REMOVAL ACTION REPORT
Kelly Camp Mine, Colville National Forest

December 2010

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USDA Forest Service

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1.0 INTRODUCTION

URS Corporation (URS) conducted removal activities at the Kelly Camp Mine (Site) on the Colville National Forest in northeastern Washington (Figure 1) on behalf of the Department of Agriculture, Forest Service (Forest Service). The Removal Action (RA) Memorandum (Forest Service, 2010) describes the scope and objectives of the RA. URS prepared this RA Report (report) to document the activities completed during the RA in October and November, 2010. The objective of the RA was to reduce human and ecological receptor exposure to metals associated with waste rock piles and eliminate physical hazards at the Site. This objective was accomplished by consolidation of the waste rock piles, capping the combined waste rock piles with clean borrow material followed by placement of compost and reseeding the work area. Physical hazard mitigation was accomplished by backfilling exploratory features (i.e., cuts and trenches), plugging and backfilling shafts, and installation of bat gates at the main upper working/stope and the lower adit entrance.

1.1 Site Description

This section provides summary information relative to the Site location and operational history.

1.1.1 Location

- The Site is an inactive mine located within the Colville National Forest, in Ferry County, Washington.
- It is situated approximately 11 miles north of the town of Republic, in a forested area in the SW ¼ of Section 9, Township 38 North, Range 32 East.
- The Site is found on the United States Geological Survey (USGS) 7 ½ Minute Quadrangle Map - Bodie Mountain (USGS, 1992).
- As shown on the Vicinity Map (Figure 1), the Site is situated approximately 8 miles west of Curlew Lake. The access road to the Site is approximately 0.5 mile on the 390 spur of Forest Service Road 2148.

The Site, including all adits, shafts, trenches and other works, waste rock and blast rock piles, and collapsed building debris, is approximately 225,677 square feet or just over 5 acres, and is comprised of four main areas (Figure 2). The latitude and longitude, legal description and approximate elevation are summarized below. The elevation is presented as an estimate using a global positioning system (GPS) derived benchmark elevation.

- Main Working/Stope and Upper Waste Rock Pile (UWRP)
  - 118º 47' 20.1"W/48º 48' 9.7"N.
  - Willamette Meridian, Township 38 N, Range 32 E, Section 9, SW ¼.
  - 4,665 feet above mean sea level (amsl).
- Lower adit and Lower Waste Rock Pile (LWRP)
  - 118º 47' 22.4"W/48º 48' 6.8"N.
  - Willamette Meridian, Township 38 N, Range 32 E, Section 9, SW ¼.
  - 4,650 feet amsl.
- Blast rock pile
  - 118°47'23"W 48°48'9"N.
  - Willamette Meridian, Township 38 N, Range 32 E, Section 9, SW ¼.
  - Located between elevation 4,635 and 4,660 feet amsl.
- Miscellaneous workings – Seven open cuts and trenches located to the west of the main working/stope.
  - 118°47'20"W 48°48'9.75"N.
  - Willamette Meridian, Township 38 N, Range 32 E, Section 9, SW ¼.

- Located between 4,630 and 4,655 feet amsl.

1.1.2 Operational History

The APA (Forest Service, 2004) summarizes the operational history of the Kelly Camp Mine. This summary is presented below:

- The earliest record is from Culver and Broughton (1945) who described a "Kelly property" located in Section 6. As of September of 1943, the authors reported that development work on the property consisted of a westward-trending adit, a shaft inclined to the south, and numerous open cuts.
- Huntting (1956) described the "Kelly Camp" in Section 4 with development comprising a 120-foot westward trending adit, several shafts, and numerous open cuts. Production was reported in 1951 (10 tons), 1954 and 1955 and a 25-ton mill was constructed on Lake Curlew in 1952
- Primary ore minerals were chalcopyrite, scheelite, magnetite, and molybdenite while gangue minerals include garnet, epidote, and calcite. The main commodities produced at the Site were tungsten, copper, and molybdenum (Derkey et al., 1990). Huntting (1956) reported that the deposit contained a considerable volume of low-grade ore.
- Host rock for the mineralization includes calc-silicate gneiss, schist, and quartzite.

Although there is limited available operational history beyond that which was previously presented in the APA, the following additional publications were reviewed and key information on the Site is summarized below:

- Kiilsgaard, 1998. The report described the Site as the Kelly Camp Tungsten Mine with the owners as O. Aavestrud and C.J. Weller.
- Boleneus and Derkey, 2000. The report lists the owners as Atlas Mine and Mill Supply, Inc. The listed commodities are copper, molybdenum, silver, and tungsten; exploration or testing was completed in the years between 1989 and 1992.
- Minarik et al., 1992. The yearbook reports that Orvana Resources Corporation performed exploration work on the Site during 1992.

Based on the available operational history, it appears that processing did not take place at the Site. Therefore, the primary sources of contamination expected at the Site would be waste rock piles or soil that has been impacted by the waste rock piles.

1.2 Site Inspection

URS conducted a Site Inspection (SI) of the Site in July 2007. The results, including recommendations for an RA, are communicated in the SI report (URS, 2008). The primary objectives of the SI were to:

- Assess the immediate or potential risk that the mining wastes pose to human health and/or the environment.
- Collect sufficient information to support a streamlined risk evaluation to facilitate the decision regarding the need for an RA.

In order to complete a streamlined risk evaluation and assessment samples of mine water, soil (from within the waste pile) and waste rock were collected. Results of the streamlined evaluation included the following:

- The streamlined human health risk assessment found that potential human health risk from consumption of mine water was negligible and that potential human health risk from contact with Site soil was limited to arsenic and cadmium. When quantified using recreational user-specific models, no potentially unacceptable risks to child and adult receptors periodically using the Site were found.

- The streamlined ecological risk concluded that no potential unacceptable risk exists for mine water at the Site. However, the risk ratios calculated for soil indicated the potential presence of unacceptable risk for ecological receptors exposed to copper, lead and zinc.
- Potential soil clean-up levels for copper (250 mg/kg), lead (250 mg/kg), and zinc (10 mg/kg) were proposed. Nine SI sample locations exceeded one or more of the proposed values. Five of those locations were within the immediate area of the main working/stope waste rock pile. This location was designated a hot spot.

The SI concluded that many areas of the Site pose chemical or physical hazards and recommended evaluation of mitigation alternatives in an EE/CA. The SI recommended that the mitigation of these hazards should include management of soil and waste rock in the designated hot spot area, with the scope and removal alternatives to be evaluated as part of an Engineering Evaluation/Cost Analysis (EE/CA).

1.3 REMOVAL ACTION

An EE/CA was prepared for the RA at the Site (URS, 2010a) to evaluate 1) elimination of direct contact with high concentrations of metals in waste rock, 2) improvement of public safety by addressing physical hazards, and 3) compliance with Applicable or Relevant and Appropriate Requirements (ARARs). URS collected additional LWRP soil characterization samples, evaluated if soil samples collected from outside waste rock piles were affected by or associated with waste rock from the Site, and identified and evaluated potential aggregate sources for capping as part of a data gap investigation in support of the EE/CA. An additional portion of the EE/CA consisted of the development of soil cleanup criteria (summarized in Table 1) based on background concentrations, regional background concentrations, and regulatory screening criteria.

The following three alternatives were evaluated in the EE/CA:

- Alternative 1 – No Action
- Alternative 2 – Consolidation and On-Site Capping
- Alternative 3 – Excavation and Off-Site Disposal

The EE/CA included a comparative analysis of the alternatives relative to effectiveness, implementability, and cost. Based on this analysis, the EE/CA recommended Alternative 2. . The RA Memorandum included the basic elements of Alternative 2 as described in the EE/CA, in the selected Removal Action:

- Mobilization of equipment to the Site
- Excavation and consolidation of the LWRP and UWRP
- Backfilling of the two eastern-most shafts at the upper working/stope
- Confirmation sampling of the LWRP footprint
- Capping the consolidated waste rock with clean aggregate obtained from Fill #1 and/or Fill #2 borrow areas
- Backfilling other exploration cuts and trenches
- Installation of bat gates at the main and west entrances to the upper working/stope and at the lower adit entrances.
- Restoration and revegetation of the LWRP and UWRP.

1.4 RA Objective

The objectives of the RA were to reduce human and ecological receptor exposure to metals in the waste rock piles and mine waters, and to improve public safety by addressing physical hazards at the Site. The objectives were achieved through the following measures:

- Waste rock from the LWRP was excavated and consolidated with the UWRP material. The consolidated pile was then compacted and capped with clean aggregate from borrow area Fill #1. The capped pile and footprint of the former LWRP were covered with compost and seeded to re-establish a vegetated cover.
- Exploration cuts and trenches were backfilled using soil adjacent to these features and seeded to re-establish a vegetated cover.
- Three shafts at the upper workings were plugged and backfilled. Blast rock was used to initially plug the shafts followed by backfilling with waste rock material and cover with clean aggregate from the borrow area Fill #1. After backfilling the areas were seeded to re-establish a vegetated cover.
- Two bat gates were installed: one at the main entrance of the stope and one at the lower adit entrance.

1.5 Field Operations Plan

URS prepared a Field Operation Plan (FOP) describing the activities to be completed during the RA (URS, 2010b). The FOP included the following elements:

1.5.1 RA Work Plan

The RA Work Plan provided the following information:

- Site location and operational history.
- Results of the SI conducted at the Site in 2007.
- Objectives of the RA.
- RA project organization and responsibilities of Forest Service, URS, and subcontractor personnel.
- Description of RA construction activities.
- Format for the RA Report to be prepared after completion of the RA.

1.5.2 Construction Quality Assurance Plan

The Construction Quality Assurance Plan (CQAP) provided the following information:

- Quality assurance responsibilities for personnel involved in the project.
- Methods and procedures that would control the quality of the work being performed and assure that the end product matched the intent of the RA Work Plan.
- Inspection, meetings, and reports to record and document compliance with the CQAP.

1.5.3 URS Health and Safety Plan

The URS Heath and Safety Plan (HASP) provided the following information:

- General nature of the work and identification of project-related hazards.
- Administrative procedures, engineering controls, and personal protective equipment to address the identified hazards.
- Responsibilities of project personnel for ensuring the requirements of the HASP are implemented.

- Emergency contact information for URS personnel, RA Subcontractor, and emergency responders.
- Directions to the nearest hospital.
- Training and medical surveillance requirements for RA field personnel.
- Record-keeping requirements.
- URS Safety Management Standards applicable to activities being conducts.

1.5.4 Removal Action Subcontractor Submittal

The RA Subcontractor submittal consisted of the Removal Action Quality Control Plan (RAQCP), which identified the policies, procedures, and personnel that the RA Subcontractor would use to control the quality of the work being performed and to assure that the resulting end product matches the intent of the RA Work Plan. The RA Subcontractor was responsible for completion of the work in conformance with the RAQCP, the CQAP, and the RA Work Plan.

1.5.5 50% Design Package

The 50% design package consisted of design drawings and specifications. Design drawings included a vicinity map, general notes, existing conditions plan, proposed grading plan, adit gate plans, and detail sheets. The 50% design package also included specifications for earthwork, waste material handling, and adit gates.

2.0 SUMMARY OF REMOVAL ACTION ACTIVITIES

This section provides a summary of the RA activities completed at the Site. The RA was completed in accordance with the FOP, with the exception of the deviations described in Section 2.7 below. Pertinent Site photographs documenting the RA activities are provided in Appendix A.

2.1 Mobilization

URS and its RA Subcontractor, NRC Environmental Services (NRC), began mobilization of personnel and equipment to the Site on October 13th. Mobilization was complete on October 18th, 2010, and included the following activities:

- Equipment was staged at the borrow area Fill #1 pending deployment to the Site. The equipment was inspected for foreign or contaminated materials, vegetation or debris.
- NRC personnel camped at the borrow area Fill #1 during the project to reduce travel time and maximize time spent conducting the RA activities.
- Prior to commencing mechanized field activities, NRC blocked road access to the work area by placing ‘Road Closed’ barricade across the 390 spur of FS Road 2148. The road was blocked to prevent hunters and other non-authorized persons from entering the work area. The barrier was left in place for the duration of the project except when hauling material from the borrow area.
- URS provided a brief overview of the RA and discussed various technical aspects of the project with subcontractor prior to beginning of work, including review of the CQAP requirements, and roles of each member of the RA team.
- The following personnel participated in the implementation of the RA:
    - Rod Lentz, Forest Service On-Scene Coordinator (OSC)
    - Jennifer Ray, URS, Site Manager (SM)
    - Ray Wilson, NRC, Project Manager
    - Jeff Heeter, NRC, Assistant Project Manager
    - Will Coerts, NRC, Equipment Operator

- Dan Calkins, NRC, Equipment Operator/welder
- Jim Decker, NRC, Equipment Operator
- Greg Holmes, NRC, Equipment Operator
- Jake Everett, NRC, Mechanic/welder

- URS conducted the initial Site health and safety meeting and reviewed key issues addressed in the HASP.
  - URS emphasized that the project required a wide variety of potentially hazardous tasks and each team member has the authority to stop work if they observe an unsafe act or condition.
  - Additional safety tailgate meetings were conducted each morning to address specific tasks to be completed on that day.

2.2 RA Activities

The RA construction occurred from October 13 through November 9, 2010. Weekly construction activities are described in detail below.

2.2.1 Week One (October 13-October 15, 2010)

- The following equipment was mobilized to the borrow area Fill #1 and the Site:
  - One Kobelco SK210 excavator
  - Two CAT 725 articulating haul trucks
  - One Case 850K dozer
  - One Case 1100K dozer
  - One Case 721E front end loader
  - One steel grizzly screen borrow material
- NRC cleared the access road to the UWRP area. All cleared vegetation was stored in stockpiles for later shredding and placement on seeded areas.
- NRC measured openings and ordered steel for the installation of two bat gates.

2.2.2 Week Two (October 18-October 22, 2010)

- NRC began to backfill exploratory features with adjacent soil.
- NRC began to excavate, screen and stockpile capping material from the Fill #1 borrow site. Soil samples were previously collected, analyzed and compared to proposed site cleanup criteria in Table 1.
- The lower adit bat gate was 90% constructed. The McGard nut boxes, face plates, and a spliced section on one cross member remained to be constructed.
- NRC cleared and stockpiled vegetation from the UWRP and access to upper shafts.
- NRC excavated the LWRP. Approximately 600 loose cubic yards of waste rock material from the LWRP was hauled and consolidated on the UWRP. Excavated to or slightly below the underlying original soil surface based on visual inspection.
- NRC received first two loads of Bonaparte Lake peat moss material which was stockpiled at borrow area Fill #1. Approximately 240 loose cubic yards received by the close of October 22, 2010.

- Western shaft plugged with blast rock and backfilled with waste rock material and then covered with borrow material.
- LWRP confirmation samples were collected in accordance with the soil sampling protocols described in the QAPP of the FOP (URS, 2010b). All samples were submitted to the laboratory for total metals analyses.

2.2.3 Week Three (October 25-October 29, 2010)

- The eastern shafts were plugged with blast rock and backfilled with waste rock material
- Additional loads of Bonaparte Lake peat moss material were received at borrow area Fill #1. Approximately 360 loose cubic yards were received during the week ending October 29, 2010.
- The LWRP confirmation results were received and reviewed on October 26, 2010; some proposed cleanup criteria were exceeded, as shown on Table 1.
- At the direction of the OSC approximately 1 foot of additional soil was excavated below the presumed original soil surface at the LWRP. NRC removed the additional material from the LWRP on October 27, 2010. Approximately 120 loose cubic yards of additional material was hauled and consolidated with the UWRP.
- At the direction of the OSC, confirmation sampling of the over-excavated LWRP footprint was conducted and samples were submitted to the laboratory for analysis of total copper and zinc. The analytical results are shown in Table 1.
- Hauling of borrow material to cover the consolidated waste rock pile was completed. Approximately 944 loose cubic yards of borrow material was hauled from borrow area Fill #1, placed and compacted to a minimum depth of 12 inches with a dozer.
- NRC began hauling peat moss from the Fill #1 borrow area to the UWRP and LWRP.
- Anchors were installed for the bat gate at the upper workings.
- Shredding of stockpiled vegetation began, with approximately ¾ of stockpile shredded by the end of October 29, 2010 resulting in approximately 8 loose cubic yards of mulch.

2.2.4 Week Four (November 1-November 5, 2010)

- Rain and snow were encountered throughout the course of the RA requiring the implementation of storm water and erosion controls. NRC completed road maintenance on the 390 spur haul road in accordance with QAPP to eliminate ponding of storm water on roadways.
- Installation of the lower bat gate was completed.
- Additional loads of Bonaparte Lake peat moss material were received at borrow area Fill #1. Approximately 240 cubic yards were received during the week ending October 29, 2010. A total of 840 loose cubic yards were received at the Fill #1 borrow area during the RA.
- Hauling of peat moss material to the UWRP and LWRP continued.
- Initial leveling of the blast rock pile to the approximate contour of the surrounding ground surface was completed.
- Peat moss material placement (a minimum depth of 6 inches or approximately 200 cubic yards) and grading on the footprint of the LWRP excavation area was completed.
- Shredding of cleared vegetation stockpile was completed, a total of approximately 12 loose cubic yards of mulch was generated from material generated during the RA.
- LWRP seeding, raking and mulching was completed. Documentation of the Kelly Camp Seed Mix is attached in Appendix B. Kelly Camp Seed Mix was applied at a minimum of 14 pounds

per acre (lbs/acre) followed by mulch applied at a rate of approximately 50% coverage in all restored areas during the RA unless otherwise noted.

- At the direction of the OSC, logs from the cleared and stockpiled vegetation were placed on peat moss-covered footprint of the LWRP.
- The soil pile to the east of the UWRP was leveled, seeded, raked and mulched with shredded material. The LWRP access road was ripped, water barred, seeded, raked and mulched to the intersection of the UWRP access road.
- Backfilling of the last exploratory feature was completed. All features were seeded and raked. At the direction of the OSC, logs from the stockpiled cleared vegetation and rocks were distributed on larger disturbed areas.
- All areas disturbed as part of the backfilling of exploratory features were seeded and raked.
- The access ramp to the backfilled eastern shafts and the area surrounding the eastern shafts that were disturbed by the backfilling operation were seeded, raked and mulched.
- NRC completed ripping of blast rock access road.

2.2.5 Week Five (November 7-November 9, 2010)

- NRC completed installation of the upper bat gate.
- Debris collected during the work was hauled off Site by NRC. Three garbage bags of trash were disposed as solid waste the Spokane Regional Solid Waste System's Waste to Energy Plant. Metal debris was recycled at Pacific Steel & Recycling of Spokane, Washington (disposal receipt in Appendix C).
- NRC completed the peat moss cover, seeding with the Kelly Camp Seed Mix, mulching and distribution of larger vegetative debris on the consolidated waste rock pile.
- NRC completed seeding of the access road to blast rock pile with the Kelly Camp Seed Mix.
- NRC completed ripping, installation of water bars, seeding with the Kelly Camp Seed Mix, raking and mulching of the upper portion of the access road between the upper and lower waste rock piles.
- NRC completed grading, covering with peat moss material, seeding with the Kelly Camp Seed Mix and raking at the Fill #1 borrow area.
- At the direction of the OSC, NRC completed blockage of access roads to restored work areas off of the 390 spur using large rocks.

2.3 Final Inspection

Upon completion of the RA on November 9, 2010, NRC, the URS SM, and the OSC conducted a final inspection.

- At that time the OSC provided verbal approval that the RA project had been completed to the satisfaction of the Forest Service.
- Additional road ripping and rock placement was completed per the request of the OSC prior to demobilization.

2.4 Demobilization

Following a final debriefing between all Site personnel, the OSC and URS SM demobilized from the Site on November 9, 2010. NRC completed the demobilization of all equipment on November 15, 2010.

2.5 Confirmation Sampling

Confirmation sampling was conducted on the footprint of the LWRP area. Since some results exceeded the proposed cleanup criteria as shown on Table 1, the LWRP was excavated an additional 1 foot at the direction of the OSC. Four additional samples were collected following the additional excavation and submitted to the laboratory. The additional samples were analyzed for total copper and zinc, these results are also included in Table 1. Laboratory analytical reports are provided in Appendix D.

Copper and zinc cleanup criteria were exceeded at all sample locations collected from the original excavation footprint by up to 127% or 106%, respectively. These samples met other cleanup criteria except for barium cadmium, chromium and mercury which exceeded cleanup criteria in one (barium, cadmium, chromium) or three (mercury) samples. Proposed cleanup criteria for copper and zinc were developed in the EE/CA using the 90^{th} percentile concentration of ten background samples; all background samples were collected upslope of the upper adit opening and may not have been representative of native soils down slope of the lower adit.

The proposed copper and zinc cleanup criteria are more stringent than the associated State of Washington Model Toxics Control Act (MTCA) criteria (Table 1). Six and four of the seven initial excavation footprint samples also exceeded the associated MTCA criteria for copper and zinc by up to 50% or 12%, respectively. Additional excavation of the foot print was intended to remove potentially contaminated sub soils.

Results for the four samples collected from the footprint of the additional 1foot excavation also exceeded the soil cleanup criteria for copper and zinc. However, only two of the samples slightly exceeded the MTCA criteria for zinc, while one exceeded the criteria for copper. The criteria for copper and zinc are protective of soil biota and plants, respectively. Potential impacts to these receptors due to slightly elevated concentrations should largely be mitigated by placement of the 6-inch peat moss cap.

2.6 Survey

A post-construction metes and bound survey and a topographic survey of the LWRP and UWRP was completed following the RA on November 15, 2010. The Record Drawings for the Site are attached in Appendix E. Areas addressed by the RA are shown on Figure 3. Topographic cross sections of the consolidated and capped waste rock pile are provided on Figures 4 and 5.

2.7 Deviations from the Removal Action Work Plan

During implementation of the RA, the following deviations from the RA Work Plan were observed:

- On October 18, 2010 approval was granted by the OSC for the use of an alternative cover material. Bonaparte Lake peat moss was used instead of EKO compost.
- It was observed that the wood debris from historic structures did not appear to be treated with wood preservative. NRC requested that the material be shredded with the cleared vegetation and used as mulch. The OSC agreed that the material could be shredded.
- The RA work plan specified that LWRP waste rock be used to backfill shafts following initial plugging with blast rock. UWRP waste rock was used as backfill material instead due to ease of access at the time of backfilling.
- On October 20, 2010 while working on the lower bat gate, a rock on the side of the adit became dislodged.
    - It was determined that the rock would need to be pushed back into the adit and an additional piece of steel would be spliced onto the cross member to minimize the space between the existing cross member and the new adit wall.
- Two additional horizontal anchor points were installed for the adit gate at the upper workings, as requested by the OSC.

- On October 22, 2010, attempts to plug the eastern shafts were unsuccessful. The largest of the available pieces of blast rock would not bridge the gap and were lost down the shaft. When plugging operations resumed on October 25, 2010, a piece of angle iron was used to assist in holding up the first rock so additional rocks could be wedged in to bridge the gap. The OSC approved the use of the angle iron.
- On October 26, 2010 confirmation sample analytical results were received and compared to the Site proposed cleanup criteria. Copper and zinc cleanup criteria were exceeded at all sampled locations. Additional criteria for other metals were also exceeded at some locations as shown in Table 1.
    - Following comparison to proposed soil cleanup criteria approximately an additional 120 loose cubic yards of soil from the LWRP footprint was excavated, hauled and consolidated with the UWRP.
    - Approximately 720 loose cubic yards of material was removed from the LWRP during the RA. This volume is 530 loose cubic yards more, or approximately 3.75 times the volume estimated in the FOP of 190 loose cubic yards.
    - An additional four soil samples were collected from the LWRP footprint following the over excavation of 1 foot.
- On October 26, 2010 an additional exploratory feature (an earthen berm) was identified at the east of the UWRP as well as what was believed to be additional waste rock.
    - The OSC initially requested that the earthen berm feature be graded flat and that the waste rock be excavated and consolidation with UWRP.
    - Following clearing of the presumed waste rock pile and completion of leveling of the berm, a test pit was excavated into the pile; based on the characteristics of the material it was determined that the material was likely overburden from the roadway and not waste rock. At the direction of the OSC, the material was leveled out, seeded, raked and mulched and not excavated or consolidated at the UWRP.
- On November 1, 2010, an additional exploratory feature was identified downslope from a previously identified feature just above the cattle trough feature at the Site. The feature was backfilled at the request of the OSC.
- Cleared vegetation too large for the shredder was placed on top of the seeded and mulched areas.
- Restoration of the road used to access the exploratory trenches and blast rock pile was not an RA element included in the FOP. The roadway was ripped and seeded at the direction of OSC.
- McGard Nut boxes on the adit gates were 1 inch in size instead of 4 inches.
- The 4-inch bolts for McGard Nuts were cut to 2-3/4 inches in length to minimize difficulties in removing the bar with the excess length.
- In addition to ripping and seeding of access roads to the restored work areas, at the request of the OSC, large boulders and logs from nearby the roadways were used to block vehicular access.

2.8 Removal Action Costs

URS' total contract cost for this project is $196,290. Approved substitution of the Bonaparte Lake peat moss alternative resulted in a cost savings of approximately $32,000. With this savings, NRC was able to complete additional out-of-scope work as directed by the OSC. Due to inclement weather, the RA took two weeks longer than budgeted to complete. With these additional costs, the actual cost of the RA is expected to be about $180,000.

2.9 Post Removal Action Monitoring

Post removal action monitoring will be conducted by the Forest Service. Periodic visual inspections will be conducted to assess revegetation success and cap stability.

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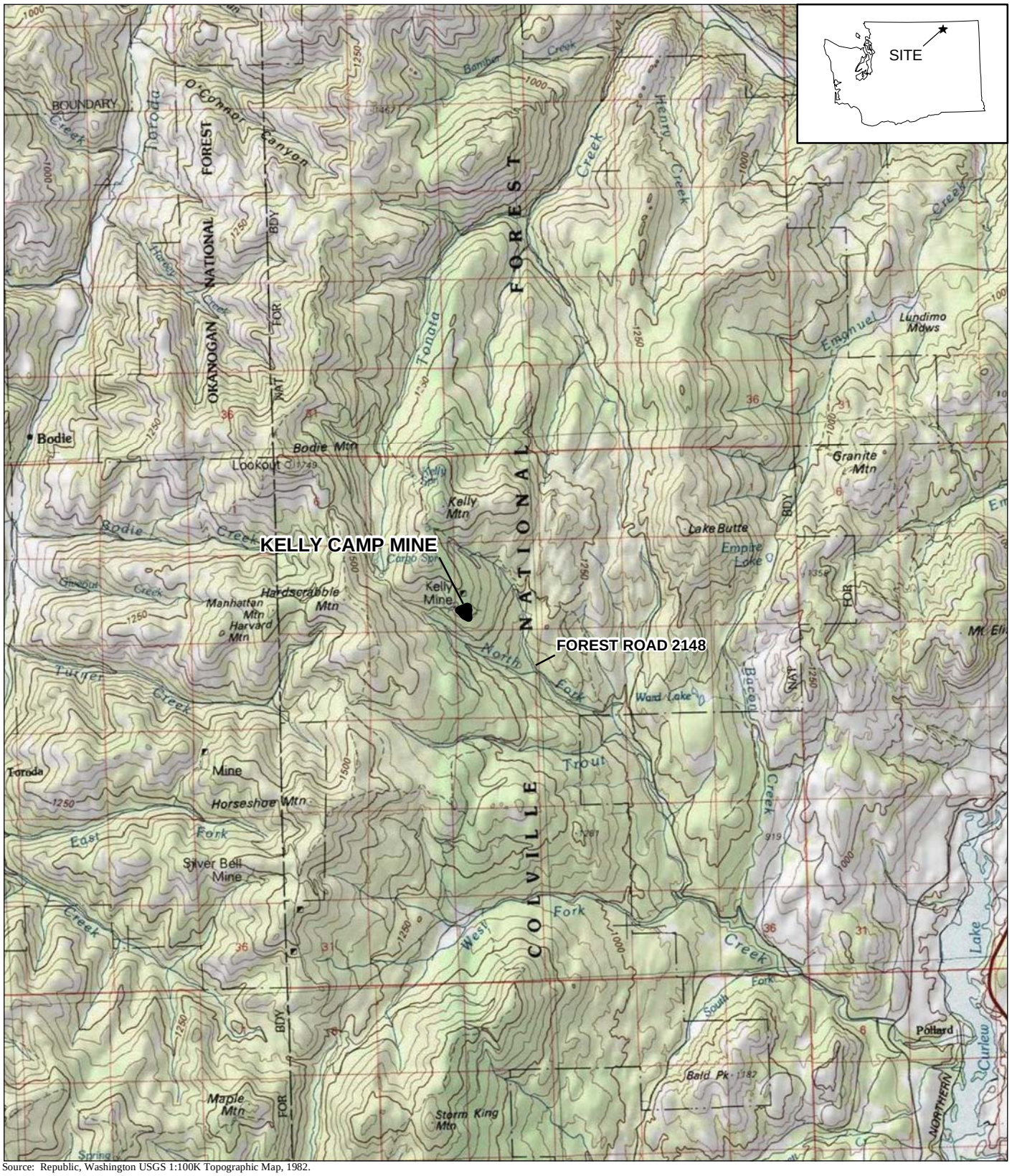
FIGURES



Source: Republic, Washington USGS 1:100K Topographic Map, 1982.

0.5 0 0.5 1 1.5 2

SCALE IN MILES

VINICITY MAP

UNITED STATES FOREST SERVICE
KELLY CAMP MINE REMOVAL ACTION
REPUBLIC, WASHINGTON

DECEMBER 2010
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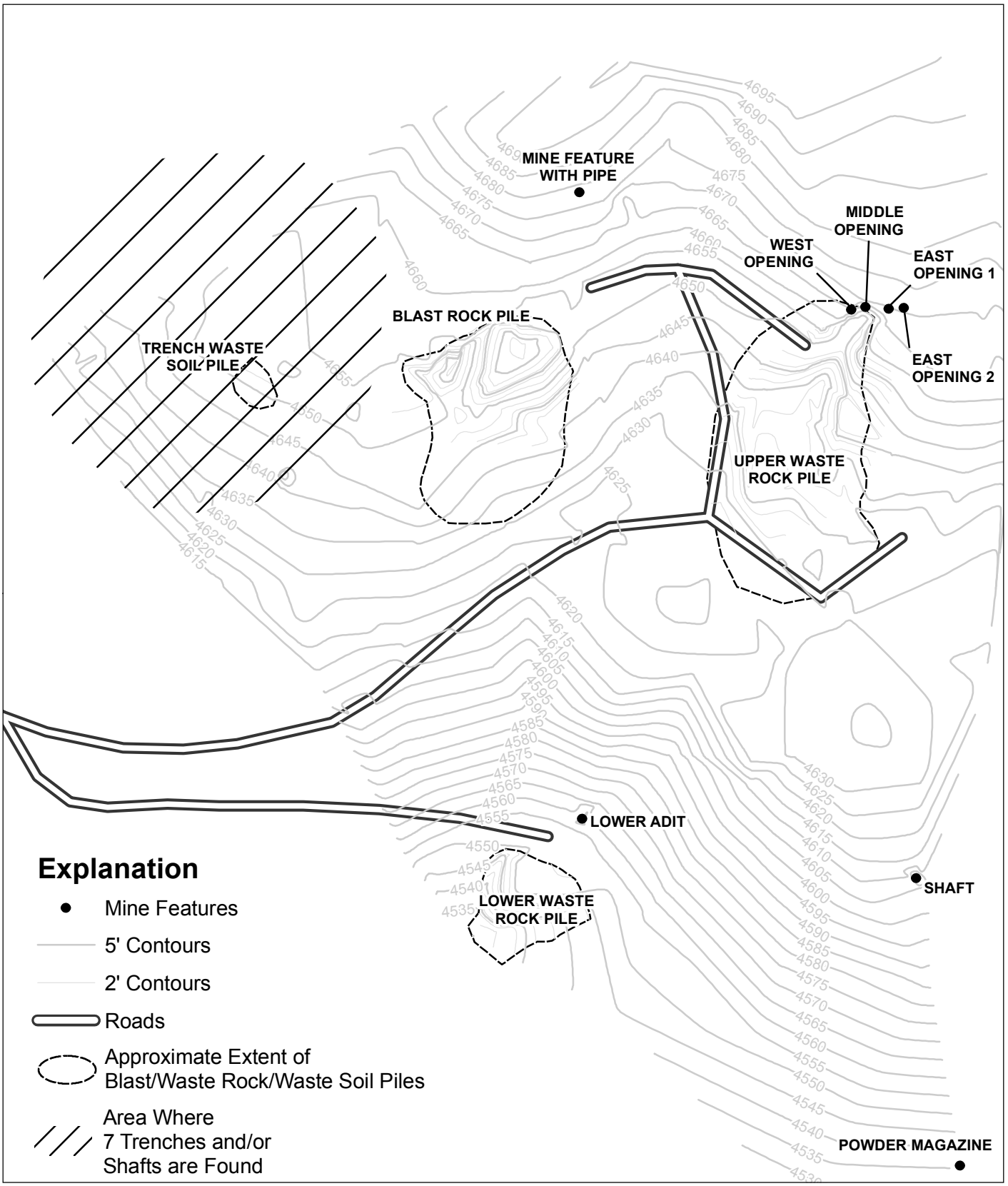
FIGURE 1

O:\25697239 USFS Kelly Camp Mine RDRA\5000 TechnicalCAD\RA\Fig 1 Vicinity Map.mxd



SOURCE: ROADS - COLEVILLE NATIONAL FOREST GIS.
CONTOURS - THOMAS, DEAN, & HOSKINS, INC., 2007

0 100 200

SCALE IN FEET

URS

DECEMBER 2010
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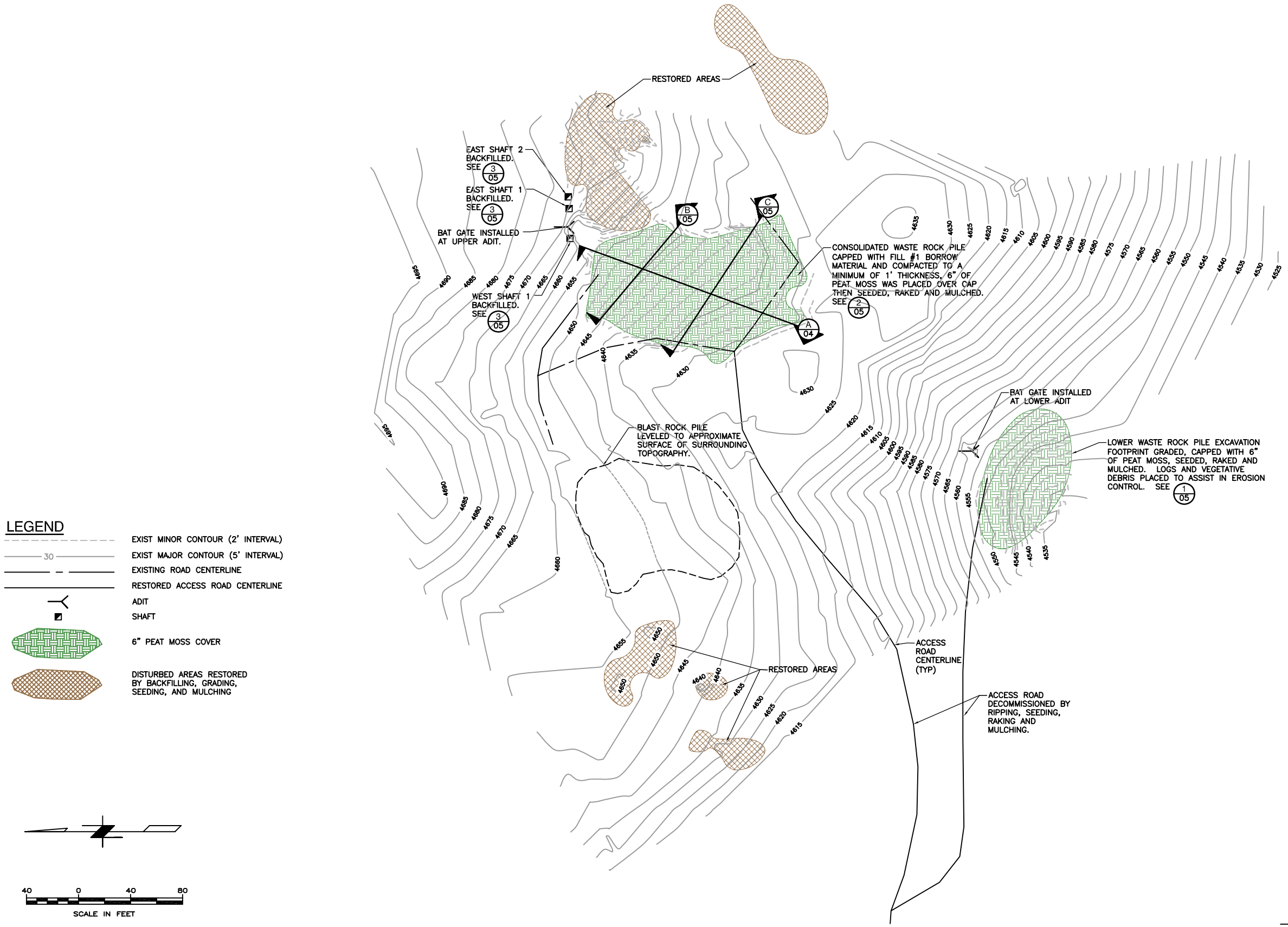
MINE SITE MAP

UNITED STATES FOREST SERVICE
KELLY CAMP MINE REMOVAL ACTION
REPUBLIC, WASHINGTON

FIGURE 2

O:\25697239 USFS Kelly Camp Mine RDRA\5000 TechnicalCAD\RA\Fig 2 Mine Site Map.mxd



LEGEND

- EXIST MINOR CONTOUR (2' INTERVAL)
- 30 EXIST MAJOR CONTOUR (5' INTERVAL)
- EXISTING ROAD CENTERLINE
- RESTORED ACCESS ROAD CENTERLINE
- ADIT
- SHAFT
- 6" PEAT MOSS COVER
- DISTURBED AREAS RESTORED BY BACKFILLING, GRADING, SEEDING, AND MULCHING

40 0 40 80

SCALE IN FEET

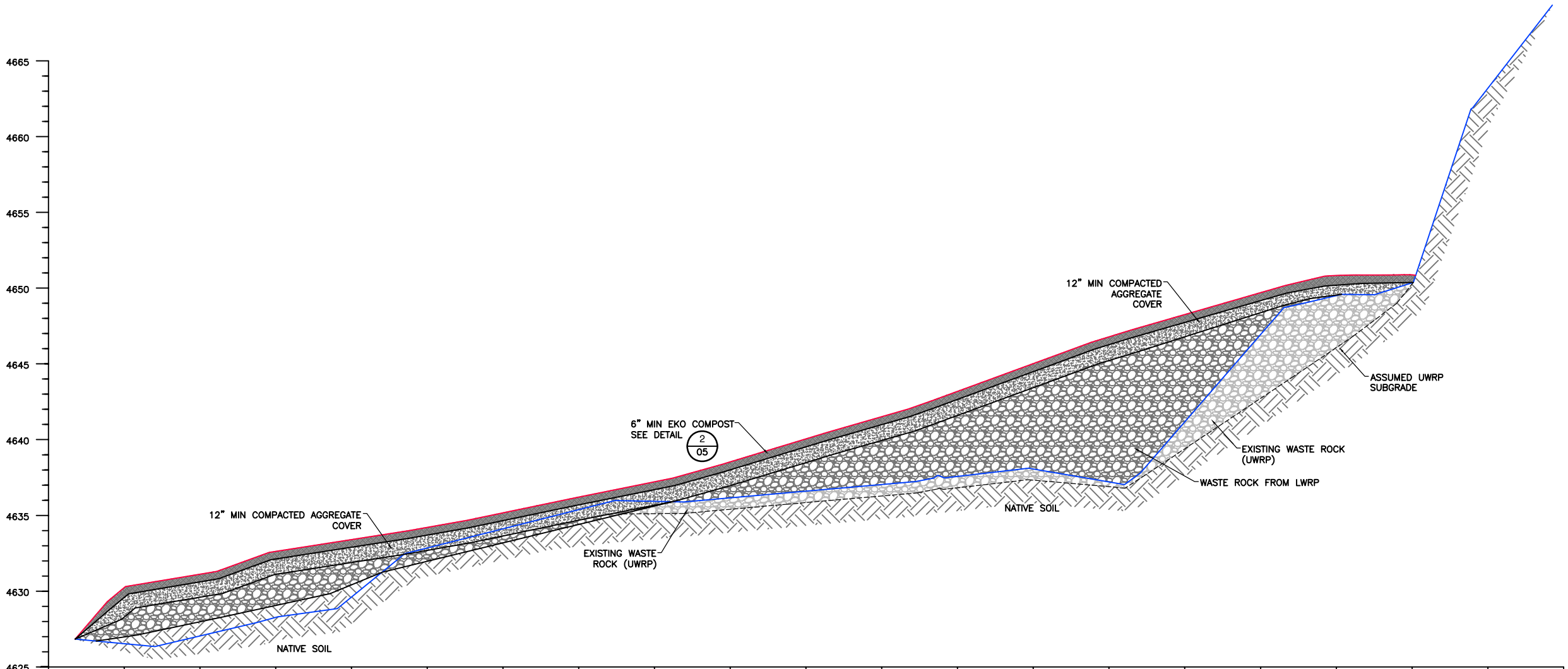
URS

PLAN VIEW OF COMPLETED WORK

UNITED STATES FOREST SERVICE
DECEMBER 2010 KELLY CAMP MINE REMOVAL ACTION
25697239 REPUBLIC, WASHINGTON

FIGURE 3

O:\25697239 USFS Kelly Camp Mine RDRA\5000 Technical\CAD\RA\03 Plan View of Completed Work.dwg Dec 28, 2010 - 7:59am



UPPER WASTE ROCK PILE CROSS SECTION A/03

H 1"=8'-0"
V 1"=4'-0"

LEGEND

- PREVIOUS EXISTING GRADE
- ASSUMED BOTTOM OF WASTE ROCK
- FINISH GRADE

NOTE

2X VERTICAL EXAGGERATION.

8 0 8 16
HORIZONTAL SCALE IN FEET

4 0 4 8
VERTICAL SCALE IN FEET

URS

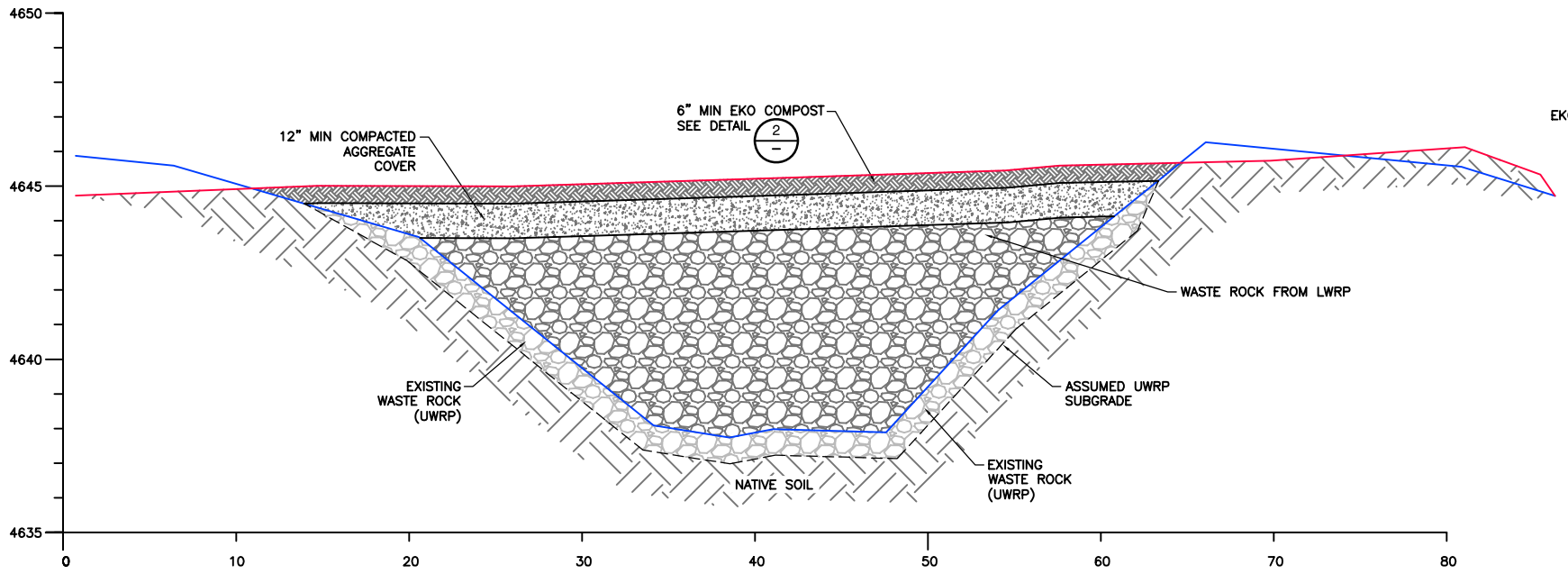
CONSOLIDATED WASTE ROCK PILE CROSS SECTIONS

DECEMBER 2010
25697239

UNITED STATES FOREST SERVICE
KELLY CAMP MINE REMOVAL ACTION
REPUBLIC, WASHINGTON

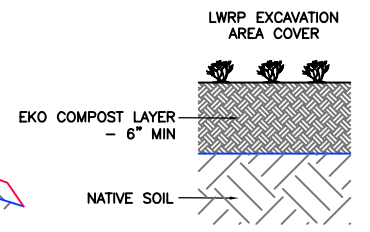
FIGURE 4

C:\25697239 USFS Kelly Comp Mine RDRA\5000 Technical\CAD\RA\04 Cross Sections.dwg Dec 21, 2010 - 3:04pm



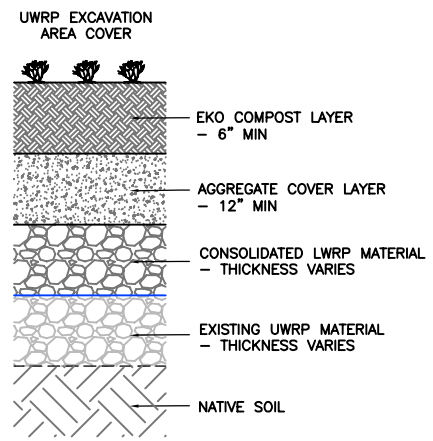
UPPER WASTE ROCK PILE CROSS SECTION B 03

H 1"=5'–0"
V 1"=2'–5"



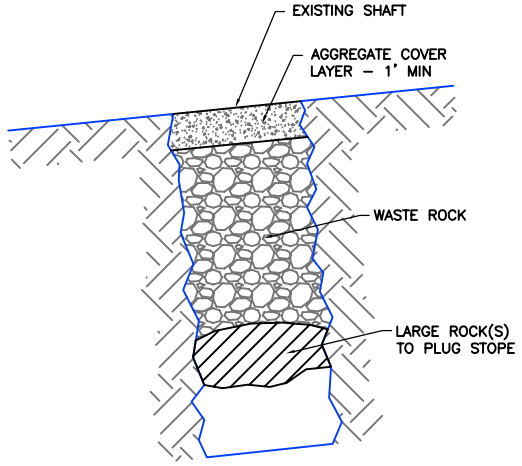
LOWER WASTE ROCK PILE COVER DETAIL 1 03

N.T.S.



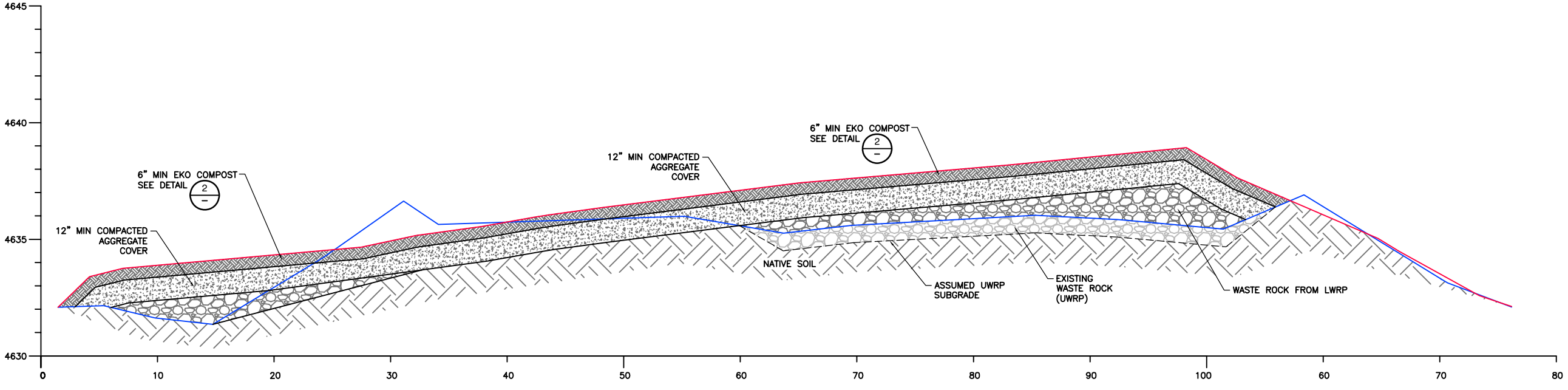
UPPER WASTE ROCK PILE COVER DETAIL 2 03,04

N.T.S.



WEST SHAFT 1, EAST SHAFTS 1 AND 2 BACKFILL DETAIL 3 03

N.T.S.



UPPER WASTE ROCK PILE CROSS SECTION C 03

H 1"=5'–0"
V 1"=2'–5"

LEGEND

- PREVIOUS EXISTING GRADE
- ASSUMED BOTTOM OF WASTE ROCK
- FINISH GRADE

NOTE

2X VERTICAL EXAGGERATION.

5 0 5 10
HORIZONTAL SCALE IN FEET

2.5 0 2.5 5
VERTICAL SCALE IN FEET

URS

CONSOLIDATED WASTE ROCK PILE CROSS SECTIONS AND DETAILS

DECEMBER 2010
25697239

UNITED STATES FOREST SERVICE
KELLY CAMP MINE REMOVAL ACTION
REPUBLIC, WASHINGTON

FIGURE 5

O:\25697239 USFS Kelly Comp Mine RDRA\5000 Technical\CAD\RA\05 Cross Sections.dwg Dec 27, 2010 - 1:35pm

TABLES

Table 1. Cleanup Criteria and Lower Waste Rock Pile Confirmation Sample Analytical Results for Kelly Camp Mine Removal Action, Republic, Washington.

Analyte	State of Washington MTCA Criteria				LWRP Excavation Footprint Sample ID											
	Soil Cleanup Criteria	Method A Industrial Soil (Table 745-1)	Method A Unrestricted Land Use (Table 740-1)	Ecological Indicator Soil Concentrations (Table 749-3)[a]	Fill #1	S-01	S-02	S-03	S-04	S-05	S-06	S-07	S-08	S-09	S-10	S-11
Arsenic	10	20 (As^{3})	20 (As^{3})	10p (As^{5})	2.34	4.37	3.50	4.56	2.66 U	3.25	3.55	5.57	--	--	--	--
Barium	228	NS	NS	102w	46.1	183	185	220	200	249	147	98.7	--	--	--	--
Beryllium	10	NS	NS	10p	0.303	0.385	0.332	0.386	0.302	0.373	0.168	0.352	--	--	--	--
Cadmium	0.97	2	2	4p	0.218 U	0.316	0.543	1.17	0.403	0.479	0.215 U	0.293	--	--	--	--
Chromium	31.9	19 (Cr^{6}) 2,000	19 (Cr^{6})	42[b]p,s	21.3	15.0	20.7	21.7	13.8	18.7	48.3	42.0	--	--	--	--
Cobalt	13	NS	NS	20p	3.84	6.69	6.67	7.96	6.80	11.5	10.3	9.86	--	--	--	--
Copper	32.5	NS	NS	50s	6.2	60.0	52.5	61.9	48.6	64.4	40.7	73.8	50.3	49.6	48.0	83.8
Lead	13.1	1000	250	50s	6.65	7.41	7.73	7.83	4.84	10.0	5.39	13.3	--	--	--	--
Manganese	836	NS	NS	1,100p	175	420	385	525	451	611	386	358	--	--	--	--
Mercury	0.1	2	2	0.1s	0.05 U	0.0500 U	0.0592	0.0752	0.0793	0.140	0.197	0.139	--	--	--	--
Nickel	30	NS	NS	30p	11.3	14.6	15.1	18.4	11.6	15.0	20.4	28.2	--	--	--	--
Selenium	2	NS	NS	0.3w	0.535 U	1.44 U	1.50 U	1.48 U	1.33 U	1.36 U	1.35 U	1.32 U	--	--	--	--
Silver	2	NS	NS	2p	0.545 U	1.73 U	1.81 U	1.78 U	1.60 U	1.63 U	1.61 U	1.58 U	--	--	--	--
Zinc	60.7	NS	NS	86p	26.3	81.9	84.5	125	66.7	92.0	79.7	96.0	83.3	69.1	92.4	87.4

Notes:

-- = Not available.

mg/kg = milligrams per kilogram.

MTCA = Model Toxics Control Act.

NS = No standard.

U= Anayte was not detected above the method reporting limit.

= Analyte detected above the Soil Cleanup Criteria

Samples S-08, S-09, S-10, S-11 collected following additional excavation of approximately one foot.

[a] Lowest value selected from plant(p), soil biota(s), and wildlife(w) receptors.

[b] Benchmark replaced by Washington State (state-wide) natural background concentration.

APPENDIX A

PHOTOGRAPHIC LOG

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
1	October 18, 2010

Direction Photo Taken:

North

Description:

UWRP prior to Removal Action.

Photo No.	Date:
2	October 18, 2010

Direction Photo Taken:

North

Description:

Lower adit prior to Removal Action

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
3	October 18, 2010

Direction Photo Taken:

West

Description:

Exploratory feature prior to backfilling.

Photo No.	Date:
4	October 18, 2010

Direction Photo Taken:

West

Description:

Backfilling exploratory features.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
5	October 18, 2010

Direction Photo Taken:

Northwest

Description:

Excavating and screening Fill #1 borrow area material.

Photo No.	Date:
6	October 19, 2010

Direction Photo Taken:

South

Description:

View from upper adit of UWRP grubbing.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
7	October 19, 2010

Direction Photo Taken:

North

Description:

View of UWRP during grubbing. Note the top of the upper adit at middle center.

Photo No.	Date:
8	October 20, 2010

Direction Photo Taken:

Northeast

Description:

Grubbing the LWRP.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
9	October 20, 2010

Direction Photo Taken:

Northeast

Description:

Excavating waste rock from the LWRP.

Photo No.	Date:
10	October 20, 2010

Direction Photo Taken:

West

Description:

Removing concrete block (believed to be a former compressor pad) from the LWRP.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
11	October 20, 2010

Direction Photo Taken:

North

Description:

Waste rock from LWRP placed on UWRP. Note the top of the upper adit visible at middle center.

Photo No.	Date:
12	October 21, 2010

Direction Photo Taken:

Northwest

Description:

Rock dislodged during lower adit gate installation.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
13	October 22, 2010

Direction Photo Taken:

Southeast

Description:

LWRP footprint following excavation. Flags mark locations of confirmation samples.

Photo No.	Date:
14	October 22, 2010

Direction Photo Taken:

North

Description:

Western shaft following plugging and backfilling.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
15	October 25, 2010

Direction Photo Taken:

North

Description:

Grading consolidated waste rock pile. Excavator at top working on backfilling eastern shafts.

Photo No.	Date:
16	October 18, 2010

Direction Photo Taken:

East

Description:

Eastern shafts prior to plugging and backfilling.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
17	October 25, 2010

Direction Photo Taken:

East

Description:

Plugging eastern shafts with blast rock.

Photo No.	Date:
18	October 26, 2010

Direction Photo Taken:

East

Description:

Eastern shafts following plugging and backfilling with waste rock.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
19	October 25, 2010

Direction Photo Taken:

Southwest

Description:

Graded consolidated waste rock pile as viewed from the backfilled eastern shafts.

Photo No.	Date:
20	October 26, 2010

Direction Photo Taken:

Southwest

Description:

Hauling and placing borrow material on consolidated waste rock pile.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
21	October 26, 2010

Direction Photo Taken:

East

Description:

Using dozer to over-excavate LWRP.

Photo No.	Date:
22	October 27, 2010

Direction Photo Taken:

Southeast

Description:

LWRP footprint following excavation of additional material.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
23	October 27, 2010

Direction Photo Taken:

North

Description:

Over excavation material from LWRP being graded at the consolidated waste rock pile.

Photo No.	Date:
24	October 27, 2010

Direction Photo Taken:

Southeast

Description:

Unloading and stockpiling Bonaparte Lake peat moss material at Fill #1 borrow area.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
25	October 27, 2010

Direction Photo Taken:

North

Description:

Distributing and compacting borrow material on consolidated waste rock pile.

Photo No.	Date:
26	October 28, 2010

Direction Photo Taken:

Northeast

Description:

Unloading borrow material at consolidated waste pile

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
27	October 29, 2010

Direction Photo Taken:

North

Description:

Beginning peat moss placement on consolidated waste rock pile.

Photo No.	Date:
28	October 29, 2010

Direction Photo Taken:

Northeast

Description:

Shredding cleared vegetation stockpile.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
29	November 1, 2010

Direction Photo Taken:

South

Description:

Using excavator to level blast rock pile.

Photo No.	Date:
30	November 2, 2010

Direction Photo Taken:

West

Description:

Placing compost on LWRP footprint.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
31	November 3, 2010

Direction Photo Taken:

Northeast

Description:

Distributing seed at LWRP.

Photo No.	Date:
32	November 3, 2010

Direction Photo Taken:

East

Description:

Completed restoration at LWRP footprint.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
33	November 5, 2010

Direction Photo Taken:

West

Description:

LWRP access road following ripping, seeding, raking and mulching. Note water bar installed at top of pictured road portion pictured.

Photo No.	Date:
34	November 5, 2010

Direction Photo Taken:

West

Description:

Ripping access road to blast rock pile.

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
35	November 5, 2010

Direction Photo Taken:

West

Description:

Blast rock pile following leveling.

Photo No.	Date:
36	November 9, 2010

Direction Photo Taken:

North

Description:

Finished gate at lower adit.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
37	November 9, 2010

Direction Photo Taken:

Northe

Description:

Restoration of consolidated waste rock complete.

Photo No.	Date:
38	November 9, 2010

Direction Photo Taken:

North

Description:

Completed gate at UWRP.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
40	November 9, 2010

Direction Photo Taken:

East

Description:

Water bar installed on upper access road.

Photo No.	Date:
41	November 5, 2010

Direction Photo Taken:

South

Description:

Upper access road following ripping, water-barring, seeding, raking and mulching.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
42	November 9, 2010

Direction Photo Taken:

North

Description:

Blockage of road up to blast rock pile.

Photo No.	Date:
43	November 9, 2010

Direction Photo Taken:

West

Description:

Boulders placed to block access roads to UWRP and LWRP.

Appendix A: Photographic Log

Client Name:	Site Location:	Project No.
United States Forest Service	Kelly Camp Mine, Colville National Forest	25697239

Photo No.	Date:
44	November 9, 2010

Direction Photo Taken:

West

Description:

Equipment staged for demobilization.

Photo No.	Date:
45	November 9, 2010

Direction Photo Taken:

Southeast

Description:

Borrow area following restoration..

APPENDIX B

SEED MIX PRODUCT DOCUMENTATION

Landmark
Native Seed

522 W. Riverside Ave.
Suite 430
Spokane, WA 99201
800-268-0180
P: 509-835-4967
F: 509-835-4969

October 28, 2010

NRC Environmental Services Inc.
Attn: Ray Wilson
4031 E. Trent Ave.
Spokane, WA 99202

Re: Seed Quality – Forest Service Kelly Camp Mine Mix – AWH-2130-LM

Dear Ray –

The grass seed within your Forest Service Kelly Camp Mine Mix is of a quality that exceeds the minimum quality standards in the grass seed industry. These standards are the same standards used by various State and Federal agencies when they buy grass seed.

This mix is the following:

Type	Percentage	Purity	Germ	PLS
Sheep Fescue	28%	99.05%	93%	92.12%
Streambank WG	28%	98.70%	96%	94.75%
Pubescent WG	44%	95.27%	95%	90.51%

Each of the lots of seed that were combined to make the above referenced mix, have been tested by State and Federal approved seed labs for purity, germination rate, other crop, weeds, inert matter, and state and federal noxious weeds. These lots meet all of the standard quality standards in each of those categories.

If you have any specific questions about any of the seed within this mix, please do not hesitate to call me.

Sincerely,

RJ Schmitt

Landmark Native Seed

KELLY CAMP MINE MIX

PURE SEED	KIND	GERM	ORIGIN
42.96%	PUBESCENT WHEATGRASS	95.00%	ND
27.48%	SHEEP FESCUE	93.00%	WA
27.55%	STREAMBANK WHEATGRASS	96.00%	ND

NO RESTRICTED NOXIOUS WEEDS

OTHER CROP	INERT	WEED
0.05%	2.16%	0.00%

NET WT: 50 LBS. TESTED: 10/2010 LOT: AWH-2130-LM

AMS 3750

APPENDIX C

DISPOSAL RECEIPT

PACIFIC STEEL & RECYCLING™

1114 N Ralph PO Box 3324 Spokane, WA 99220 (509 535-1673)

PURCHASE TICKET	3476895
PURCHASE DATE	11/11/10
PURCHASE TYPE	CASH
STACIE T	31

PURCHASED FROM	310099

NRC ENVIRONMENTAL SERVICES
SPOKANE, WA

QUANTITY Purchased	UOM	Description	PRICING UOM	Per Unit	Amount
210	LB	SCRAP IRON	LB	0.0400	8.40

TOTAL QUANTITY	210	TOTAL AMOUNT	$8.40

TRANSACTION DATE AND TIME:11/11/10 11:15 AM

I, the undersigned, affirm under the penalty of law that the property that is subject to this transaction is not to the best of my knowledge stolen property.

SELLER SIGNATURE

WITNESS SIGNATURE (REQUIRED)

Thank you for choosing Pacific Steel & Recycling - Spokane

APPENDIX D

LABORATORY ANALYTICAL REPORT

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Spokane
11922 East 1st. Avenue
Spokane, WA 99206
Tel: (509)924-9200

TestAmerica Job ID: STJ0134
TestAmerica Sample Delivery Group: STJ0134
Client Project/Site: 25697239.00003
Client Project Description: Kelly Camp Mine RD/RA

For:
URS Corp. - Portland
111 SW Columbia Suite 1500
Portland, OR 97201-4014

Attn: David Weatherby

Authorized for release by:
10/27/2010 10:26 AM

Randee Decker
Project Manager
Randee.Decker@testamericainc.com

Table of Contents

Sample Summary

Client: URS Corp. - Portland
Project/Site: 25697239.00003

TestAmerica Job ID: STJ0134
SDG: STJ0134

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
STJ0134-01	S-01-20101022	Soil	10/22/10 10:50	10/22/10 14:20
STJ0134-02	S-02-20101022	Soil	10/22/10 10:55	10/22/10 14:20
STJ0134-03	S-03-20101022	Soil	10/22/10 10:57	10/22/10 14:20
STJ0134-04	S-04-20101022	Soil	10/22/10 11:00	10/22/10 14:20
STJ0134-05	S-05-20101022	Soil	10/22/10 11:03	10/22/10 14:20
STJ0134-06	S-06-20101022	Soil	10/22/10 11:05	10/22/10 14:20
STJ0134-07	S-07-20101022	Soil	10/22/10 11:08	10/22/10 14:20

Qualifier Definition/Glossary

Client: URS Corp. - Portland
Project/Site: 25697239.00003

TestAmerica Job ID: STJ0134
SDG: STJ0134

Qualifiers

Metals

Qualifier	Qualifier Description
B	Analyte was detected in the associated Method Blank.
B1	Analyte was detected in the associated method blank. Analyte concentration in the sample is greater than 10x the concentration found in the method blank.
MHA	Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).

Glossary

Glossary	Glossary Description
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis.

Client Sample ID: S-01-20101022

Lab Sample ID: STJ0134-01
Date Collected: 10/22/10 10:50
Matrix: Soil
Date Received: 10/22/10 14:20
Percent Solids: 86.6

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.37		2.89		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:16	1
Barium	183		0.577		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:16	1
Beryllium	0.385		0.173		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:16	1
Cadmium	0.316		0.231		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:16	1
Chromium	15.0		0.577		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:16	1
Cobalt	6.69		0.577		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:16	1
Copper	60.0		0.577		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:16	1
Lead	7.41		1.73		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:16	1
Manganese	420	B1	0.577		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:16	1
Nickel	14.6		1.73		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:16	1
Selenium	ND		1.44		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:16	1
Silver	ND	B	1.73		mg/kg dry	☼	10/22/10 17:00	10/26/10 18:18	1
Zinc	81.9		0.577		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:16	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		50.0		ug/kg dry	☼	10/25/10 10:12	10/25/10 17:25	1

Client Sample ID: S-02-20101022

Lab Sample ID: STJ0134-02
Date Collected: 10/22/10 10:55
Matrix: Soil
Date Received: 10/22/10 14:20
Percent Solids: 83.1

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.50		3.01		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:22	1
Barium	185		0.602		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:22	1
Beryllium	0.332		0.181		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:22	1
Cadmium	0.543		0.241		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:22	1
Chromium	20.7		0.602		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:22	1
Cobalt	6.67		0.602		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:22	1
Copper	52.5		0.602		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:22	1
Lead	7.73		1.81		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:22	1
Manganese	385	B1	0.602		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:22	1
Nickel	15.1		1.81		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:22	1
Selenium	ND		1.50		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:22	1
Silver	ND	B	1.81		mg/kg dry	☼	10/22/10 17:00	10/26/10 18:19	1
Zinc	84.5		0.602		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:22	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	59.2		50.0		ug/kg dry	☼	10/25/10 10:12	10/25/10 17:28	1

Client Sample ID: S-03-20101022

Lab Sample ID: STJ0134-03
Date Collected: 10/22/10 10:57
Matrix: Soil
Date Received: 10/22/10 14:20
Percent Solids: 84.2

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.56		2.97		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:27	1
Barium	220		0.594		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:27	1
Beryllium	0.386		0.178		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:27	1

Client Sample ID: S-03-20101022

Lab Sample ID: STJ0134-03
Date Collected: 10/22/10 10:57
Matrix: Soil
Date Received: 10/22/10 14:20
Percent Solids: 84.2

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	1.17		0.238		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:27	1
Chromium	21.7		0.594		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:27	1
Cobalt	7.96		0.594		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:27	1
Copper	61.9		0.594		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:27	1
Lead	7.83		1.78		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:27	1
Manganese	525	B1	0.594		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:27	1
Nickel	18.4		1.78		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:27	1
Selenium	ND		1.48		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:27	1
Silver	ND	B	1.78		mg/kg dry	☼	10/22/10 17:00	10/26/10 18:21	1
Zinc	125		0.594		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:27	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	75.2		50.0		ug/kg dry	☼	10/25/10 10:12	10/25/10 17:30	1

Client Sample ID: S-04-20101022

Lab Sample ID: STJ0134-04
Date Collected: 10/22/10 11:00
Matrix: Soil
Date Received: 10/22/10 14:20
Percent Solids: 93.9

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.66		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:33	1
Barium	200		0.532		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:33	1
Beryllium	0.302		0.160		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:33	1
Cadmium	0.403		0.213		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:33	1
Chromium	13.8		0.532		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:33	1
Cobalt	6.80		0.532		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:33	1
Copper	48.6		0.532		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:33	1
Lead	4.84		1.60		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:33	1
Manganese	451	B1	0.532		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:33	1
Nickel	11.6		1.60		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:33	1
Selenium	ND		1.33		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:33	1
Silver	ND	B	1.60		mg/kg dry	☼	10/22/10 17:00	10/26/10 18:22	1
Zinc	66.7		0.532		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:33	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	79.3		50.0		ug/kg dry	☼	10/25/10 10:12	10/25/10 17:32	1

Client Sample ID: S-05-20101022

Lab Sample ID: STJ0134-05
Date Collected: 10/22/10 11:03
Matrix: Soil
Date Received: 10/22/10 14:20
Percent Solids: 92.2

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.25		2.71		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:39	1
Barium	249		0.542		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:39	1
Beryllium	0.373		0.163		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:39	1
Cadmium	0.479		0.217		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:39	1
Chromium	18.7		0.542		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:39	1
Cobalt	11.5		0.542		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:39	1

Client Sample ID: S-05-20101022

Date Collected: 10/22/10 11:03
Date Received: 10/22/10 14:20

Lab Sample ID: STJ0134-05

Matrix: Soil
Percent Solids: 92.2

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	64.4		0.542		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:39	1
Lead	10.0		1.63		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:39	1
Manganese	611	B1	0.542		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:39	1
Nickel	15.0		1.63		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:39	1
Selenium	ND		1.36		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:39	1
Silver	ND	B	1.63		mg/kg dry	☼	10/22/10 17:00	10/26/10 18:23	1
Zinc	92.0		0.542		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:39	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	140		50.0		ug/kg dry	☼	10/25/10 10:12	10/25/10 17:34	1

Client Sample ID: S-06-20101022

Date Collected: 10/22/10 11:05
Date Received: 10/22/10 14:20

Lab Sample ID: STJ0134-06

Matrix: Soil
Percent Solids: 92.9

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.55		2.69		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:44	1
Barium	147		0.538		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:44	1
Beryllium	0.168		0.161		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:44	1
Cadmium	ND		0.215		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:44	1
Chromium	48.3		0.538		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:44	1
Cobalt	10.3		0.538		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:44	1
Copper	40.7		0.538		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:44	1
Lead	5.39		1.61		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:44	1
Manganese	386	B1	0.538		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:44	1
Nickel	20.4		1.61		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:44	1
Selenium	ND		1.35		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:44	1
Silver	ND	B	1.61		mg/kg dry	☼	10/22/10 17:00	10/26/10 18:31	1
Zinc	79.7		0.538		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:44	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	197		50.0		ug/kg dry	☼	10/25/10 10:12	10/25/10 17:37	1

Client Sample ID: S-07-20101022

Date Collected: 10/22/10 11:08
Date Received: 10/22/10 14:20

Lab Sample ID: STJ0134-07

Matrix: Soil
Percent Solids: 94.9

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.57		2.63		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:50	1
Barium	98.7		0.527		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:50	1
Beryllium	0.352		0.158		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:50	1
Cadmium	0.293		0.211		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:50	1
Chromium	42.0		0.527		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:50	1
Cobalt	9.86		0.527		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:50	1
Copper	73.8		0.527		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:50	1
Lead	13.3		1.58		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:50	1
Manganese	358	B1	0.527		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:50	1

Client: URS Corp. - Portland
Project/Site: 25697239.00003

TestAmerica Job ID: STJ0134
SDG: STJ0134

Client Sample ID: S-07-20101022
Date Collected: 10/22/10 11:08
Date Received: 10/22/10 14:20

Lab Sample ID: STJ0134-07
Matrix: Soil
Percent Solids: 94.9

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	**28.2**		1.58		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:50	1
Selenium	ND		1.32		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:50	1
Silver	ND	B	1.58		mg/kg dry	☼	10/22/10 17:00	10/26/10 18:33	1
Zinc	**96.0**		0.527		mg/kg dry	☼	10/22/10 17:00	10/25/10 20:50	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**139**		50.0		ug/kg dry	☼	10/25/10 10:12	10/25/10 17:39	1

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Lab Sample ID: 10J0122-BLK1 | **Client Sample ID: 10J0122-BLK1**
Matrix: Soil | **Prep Type: total**
Analysis Batch: 10J0122 | **Prep Batch: 10J0122_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.50		mg/kg wet		10/22/10 17:00	10/25/10 20:11	1
Barium	ND		0.500		mg/kg wet		10/22/10 17:00	10/25/10 20:11	1
Beryllium	ND		0.150		mg/kg wet		10/22/10 17:00	10/25/10 20:11	1
Cadmium	ND		0.200		mg/kg wet		10/22/10 17:00	10/25/10 20:11	1
Chromium	ND		0.500		mg/kg wet		10/22/10 17:00	10/25/10 20:11	1
Cobalt	ND		0.500		mg/kg wet		10/22/10 17:00	10/25/10 20:11	1
Copper	ND		0.500		mg/kg wet		10/22/10 17:00	10/25/10 20:11	1
Lead	ND		1.50		mg/kg wet		10/22/10 17:00	10/25/10 20:11	1
Manganese	11.3	B1	0.500		mg/kg wet		10/22/10 17:00	10/25/10 20:11	1
Nickel	ND		1.50		mg/kg wet		10/22/10 17:00	10/25/10 20:11	1
Selenium	ND		1.25		mg/kg wet		10/22/10 17:00	10/25/10 20:11	1
Zinc	ND		0.500		mg/kg wet		10/22/10 17:00	10/25/10 20:11	1

Lab Sample ID: 10J0122-BLK1 | **Client Sample ID: 10J0122-BLK1**
Matrix: Soil | **Prep Type: total**
Analysis Batch: 10J0122 | **Prep Batch: 10J0122_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	3.73	B	1.50		mg/kg wet		10/22/10 17:00	10/26/10 18:08	1

Lab Sample ID: 10J0122-BS1 | **Client Sample ID: 10J0122-BS1**
Matrix: Soil | **Prep Type: total**
Analysis Batch: 10J0122 | **Prep Batch: 10J0122_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Arsenic	50.0	46.0		mg/kg wet		92.0	80 - 120
Barium	50.0	55.9		mg/kg wet		112	80 - 120
Beryllium	50.0	46.6		mg/kg wet		93.2	80 - 120
Cadmium	50.0	48.0		mg/kg wet		96.1	80 - 120
Chromium	50.0	49.3		mg/kg wet		98.6	80 - 120
Cobalt	50.0	50.1		mg/kg wet		100	80 - 120
Copper	50.0	47.5		mg/kg wet		95.0	80 - 120
Lead	50.0	49.7		mg/kg wet		99.5	80 - 120
Manganese	50.0	56.9		mg/kg wet		114	80 - 120
Nickel	50.0	50.3		mg/kg wet		101	80 - 120
Selenium	50.0	45.2		mg/kg wet		90.5	80 - 120
Zinc	50.0	48.5		mg/kg wet		96.9	80 - 120

Lab Sample ID: 10J0122-BS1 | **Client Sample ID: 10J0122-BS1**
Matrix: Soil | **Prep Type: total**
Analysis Batch: 10J0122 | **Prep Batch: 10J0122_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Silver	50.0	52.6		mg/kg wet		105	80 - 120

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods (Continued)

Lab Sample ID: 10J0122-MS1 — **Client Sample ID: S-07-20101022**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0122 — **Prep Batch: 10J0122_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits
Arsenic	5.57		52.7	51.2		mg/kg dry	☼	86.7	75 - 125
Barium	98.7		52.7	156		mg/kg dry	☼	108	75 - 125
Beryllium	0.352		52.7	48.9		mg/kg dry	☼	92.1	75 - 125
Cadmium	0.293		52.7	49.6		mg/kg dry	☼	93.7	75 - 125
Chromium	42.0		52.7	93.8		mg/kg dry	☼	98.4	75 - 125
Cobalt	9.86		52.7	57.0		mg/kg dry	☼	89.4	75 - 125
Copper	73.8		52.7	120		mg/kg dry	☼	87.8	75 - 125
Lead	13.3		52.7	58.4		mg/kg dry	☼	85.6	75 - 125
Manganese	358	B1	52.7	510	MHA	mg/kg dry	☼	290	75 - 125
Nickel	28.2		52.7	74.0		mg/kg dry	☼	86.9	75 - 125
Selenium	ND		52.7	43.6		mg/kg dry	☼	82.7	75 - 125
Zinc	96.0		52.7	146		mg/kg dry	☼	95.0	75 - 125

Lab Sample ID: 10J0122-MS1 — **Client Sample ID: S-07-20101022**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0122 — **Prep Batch: 10J0122_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits
Silver	ND	B	52.7	48.3		mg/kg dry	☼	91.7	75 - 125

Lab Sample ID: 10J0122-MSD1 — **Client Sample ID: S-07-20101022**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0122 — **Prep Batch: 10J0122_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Arsenic	5.57		52.7	48.3		mg/kg dry	☼	81.2	75 - 125	5.81	20
Barium	98.7		52.7	158		mg/kg dry	☼	112	75 - 125	1.18	20
Beryllium	0.352		52.7	46.5		mg/kg dry	☼	87.6	75 - 125	4.96	20
Cadmium	0.293		52.7	47.5		mg/kg dry	☼	89.7	75 - 125	4.33	20
Chromium	42.0		52.7	99.7		mg/kg dry	☼	110	75 - 125	6.13	20
Cobalt	9.86		52.7	56.2		mg/kg dry	☼	87.9	75 - 125	1.44	20
Copper	73.8		52.7	125		mg/kg dry	☼	96.5	75 - 125	3.78	20
Lead	13.3		52.7	56.6		mg/kg dry	☼	82.2	75 - 125	3.12	20
Manganese	358	B1	52.7	457	MHA	mg/kg dry	☼	188	75 - 125	11.1	20
Nickel	28.2		52.7	74.6		mg/kg dry	☼	88.1	75 - 125	0.829	20
Selenium	ND		52.7	40.8		mg/kg dry	☼	77.4	75 - 125	6.72	20
Zinc	96.0		52.7	149		mg/kg dry	☼	102	75 - 125	2.34	20

Lab Sample ID: 10J0122-MSD1 — **Client Sample ID: S-07-20101022**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0122 — **Prep Batch: 10J0122_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Silver	ND	B	52.7	51.9		mg/kg dry	☼	98.6	75 - 125	7.21	20

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods (Continued)

Lab Sample ID: 10J0122-DUP1 — **Client Sample ID: S-07-20101022**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0122 — **Prep Batch: 10J0122_P**

Analyte	Sample Result	Sample Qualifier		Duplicate Result	Duplicate Qualifier	Unit	D			RPD	RPD Limit
Arsenic	5.57			4.91		mg/kg dry	☼			12.6	20
Barium	98.7			92.1		mg/kg dry	☼			6.91	20
Beryllium	0.352			0.392		mg/kg dry	☼			10.8	20
Cadmium	0.293			0.275		mg/kg dry	☼			6.09	20
Chromium	42.0			47.7		mg/kg dry	☼			12.8	20
Cobalt	9.86			9.75		mg/kg dry	☼			1.20	20
Copper	73.8			61.9		mg/kg dry	☼			17.6	20
Lead	13.3			13.6		mg/kg dry	☼			2.25	20
Manganese	358	B1		370		mg/kg dry	☼			3.35	20
Nickel	28.2			28.6		mg/kg dry	☼			1.38	20
Selenium	ND			ND		mg/kg dry	☼				20
Zinc	96.0			96.7		mg/kg dry	☼			0.775	20

Lab Sample ID: 10J0122-DUP1 — **Client Sample ID: S-07-20101022**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0122 — **Prep Batch: 10J0122_P**

Analyte	Sample Result	Sample Qualifier		Duplicate Result	Duplicate Qualifier	Unit	D			RPD	RPD Limit
Silver	ND	B		ND		mg/kg dry	☼				20

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Lab Sample ID: 10J0121-BLK1 — **Client Sample ID: 10J0121-BLK1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0121 — **Prep Batch: 10J0121_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		50.0		ug/kg wet		10/25/10 10:12	10/25/10 16:56	1

Lab Sample ID: 10J0121-BS1 — **Client Sample ID: 10J0121-BS1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0121 — **Prep Batch: 10J0121_P**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Mercury			100	101		ug/kg wet		101	80 - 120		

Lab Sample ID: 10J0121-MS1 — **Client Sample ID: S-01-20101022**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0121 — **Prep Batch: 10J0121_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits		
Mercury	ND		115	145		ug/kg dry	☼	93.4	80 - 120		

Lab Sample ID: 10J0121-MSD1 — **Client Sample ID: S-01-20101022**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0121 — **Prep Batch: 10J0121_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Mercury	ND		115	147		ug/kg dry	☼	94.4	80 - 120	0.791	20

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods (Continued)

Lab Sample ID: 10J0121-DUP1
Matrix: Soil
Analysis Batch: 10J0121

Client Sample ID: S-01-20101022
Prep Type: total
Prep Batch: 10J0121_P

Analyte	Sample Result	Sample Qualifier		Duplicate Result	Duplicate Qualifier	Unit	D			RPD	RPD Limit
Mercury	ND			42.5		ug/kg dry	☼			12.1	40

Certification Summary

Client: URS Corp. - Portland
Project/Site: 25697239.00003

TestAmerica Job ID: STJ0134
SDG: STJ0134

Laboratory	Authority	Program	EPA Region	Certification ID	Expiration Date
TestAmerica Spokane	Alaska	Alaska UST	10	UST-071	10/31/10
TestAmerica Spokane	Washington	State Program	10	C569	01/06/11

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica
ANALYTICAL TESTING CORPORATION

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: STJ0134

CLIENT: URS

REPORT TO: DAVID WEATHERBY
ADDRESS: 111 SW COLUMBIA, SUITE 1500
PORTLAND, OR. 97201
PHONE: 503 222 7200 FAX: 503 222 4292

INVOICE TO: URS / DAVID WEATHERBY
111 SW COLUMBIA SUITE 1500
PORTLAND, OR 97201

P.O. NUMBER: 25697239.00003

PROJECT NAME: KELLY CAMP MINE RD/RA
PROJECT NUMBER: 25697239.00003
SAMPLED BY: JJR

TURNAROUND REQUEST
in Business Days *
Organic & Inorganic Analyses: 10 STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1
Petroleum Hydrocarbon Analyses: 5 STD. | 4 | 3 | 2 | 1 | <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE: NONE	REQUESTED ANALYSES: Metals	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	TA WO ID
1	S-01-20101022	10/22/10 / 1050		X	S	1		
2	S-02-20101022	10/22/10 / 1055						
3	S-03-20101022	10/22/10 / 1057						
4	S-04-20101022	10/22/10 / 1100						
5	S-05-20101022	10/22/10 / 1103						
6	S-06-20101022	10/22/10 / 1105						
7	S-07-20101022	10/22/10 / 1108		↓	↓	↓		
8								
9								
10								

RELEASED BY: [signature] PRINT NAME: JENNIFER RAM FIRM: URS DATE: 10/22/10 TIME: 1420
RECEIVED BY: Cat Stapleton PRINT NAME: FIRM: Test America DATE: 10-22-10 TIME: 14:20

RELEASED BY: PRINT NAME: FIRM: DATE: TIME:
RECEIVED BY: PRINT NAME: FIRM: DATE: TIME:

ADDITIONAL REMARKS: METALS LIST: As, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, Se, Ag, Zn.
COPY RESULTS TO JENNIFER RAM
jennifer_ram@urscorp.com

TEMP: 2.3

COC REV 09/2004

PAGE 1 OF 1

TestAmerica Spokane
Sample Receipt Form

Work Order #: STJ0134	Client: URS-Portland	Project: Kelly Camp Mine RD/RA
Date/Time Received: 10-22-10 14:20	By: CS	

Samples Delivered By: ☐Shipping Service ☒Courier ☐Client ☐Other:_____

List Air Bill Number(s) or Attach a photocopy of the Air Bill:

Receipt Phase	Yes	No	NA	Comments
Were samples received in a cooler:	X			
Custody Seals are present and intact:			X	
Are CoC documents present:	X			
Necessary signatures:	X			

Thermal Preservation Type: ☐Blue Ice ☐Gel Ice ☒Real Ice ☐Dry Ice ☐None ☐Other:_____

Temperature by IR Gun: 2.3 °C Thermometer Serial #81500 (acceptance criteria 0-6 °C)

Temperature out of range: ☐Not enough ice ☐Ice melted ☒w/in 4hrs of collection ☐NA ☐Other:_____

Log-in Phase Date/Time: 10-22-10 16:30 By: CJ	Yes	No	NA	Comments
Are sample labels affixed and completed for each container	Y			
Samples containers were received intact:	Y			
Do sample IDs match the CoC	Y			
Appropriate sample containers were received for tests requested	X			
Are sample volumes adequate for tests requested	X			
Appropriate preservatives were used for the tests requested			X	
pH of inorganic samples checked and is within method specification			X	
Are VOC samples free of bubbles >6mm (1/4" diameter)			X	
Are dissolved parameters field filtered			X	
Do any samples need to be filtered or preserved by the lab		X		
Does this project require quick turnaround analysis	X			1 day
Are there any short hold time tests (see chart below)		Y		
Are any samples within 2 days of or past expiration		Y		
Was the CoC scanned	Y			
Were there Non-conformance issues at login		X		
If yes, was a CAR generated #_____			Y	

24 hours or less	48 hours	7 days
~~Coliform Bacteria~~	~~BOD, Color, MBAS~~	~~TDS, TSS, VDS, FDS~~
Chromium +6	Nitrate/Nitrite	Sulfide
	Orthophosphate	Aqueous Organic Prep

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Spokane
11922 East 1st. Avenue
Spokane, WA 99206
Tel: (509)924-9200

TestAmerica Job ID: STL0084
TestAmerica Sample Delivery Group: STL0084
Client Project/Site: 25697239.00003
Client Project Description: Kelly Camp Mine RD/RA

For:
URS Corp. - Portland
111 SW Columbia Suite 1500
Portland, OR 97201-4014

Attn: David Weatherby

Authorized for release by:
12/23/2010 1:13 PM
Chris Williams
Lab Director
Chris.Williams@testamericainc.com

Designee for

Randee Decker
Project Manager
Randee.Decker@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

Table of Contents

Sample Summary

Client: URS Corp. - Portland
Project/Site: 25697239.00003

TestAmerica Job ID: STL0084

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
STL0084-01	S-08-20101028	Soil	10/28/10 08:00	12/15/10 11:00
STL0084-02	S-09-20101028	Soil	10/28/10 08:03	12/15/10 11:00
STL0084-03	S-10-20101028	Soil	10/28/10 08:05	12/15/10 11:00
STL0084-04	S-11-20101028	Soil	10/28/10 08:08	12/15/10 11:00

Qualifier Definition/Glossary

Client: URS Corp. - Portland
Project/Site: 25697239.00003

TestAmerica Job ID: STL0084
SDG: STL0084

Qualifiers

Metals

Qualifier	Qualifier Description
R3	The RPD exceeded the acceptance limit due to sample matrix effects.

Glossary

Glossary	Glossary Description
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis.

Client Sample ID: S-08-20101028

Lab Sample ID: STL0084-01
Date Collected: 10/28/10 08:00
Matrix: Soil
Date Received: 12/15/10 11:00
Percent Solids: 81.4

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	50.3		0.614		mg/kg dry	☼	12/17/10 10:14	12/21/10 14:49	1
Zinc	83.3		1.23		mg/kg dry	☼	12/17/10 10:14	12/22/10 17:17	1

Client Sample ID: S-09-20101028

Lab Sample ID: STL0084-02
Date Collected: 10/28/10 08:03
Matrix: Soil
Date Received: 12/15/10 11:00
Percent Solids: 90.3

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	49.6		0.554		mg/kg dry	☼	12/17/10 10:14	12/21/10 14:54	1
Zinc	69.1		1.11		mg/kg dry	☼	12/17/10 10:14	12/22/10 17:20	1

Client Sample ID: S-10-20101028

Lab Sample ID: STL0084-03
Date Collected: 10/28/10 08:05
Matrix: Soil
Date Received: 12/15/10 11:00
Percent Solids: 91.6

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	48.0		0.546		mg/kg dry	☼	12/17/10 10:14	12/21/10 14:58	1
Zinc	92.4		1.09		mg/kg dry	☼	12/17/10 10:14	12/22/10 17:23	1

Client Sample ID: S-11-20101028

Lab Sample ID: STL0084-04
Date Collected: 10/28/10 08:08
Matrix: Soil
Date Received: 12/15/10 11:00
Percent Solids: 83.2

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	83.8		0.601		mg/kg dry	☼	12/17/10 10:14	12/21/10 15:02	1
Zinc	87.4		1.20		mg/kg dry	☼	12/17/10 10:14	12/22/10 17:27	1

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Lab Sample ID: 10L0084-BLK1 — **Client Sample ID: 10L0084-BLK1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10L0084 — **Prep Batch: 10L0084_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	ND		0.500		mg/kg wet		12/17/10 10:14	12/21/10 14:33	1

Lab Sample ID: 10L0084-BLK1 — **Client Sample ID: 10L0084-BLK1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10L0084 — **Prep Batch: 10L0084_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		1.00		mg/kg wet		12/17/10 10:14	12/22/10 17:52	1

Lab Sample ID: 10L0084-BS1 — **Client Sample ID: 10L0084-BS1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10L0084 — **Prep Batch: 10L0084_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Copper	50.0	49.2		mg/kg wet		98.4	80 - 120

Lab Sample ID: 10L0084-BS1 — **Client Sample ID: 10L0084-BS1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10L0084 — **Prep Batch: 10L0084_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Zinc	50.0	53.5		mg/kg wet		107	80 - 120

Lab Sample ID: 10L0084-MS1 — **Client Sample ID: STL0095-01**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10L0084 — **Prep Batch: 10L0084_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits
Copper	1.65		50.0	59.2		mg/kg wet		115	75 - 125

Lab Sample ID: 10L0084-MSD1 — **Client Sample ID: STL0095-01**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10L0084 — **Prep Batch: 10L0084_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Copper	1.65		50.0	58.6		mg/kg wet		114	75 - 125	0.999	20

Lab Sample ID: 10L0084-DUP1 — **Client Sample ID: STL0095-01**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10L0084 — **Prep Batch: 10L0084_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
Copper	1.65		1.07	R3	mg/kg wet		42.8	20

Lab Sample ID: 10L0084-DUP1 — **Client Sample ID: STL0095-01**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10L0084 — **Prep Batch: 10L0084_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
Zinc	434000		451000		mg/kg wet		3.69	20

Certification Summary

Client: URS Corp. - Portland
Project/Site: 25697239.00003

TestAmerica Job ID: STL0084
SDG: STL0084

Laboratory	Authority	Program	EPA Region	Certification ID	Expiration Date
TestAmerica Spokane	Alaska	Alaska UST	10	UST-071	10/31/11
TestAmerica Spokane	Washington	State Program	10	C569	01/06/11

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Method Summary

Client: URS Corp. - Portland
Project/Site: 25697239.00003

TestAmerica Job ID: STL0084
SDG: STL0084

Method	Method Description	Protocol	Laboratory
EPA 6010C	Total Metals by EPA 6010/7000 Series Methods		TAL SPK
TA SOP	Conventional Chemistry Parameters by APHA/EPA Methods		TAL SPK

Protocol References:

=

Laboratory References:

TAL SPK = TestAmerica Spokane, 11922 East 1st. Avenue, Spokane, WA 99206, TEL (509)924-9200

SUBCONTRACT ORDER
TestAmerica Portland

PTK0497 STL0084

SENDING LABORATORY:

TestAmerica Portland
9405 SW Nimbus Ave.
Beaverton, OR 97008
Phone: (503) 906-9200
Fax: (503) 906-9210
Project Manager: Estella Rieben
Client: URS Corp.-Portland

RECEIVING LABORATORY:

TestAmerica Spokane
11922 E. 1st
Spokane, WA 99206
Phone :(509) 924-9200
Fax: (509) 924-9290
Project Location: Washington
Receipt Temperature: 2.7 °C Ice: Y / N

Analysis	Units	Due	Expires	Interlab Price	Surch	Comments
Sample ID: PTK0497-01 (S-08-20101028 - Soil)			Sampled: 10/28/10 08:00			ON HOLD
Cu Total ICP 6010B	mg/kg	12/21/10	04/26/11 08:00	$0.00	0%	check price on bid, no rush fees.
Solids, Dry Weight	% by Weight	12/21/10	11/25/10 08:00	$0.00	0%	
Zn Total ICP 6010B	mg/kg	12/21/10	04/26/11 08:00	$0.00	0%	check price on bid, no rush fees.
Containers Supplied:						
8 oz. jar (A)						
Sample ID: PTK0497-02 (S-09-20101028 - Soil)			Sampled: 10/28/10 08:03			ON HOLD
Cu Total ICP 6010B	mg/kg	12/21/10	04/26/11 08:03	$0.00	0%	check price on bid, no rush fees.
Solids, Dry Weight	% by Weight	12/21/10	11/25/10 08:03	$0.00	0%	
Zn Total ICP 6010B	mg/kg	12/21/10	04/26/11 08:03	$0.00	0%	check price on bid, no rush fees.
Containers Supplied:						
8 oz. jar (A)						
Sample ID: PTK0497-03 (S-10-20101028 - Soil)			Sampled: 10/28/10 08:05			ON HOLD
Cu Total ICP 6010B	mg/kg	12/21/10	04/26/11 08:05	$0.00	0%	check price on bid, no rush fees.
Solids, Dry Weight	% by Weight	12/21/10	11/25/10 08:05	$0.00	0%	
Zn Total ICP 6010B	mg/kg	12/21/10	04/26/11 08:05	$0.00	0%	check price on bid, no rush fees.
Containers Supplied:						
8 oz. jar (A)						
Sample ID: PTK0497-04 (S-11-20101028 - Soil)			Sampled: 10/28/10 08:08			ON HOLD
Cu Total ICP 6010B	mg/kg	12/21/10	04/26/11 08:08	$0.00	0%	check price on bid, no rush fees.
Solids, Dry Weight	% by Weight	12/21/10	11/25/10 08:08	$0.00	0%	
Zn Total ICP 6010B	mg/kg	12/21/10	04/26/11 08:08	$0.00	0%	check price on bid, no rush fees.
Containers Supplied:						
8 oz. jar (A)						

Megan Henning 12/14/10 1410
Released By Date/Time

Cat Stapleton 12-15-10 0935
Received By Date/Time

Released By Date/Time

Received By Date/Time

Page 1 of 1

TestAmerica Spokane
Sample Receipt Form

Work Order #: STL0084	Client: T.A. Portland	Project: 2TK0497
Date/Time Received: 12-15-10 9:35	By: CS	
Samples Delivered By: ☒ Shipping Service ☐ Courier ☐ Client ☐ Other:		
List Air Bill Number(s) or Attach a photocopy of the Air Bill:		

Receipt Phase	Yes	No	NA	Comments
Were samples received in a cooler:	X			
Custody Seals are present and intact:	X			
Are CoC documents present:	X			
Necessary signatures:	Y			

Thermal Preservation Type: ☐ Blue Ice ☒ Gel Ice ☐ Real Ice ☐ Dry Ice ☐ None ☐ Other:

Temperature by IR Gun: 2.7 °C Thermometer Serial #81500 (acceptance criteria 0-6 °C)

Temperature out of range: ☐ Not enough ice ☐ Ice melted ☐ w/in 4hrs of collection ☐ NA ☐ Other:

Log-in Phase Date/Time: 12-15-10 11:01 By: CL	Yes	No	NA	Comments
Are sample labels affixed and completed for each container	Y			
Samples containers were received intact:	Y			
Do sample IDs match the CoC	X			
Appropriate sample containers were received for tests requested	X			
Are sample volumes adequate for tests requested	X			
Appropriate preservatives were used for the tests requested	X			
pH of inorganic samples checked and is within method specification			X	
Are VOC samples free of bubbles >6mm (1/4" diameter)			X	
Are dissolved parameters field filtered			X	
Do any samples need to be filtered or preserved by the lab			X	
Does this project require quick turnaround analysis		X		
Are there any short hold time tests (see chart below)		X		
Are any samples within 2 days of or past expiration		X		
Was the CoC scanned	X			
Were there Non-conformance issues at login		X		
If yes, was a CAR generated #			X	

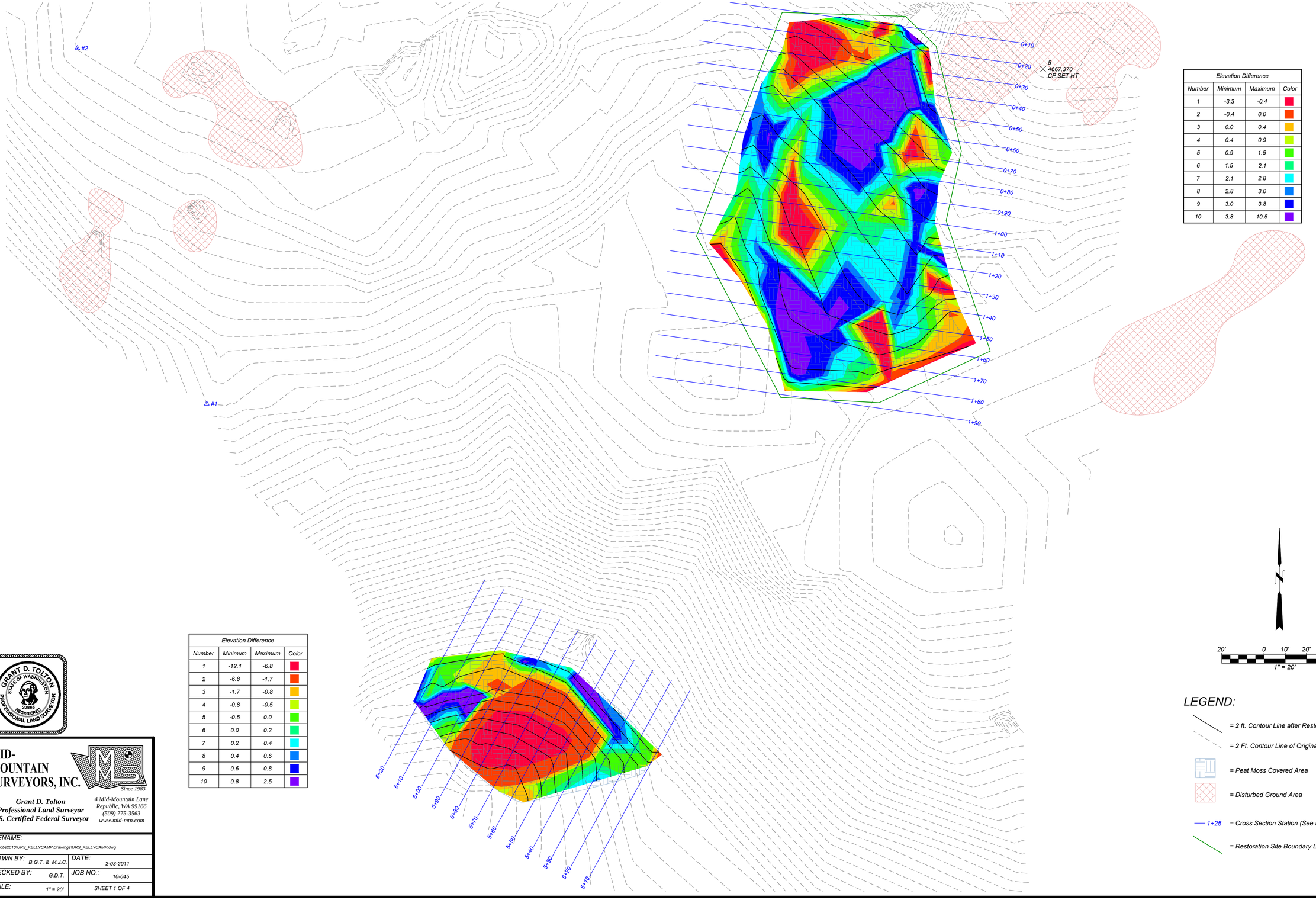
24 hours or less	48 hours	7 days
Coliform Bacteria	BOD, Color, MBAS	TDS, TSS, VDS, FDS
Chromium +6	Nitrate/Nitrite	Sulfide
	Orthophosphate	Aqueous Organic Prep

APPENDIX E

RECORD DRAWINGS

Kelly Camp Mine Site Restoration Project

Topographic, Boundary and Volume Survey



Elevation Difference			
Number	Minimum	Maximum	Color
1	-3.3	-0.4	
2	-0.4	0.0	
3	0.0	0.4	
4	0.4	0.9	
5	0.9	1.5	
6	1.5	2.1	
7	2.1	2.8	
8	2.8	3.0	
9	3.0	3.8	
10	3.8	10.5	

Elevation Difference			
Number	Minimum	Maximum	Color
1	-12.1	-6.8	
2	-6.8	-1.7	
3	-1.7	-0.8	
4	-0.8	-0.5	
5	-0.5	0.0	
6	0.0	0.2	
7	0.2	0.4	
8	0.4	0.6	
9	0.6	0.8	
10	0.8	2.5	

20' 0 10' 20' 40'

1" = 20'

LEGEND:

= 2 ft. Contour Line after Restoration

= 2 Ft. Contour Line of Original Site as provided by others

= Peat Moss Covered Area

= Disturbed Ground Area

1+25 = Cross Section Station (See Profiles on Sheets 2-3)

= Restoration Site Boundary Line (See sheet 4)

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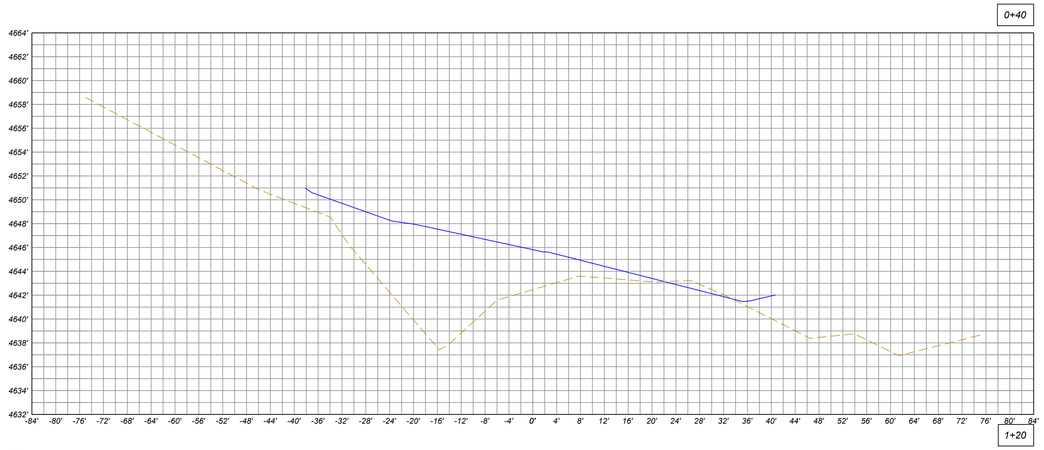
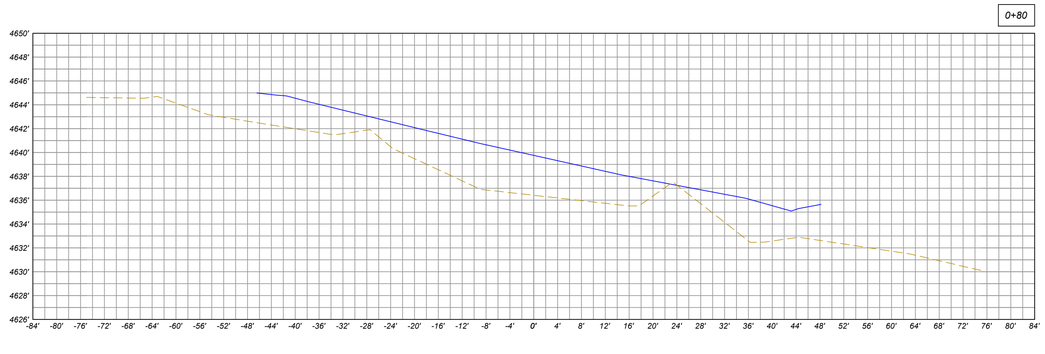
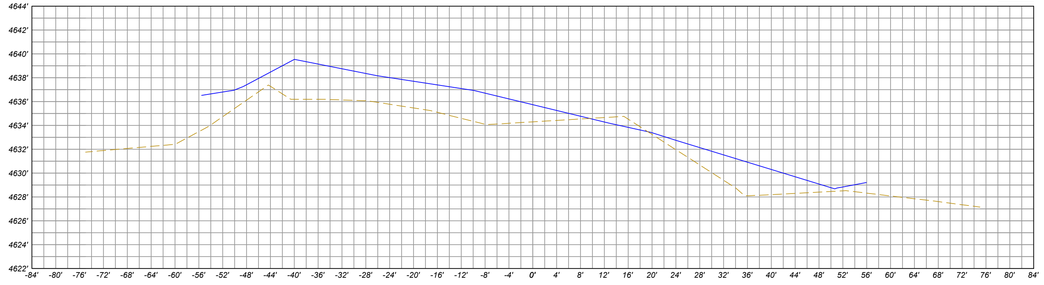
Republic, WA 99166
(509) 775-3563
www.mid-mtn.com

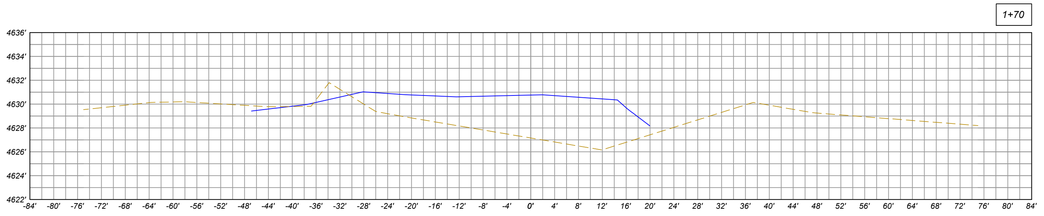
FILENAME: M:\AAjobs2010\URS_KELLYCAMP\Drawings\URS_KELLYCAMP.dwg	
DRAWN BY: B.G.T. & M.J.C.	DATE: 2-03-2011
CHECKED BY: G.D.T.	JOB NO.: 10-045
SCALE: 1" = 20'	SHEET 1 OF 4

Kelly Camp Mine
Site Restoration Project
Topographic, Boundary and Volume Survey









LEGEND:

= Finish Ground

= Original Ground

NOTE:

The volume tables shown herein indicate the cumulative volume totals, station by station, using the average cross-section area method of volume calculations. For comparison, the total cut and fill volumes computed using the composite method are listed below the respective table. The minor variation in volumes are due to the limited number of samplings when the average mean area method is used. With an increase in sampling, the volume totals would be closer to the volumes computed by the composite method.

On the profile views shown on Sheets 2 and 3, the blue lines represent the comparison surface and the brown dashed lines, the original ground surface which was provided by others. The left and right end points of the blue lines represent the horizontal limit of the comparative (finish ground) surface. The fact that the end points of the finish ground surface (blue lines) don't meet the original ground surface (brown lines) indicates that the peat moss fill areas were over ground that had been excavated after the original ground and before the finish ground survey was executed.

Average Cross-section Area Method:

Upper Area - Ground Fill			Upper Area - Ground Removed		
Station	Volume (cu. yds.)	Cum. Volume (cu. yds.)	Station	Volume (cu. yds.)	Cum. Volume (cu. yds.)
0+10	0.0	0.0	0+10	0.0	0.0
0+20	15.6	15.6	0+20	4.5	4.5
0+30	21.1	36.7	0+30	9.0	13.5
0+40	63.6	100.2	0+40	3.6	17.1
0+50	113.8	214.0	0+50	0.4	17.5
0+60	110.1	324.1	0+60	0.0	17.5
0+70	93.0	417.1	0+70	0.9	18.5
0+80	86.2	503.3	0+80	0.2	18.7
0+90	81.5	584.8	0+90	0.4	19.1
1+00	53.4	638.1	1+00	2.1	21.1
1+10	48.6	686.7	1+10	4.4	25.5
1+20	63.5	750.2	1+20	4.7	30.3
1+30	73.3	823.5	1+30	2.0	32.3
1+40	92.7	916.2	1+40	0.7	32.9
1+50	96.4	1012.6	1+50	1.5	34.4
1+60	71.5	1084.1	1+60	7.0	41.4
1+70	56.4	1140.5	1+70	2.8	44.2
1+80	45.4	1185.8	1+80	1.0	45.3
1+90	12.8	1198.6	1+90	0.2	45.5

Composite Method: *1199.3 cu. yds.* *45.5 cu. yds.*

GRANT D. TOLTON
STATE OF WASHINGTON
20865
REGISTERED
PROFESSIONAL LAND SURVEYOR

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Since 1983

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(509) 775-3563
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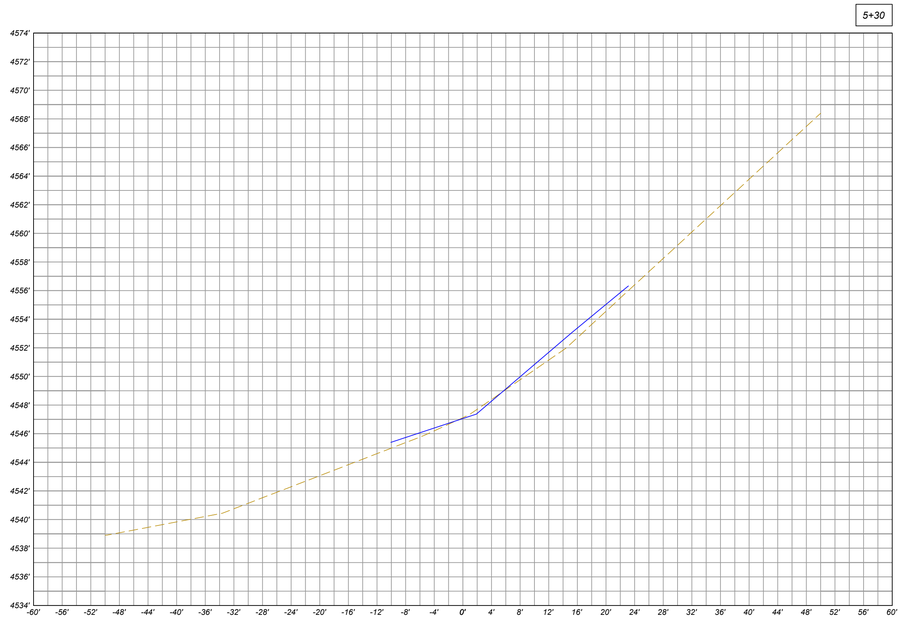
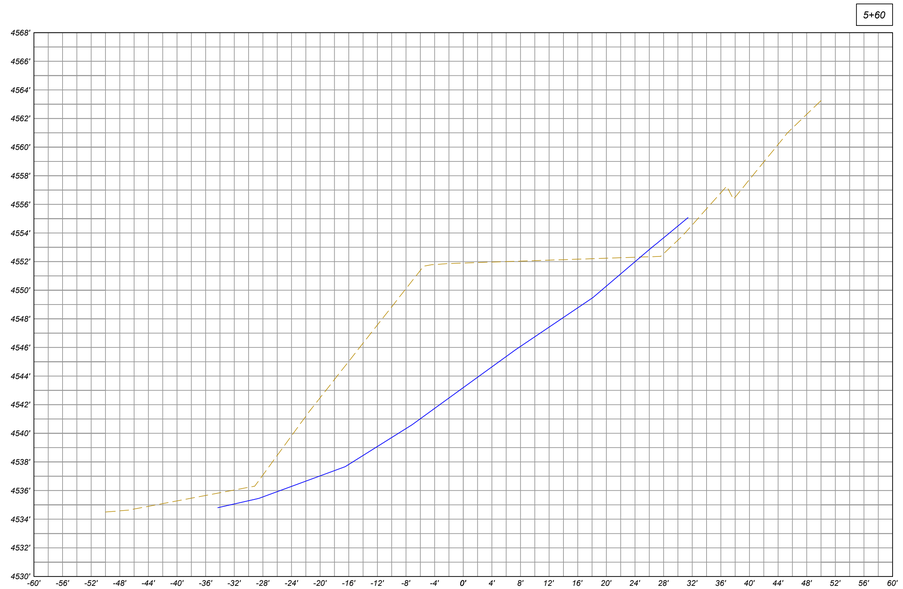
FILENAME: M:\AAjobs2010\URS_KELLYCAMP\Drawings\URS_KELLYCAMP.dwg	
DRAWN BY: B.G.T. & M.J.C.	DATE: 2-03-2011
CHECKED BY: G.D.T.	JOB NO.: 10-045
SCALE: As indicated	SHEET 2 OF 4

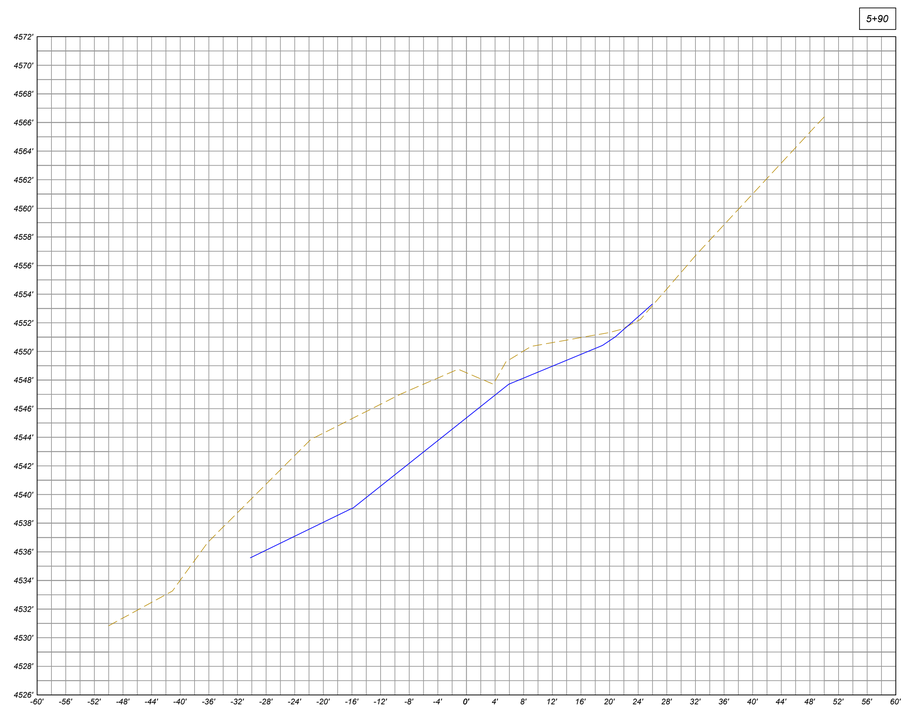
Kelly Camp Mine
Site Restoration Project
Topographic, Boundary and Volume Survey

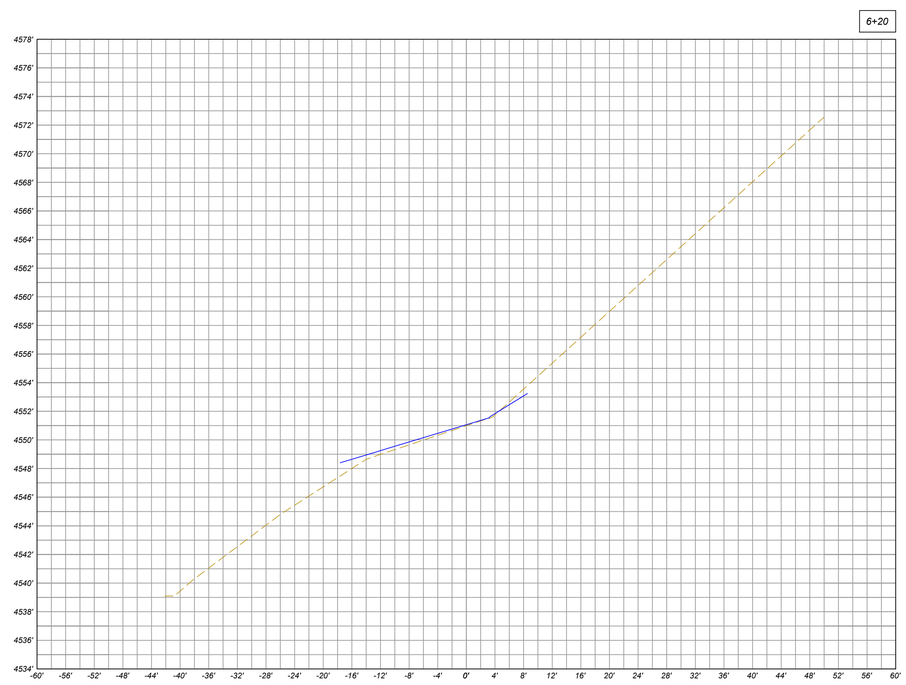
Average Cross-section Area Method:

Lower Area - Ground Fill			Lower Area - Ground Removed		
Station	Volume (cu. yds.)	Cum. Volume (cu. yds.)	Station	Volume (cu. yds.)	Cum. Volume (cu. yds.)
5+10	0.0	0.0	5+10	0.0	0.0
5+20	0.0	0.0	5+20	1.6	1.6
5+30	1.7	1.7	5+30	0.6	2.1
5+40	3.1	4.9	5+40	6.9	9.0
5+50	3.2	8.0	5+50	43.7	52.8
5+60	3.3	11.3	5+60	96.1	148.8
5+70	0.8	12.2	5+70	133.6	282.4
5+80	0.6	12.8	5+80	146.8	429.2
5+90	0.8	13.7	5+90	110.7	539.9
6+00	3.2	16.9	6+00	31.3	571.2
6+10	4.8	21.7	6+10	5.3	576.5
6+20	3.6	25.3	6+20	1.3	577.8
Composite Method:		*26.3 cu. yds.*			*578.6 cu. yds.*









LEGEND:

= Finish Ground

= Original Ground

NOTE:

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Kelly Camp Mine
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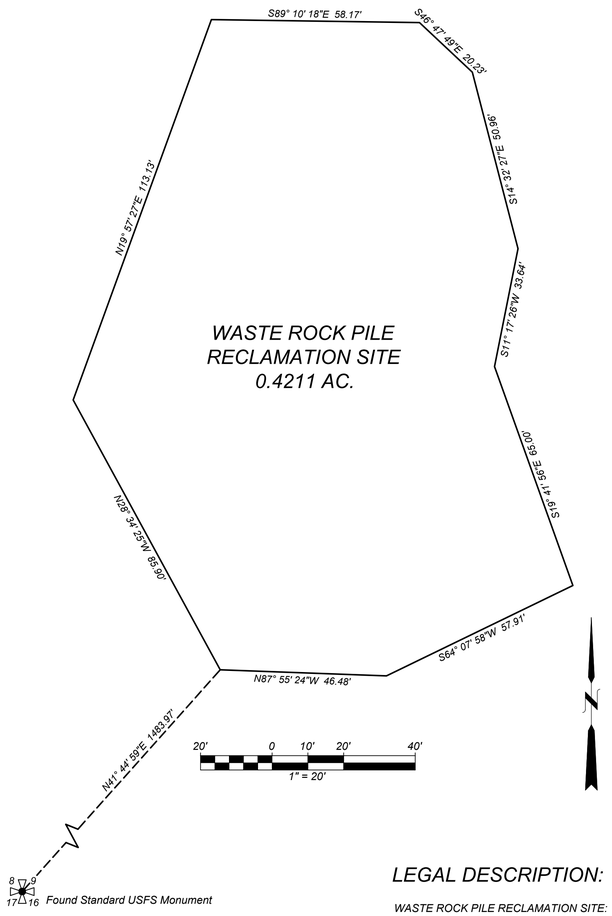

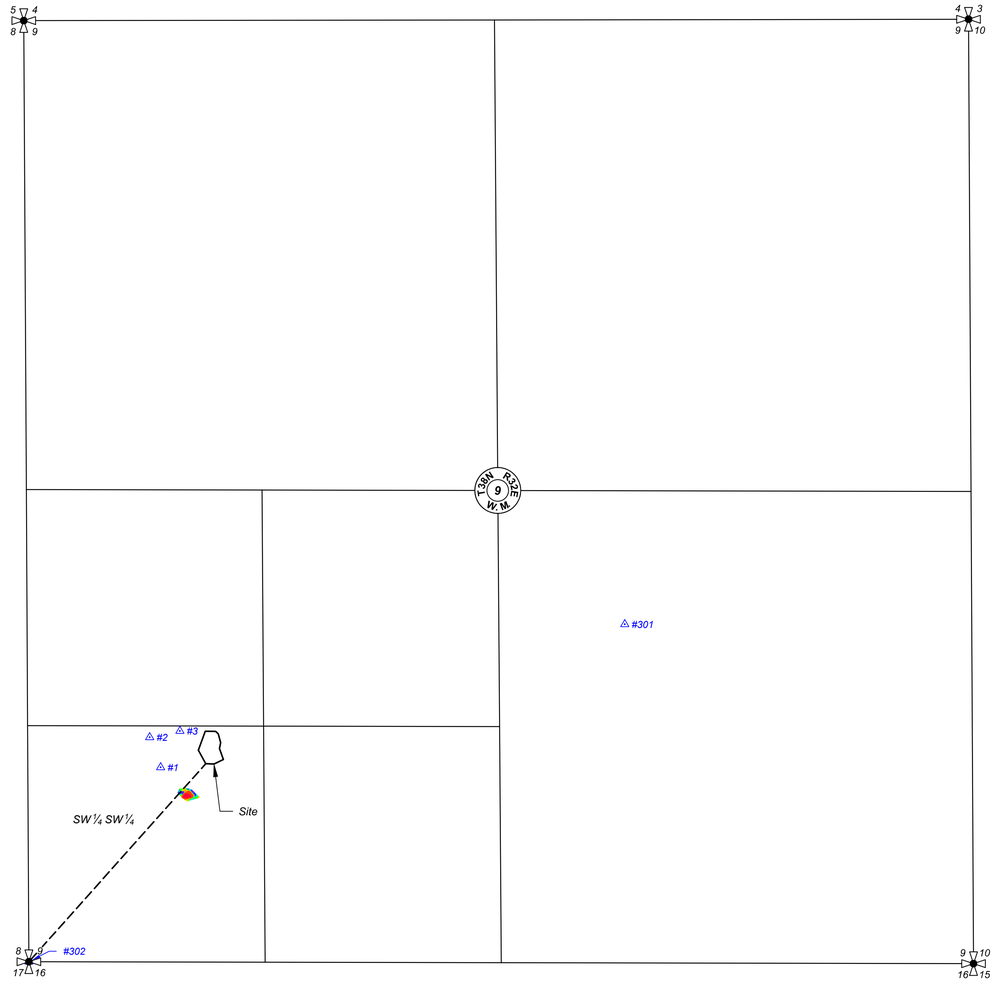

LEGAL DESCRIPTION:

WASTE ROCK PILE RECLAMATION SITE:
A tract of land within the southwest quarter of the southwest quarter (SW1/4 SW1/4) of Section Nine (9), Township Thirty-eight (38) North, Range Thirty-two (32) East, W.M. described as follows:
Commencing at the southwest corner of said Section 9; thence N.41°44'59"E, a distance of 1483.97 feet to the southwest corner said described tract and point of beginning of said tract description. Thence N.28°34'25"W, a distance of 85.90 feet; thence N.19°57'27"E, a distance of 113.13 feet; thence S.89°10'18"E of 58.17 feet; thence S.46°47'49"E, a distance of 20.23 feet; thence S.14°32'27"E, a distance of 50.96 feet; thence S.11°17'26"W, a distance of 33.64 feet; thence S.19°41'56"E, a distance of 65.00 feet; thence S.64°07'58"W, a distance of 57.91 feet; thence N.87°54'39"W, a distance of 46.48 feet to the point of beginning. Consisting of 0.4211 acres.
Situated within the Colville National Forest, in the County of Ferry in the State of Washington.

CONTROL POINTS

		Local Coordinates			State Plane Coordinates		
Point #	Description	Northing	Easting	Elevation	Northing	Easting	Elevation
1	Existing Hub & tack	5000.00	5000.00	4624.00	663943.72	2132755.98	4621.36
2	Existing Hub & tack	5167.90	4938.89	4650.16	664108.70	2132687.42	4647.66
25	Existing Hub & tack	4827.88	5215.54	4556.33	663781.20	2132978.84	4553.63
301	Set ½" x 24" rebar	5800.37	7594.55	4044.27	664857.80	2135312.71	4041.62

NOTES:
1--State Plane coordinates per Washington State Plane, North Zone, NAD 1983, US Survey Feet.
2--Local coordinates are based on an assumed local rectangular coordinate grid system upon which the original ground survey was conducted by others.

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