417949
Page 1 of 26
SAN MIGUEL COUNTY, CO
M. KATHLEEN ERIE, CLERK-RECORDER
05-09-2011 10:29 AM Recording Fee $136.25

This property is subject to an Environmental Covenant held by the Colorado Department of Public Health and Environment pursuant to section 25-15-321, C.R.S.

ENVIRONMENTAL COVENANT

PACIFICORP, an Oregon Corporation, d/b/a Rocky Mountain Power, successor in interest to Utah Power and Light Company, whose address is 1407 West North Temple, Salt Lake City, Utah, 84116 ("Pacificorp") grants an Environmental Covenant ("Covenant") this 17th day of March, 2011 to the Hazardous Materials and Waste Management Division of the Colorado Department of Public Health and the Environment ("the Department") pursuant to § 25-15-321 of the Colorado Hazardous Waste Act, § 25-15-101, *et seq*. The Department's address is 4300 Cherry Creek Drive South, Denver, Colorado 80246-1530.

WHEREAS, Pacificorp is the owner of certain property commonly referred to as Silver Bell Tailing Impoundment, located on a Portion (approximately 7 acres – Attachment A – Property Map) of Parcel Two, Tract B Roanoak Placer M.S. 15590, Iron Springs Mining District, which Tract B consists of 8.96 acres, as set forth on Plat of Subdivision Exemption recorded December 12, 2005 in Plat Book 1 at page 3591, County of San Miguel, State of Colorado more particularly described and graphically depicted in Attachment A, attached hereto and incorporated herein by reference as though fully set forth (hereinafter referred to as "the Property"); and

WHEREAS, pursuant to Voluntary Cleanup and Redevelopment Act Application for Silver Bell Tailings Impoundment, Ophir, Colorado, May 1999 and Revised Voluntary Cleanup Plan for Silver Bell Tailing Impoundment, February 2000, the Property is the subject of a cleanup action (the "VCUP Remedial Action") pursuant to the Part 3 in Article 16 of Title 25 Colorado Revised Statutes (25-16-301 et seq. CRS), the State of Colorado Voluntary Cleanup and Redevelopment Program; and

WHEREAS, the VCUP Remedial Action Construction Completion Report, dated November, 2008 provides the as-builts for the VCUP Remedial Action, and

WHEREAS, the VCUP Remedial Action constructed the Silver Bell Tailing Impoundment and left residual contaminant levels that have been determined to be safe for one or more specific uses, but not all uses, and

WHEREAS, the VCUP Remedial Action incorporates one or more engineered features and structures that require monitoring, maintenance, or operation or that will not function as intended if disturbed, and

WHEREAS, the VCUP Remedial Action contains engineered features and structures, depicted on Attachment B hereto, as follows:

a. a tailings impoundment top surface area of approximately 2.6 acres;

b. tailings impoundment side slope areas of approximately 1.5 acres;

c. a tailings impoundment containing between 90,000 and 117,000 cubic yards of mill tailing material which is now overlain by a two-foot soil cover and vegetative cover;

d. a total disturbed area associated with the tailings impoundment and surrounding disturbed areas, discussed below, of approximately seven acres;

e. construction of a stormwater diversion channel on the south side of the impoundment that is designed to prevent run-on to the impoundment, which thus controls infiltration and erosion of the tailing impoundment. The diversion channel was designed using the 100 year, 24 hour storm. The channel has a bottom width of 3 feet, a depth of 1 foot, and side slopes of 3H:1V. A riprap D50 of 6 inches was used to line the channel, and there is approximately one half foot of freeboard. A GCL was placed in the channel before riprap was placed;

f. rip rap was placed on the east face of the impoundment that is located adjacent to Howard Fork in order to eliminate surface erosion effects. A small channel is present along the top of the riprap to impede any sediment eroded from the adjacent slope. ;

g. placement of riprap and geosynthetic clay liner on areas with possible stormwater contact;

h. construction of a mechanically stabilized earthen (MSE) wall on the eastern slope of the tailings impoundment that includes an integrated limestone drain as a Best Management Plan for the East Toe Seep discharge (Outfall 002);

i. wetland and sediment pond construction that included introduction of live wetland plants and seeding with a wetland seed mixture. The wetlands function as the final primary sediment control feature;

l. site revegetation of disturbed areas;

j. drain systems in an upstream area where recharges into the tailings impoundment was identified. This drain consists of an interceptor trench and dewatering well (DW-1) located just outside of the southwest corner of the tailing impoundment. The well is fitted with a down-hole pump and discharge pipe, and the drain is designed to reduce the amount of water entering the tailing impoundment that eventually reports as seepage. Horizontal drains were also installed into the tailing from near the northern impoundment toe and are designed to collect more alkaline tailing pore water and divert it past the portion of the tailing facility containing the acid generating tailing material.

WHEREAS, Pacificorp maintains Colorado Discharge Permit System permit number CO-0046931, effective October 1, 2005, that regulates the discharge from the tailing facility at locations specified as Outfalls 001 and 002; and

WHEREAS, the purpose of this Covenant is to ensure protection of human health and the environment by ensuring the VCUP Remedial Action work at the Property is not disturbed or destabilized, that closed mine tailings at the site are not re-exposed to stormwater and snow melt runoff, that the VCUP remedial features, engineering controls and

structures are maintained, and that the Property is not otherwise disturbed so as to reduce the effectiveness of the VCUP Remedial Action completed at the site.

WHEREAS, Pacificorp desires to subject the Property to certain covenants and restrictions as provided in Article 15 of Title 25, Colorado Revised Statutes, which covenants and restrictions shall burden the Property and bind Pacificorp and all parties having any right, title or interest in the Property, or any part thereof, their heirs, successors and assigns, and any persons using the land, as described herein, for the benefit of the Department.

NOW, THEREFORE, Pacificorp hereby grants this Environmental Covenant to the Department and declares that the Property as described in Attachment A shall hereinafter be bound by, held, sold, and conveyed subject to the following requirements set forth in paragraphs 1 through 10, below, which shall run with the Property in perpetuity and be binding on Pacificorp and all parties having any right, title or interest in the Property, or any part thereof, their heirs, successors and assigns, and any persons using the land, as described herein. As used in this Environmental Covenant, the term OWNER means the record owner of the Property and, if any, any other person or entity otherwise legally authorized to make decisions regarding the transfer of the Property or placement of encumbrances on the Property, other than by the exercise of eminent domain.

Use restrictions and affirmative obligations to maintain engineered features and structures:

1. There shall be no soil disturbance, excavation or modification of the cap or components of the performance and structures of the VCUP Remedial Action unless such action is taken in accordance with the Site Management Plan (SMP) set forth in Attachment C, the contents of which are incorporated by reference as if set forth in full herein.

2. Wetlands and associated water conveyances at the Property shall not be disturbed or altered except to enhance their function for remediation/maintenance of the VCUP Remedial Action and water treatment in accordance with the CDPS permit. Maintenance of these wetlands will be conducted to accomplish water quality criteria pursuant to the CDPS permit, applicable federal and state law as well as the Site Management Plan ;

3. All conveyances (water delivery and discharge) need to remain functional as per its design. All work conducted will be compliant with the attached SMP ;

4. The Mechanically Stabilized Earthen (MSE) wall shall be maintained as constructed, with maintenance performed compliant with the approved SMP ;

5. Maintenance of all storm water conveyances will be maintained as originally constructed for their functionality for allowing sediments to settle out, and prevent erosion of tailings and cap materials as per the approved SMP ;

6. No surface or ground water shall be used for any purpose. In accordance with the SMP, waters contacting engineered features and structures shall be routed away from the tailings impoundment and its contents. Drilling for use of ground water shall not occur, except for the sole instance where use of well DW-1 to dewater the impoundment is permitted, provided that the water produced from this well is treated as set forth in the SMP;

7. There shall be no development, building construction, or agricultural use permitted on the Property; and

8. All remedial features constructed as part of the VCUP Remedial Action shall be maintained and kept operational and effective as originally designed as per the approved SMP .

Modifications This Covenant runs with the land and is perpetual, unless modified or terminated pursuant to this paragraph. OWNER may request that the Department approve a modification or termination of the terms of this Covenant. The request shall contain information showing that the proposed modification or termination shall, if implemented, ensure protection of human health and the environment. The Department shall review any submitted information, and may request additional information. If the Department determines that the proposal to modify or terminate the Covenant will ensure protection of human health and the environment, it shall approve the proposal. No modification or termination of this Covenant shall be effective unless the Department has approved such modification or termination in writing. Information to support a request for modification or termination may include one or more of the following:

a) a proposal to perform additional remedial work;
b) new information regarding the risks posed by the residual contamination;
c) information demonstrating that residual contamination has diminished;
d) information demonstrating that an engineered feature or structure is no longer necessary;
e) information demonstrating that the proposed modification would not adversely impact the remedy and is protective of human health and the environment; and
f) other appropriate supporting information.

2) Conveyances Owner shall notify the Department at least fifteen (15) days in advance of any proposed grant, transfer or conveyance of any interest in any or all of the Property.

3) Notice to Lessees Owner agrees to incorporate either in full or by reference the restrictions of this Covenant in any leases, licenses, or other instruments granting a right to use the Property.

4) Notification for proposed construction and land use Owner shall notify the Department simultaneously when submitting any application to a local government for a building permit or change in land use.

5) Inspections The Department shall have the right of entry to the Property at reasonable times with prior notice for the purpose of determining compliance with the terms of this Covenant. Nothing in this Covenant shall impair any other authority the Department may otherwise have to enter and inspect the Property.

6) No Liability The Department does not acquire any liability under State law by virtue of accepting this Covenant

7) Enforcement The Department may enforce the terms of this Covenant pursuant to §25-15-322. C.R.S. Pacificorp may file suit in district court to enjoin actual or threatened violations of this Covenant.

8) Owner's Compliance Certification Pacificorp shall execute and return a certification form provided by the Department, on an annual basis, detailing Pacificorp's compliance, lack of compliance, and annual inspection report, with the terms of this Covenant.

9) This Covenant shall be recorded with the County Clerk and Recorder for San Miguel County.

10) Notices Any document or communication required under this Covenant shall be sent or directed to:

If to the Department
Hazardous Materials and Waste Management Division
Colorado Department of Public Health and the Environment
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

If to Owner:
Pacificorp, d/b/a Rocky Mountain Power
Property Management Department
1407 W. North Temple, Suite 110
Salt Lake City, UT 84116

PacifiCorp, has caused this instrument to be executed this 17th day of March, 2011.

By: Dean Brockbank

Title: V.P. & General Counsel, PacifiCorp Energy

STATE OF Utah)
) ss:
COUNTY OF Salt Lake)

The foregoing instrument was acknowledged before me this 17 day of March, 2011 by Dean Brockbank on behalf of PACIFICORP, an Oregon Corporation, d/b/a Rocky Mountain Power., whose address is 1407 West North Temple, Salt Lake City, Utah, 84116

Notary Public
CANDACE TURNER
Commission #577514
My Commission Expires
January 30, 2013
State of Utah

Candace Turner
Notary Public

1407 W North Temple
Address

SLC Utah 84116

My commission expires: January 30, 2013

Accepted by the Colorado Department of Public Health and Environment this 8th day of April, 2011.

By: Gary W. Baughman

Title: Director, HMWMD

DIANA L. HUBER NOTARY PUBLIC STATE OF COLORADO

STATE OF Colorado)
) ss:
COUNTY OF Arapahoe)

The foregoing instrument was acknowledged before me this 8th day of April, 2011 by Gary W. Baughman on behalf of the Colorado Department of Public Health and Environment.

Diana L. Huber
Notary Public

4300 Cherry Creek Drive South
Address

Denver Co 80246

My commission expires: February 29-2012

DIANA L. HUBER NOTARY PUBLIC STATE OF COLORADO

Attachment A-"Property" Map

This Survey of tract for Environmental Covenant on a Portion of Parcel Two Roanoak Placer M.S. 15590, was field surveyed on the fall of 2008 under the direct responsibility, supervision and checking of Jeffrey C. Haskell, of Foley Associates, Inc., being a Colorado Licensed Surveyor.

_____

P.L.S. NO. 37970 Date

LEGAL DESCRIPTION

That part of Sections 32 and 33, Township 42 North, range 9 West, New Mexico Principal Meridian designated as Tract "B", A Portion of the Roanoak Placer, Mineral Survey 15590, Iron Springs Mining District, as set forth on Plat of Subdivision Exemption recorded December 12, 2005 in Plat Book 1 at page 3591,

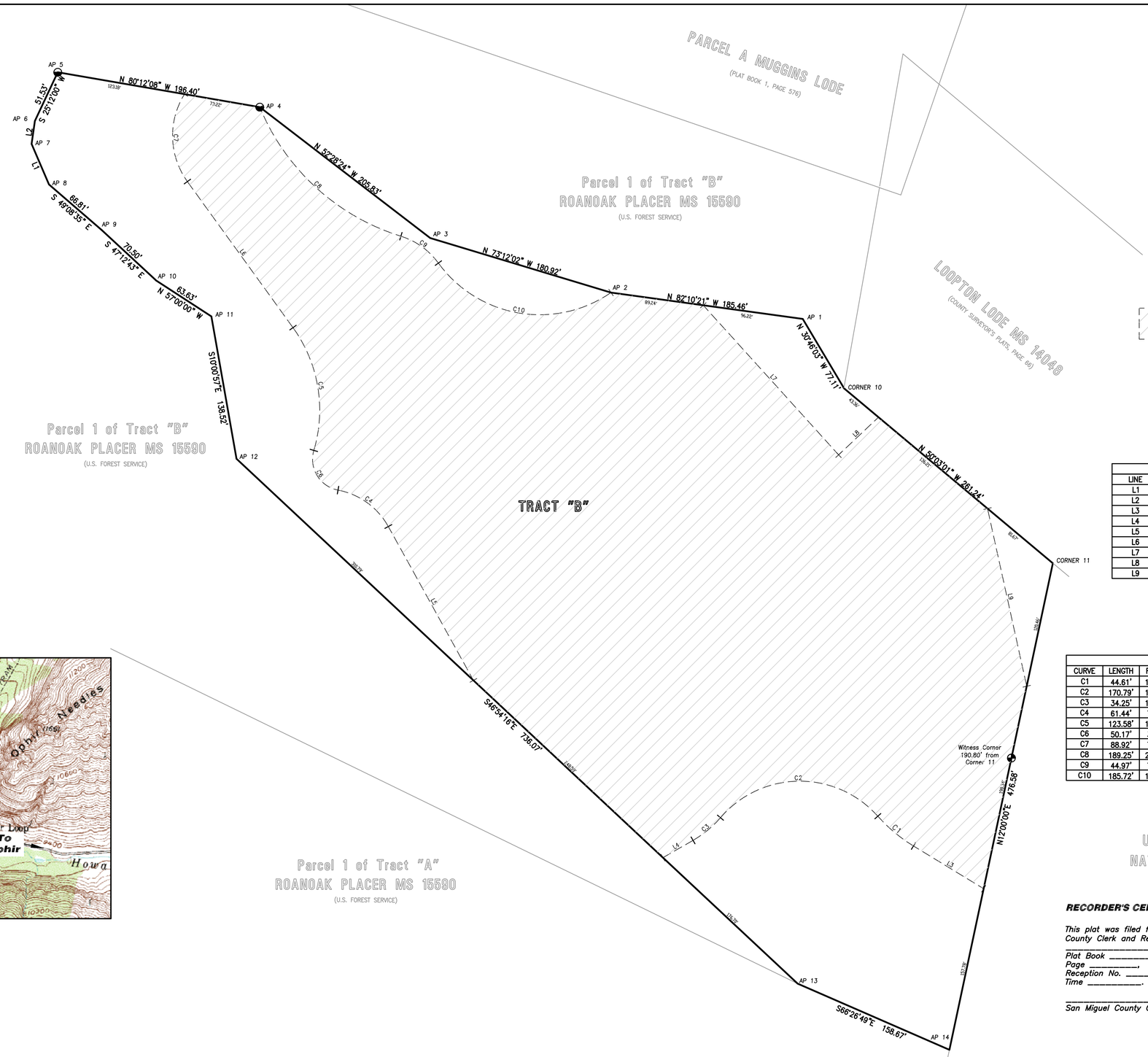
County of San Miguel,
State of Colorado.

NOTES

1. Easement research and legal description from Security Title Guaranty Company Commitment No. S0266127 dated August 20, 2004 at 8:00 A.M.
2. Benchmark:

NOTICE

According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.



SCALE: 1" = 50'

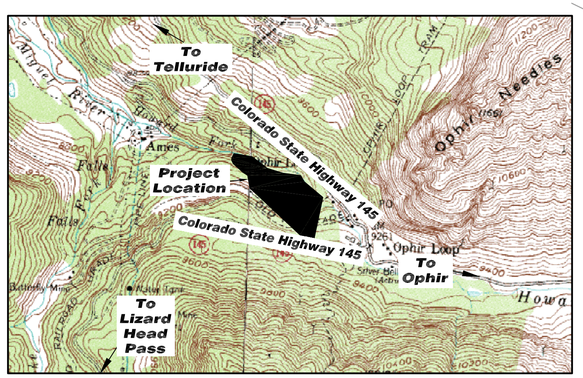
0 10 20 30 40 50 100

Legend

- Found No. 6 Rebar and 2 1/2" Aluminum Cap LS 14506
- Found Aluminum Pipe and 2 1/2" Aluminum Cap LS 14506
- Environmental Covenant Area

LINE TABLE		
LINE	LENGTH	BEARING
L1	66.81	N49°08'35"W
L2	22.26	N08°09'59"E
L3	78.80	S58°38'36"E
L4	33.28	N60°09'55"E
L5	168.47	S28°56'57"E
L6	172.69	N35°52'03"W
L7	193.24	N42°08'31"W
L8	52.51	N46°43'14"E
L9	174.36	N12°26'28"W

CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA ANG.	CHORD	CHORD BEARING
C1	44.61'	150.00'	17°02'21"	44.44'	S50°07'25"E
C2	170.79'	100.00'	97°51'21"	150.78'	S89°28'05"W
C3	34.25'	100.00'	19°37'31"	34.09'	N50°21'10"E
C4	61.44'	70.00'	50°17'09"	59.48'	N54°05'31"W
C5	123.58'	135.00'	52°26'56"	119.31'	N09°38'35"W
C6	50.17'	30.00'	95°48'59"	44.52'	S31°19'36"E
C7	88.92'	75.00'	67°55'53"	83.80'	S01°54'06"E
C8	189.25'	215.00'	50°26'04"	183.20'	S47°33'05"E
C9	44.97'	70.00'	36°48'28"	44.20'	N54°21'53"W
C10	185.72'	120.00'	88°40'27"	167.73'	S80°17'52"E



Vicinity Map
(Not to Scale)

RECORDER'S CERTIFICATE

This plat was filed for record in the office of the San Miguel County Clerk and Recorder on this _____ day of _____, 20_____, at
Plat Book _____,
Page _____,
Reception No. _____,
Time _____.

_____
San Miguel County Clerk

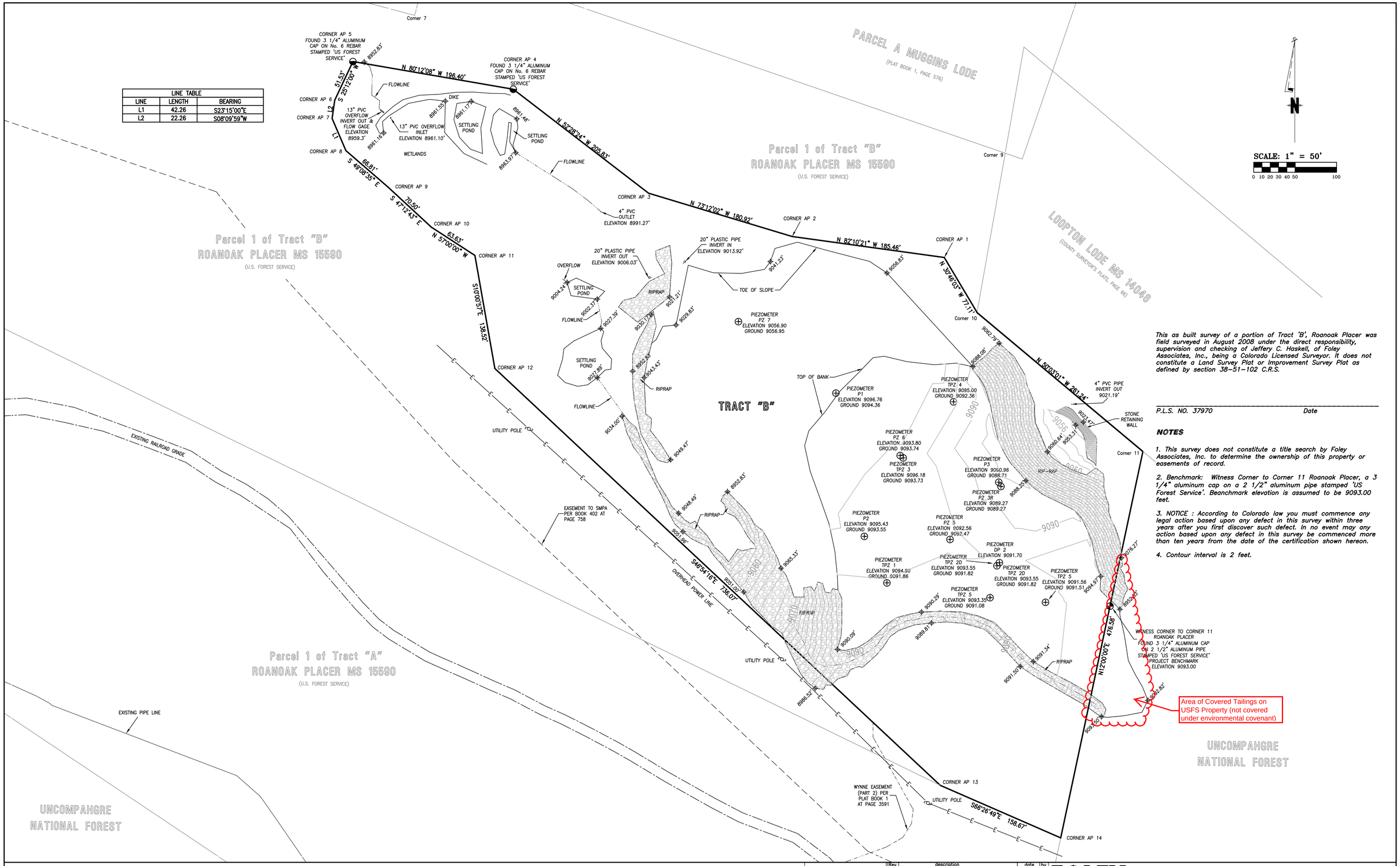
Survey of tract for Environmental Covenant located on a Portion of Parcel Two, Tract "B" Roanoak Placer M.S. 15590 Located in the NE 1/4 S.32 T.42N., R.9W., N.M.P.M. and NW 1/4 S.33, T.42N., R.9W., N.M.P.M., San Miguel County, Colorado

Project Mgr:	JH
Technician:	PS
Technician:	
Checked by:	
Start date:	12-10-08

Rev.	description	date	by

FOLEY ASSOCIATES, INC.
ENGINEERING PLANNING SURVEYING
970-728-6153 970-728-6050 fax
P.O. BOX 1385
125 W. PACIFIC, SUITE B-1
TELLURIDE, COLORADO 81435

Drawing path: W:\JOBS\98020\dwg\Plat 12-08.dwg | Sheet1 of 1 | Project #: 98020



LINE TABLE		
LINE	LENGTH	BEARING
L1	42.26	S23°15'00"E
L2	22.26	S08°09'59"W

This as built survey of a portion of Tract 'B', Roanoak Placer was field surveyed in August 2008 under the direct responsibility, supervision and checking of Jeffery C. Haskell, of Foley Associates, Inc., being a Colorado Licensed Surveyor. It does not constitute a Land Survey Plat or Improvement Survey Plat as defined by section 38–51–102 C.R.S.

P.L.S. NO. 37970 Date

NOTES

1. This survey does not constitute a title search by Foley Associates, Inc. to determine the ownership of this property or easements of record.

2. Benchmark: Witness Corner to Corner 11 Roanoak Placer, a 3 1/4" aluminum cap on a 2 1/2" aluminum pipe stamped 'US Forest Service'. Beanchmark elevation is assumed to be 9093.00 feet.

3. NOTICE : According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

4. Contour interval is 2 feet.

TRACT 'B', ROANOAK PLACER
AS BUILT SURVEY

Project Mgr: JH
Technician: PS
Technician:
Checked by:
Start date: 9–02–08

Rev.	description	date	by

FOLEY ASSOCIATES, INC.
ENGINEERING PLANNING SURVEYING
970-728-6153 970-728-6050 fax
P.O. BOX 1385
125 W. PACIFIC, SUITE B-1
TELLURIDE, COLORADO 81435

Drawing path: W:\jobs\JOBS1998\98020\dwg\As Built 08-08.dwg | Sheet1 of 1 | Project #: 98020

W:\Jobs\JOBS1998\98020\dwg\As Built 08-08.dwg, 9/3/2008 1:32:13 PM, steve

Prepared for:

PACIFICORP
1407 West North Temple
Salt Lake City, UT

SITE MANAGEMENT PLAN

SILVER BELL TAILING FACILITY

January 12, 2011

Prepared by:

MWH
P.O. Box 774018
1475 Pine Grove Road, Ste. 109
Steamboat Springs, Colorado 80487
(970) 879-6260

TABLE OF CONTENTS

Section No. **Page No.**

1.0 INTRODUCTION 1-1

2.0 MATERIALS MANAGMENET PLAN 2-1

2.1 POTENTIAL POLLUANTS 2-1
2.2 TAILING MATERIAL 2-1
2.3 POND SEDIMENTS 2-2
2.4 ANOXIC LIMESTONE DRAIN MATERIALS 2-2
2.5 SEEPAGE 2-2

3.0 STORMWATER MANAGEMENT PLAN 3-1

3.1 REGRADED AND REVEGETATED AREAS 3-1
3.2 RUN-ON STORMWATER DIVERSION 3-2
3.3 PASSIVE WATER TREATMENT 3-2
3.4 INSPECTION AND RECORD KEEPING PROCEDURES 3-2

4.0 SITE MAINTENANCE AND INSPECTION PLAN 4-1

LIST OF FIGURES

Figure No.	Description
1	Location Map
2	Plan View
3	Wetlands Area As-Built Detail
4	Monument Locations

1.0 INTRODUCTION

This document presents a management plan for site materials, site facilities, and stormwater for the Silver Bell Tailing Impoundment near Ophir, Colorado (the Site). The property is subject to an Environmental Covenant held by the Colorado Department of Public Health and Environment (CDPHE) pursuant to section 25-15-321, C.R.S. A Site Management Plan (SMP) is required as part of the Environmental Covenant that describes procedures for securing tailing material should it become exposed at the Site, as well other materials at the Site. Site maintenance and stormwater management are associated with materials management and so are included in this plan as well.

The Silver Bell Tailing Impoundment is owned by PacifiCorp (dba Rocky Mountain Power) and is located in southwestern Colorado approximately 1.5 miles west of the town of Ophir along Highway 145 (see Figure 1). The tailing impoundment is an undeveloped, inactive mill tailing disposal site that has the potential to leach heavy metals and low pH discharge water. The top surface area of the impoundment is approximately 2.6 acres, and the side slope area is approximately 1.5 acres. The impoundment contains an estimated range of between 90,000 to 117,000 cubic yards of mill tailing material which is now overlain by a vegetated two-foot soil cover. The total area of disturbance associated with the impoundment and surrounding disturbed areas is approximately seven (7) acres. The Site is remote, at high-elevation (approximately 9,000 feet above sea level), subjected to heavy winter snow, and has no power or water supply.

In May 1999, PacifiCorp submitted an application to the CDPHE entitled Voluntary Cleanup and Redevelopment Act Application for the Silver Bell Tailing Impoundment, Ophir, Colorado, or the Voluntary Cleanup Plan (VCUP). Based on the approval of this application, PacifiCorp performed site characterization and reclamation activities to achieve acceptable erosional and geotechnical stability of the tailing material and to reduce sediment and chemical impacts from the impoundment to surface water quality in the Howard Fork. Reclamation activities completed by 2003 are shown on Figures 2 and 3 and included the following:

- sediment and erosional control
- consolidation of eroded tailing
- tailing impoundment regrading
- seepage drain installation
- topsoil and riprap placement
- stormwater diversion channel construction
- wetland and sediment pond construction
- revegetation of disturbed areas

The reclamation of the tailing impoundment included regrading and installation of two feet of capping soil over the impoundment, and construction of a stormwater diversion channel on the south side of the impoundment. The channel serves to prevent run-on to the impoundment, thus controlling infiltration and erosion of the tailing impoundment. In addition, disturbed areas were revegetated in 2003, further reducing the potential for erosion. The steeper east face of the impoundment that is located adjacent to Howard Fork was covered with riprap to eliminate surface erosion effects.

PacifiCorp also installed additional Best Management Practices (BMPs) for increasing the pH in waters being discharged from the tailing impoundment, including installation of an Anoxic Limestone Drain (ALD). The ALD was installed in the northwest stormwater pond (see Figure 2) in 2006 and is about 25 feet wide by 35 feet long with an average depth of about five feet. The ALD includes piping for collecting and delivering tailing impoundment seepage to the ALD, a seepage distribution header in the pond bottom, and an outlet line, and is filled with 1.5- to 2-inch crushed limestone. The limestone surface is covered with a geotextile fabric and HDPE liner overlain by three feet of locally available fill material. Inflow of tailing seepage water and discharge from the ALD began by late October 2006.

Additional reclamation activities were completed in 2008 as part of the VCUP, included the following features:

- additional hydrologic characterization of the tailing facility to help assess options for seepage control and treatment
- additional regrading and revegetation of disturbed areas
- placement of riprap and geosynthetic clay liner (GCL) on areas with possible stormwater contact with tailing material
- construction of treatment cells to provide additional passive treatment prior to the tailing seepage entering the wetland area
- removal of tailing material from the eastern slope and from along a short section of the Howard Fork;
- construction of a mechanically stabilized earthen (MSE) wall on the eastern slope that included a integrated limestone drain as a BMP for the East Toe Seep discharge (Outfall 002)
- completion of a site vegetation survey

To specifically address the discharge through Outfall 001, two treatment cells were constructed in the area near the wetland to provide passive treatment for the seepage prior to it entering the wetland and mixing with the off-site flows (see Figure 3). The first cell receives the ALD discharge and is intended to settle the iron and other metals that precipitate as the result of increased pH from the ALD and oxidation of the ALD effluent. The second cell includes flow-through limestone berms for additional water quality polishing. The water from the second cell

discharges into the existing wetlands area, which has good vegetation density and receives most of the off-site inflows. A weir was placed after the second treatment cell for Outfall 001 monitoring. A *2007/2008 Construction Completion Report* describing the activities listed above was submitted to the CDPHE in November 2008.

An additional drainage system was constructed in 2009 in an upstream area where subsurface flow that recharges into the tailing was identified. This drain consists of an interceptor trench and dewatering well (DW-1) located just outside of the southwest corner of the tailing impoundment (see Figure 2). The well has been fitted with a down-hole pump and discharge pipe. This drain is designed to reduce the amount of water entering the tailing impoundment that eventually reports as seepage. A set of horizontal drains were also installed into the tailing from near the northern impoundment toe. These drains are designed to collect more alkaline tailing pore water and divert it past the portion of the tailing facility containing the acid generating tailing. The affects of these drains will be evaluated during 2011. It is expected that these actions, along with improved cover, will eventually reduce the amount of water discharging through the system and further will increase the efficiency of the treatment system. These activities were documented in an *Addendum to the 2007/2008 Construction Completion Report – 2009/2010 Construction Activities* submitted to the CDPHE in October 2010.

2.0 MATERIALS MANAGEMENT PLAN

In the Site's current condition, materials that are potentially environmentally detrimental are not exposed at the surface, with the possible exception of iron hydroxide precipitants that accumulate in the treatment cells. One of the overriding goals of the VCUP was containment of the tailing, and this has been accomplished. Nonetheless, a plan is needed to address the eventuality that some of the materials contained on the Site may need to be handled.

2.1 POTENTIAL POLLUTANTS

The Site is unmanned except during inspections, sampling events and construction activities. No industrial materials or chemicals are stored at the Site on a routine or permanent basis. When construction equipment is present on the Site, associated material (fuels) are covered by the contractor's spill prevention and other related plans. Site-specific potential pollutants present at the Site post-reclamation include:

- tailing material within the reclaimed and covered impoundment
- iron-hydroxide sediments in the settling ponds within the treatment system
- ALD materials
- heavy metals and low pH within, and in seepage from, the impoundment.

No other potential pollutants are present at the Site.

2.2 TAILING MATERIAL

There is little opportunity for tailing material to be exposed or transported out of the impoundment due to the reclamation conducted at the Site (see Section 1.0), as well as BMPs and stormwater control measures that have been implemented at the Site (see Section 3.0). However, there are some scenarios where this could occur, such as:

- Unanticipated erosion of the impoundment cover and underlying tailing material
- Accidental destruction of the impoundment cover by heavy equipment
- Intentional exposure of the tailing material to repair the cover or place additional material in the impoundment

If any tailing materials are ever exposed or transported away from their current disposition, the material will be picked up and put back into the impoundment, and/or recovered, as soon as feasible, given the time of year, access to the Site, and nature of the event. If cleanup and redeposition of the tailing material back into the impoundment is not straightforward, then a plan

to address the material would be developed and submitted to the CDPHE for approval at the time of the event. Whatever situation that would require a new plan to address a release of these materials back into the impoundment, will comply, at a minimum, with this Material Management Plan section of the SMP. After cover reconstruction, the disturbed area would be revegetated as before and inspected afterwards to help ensure success of the additional reclamation.

2.3 POND SEDIMENTS

As a result of the tailing discharge water geochemical conditions, after the tailings discharge flows through the ALD and into the settling basin in the wetlands treatments system (see Figure 3), iron-hydroxide sediment (precipitant) will accumulate over time in the settling basin and treatment cells upstream of Outfall 001. During the annual site inspections, the thickness of the pond sediment will be estimated visually. If the free water level in the pond is less than approximately 0.5 feet, then the sediment shall be removed.

The pond sediment will be managed by pulling back the tailing impoundment cover on the impoundment, placing the sediment with the tailing material, then re-covering and revegetating the disturbed area. An area on the upper, flatter, portion of the impoundment will be utilized for the sediment placement. This activity may be used to help address any low areas that may develop in the impoundment cover over time. As part of the activity, additional cover could be brought in to help improve the grade if the pond sediment was not sufficient. If low areas are not present, then the placement will be done as not to affect the water drainage off of the cover.

Removal of the material from the treatment cells will likely be accomplished with a vacuum truck or pumping into a tank if the sediment is liquid. If the material is more solid, it may need to be excavated. All removal of materials from the wetlands will be conducted under federal guidelines for dredge and fill actions in waters of the United States.

Off-site disposal may be considered due to unforeseen conditions. If this option is implemented, the sediments will be characterized and hauled to an off-site licensed disposal facility, in accordance with applicable Federal, State and local regulations.

2.4 ANOXIC LIMESTONE DRAIN MATERIALS

It is possible that the ALD will become plugged with precipitant or the limestone, which is the active component of the drain, will become coated and ineffective. In this case, the ALD limestone and any associated precipitants may need to be removed and replaced. Because the bulk characteristic of the material will likely be that of limestone, it is not expected that this material will present any special issues for management. It will be managed with the pond sediments and placed with the tailing material. If off-site disposal is considered for any reason, it will be characterized and disposed of off-site at a licensed disposal facility, as appropriate, in accordance with applicable Federal, State and local regulations.

2.5 SEEPAGE

PacifiCorp maintains a Colorado Discharge Permit System (CDPS) permit (#CO-0046931) for discharge from the tailing impoundment. The permit became effective on October 1, 2005 and regulates the discharge from the tailing facility at Outfalls 001 and 002 (see Figure 2). The permit will be maintained and renewed as long as required by the regulatory agencies. Outfall 001 is defined as being located between the discharge from the ALD and before mixing with the Howard Fork. Outfall 002 is defined as the flow from the East Toe Seep.

The ALD was installed at the Site as an additional BMP for increasing the pH in waters being discharged at Outfall 001. The pH and water quality data have been collected to assess performance of the ALD and the overall discharge system. Data show that the ALD is increasing the pH of the seepage passively from about 2.5 to typically greater than 6.0. There has also been success in removal of the three regulated metals (iron, manganese, and zinc) from the seepage. Manganese and zinc have consistently met the limits in the permit and are expected to continue to do so as long as the ALD and treatment cells are functioning and iron is precipitating. The reported iron has generally been below the permit limit downstream of the ALD. However, because the total recoverable fraction is being monitored, iron has exceeded the permit concentration limit when total suspended solids (TSS) are high. The occurrence of elevated TSS and iron is a function of settling. When TSS and iron are above permit limits at Outfall 001, the additional settling capacity in the wetlands prior to discharge to the Howard Fork assists in lowering these constituents before the flow enters the Howard Fork.

3.0 STORMWATER MANAGEMENT PLAN

The Site previously held a stormwater general permit with the State of Colorado (#CO-040210). The Site reclamation and improvements substantially completed the long-term stormwater controls. Therefore, PacifiCorp submitted and was granted a request to terminate the stormwater permit per General Permit COR-040000. The basis for this termination was the completion of substantial Site activities, no exposed tailing at the Site as the result of successful reclamation, and successful revegetation of the tailing cover and disturbed areas. However, stormwater control features remain at the Site and continue to function to collect any extraneous sediment that is eroded from the Site. These features will continue to be inspected during the annual inspection and repaired, if needed. Any material collected in the sediment control structures would be most likely placed on native top soil if characterized to be appropriate for placement on the surface of the cap. If any tailing were exposed it would be handled per the Material Management Plan presented in Section 2.0.

3.1 REGRADED AND REVEGETATED AREAS

Site reclamation was designed to reduce impacts to surface water quality, and was accomplished in part by regrading and revegetating the tailing and other disturbed areas. The impoundment cover consists of two feet of plant growth material placed over the regraded impoundment. Additionally, riprap was placed in areas of the regraded tailing prone to erosion by concentrated flows or where slopes could not be regraded to an erosionally stable grade. This activity was completed as described in Section 1.0, and significant erosion has not been observed on the regraded areas. However, features to contain any sediment produced from the regraded and revegetated areas are still present and will continue to be inspected and maintained.

Based on the existing and planned hydrology of this area, a wetland was rehabilitated as part of the reclamation program. The wetland enhancement work included introduction of live wetland plants and seeding with a wetland seed mixture. Run-off from regraded and revegetated upgradient areas are ultimately routed through to this area. The wetlands functions as the final primary sediment control feature because additional BMPs are present that largely relegate the wetlands as a final failsafe containment feature. Stormwater flows from the reclaimed areas are routed to the wetlands as follows:

- stormwater flows from the west slopes of the reclaimed site are routed to the upper sediment pond, to the central sediment pond, and then to the wetlands area

- stormwater flows from the northern slopes are routed through a culvert beneath the wetlands access road to the central sediment pond and then the wetlands (a portion of this flow is routed along the wetlands access road to the culvert), and then

- any stormwater that flows down the access road surface ultimately flows to the ALD sediment cell, through the treatment cells, and on to the wetlands (Figure 3)

The eastern reclaimed slopes of the tailing impoundment are cover with a geosynthetic clay liner (GCL) and rip-rap, and soil erosion from this area to Howard Fork is not a concern. A small channel is present along the top of the riprap to impede any sediment eroded from the adjacent slope. However, the slope in the upstream area is shallow enough that erosion is not expected.

3.2 RUN-ON STORMWATER DIVERSION

A stormwater diversion channel was constructed on the south side of the tailing impoundment (see Figure 2), which diverts run-on from the adjacent basins and conveys run-off from the top surface of the covered impoundment, thus preventing erosion of the tailing and impacts to stormwater. The diversion channel was designed using the 100-year, 24-hour storm. The channel has a bottom width of 3 feet, a depth of 1 foot, and side slopes of 3H:1V. A riprap D_{50} of 6 inches was used to line the channel, and there is approximately one-half foot of freeboard. In order to minimize infiltration of stormwater into the tailing impoundment, a GCL was placed in the channel prior to riprap placement.

3.3 PASSIVE WATER TREATMENT

The ALD that was installed (see Section 1.0) acts as a passive water treatment system. Discharges from the tailing impoundment flow through the ALD to reduce the impact of acidic seepages that exist at the Site. This system produces chemical precipitants (sediments). The treated seepages resulting in the sediments flows through settling cells, treatment cells and wetland located downgradient of the ALD (see Figures 2 and 3). This system is designed to contain the sediment produced by the treatment of the acidic tailing water and will be inspected annually and after heavy summer rain storms, as needed and as the result of the CDPS permit regulating the discharge of the tailing seepage.

3.4 INSPECTION AND RECORD KEEPING PROCEDURES

PacifiCorp will inspect the Site annually and after heavy summer rains, as needed, and note any areas of erosion or degradation of the sediment retention features. This inspection will typically occur in the late spring or early summer after the snow melt run-off event has occurred. Areas of erosion will be noted and if necessary repair scheduled. Sediment accumulation in the sediment control features will be noted, and any clean out scheduled, if needed. Please refer to Section 4.0 for annual monitoring and inspection requirements.

PacifiCorp, the owner and primary remedial contractor at the Site, will be responsible for records retention and record keeping for the Site. Mr Jeff Tucker at PacifiCorp is the project manager for the stormwater inspection and records as well has the CDPS Industrial Discharge Permit for Outfalls 001 and 002.

4.0 SITE MAINTENANCE AND INSPECTION PLAN

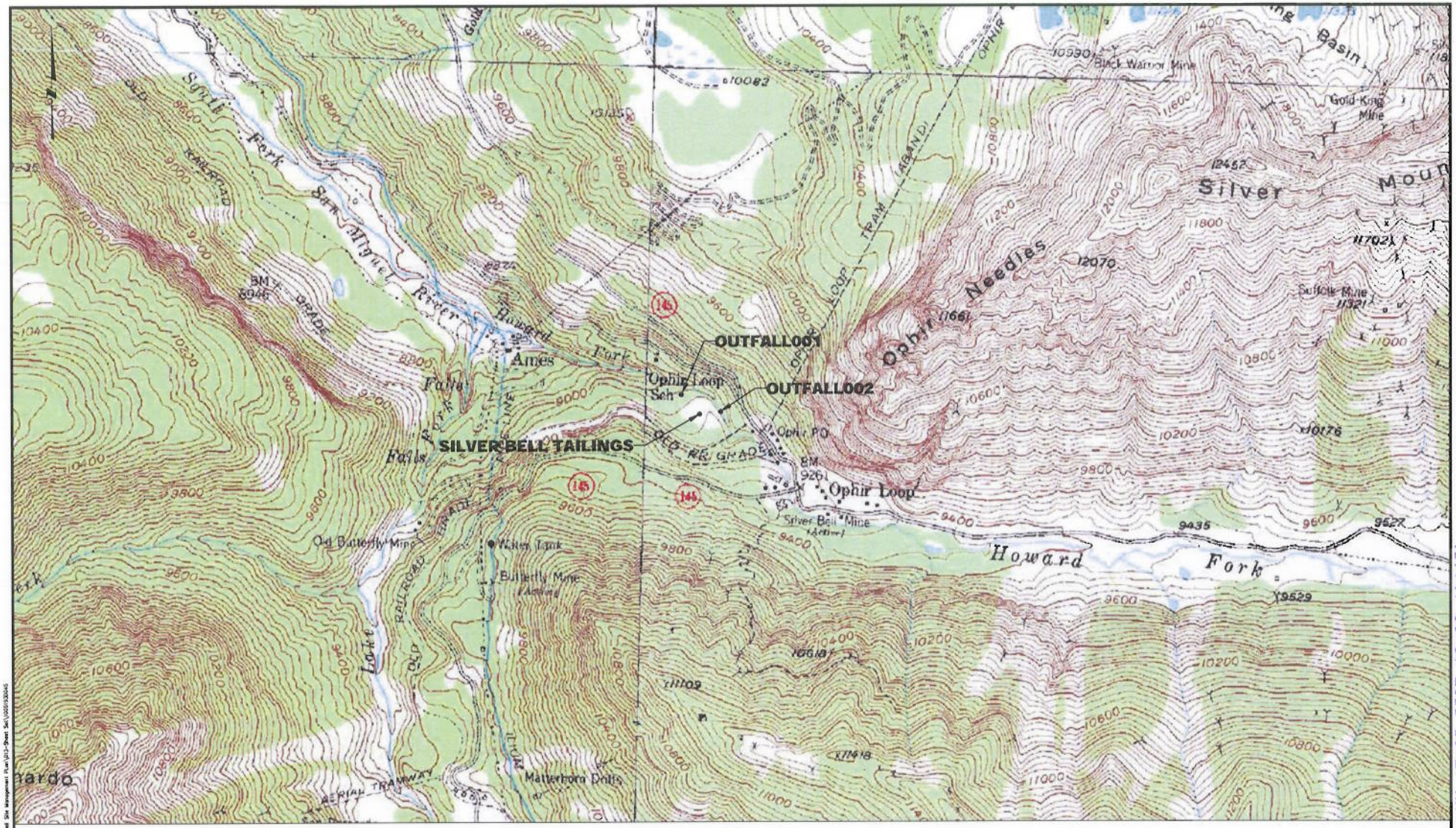
The Site is inspected annually, usually in the spring or early summer after the cessation of snowmelt and spring run-off, and after heavy summer storms, as needed. The inspection includes a visual inspection of the following site features:

- Access roads
- Survey monuments
- Vegetation on the impoundment and other areas disturbed during site reclamation
- The ALD and wetlands treatments system
- The east slope retention system (rip rap cover and MSE wall)
- Horizontal drains, run-on/run-off channel, and the dewatering well
- Stormwater control facilities (e.g., diversion channels and sediment ponds)
- Outfalls 001 and 002

The inspection includes approximate measurements of the amount of sediments in the sediment ponds and wetlands treatment system. The tailing pile is inspected for erosion and vegetative growth. The run-on/run-off channel and stormwater channels are inspected for sediment deposition, blockage by debris, and uniformity of riprap placement. The storage capacity of the sediment control ponds is monitored, and the wetland area is observed for establishment of vegetation. The wetland treatment cells are inspected for the accumulation and depth of iron-hydroxide sediments.

A monitoring event will occur annually during which water level measurements will be taken from the installed piezometers on site. Ground water levels will be reported annually indicating spatially water levels and associated tailings depths at each specific location. The survey monuments will be surveyed again in the summer of 2015 to check for shift in the impoundment. The survey monuments are shown on Figure 4. In addition, should a significant seismic event occur in the area (greater than magnitude 4.0); an inspection of the Site will occur. The tailing facility will be evaluated for cracking and slumping, or any other indications that movement or settling of the tailing material has occurred. A survey of the impoundment monuments will be conducted. If measurements of the survey monuments indicate a shift either laterally or vertically greater than 0.3 feet, a minimum of two (2) inclinometers will be installed on the impoundment for more enhanced monitoring of shifting or movement of the impoundment on frequency to be determined at that point. These inclinometers would include geotechnical borings as part of the inclinometer installation assessing the bedrock/tailings interface.

FIGURES



NOTE:

1. DISCHARGE POINTS AND FACILITY DETAILS ARE SHOWN ON FIGURES 2 AND 3.

PLAN

SCALE

600' 0 600' 1200'

CONTOUR INTERVAL = 40'

REV	DESCRIPTION	TECH	ENG	DATE
1	FINAL FOR SMP	CHF	CLF	01/11/11
0	FINAL	CHF	RTL	12/16/10

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PROJECTION: STM
ZONE: 13
DATUM: NAD83
UNITS: U.S. FEET

DESIGNED BY	T LEESON	01/11/11
DRAWN BY	C FOWLER	01/11/11
CHECKED BY	C FOULK	01/11/11
APPROVED BY	C FOULK	01/11/11
PROJECT MANAGER	C FOULK	01/11/11
CLIENT APPROVAL		
CLIENT REFERENCE NO.		

PACIFICORP

PROJECT LOCATION: SILVER BELL TAILINGS

PROJECT: SITE MANAGEMENT PLAN

TITLE: LOCATION MAP

MWH

FIGURE 1 REVISION 1

FILE NAME 10051930045

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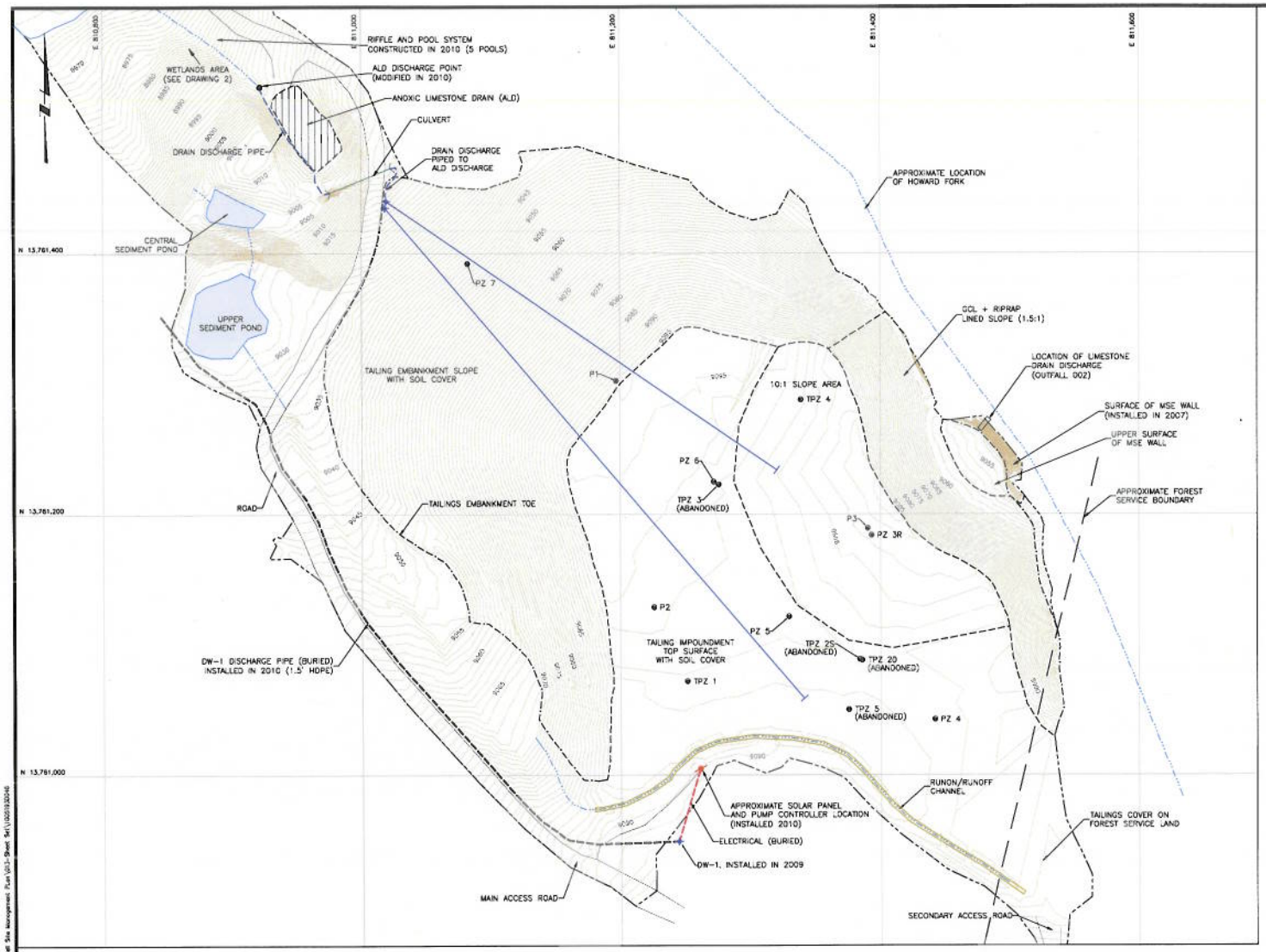
417949 05-09-2011 10:29 AM Page 23 of 26



LEGEND:

- 9200 — AS-BUILT CONTOUR AND ELEVATION, FEET (FOLEY 2008)
- PAVED ROAD
- POND
- NATURAL DRAINAGE
- LIMITS OF AS-BUILT TOPOGRAPHY
- CREST OF SLOPE
- TOE OF SLOPE
- RUNON/RUNOFF CHANNEL
- P1 — PIEZOMETER
- DEWATERING WELL
- BURIED ELECTRICAL (24 VOLT)
- BURIED WELL DISCHARGE PIPE

PLAN

SCALE
40 0 40 80 FEET
CONTOUR INTERVAL = 1 FEET

REV	DESCRIPTION	TECH	ENG	DATE
1	FINAL FOR SMP	CHF	CLF	01/11/11
0	FINAL	CHF	RTL	12/16/10

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PACIFICORP
A MIDAMERICAN ENERGY HOLDINGS COMPANY

PROJECT LOCATION: SILVER BELL TAILINGS
PROJECT: SITE MANAGEMENT PLAN
TITLE: PLAN VIEW

MWH

FIGURE: 2
REVISION: 1
FILE NAME: 1005193D046

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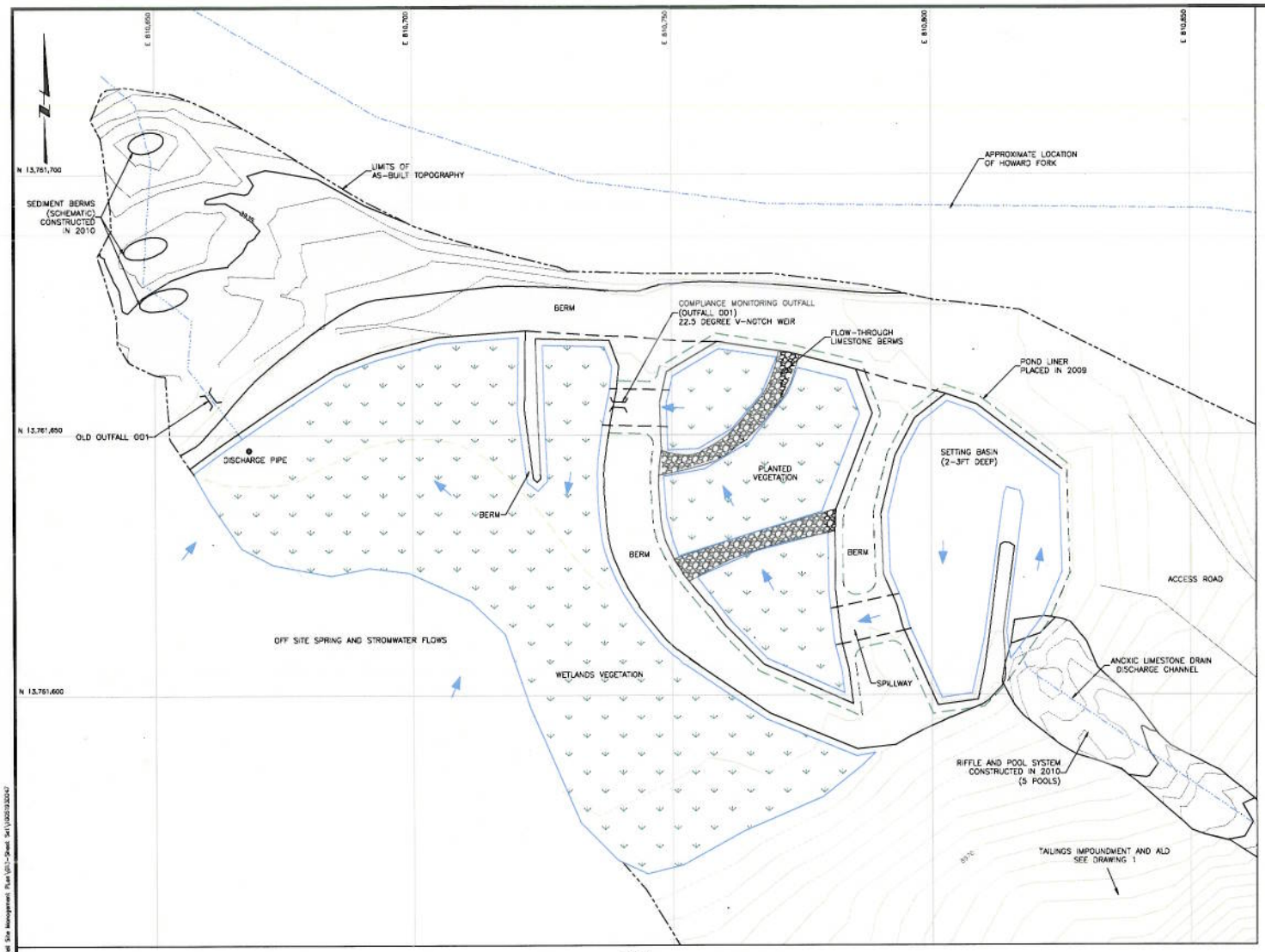
417949 05-09-2011 10:29 AM Page 24 of 26



LEGEND:

- AS-BUILT CONTOUR AND ELEVATION, FEET (FOLEY 2008)
- PAVED ROAD
- WETLANDS VEGETATION
- NATURAL DRAINAGE
- LIMITS OF AS-BUILT TOPOGRAPHY
- FLOW DIRECTION
- OPEN WATER AREA

PLAN

SCALE
10 0 10 20 FEET
CONTOUR INTERVAL = 1 FEET

REV	DESCRIPTION	TECH	ENG	DATE
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0	FINAL	CHF	RTL	12/16/10

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UNITS: U.S. FEET

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PROJECT MANAGER	C FOULK	01/11/11
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CLIENT REFERENCE NO.		

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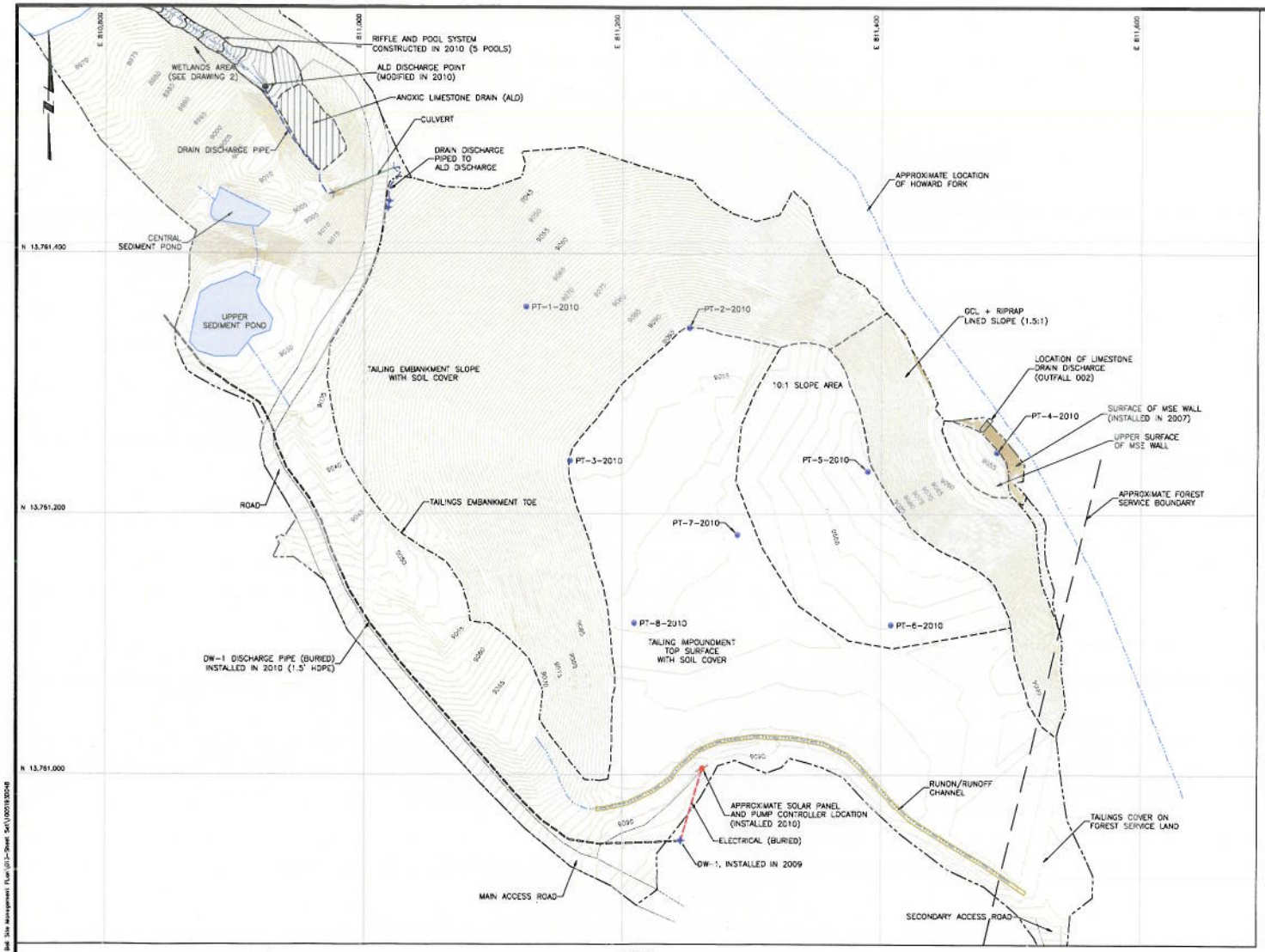
PROJECT LOCATION: SILVER BELL TAILINGS
PROJECT: SITE MANAGEMENT PLAN
TITLE: 2010 WETLANDS AREA AS-BUILT DETAIL

MWH

FIGURE 3
REVISION 1
FILE NAME 1005193D047

417949 05-09-2011 10:29 AM Page 25 of 26



PLAN

SCALE

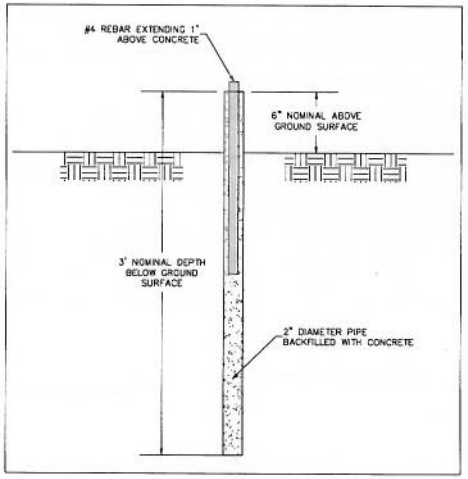
40 0 40 80 FEET

CONTOUR INTERVAL = 1 FEET

LEGEND:

- AS-BUILT CONTOUR AND ELEVATION, FEET (FOLEY 2008)
- PAVED ROAD
- POND
- NATURAL DRAINAGE
- LIMITS OF AS-BUILT TOPOGRAPHY
- CREST OF SLOPE
- TOE OF SLOPE
- RUNON/RUNOFF CHANNEL
- DEWATERING WELL
- BURIED ELECTRICAL (24 VOLT)
- BURIED WELL DISCHARGE PIPE
- MONUMENT LOCATION

MONUMENT NO.	NORTHING	EASTING	ELEVATION	MONUMENT DESCRIPTION
PT-1-2010	13,761,358.92	811,126.00	9,041.20	MEASUREMENT OF SETTLEMENT ON SLOPE
PT-2-2010	13,761,343.02	811,251.46	9,072.88	MEASUREMENT OF SETTLEMENT ON NW CREST
PT-3-2010	13,761,240.69	811,159.84	9,074.46	MEASUREMENT OF SETTLEMENT ON SW CREST
PT-4-2010	13,761,247.24	811,488.97	9,032.60	MEASUREMENT OF SETTLEMENT ON VERTICAL ROCKWALL CREST
PT-5-2010	13,761,232.63	811,389.87	9,064.27	MEASUREMENT OF SETTLEMENT AT CREST OF EMBANKMENT
PT-6-2010	13,761,115.13	811,407.84	9,070.18	MEASUREMENT OF SETTLEMENT IN AREA OF LARGE REGRADE FILL
PT-7-2010	13,761,183.89	811,288.77	9,072.00	MEASUREMENT OF SETTLEMENT AT MIDDLE OF EMBANKMENT
PT-8-2010	13,761,116.21	811,209.42	9,070.14	MEASUREMENT OF SETTLEMENT MEASUREMENT OF FILL AT SOUTH CREST



TYPICAL DETAIL
SETTLEMENT MONUMENT SCHEMATIC
(NOT TO SCALE)

REV	DESCRIPTION	TECH	ENG	DATE
1	FINAL FOR SMP	CHF	CLF	01/11/11
0	FINAL	CHF	RTL	12/16/10

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APPROVED BY	C FOULK	01/11/11
PROJECT MANAGER	C FOULK	01/11/11
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CLIENT REFERENCE NO.		

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A WHOLLY OWNED SUBSIDIARY OF MIDAMERICAN ENERGY HOLDINGS COMPANY

PROJECT LOCATION: SILVER BELL TAILINGS
PROJECT: SITE MANAGEMENT PLAN
TITLE: MONUMENT LOCATIONS

MWH

FIGURE: 4
REVISION: 1
FILE NAME: 1005193D048

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417949 05-09-2011 10:29 AM Page 26 of 26