

Climax Molybdenum Company
Permit M-1977-493
Exhibit E – Reclamation Plan

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E-1 Summary of Existing Reclamation Plans

The existing Climax Mine Reclamation Permit includes plans for reclaiming areas affected by mineral extraction and production at the site. These areas include the open pit, ore processing areas, overburden storage facilities (OSFs), tailings storage facilities (TSFs), and other structures and facilities within the affected area. Reclamation practices that have been previously approved by the Colorado Division of Reclamation, Mining, and Safety (DRMS) for use at the Climax Mine include the following:

- Regrade to enhance long-term stability, promote reclamation success, and reduce erosion potential.
- Install and maintain surface water drainage controls to retain or route water from the affected area in a non-erosive manner.
- Strip available topsoil prior to disturbance, then spread or discretely stockpile topsoil on site.
- Distribute and spread topsoil onto areas prepared for final reclamation at depths that most benefit the reclamation process.
- Place temporary rock covers on the TSFs as needed to reduce potential water and wind erosion.
- Incorporate amendments into final cover materials as needed to manage soil quality.
- Revegetate with ecologically appropriate species mixtures, accounting for elevation and other conditions that vary within the affected area.

Some of the reclamation strategies in the approved permit will be unaffected by this update. However, these strategies have been re-evaluated in this revision with the goal of minimizing post-reclamation maintenance of the site and implementing lessons learned from previous reclamation activities conducted at the site. This reclamation plan supersedes prior Climax reclamation plan submittals with respect to the sections included herein. All other aspects of the previously approved Climax reclamation plans remain unchanged.

E-2 Reclamation Goals

The reclamation goals of the Climax Mine have not changed from previous approvals. The overall reclamation goal is to achieve post-mining land use on all reclaimed land. In areas where revegetation is required to meet post-mining land use, the long-term reclamation goal is still to stabilize disturbed areas and create a long-term self-sustaining vegetative cover that promotes ecological succession and stability. Stabilization and revegetation objectives for the Climax Mine have been, and will continue to be, pursued with the best practical technology developed for high-altitude reclamation.

E-2.1 Target and Surrounding Land Use

Post-mining land use for the Climax Mine site will be a mix of Rangeland (RL), Wildlife (WL), and industrial. Generally, locations West of Highway 91 shall be repurposed as RL while areas East of the highway will be repurposed for WL. Approximately 3 percent of the TSF surfaces will be repurposed for WL where tree islands will be constructed. The pit and water treatment plant will both be repurposed for industrial land use. These land use designations are consistent with previous versions and permit amendments and are also consistent with master plan objectives of local counties. The land adjacent to the Climax property is primarily National Forest Land managed for various land uses by the US Forest Service (USFS), similar to those designated by Climax. The USFS lands are used primarily for recreation with limited forestry and grazing activities. Several small, patented mining claims also border Climax property but are not currently being mined. Figure F-08 in Exhibit F and Table E-1 presents the locations for each type of post-mining land use.

Table E-1: Post-Mining Cover Areas by Facility

Facility	Post-Mining Land Use
McNulty OSF	WL
North OSF	WL
Mayflower TSF	RL ¹
Tenmile TSF	RL ¹
Robinson TSF	RL ¹
Robinson Lake Area	RL
1 Dam	RL
3 Dam	RL
5 Dam	RL
Mill	WL
Pit Area	Industrial
Roads	RL west of Highway 91 and WL east of Highway 91

Notes: 1. 3 percent of the tailings impoundment surfaces will consist of tree planting areas that will be designated as Wildlife land use.

E-3 Reclamation Success

Climax has devoted significant time and expense to researching, testing, and developing practical and workable solutions to reclamation challenges in high-altitude environments. Since the 1960s, Climax has been at the forefront in developing reclamation and revegetation techniques that are in use at many other high-altitude mines as well as ski areas, highway projects, and other high-altitude developments.

Learning from past reclamation projects and years of experience, Climax has developed strategies for high-altitude revegetation that have proven successful. The strategies outlined in this reclamation plan reflect these lessons learned. Climax will continue to develop and implement innovative reclamation technologies to improve reclamation success.

To date, Climax has placed nearly 1,300 acres into its reclamation programs. Projects have included capping and revegetating existing dam faces, capping and revegetating TSFs, demolition of obsolete buildings and facilities, revegetating existing OSFs, reclaiming historic mine sites on the property, and developing freshwater facilities from a reclaimed TSF and a reclaimed gravel pit. Several of these innovative and highly successful reclamation projects are described in detail below.

E-3.1 Eagle Park Reservoir

Climax's Eagle Park Reservoir was historically a molybdenum oxide TSF and included Climax Mine's 4 Dam. In 1996 and 1997, approximately 1.3 million tons of molybdenum oxide tailings were removed from the TSF and the site was reclaimed as a freshwater storage facility. Eagle Park Reservoir now provides water storage for water users downstream in the Eagle River Basin. 4 Dam was taken over by Eagle River Water & Sanitation District and is no longer owned, operated, or maintained by Climax. The stored water in the reclaimed reservoir meets or exceeds stream standards, and the revegetation on the banks equals or exceeds the vegetative cover and vigor of nearby native communities. This project earned Climax the DRMS's 1998 Hardrock Reclamation Award.

E-3.2 Robinson Tailings Storage Facility Reclamation

Capping began on Robinson TSF in the 1980s with direct hauled overburden from the open pit mining operation. Prior to 2005, approximately 300 acres of the TSF surface were drained and capped starting on the drier south and west edges. In 2005, Climax received DRMS approval (TR-13) for a combined wet and dry cap on the TSF

and began construction to complete the project. An additional 102 acres of dry cap were placed. Geogrid was used to stabilize the wettest areas.

Previous reclamation efforts have used biosolids to supplement available growth media. Although the use of biosolids has successfully enhanced revegetation, Climax will no longer be using biosolids due to concerns with potential per- and polyfluoroalkyl substance (PFAS) in the sources.

In addition to capping, the majority of Robinson TSF has been revegetated and 114 acres have achieved bond release.

E-3.3 Storke Area Reclamation

The Storke Yard historically included many underground mining and support facilities as well as the mine's aggregate resource. Additionally, the Arkansas River headwaters flow across Climax property through the Storke Yard. In the early 1970s, a section of the river was diverted through a buried 2,000-foot-long concrete pipe. Starting in 1989, the gravel pit was reclaimed to a freshwater pond and the surrounding area was revegetated. The Arkansas Pond now supports a sustaining trout population, and the surrounding vegetation community is well established and diverse.

In 1994, the equipment from Storke Yard and most of the buildings were demolished in preparation for the reclamation of the area. Much of the area was graded and revegetated in 1995 and trees were planted into the reclamation. This area now supports a diverse grassland vegetation community.

Climax's most recent project in the Storke Yard was a project to daylight the Arkansas River into a newly constructed channel. The new design incorporated a stable meandering channel and floodplain that mimics the conditions up and downstream. The channel was designed to pass a 100-year, 24-hour event, and revegetation along the channel includes transplants of native vegetation, willow and birch shrubs, and Engelmann spruce trees harvested on site. The site demonstrates sustaining vegetation establishment and hydrologic stability after numerous years of vary flow rates.

Reclaimed portions of the overall Storke Area have since been successfully reclaimed and the bond released. No further actions or cost are anticipated for these specific reclaimed areas.

E-3.4 Dam Faces

To date, Climax has stabilized and capped all or parts of the faces of 1 Dam, 2 Dam, 3 Dam, 5 Dam, and Robinson Dam. Robinson Dam and 4 Dam were designed for rock cover only with 4 Dam now being owned by Eagle River Water & Sanitation District. A permanent vegetation cover has been successfully established on portions of 3 Dam and 5 Dam. 3 Dam and 5 Dam have previously had 66 acres and 25 acres of bond released, respectively.

1 Dam has been partially revegetated as a result of the Robinson Lake clean-out project (TR-15). This project, initiated in 2008, was designed to expand the process water capacity of the lake. During the project, native soil materials were encountered that had been historically buried under the lake. These native soil materials were used on 1 Dam as an added benefit for reclamation.

E-3.5 Searle Gulch Historic Mining Area

Numerous inactive mine sites in the Kokomo Creek and Searle Creek were reclaimed in a program that was initiated at the Climax Mine in 2006. Mine wastes were loaded and hauled to identified depositories near active Climax tailing areas. Each of the 26 mine sites were then graded to the approximate original contour. Soils were then amended and revegetated. In all, 240,000 cubic yards of waste rock were removed and hauled, 43 acres were regraded, and 18,000 cubic yards of soil amendments were hauled and placed. Climax is monitoring the results of this voluntary reclamation project.

E-4 Water Management

Water management for both fresh and process water is a critical component of Climax's mining and reclamation operations. Detailed descriptions of the water management plan for production and at closure are included in Exhibit G: Water Information.

Of additional importance to reclamation is the control of erosion and sediment runoff. Climax has obtained coverage under the Colorado Discharge Permit System (CDPS) – Stormwater Discharges Associated with Metal Mining Operations and Mine-Waste Remediation program (Certification No. COR-040178) and maintains a current Storm Water Management Plan (Climax Molybdenum Company 2022); Climax conducts regular inspections as directed by this plan. Best management practices (BMPs) to control erosion and sediment (e.g., silt fence and straw wattles) are regularly installed, inspected, and maintained as needed throughout the mine site. BMPs will continue to be used routinely during production and reclamation activities as needed to comply with regulations. Discharges included in the stormwater program are located outside of the active mining and industrial areas and include areas such as reclaimed sites, access roads, etc.

Water discharges occurring from within the active mining and industrial areas are managed under Climax's CDPS No. CO0000248; this permit contains effluent limitations, monitoring requirements and other conditions regulating water quality.

E-5 Grading

As stated in previous approved plans, disturbances with slopes that need regrading will, whenever possible, be graded to no steeper than 2H:1V and 3H:1V slopes for OSFs and TSFs, respectively. TSF out slopes have been constructed at slopes of 3H:1V or flatter and do not require any regrading during reclamation activities. The design of the OSFs will incorporate stability evaluations based on this maximum overall composite slope of 2.4H:1V. All OSF out slopes, currently at the angle of repose, will similarly be regraded to a maximum interbench slope of 2H:1V. Final OSF slopes are anticipated to be regraded and may achieve slopes flatter than 2H:1V to promote long-term stability (Exhibit D, Section 3.3). Ultimately, grading will be implemented to maintain drainage control and stability. When possible, shallower slopes will be graded to promote revegetation. Exceptions to this general standard include the open pit. The majority of the open pit will not be graded.

E-6 Growth Media

The use of on-site soils to provide nutrients and organic matter and enhance their water-holding capacity has historically been successful as growth media at Climax. This can be achieved with additions of a combination of seed and mulch. This section provides detail regarding the ongoing soil salvage and stockpile operations across the site as well as a discussion regarding various soil amendments historically used.

E-6.1 Reclamation Cover Salvage

Overburden soils (combined topsoil and subsoil) are being salvaged and stockpiled throughout the mine for future use as reclamation cover. Mobile equipment will be used to remove reclamation cover materials that will be either directly hauled from areas affected by mining activities to the reclamation site or placed in designated storage areas adjacent to each production area for easy reapplication to the disturbed area, as shown in Figure F-02.

Reclamation cover has been salvaged and stockpiled at Climax since 1978. Current stockpiles located around the mine site include approximately 816,100 cubic yards for stockpiles west of State Highway 91 and 1,375,000 cubic yards east of the highway for future reclamation use (Figure F-02, Exhibit F). Additional soil will be salvaged from areas of planned disturbance prior to raising the dams on the Mayflower TSF and increasing the size of the McNulty OSF (Section I-6 in Exhibit I). Approximately 2,239,000 cubic yards and 4,899,800 cubic yards are planned to be salvaged from the McNulty OSF and Mayflower TSF expansion areas, respectively. If necessary, BMPs will be implemented to reduce erosion from the new stockpiles.

Climax is proposing two reclamation cover removal options. The first option is used when reclamation cover materials are being directly hauled from the disturbance area to reclamation. The second option is used when reclamation cover materials are being stockpiled for later redistribution. Exhibit I: Soil Information contains the baseline soil salvage depth and volume tables for the McNulty and North 40 OSFs (Table I-1) and Mayflower TSF (Table I-2) mining areas. The baseline soil volume summary contained in Table I-4 (Exhibit I), contains a listing of soil removal areas and total salvage volumes compared to reclamation cover replacement volumes. The salvage depths are based on a critical review of the USFS White River and Pike soil survey soil map unit descriptions. Soil salvage depths will be determined by in-place soil monitoring to be conducted ahead of soil removal operations. Deep soils for reclamation cover are usually located in draws and valley floors while ridge tops have generally very shallow topsoil with high coarse fragment contents. Shallow ridge soils usually covers rocky parent material

that may not be favorable for final reclamation and difficult to remove mechanically due to steep slopes and the high coarse fragment content.

E-6.1.1 Direct Haul Reclamation Cover Salvage

Climax recognizes the advantage to reclamation provided by directly hauling salvaged reclamation cover materials to final graded backfill whenever possible. Direct haulage of reclamation cover will improve the transfer of nutrients, organic matter, microbial populations, and residual native seed bank. When direct haulage of reclamation cover is performed outside of the active growing season, increased volunteer growth of plant propagules is supported. The following reclamation cover removal options will be considered when the salvaged soil is being directly hauled and placed on final graded backfill:

- 1) To reduce compaction and destruction of soil structure, consideration of soil moisture content will be utilized to optimize when soil moisture levels are sufficient to reduce dust yet dry enough to reduce soil mucking.
- 2) Stripping of reclamation cover from the bottom of drainages should be given priority to prevent contamination of soil by disturbed runoff.

E-6.1.2 Stockpiled Reclamation Cover Salvage Option

Whenever possible, soil stockpiles will be located to reduce haul distances and avoid handling materials multiple times. Soils removed from OSF locations will primarily be used to reclaim OSFs and the mill area, but excess materials may be hauled for reclamation on TSFs. Soils removed prior to expansion of the Mayflower TSF may be direct hauled for placement on the Tenmile TSF and/or stockpiled for future reclamation of the Mayflower TSF. Reclamation cover for stockpiling will be handled similarly to directly hauled material and reclamation cover will be removed, hauled, and placed on appropriately located and designated stockpiles in areas shown in Figure F-02 (Exhibit F) or other suitable locations that may be designated in the future.

E-6.1.3 Stockpile Cover and Erosion Control Plan

Reclamation cover will be stockpiled in such a manner to reduce wind and water erosion and unnecessary compaction. The primary methods of erosion control for soil stockpiles are timely revegetation and/or the use of temporary erosion control measures such as surface roughening, surface mulches, berms, ditches, or small sediment traps. Reclamation cover stockpiles will generally be constructed with 2.0H:1V or flatter slopes. Stockpiled reclamation cover will be seeded with the temporary revegetation seed mixture (Section E-7.1.1). The estimated quantity of soil that will be generated during future mining activities is discussed in Exhibit I: Soil Resources.

E-6.1.4 Temporary Reclamation Cover Stockpiles

In limited situations, reclamation cover materials may be temporarily stockpiled or windrowed near active operations rather than placed in permanent stockpiles. These situations would occur when the salvaged reclamation cover is needed for current reclamation, but the area is not immediately ready for soil to be respread. Temporary reclamation cover stockpiles will be seeded with the temporary seed mix as soon as possible after stockpile construction and clearly identified with appropriate signs.

E-6.2 Reclamation Cover Placement

There will be a nominal depth of 24 inches of reclamation cover material placed on areas designated for final reclamation. For approximately 3% of the TSF reclaimed surfaced offset 200 feet from the dam crests, the cover material thickness will be 48 inches to promote tree growth. Placed reclamation cover material may be ripped to reduce compaction prior to revegetation. Seeding will follow the application of soil during the first appropriate season. Detailed discussion of OSF and TSF reclamation is included in Section E-11.

E-6.3 Soil Amendments

Climax has applied biosolids to previously reclaimed areas under a permit issued by the United States Environmental Protection Agency (USEPA) and the Colorado Department of Public Health and Environment (CDPHE). Although the use of biosolids has successfully enhanced revegetation, Climax will no longer be using biosolids due to concerns with potential fluorinated compounds in the sources and will be officially discontinuing their use in 2024. Soil amendments other than, or in addition to, reclamation cover are sometimes required for

successful reclamation at Climax. The need for other amendments will be determined from soil analyses and/or reclamation site characteristics on a site-by-site basis.

E-6.3.1 Soil Analysis

Prior to application of reclamation cover, materials may be sampled and analyzed. Cover materials that could be tested include pit overburden and salvaged reclamation cover soils. Soil analyses may include, but are not limited to, acid potential, neutralization potential, organic matter, nutrients (nitrogen, phosphorous and potassium), and texture. These analyses will be used to determine the need for lime additions.

E-6.3.2 Fertilizer

No amendments are proposed. Recent experience at similar sites shows that use of inorganic fertilizer for native species revegetation provides no benefit and may be detrimental.

E-7 Revegetation

Revegetation at Climax has included seeding with various seed mixtures, as well as direct transplanting of trees, shrubs, and herbaceous vegetation. Alternate plant species will be substituted for species of the same life form if the originally identified species becomes unavailable. The alternate species shall be added at a rate to provide the same PLS/sq ft as the species being replaced. The following sections detail the different revegetation techniques.

E-7.1 Seeding

Reclamation areas, with the exception of talus, will generally be seeded as a part of revegetation efforts. One of several seed mixtures will be used depending on the characteristics of the reclamation area:

- Reclamation areas that will be disturbed within five years of initial seeding may be stabilized with a temporary seed mixture (Section E-7.1.1).
- Reclamation areas above the tree line will be seeded with an alpine seed mixture (Section E-7.1.3).
- Reclamation areas with potential hydric soils or saturated soil conditions may be seeded with a hydric seed mixture (Section E-7.1.4).
- All other reclamation areas will be seeded with the upland standard seed mixture (Section E-7.1.2).

A concerted effort will be made to acquire the recommended seed mixture; however, species availability can vary from year to year. If substituting species is necessary, a list of alternative species has been included for each of the recommended seed mixtures in this section. The seed mixtures are designed to maintain a diversity of life forms (e.g., perennial grasses, perennial forbs, and woody plants) should there be a need to revise the seed mixture with alternative species.

E-7.1.1 Temporary/Stabilization Seed Mixture

The temporary/stabilization seed mixture (Table E-2) may be used in reclamation areas that require temporary cover or stabilization. This seed mixture may be broadcast or hydroseeded at a target rate of 100 pure live seeds per square foot (PLS/sf).

Table E-2: Temporary/Stabilization Seed Mixture

Species	Common Name	Desired Species Composition	Avg. Seeds/Lb	Lbs PLS/Acre	PLS/sf
<i>Elymus trachycaulus</i>	Slender wheatgrass	20.0%	159,000	5.48	20.0
<i>Bromus ciliatus</i>	Fringed brome	20.0%	236,000	3.69	20.0
<i>Festuca arizonica</i>	Arizona fescue	20.0%	480,500	1.81	20.0
<i>Festuca saximontana</i>	Rocky Mountain fescue	20.0%	650,000	1.34	20.0
<i>Phleum alpinum</i>	Alpine timothy	20.0%	1,300,000	0.67	20.0

Species	Common Name	Desired Species Composition	Avg. Seeds/Lb	Lbs PLS/Acre	PLS/sf
Total		100.0%		12.99	100.00
Alternate Species					
Graminoids					
<i>Bromus marginatus</i>	mountain brome				
<i>Festuca Idahoensis</i>	Idaho Fescue				

E-7.1.2 Upland Standard Seed Mixture

The upland standard seed mixture (Tables E-3 and E-4) will be used in reclamation areas on the mine site, which do not meet the criteria for one of the other specialized seeding areas outlined below. This seed mixture should be broadcast or hydroseeded at a target rate of 50 PLS/sf.

Table E-3: Upland Standard Seed Mixture

Species	Common Name	Desired Species Composition	Avg. Seeds/Lb	LBS PLS/Acre	PLS /SF
Graminoids					
<i>Bromus marginatus</i>	Mountain brome	6.0%	64,080	1.70	2.5
<i>Deschampsia caespitosa</i>	Tufted hairgrass	12.0%	2,500,000	0.17	10.0
<i>Festuca arizonica</i>	Arizona fescue	10.0%	480,500	0.45	5.0
<i>Elymus trachycaulus</i>	Slender wheatgrass	10.0%	159,000	0.68	2.5
<i>Festuca saximontana</i>	Rocky Mountain fescue	10.0%	650,000	0.17	2.5
<i>Phleum alpinum</i>	Alpine timothy	12.0%	1,300,000	0.25	7.5
<i>Poa alpina</i>	Alpine bluegrass	5.0%	1,000,000	0.11	2.5
<i>Trisetum spicatum</i>	Spike trisetum	10.0%	2,500,000	0.09	5.0
Graminoid Subtotal		75.0%		3.62	37.5
Forbs					
<i>Achillea millefolium</i>	Common yarrow	6.0%	2,770,000	0.05	3.0
<i>Linum lewisii</i>	Blue flax	6.0%	293,000	0.45	3.0
<i>Lupinus argenteus</i>	Slivery lupine	1.0%	12,500	1.74	0.5
<i>Penstemon strictus</i>	Rocky Mountain penstemon	6.0%	489,888	0.27	3.0
<i>Vicia americana</i>	American vetch	2.0%	32,833	1.33	1.0
Forbs Subtotal		21.0%		3.84	10.5
Shrubs					
<i>Dasiphora fruticosa</i>	Shrubby cinquefoil	2.0%	1,000,000	0.04	1.0
<i>Ribes cereum</i>	Wax currant	2.0%	277,500	0.16	1.0
Shrub Subtotal		4.0%		0.20	2.0

Species	Common Name	Desired Species Composition	Avg. Seeds/Lb	LBS PLS/Acre	PLS /SF
Combined Totals		100.0%		7.66	50.0 0

Table E-4: Upland Standard Seed Mixture

Alternate Species	
Graminoids	
<i>Agrostis humilis</i>	Alpine bentgrass
<i>Bromus ciliatus</i>	Fringed brome
<i>Elymus glaucus</i>	Blue wildrye
<i>Festuca brachyphylla</i>	Alpine fescue
<i>Festuca idahoensis</i>	Idaho fescue
<i>Festuca thurberi</i>	Thurber fescue
<i>Koeleria macrantha</i>	Junegrass
<i>Muhlebergia montana</i>	Mountain muhly
<i>Poa fendleriana</i>	Muttongrass
Forbs	
<i>Aquilegia coerulea</i>	Colorado blue columbine
<i>Chamerion angustifolium</i>	Fireweed
<i>Eriogonum umbellatum</i>	Sulfur flower
<i>Oxytropis sericea</i>	Silky locoweed
<i>Penstemon whipplianus</i>	Whipple's penstemon
<i>Senecio integerrimus</i>	Lambstongue ragwort
<i>Symphyotrichum spatulatum</i>	Western mountain aster
Shrubs	
<i>Artemisia tridentata</i>	Big sagebrush
<i>Ribes montigenum</i>	Gooseberry currant
<i>Sambucus racemosa</i>	Red elderberry

E-7.1.3 Alpine Seed Mixture

The alpine seed mixture (Tables E-5 and E-6) will be used in upland reclamation areas that includes all areas east of State Highway 91. This seed mixture should be broadcast at a target rate of 50 PLS/sf and used for areas of the site high in elevation.

Table E-5: Alpine Seed Mixture

Species	Common Name	Desired Species Composition	Avg. Seeds/Lb	LBS PLS/Acre	PLS/SF
Graminoids					
<i>Deschampsia caespitosa</i>	Tufted hairgrass	20.0%	2,500,000	0.17	10.0
<i>Elymus trachycaulus</i>	Slender wheatgrass	10.0%	159,000	1.37	5.0
<i>Festuca saximontana</i>	Rocky mountain fescue	10.0%	650,000	0.34	5.0
<i>Festuca brachyphylla</i>	Alpine fescue	15.0%	500,000	0.65	7.5
<i>Phleum alpinum</i>	Alpine timothy	10.0%	1,300,000	0.17	5.0
<i>Poa alpina</i>	Alpine bluegrass	10.0%	1,000,000	0.22	5.0
<i>Trisetum spicatum</i>	Spike trisetum	10.0%	2,500,000	0.09	5.0
Graminoid Subtotal		85.0%		3.01	42.5
Forbs					
<i>Achillea millefolium</i>	Common yarrow	6.0%	2,770,000	0.05	3.0
<i>Lupinus argenteus</i>	Slivery lupine	0.2%	12,500	0.35	0.1
<i>Linum lewisii</i>	Blue flax	5.8%	293,000	0.43	2.9
Forb Subtotal		12.0%		0.83	6.0
Shrubs					
<i>Ribes montigenum</i>	Gooseberry currant	1.5%	163,800	0.20	0.8
<i>Dasiphora fruticosa</i>	Shrubby cinquefoil	1.5%	1,000,000	0.03	0.8
Shrub Subtotal		3.0%		0.23	1.6
Combined Totals		100.0%		4.07	50.1

Table E-6: Alpine Seed Mixture

Alternate Species	
Graminoids	
<i>Agrostis humilis</i>	Alpine bentgrass
<i>Calamagrostis purpurescens</i>	Purple reedgrass
<i>Festuca thurberi</i>	Thurber fescue
<i>Luzula spicata</i>	Spiked woodrush
<i>Poa arctica</i>	Arctic bluegrass
<i>Poa glauca</i>	Timberline bluegrass
Forbs	
<i>Castilleja occidentalis</i>	Indian paintbrush
<i>Penstemon whipplianus</i>	Whipple's penstemon
<i>Phacelia sericea</i>	Silky phacelia
<i>Polemonium pulcherrimum</i>	Jacob's ladder

Alternate Species	
<i>Symphyotrichum foliaceum</i>	Alpine leafybract aster
<i>Trifolium parryi</i>	Parry's clover
Shrubs	
<i>Ribes cereum</i>	wax currant

E-7.1.4 Hydric Seed Mixture

The hydric seed mixture (Tables E-7 and E-8) will be used in areas that have saturated soil conditions. This seed mixture should be broadcast at a target rate of 50 PLS/sf.

Table E-7: Hydric Seed Mixture

Species	Common Name	Desired Species Composition	Avg. Seeds/Lb	LBS PLS/Acre	PLS/SF
Graminoids					
<i>Calamagrostis canadensis</i>	Bluejoint reedgrass	13.0%	4,480,000	0.06 3	6.5
<i>Calamagrostis stricta</i>	Slimstem reedgrass	10.0%	2,400,000	0.09 1	5.0
<i>Carex aquatilis</i>	Water sedge	10.0%	1,152,250	0.49 189	5.0
<i>Carex utriculata</i>	Northwest Territory Sedge	10.0%	1,000,000	0.22 218	5.0
<i>Deschampsia caespitosa</i>	Tufted hairgrass	15.0%	2,500,000	0.13 1	7.5
<i>Glyceria borealis</i>	Northern mannagrass	10.0%	2,000,000	0.1 094	5.0
<i>Juncus mertensianus</i>	Merten's rush	10.0%	45,400,000	0.00 5	5.0
<i>Phleum alpinum</i>	Alpine timothy	12.0%	1,300,000	0.20 1	6.0
<i>Graminoid Subtotal</i>		90.0%		1.00 6	45.00
Forbs					
<i>Delphinium barbeyi</i>	Subalpine larkspur	2.0%	500,000	0.0 879	1.0
<i>Mimulus guttatus</i>	Seep monkeyflower	3.0%	550,000	0.1 942	1.5
<i>Pedicularis groenlandica</i>	Elephanthead	2.0%	550,000	0.0 798	1.0
<i>Senecio integerrimus</i>	Meadow groundsel	3.0%	550,000	0.1 182	1.5
<i>Forb Subtotal</i>		10.0%		0.4 044	5.00
Combined Totals		100.0%		1.41 0	50.00

Table E-8: Hydric Seed Mixture

Alternate Species	
Graminoids	
<i>Carex scopulorum</i>	Rocky Mountain sedge
<i>Catabrosa aquatica</i>	Brook grass
<i>Eleocharis rostellata</i>	Beaked spikerush
<i>Festuca idahoensis</i>	Idaho fescue
<i>Glyceria striata</i>	Fowl mannagrass
<i>Juncus balticus</i>	Baltic rush
<i>Juncus ensifolius</i>	Dagger leaf rush
<i>Juncus saximontanus</i>	Rocky Mountain rush
<i>Juncus torreyi</i>	Torrey's rush
Forbs	
<i>Senecio integerrimus</i>	Lambstongue ragwort
<i>Trollius albiflorus</i>	American globeflower
<i>Epilobium saximontana</i>	Rocky Mountain willowherb
<i>Mertensia ciliata</i>	Tall fringed bluebells
<i>Potentilla gracilis</i>	Slender cinquefoil
Shrubs	
<i>Betula nana</i>	Dwarf birch
<i>Salix planifolia</i>	Plainleaf willow
<i>Dasiphora fruticosa</i>	Shrubby cinquefoil

E-7.1.5 Direct Transplanting

Direct transplanting of trees, shrubs, and herbaceous vegetation has been used with success on several past projects at Climax. Trees and shrubs harvested within the affected area boundary have been used for reclamation of the Robinson TSF, E Dump, and Storke Yard. Containerized and/or bare-root trees and shrubs may continue to be transplanted into reclamation areas as appropriate to provide a diverse community structure within the reclamation area and enhance its value for wildlife habitat. When suitable on-site tree and shrub materials are available, they may be harvested for transplanting.

Direct transplanting of plugs of wetland vegetation has also been successful on several past projects. Existing on-site vegetation resources may be used to enhance revegetation success and plant community diversity.

E-8 Steep Slope Reclamation

Steep slopes (less than 2H:1V) are often not accessible with standard equipment used for the placement of reclamation cover or broadcast seeding. Steep slopes are also generally more susceptible to erosion. Given these limitations, the following strategies may be employed:

- Seed will be applied using appropriate methods depending on site accessibility.
- If accessible, steep slopes may be hydromulched or hydrocomposted with a flexible growth medium after seed application.

E-9 Reclamation Schedule

Climax will continue to concurrently reclaim areas that are no longer needed for mineral extraction, production, or water treatment operations. The schedule of production activities is discussed in Exhibit D: Mining Plan. Figures G-03 through G-07 (Exhibit G) illustrate the final reclamation design with respect to water management. Figures F-01 through F-08 (Exhibit F) illustrate the final reclamation design with respect to reclamation cover placement, which seed mixes to be used on selected areas of the mine, and the post-mining land usage.

Robinson TSF is no longer in use for tailing deposition and reclamation efforts are ongoing. Some partial reclamation of the Tenmile TSF may occur during the production period after Tenmile TSF achieves the design capacity elevation. It is estimated that final reclamation of the Tenmile TSF surface and dam face will occur over a period of 5 years once reclamation begins. Reclamation of the Mayflower TSF will occur over a period of approximately 5 years after mineral extraction and production has ended.

Portions of the McNulty and North 40 OSFs may be reclaimed concurrently with mineral production, but final reclamation will not be completed until they are no longer needed for other purposes. It is estimated that final reclamation of the McNulty and North 40 OSFs will occur over a period of 5 years. The mill site will likely be the last area to be reclaimed once these facilities are no longer needed for mineral production or reclamation purposes. Final reclamation of the mill area will occur over an estimated 5-year period.

E-10 Weed Control

Climax maintains an Integrated Weed Management Plan (IWMP) to comply with the guidelines and requirements of local, state, and federal government agencies. This IWMP was written in 2005 and updated in 2021 (Habitat Management, Inc. 2021). Climax complies with weed control regulations, guidelines, and permit stipulations from the DRMS, Summit and Lake Counties, and the State Land Board. The IWMP will be implemented as written; however, it will go through periodic reviews and updates.

The IWMP was developed based on a property-wide inspection to assess site conditions, routes of access, weedy species present, locations of water bodies, potential sources of run-on and runoff, wind conditions, and other factors relevant to the weed control planning process. The IWMP includes strategies for noxious and pest weed monitoring and control throughout the Climax Mine property. Additionally, the plan outlines procedures for pesticide safety, storage, handling, and record keeping.

Common weeds observed and targeted for control at Climax include Canada thistle (*Cirsium arvense*), yellow toadflax (*Linaria vulgaris*), mayweed chamomile (*Anthemis cotula*), and oxeye daisy (*Leucanthemum vulgare*). Since 1999, Climax has employed the services of a licensed commercial pesticide applicator to control these and other weeds present on the mine site.

E-11 Site-Specific Reclamation Planning

Using the general guidelines for grading, soil placement, soil amendments, and seeding described above, specific reclamation strategies have been outlined for several areas on the mine. This section includes reclamation plans for the open pit, McNulty and North 40 OSFs, and the three TSFs. Figures G-03 through G-07 (Exhibit G) illustrate the final reclamation design with respect to water management. Figures F-01 through F-08 (Exhibit F) illustrate the final reclamation design with respect to revegetation and which seed mixes to be used on selected areas of the mine. Figure F-02 (Exhibit F) indicates the approximate location for each stockpile used in the reclamation process. The four stockpiles located east of State Highway 91 will be used for facilities such as the Mill, North 40 OSF, and McNulty OSF. Stockpiles located west of the highway are generally insufficient to provide full cover to their designated areas. Most cover for these areas will originate from proposed Stockpile 30 that will contain the reclamation cover from the future expansion areas of the Mayflower TSF, as shown in Figure F-02 (Exhibit F). A summary of acres of reclamation cover to be placed for each facility is included in

| [Table E-9](#)

~~Table E-9.~~

Table E-9: Reclamation Cover Areas by Facility

Facility	Reclamation Cover Areas (ac)
McNulty OSF	683.4
North OSF	235.4
Mayflower TSF	883.4
Tenmile TSF	625.1
Robinson TSF	456.8
Robinson Lake Area	42.6
1 Dam	126.8
3 Dam	28.9
5 Dam	60.9
Mill and Pit Area	241.1
Roads	112.8

E-11.1 Open Pit

Most of the open pit will not be revegetated due to accessibility and safety concerns (Figures F-03 and G-03, Exhibits F and G, respectively). Thus, most of the open pit will be reclaimed to a talus community (see Exhibit J: Vegetation Resources for community description). The final slopes will likely remain at their current configuration. Weathering, colluvial deposition by gravity, and ice action will cause natural reshaping of the benches and highwalls over time, but blasting may also be used to soften visual impacts. Administrative controls (fencing and access restrictions) will be maintained to control public access.

A haul road fill area is located on the south crest of the open pit (also known as Ceresco Ridge). This road fill will be excavated down to the pre-mining ground, hauled, and placed on the bottom of the pit. The pre-mine ground beneath the haul road fill will be reclaimed with reclamation cover.

On the margins of the pit, where slopes are less steep, some revegetation may be possible. In these cases, topsoil may be hauled from a nearby reclamation cover stockpile, then seeded with the appropriate seed mix.

E-11.2 McNulty and North 40 Overburden Storage Facilities

The lower portions of the McNulty and North 40 OSFs may be reclaimed concurrently with production, but final reclamation will not be completed until the OSF is no longer required for production. Final grading of the OSFs will be not steeper than 2H:1V with some areas considerably less steep.

Prior to reclamation cover placement, the angle of repose inter-bench slopes will be flattened to 2H:1V with sideslope channels graded into the remaining benches. The sideslope channels will report to articulated concrete block-lined downdrains. The haul road area east of the McNulty OSF will be regraded to remove the roads and blend the area slopes to match adjacent topography. A reclamation cover will be placed after the regrade is completed.

It is anticipated that sufficient soil will be salvaged and stockpiled prior to the construction of McNulty and North 40 OSFs for final surface reclamation. Reclamation cover salvaged from the McNulty and North 40 OSF sites will be stockpiled in one of four adjacent locations (Figure F-02, Exhibit F). Estimated reclamation cover quantities (Exhibit I) suggest that a minimum of 24 inches of reclamation cover (subsoil and/or topsoil) can be placed over the overburden rock. Long-term success of the plant community will be directly influenced by the quality and quantities of soil placed.

After reclamation cover placement, the lower portion of the OSF (below 11,800 feet) will be seeded with the upland standard seed mixture (Section E-7.1.2). Higher elevation areas will be seeded with the alpine seed mixture (Section E-7.1.3). Figure G-04 (Exhibit G) illustrates the final configuration of water handling facilities and Figure F-04 (Exhibit F) illustrates the anticipated final revegetation.

E-11.3 Tailings Storage Facility Reclamation

E-11.3.1 Robinson Tailings Storage Facility

Robinson TSF reclamation began in the 1980s and is ongoing. The majority of the surface has been capped with overburden rock and covered with biosolids or suitable soil material, and most of that area has been revegetated. The biosolids production area is on the Robinson TSF and will be reclaimed once the existing biosolids are used up. Areas of the TSF that are not bond released will be capped with a minimum of 24 inches of reclamation cover material. Approximately 3% of the total TSF area, not including 200 feet offset from the crest or the bond released areas, will be capped with a minimum of 48 inches of reclamation cover material to promote tree growth. In addition, there are several roads on the surface of the Robinson TSF that are still required for production and reclamation activities. These roads will remain until they are no longer considered necessary. The Robinson TSF decant pool (also known as Robinson Pond) will be filled in with approximately 380,000 cubic yards of fill to remove the pool and allow drainage off the TSF surface to the diversion channels to the east. For the purpose of this closure update, reclamation cover soils will be used for this fill. Future tailings settlement may necessitate maintenance filling of the TSFs in the future. A conceptual configuration of the final reclamation communities is shown in Figure F-05 (Exhibit F) and the final configuration of water handling facilities is shown in Figure G-06 (Exhibit G).

E-11.3.2 Tenmile Tailings Storage Facility

The Tenmile TSF will be reclaimed when it is no longer required by the operation. As approved for Robinson TSF in TR-13, the Tenmile TSF will be reclaimed with a dry cover. The majority of the surface will be capped, with drainage directed toward the decant structure in the southwest corner of the facility. Areas of the TSF that are not bond released will be capped with a minimum of 24 inches of reclamation cover material. Approximately 3% of the total TSF area, not including 200 feet offset from the crest or the bond released areas, will be capped with a minimum of 48 inches of reclamation cover material to promote tree growth. An emergency open channel spillway will be constructed on the northeast side of the TSF in the event that the decant structure clogs. Excess rock cover or soil material may be used as necessary to achieve TSF stability. A conceptual configuration of the final reclamation communities is shown in Figure F-05 (Exhibit F) and the final configuration of water handling facilities is shown in Figure G-06 (Exhibit G).

E-11.3.3 Mayflower Tailings Storage Facility

A portion of the Mayflower TSF will be reclaimed when it is no longer needed for production and reclamation operations. However, the southwestern portion of the Mayflower TSF will be used for water treatment as long as it is necessary to provide detention storage for the water treatment system (see Exhibit G: Water Resources). A detention storage area and several sludge cells will remain on the surface of the Mayflower TSF. These areas will receive closure cover once water treatment ceases at the site.

The Mayflower TSF will be reclaimed with a dry cover. Areas of the TSF that are not bond released will be capped with a minimum of 24 inches of reclamation cover material. Approximately 3% of the total TSF area, not including 200 feet offset from the crest or the bond released areas, will be capped with a minimum of 48 inches of reclamation cover material to promote tree growth. The methods of reclamation will follow those outlined for the Tenmile TSF above. Reclamation cover for the Mayflower TSF reclamation will come from existing stockpiles near the Mayflower TSF or materials stockpiled elsewhere. A conceptual configuration of the final reclamation communities is shown in Figure F-06 (Exhibit F) and the final configuration of water handling facilities is shown in Figure G-07 (Exhibit G).

E-11.4 Dam Reclamation

E-11.4.1 1 Dam and 2 Dam

Reclamation on 1 Dam and 2 Dam is complete. Both dam faces are covered, stabilized, and revegetated.

E-11.4.2 3 Dam and 5 Dam

As of 2024, 3 Dam and 5 Dam have been reclaimed to the extent possible in their current configurations. However, a slight increase in the height of 3 Dam and a larger increase in the height of 5 Dam are planned as a part of mineral extraction and production (see Exhibit D: Mining Plan). These new dam lifts will require

reclamation at the completion of dam construction. 4 Dam was taken over by Eagle River Water & Sanitation District and is no longer owned, maintained, or operated by Climax.

A nominal 24 inches of reclamation cover will be applied to the dam faces. Reclamation cover sources will be the same as those used for Mayflower TSF reclamation with an upland seed mixture used (Section E-7.1.2).

E-11.5 Other Site-Specific Reclamation

There are many areas of the Climax property that have been disturbed during the past 90 years of mining activities. This reclamation plan outlines specific strategies for anticipated new disturbances; however, there are many previously disturbed sites that are ancillary and not specifically addressed by this plan. These ancillary areas will still need to be reclaimed using the best reclamation procedures that have been specified for other sites but will not be specifically addressed in this plan. Upon the permanent cessation of production operations at the mine and mill, Climax will reclaim all remaining affected areas not required for continued water management and monitoring of the site. Additionally, several sites, including Robinson Lake and the mill facility area, will require site-specific reclamation as outlined below.

E-11.5.1 Robinson Lake

Robinson Lake is currently used for process water storage, but it will be reclaimed after it is no longer needed for mineral production operations. Specific water management strategies are discussed in Exhibit G: Water Resources (Section G-5.3 – Exhibit G).

E-11.5.2 Roads, Mill Area, and Facilities

Buildings, utilities, processing equipment, and other above-ground structures and materials no longer required during the post-reclamation period will be demolished after asbestos abatement has been completed. To the extent possible, the salvageable and recyclable materials obtained from these structures and facilities will be retrieved and sold or recycled. Material that is not retrievable or practicably recycled will be disposed of by burial. Buried pipe, wire, and other ancillary belowground infrastructure will be left in place during reclamation if it does not interfere with regrading activities and is non-toxic or not hazardous. Foundations ~~deeper than 3 feet from the reclaimed surface that will not interfere with regrading activities will also be pulverized and~~ left in place. Concrete floors, walls, equipment pedestals, and foundations ~~that will be within 3 feet of the reclaimed surface~~ will be rubbleized or fractured and buried prior to site regrading. Asphalt may be left in place if it will be covered with at least 24 inches of reclamation cover during final reclamation grading. If not buried in place, asphalt will be removed from site surfaces during reclamation.

Following structure demolition, the areas will be regraded as needed to achieve a stable surface. Twenty-four inches of reclamation cover will be applied to all areas that do not have an existing adequate growth medium. Reclamation areas will be seeded with the upland standard seed mixture (Section E-7.1.2; Figure F-01, Exhibit F).

Roads not to be retained for an approved post-mining land use will be reclaimed after they are no longer needed for mineral production and reclamation purposes. Current road locations shown in Figure F-01 (Exhibit F) as permanent facilities are conceptual and may change. Roads will be graded and filled as necessary to blend with the adjacent terrain and to meet natural drainage patterns. Following rough grading, reclamation cover will be applied and seed will be spread. The seed mixture used will be appropriate to the elevation of the road. Vehicular access to reclaimed roads will be restricted.

E-11.5.3 Underground Mine Openings

Underground access portals at, Storke Portal, No. 3 Gallery, and Phillipson Portal shall be closed off with concrete bulkheads to prevent access from the public. The bulkheads will be 2 ft thick and will not be designed to provide hydrostatic blocking of subsurface water.

The Tenmile Tunnel will be used as the operational water control and spillway off the TSF. It is assumed that the original Tenmile Tunnel (south) will be decommissioned and plugged with a 15-foot concrete bulkhead (Exhibit G).

It is assumed that the surface runoff from Tenmile TSF will eventually be clean and discharged into the Tenmile Tunnel Extension (north).

Estimated dimensions for each portal closure bulkhead are in Table E-10 below.

Table E-10: Underground Closure Bulkhead Dimensions

Facility	Bulkhead Dimensions (W x H) (ft)
Tenmile Tunnel	10 x 10
Storke Portal	12 x 14
No. 3 Gallery	8 x 8
Phillipson Portal	10 x 15

E-12 Reclamation Monitoring and Success Standards

Bond release standards have not been detailed in previous permitting documents and no specific financial warranty release guidelines have been set for the Climax Mine reclamation program. However, given Climax's experience and success with reclamation over the past 20 years, many areas could potentially meet DRMS performance standards. The monitoring methods and success standards proposed here are based on industry-accepted techniques and standards as well as 10 years of reclamation success monitoring conducted by Climax personnel and consultants. The results of Climax's reclamation success monitoring clearly meet the intent and requirements of DRMS rules contained in Section 3.1.10 (1).

E-12.1 Monitoring Methods

Reclamation success at Climax will be based on quantitative and qualitative evaluations in the field. Reclamation monitoring units (RMUs) will be established from one or more reclaimed areas based on year(s) of revegetation, soil amendment(s), slope and aspect, and seed mixture(s) used. Each RMU will be monitored separately and compared to an ecologically equivalent reference area. Several ecologically equivalent reference areas will be established on Climax property representing the variety of anticipated post-reclamation vegetation communities, elevations, aspects, and/or slopes.

E-12.1.1 Quantitative Monitoring

Vegetative cover (by species) and ground cover (including litter and rock) will be evaluated using point-intercept methods along a line transect. First hit cover data will be collected along 10 randomly located 50-meter transects in each RMU and each reference area. Two data points will be collected 0.5 meters to either side of the transect at each meter for a total of 100 points per transect. All species occurring within 1 meter on either side of each cover transect (100 square meters [m²] area) will be recorded as a measure of species frequency and diversity.

In selected reclamation areas with high surface rock content and slopes steeper than 2.5H:1V, data may be collected for a Revised Universal Soil Loss Equation (RUSLE) analysis. These areas may be evaluated for both vegetation cover and surface stability using the RUSLE analysis.

E-12.1.2 Qualitative Monitoring

Each RMU and reference area will be qualitatively evaluated as well. Qualitative vegetation monitoring will include:

- compilation of a list of plant species for each RMU or reference area that will serve as an indicator of each RMU's floral diversity
- site photographs representative of the reclaimed vegetation communities establishing within the RMU taken from established reference points

E-12.2 Success Standards

Revegetation at Climax will be considered successful for release of financial warranty if the vegetation cover (excluding noxious weeds) on the RMU is greater than or equal to 80% of the vegetation cover on the appropriate reference area. Comparisons between RMUs and reference areas will be made using Mann-Whitney statistical tests (McDonald et al. 2003). Species frequency data will also be used to illustrate that a diverse community has been created on each RMU.

E-12.3 Monitoring Schedule and Deliverables

Financial warranty release monitoring may occur five full growing seasons after revegetation is completed or anytime thereafter when Climax feels that the revegetation effort has established a diverse, effective, and self-sustaining vegetative cover. Climax will provide a courtesy notification to DRMS in writing at least 30 days prior to the initiation of this release monitoring. Climax may also perform interim vegetation monitoring to assist in refining reclamation techniques and maintenance needs.

Financial warranty release monitoring results will be compiled into a report for submittal to DRMS. This report will contain:

- a map of each RMU and references area monitored
- justification for the selected reference areas
- a complete species list for each RMU and reference area
- data summarized in tables and/or graphs
- results and discussion of statistical analyses
- site photographs

E-13 Reclamation Costs

The estimated costs for the closure reclamation activities discussed in this Exhibit are detailed in Exhibit L: Reclamation Costs.

E-14 References

- Climax Molybdenum Company. 2022. Storm Water Management Plan. Colorado Department of Public Health and Environment Permit # COR-040178. Effective July 2022.
- Habitat Management, Inc. 2005. Climax Molybdenum Mine Noxious Pest Weed Management Plan. Climax Molybdenum Company Internal Document.
- McDonald LL, Howlin S, Polyakova J, and Bilbrough CJ. 2003. Evaluation and Comparison of Hypothesis Testing Techniques for Bond Release Applications. Prepared for Abandoned Coal Mine Lands Research Program, Laramie, Wyoming.

