**

Matrix: **Water**
Date Sampled: **9/19/22 17:30**

Lab ID: **2211745-0(**
Sampled By: **Bill Coughlin**

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Hardness, Soluble as CaCO3	58.6	mg/L	1.32	SM 2340 B	9/30/22	10/3/22	
Metals							
Aluminum, Dissolved	ND	mg/L	0.05	EPA 200.7	9/30/22	10/3/22	
Arsenic, Dissolved	ND	mg/L	0.0005	EPA 200.8	9/29/22	9/29/22	
Cadmium, Dissolved	ND	mg/L	0.0002	EPA 200.8	9/29/22	9/29/22	
Calcium, Dissolved	18.9	mg/L	0.2	EPA 200.7	9/30/22	10/3/22	
Copper, Dissolved	ND	mg/L	0.0010	EPA 200.8	9/29/22	9/29/22	
Lead, Dissolved	ND	mg/L	0.0005	EPA 200.8	9/29/22	9/29/22	
nesium, Dissolved	2.8	mg/L	0.2	EPA 200.7	9/30/22	10/3/22	
ganese, Dissolved	0.0006	mg/L	0.0005	EPA 200.8	9/29/22	9/29/22	
Nickel, Dissolved	ND	mg/L	0.005	EPA 200.7	9/30/22	10/3/22	
Potassium, Dissolved	ND	mg/L	0.5	EPA 200.7	9/30/22	10/3/22	
Silver, Dissolved	ND	mg/L	0.0005	EPA 200.8	9/29/22	9/29/22	
Sodium, Dissolved	0.7	mg/L	0.5	EPA 200.7	9/30/22	10/3/22	
Zinc, Dissolved	0.02	mg/L	0.01	EPA 200.8	9/29/22	9/29/22	

Certificate of Analysis

Western Stream Works
Bill Coughlin
631 Sherman Street
Ridgway, CO 81432

PO#:
Receipt: **9/21/22 11:40 @ 1.5 °C**
Date Reported: 10/7/2022
Project Name: **Silver Crown - Sept. 2022 Sampling**

Sample ID: **Downstream Millcreek**

Matrix: **Water**
Date Sampled: **9/19/22 10:00**

Lab ID: **2211745-0**
Sampled By: **Bill Coughlin**

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Aluminum, Total	ND	mg/L	0.05	EPA 200.7	9/27/22	9/27/22	
Arsenic, Total	ND	mg/L	0.0005	EPA 200.8	9/28/22	9/28/22	
Chromium, Total	ND	mg/L	0.0005	EPA 200.8	9/28/22	9/28/22	
Iron, Total	0.03	mg/L	0.02	EPA 200.7	9/27/22	9/27/22	
Mercury, Total	ND	mg/L	0.00015	EPA 245.1	9/28/22	9/28/22	
Selenium, Total	ND	mg/L	0.0005	EPA 200.8	9/28/22	9/28/22	
Thallium, Total	ND	mg/L	0.0002	EPA 200.8	9/28/22	9/28/22	

Certificate of Analysis

Western Stream Works
Bill Coughlin
631 Sherman Street
Ridgway, CO 81432

PO#:
Receipt: **9/21/22 11:40 @ 1.5 °C**
Date Reported: 10/7/2022
Project Name: **Silver Crown - Sept. 2022 Sampling**

Sample ID: **Downstream Millcreek - Field Filtered**

Matrix: **Water**
Date Sampled: **9/19/22 10:00**

Lab ID: **2211745-0**

Sampled By: **Bill Coughlin**

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Hardness, Soluble as CaCO3	77.4	mg/L	1.32	SM 2340 B	9/30/22	10/3/22	
Metals							
Aluminum, Dissolved	ND	mg/L	0.05	EPA 200.7	9/30/22	10/3/22	
Arsenic, Dissolved	ND	mg/L	0.0005	EPA 200.8	9/29/22	9/29/22	
Cadmium, Dissolved	ND	mg/L	0.0002	EPA 200.8	9/29/22	9/29/22	
Calcium, Dissolved	26.2	mg/L	0.2	EPA 200.7	9/30/22	10/3/22	
Copper, Dissolved	ND	mg/L	0.0010	EPA 200.8	9/29/22	9/29/22	
Lead, Dissolved	ND	mg/L	0.0005	EPA 200.8	9/29/22	9/29/22	
Magnesium, Dissolved	2.9	mg/L	0.2	EPA 200.7	9/30/22	10/3/22	
Manganese, Dissolved	0.0022	mg/L	0.0005	EPA 200.8	9/29/22	9/29/22	
Nickel, Dissolved	ND	mg/L	0.005	EPA 200.7	9/30/22	10/3/22	
Potassium, Dissolved	ND	mg/L	0.5	EPA 200.7	9/30/22	10/3/22	
Silver, Dissolved	ND	mg/L	0.0005	EPA 200.8	9/29/22	9/29/22	
Sodium, Dissolved	1.3	mg/L	0.5	EPA 200.7	9/30/22	10/3/22	
Zinc, Dissolved	0.02	mg/L	0.01	EPA 200.8	9/29/22	9/29/22	

Certificate of Analysis

Western Stream Works
Bill Coughlin
631 Sherman Street
Ridgway, CO 81432

PO#:
Receipt: **9/21/22 11:40 @ 1.5 °C**
Date Reported: 10/7/2022
Project Name: **Silver Crown - Sept. 2022 Sampling**

Sample ID: **Adit Discharge**

Matrix: **Water**
Date Sampled: **9/19/22 14:00**

Lab ID: **2211745-0**
Sampled By: **Bill Coughlin**

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Total Organic Nitrogen	ND	mg/L	1.0	Calculation	10/7/22	10/7/22	
Inorganic							
Trivalent Chromium	ND	mg/L		[CALC]	9/28/22	9/28/22	
Alkalinity - Bicarbonate (as CaCO3)	75.0	mg/L	1.0	SM 2320 B	9/22/22	9/22/22	
Alkalinity - Carbonate (as CaCO3)	ND	mg/L	1.0	SM 2320 B	9/22/22	9/22/22	
Alkalinity - Hydroxide (as CaCO3)	ND	mg/L	1.0	SM 2320 B	9/22/22	9/22/22	
Alkalinity - Total (as CaCO3)	75.0	mg/L	1.0	SM 2320 B	9/22/22	9/22/22	
Ammonia as N	ND	mg/L	0.2	SM 4500 NH3 H	9/22/22	9/22/22	
Chemical Oxygen Demand	ND	mg/L	5	SM 5210 B	9/21/22 16:55	9/26/22 13:17	SPH
Chemical Oxygen Demand	21	mg/L	10	Hach 8000	9/26/22	9/28/22	
Chloride	ND	mg/L	1.0	EPA 300.0	9/29/22	9/30/22	
Conductivity	553	umho/cm	1	EPA 120.1	9/26/22	9/26/22	
Cyanide, Total	ND	mg/L	0.002	SM 4500 CN-E	9/27/22	9/28/22	
Cyanide, WAD	ND	mg/L	0.002	SM 4500 CN-lE	9/27/22	9/28/22	
Dissolved Oxygen	9.2	mg/L	1.0	EPA 360.1	9/21/22 13:54	9/21/22 14:06	SPH
Fluoride	0.309	mg/L	0.100	EPA 300.0	9/29/22	9/30/22	
Hexavalent Chromium	ND	mg/L	0.010	SM 3500 Cr-B	9/23/22	9/23/22	
Nitrate as N	ND	mg/L	0.1	EPA 300.0	9/21/22 14:27	9/22/22 2:32	SPH
Nitrite as N	ND	mg/L	0.1	EPA 300.0	9/21/22 14:27	9/22/22 2:32	SPH
Oil & Grease (HEM)	ND	mg/L	6	EPA 1664A	9/23/22	9/23/22	
pH	7.7	pH Units	0.1	SM 4500 H-B	9/21/22 13:31	9/21/22 14:47	SPH
Phenols, Total	ND	mg/L	0.050	EPA 420.4	9/27/22	9/27/22	
Sulfate	ND	mg/L	1.0	EPA 300.0	9/29/22	9/30/22	
Sulfide	ND	mg/L	0.1	SM 4500 S2-D	9/26/22	9/26/22	
Total Dissolved Solids (TDS)	368	mg/L	20	SM 2540 C	9/22/22	9/26/22	
Total Kjeldahl Nitrogen	ND	mg/L	1.0	SM 4500 Norg	9/27/22	9/28/22	
Total Suspended Solids (TSS)	14	mg/L	4	SM 2540 D	9/23/22	9/23/22	
Metals							
Arsenic, Total	0.0010	mg/L	0.0005	EPA 200.8	9/28/22	9/28/22	
Boron, Total	ND	mg/L	0.05	EPA 200.7	9/27/22	9/27/22	
Cadmium, Pot. Diss.	0.0004	mg/L	0.0002	EPA 200.8	9/29/22	9/29/22	
Cadmium, Total	0.0004	mg/L	0.0002	EPA 200.8	9/28/22	9/28/22	
Calcium, Total	0.0009	mg/L	0.0005	EPA 200.8	9/28/22	9/28/22	
Cobalt, Total	ND	mg/L	0.01	EPA 200.7	9/27/22	9/27/22	
Copper, Pot. Diss.	0.0044	mg/L	0.0010	EPA 200.8	9/29/22	9/29/22	

Certificate of Analysis

Western Stream Works
Bill Coughlin
631 Sherman Street
Ridgway, CO 81432

PO#:
Receipt: **9/21/22 11:40 @ 1.5 °C**
Date Reported: 10/7/2022
Project Name: **Silver Crown - Sept. 2022 Sampling**

Sample ID: **Adit Discharge (cont.)**

Matrix: **Water**
Date Sampled: **9/19/22 14:00**

Lab ID: **2211745-0**
Sampled By: **Bill Coughlin**

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Lead, Pot. Diss.	0.0026	mg/L	0.0005	EPA 200.8	9/29/22	9/29/22	
Lead, Total	0.0027	mg/L	0.0005	EPA 200.8	9/28/22	9/28/22	
Manganese, Total	0.138	mg/L	0.0005	EPA 200.8	9/28/22	9/28/22	
Mercury, Total	ND	mg/L	0.00015	EPA 245.1	9/28/22	9/28/22	
Nickel, Pot. Diss.	ND	mg/L	0.005	EPA 200.7	9/30/22	10/3/22	
Nickel, Total	ND	mg/L	0.005	EPA 200.7	9/27/22	9/27/22	
Phosphorus, Total as P	ND	mg/L	0.01	EPA 200.7	9/27/22	9/27/22	
Selenium, Total	ND	mg/L	0.0005	EPA 200.8	9/28/22	9/28/22	
ɛr, Pot. Diss.	ND	mg/L	0.0005	EPA 200.8	9/29/22	9/29/22	
ver, Total	ND	mg/L	0.0005	EPA 200.8	9/28/22	9/28/22	
Uranium, Total	ND	mg/L	0.0005	EPA 200.8	9/28/22	9/28/22	
Zinc, Total	0.08	mg/L	0.01	EPA 200.8	9/28/22	9/28/22	
Manganese, Pot. Diss.	0.157	mg/L	0.0005	EPA 200.8	9/29/22	9/29/22	
Zinc, Pot. Diss.	0.09	mg/L	0.01	EPA 200.8	9/29/22	9/29/22	
Microbiology							
Coliform, Total	13	Org/100 mL	1	SM 9223 B	9/21/22 15:45	9/22/22 11:00	SPH
E. Coli	1	Org/100 mL	1	SM 9223 B	9/21/22 15:45	9/22/22 11:00	SPH

Certificate of Analysis

Western Stream Works
Bill Coughlin
631 Sherman Street
Ridgway, CO 81432

PO#:
Receipt: **9/21/22 11:40 @ 1.5 °C**
Date Reported: 10/7/2022
Project Name: **Silver Crown - Sept. 2022 Sampling**

Sample ID: **Adit Discharge - Field Filtered**

Matrix: **Water**
Date Sampled: **9/19/22 14:00**

Lab ID: **2211745-1(**
Sampled By: **Bill Coughlin**

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Hardness, Soluble as CaCO3	266	mg/L	1.32	SM 2340 B	9/30/22	10/3/22	
Metals							
Aluminum, Dissolved	0.07	mg/L	0.05	EPA 200.7	9/30/22	10/3/22	
Calcium, Dissolved	99.1	mg/L	0.2	EPA 200.7	9/30/22	10/3/22	
Iron, Dissolved	0.02	mg/L	0.02	EPA 200.7	9/30/22	10/3/22	
Magnesium, Dissolved	4.4	mg/L	0.2	EPA 200.7	9/30/22	10/3/22	
Manganese, Dissolved	0.0588	mg/L	0.0005	EPA 200.8	9/29/22	9/29/22	
Potassium, Dissolved	0.5	mg/L	0.5	EPA 200.7	9/30/22	10/3/22	
...um, Dissolved	6.9	mg/L	0.5	EPA 200.7	9/30/22	10/3/22	

To: **Bonanza Boy, LLC**

From: **Bill Coughlin, President, and Owner of Western Stream Works**

Re: **Results of first sampling event June 28, 2022**

Date: **July 25, 2022**

Brian and Colby,
We have received the results from the lab for Sampling #1 at the Silver Crown mine adit for Bonanza Boy.

The following report is a summary of the results of the first of three planned sampling events on the Bonanza Moy Mine.

WSW plans on re-sampling at three different seasons of year, to represent various water quality conditions on site.

There are three locations for sampling:

1) BB Outlet
Water flowing out of old mine audit, source water.

Estimated discharge at time of sampling was between 10-20 gpm. The field pH was 7.7.

2) BB Discharge W (west)
Through porous rock at base of tailings

The discharge volume at time of sampling was estimated between 10-20 gpm
The field measurement of pH was 8.0.

3) BB Discharge E (east)
Through fine material, 10' to east of BB West.
The flow rate at time of sampling was estimated at 9 gpm and had a pH of 8.0.

The lab-results from a trusted lab personnel we've worked with for 23 years is as follows.

Thank you,
Bill Coughlin

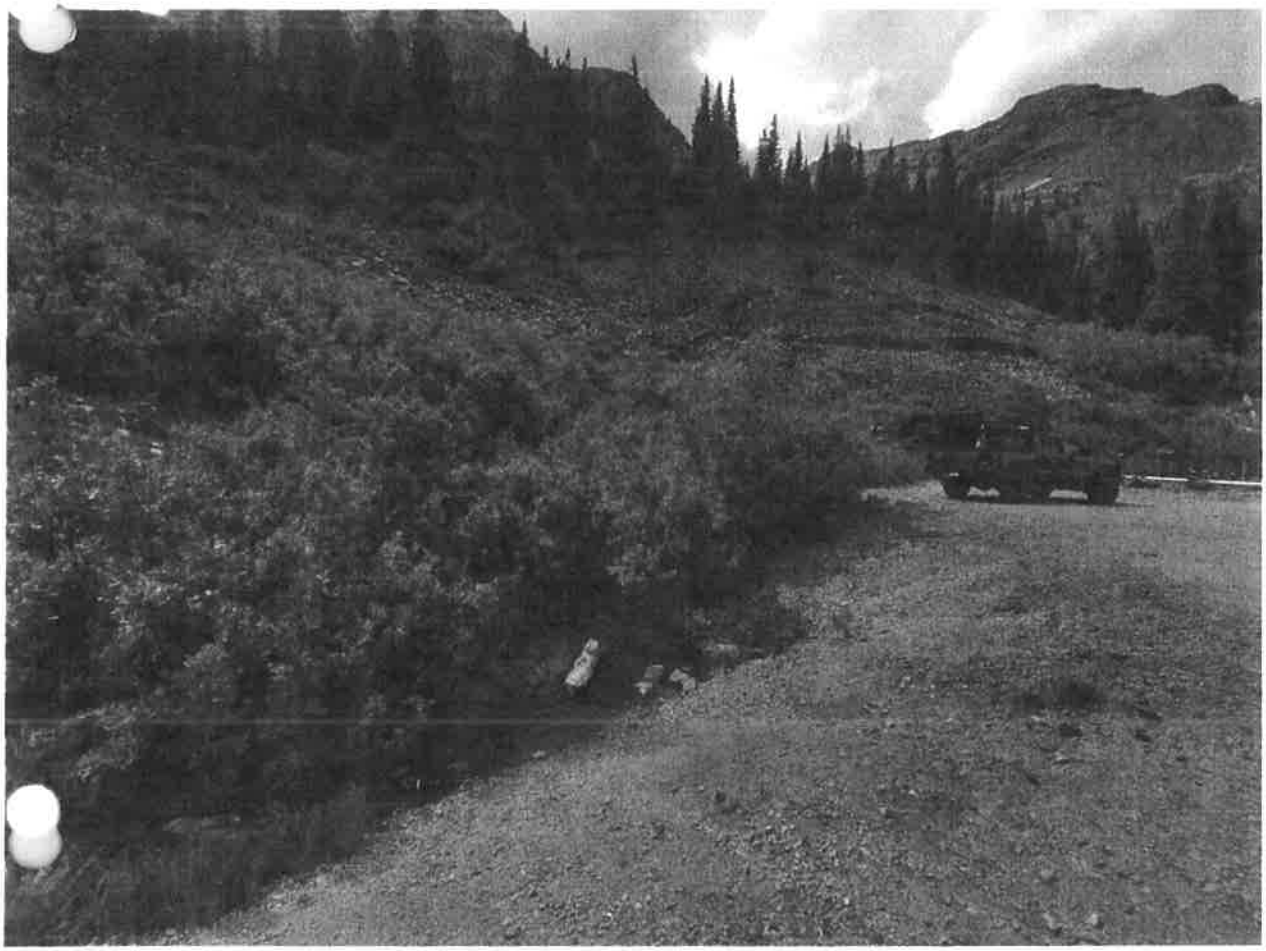
billcoughlin@westernstreamworks.com

weternstreamworks.com

)708-2139

Wetlands

There is presently a small stream, created by the discharge at BB Outlet/Silver Crown adit. Over time, this surface water created wetlands below the outlet within flow on the w-SW side of tailings.



The wetland area buffering the tailings slope could be enhanced and be utilized as a passive treatment wetland.

WSW could delineate the wetland area and thereby design an opportunity:

-determine what size area exists before any permitted disturbance

-design mitigation techniques within any disturbance to wetlands

-create an enhanced treatment wetland to passively improve water quality

Below existing wetlands there is less indication of iron hydroxide noticeable in an alluvial deposit. Wetlands ar
a remarkably effective passive treatment for mine discharge.

Sample Location Two
BB Discharge W (west)
Through porous rock at base of tailings

Sampling Location 2: BB Discharge at base of tailings-West
The rocky substrate is porous, rocks smaller than below adit and most of the tailing's volume of discharge exists to surface at this location.
The discharge volume at time of sampling was estimated between 10-20 gpm
The field measurement of pH was 8.0.

BB Discharge at base of tailings-West
Looking down very steep gradient drop above Mill Creek.

Sample Location Three

BB Discharge E (east)

Discharge originates in fine material, 10' to east of BB West.

Sampling Location 3- BB discharge at base of tailings- East

This location is approximately 10' east of Sampling Location 2.

This separate and smaller discharge flows out of finer material than Sample Location 2 that may have been a slurry.

The discharge volume at time of sampling was estimated between 9 gpm

The field measurement of pH was 8.0.

V W pointing to the two separate discharge locations at the base of the tailings pile. It was deemed dent to sample at both locations, though close in proximity, as they appear to originate from different source material with potentially different water quality considerations.

Conclusions

While the water testing is not required and there is no obligation to do it, the Owners of the Silver Crown mine thought to be proactive. Upon first look the data is encouraging. The early data could be utilized as pre-disturbance data. I am not a chemist, yet we could analyze this with further scrutiny someday. The lab reports will be sent in an attachment so they may be forwarded (with Owner permission) as needed or helpful.
Generally speaking, a first impression of water quality is the following:
Sample 1, BB Outlet: the drinking water threshold for lead is 0.015mg/L (= 15ug/L). This sample was about 0.001 mg/L (= 1 ug/L) about 15 X lower than the threshold.

BB discharge below tailings East and West: The two samples at base of tailings samples were higher in lead and in other heavy metals like cadmium and molybdenum. Iron is not a health risk, but it makes the water taste bad at about 1 or 2 mg/L. The first sample was below that threshold too.

Water can be filtered and cleaned up. The potential project's starting point is already good. As it is the intent of WSW to improve water quality and conditions at historic mines in the San Juan's; our opinion is some beneficial work could be accomplished here within the overall success of any potential, permitted project.

Coughlin, President WSW

CHEMTECH-FORD LABORATORIES

Chemtech-Ford Laboratories

9632 South 500 West
Sandy, UT 84070
O:(801)262-7299 F:(866)792-0093

Certificate of Analysis

Western Stream Works
Bill Coughlin

PO Box 301

Ridgeway, CO 81432

PO#:
Receipt: **6/30/22 8:15 @ 11.4 °C**
Date Reported: 7/14/2022

Project Name: **Bonanza Boy**

Sample ID: **BB Outlet**

Matrix: **Water**

Lab ID: **22F2609-01**

Date Sampled: **6/28/22 15:30**

Sampled By: **Bill Coughlin**

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Hardness, Total as CaCO3	228	mg/L	1.3	SM 2340 B	7/6/22	7/7/22	
Inorganic							
Alkalinity - Bicarbonate (as CaCO3)	74.5	mg/L	1.0	SM 2320 B	6/30/22	7/1/22	
Alkalinity - Carbonate (as CaCO3)	ND	mg/L	1.0	SM 2320 B	6/30/22	7/1/22	
Alkalinity - Hydroxide (as CaCO3)	ND	mg/L	1.0	SM 2320 B	6/30/22	7/1/22	
nity - Total (as CaCO3)	74.5	mg/L	1.0	SM 2320 B	6/30/22	7/1/22	
de	ND	mg/L	1.0	EPA 300.0	6/30/22	6/30/22	
Conductivity	494	umho/cm	1	EPA 120.1	6/30/22	6/30/22	
Fluoride	0.37	mg/L	0.10	EPA 300.0	6/30/22	6/30/22	
Nitrate as N	0.2	mg/L	0.1	EPA 300.0	6/30/22 11:46	6/30/22 13:40	
pH	7.2	pH Units	0.1	SM 4500 H-B	6/30/22 15:17	6/30/22 16:09	SPH
Sulfate	171	mg/L	10.0	EPA 300.0	6/30/22	6/30/22	
Total Dissolved Solids (TDS)	388	mg/L	20	SM 2540 C	6/30/22	6/30/22	
Metals							
Antimony, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Arsenic, Total	0.0008	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Cadmium, Total	ND	mg/L	0.0002	EPA 200.8	7/3/22	7/7/22	
Calcium, Total	84.7	mg/L	0.2	EPA 200.7	7/6/22	7/7/22	
Chromium, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Cobalt, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Copper, Total	0.0017	mg/L	0.0010	EPA 200.8	7/3/22	7/7/22	
Iron, Total	0.18	mg/L	0.02	EPA 200.7	7/6/22	7/7/22	
Lead, Total	0.0019	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Magnesium, Total	4.1	mg/L	0.2	EPA 200.7	7/6/22	7/7/22	
Manganese, Total	0.0760	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Mercury, Total	ND	mg/L	0.0002	EPA 245.1	7/12/22	7/12/22	
Molybdenum, Total	0.0048	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Nickel, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Selenium, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
(as SiO2) Total	12.9	mg/L	0.1	EPA 200.7	7/6/22	7/7/22	
, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Sodium, Total	6.0	mg/L	0.5	EPA 200.7	7/6/22	7/7/22	

CHEMTECH-FORD LABORATORIES

Chemtech-Ford Laboratories

9632 South 500 West
Sandy, UT 84070
O:(801)262-7299 F:(866)792-0093

Certificate of Analysis

Western Stream Works
Bill Coughlin
PO Box 301
Ridgeway, CO 81432

PO#:
Receipt: **6/30/22 8:15 @ 11.4 °C**
Date Reported: 7/14/2022
Project Name: **Bonanza Boy**

Sample ID: **BB Discharge (W)**
Matrix: **Water**
Date Sampled: **6/28/22 16:30**
Sampled By: **Bill Coughlin**
Lab ID: **22F2609-02**

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Hardness, Total as CaCO3	211	mg/L	1.3	SM 2340 B	7/6/22	7/7/22	
Inorganic							
Alkalinity - Bicarbonate (as CaCO3)	70.0	mg/L	1.0	SM 2320 B	6/30/22	7/1/22	
Alkalinity - Carbonate (as CaCO3)	ND	mg/L	1.0	SM 2320 B	6/30/22	7/1/22	
Alkalinity - Hydroxide (as CaCO3)	ND	mg/L	1.0	SM 2320 B	6/30/22	7/1/22	
nity - Total (as CaCO3)	70.0	mg/L	1.0	SM 2320 B	6/30/22	7/1/22	
de	ND	mg/L	1.0	EPA 300.0	6/30/22	6/30/22	
Conductivity	452	umho/cm	1	EPA 120.1	6/30/22	6/30/22	
Fluoride	0.35	mg/L	0.10	EPA 300.0	6/30/22	6/30/22	
Nitrate as N	ND	mg/L	0.1	EPA 300.0	6/30/22 11:46	6/30/22 13:51	
pH	7.5	pH Units	0.1	SM 4500 H-B	6/30/22 15:17	6/30/22 16:12	SPH
Sulfate	153	mg/L	10.0	EPA 300.0	6/30/22	6/30/22	
Total Dissolved Solids (TDS)	348	mg/L	20	SM 2540 C	6/30/22	6/30/22	
Metals							
Antimony, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Arsenic, Total	0.0021	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Cadmium, Total	0.0004	mg/L	0.0002	EPA 200.8	7/3/22	7/7/22	
Calcium, Total	78.1	mg/L	0.2	EPA 200.7	7/6/22	7/7/22	
Chromium, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Cobalt, Total	0.0006	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Copper, Total	0.0057	mg/L	0.0010	EPA 200.8	7/3/22	7/7/22	
Iron, Total	0.81	mg/L	0.02	EPA 200.7	7/6/22	7/7/22	
Lead, Total	0.0287	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Magnesium, Total	3.8	mg/L	0.2	EPA 200.7	7/6/22	7/7/22	
Manganese, Total	0.200	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Mercury, Total	ND	mg/L	0.0002	EPA 245.1	7/12/22	7/12/22	
Molybdenum, Total	0.0046	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Nickel, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Selenium, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
(as SiO2) Total	12.9	mg/L	0.1	EPA 200.7	7/6/22	7/7/22	
, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Sodium, Total	5.4	mg/L	0.5	EPA 200.7	7/6/22	7/7/22	

CHEMTECH-FORD LABORATORIES

Chemtech-Ford Laboratories

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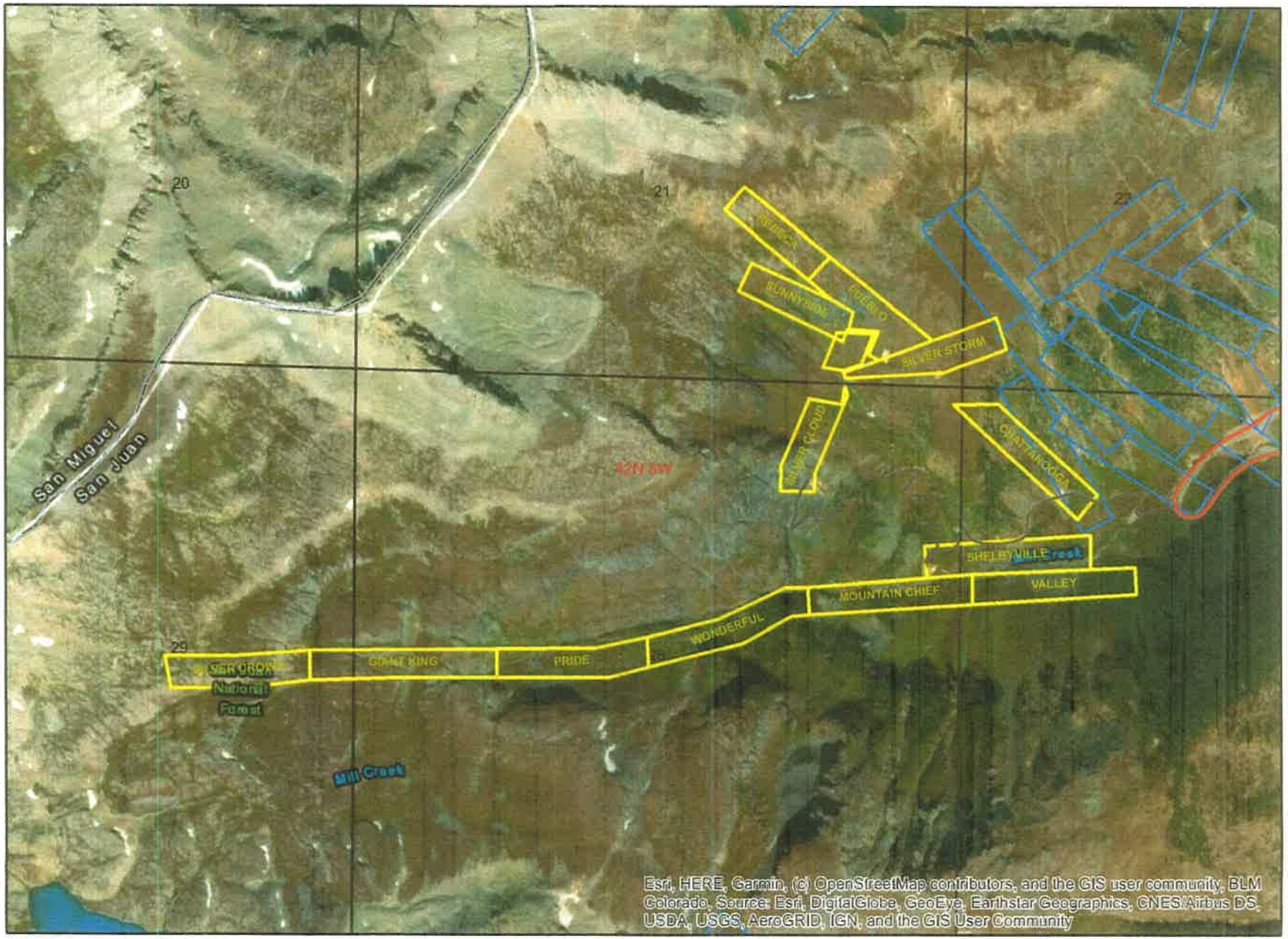
Certificate of Analysis

Western Stream Works
Bill Coughlin
PO Box 301
Ridgeway, CO 81432

PO#:
Receipt: **6/30/22 8:15 @ 11.4 °C**
Date Reported: 7/14/2022
Project Name: **Bonanza Boy**

Sample ID: **BB Discharge (F)**
Matrix: **Water**
Date Sampled: **6/28/22 17:30**
Sampled By: **Bill Coughlin**
Lab ID: **22F2609-03**

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Hardness, Total as CaCO3	210	mg/L	1.3	SM 2340 B	7/6/22	7/7/22	
Inorganic							
Alkalinity - Bicarbonate (as CaCO3)	69.5	mg/L	1.0	SM 2320 B	6/30/22	7/1/22	
Alkalinity - Carbonate (as CaCO3)	ND	mg/L	1.0	SM 2320 B	6/30/22	7/1/22	
Alkalinity - Hydroxide (as CaCO3)	ND	mg/L	1.0	SM 2320 B	6/30/22	7/1/22	
nity - Total (as CaCO3)	69.5	mg/L	1.0	SM 2320 B	6/30/22	7/1/22	
dc	ND	mg/L	1.0	EPA 300.0	6/30/22	6/30/22	
Conductivity	447	umho/cm	1	EPA 120.1	6/30/22	6/30/22	
Fluoride	0.33	mg/L	0.10	EPA 300.0	6/30/22	6/30/22	
Nitrate as N	ND	mg/L	0.1	EPA 300.0	6/30/22 11:46	6/30/22 14:01	
pH	7.5	pH Units	0.1	SM 4500 H-B	6/30/22 15:17	6/30/22 16:13	SPH
Sulfate	149	mg/L	10.0	EPA 300.0	6/30/22	6/30/22	
Total Dissolved Solids (TDS)	248	mg/L	20	SM 2540 C	7/1/22	7/1/22	
Metals							
Antimony, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Arsenic, Total	0.0008	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Cadmium, Total	0.0002	mg/L	0.0002	EPA 200.8	7/3/22	7/7/22	
Calcium, Total	78.1	mg/L	0.2	EPA 200.7	7/6/22	7/7/22	
Chromium, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Cobalt, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Copper, Total	0.0019	mg/L	0.0010	EPA 200.8	7/3/22	7/7/22	
Iron, Total	0.23	mg/L	0.02	EPA 200.7	7/6/22	7/7/22	
Lead, Total	0.0054	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Magnesium, Total	3.8	mg/L	0.2	EPA 200.7	7/6/22	7/7/22	
Manganese, Total	0.0678	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Mercury, Total	ND	mg/L	0.0002	EPA 245.1	7/12/22	7/12/22	
Molybdenum, Total	0.0044	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Nickel, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Selenium, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
(as SiO2) Total	12.2	mg/L	0.1	EPA 200.7	7/6/22	7/7/22	
, Total	ND	mg/L	0.0005	EPA 200.8	7/3/22	7/7/22	
Sodium, Total	5.4	mg/L	0.5	EPA 200.7	7/6/22	7/7/22	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San Miguel
San Juan
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REBECCA
BUNNYSIDE
RIVERLO
SILVER STORM
SILVER CLOUD
CHATTANOOGA
SHELBYVILLE
MOUNTAIN CHIEF
VALLEY
WONDERFUL
GIANT KING
PRIDE
San Juan National Forest
Mill Creek
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, BLM Colorado, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Jason Willis, P.E. – CO AML Program Manager
128 East 1st Street, Salida, CO 81201
jason.willis@tu.org – (719) 221-0411

June 25th, 2023
Letter of Support regarding Voluntary Cleanup Project (VCUP) of Silver Crown Mine

Dear San Juan County and CDPHE Staff,

I am writing to express the support of Trout Unlimited (TU) towards the proposed VCUP cleanup of the Silver Crown Mine contained within the Shelbyville Lode MS#18168 of San Juan County, CO. This project strives to maintain the historical nexus of mining history in Colorado with the intent to allow for safe interpretation and enjoyment of the site after environmental cleanup of remaining waste rock and tailings. With recent involvement utilizing the VCUP program at a site in Colorado, TU supports this tool to complete proposed mine reclamation at the site.

As one of the leading cold-water conservation organizations, TU strives to protect, restore, reconnect, and sustain our nation's waterways. Since TU was founded in 1959, on-the-ground restoration of streams, watersheds, and fisheries has been our hallmark. TU has been supporting project work across Colorado since the early 2000's. Specifically, TU has completed over 40 reclamation projects across the State since 2012 that focus on water quality improvement, abandoned mine land (AML) reclamation, non-point source contamination reduction, and revegetation of degraded landscapes. The multi-phased approach being proposed as part of this project will first focus on remediating and safeguarding mine wastes with future intent for habitat enhancement along Mill Creek through stream stabilization. This targeted approach to environmental restoration is an effort that TU can support and be a part of.

TU is in support of this project to remediate AML sites in San Juan County and has already conducted a site visit in June 2022 with the property owner. During this visit, TU offered suggestions on AML cleanup approaches, as well as stream and riparian stabilization techniques to improve adjacent habitat. Through future partnership efforts, TU hopes to assist on the project through project management, engineering, and field work that focuses on abandoned mines reclamation and habitat improvement.

Best Regards,

Jason Willis, P.E. - Trout Unlimited CO AML Program Manager

SAN JUAN BASIN
public health

281 Sawyer Drive, Ste. 300 | Durango, CO 81303
502 South 8th Street | Pagosa Springs, CO 81147
970 247 5702 | sjbpublichealth.org

On-Site Wastewater Treatment System (OWTS) Permit Application

Owner: Bonanza Boy LLC Phone: 303-909-6083
Project Address (street, town/city, zip): 0560 County Rd 15
Assessor's Parcel #* Shelbyville Lode MS 18168 Subdivision: N/A Lot#: N/A
Lot Size: 10 (acres) # of Dwellings: _____ # of Bedrooms: _____ Water Supply: Spring
List Commercial Uses (e.g., office, factory, event venue): Proposed Silver Cloud Lodge
Owner's Mailing Address: P.O.Box 992, Montrose, CO 81402
Owner's Email Address: cbarrett@gmail.com
For detailed parcel information please visit your county assessor's website or see your property tax statement*

On-site Wastewater Treatment System (OWTS) Permit Types

Choose the most applicable permit type from the list below and check the box in upper-left corner

☑ **New Construction - ($1023.00)** ***For new OWTS and complete system replacement*** • Contact Registered Soil Technician and/or Professional Engineer (PE) or system designer for analysis and design development. A PE may be required dependent on site and soil conditions. • A design must be submitted to SJBPH. SJBPH must have payment and application to review designs for permit issuance.	☐ **Alteration - ($973.00)** ***For changes/additions to existing permitted OWTS*** • Contact Registered Soil Technician and/or Professional Engineer (PE) or system designer for analysis and design development. A PE may be required dependent on site and soil conditions. • A design must be submitted to SJBPH. SJBPH must have payment and application to review designs for permit issuance.
☐ **Change Of Use - ($473.00)** ***For expanded use (e.g., bedroom count) of an existing permit without system modifications, OR new service connections (e.g., garages, shops) added to an existing permit*** • For expanded use, provide a certification report from a Professional Engineer (PE) or system designer. • For new service connections, provide a proposed site plan and describe scope of work below. • Change of Use does NOT allow for connection of new uses (e.g., second dwellings, ADUs) unless the system was originally designed for it – use Alteration instead	☐ **Minor Repair - ($373.00)** ***For replacement of OWTS components with no change to permitted use*** • Submit application with payment, transfer of title inspection report (if available) and a simple site plan showing location of repairs. • List repairs/scope of work below (e.g. tank replacement, aerators, pipe repairs, etc.) • A permit is NOT required for repair of components that do not provide treatment (e.g., fencing, tank lids, inspection ports)

Please describe in detail work to be completed: Proposed Silver Cloud Lodge OWTS

I acknowledge: (1) This application does not guarantee that an On-site Wastewater Treatment System ("OWTS") can be installed or a building permit issued; (2) The issuance of the OWTS permit does not imply any warranty by San Juan Basin Public Health as to the operation of the OWTS; (3) The OWTS must be constructed in accordance with the San Juan Basin Public Health On-site Wastewater Treatment System Regulations and any Conditions of Approval set by SJBPH; and (4) The owner of the property assumes the responsibility and liability for the proper maintenance of the OWTS.

Owner's Signature: _____ **Date:** _____

Submit completed application to eh@sjbpublichealth.org or at one of our office locations.

This is NOT a permit; this application does not authorize construction or repairs.
All OWTS construction/repair work must be performed by an installer licensed by SJBPH.

SAN JUAN BASIN
public health

281 Sawyer Drive, Ste 300 | Durango, CO 81303
502 South 8th Street | Pagosa Springs, CO 81147
970 247 5702 | sjbpublichealth.org

On-Site Wastewater Treatment System (OWTS) Permit Application

Owner: Bonanza Boy LLC Phone: 303-909-6083
Project Address (street, town/city, zip): mm78 Hwy 550
Assessor's Parcel #* Bonanza Boy Mill Site MS 16677B Subdivision: N/A Lot#: N/A
Lot Size: 5 (acres) # of Dwellings: _____ # of Bedrooms: _____ Water Supply: Well
List Commercial Uses (e.g., office, factory, event venue): Proposed Silver Cloud Lodge Employee Housing
Owner's Mailing Address: P.O.Box 992, Montrose, CO 81402
Owner's Email Address: cbarrett@gmail.com
For detailed parcel information please visit your county assessor's website or see your property tax statement*

On-site Wastewater Treatment System (OWTS) Permit Types

Choose the most applicable permit type from the list below and check the box in upper-left corner

☑ **New Construction - ($1023.00)** ***For new OWTS and complete system replacement*** • Contact Registered Soil Technician and/or Professional Engineer (PE) or system designer for analysis and design development. A PE may be required dependent on site and soil conditions. • A design must be submitted to SJBPH. SJBPH must have payment and application to review designs for permit issuance.	☐ **Alteration - ($973.00)** ***For changes/additions to existing permitted OWTS*** • Contact Registered Soil Technician and/or Professional Engineer (PE) or system designer for analysis and design development. A PE may be required dependent on site and soil conditions. • A design must be submitted to SJBPH. SJBPH must have payment and application to review designs for permit issuance.
☐ **Change Of Use - ($473.00)** ***For expanded use (e.g., bedroom count) of an existing permit without system modifications, OR new service connections (e.g., garages, shops) added to an existing permit*** • For expanded use, provide a certification report from a Professional Engineer (PE) or system designer. • For new service connections, provide a proposed site plan and describe scope of work below. • Change of Use does NOT allow for connection of new uses (e.g., second dwellings, ADUs) unless the system was originally designed for it – use Alteration instead	☐ **Minor Repair - ($373.00)** ***For replacement of OWTS components with no change to permitted use*** • Submit application with payment, transfer of title inspection report (if available) and a simple site plan showing location of repairs. • List repairs/scope of work below (e.g. tank replacement, aerators, pipe repairs, etc.) • A permit is NOT required for repair of components that do not provide treatment (e.g., fencing, tank lids, inspection ports)

Please describe in detail work to be completed:
Proposed Silver Cloud Lodge OWTS for the employee housing site

I acknowledge: (1) This application does not guarantee that an On-site Wastewater Treatment System ("OWTS") can be installed or a building permit issued; (2) The issuance of the OWTS permit does not imply any warranty by San Juan Basin Public Health as to the operation of the OWTS; (3) The OWTS must be constructed in accordance with the San Juan Basin Public Health On-site Wastewater Treatment System Regulations and any Conditions of Approval set by SJBPH; and (4) The owner of the property assumes the responsibility and liability for the proper maintenance of the OWTS.

Owner's Signature: _____ **Date:** _____

Submit completed application to eh@sjbpublichealth.org or at one of our office locations.

This is NOT a permit; this application does not authorize construction or repairs.
All OWTS construction/repair work must be performed by an installer licensed by SJBPH.

B.K. Briggs & Associates, LLC.
2019 Otter Pond Circle
Montrose, CO 81401

P: 970.596.1982
E: bbriggs@bkbassoc.com

Date: **June 23, 2022**

To: **Colby Barrett**
Bonanza Boy LLC

From: **Brian K. Briggs P.E.**

PROJECT: **Bonanza Boy, Silver Cloud Lodge – Conceptual Septic Designs**

Design criteria are based on CDPHE Regulation 5 CCR 1002-43.

Silver Cloud Lodge Location

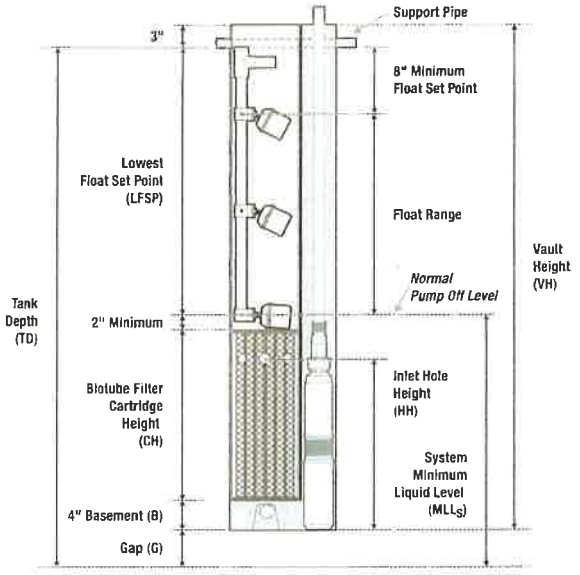
Two test pics were dug on site for the Onsite Wastewater Treatment System (OTWS) please see Figure 1 below. Based on the visual & tactile review of the soil encountered in the test pits it was determined that there is greater than 65% rock in the proposed location. Based on Table 10-1A from Reg 43 this establishes the soil as type R-2. Soil type R-2 requires a Timed Pressure Distribution system with a minimum 3-foot deep, unlined sand filter with a maximum LTAR of 0.8 gallons per day per square foot.

Figure 1. Silver Cloud Septic Location Test Pits

No sizing adjustments are allowed for systems placed in type "R" soils. Laterals in the absorption field shall be constructed with sand media, overlayed by a minimum of twenty-four inches of ¾" washed gravel. The distribution pipes will be placed at the center of the laterals and buried with two inches of washed gravel.

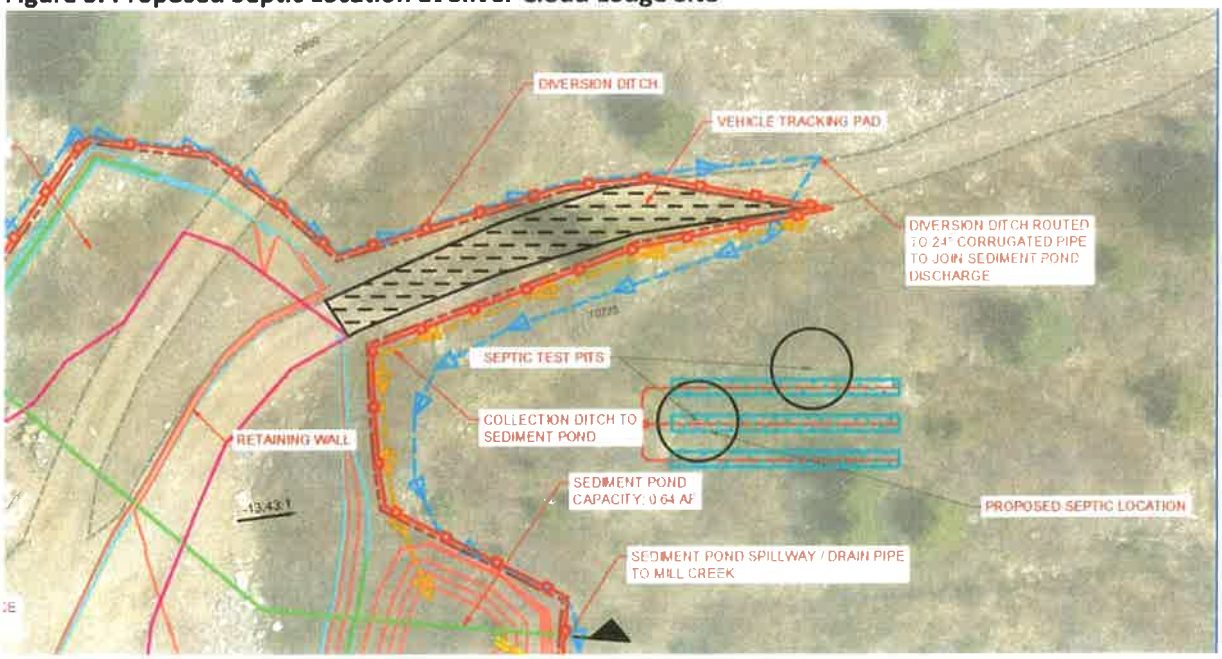
Current Design rate used for this conceptual design is the max allowable of 1999 gpd. The final design rate is still to be determined and could be lower than 1999 gpd. This conceptual design rate will require a minimum septic tank size of 4000 gal which will be installed with an Orenco biotube filter or similar pretreatment prior to discharging into a pump manhole. The pump will be sized for pressure dozing to the leach field. An example system is shown below in Figure 2.

Figure 2. Example Pump & Biotube Detail



The proposed site location is shown below in Figure 4. This location has adequate required separation distances from critical infrastructure and water ways as required by Regulation 43.

Figure 3. Proposed Septic Location at Silver Cloud Lodge Site



Based on our professional opinion, a functional compliant OTWS can be installed at this site that meets all requirements put forth in CDPHE Regulation 5 CCR 1002-43.

Bonanza Boy Location

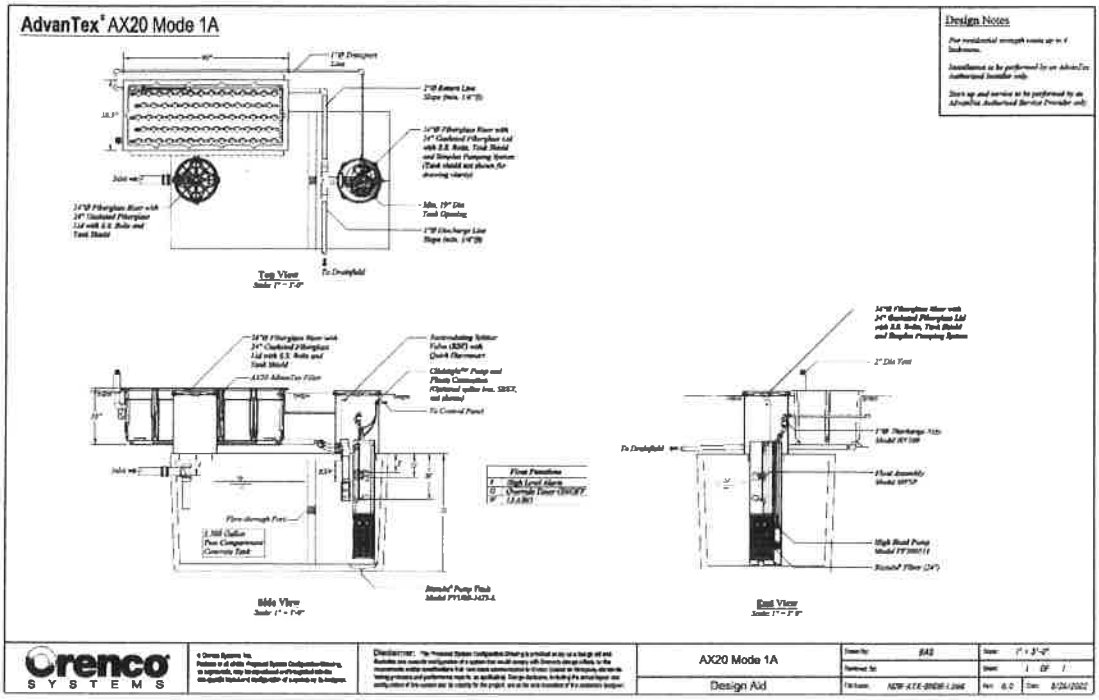
A location at the northern corner of the Bonanza Boy Mill Site claim has been proposed for the site of an OTWS, please refer to Figure 4 below. No test holes have been dug at this location yet due to the wetlands delineation still underway. Once a final wetlands delineation is available test pits will be dug outside of wetlands to evaluate the tactile and visual soil type for grading according to Reg 43.

Figure 4. Proposed for Bonanza Boy OTWS Site

However, based on the proximity to wetlands and the apparent high-water table, any system installed at this site will require prefiltration followed by a mounded sand filter. Systems such as the Orenco Advantex AX20 or similar unit followed by a mounded sand filter have been designed by our firm and installed in Ouray, Montrose, Delta, and San Miguel Counties where the challenges of a high water-table or limited available leach area require such systems.

The AdvanTex Treatment System is a compact and efficient recirculating packed-bed filter. Packed-bed filters have proven to be a highly dependable, energy-efficient, and low-maintenance technology. Orenco's AdvanTex AX20 units treat septic tank effluent to better-than-secondary standards, including nitrogen-reduction. AX20 treatment pods are sturdy, watertight basins filled with lightweight, highly absorbent, engineered textile media that treats a tremendous amount of wastewater in a small space. Please see the Figure 5 below for an example of the AdvanTex System. Each filter system can treat up to six hundred gpd and depending on final design rates, which are still being determined, up to three filter units would be installed at this site followed by a mounded sand filter.

Figure 5. Pretreatment System Example proposed for Bonanza Boy Site



Though the initial wetlands inventory shows that limited area is available for installation of a mounded sand filter there appears to be enough suitable area with the proper distance away from an installed well on the property for an OWTS to be installed given the reductions in size allowed with use of an AdvanTex or similar system. If such is determined not to be the case upon final design analysis, a fully functional batch wastewater treatment plant would be designed for this site which would include discharge storage and potential greywater reuse, as necessary. Our professional opinion, based on current information, is that a functional compliant OTWS should be able to be installed at this site that meets all requirements put forth in CDPHE Regulation 5 CCR 1002-43.

SCENIC QUALITY REPORT

Proposed Silver Cloud Lodge/PUD
and
Phase 1: 2023/2024 Mining Reclamation Voluntary Clean Up (VCUP)

Shelbyville Lode USMS No. 18168 et al
Mill Creek near Chattanooga
Highway 550, San Juan County, Colorado

Applicant:
Bonanza Boy LLC
Attn: Mr. Colby Barrett
PO Box 992
Montrose, Colorado 81402
(303) 909-6083

Prepared By:
Engineer Mountain, Inc.
Attn: Lisa Adair PE
962 Reese Street
PO Box 526
Silverton, Colorado 81433
(970) 387-0500
Job No. 2023-101

Submitted:
June 27, 2023

SCENIC QUALITY REPORT
Silver Cloud Lodge/PUD
Prepared By Engineer Mountain, Inc.

1. INTRODUCTION AND SITE LOCATION

San Juan County regulations state the following:

All residential development shall be required to submit a Scenic Quality Report at the time of sketch plan submittal.

This is a Scenic Quality Report for the Proposed Silver Cloud Lodge/Planned Unit Development (PUD) prepared by Engineer Mountain Inc.

The **Silver Cloud Lodge/PUD** is located on the Shelbyville Lode USMS No. 18168 near Chattanooga accessed via Highway 550 between Silverton and Ouray. Adjacent mining claims are also part of the Proposed PUD.

The **Shelbyville Lode** is located in Mill Creek near Chattanooga. Mill Creek is a gulch that is located at the hairpin Muleshoe Curve of Highway 550 north of Chattanooga. Mill Creek Road/County Road 15/US Forest Service Road 821 provides access to and exists within the boundaries of the Shelbyville Lode.

A lodge structure is proposed in the future on the Shelbyville Lode (as **Phase 2** of the Proposed PUD).

At this time the proposed construction is a mining reclamation voluntary cleanup (**VCUP**) project at the Silver Crown Mine on the Shelbyville Lode (as **Phase 1** of the Proposed PUD).

A nearby mining claim which is also part of this Proposed PUD is named the Bonanza Boy Mill Site, located at Chattanooga on Highway 550. The **Bonanza Boy Mill Site** is a vacant parcel, adjacent to the existing Artist Cabin vacation rental structure/property (owned by the Stern family). The Bonanza Boy Mill Site is approximately across Highway 550 from the existing historic Silver Ledge Mill Building.

A garage/employee housing structure is proposed in the future on the Bonanza Boy Mill Site (as **Phase 3** of the Proposed PUD).

Future **Phase 4** of the Proposed PUD generally consists of proposed recreation and mining heritage tourism site improvements such as trail work/maintenance, some summer dispersed designated walk-in tent camping spots, fixed rope trail hiking system (via ferrata); and a "bathhouse" (toilet/shower facility) would probably be required to accommodate the tent campers.

Please refer to the Vicinity Map included within this Sketch Plan PUD Application binder for further information regarding the general location of the project site.

2. PROJECT SITE AND PROPOSED STRUCTURE LOCATION

County regulations require that this Scenic Quality Report include the following information:

Designations of scenic views of natural and historic features both from and toward the site and descriptions of how these vistas shall be preserved. Graphic depictions of the proposed structure's impact on these views shall be submitted to allow staff, the Planning Commission, and the Board of County Commissioners to assess the impacts of the project and the effectiveness of proposed mitigation measures.

The **Silver Ledge Mill Building** is across Highway 550 from part of the project site.

Red Mountain Project Structures

Silver Ledge Loadout, Mine and Outhouse

Loadout at Chattanooga

This was the first project for the Ouray County Historical Society. A loadout is a form of hopper[9], in which ore from a mine is placed awaiting transportation, usually by rail, to a smelter for processing. The Silver Ledge Loadout was a hopper and cable tram terminus. Ore was deposited there, awaiting shipping by the infamous Otto Mears, the owner of the Silverton Northern Narrow Gauge Railway.

Originally there was a mill behind the current loadout that was used to process the ore that was transported to it via aerial tramway[10] from the mine to the mill and then load the processed ore onto the train. Unfortunately, this mill burned down. The miners had to hastily erect a loadout using some salvaged material from the mill in order to transport the unprocessed ore from the Silver Ledge Mine. This is the structure still standing near the highway. Directly behind it, one can see the remains of the mill foundation and pieces of machinery. Interestingly, this mill, like the mine, had hydroelectric power in the 1890's. The water came down from Columbine Lake via a penstock[11] to the mill.

Silver Ledge Loadout burned interior timber

This building needed to be squared and plumbed[12]. Many timbers were broken by rock fall from the mountain and had to be replaced. Some of the roof rafters were broken and so we used a technique called sistering, whereby we put new rafters alongside the old ones to hold the shape of the structure. The building was sitting in the dirt, so we poured a foundation all around it. We also added windows, but unfortunately, they have now been vandalized.

Silver Ledge Loadout rear

Silver Ledge Loadout front

9) Hopper: a bin or funnel that is loaded from the top and which discharges through a door or chute at the bottom.

10) Aerial tramway: aerial mining tramways were useful systems for transporting ore from a mining site to a location where it would be taken to a smelter by rail, wagon, or boat.

11) Penstock: a sluice or floodgate for regulating the flow of a body of water.

12) Squared and plumbed: square means corners are 90 degrees. Plumb is vertical, most accurately gauged by a plumb bob.

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The photo above includes information regarding the Silver Ledge Mill Building located near the project site at Chattanooga on Highway 550. Used with author permission from 2023 publication entitled The Story of an English Immigrant's Efforts to Preserve Mining History by Christopher F. George.

SCENIC QUALITY REPORT
Silver Cloud Lodge/PUD
Prepared By Engineer Mountain, Inc.

The photo above is the Silver Ledge Mill Building located near the project site at Chattanooga on Highway 550. Part of the project site is across the Highway from the Silver Ledge Mill Building.

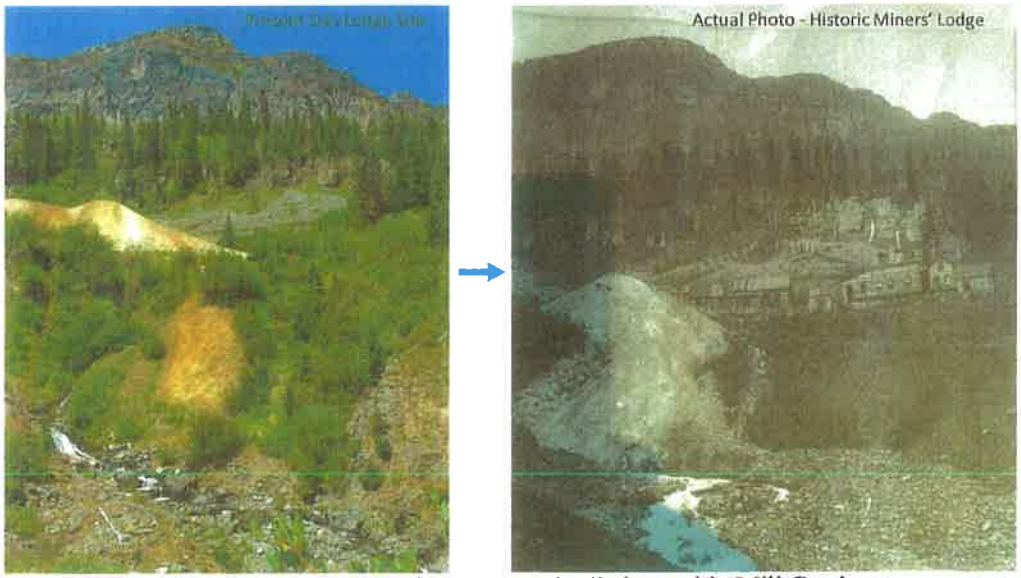
The photo above is the Artist Cabin vacation rental structure near the project site at Chattanooga on Highway 550. Part of the project site is the vacant mining claim next to the Artist Cabin property.

Part of the project site is the Bonanza Boy Mill Site. The Bonanza Boy Mill Site is vacant. It is located on Highway 550. The parcel adjacent to the Bonanza Boy Mill Site is the location of the Artist Cabin vacation rental structure. Across the Highway from the Bonanza Boy Mill Site is the Silver Ledge Mill Building. A future proposed garage/employee housing structure is located on the Bonanza Boy Mill Site, as Phase 3 of the Proposed PUD. The future proposed garage/employee housing structure would share an existing Highway 550 driveway with the Artist Cabin.

SCENIC QUALITY REPORT
Silver Cloud Lodge/PUD
Prepared By Engineer Mountain, Inc.

Part of the project site is the Silver Crown Mine on the Shelbyville Lode in Mill Creek. Mill Creek is a gulch which is accessed via Mill Creek Road/County Road 15/US Forest Service Road 821. That road begins at the hairpin Muleshoe Curve on Highway 550. The Shelbyville Lode is vacant with a visible mining waste rock pile. The mining waste rock pile is on the righthand (north) side of the Mill Creek gulch, when viewed from the Muleshoe Curve on Highway 550. A future proposed lodge structure is located on the Shelbyville Lode, as Phase 2 of the Proposed PUD. The lodge would recreate the historic mining buildings that once stood on the Shelbyville Lode.

The photo above is a view of the hairpin Muleshoe Curve on Highway 550 looking east from upper Mill Creek. Part of the project site is located in Mill Creek above the Highway 550 Muleshoe Curve.



The photo above is a view of the Silver Crown Mine waste rock pile located in Mill Creek.
Part of the project site is located at the Silver Crown Mine in Mill Creek above the Highway 550 Muleshoe Curve. The historic buildings in the right hand picture are proposed to be rebuilt as a proposed lodge, after a proposed on-site mining reclamation project.

SCENIC QUALITY REPORT
Silver Cloud Lodge/PUD
Prepared By Engineer Mountain, Inc.

The Applicant is proposing a Planned Unit Development (PUD).

Phase 1 of the Proposed PUD would be a 2023/2024 mining reclamation voluntary cleanup (VCUP) project at the Silver Crown Mine on the Shelbyville Lode.

Phase 2 of the Proposed PUD would be in the future consisting of rebuilding the former mining-related structures that once existed on the Shelbyville Lode. Those former structures to be rebuilt are shown in the photo on page 4 in this report.

Phase 3 of the Proposed PUD would be in the future consisting of a proposed garage/employee housing structure on the Bonanza Boy Mill Site. That is across the Highway from the Silver Ledge Mill Building, and close to the Artist Cabin. The Silver Ledge Mill Building and the Artist Cabin are shown in the photos on pages 2 and 3 of this report.

Phase 4 would consist of proposed recreational improvements.

At this time the only proposed construction is Phase 1 of the PUD, which is the mining reclamation VCUP project at the Silver Crown Mine on the Shelbyville Lode in Mill Creek.

The Project Architects have prepared plans, which are included on the following six pages. The Architects' plans show the views of the future proposed structures from Highway 550 and from Mill Creek Road/County Road 15/US Forest Service Road 821.