

Permit M-1980-244
Cresson Project Amendment 14

Exhibit I
Soils Information

1 SOILS

Under this Amendment 14, no new soil disturbance outside of the affected lands boundary will occur. Generally, the site of the Valley Leach Facility (VLF) Expansion is in an area of relatively shallow bedrock with a thin veneer of colluvial soils, which consist of sands and gravels formed by slope wash of weathered in place bedrock.. With the exception of Joe Dandy Hill, the VLF1 and VLF2 Expansion footprints predominantly sit within previously disturbed land, i.e., the footprint has already been cleared and grubbed and topsoil removed and stockpiled. Existing topsoil and ore stockpiles are the only areas within the footprint that have a relatively thick package of soils over bedrock.

2 GEOTECHNICAL INVESTIGATIONS

Two geotechnical investigations were completed during the design and development of the VLF Expansions as described in the *Cripple Creek & Victor Gold Mining Company Valley Leach Facility Expansions Detailed Design Report* (Newfields 2024).

The first geotechnical investigation included advancing six boreholes in the proposed footprint of the VLF2 Phase 3 expansion. The boreholes were drilled using a CME 550X ATV mounted drill equipped with 5.5-inch (outer diameter) ODEX down-hole air hammer. Based on conditions encountered in the boreholes, the general subsurface profile consists of 26 to 62 feet of gravel and sands over phonolite bedrock. Bedrock was encountered between 30 and 45 feet below ground surface (bgs).

The second geotechnical investigation included excavating test pits within the Valley Leach Facility Expansion footprint to characterize near surface soil conditions. Excavations were completed with a John Deere 210G hydraulic excavator to depths between 2.5 and 13 feet bgs. The excavation depth was limited by the machine reach and refusal on boulders and bedrock.

3 SOIL STUDIES

Cripple Creek and Victor Gold Mine, Inc. (CC&V) retained Arcadis in 2011 and 2015 to perform soil studies of the planned disturbance under the Amendment 10 and Amendment 11 permit applications, respectively. These studies identified three primary soil types within the affected lands boundary: Grenadier-like-unnamed very gravelly loam complex, Quander-Varden complex, and Rogert very gravelly sandy loam. In addition to the named soil groups, other soils or characteristic surface features were mapped in the area. These include mined or disturbed areas, wetland soils, floodplain soils, eroded or flooded soils, and rock outcrops.

Based on Natural Resources Conservation Service (NRCS) data, three soil types were identified within the area affected by Amendment 14 activities:

- Rogert-rock outcrop complex
- Disturbed land, mine areas, overburden storage areas, mine complex
- Seitz very gravelly loam

4 CONCLUSIONS

Only the areas of Rogert-rock outcrop complex and Seitz very gravelly loam could have soils suitable for use in reclamation activities. As part of ongoing development and as described in the Reclamation Plan provided in Exhibit E, CC&V salvages growth medium that is suitable for assisting with re-vegetation in accordance with its reclamation objectives of re-vegetation on suitable slopes. Note that the soil salvage depth information presented in Table 2-3 of the Baseline Technical Report for Soils and Biological Resources (Arcadis 2011 and 2015), provided in Appendix 5, is not strictly indicative of soil depths that can be salvaged. The actual depths are functions of slope, surface rock, aerial extent, vegetative cover, and historical mining. Soil depths vary greatly depending upon their location and position on the terrain, with the shallowest soil on the upper slopes and deepest at the toe of the slope. Projected soil volumes available for use in reclamation can be found in the Reclamation Plan provided in Exhibit E.

5 REFERENCES

“Baseline Technical Report for Soils and Biological Resources”, Arcadis, Highlands Ranch, CO, Tech. Rep. Cresson Project M-1980-244, Mine Life Extension 2 Project Area, November 2011.

“Baseline Technical Report for Soils and Biological Resources”, Arcadis, Highlands Ranch, CO, Tech. Rep. Cresson Project M-1980-244, Amendment No. 11. October 2015.

“Cripple Creek & Victor Mining Company, Valley Leach Facility Expansions Detailed Design”