1157804 - R8 SDMS

PHASE 4
FIELD CONSTRUCTION PLAN
FOR 2010 CONSTRUCTION SEASON

RICHARDSON FLAT TAILINGS SITE

EPA SITE ID: UT980952840

May 28, 2010

Prepared for:

United Park City Mines
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1.0 INTRODUCTION

This Field Construction Plan (FCP) details the construction components, stormwater management measures and completion milestones to be undertaken for the 2010 construction season at the Richardson Flat site. Elements to be constructed during the 2010 construction season consist of Task 7 and areas of Task 12 of the Remedial Design and Remedial Action Work Plan (RD/RA) at Richardson Flat. Task 7 and 12 areas are presented in Figure 1-1. The tasks are required to complete the selected remedy approved by the United States Environmental Protection Agency (EPA) at the Richardson Flat Tailings Site, Site ID UT980952840, (The "Site") near Park City, Utah as outlined in the RD/RA.

1.1 Scope and Background of Work

This is the fourth FCP submitted to EPA. The work outlined in this FCP represents a portion of the fourth phase of construction. Each of the first three phases consists of individual or groups of tasks to be completed in a single construction season. The work presented in this FCP is anticipated to be completed in a single construction season. The FCP for Task 1 was submitted to EPA and approved on July 16, 2008. The Task Completion Report (TCR) for Task 1 was approved by EPA on July 16, 2008. The FCP for Phase 2 (2008 Construction Season) was submitted to EPA and approved on September 23, 2008. The Task Completion Report (TCR) for Phase 2 was approved by EPA on October 30, 2008. Task 1 and Phase 2 consisted of the first of five tasks of construction at Richardson Flat as outlined on Figure 10.2 of the RD/RA. The FCP for Phase 3 (2009 Construction Season) was submitted to EPA and approved on May 14, 2009. The Task Completion Report (TCR) for Phase 3 was approved by EPA on November 22, 2009.

A full description of Site background, investigative history, specifications, health and safety, design elements, project management and construction procedures are presented in the Remedial Design and Remedial Action Work Plan (RD/RA, RMC 2007a). This

FCP is intended to act as a planning supplement to the RD/RA with a focus on stormwater runoff protection and actual remediation related construction to take place in the field.

The work activities described in this FCP are designed to reduce surface water interaction with tailings and maximize natural resource restoration opportunities at the Site.

Work to be performed during the 2010 construction season:

Task 7, South Diversion Ditch Pond

- Contaminated sediment removal, grading, confirmation sampling, clean native material backfilling as required/feasible and wetland habitat restoration in the South Diversion Ditch Pond (SDD Pond, Figure 1-1).

Task 12, Tailings Impoundment

- Cover placement, grading, confirmation sampling, erosion control structure placement, revegetation and habitat restoration in areas F-2 and F-3.

Optional Wetlands Construction

- One area labeled on Figure 1-1 as the "New Wetland - Optional" may be excavated as a source of clean clay soils and reclaimed as a wetland.

1.2 Remedy Description and Overview

The remedy is specified in the Record of Decision (ROD) and detailed in the RD/RA. The selected remedial alternative contains the following elements related to Phase 4 areas:

- Source removal will consist of the excavation of contaminated sediments in the South Diversion Ditch Pond (SDD Pond). Excavation would extend to the visual interface between the tailings and native soils in low lying areas subject to ponding and interaction with shallow groundwater, or to where lead concentrations are below 310 parts per million (ppm);
- Placement of a minimum of twelve inches of low permeability soil cover on areas where cover is required. The cover will be machine compacted. Upon completion of the low permeability soil cover, six inches of topsoil or other soil suitable for revegetation will be placed. The final surface cover will be a minimum of eighteen inches thick and the surface will be graded to control surface stormwater runoff and drainage;
- If needed, the placement of topsoil or soil suitable for revegetation in areas where tailings are completely removed;
- Placing excavated materials created by remediation of the SDD Pond in the impoundment. The main impoundment will be used by United Park and others to accommodate similar Bevill-exempt mine waste materials in the Upper Silver Creek Watershed as approved by the EPA;
- Regrading and revegetation of areas affected by remedial activities at the Site. Areas in which tailings were removed would be restored, where possible, to existing topographic conditions; and
- Monitoring of Site conditions will be conducted as described in the Operations and Maintenance Plan found in Appendix F of the RD/RA. The Operations and Maintenance plan is consistent with the RD/RA Consent Decree and Statement of Work. Surface water and general site conditions will be monitored consistent with those documents.

All cover and topsoil placed in upland areas containing less than 500 parts per million (ppm) lead and 100 ppm arsenic will be classified as clean. All cover and topsoil placed in wetland areas, including the SDD Pond area, containing less than 310 ppm lead will be considered clean.

2.0 WORK PROCEDURES

Work will be conducted according to specifications presented in Section 6.0 of the RD/RA.

The work procedures presented in this section will be field-fit as necessary to provide flexibility needed to implement the ROD in areas that were not originally identified as a source area for surface water contamination. Any additional work deemed necessary to complete the overall objectives of the project will be performed during construction.

Work will be conducted in the SDD Pond and Areas F-2 and F-3 of the Impoundment (Figure 1-1). Work will begin with the SDD Pond area and may occur concurrently with other areas. Work will consist of:

- Sediment (source) removal and the construction of additional wetlands in the SDD Pond area;
- A clay borrow area may be excavated to create additional wetland habitat; and
- Placement of tailings and cover in the Impoundment.

2.1 Impoundment Areas F-2 and F-3 Work Procedures

Impoundment work areas will be determined during the 2010 construction season and may include portions of F-2 and F-3. Impoundment construction will consist of the following procedures:

1) If needed, excavation and construction areas will be cleared and grubbed prior to the placement of materials. Clearing and grubbing will include the removal of organic matter such as plants, trees and woody material, as well as any other material from the Site. Large non-organic materials such as boulders that interfere with grading will be removed from the areas as required. Topsoil will be reclaimed to the extent that it can be without contamination.

2) Appropriate dust control will be conducted during all excavation, soil placement, transport and grading.

3) Air monitoring will be conducted during earthmoving. If required, additional air monitoring locations and/or additional BMPs will be established to reduce the offsite migration of contaminants. Air monitoring will be conducted according to procedures outlined in Section 11.1.1 or the RD/RA and Section 4.4.5 of the FSP.

4) Where mine waste is transported to and placed in the Impoundment, the material will be graded to conform to general site topography prior to the placement of cover soils.

5) Surfaces and subgrades will be graded to approximate final configurations and shapes prior to cover and topsoil placement. Subgrades and final graded surfaces will be confirmed by conventional survey techniques where applicable.

6) Imported soils will be screened with the XRF. A five sub-sample composite will be collected for every 5,000 cyds and screened with the XRF. Five-percent of the composite samples will be submitted to the laboratory to confirm XRF results. All cover and topsoil placed on-site will be clean as described in Section 1.1. Sampling protocol and analytical methodologies are described in the Field Sampling Plan (FSP, RMC, 2007b).

7) Cover soils will be low permeability, high clay content soils typical of those found in the region. Large rock material will be avoided. Clay rich soils located on-site will be used as cover material using the same criteria outlined in Section 6.1 of the RD/RA for quality control.

8) Cover soils will be compacted with tracked or equivalent equipment. Compaction methods also may include rolling and/or vibrating, as necessary. Cover soils will be

inspected and approved by United Park or its representatives prior to topsoil placement.

9) The final cover subgrade surface will be uniform to allow for the placement of a consistent topsoil layer.

Note: Items 10 through 12 are referred to as General Topsoil Procedures.

10) Final surfaces, grades and erosion control structures will not be considered complete until approved by United Park or its representative.

11) Topsoil will be screened to remove particles greater than six inches and will be suitable to support vegetation. Topsoil will placed to a minimum depth of six inches and will contain sufficient organic matter and nutrients to ensure that revegetation efforts are successful.

12) The seedbed will consist of topsoil placed during remediation. Topsoil will be lightly compacted and scarified as necessary. The seedbed will be roughened prior to seeding.

13) Revegetation will be conducted on all graded areas and areas receiving topsoil.

14) The upland seed mix will include a mixture of deep-rooted annual and perennial native grass and forb species. The annual species will provide rapid germination to aid in short term revegetation. The short-term revegetation will decrease the runoff potential of the slope and will keep the imported soil in place. Perennial species will provide longer term, more stable revegetation. Wetland areas will be revegetated with wetland specific species. Appendix C of the RD/RA contains the seed specifications for the Site.

15) Completion confirmation sampling is detailed in Section 4.0.

16) Ephemeral channels, as required, will be reconstructed in accordance with the specifications presented in Section 6.6 and Figure 5-3 of the RD/RA. Channel details are presented in Figure 2-1.

2.2 SDD Pond and Associated Wetland Area Work Procedures

Task 7 SDD Pond construction will consist of the following stages:

1) A temporary diversion will be built to direct water around the SDD Pond.
2) Water will be allowed to drain from the SDD Pond.
3) Contaminated sediments will be removed from the SDD Pond when the area has been sufficiently drained.
4) Wetlands associated with the SDD Pond may be expanded by overexcavation and restoration.

Task 7 SDD Pond work activities will include:

1) SDD Flow will be redirected around the SDD Pond.

2) If needed, excavation and construction areas will be cleared and grubbed prior to construction activities. Clearing and grubbing will include the removal of organic matter such as plants, trees and woody material, as well as any other material from the Site. Large non-organic materials such as boulders that interfere with grading will be removed from the areas as required.

3) Appropriate dust control will be conducted during all excavation, soil placement, transport and grading.

4) Air monitoring will be conducted during earthmoving activities. If required, additional air monitoring locations and/or additional BMPs will be established to reduce the offsite migration of contaminants. Air monitoring will be conducted

according to procedures outlined in Section 11.1.1 or the RD/RA and Section 4.4.5 of the FSP.

5) Contaminated sediments in the SDD Pond will be removed and transported to the impoundment. Remediation of the SDD Pond will be considered complete when sediment lead concentrations are below 310 ppm. Sediment excavation will be guided using a field portable X-ray Fluorescence Meter (XRF) where possible. Sediments may be dried overnight prior to XRF screening. Excavation and transport will be staged in a manner to avoid the re-contamination of clean areas.

6) Areas of the SDD Pond containing sediments exceeding 310 ppm lead at depths impractical to excavate will be covered with clean clay soils.

7) Cover soils, if required, will be low permeability, high clay content soils typical of those found in the region. Large rock material will be avoided. Clay rich soils located on-site will be used as cover material using the same criteria outlined in Section 6.1 of the RD/RA for quality control.

8) Cover soils will be compacted with tracked or equivalent equipment where possible. Compaction methods also may include rolling and/or vibrating, as necessary. Cover soils will be inspected and approved by United Park or its representatives prior to topsoil placement.

9) The final surface will be uniform to allow for the placement of a consistent topsoil and/or growth media layer.

10) Topsoil will be placed in accordance with General Topsoil Procedures specified in Section 2.1.

11) Revegetation will be conducted on all graded areas and areas receiving topsoil.

12) The seed mix will include a mixture of deep-rooted annual and perennial native grass and forb species. The annual species will provide rapid germination to aid in short term revegetation. The short-term revegetation will decrease the runoff potential of the slope and will keep the imported soil in place. The perennial species will provide longer term, more stable revegetation. Wetland areas will be revegetated with wetland specific species. Appendix C of the RD/RA contains the seed specifications for the Site.

13) Completion confirmation sampling is detailed in Section 4.0.

2.3 Optional Wetlands Construction

An area of clay-rich borrow soil may be excavated and reclaimed as a wetland. This area does not contain tailings. The clay soils will be excavated to the depth of the shallow groundwater table. Reclamation will include the placement of topsoil and appropriate wetland/upland vegetation.

This work will be conducted in accordance with the procedures described in Section 2.2.

2.4 Operations and Maintenance

Operations and Maintenance (O&M) will be conducted in areas remediated during the 2007 through 2009 construction seasons. O&M areas are shown on Figure 1-1.

3.0 STORMWATER MANAGEMENT

Stormwater management will be conducted to:

- Reduce the potential for offsite migration of sediments, soil and tailings; and
- Eliminate the re-contamination of areas that have been covered or have undergone source removal.

General stormwater management elements include:

- Berms, wattle and/or silt fencing as required to prevent the migration of materials from work areas;
- Sediment barriers as required to capture sediment and prevent downstream offsite migration. These in-flow barriers may include a combination of filter fabric, drop structures and/or temporary retention structures;
- Hay or straw bale barriers will be placed in appropriate ephemeral channel features that drain from work areas. The hay bales will be placed downgradient from the silt fence or wattle barrier;
- A supply of hay or straw bales and wattle material will be stored on-site during construction; and
- Stormwater runoff protection measures will remain in place until revegetation efforts are complete.

General procedures to reduce the tracking of contaminated materials into un-contaminated areas will include:

- All trucks and equipment working in contaminated materials (e.g. tailings and sediments) will be decontaminated prior to working with clean materials. Decontamination procedures are described in Section 11.8 of the RD/RA;
- A stabilized construction entrance will be used, if necessary, to remove gross contamination for trucks hauling tailings;
- All trucks and equipment will be decontaminated prior to leaving the site; and
- Dust control will be conducted as necessary as described in Section 11.1.1 of the RD/RA.

Specific stormwater runoff protection elements to be implemented prior to and during construction will include:

- Silt fence or wattle will be placed along the downgradient side of excavation areas as required. The silt fence or wattle will prevent the migration of tailings and soils from the work zones. The silt fence or wattle will remain in place until revegetation efforts are complete;
- Hay bale barriers will be placed in ephemeral channels that drain from the work zone. The hay bales will be placed downgradient from the silt fence or wattle barrier; and
- Sediment barriers will be placed as needed at the downstream end of the SDD Pond. This barrier will prevent the downstream migration of any sediment during remediation and will remain in place for the duration of this task.

4.0 COMPLETION CONFIRMATION

Completion of work will based upon confirmation that the following Completion Milestones are complete:

1) Sediment removal in the SDD Pond area complete;
2) Cover placement in Areas F-2 and F-3 is complete;
3) Confirmation samples have been collected and verify source removal and cover soil quality;
4) Channel reconstruction, if required, and topsoil placement are complete; and
5) Reclamation (surface grading drainage control and revegetation) is complete.

4.1 SDD Pond Sediment and Source Removal Confirmation

1) Sediment excavation will be guided using a field portable X-ray Fluorescence Meter (XRF)

2) Sediment confirmation sampling will be conducted on a 100-foot grid. SDD Pond sediment sampling protocol and analytical methodologies will be in accordance with wetland sampling as described in the FSP (RMC, 2007b).

4.2 Cover Placement Confirmation

Cover placement will be confirmed using two methodologies:

1) Imported cover soils will be screened with the XRF. A five sub-sample composite sample will be collected for every 5,000 cyds and screened with the XRF. Five-percent of the composite samples will be submitted to the laboratory to confirm XRF results. All upland cover and topsoil will contain less than 500 ppm lead and 100 ppm arsenic. All wetland restoration area cover and topsoil will contain less than 310 ppm lead. Sampling protocol and analytical methodologies are described in the Field Sampling Plan (FSP, RMC, 2007b).

2) Following cover placement the thickness of clean cover will be measured. Cover thickness confirmation data will be collected on a grid located on 200-foot centers. If cover thickness is insufficient, additional sampling and cover placement will be conducted. Sampling protocol and analytical methodologies are described in the FSP (RMC, 2007b). Sample locations are presented on Figure 4.1.

4.3 Channel Construction Confirmation

All channels will be visually inspected to ascertain that construction is complete. Conventional Survey methods will be used if required.

5.0 DELIVERABLES

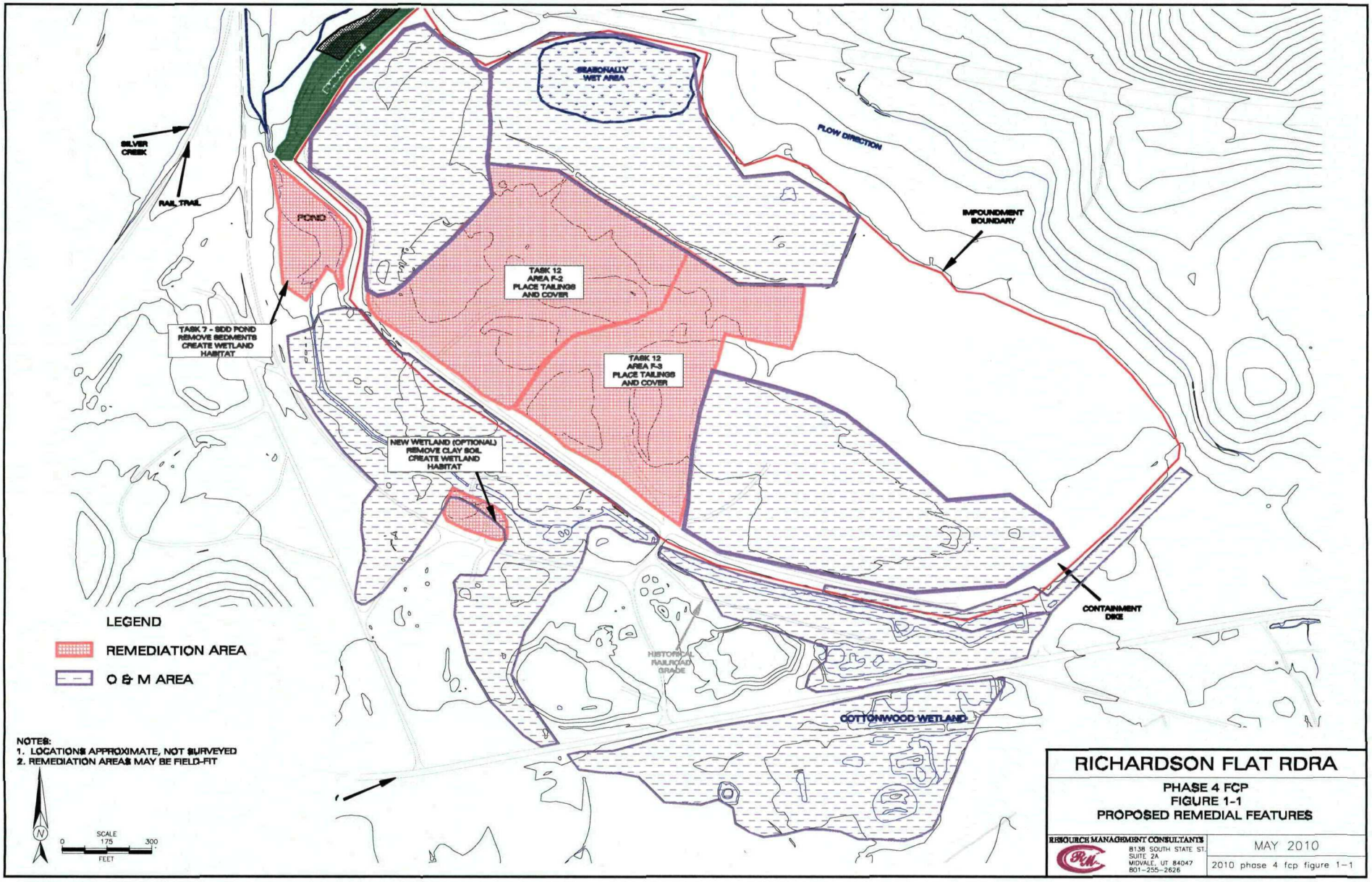
A Task Completion Report (TCR) will be prepared. The TCR will be provided to the EPA Remedial Project Manager following the completion of the remediation task. The TCR will contain a detailed description of the work completed and will include results of any sampling efforts undertaken.

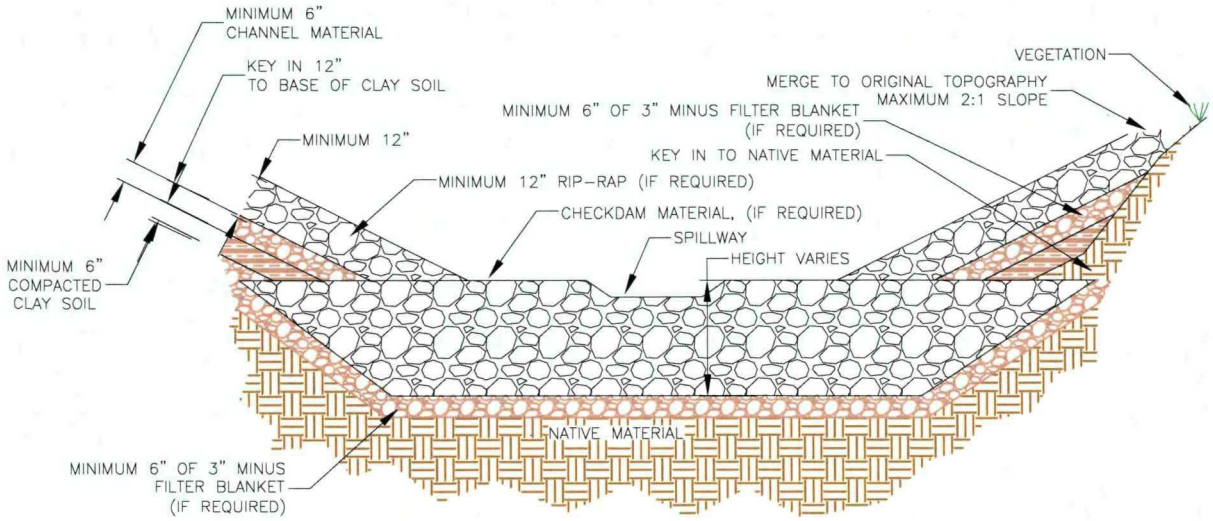
6.0 REFERENCES

Resource Management Consultants, Inc (RMC), 2007a, Remedial Design/Remedial Action Plan (RD/RA), Richardson Flat, Site ID Number: UT980952840, With Attached Work Plan.

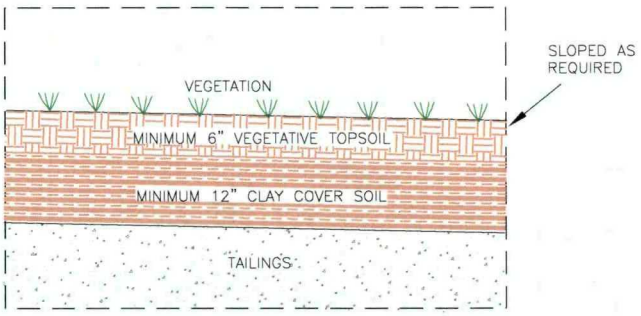
Resource Management Consultants, Inc (RMC), 2007b, Field Sampling Plan, Remedial Investigation, Richardson Flat, Site ID Number: UT980952840, With Attached Work Plan.

Resource Management Consultants, Inc (RMC), 2007c, Health and Safety Policy, Remedial Investigation, Richardson Flat, Site ID Number: UT980952840, With Attached Work Plan.

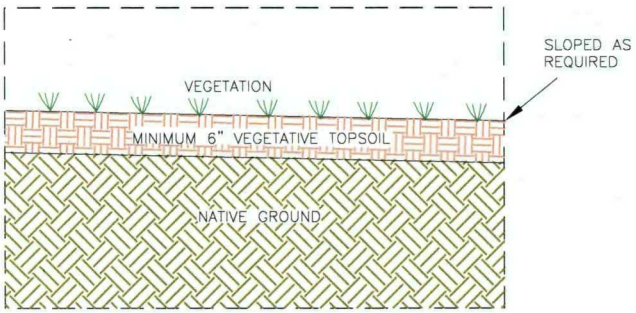

SEASONALLY WET AREA
FLOW DIRECTION
SILVER CREEK
RAIL TRAIL
POND
IMPOUNDMENT BOUNDARY
TASK 12 AREA F-2 PLACE TAILINGS AND COVER
TASK 7 - SDD POND REMOVE SEDIMENTS CREATE WETLAND HABITAT
TASK 12 AREA F-3 PLACE TAILINGS AND COVER
NEW WETLAND (OPTIONAL) REMOVE CLAY SOIL CREATE WETLAND HABITAT
CONTAINMENT DIKE
HISTORICAL RAILROAD GRADE
COTTONWOOD WETLAND
LEGEND
REMEDIATION AREA
O & M AREA
NOTES:
1. LOCATIONS APPROXIMATE, NOT SURVEYED
2. REMEDIATION AREAS MAY BE FIELD-FIT
N
SCALE
0 175 300
FEET
RICHARDSON FLAT RDRA
PHASE 4 FCP
FIGURE 1-1
PROPOSED REMEDIAL FEATURES
RESOURCE MANAGEMENT CONSULTANTS
8138 SOUTH STATE ST.
SUITE 2A
MIDVALE, UT 84047
801-255-2626
MAY 2010
2010 phase 4 fcp figure 1-1



CHANNEL CONSTRUCTION TYPICAL DETAILS



COVER SOIL
TYPICAL DETAILS



TOPSOIL
TYPICAL DETAILS

NOT TO SCALE

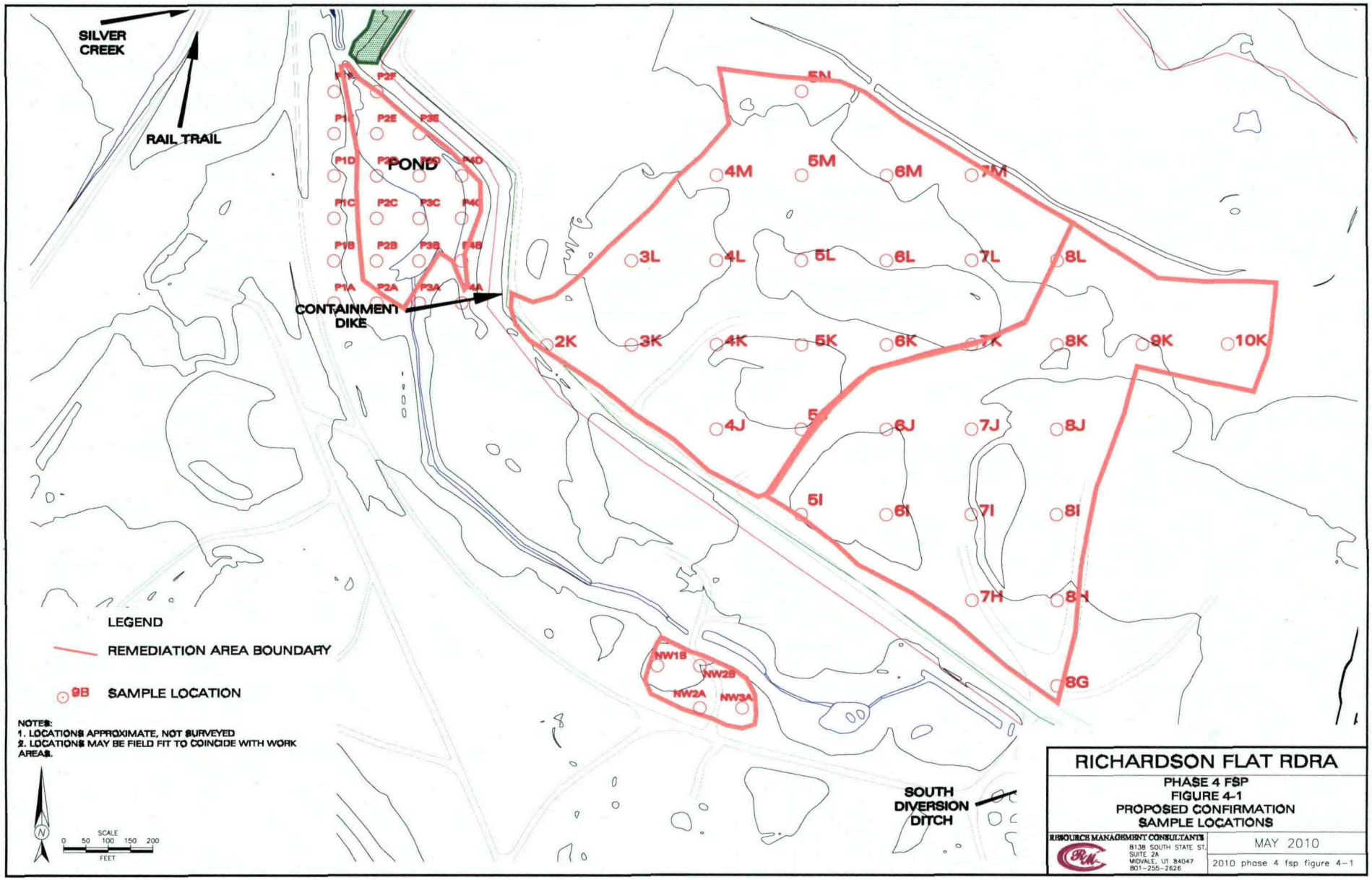
RICHARDSON FLAT RDRA

TASK 3 FCP
FIGURE 2-1
CHANNEL AND SOIL COVER TYPICALS

RESOURCE MANAGEMENT CONSULTANTS
8138 SOUTH STATE ST.
SUITE 2A
MIDVALE, UT 84047
801-255-2626

MAY 2010

task 4 fcp fig 2-1.dwg


SILVER CREEK
RAIL TRAIL
POND
CONTAINMENT DIKE
P1A
P2A
P3A
P4A
P1B
P2B
P3B
P4B
P1C
P2C
P3C
P4C
P1D
P2D
P3D
P4D
P1E
P2E
P3E
P2F
5N
4M
5M
6M
7M
3L
4L
5L
6L
7L
8L
2K
3K
4K
5K
6K
7K
8K
9K
10K
4J
6J
7J
8J
5I
6I
7I
8I
7H
8H
8G
NW1B
NW2B
NW2A
NW3A
LEGEND
REMEDIATION AREA BOUNDARY
9B SAMPLE LOCATION
NOTES:
1. LOCATIONS APPROXIMATE, NOT SURVEYED
2. LOCATIONS MAY BE FIELD FIT TO COINCIDE WITH WORK AREAS.
N
SCALE
0 50 100 150 200
FEET
SOUTH DIVERSION DITCH
RICHARDSON FLAT RDRA
PHASE 4 FSP
FIGURE 4-1
PROPOSED CONFIRMATION SAMPLE LOCATIONS
RESOURCE MANAGEMENT CONSULTANTS
8138 SOUTH STATE ST.
SUITE 2A
MIDVALE, UT 84047
801-255-2626
MAY 2010
2010 phase 4 fsp figure 4-1