



# GOSSAN RESTORATION PROJECT SUMMARY

## BACKGROUND

The gossan is a naturally occurring geologic feature composed of iron oxides located three miles west of Crested Butte on Mt. Emmons. In 1978, a fire was started by welding operations at the Keystone Mine site that destroyed much of the overlying forest; vegetation has not recovered. Multiple studies have identified the gossan as a primary source of metals loading in the Coal Creek Watershed and one of the pollutant sources responsible for cadmium and zinc water quality impairments in Coal Creek. Reclamation efforts are required to stem the ongoing run-off and erosion and mitigate metal mobilization into Coal Creek.

## PROJECT GOALS

The goal of the Gossan Restoration Project is to restore a 19-acre area to improve forest and wetland habitat, eliminate or substantially reduce erosion, and decrease run-off of acidic metals-laden water from the gossan. Due to its location, the Project has the potential to improve water quality, aquatic habitat, and riparian conditions in up to four miles of downstream waters in Coal Creek. The project will also reduce metal concentrations in the Town’s municipal water supply.

The Project is expected to reduce or eliminate erosion by reducing slope lengths and creating desirable micro-topography, establish appropriately-sized and stable drainage channels to reduce erosion, increase the size and quality of a degraded wetland on the south end of the site, and create a mosaic of upland, mesic, and wetland vegetation to restore natural resources and watershed health.

Estimate of Restored Natural Resources	Quantity	Unit
Gossan Restoration Area	19	acres
Drainage channels	6,000	linear feet
Retained sediment	80,731	pounds per year
Upland vegetation	7	acres
Mesic vegetation	3	acres
Wetlands	1	acre
Downstream water quality improvements	4	miles
Cadmium load reduction	6	pounds per year
Zinc load reduction	1,365	pounds per year

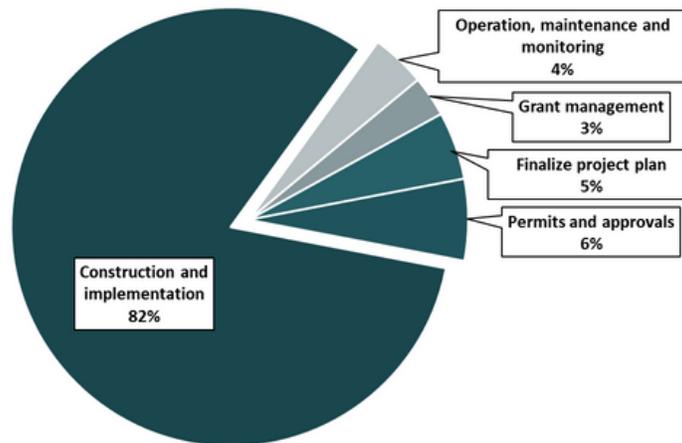
## PROJECT PARTNERS & ROLES

Project Partners and Roles

- Coal Creek Watershed Coalition (CCWC): planning, design, grants, and environmental monitoring.
- Colorado Division of Reclamation Mining and Safety (DRMS): design and construction oversight.
- Mt. Emmons Mining Company (MEMC): landowner, funding, design, and construction oversight
- United States Forest Service (USFS): landowner, design, permitting, and construction oversight.
- Town of Crested Butte (Town): funding, permitting, and oversight.
- Gunnison County (County): permitting
- Standard Metals Natural Resource Damages Fund (NRD): funding and oversight.

## ESTIMATED BUDGET

We estimate that the project will cost approximately \$1,530,000. As of December 2022, the partners have committed \$1,130,000 in cash and in-kind contributions.



## PREFERRED TIMELINE

Task	2023				2024				2025				2026				2027				2028				2030, 2032, 2035			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4																				
Finalize project plan																												
Permits and approvals																												
Construction and implementation																												
Maintenance and monitoring																												

Preferred timeline

Construction may be divided between 2024 and 2025.

For additional details please contact Ashley Bembenek at [director@coalcreek.org](mailto:director@coalcreek.org)