Interstate-Callahan
Upper and Lower Rock Dumps
RA Construction Project

East Fork Ninemile Creek, Idaho

May 3, 2016

Tony Wesche, P.E.
Pioneer Technical Services, Inc. and North Wind Group
Presentation Topics

- Site History and Background
- Design Objectives and Constraints
- Mine Waste Excavation
- EFNM Creek and Tributary Reconstruction
- Revegetation
History of the Interstate-Callahan

- 1887 - J.F. Callahan filed claim
- 1887-1888 - Built cabin and began small scale mining
- 1906 - First ore shipment from Callahan Mine
- 1912 - Consolidated Interstate Mining Company formed
- 1912 and 1913 - Constructed mill and cable tramway
- 1915 - Cable tramway connecting Interstate-Callahan to the railroad
- 1918-1920 - Part time mining operations
- 1920 - Callahan Zinc-Lead Company Formed
- 1921-1923 - Part Time Mining Operations
- 1924-1935 - Period of no mining
- 1936 - Interstate-Callahan Mine Reopened
- 1937-1949 - Active Mining
- 1951-1965 - Sorted backfill for Lead and Zinc.
Bunker Hill Superfund

Background

SUMMARY OF ASARCO SETTLEMENT

- ~$435 million for cleanup of the CDA Basin
  - Interstate-Callahan RA Construction = ~$4.2 M

- Coeur d’Alene Trust was formed to oversee and manage the money for cleanup under direction from EPA
Design Objectives

- Restore native ground surface within excavated areas to match surrounding native conditions.

- Restore stream channels, floodplains and riparian areas within the site to conditions similar to upstream reference areas.

- Minimize operations and maintenance and institutional controls requirements.

- Maintain recreational use and access consistent with current conditions and reasonably anticipated land use as determined by EPA, other Federal land management agencies, and the current landowner.
Design Constraints

- Short construction season (approximately 120 working days) due to weather conditions

- Limited area for construction activities and stockpiling of materials

- Working on steep slopes

- Coordination with design and construction of the EFNM WCA
Mine Waste Excavation
Excavation Design Basis

- Soil boring and test pit data used from 2011 and 2012 Trust site characterization investigations

- Achieve soil and sediment concentrations less than or equal to 530 mg/kg lead

- Characterization showed minimal leaching into native soils
Upper Rock Dump
Upper Rock Dump Excavation
Field Modifications
Lower Rock Dump
Lower Rock Dump Excavation
Field Modifications
Excavation Design Summary

- Total excavation of 215,928 bank cubic yards of mine waste rock

- Approximately 27,345 bcy of general fill required for slope establishment, positive drainage and haul road reconstruction

- Total disturbed footprint was approximately 18 acres
Upper Rock Dump Excavation
Pre/Post Photographs
Upper Rock Dump Excavation
Pre/Post Photographs
Lower Rock Dump Excavation
Pre/Post Photographs
EFNM Creek and Tributary Reconstruction
Stream/Tributary Design Basis

- Design based upon upstream reference reach
- Diversion of EFNM Creek required during construction for waste excavation and stream reconstruction.
- Grade Controls, Step pools, and run sections
- Four designed structures incorporated (Rock Cross Vane, Double Log V-Structure, Armored Angled Log Step-Down, and Angled Rock Step Down)
EFNM Creek Channel Alignment
Grade Control Structure
Log Grade Control Structure
Incorporating Bedrock during Construction
Upper EFNM Creek
Lower EFNM Creek
Lower Tributary Reconstruction
Upper Tributary Reconstruction
Stream/Tributary Reconstruction Summary

- Reconstruction of approximately 1,692 linear feet of EFNM Creek
- Reconstruction of approximately 1,490 linear feet of Tributaries
- Installation of 37 Rock Cross Vane Structures in both EFNM Creek and tributaries
- Installation of 3 Double V-Log Structures
- 16 Armored Angled Log Step-Down Structures
- 17 Angled Rock Step-Down Structures
- 1,800 Riparian tubelings (alders and willow)
Revegetation
Revegetation

- Cover Soil (12-inches of imported cover soils from EFNM WCA)

- Amendment (3% Organic matter and lime incorporation was performed as part of EFNM WCA Construction Activities)

- Upland and Riparian Seed Mixes (consistent with EFNM basin native plant species)

- Tubelings (western red cedar, western larch, white pine, and lodgepole pine at 150 -200 tubelings per acre)
Locals enjoying dinner
Revegetation Summary

- 19.1 acres of revegetation
  - 16.5 acres of upland seed mix
  - 1.6 acre of riparian seed mix
- 25,993 cubic yards of amended cover soil
- 2,262 dry tons of organic amendment
- 19.1 acres of hydro-mulch
- 3,620 conifer tubelings
- 1,800 riparian tubelings
- 11,001 square yards of erosion control mat
Lessons Learned

- Flexible Designs
- Flexible Contracting Mechanisms
  - Unit Rate Bids
  - Time and Materials
- Development of a good working relationship between owner, engineer, and contractor results in a successful project
- Ensure third-party surveyors understand final use for their data
- Double V-log Grade Control Structures has gradient limitations
- Use of cleared and grubbed materials, wood debris, and Hydro Straw BFM are viable erosion control methods on steep slopes
- Organic amended cover soils are needed for successful revegetation
- Elk love Cedar tubelings
THANKS
QUESTIONS