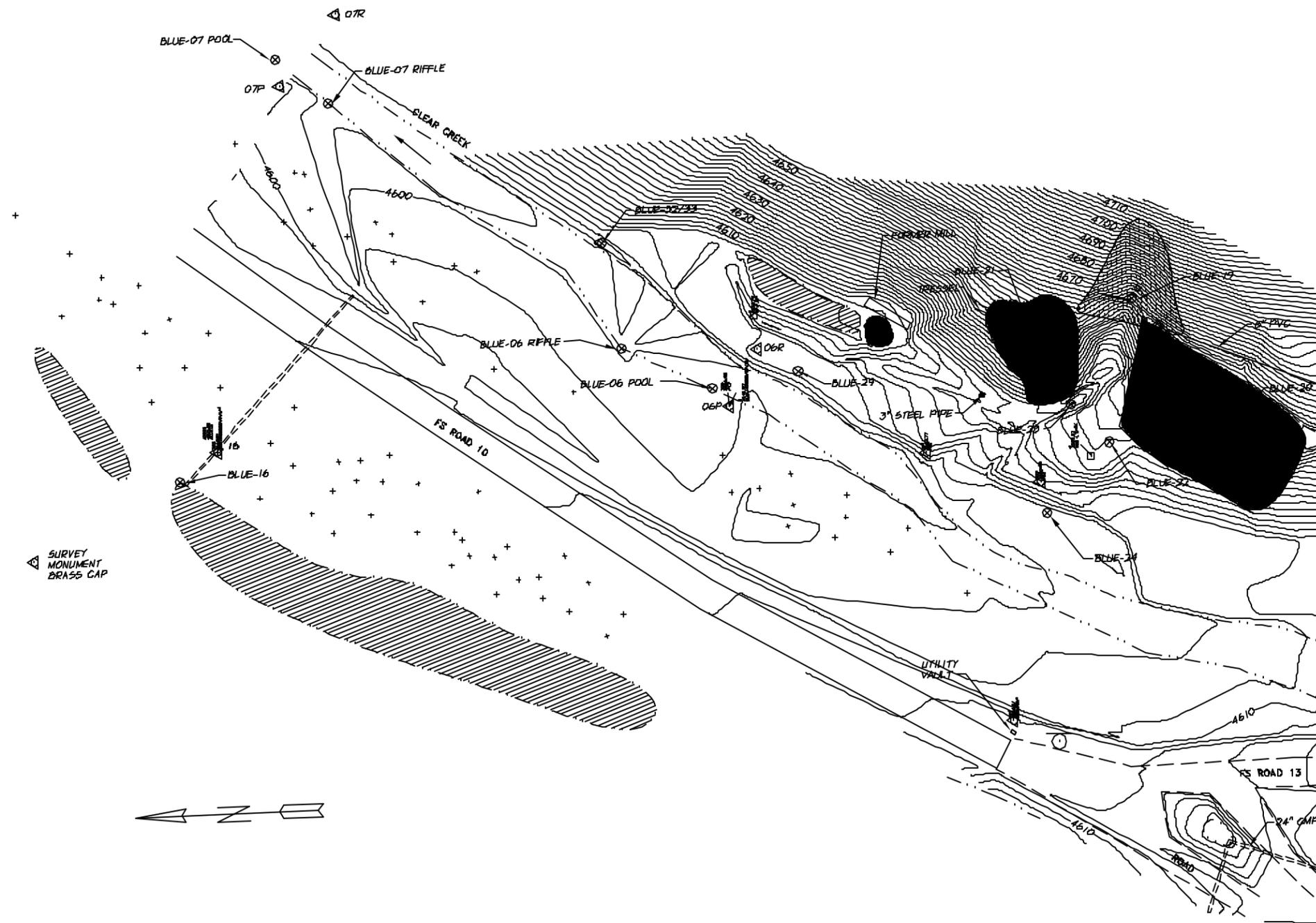


Figures

NOTE: SAMPLE LOCATIONS BLUE-08 RIFFLE AND BLUE-08 POOL ARE LOCATED 40'-50' NORTH-EAST OF BLUE-07 POOL AND ARE NOT PICTURED ON THIS MAP



- LEGEND**
- 5520— EXISTING INDEX CONTOUR
 - EXISTING INTERMEDIATE CONTOUR
 - + DREDGE TAILINGS
 - ⊗ SAMPLE LOCATION AND NO.
 - △ 07R APA ALUMINUM CAP WITH SURVEY MARKER NO., ELEVATION, AND DESCRIPTION (07 = SAMPLE LOCATION, P OR R = POOL OR RIFFLE)
 - APA CONTROL POINT NO., ELEVATION AND DESCRIPTION
 - ⊥ SIGN
 - COLLAPSED PORTAL
 - 8" PVC CLEANOUT
 - 8" PVC PIPE - APPROXIMATE LOCATION
 - 24" CULVERT
 - WASTE ROCK PILE
 - ▨ EXCAVATION
 - ▨ POND
- HORIZ. DATUM NAD83 (1991) OREGON STATE PLANE SOUTH ZONE
 VERT. DATUM NAVD83



Figure 1a. NORTHERN PORTION OF BLUEBIRD MINE SITE



DRAWING NAME: \\13890.16\FIGURES\BLUEBIRD\FIG1a08b.DWG
 DATE: 1/25/2003 TIME: 14:45 DRAWN BY: EJM

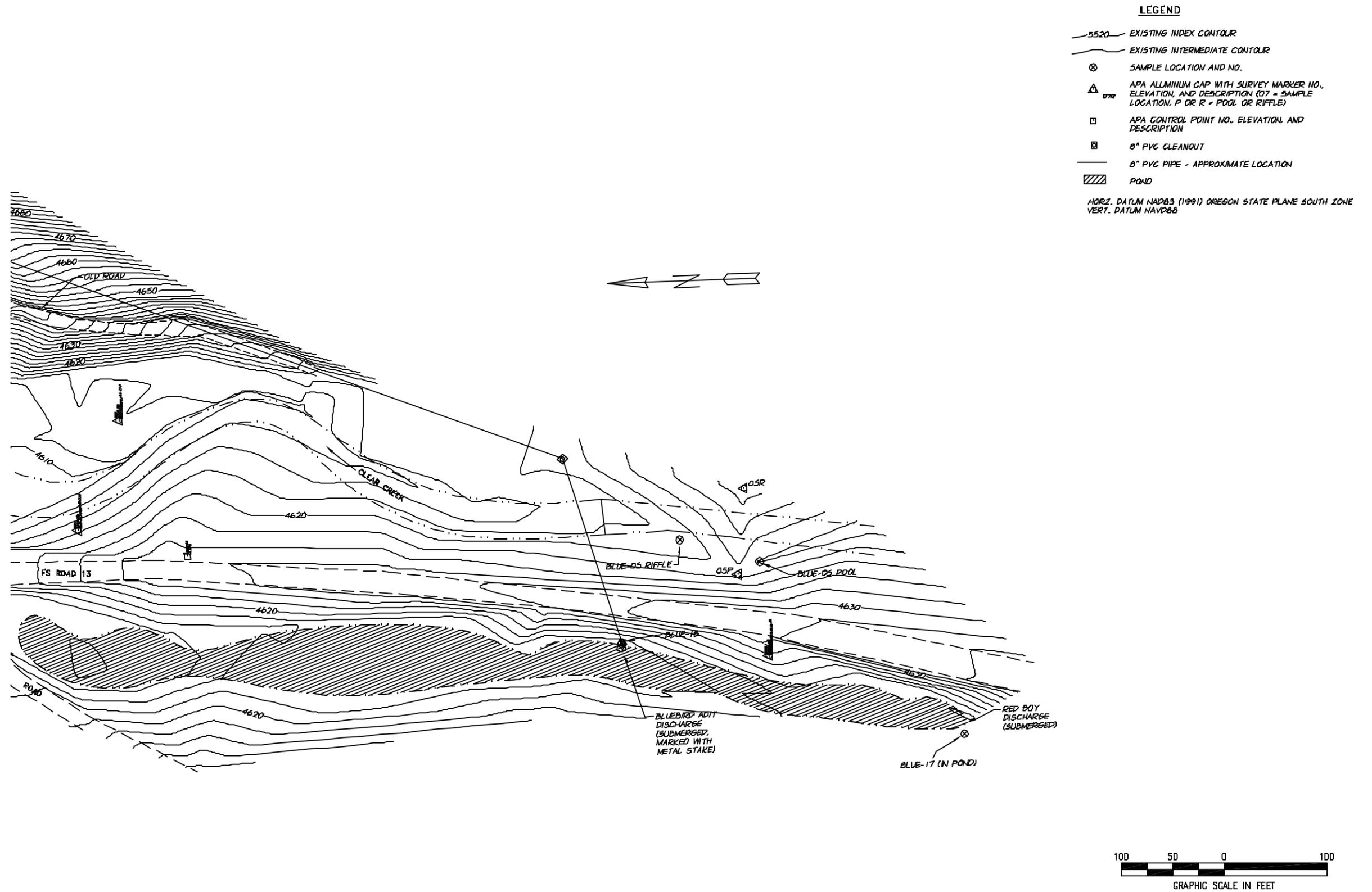


Figure 1b. SOUTHERN PORTION OF BLUEBIRD MINE SITE



DRAWING NAME: \\13890.16\FIGURES\BLUEBIRD\FIG1086b.DWG
DATE: 1/25/2003 TIME: 14:45 DRAWN BY: EJM

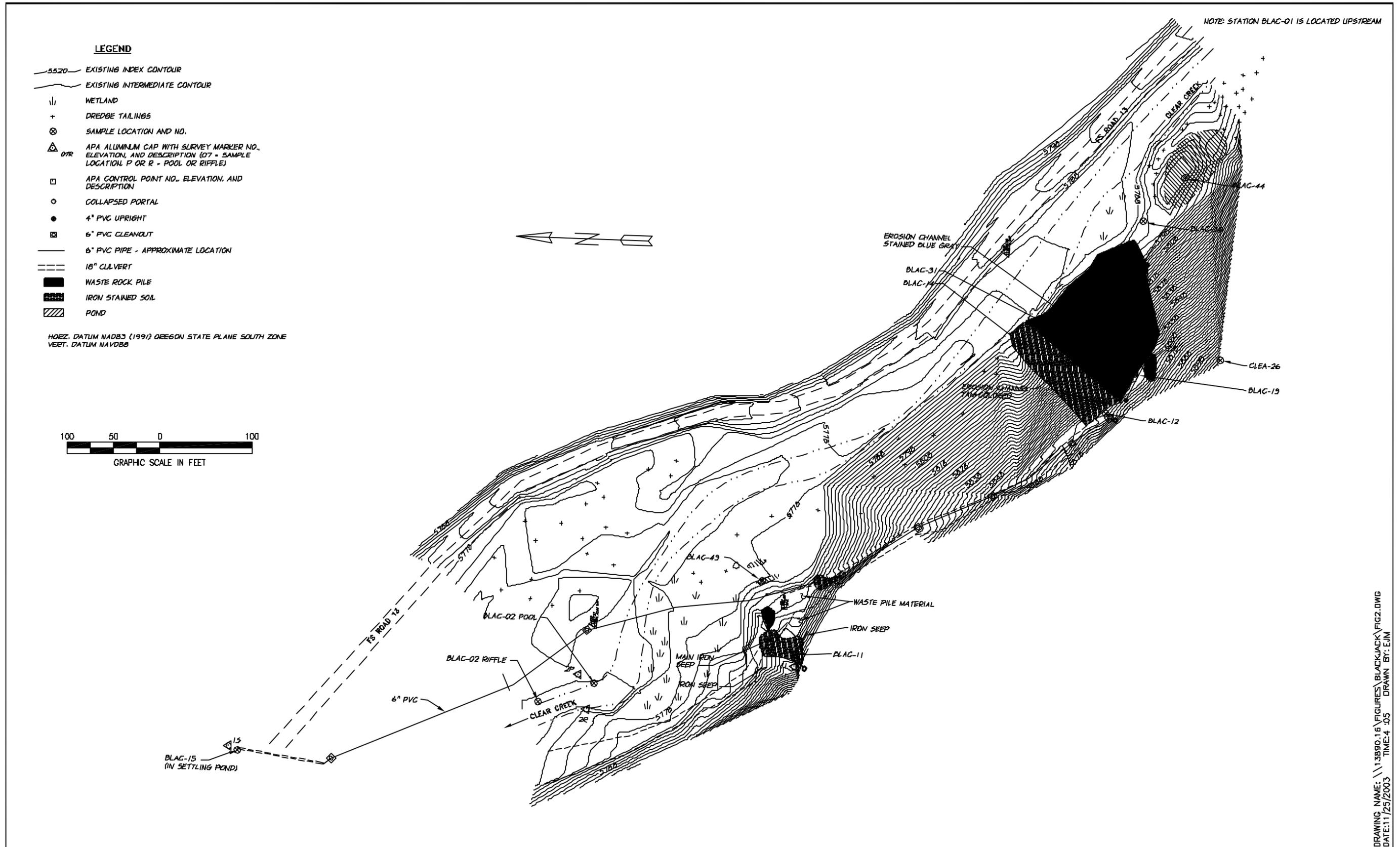


Figure 2. BLACKJACK MINE SITE

DRAWING NAME: \\13890.16\FIGURES\BLACKJACK\FIG2.DWG
 DATE: 1/25/2003 TIME: 4:05 DRAWN BY: EJM



Tables

Table 1. Sensitive and Listed Animal Species Potentially Occurring in Grant County, OR

Species	Federal and (State) Status	Habitat and Action to be Taken
BIRDS		
Bald Eagle	LT, (LT)	Unlikely since insufficient water nearby
Black-backed woodpecker	(SC)	High elevation forest
Boreal Owl	(SU)	High elevation forest
Flammulated Owl	(SC)	Ponderosa Pine
Great Gray Owl	(SV)	High elevation forest
Lewis's Woodpecker	SoC, (SC)	Forested areas
Loggerhead Shrike	(SV)	Lower elevations
Northern Goshawk	SoC, (SC)	Will be checked in Heritage database
Northern Pgymy Owl	(SC)	Forested areas
Peregrine Falcon	(LE)	Will be checked in Heritage database
Pileated Woodpecker	(SV)	Forested areas
Pine grosbeak	(S2?)	High elevation forest
Pygmy Nuthatch	(SC/SV)	Ponderosa Pine
Olive-sided Flycatcher	SoC, (SV)	Forested areas
Three-toed Woodpecker	(SC)	High elevation forest
Willow Flycatcher	SoC, (SU)	Riparian areas
White headed Woodpecker	SoC, (SC)	Ponderosa Pine
MAMMALS		
Big-eared Bat	SoC, (SC)	May use mine sites for roosting
Canada Lynx	LT	Unlikely to encounter
Fisher	SoC, (SC)	Unlikely to encounter
Fringed Bat	SoC, (SV)	May use mine sites for roosting
Hoary Bat	(S4?)	Unlikely to use mines
Hoary Bat	(S4?)	Unlikely to use mines
Long-eared Bat	SoC, (SU)	May use mine sites for roosting
Long-legged Bat	SoC, (SU)	May use mine sites for roosting
Marten	(SV)	Unlikely to encounter
Pallid Bat	SoC, (SV)	Lower elevation
Preble's shrew	SoC	Unlikely at over 5000 ft.
Pygmy Rabbit	SoC, (SV)	Lower elevation
Silver-haired bat	SoC, (SU)	Unlikely to use mines
Small-footed Bat	SoC, (SU)	May use mine sites for roosting
Wolverine	SoC, (LT)	Will be checked in Heritage database
Yuma Bat	SoC	May use mine sites for roosting
REPTILES AND AMPHIBIANS		
Spotted Frog (<i>Rana luteiventris</i>)	-, (SU)	ONHIC shows on Granite Creek
Painted Turtle (<i>Chrysemys picta</i>)	-, (SC)	

Northern Sagebrush Lizard	SoC, (SV)	Elevation on Clear Creek may be too high
FISH		
Inland redband (rainbow) trout (<i>Oncorhynchus mykiss</i>)	SoC, (SV)	
Malheur mottled sculpin (<i>Cottus bendirei</i>)	SoC, (SC)	Unlikely in Clear Creek.
Westslope cutthroat trout (<i>Oncorhynchus clarki lewisi</i>)	SoC, (SV)	
Bull trout (<i>Salvelinus confluentus</i>)	SoC, (SC)	Unlikely in Clear Creek.
<p>NOTE: LE = Listed Endangered, state or federal. LT = Listed Threatened, state or federal. SoC = Federal Species of Concern; under review by US Fish and Wildlife Service. Oregon Fish and Wildlife Commission, Sensitive Species: S2 = Imperiled. SC = Critical, listing is pending or may be appropriate. SV = Vulnerable; population declining, but listing not imminent. SP = Peripheral or naturally rare. SU = Undetermined status. Source: Oregon Natural Heritage Program (2001).</p>		

Table 2. Wildlife and Fish Species Observed at the Bluebird and Blackjack Mines, July 2003

<u>Scientific Name</u>	<u>Common Name</u>	<u>Comments</u>
BIRDS		
<i>Ardea herodias</i>	Great Blue Heron	Post-breeding juvenile bird
<i>Anas platyrhynchos</i>	Mallard	Ducklings seen
<i>Branta canadensis</i>	Canada Goose	Goslings seen with adults
<i>Accipiter</i> sp.	Cooper's/ Sharp-shinned	Seen once en-route
<i>Ceryle halcyon</i>	Belted Kingfisher	Nest found by BLAC-03
<i>Actitis macularia</i>	Spotted Sandpiper	Several pairs on site
<i>Chaetura vauxi</i>	Vaux's Swift	Fly over one day
<i>Chordeiles minor</i>	Common Nighthawk	Fly over one day
<i>Picoides villosus</i>	Hairy woodpecker	Heard calling on hillside
<i>Sphyrapicus nuchalis</i>	Red-naped Sapsucker	Heard calling on hillside
<i>Colaptes auratus</i>	Northern Flicker	Seen on hillside
<i>Contopus cooperi</i>	Olive-sided Flycatcher	Heard calling on hillside
<i>Sitta canadensis</i>	Red-breasted nuthatch	Heard in forest
<i>Poecile gambeli</i>	Mountain chickadee	Heard in forest
<i>Regulus satrapa</i>	Golden-crowned Kinglet	Heard in forest
<i>Cinclus mexicanus</i>	Dipper	Several pairs on stream
<i>Cyanocitta stelleri</i>	Steller's Jay	Fly over
<i>Corvus corax</i>	Common Raven	Fly over
<i>Turdus migratorius</i>	American Robin	Present along stream
<i>Piranga ludoviciana</i>	Western Tanager	Heard calling in conifers
<i>Dendroica coronata</i>	Audubon's Warbler	Territorial defense on hillside
<i>Oporornis tolmiei</i>	MacGillivray's Warbler	Present along stream
<i>Melospiza lincolni</i>	Lincoln's Sparrow	Present along stream
<i>Melospiza melodia</i>	Song sparrow	Present along stream
<i>Junco hyemalis</i>	Dark-eyed Junco	Present on hillside
MAMMALS		
<i>Microtus</i> sp.	Vole species	Seen in grass by BLAC-42
<i>Ochotona princeps</i>	Pika	Seen in placer rocks
<i>Odocoileus hemionus</i>	Mule Deer	Signs
REPTILES AND AMPHIBIANS		
<i>Thalanoza</i>	Garter snake	
<i>Ambystoma macrodactylum</i>	Long-toed Salamander	
<i>Rana luteiventris</i>	Spotted Frog	
FISH		
<i>Oncorhynchus tshawytscha</i>	Chinook salmon	
<i>Oncorhynchus mykiss</i>	Redband trout	
<i>Cottus rhotheus</i>	Torrent sculpin	
<i>Rhinichthys osculus</i>	Speckled dace	
<i>Cottus beldingi</i>	Paiute sculpin	
INVERTEBRATES		
<i>Procambrus</i> ??	Crayfish sp.	
Unknown sp.	Freshwater clam	

Table 3. Sensitive Plant Species, North Fork John Day Ranger District, Umatilla National Forest, 2001

Scientific Name	Sensitive Track ¹	Habitat and Status	Symbol (Plants)
<i>Allium campanulatum</i>	HSO		ALCA2
<i>Allium madidum</i>	HSO		ALMA6
<i>Allium tolmiei platyphyllum</i>	HSO		ALTOP2
<i>Allium validum</i>	HSO		ALVA
<i>Astragalus reventus</i>	HSO		ASRE5
<i>Botrychium crenulatum</i>	PSO	R, MWM	BOCR
<i>Botrychium lanceolatum</i>	PSO	R, MWM	BOLA
<i>Botrychium lunaria</i>	PSO	R, MWM	BOLU
<i>Botrychium minganense</i>	PSO	R, MWM	BOMI
<i>Botrychium montanum</i>	PSO	R, MWM	BOMO
<i>Botrychium paradoxum</i>	PSO	R, MWM	BOPA9
<i>Botrychium pedunculatum</i>	PSO	R, MWM	BOPE4
<i>Botrychium pinnatum</i>	PSO	R, MWM	BOPI
<i>Botrychium simplex</i>	HSO		BOSI
<i>Calypso bulbosa</i>	HSO		CABU
<i>Castilleja glandulifera</i>	HSO		CAGL10
<i>Carex interior</i>	PSO	R, MWM	CAIN11
<i>Calochortus longebarbatus longebarbatus</i>	PSO		CALOL
<i>Corallorrhiza trifida</i>	HSO		COTR3
<i>Cypripedium montanum</i>	HSO		CYMO2
<i>Eriogonum thymoides</i>	HSO		ERTH4
<i>Lupinus burkei s. burkei</i>	HSO		LUBUB
<i>Lycopodium annotinum</i>	HSO		LYAN2
<i>Mimulus washingtonensis</i>	HSO		MIWA2
<i>Orobanche pinorum</i>	HSO		ORPI2
<i>Pedicularis bracteosa pachyrhiza</i>	HSO		PEBRP
<i>Penstemon pennellianus</i>	HSO		PEPE11
<i>Polystichum lemmonii</i> ²	HSO		POLE5
<i>Ribes hudsonianum</i>	HSO		RIHU
<i>Ribes oxyacanthoides s. cognatum</i>	HSO		RIOXC
<i>Silene scaposa scaposa</i>	HSO		SISCS
<i>Trifolium douglasii</i>	PSO		TRDO
<i>Trifolium plumosum s. plumosum</i>	HSO		TRPLP

Scientific Name	Sensitive Track ¹	Habitat and Status	Symbol (Plants)
Habitat Key:			
A = Alpine.	L = Lithosols.		
G = Grassland.	RCB = Rock outcrops, cliffs, or bluffs.		
R = Riparian, Aquatic.	CF = Conifer Forest		
MWM = Moist and Wet Meadows.			
X = Potentially Occurring on Site (Elevation and status known)			
X?? = Status unknown at Site			
OBS = Observed on site			
?? = Not observed but surveys incomplete.			
FedStat = US Fish and Wildlife Service Status.			
LT = Listed Threatened.			
C = Candidate.			
Doc = Documented. Reported sighting in the Wallowa-Whitman National Forest.			

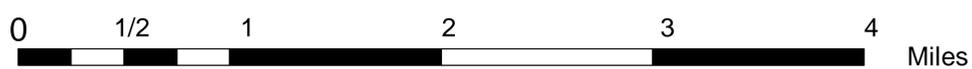
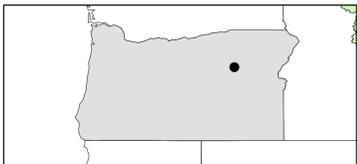
Table 4. Plant Species Observed at Bluebird and Blackjack Mines, July 2003

<u>Scientific Name</u>	<u>Common Name</u>
Trees	
<i>Abies amabilis</i>	Silver Fir (planted)
<i>Abies grandis-concolor</i>	Grand Fir Successional
<i>Alnus rubra</i>	Red alder
<i>Larix occidentalis</i>	Larch (on hillside)
<i>Picea engelmannii</i>	Spruce
<i>Pinus contorta</i>	Lodgepole Pine
<i>Pinus ponderosa</i>	Ponderosa Pine
<i>Populus sp.</i>	Cottonwood
<i>Pseudotsuga menziesii</i>	Douglas fir
<i>Salix sp</i>	willow species (not flowering)
Woody Shrubs	
<i>Amelanchier alnifolia</i>	Serviceberry/ Saskatoon
<i>Arctostaphylos uva-ursi</i>	Kinickinick
<i>Ceanothus velutinus</i>	Chapparal (could be a different species)
<i>Cornus stolonifera</i>	Red-osier Dogwood
<i>Lonicera involucrata</i>	Twinberry
<i>Lupinus sp.</i>	Lupine species
<i>Pachistima sp.</i>	Groundcover Oregon boxwood species
<i>Prunus virginiana</i>	Wild cherry
<i>Ribes sp</i>	Swamp gooseberry, likely <i>lacustre</i>
<i>Ribes sp.</i>	Red currant
<i>Sambucus cerulea</i>	Blue elderberry
<i>Sambucus canadensis</i>	Red elderberry
<i>Vaccinium scoparium</i>	whortleberry\ grouseberry
<i>Vaccinium sp.</i>	blueberry/ huckleberry sp. ()
Grasses and Forbs	
<i>Acontium sp.</i>	Larkspur species
<i>Allium sp.</i>	Wild onion species
<i>Aquilegia sp. (formosa ?)</i>	Columbine species
<i>Carex sp.</i>	Sedge species
<i>Castilleja sp.</i>	Paintbrush
<i>Claytonia sp. (lanceolata ?)</i>	Miner's lettuce/ Springbeauty species
<i>Delphinium sp.</i>	Larkspur species
<i>Juncus sp.</i>	Soft rush species, likely <i>effusus</i>
<i>Festuca sp.</i>	Fescue, likely <i>idahoensis</i>
<i>Epilobium spp.</i>	Fireweed Several species, likely <i>angustifolium</i>
<i>Fragaria sp (vesca and virginiana)</i>	Wild Strawberry
<i>Gallium sp.</i>	Bedstraw sp.
<i>Geum sp.</i>	Large-leaved Avens (likely <i>macrophyllum</i>)
<i>Goodyera oblongifolia</i>	Rattlesnake plantain
<i>Linnaea borealis</i>	Twinflower
<i>Mimulus sp. (guttatus?)</i>	Yellow monkeyflower
<i>Mimulus sp. (lewisii ?)</i>	Pink monkeyflower

Table 4 cont.

Scientific Name	Common Name
<i>Plancherella sp. (dilatata ?)</i>	White bog orchid
<i>Potentilla sp.</i>	Cinquefoil species
<i>Pterospora andromedea</i>	Pinedrops
<i>Ranunculus sp. (uncinatus?)</i>	Buttercup species
<i>Saxifrage sp.</i>	Saxifrage species
<i>Sedum sp.</i>	Stonecrop species
<i>Silene sp.</i>	Bladder campion species
<i>Thalictrum occidentale</i>	Meadowrue
<i>Trifolium sp.</i>	Clover species
<i>Viola sp.</i>	Violet species (no flowers present)

Plates



Source: Oregon Geospatial Data Clearinghouse - USGS Topo maps.



**BLUEBIRD/BLACKJACK
SITE INSPECTION
UMATILLA NATIONAL FOREST, OREGON**

**PLATE 1
SITE LOCATION WITH
1 AND 4 MILE RADII.**

PROJECT MGR:
GH

DESIGNED BY:
DC

CREATED BY:
DC

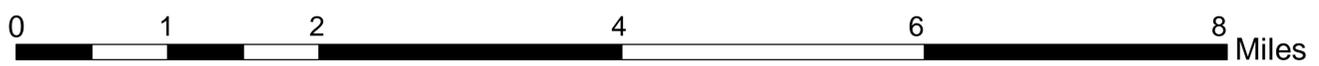
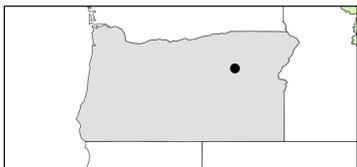
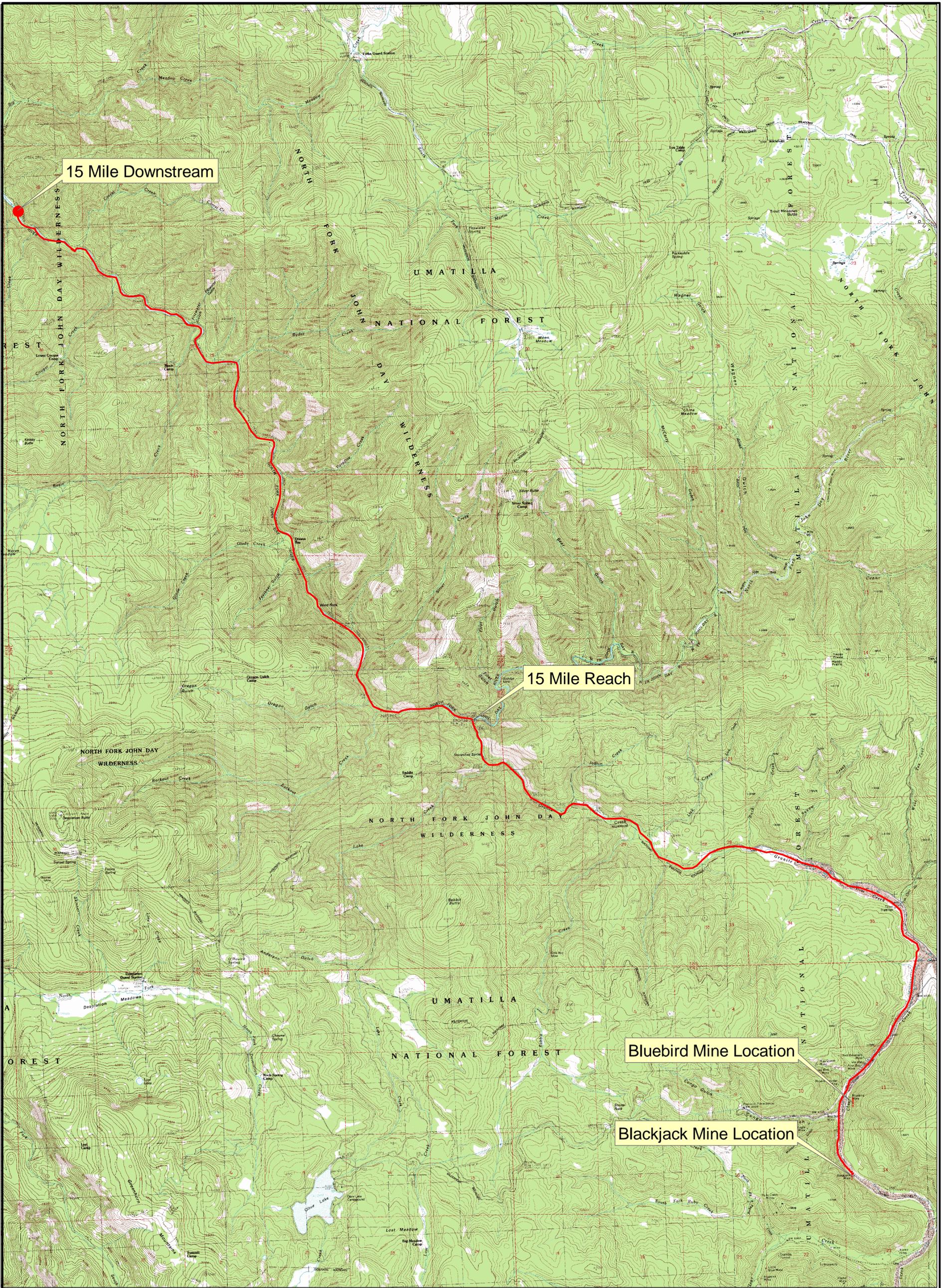
CHECKED BY:
JK

SCALE:
AS SHOWN

DATE:
23 SEPT 2003

PROJECT NO:
1389016

FILE NO:
I:\NFS\B&B
1AND4MILE.MXD



Source: Oregon Geospatial Data Clearinghouse - USGS Topo maps.



BLUEBIRD/BLACKJACK
SITE INSPECTION
UMATILLA NATIONAL FOREST, OREGON

PLATE 2
SITE LOCATION AND
15-MILE DOWNSTREAM REACH.

PROJECT MGR:
GH

DESIGNED BY:
DC

CREATED BY:
DC

CHECKED BY:
JK

SCALE:
AS SHOWN

DATE:
22 SEPT 2003

PROJECT NO:
1389016

FILE NO:
I:\NFS\B&B
15MILE.MXD

Appendix A

Deviations from the Project Plans

DEVIATIONS FROM THE PROJECT PLANS, BLUEBIRD AND BLACKJACK MINE SITES S

Matrix	Samples Proposed	Description	Samples Actually Collected	Rationale
Blackjack Mine				
Surface Water - Stream	4	Pools at ref, site, 2 downstream	4	As per Work Plan (Stations BLAC-01, 02, 03, 04)
Surface Water - Upper adit	1	at point of discharge into pond	1	As per Work Plan (Station BLAC-15)
Surface Water - Lower adit	1	at adit	1	As per Work Plan (Station BLAC-11)
Surface Water - Settling pond	1	at lower end of pond	1	As per Work Plan (Station BLAC-10)
Surface Water - Side channel	0		2	Added BLAC-41 and BLAC-42 in side channel
Surface Water - Lower adit	0		1	Added BLAC-43 in wetland where lower adit drains before reaching the creek
Pore Water - Stream	8	Riffles and pools ref, site, 2 downstream	6	As per workplan, except unable to obtain adequate sediment depth with PushPoint sampler in riffle habitat at Stations 01 and 02 (pore water collected in pools only).
Pore Water - Settling pond	1	at pond	0	Not sampled due to pond being uninhabited by fish.
Pore Water - Side channel	0	upstream of confluence with creek	1	Pore water sample taken from riffle only at BLAC-42.
Sediment - Stream	8	Riffles and pools ref, site, 2 downstream	6	Unable to obtain adequately fine sediment in the riffles at Stations 01 and 02.
Sediment - Side channel	0		3	Added BLAC-41 and BLAC-42 in side channel. Sediment was
Sediment - Lower adit wetland	0		1	Added BLAC-43 in wetland where lower adit drains before reaching the creek
Benthic	8	Riffles and pools ref, site, 2 downstream	9	One benthic sample was collected in the riffle at BLAC-42. A pore water sample was not collected here due to the uncharacteristic abundance of fine sediment.
Waste pile	4	2 surface/2 subsurface	1	Native soil interface beneath waste pile was not accessible using hand auger; only one subsurface sample collected; the homogeneity of the material (uniform 2-in Diameter crushed stone) throughout the WP mass and the difficulty in collecting material with particle diameter sufficiently small for analyses did not warrant collection of additional samples
Soil - Adit discharge (or settling pond)	1	surface	1	Collect subsurface sample
Downhill from WP	1	subsurface	2	Large WP; Sample at toe of erosion chute and at toe of Fe stained chute
Soil - Settling Pond	1	surface	1	As per Work Plan
Downhill from Break in Berm	0	subsurface	1	Break in berm observed; collect sample at toe of slope beneath break
Plant	2	Co-located with WP and settling pond soil samples	2	One plant sample was collected from the waste pile and one from the adit. No plants were located at the retention pond.

Matrix	Samples Proposed	Description	Samples Actually Collected	Rationale
Bluebird Mine				
Surface Water - Stream	5	Pools at ref, site, 3 downstream	4	With the Bluebird study area constrained with Red Boy Mine upstream and Mineral Wonder Mine downstream, the length of the study area did not require five locations to adequately characterize it. Therefore, Station BLUE-09 was eliminated.
Surface Water - Upper adit	1	at upper clean-out	1	As per Work Plan
Surface Water - Settling pond	3	downstream pond, Red Boy pipe, Bluebird pipe	3	As per Work Plan
Pore Water - Stream	10	Riffles and pools ref, site, 3 downstream	8	As per workplan, except Station BLUE-09 eliminated.
Pore Water - Settling pond	1	at pond	0	Not sampled due to pond being uninhabited by fish.
Sediment - Stream	10	Riffles and pools ref, site, 3 downstream	5	Unable to locate adequately fine sediment at the riffle locations at Stations BLUE 05, 06, and 07. BLUE-09 eliminated.
Sediment/Soil - Retention Pond	0	below adit near stream (orange/red material)	1	Sample was considered soil, though consisted of clay material and
Benthic	10	Riffles and pools ref, site, 3 downstream	8	BLUE-09 eliminated.
Large Waste pile	4	2 surface/2 subsurface	2	Native soil interface beneath waste pile was not accessible using hand auger; however two subsurface samples were collected to determine heterogeneity within WP material; one to the north of the adit and one to the south
Small Waste Pile	2	surface/subsurface	1	Native soil interface beneath waste pile was not accessible using hand auger; only surface sample collected; the similarity of surface and subsurface WP material did not warrant the collection of an additional sample
Soil - Adit discharge	1	surface/subsurface	1	As per Work Plan
Mine Drainage Sludge	1	surface	1	As per Work Plan, sampled in middle of drainage channel
Downhill from WP	1	subsurface	2	One downhill sample at toe of upper WP and one downhill sample at toe of lower waste pile; to isolate contribution of both WP's
Soil - Settling Pond	0	surface	1	To determine what was in the settlement pond
Downhill from settlement pond	0		1	To isolate contribution from settlement pond
Old crusher	0	surface	1	Possible old crusher discovered by upper WP; Soils adjacent to crusher potential "hot spot"; sampled soil to determine if "hot spot" or not
Black stained soil	0	subsurface	1	As per discussions with Dennis
Beneath black stained soil	0	subsurface	1	As per discussions with Dennis
Plant	3	Co-located with large and small WP and the retention pond	2	Inadequate volume of plant tissue at the lower waste pile. No plants were located at the retention pond.
Background Samples (Clear Creek)				
Soil	2	Outside of the influence of the mines	2	As per Work Plan

Matrix	Samples Proposed	Description	Samples Actually Collected	Rationale
Plant	2	Co-located with the soil	2	As per Work Plan
Blackjack Spill Response				
Surface Water - Stream	4	Pools at Stations 1,2,3, and 5	4	As per Work Plan
Pore Water - Stream	4	Pools at Stations 1,2,3, and 5	4	As per Work Plan
Sediment - Stream	8	Riffles and pools at Stations 1,2,3 and 5	7	Unable to obtain adequately fine sediment at some riffle locations BLUE-5A eliminated.
Benthic	8	Riffles and pools at Stations 1,2,3 and 5	8	As per Work Plan
General				
Because Clear Creek is a relatively swift stream with moderate depths, seining efforts were limited to those areas where the biologist could access and successfully deploy the seine.				

Appendix B

Site Photographs

SITE PHOTOGRAPHS



Photo 1

Date: 7/20/03
Time: 1550

Sample location in former mine drainage viewed from Clear Creek.



Photo 2

Date: 7/20/03
Time: 1552

Close-up of BLUE 23 sample location.



Photo 3 Date: 7/20/03 Sample in retention pond.
Time: 1625



Photo 4 Date: 7/20/03 Overview of retention pond.
Time: 1627



Photo 5

Date: 7/20/03
Time: 1650

Sample location at crusher.



Photo 6

Date: 7/20/03
Time: 1715

Adit drainage route below mouth. Location of wild strawberry (*Fragaria* sp.) collection



Photo 7 Date: 7/24/03 Sample location 32/33 showing orange and black staining.
Time: 0945



Photo 8 Date: 7/24/03 Staining along shoreline immediately north of BLUE-32/33 sample locations.
Time: 0945



Photo 9 Date: 7/24/03 Sample location 32/33 showing black and orange staining, facing north -
Time: 0947 northeast.



Photo 10 Date: 7/24/03 Background sample for Clear Creek, upgradient and north of sample BLUE-
Time: 1015 23/33 on hillside. Shows open forest and extensive grassy understory.



Photo 11 Date: 7/20/03 Sample location BLUE-08 in a pool on Clear Creek.
Time: 1500



Photo 12 Date: 7/20/03 A riffle on Clear Creek.
Time: 1500



Photo 13

Date: 7/20/03
Time: 1500

The view looking downstream on Clear Creek.



Photo 14

Date: 7/20/03
Time: 1500

The view looking upstream on Clear Creek.



Photo 15 Date: 7/20/03 Remnant of placer mining removal adjacent to Clear Creek with restoration
Time: 1500 planting.



Photo 16 Date: 7/20/03 The view from below Bluebird Mine showing the new road and a residual
Time: 1550 rockpile from the restoration project.



Photo 17 Date: 7/20/03 Riffle sample location BLUE-07 looking upstream.
Time: 1630



Photo 18 Date: 7/21/03 Closeup of pore water sampling with rod placed in sediment upstream of rock
Time: 1030 in stream. BLUE-06.



Photo 19 Date: 7/21/03 Pore water sampling in pool.
Time: 1030



Photo 20 Date: 7/21/03 View of Bluebird Mine old discharge point indicating proximity to Clear
Time: 1200 Creek.



Photo 21 Date: 7/21/03 Time: 1215 View of Clear Creek and a lack of riparian vegetation at sample location BLUE-04, showing the road and intersection (Congo Rd). Also shows the varied forest cover on the hillside and restoration vegetation plantings in animal-protective covers



Photo 22 Date: 7/21/03 Time: 1215 View up the ravine, showing an old pipe and recently oxidized sediment.



Photo 23

Date: 7/21/03
Time: 1230

View from the waste pile at Bluebird Mine to the west showing the staked opening to Clear Creek. Also shows lack of vegetation for *Fragaria* sampling.



Photo 24

Date: 7/21/03
Time: 1230

View of the main adit at Bluebird Mine, showing evidence of recent discharge.



Photo 25 Date: 7/21/03 View of the main waste pile at Bluebird Mine showing the lack of vegetation.
Time: 1230



Photo 26 Date: 7/21/03 Closeup of rodent burrows below Bluebird mine, showing lighter soil being
Time: 1300 excavated by rodents.



Photo 27

Date: 7/21/03
Time: 1300

View of oxidized AMD from mine outflow into Clear Creek at the Bluebird adit. Small alders in the riparian area show no evidence of stress.



Photo 28

Date: 7/21/03
Time: 1300

Current Bluebird Mine outflow crossing Clear Creek.



Photo 29

Date: 7/21/03
Time: 1300

View looking downstream of the pipe entrance into wetlands across the road from Clear Creek, upstream of Bluebird mine. Photo shows mix of rooted emergent vegetation, *Typha*, *Carex*, and unknown grasses.



Photo 30

Date: 7/21/03
Time: 1300

View downstream of the wetland remediation pond. Shows extensive vegetation cover in pond. Another pond begins below the Congo Gulch road entrance onto the main road.



Photo 31 Date: 7/21/03 View looking upstream toward the Red Boy Mine discharge. The red mine
Time: 1300 drainage in the foreground is shown in Photo 37.



Photo 32 Date: 7/22/03 View of flumes on Clear Creek above Blackjack mine and BLAC-01.
Time: 0630



Photo 33

Date: 7/22/03
Time: 0630

View of EA Employee pointing out old plastic pipe at the presumed discharge into the old settling pond at Blackjack Mine.



Photo 34

Date: 7/22/03
Time: 0645

View upstream of the Blackjack Mine showing old tailings pond and the proximity of Clear Creek to the mine. Also shows the width of the upper canyon area and placer mining piles above mine. EA Employee in same location as Photo 41.



Photo 35 Date: 7/22/03 View looking downstream from the placer mine rock pile towards Blackjack
Time: 0645 Mine.



Photo 36 Date: 7/22/03 View of pipe entrance into discharge channel for Blackjack mine (BLAC-15)
Time:



Photo 37 Date: 7/22/03 View of EA Employee sampling water above the outlet draining from Red
Time: Boy Mine (BLAC-04)



Photo 38 Date: 7/22/03 View of shore staining just downstream of sample location BLAC-04.
Time:



Photo 39

Date: 7/22/03
Time:

View of sculpin at sample location BLAC-04.



Photo 40

Date: 7/22/03
Time:

View of submerged aquatic vegetation in a pool on the side channel across from Clear Creek just upstream of BLAC-42.



Photo 41 Date: 7/22/03 View upstream of sample location BLAC-42 showing pool like flow pattern
Time: in side channel across from Clear Creek and only minimal scrub-shrub
vegetation.



Photo 42 Date: 7/22/03 EA employee measuring stream flow at sample location BLAC-42 in the
Time: riffle. Indicates flow in side channel across from Clear Creek and also shows
the herbaceous vegetation and a lack of scrub-shrub vegetation development.



Photo 43

Date: 7/22/03
Time:

Doughy red material from below the surface at BLAC-10

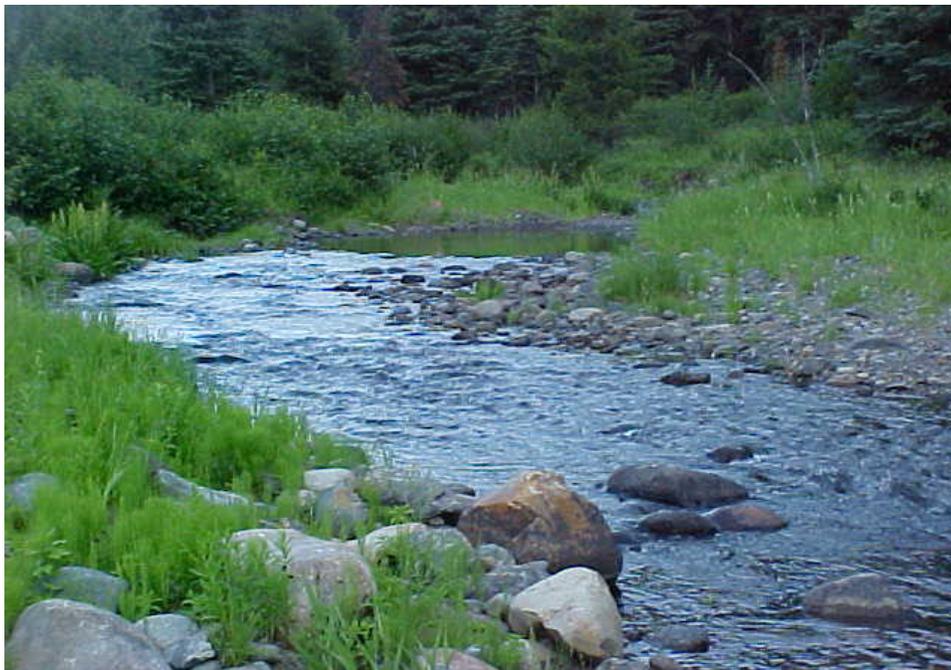


Photo 44

Date: 7/22/03
Time:

Upstream view of Clear Creek at BLAC-02 showing the scrub-shrub wetland below the lower adit at Blackjack Mine. Dippers were observed using the stream along this reach.



Photo 45 Date: 7/22/03 View of Chinook salmon in a pool below sample location BLAC-02.
Time:



Photo 46 Date: 7/23/03 Clamshell from sample location BLAC-01 indicating 7cm length.
Time: 1500



Photo 47

Date: 7/23/03
Time:

Sampling location at Lower Adit at Blackjack Mine (BLAC-11). Overview photo showing distance of drainage to Clear Creek. Gate in background at BLAC-02



Photo 48

Date: 7/23/03
Time:

View of pool in wetland below the lower adit of Blackjack Mine where long-toed salamander larvae were collected. Also sample BLAC-42.



Photo 49 Date: 7/23/03 Clear Creek Stream Restoration Project sign.
Time:



Photo 50 Date: 7/23/03 Scrub-shrub growth along side channel below BLAC-41 across from Clear
Time: Creek.



Photo 51 Date: 7/23/03 Submerged vegetation in side channel below sample location BLAC-41 and
Time: across from sample location BLAC-3. This area shows a lack of developed scrub-shrub vegetation. Also note that no vegetation has been planted.



Photo 52 Date: 7/23/03 View of the background sample station located upstream (SE) of the upper
Time: adit at Blackjack Mine. (BLAC-26)



Photo 53 Date: 7/23/03 View of belted kingfisher nest adjacent to Clear Creek
Time



Photo 54 Date: 7/23/03 *Fragaria* sp. sample at the mine adit.
Time:



Photo 55

Date: 7/23/03 Closeup of *Fragaria* sp. sample at the mine adit.
Time: