

# JOINT APPLICATION FOR PERMITS

**Authorities:** The Department of Army Corps of Engineers (Corps), Idaho Department of Water Resources (IDWR), and Idaho Department of Lands (IDL) established a joint process for activities impacting jurisdictional waterways that require review and/or approval of both the Corps and State of Idaho. Department of Army permits are required by Section 10 of the Rivers & Harbors Act of 1899 for any structure(s) or work in or affecting navigable waters of the United States and by Section 404 of the Clean Water Act for the discharge of dredged or fill materials into waters of the United States, including adjacent wetlands. State permits are required under the State of Idaho, Stream Protection Act (Title 42, Chapter 38, Idaho Code and Lake Protection Act (Section 58, Chapter 13 et seq., Idaho Code).

**Joint Application :** Applicant will need to send a completed application, along with one (1) set of legible and reproducible drawings illustrating the location and character of the proposed activities/project to both the Corps and the State of Idaho. Information provided on this application will be used in evaluating the proposed activities. Disclosure of requested information is voluntary, however, if the information is not provided, the application may not be processed and permits may not be issued. Information requested in Block 26 and Block 27 are not required to process the application. **DO NOT START WORK UNTIL YOU RECEIVE ALL PERMITS FROM BOTH THE CORPS AND THE STATE OF IDAHO.**

**Drawings & Supplemental Requirements :** See Instruction Guide for required vicinity map, plan-view, and section-view drawings on 8-1/2 x 11 paper size.

## INCOMPLETE APPLICATIONS MAY NOT BE PROCESSED

<sup>1</sup> DATE:

<sup>2</sup> CONTACT INFORMATION - APPLICANT: Required Name: Bert Doughty Company: Thompson Creek Mining Company Mailing Address: PO Box 62 City: Clayton State: ID Zip: 83227 PH #: (208) 838-2200 E-mail: bdoughty@tcreek.com				<sup>3</sup> CONTACT INFORMATION - AGENT: Completion of Block #29 Required Name: Bert Doughty Company: Thompson Creek Mining Company Mailing Address: PO Box 62 City: Clayton State: ID Zip: 83227 PH #: (208) 838-3511 E-mail: bdoughty@tcreek.com				
<sup>4</sup> PROJECT NAME or TITLE: TCMC Phase 8 Mine Expansion				<sup>5</sup> PROJECT STREET ADDRESS: Thompson Creek Mining Company 35 Miles Southwest of Challis				
<sup>6</sup> PROJECT CITY: Clayton		<sup>7</sup> PROJECT COUNTY: Custer County		<sup>8</sup> PROJECT ZIP CODE: 83227		<sup>9</sup> NEAREST WATERWAY/WATERBODY: Bruno Cr., Pat Hughes Cr., Mill Cr.		
<sup>10</sup> TAX PARCEL ID#:	<sup>11</sup> LATITUDE/LONGITUDE (Required with vicinity Map): 44.306683/-114.522901			<sup>12a</sup> 1/4	<sup>12b</sup> 1/4	<sup>12c</sup> SECTION	<sup>12d</sup> TOWNSHIP	<sup>12E</sup> RANGE
<sup>13a</sup> ESTIMATED START DATE: See Supplemental Information				<sup>13b</sup> ESTIMATED END DATE: See Supplemental Information				
<sup>14</sup> DESCRIBE INTENDED USE (Commercial, Industrial, Public, Private, Other): Industrial - Mining								
<sup>15</sup> HAVE ALL ADJACENT PROPERTY OWNERS BEEN NOTIFIED OF PROPOSED ACTIVITY OR PROJECT? <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES Complete the attached sheet by providing list of contract information (including names, address, phone number) of all adjacent property owners.								
<sup>16</sup> <input type="checkbox"/> CHECK BOX IF ALTERATION(S) ARE LOCATED ON PUBLIC TRUST LANDS ADMINISTERED BY STATE OF IDAHO DEPARTMENT OF LANDS.								
<sup>17</sup> DIRECTIONS TO PROJECT SITE Include vicinity map with legible crossroads, street numbers/names, landmarks, attach additional sheet(s), if needed: Highway 75 from either Challis or Stanley to the Thompson Creek bridge turnoff. See Supplemental Information.								
<sup>18</sup> HAS WORK BEGAN ON THIS PROJECT/ACTIVITY? <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES If yes, describe ALL work that has occurred, including dates; attach additional sheet(s), if needed: See Supplemental Information								
<sup>19</sup> PREVIOUSLY ISSUED PERMIT AUTHORIZATIONS: See Supplemental Information								
<sup>20</sup> TYPE, MATERIAL AND AMOUNT BEING DISCHARGED BELOW THE ORDINARY HIGH WATER MARK, IN CUBIC YARDS: (1) TYPE Tailings/Reclam: Cubic Yards 1,032 (2) TYPE Waste rock Cubic Yards 457.6 (3) TYPE Mitigation Cubic Yards 5								
<sup>21</sup> SURFACE AREA IN ACRES OF WETLAND OR OTHER WATERS FILLED See Instructions Guide: Wetlands: 3.39 acres; stream channels: 0.85 acres Acres OR Square Feet								
<sup>22</sup> SIZE AND FLOW CAPACITY OF BRIDGE OR CULVERT & DRAINAGE AREA SERVED: Not applicable Square Miles								
<sup>23</sup> IS PROJECT LOCATED IN A MAPPED FLOODWAY? <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES If yes, contact the floodplain administrator in the local government jurisdiction in which the project is located. A Floodplain Development permit and a No-Rise Certification may be required.								

### FOR AGENCY USE ONLY

Corps of Engineers #: **NWW-2008-574**

Date Received: **AUGUST 20, 2014**

Incomplete App. - Return Date:

ID Water Resources #:

Date Received:

Fee Received:

ID Dept of Lands #:

Date Received:

Fee Received:

Receipt #:

Receipt #:

**24a OVERALL DESCRIPTION & PURPOSE OF PROJECT TO WATERS OF U.S., INCLUDING WETLANDS** Attach additional sheet(s), if needed

See Supplemental Information

**24b DETAILED DESCRIPTION OF EACH INDIVIDUAL ACTIVITY, WITHIN OVERALL PROJECT** (Include dimensions, equipment, construction, methods, etc.):

See Supplemental Information

**25a DESCRIBE MEASURES TAKEN TO AVOID, MINIMIZE, COMPENSATE FOR IMPACTS TO WATERS OF THE UNITED STATES, INCLUDING WETLANDS:**

See Instruction Guide for specific details

See attached 404 (b)(1) Analysis

**25b PROPOSED MITIGATION PLAN:** Attach copy of proposed mitigation plan or statement/reasoning why no mitigation plan is required. Attach additional sheet(s), if needed.

See attached Conceptual Mitigation Plan.

**26 LIST EACH IMPACT TO STREAM, RIVER, LAKE, RESERVOIR, INCLUDING SHORELINE.** Attach site map with location of EACH impact listed. Attach additional sheet(s)

Activity Number	Name of Waterbody	Seasonal or Perennial	Avg. Stream Width (Linear Feet)	Description of Impact (road crossing, impound, culvert, etc.)	Impact Length (Linear Feet)
1	See Supplemental Information				
2					
3					
4					

**TOTAL STREAM IMPACTS (Linear Feet):** See Supplemental Information

**27 LIST EACH WETLAND IMPACT, INCLUDING MECHANIZED CLEARING, FILL, EXCAVATION, FLOOD, DRAINAGE, ETC.**

Attach site map with location of EACH impact listed. Attach additional sheet(s)

Activity Number	Wetland Type (Emergent, Forested, Scrub/Shrub)	Distance to Waterbody (Linear Feet)	Description of Impact (purpose of road crossing, impoundment, culvert, etc.)	Impact Size (Acres or Square Feet)
1	See Supplemental Information			
2				
3				
4				

**TOTAL WETLAND IMPACTS (Linear Feet):** See Supplemental Information

**28 AUTHORIZATION OF AGENT/ACCESS:** I hereby authorize the Agent (listed in Block 3 of this application) to act in my behalf in the processing of this application and to furnish all information, drawings, maps, and supplemental information in support of this application. I hereby grant to the agencies to which this application is made, the right to access/come upon the above-described location(s) to inspect the proposed and completed work/activities.

*Signature of Applicant*

*Date*

**29 CERTIFICATION:** Application is hereby made for permit, or permits, to authorize the work and uses of the work as described in this application and all supporting documentation. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein, or I am acting as the duly authorized agent for the applicant."

*Signature of Applicant* *6/20/14*  
*Signature of Applicant* *Date*

*Signature of Agent*

*Date*

\* The application must be signed by the person who desires to undertake the proposed activity AND signed by a duly authorized agent, if the authorization statement in both Blocks 3 & 28 have been completed and signed. 18 USC Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

## ADJACENT PROPERTY OWNERS NOTIFICATION REQUIREMENT

Provide the name, physical address, and telephone number of ALL adjacent property owners.

This includes adjacent property owners with ownership located on both sides of the near stream bank AND/OR all other ownership on the waterway that may be affected by the proposed activities/project. Also, include homeowner or community associations within the proposed project area.

### CONTACT INFORMATION - OWNERSHIP NEAR STREAM BANK

#### DOWNSTREAM NOTIFICATION

Name:

Mailing Address:

City: State: Zip:

PH #:( ) E-mail:

#### UPSTREAM NOTIFICATION

Name:

Mailing Address:

City: State: Zip:

PH #:( ) E-mail:

### CONTACT INFORMATION - OWNERSHIP ON WATERWAY

Name: USDA Forest Service Salmon Challis National Forest

Mailing Address: HC 63 Box 1669 Hwy 93

City: Challis State: ID Zip: 83226

PH #:(208 ) 879-4100 E-mail:

Name: USDI Bureau of Land Management, Challis Field Office

Mailing Address: 1151 Blue Mountain Road

City: Challis State: ID Zip: 83226

PH #:(208 ) 879-6200 E-mail:

Name:

Mailing Address:

City: State: Zip:

PH #:( ) E-mail:

Name:

Mailing Address:

City: State: Zip:

PH #:( ) E-mail:

Name:

Mailing Address:

City: State: Zip:

PH #:( ) E-mail:

Name:

Mailing Address:

City: State: Zip:

PH #:( ) E-mail:

**Attach as many additional sheets as needed.**

**Supplemental Information to Joint Application  
for Permits**

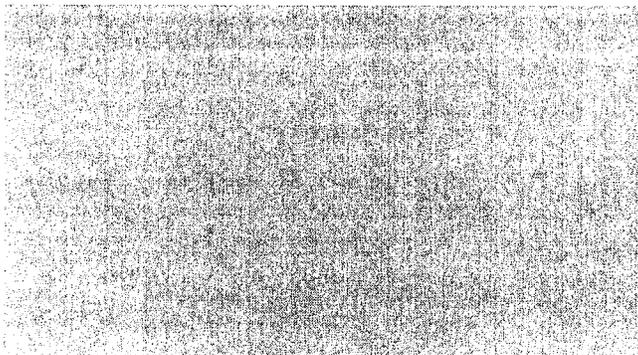
# Thompson Creek Mine 404 Permit

Thompson Creek Mining Company

*Custer County, Idaho*

**Revised**

**August 2014**





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## Appendices

- Appendix A – Permit Drawings
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## Acronyms

<b>Acronym</b>	<b>Definition</b>
APOO	Amended Plan of Operations
BLM	Bureau of Land Management
BR	Bruno Creek
EPA	Environmental Protection Agency
Forest Service	Salmon-Challis National Forest
GIS	Geographic Information System
GPS	Global Positioning System
IDEQ	Idaho Department of Environmental Quality
IDL	Idaho Department of Lands
MC	Mill Creek
OHWM	Ordinary High Water Mark
PH	Pat Hughes
TCMC	Thompson Creek Mining Company
USACE	United States Army Corps of Engineers
USFS	United States Forest Service
WB	West Fork of Bruno Creek



## Prospective Permittee

Thompson Creek Mining Company  
Contact: Bert Doughty, Environmental Manager  
P.O. Box 62  
Clayton, Idaho 83227  
(208) 838-2200

## Project Description

Since 1983, Thompson Creek Mining Company (TCMC) has mined molybdenum ore from an open pit, which is milled into molybdenum concentrates for transportation offsite and subsequent processing. Tailings, a residual product of milling, are piped in slurry from the mill to the tailings impoundment located in the Bruno Creek drainage.

In 2008, Thompson Creek Mining Company (TCMC) submitted an Amended Plan of Operations (APOO) to the Bureau of Land Management (BLM) Challis Field Office, the U.S. Forest Service (USFS), Salmon-Challis National Forest (Forest Service), and other cooperating agencies for an expansion (extension of mine life) of the Thompson Creek Molybdenum Mine. Implementation of the APOO requires the U.S. Army Corps of Engineers (USACE) to issue a permit under Section 404 of the Clean Water Act to discharge fill materials into waters of the United States in relation to the APOO.

The BLM, Forest Service, and USACE will cooperate to prepare a single EIS which will be the basis for the agencies to issue decisions in response to TCMC's proposed actions. The Environmental Protection Agency (EPA), Idaho Department of Environmental Quality (IDEQ), and Idaho Department of Lands (IDL) will also cooperate in the preparation of the EIS to ensure that the Preferred Alternative is in compliance with the relevant laws, regulations, and policies.

This document contains specific information in support of the Joint Application for Permits (Section 404 Permit application).

## Block 9 – Nearest Waterway/Waterbody

Four creeks were identified that will be impacted by future mining expansion. Pat Hughes Creek is an existing waste rock storage facility, which will be enlarged during Phase VIII of mining operations. Bruno Creek and the West Fork of Bruno Creek will be impacted by the expansion of the Mine Tailings Impoundment Structure (tailings impoundment), which will raise the level of the tailings to elevation 7,742 feet. The reclamation plan shows that the closure cover crest of the tailings impoundment will be elevation 7,752 feet. Mill Creek, which is located below the downstream slope of the tailings impoundment, will also be impacted by the expansion, which will increase the footprint of the tailings impoundment and during post closure reclamation activities. The stream configuration of each drainage is described below:

- **Pat Hughes Creek:** The headwaters of Pat Hughes Creek are located north of the mine shops and parking area, which interrupt the channel until it daylights again below the Pat Hughes waste rock storage facility. From there, the creek flows into treatment ponds before



discharging into Thompson Creek, approximately four miles above the confluence with the Salmon River.

- **Bruno Creek:** The headwaters of Bruno Creek are located above the tailings impoundment. During spring, runoff water is diverted around the tailings impoundment before it discharges into Squaw Creek, approximately 3.5 miles upstream from its confluence with the Salmon River. West Fork of Bruno Creek, Hawks Nest, and an unnamed creek are also located within the Bruno Creek drainage.
- **Mill Creek:** Mill Creek (named by TCMC) was historically a tributary to Bruno Creek, which now flows into a small sediment basin before entering the water treatment ponds at the toe of the tailings impoundment. From there, the water is pumped back into the tailings impoundment.

## Block 12 – Project Location

The project area lies within portions of the following sections:

### Pat Hughes Drainage

- Section 11 of Township 11 North, Range 16 East
- Section 14 of Township 11 North, Range 16 East

### Bruno Creek

- Section 25 of Township 12 North, Range 16 East
- Section 36 of Township 12 North, Range 16 East
- Section 01 of Township 11 North, Range 16 East

### Mill Creek

- Section 01 of Township 11 North, Range 16 East
- Section 06 of Township 11 North, Range 17 East

## Block 13 – Estimated Start Date

The drainages associated with the tailings impoundment (Bruno Creek, West Fork of Bruno Creek, and Mill Creek) will be impacted between the years 2014 and 2025.

The Phase VIII expansion of the existing waste rock storage facility at Lower Pat Hughes Creek will occur between 2014 and 2025.

## Block 14 – Describe Intended Use

Since 1983, TCMC has mined molybdenum ore from an open pit. The mine is in the process of initiating Phase VIII, which will impact existing wetlands and stream channels associated with the tailings impoundment and waste rock facilities. See Block 20 for specific project activities.



## Block 15 – Have All Adjacent Property Owners Been Notified Of Proposed Activity or Project?

Yes, please refer to application form. The Forest Service and BLM are jointly preparing an EIS for the project with other cooperating agencies.

## Block 16 – Check Box if Alteration(s) are Located on Public Trust Lands Administered by State of Idaho Department of Lands

Yes, this Joint Application for Permit will be submitted to Idaho Department of Water Resources and State of Idaho Department of Lands.

## Block 17 – Directions to Project Site

The mine is 7 miles northwest of Clayton and 21 miles southwest of Challis in Custer County, Idaho. (see figures in Appendix B). From Challis, drive south on State Highway 75. The TCMC bridge, which crosses the Salmon River, is located between mileposts 219 and 220. The project area is contained on the Thompson Creek USGS 7.5-minute quadrangle.

## Block 18 – Has Work Began on this Project/Activity

No work that would fall under this Permit application has started.

## Block 19 – Previously Issued Permit Authorizations

- USACE issued a Nationwide Permit 44 (NWW-2008-00579) to TCMC on April 1, 2014. This Permit was issued for the construction of a cutoff wall in the Pat Hughes drainage.
- USACE issued a Nationwide Permit 39 (NWW-2008-00579) to TCMC on January 27, 2009. This Permit was issued for a new access road around the tailings impoundment structure.
- USACE issued Nationwide Permit No. 042100119, USACE on November 10, 2004. This Permit was issued for construction work in the Buckskin, Pat Hughes, and two unnamed creeks.

Other Permits that have been issued:

- Operating Permit, ID-040-1-02, USDI Bureau of Land Management, 4/15/1981
- Operating Permit, USDA Forest Service, 12/1980



- Reclamation Permit, RP-655, Idaho Department of Lands, 11/12/1980

## Block 20 – Type, Material and Amount Being Discharged Below the Ordinary High Water Mark

### **Bruno Creek, West Fork of Bruno Creek, Bruno Creek Tributaries, and Mill Creek**

Tailings, as a residual product of milling, are piped in slurry from the mill to the tailings impoundment. Bruno Creek and the West Fork of Bruno Creek and two small tributaries on the west side of the impoundment will become submerged by additional tailings up to elevation 7,742 feet and the reclamation plan shows that the closure cover crest of the tailings impoundment will be elevation 7,752 feet. Portions of Mill Creek will be impacted because the overall footprint of the downstream slope of the tailings impoundment will increase and reclamation work in the upper portions of Mill Creek.

### **Pat Hughes Creek**

The mine generates large volume of waste rock, which is transported by trucks and placed into the lower Pat Hughes drainage. The footprint of the lower Pat Hughes waste rock facilities will increase.

#### **Methodology for Calculating Material Amount**

Channel configuration data (ordinary high water mark (OHWM) and channel width) were collected during the field work for the Wetland and Ordinary High Water Mark Delineation Report in 2009 and 2010. The OHWM and channel width data was recorded for distinct segments of each channel. For example, data was recorded in the field as OHWM equals 2 to 3 feet; channel width equals 5 to 7 feet. The length of each segment was measured with ArcGIS. For the purposes of calculating the amount of material that will fill each channel, it was assumed that each channel is rectangular and the average of the recorded dimensions was used to calculate the volume. For example, if the OHWM depth equals 2 to 3 feet, channel width equals 5 to 7 feet, and the segment is 275 feet long, then the volume would be 2.5 feet by 6 feet by 275 feet, which equals 4,125 cubic feet (153 cubic yards).

### **Squaw Creek**

Approximately 5 cubic yards of fill material will be used along Squaw Creek to stabilize eroded stream bank.

Impacts summarized in the table below.



<b>Block 20</b>		
<b>Stream</b>	<b>Material Type</b>	<b>Cubic yards</b>
Bruno Creek, West Fork Bruno Creek, unnamed tributary, and Hawks Nest (Phase 8 reclamation boundary to impoundment)	Tailings/Reclamation fill	520.2
Mill Creek (tailings impoundment and reclamation)	Tailings/Reclamation fill	511.8
Lower Pat Hughes Creek (waste rock storage facility below shops and parking area)	Waste Rock	457.6
Squaw Creek	Fill material for stream bank stabilization	5.0



## Block 21 – Surface Area in Acres of Wetland or Other Waters Filled

The surface area of wetlands was determined by collecting GPS data along the edges of each wetland. The resulting polygons were processed with ArcGIS to calculate their areas. The surface area of other streams was calculated similarly to the calculation of the volume described in Block 20. The average width, which was recorded in the field, multiplied by the length of that segment, which was measure with ArcGIS.

Block 21		
Stream	Wetland Surface Area (acres)	Stream Channel Surface Area (acres)
Bruno Creek, West Fork Bruno Creek, unnamed tributary, and Hawks Nest	0.21	0.29
Mill Creek	2.93	0.29
Lower Pat Hughes Creek	0.26	0.27

## Block 22 – Size and Flow Capacity of Bridge or Culvert & Drainage Area Served

N/A

## Block 23 – Is Project Located in a Mapped Floodway

No.

## Block 24 – Overall Description & Purpose of Project to Waters of U.S., Including Wetlands

TCMC mines molybdenum ore from an open pit, which is milled into molybdenum concentrates for transportation offsite and subsequent processing. Tailings, a residual product of milling, are piped in slurry from the mill to the tailings impoundment located in the Bruno Creek drainage. The expansion of the tailings impoundment will increase its footprint and partially fill the Mill Creek drainage, which is located along the southwestern downstream slope of the tailings impoundment. Current mining activities also generate waste rock, which is transported by trucks and placed into the Buckskin and Pat Hughes drainages. During preproduction stripping, when the mine first started operating in the early 1980s, overburden was also placed into these two drainages. The Phase VIII expansion will increase the footprint of the Pat Hughes waste rock facility.

See dimensions of the proposed activities and their impacts on wetlands and stream channels in Block 26 and 27 below.



## Block 25a – Describe Measures Taken to Avoid, Minimize, Compensate for Impacts to Waters of the United States, Including Wetlands

See attached 404 (b)(1) Analysis in Appendix B.

## Block 25b – Proposed Mitigation Plan

See attached conceptual Mitigation Plan in Appendix C.

## Block 26 – List Each Impact to Stream, River, Lake, Reservoir, including Shoreline

Block 26					
Activity Number	Name of Waterbody	Seasonal or Perennial	Avg. Stream Width (feet)	Description of Impact (road crossing, impound, culvert, etc.)	Impact Length (linear feet)
1	Bruno Creek, West Fork Bruno Creek, unnamed tributary, and Hawks Nest	Perennial	4.0	Tailings Impoundment	3,215
2	Mill Creek	Perennial	2.9	Tailings Impoundment	4,397
3	Lower Pat Hughes Creek	Perennial	4.0	Waste rock storage facility	3,029
TOTAL STREAM IMPACTS (Linear Feet): 10,641					



## Block 27 – List Each Wetland Impact

Block 27					
Activity Number	Reference Numbers from Delineation Report	Wetland Type (emergent, forested, scrub/shrub)	Distance to Waterbody (linear feet)	Description of Impact (purpose of road crossing, impoundment, culvert, etc.)	Impact Size (acres or square feet)
1	BR1	Palustrine Forested	Immediately adjacent	Tailings Impoundment	0.036
2	BR Pond	Open Water	N/A	Tailings Impoundment	0.026
3	BR2	Palustrine Forested	Immediately Adjacent	Tailings Impoundment	0.032
4	WB1	Palustrine Forested	Immediately adjacent	Tailings Impoundment	0.025
5	WB2	Palustrine Forested	Immediately adjacent	Tailings Impoundment	0.108
6	WBWet1	Palustrine Emergent	Immediately adjacent	Tailings Impoundment	0.004
7	WBWet2	Palustrine Emergent	Immediately adjacent	Tailings Impoundment	0.003
8	MC1	Palustrine Emergent	Immediately adjacent	Tailings Impoundment/Reclamation	0.217
9	MC3	Palustrine Emergent	Immediately adjacent	Tailings Impoundment/Reclamation	0.21
10	MC4	Palustrine Emergent	Immediately adjacent	Tailings Impoundment/Reclamation	0.796
11	MC5	Palustrine Emergent	Immediately adjacent	Tailings Impoundment/Reclamation	0.127
12	MC6	Palustrine Emergent	Immediately adjacent	Tailings Impoundment/Reclamation	0.811
13	MC7	Palustrine Emergent	Immediately adjacent	Tailings Impoundment/Reclamation	0.153
14	MC8	Palustrine Emergent	Immediately adjacent	Tailings Impoundment/Reclamation	0.406
15	MC9	Palustrine Emergent	Immediately adjacent	Tailings Impoundment/Reclamation	0.203
16	MC Seep	Seep	Immediately adjacent	Tailings Impoundment/Reclamation	0.002
17	PH Trib Seep	Palustrine Emergent	Immediately adjacent	Waste rock storage facility	0.05
18	PH1	Palustrine Emergent	Immediately adjacent	Waste rock storage facility	0.21

**TOTAL WETLAND IMPACTS: 3.393 acres**  
(Total does not include open Water)

BR = Bruno Creek  
WB = West Fork Bruno Creek  
PH = Pat Hughes Creek  
MC = Mill Creek