

## 1. CONSTRUCTION STORMWATER MANAGEMENT PLAN

### 1.1 Site Description

The CSMRI Creekside Facility (Facility) is located on the Colorado School of Mines campus in Golden, CO. It is located on the south bank of Clear Creek approximately ½ mile east of the intersection of US Highway 6 and Highway 58 at the west end of 12<sup>th</sup> Street. It encompasses approximately 6 acres and includes the former CSMRI mineral processing operations area and the Claypits. Clear Creek is the receiving water from this site and the currently permitted outfall is in the west corner of the site. Figure 1 shows the Facility site, the receiving water and the outfall point.

The Facility conducted industrial mineral research projects from 1912 until approximately 1986. These projects utilized materials common to the mineral industry: molybdenum, copper, zinc, precious metals, uranium, etc. These projects utilized approximately 16 buildings that have been removed. However, many of the foundations and floor slabs remain and some residual surface and possible sub-surface impacts may require remediation.

The Colorado School of Mines and its contractor(s) are continuing site restoration activities. The current restoration project will include the removal of the remaining concrete and asphalt slabs from the area for offsite disposition, soil characterization and removal of impacted soils; and final site restoration composed of limited grading and seeding.

### 2.1 Construction Description

#### 2.1.1 Proposed Construction Activities:

- Preparation of workplans, health & safety plans, sampling plans, transportation plans, and stormwater management plans will be completed and approved prior to mobilization to the site.
- Impacted concrete and asphalt will be cut, removed, staged, and transported to appropriate offsite disposal locations.
- Non-Impacted concrete and asphalt will be cut, removed, staged, and transported to appropriate offsite disposal locations.
- Soil sampling for characterization will commence as access is achieved through removal of the concrete and asphalt.
- Areas of impacted soil will be delineated, excavated and transported to appropriate offsite disposal locations. Any non-impacted soils removed during this process will be stockpiled for later distribution during the grading operation.
- Final grading will be consistent with the current slope of the site, which is gently sloping to the north and northwest.

- The entire area will be reseeded with an appropriate foothills native grass mixture.

### 2.1.2 Existing Site Conditions

The entire site (6 acres) is subject to this stormwater management plan although the anticipated area expected to undergo clearing, excavation, and grading is approximately 4 acres. The estimated runoff coefficient before construction activities begin is 0.2 – 0.75 based on the concrete and asphalt coverage<sup>1</sup>. Upon completion of site restoration and establishment of the vegetative cover, the runoff coefficient is estimated to be 0.18<sup>1</sup>.

Surface soils on site are generally sand and silt with intermittent rock, cobbles, and slag fragments. Currently the surface coverings and established vegetation including trees, shrubs and grasses adequately stabilize the site. The perimeter of the site is 100% vegetated with grasses and trees including cottonwood/poplar, pine, and russian olive. The former tailings pond area that was remediated in 1992 and is not part of this construction project will act as a temporary sediment basin during this project. It is also 100% vegetated and forms a runoff barrier to Clear Creek. The construction area itself has limited existing vegetation that will be removed during the project. Erosion potential is small although with the proximity to Clear Creek a significant storm event could potentially cause localized flooding along the creek bank below the construction site.

### 2.1.3 Previous Stormwater Sampling

Colorado School of Mines (CSM) has been sampling stormwater discharge under the conditions of its general permit (Permit # COR-020243) for several years. Recent data includes oil/grease, pH, TSS, BOD, and COD. Results are not significantly elevated indicating good stormwater management.

## 3.1 Description of Potential Pollutant Sources

### 3.1.1 Description of Materials

The greatest potential pollution source from this project is sediment, although the risk of sediment from this project impacting the water quality of Clear Creek is considered minimal. The assessment is based on the location of the construction site and the existence of the former tailings pond area between the construction site and the creek. Although the risk is considered minimal, the BMP's described later in this SWMP will be implemented to ensure control of this potential pollution source.

During this project, no significant chemical storage is anticipated. Small amounts of vehicle fuel and maintenance chemicals (oil, antifreeze, hydraulic fluid, etc.) may be stored in appropriate containment areas near the site access point. Appropriate

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<sup>1</sup> ASCE "Typical C Values"

procedures for fueling and minor maintenance will limit the potential for spills and leaks from these activities. No significant maintenance of vehicles or equipment will be done onsite.

At this time there are no known non-stormwater components of discharge from this site. This plan will be amended as necessary if such components are identified during the project.

#### 4.1 Site Map

The site plan is included as Figure(s) 1- 3. They indicate the following:

- Construction Site Boundaries
- Areas of Soil Disturbance
- Areas of Cut and Fill
- Areas for storage of materials, debris, and soil
- Location of erosion control structures
- Surface waters, wetlands
- Boundaries of the 100-year floodplain

#### 5.1 BMP's for Stormwater Pollution Prevention

##### 5.1.1 Erosion and Sediment Controls -

Straw bales will be placed as necessary along any natural or manmade drainage course at the site to control sediment runoff. Currently these have been identified on the eastern boundary of the site and at a north central location behind former Building 101. Silt fences will be installed along the north boundary the construction site to control sediment runoff over the embankment and into the former tailings pond area. After the removal of the concrete and asphalt, additional silt fencing may be installed from west to east across the site if significant runoff is anticipated or observed.

##### 5.1.2 Stockpile Controls

Berms will be installed around soil stockpiles to prevent run-on and runoff.

##### 5.1.3 Other Pollution Prevention Controls

The vegetative buffer that exists around the construction site will be preserved to prevent run-on and runoff from the site. Reseeding will be completed at the end of construction activities to establish a vegetative cover over the site.

#### 6.1 Schedule of Activities

Construction activity is anticipated to occur during the late summer and fall of 2002, the driest part of the year. Structural BMP's (straw bales, silt fences, etc.) will be

installed prior to construction excavation activities beginning. As excavation is conducted additional structural controls may be installed as necessary and this SWMP amended.

#### 7.1 Material Handling and Spill Prevention

All construction activities and any soil stockpiles will be managed to prevent stormwater impacts.

Soil stockpiles will be placed an adequate distance from the creek bank to prevent runoff from immediately entering the creek and allow for the installation of structural controls as necessary between the pile and the creek. Each soil stockpile will be bermed to prevent run-on and runoff. Soil stockpiles will be removed and/or redistributed as expeditiously as possible.

No chemicals other than minor amounts of vehicle maintenance materials will be stored or handled on site. A spill kit will be established during mobilization that includes absorbents, cleanup tools (shovel, broom, etc.) and containers for used absorbent. Any spill will be immediately addressed and used absorbents will be disposed of appropriately. A lined, bermed wash area will be established to decontaminate, if necessary, any vehicle prior to leaving the site. All decontamination fluids will be contained and held for appropriate disposal.

#### 8.1 Final Stabilization and Long-Term Stormwater Management

A vegetative Cover will be established over the site after the completion of final grading. At the end of the project, the site will be graded to achieve a gentle slope. It will be seeded with a native grass mixture appropriate to the site and as much existing vegetation as possible will be preserved to further enhance the site and prevent stormwater impacts.

#### 9.1 Inspection and Maintenance

Site inspections will be conducted and documented at least weekly and after each significant storm event. The project manager or site supervisor will inspect all structural controls, soil stockpiles, vehicle maintenance areas, and surface areas where erosion could occur. Any identified condition that may result in breakdown or failure of the stormwater controls must be identified and corrected. Records shall include the identified condition, how it will be addressed and the date that it was identified and repaired. Additionally, records should include the dates and duration of significant storm events, implementation of specific BMP's, training sessions, contacts with regulatory agencies, and other items of significance.

## 10.1 Other

Employee Training on this SWMP shall be conducted prior to mobilization at the site. All site employees shall be trained on the objectives and control measures included in this SWMP. A Periodic refresher (every 6 months) should be given and recorded if the project runs longer than 6 months.

Good Housekeeping is an integral part of project management and stormwater pollution prevention. During the weekly inspection, the project manager or site supervisor should note any housekeeping discrepancy and follow-up to ensure that it is being addressed/resolved. This portion of the inspection should include but not be limited to evidence of spills or leaks, collection and disposal of trash and debris, location and adequacy of posted signs, appropriate storage of spill cleanup equipment and materials, identification of all chemical substances and appropriate storage, etc.

### Attachments:

Site Map(s)