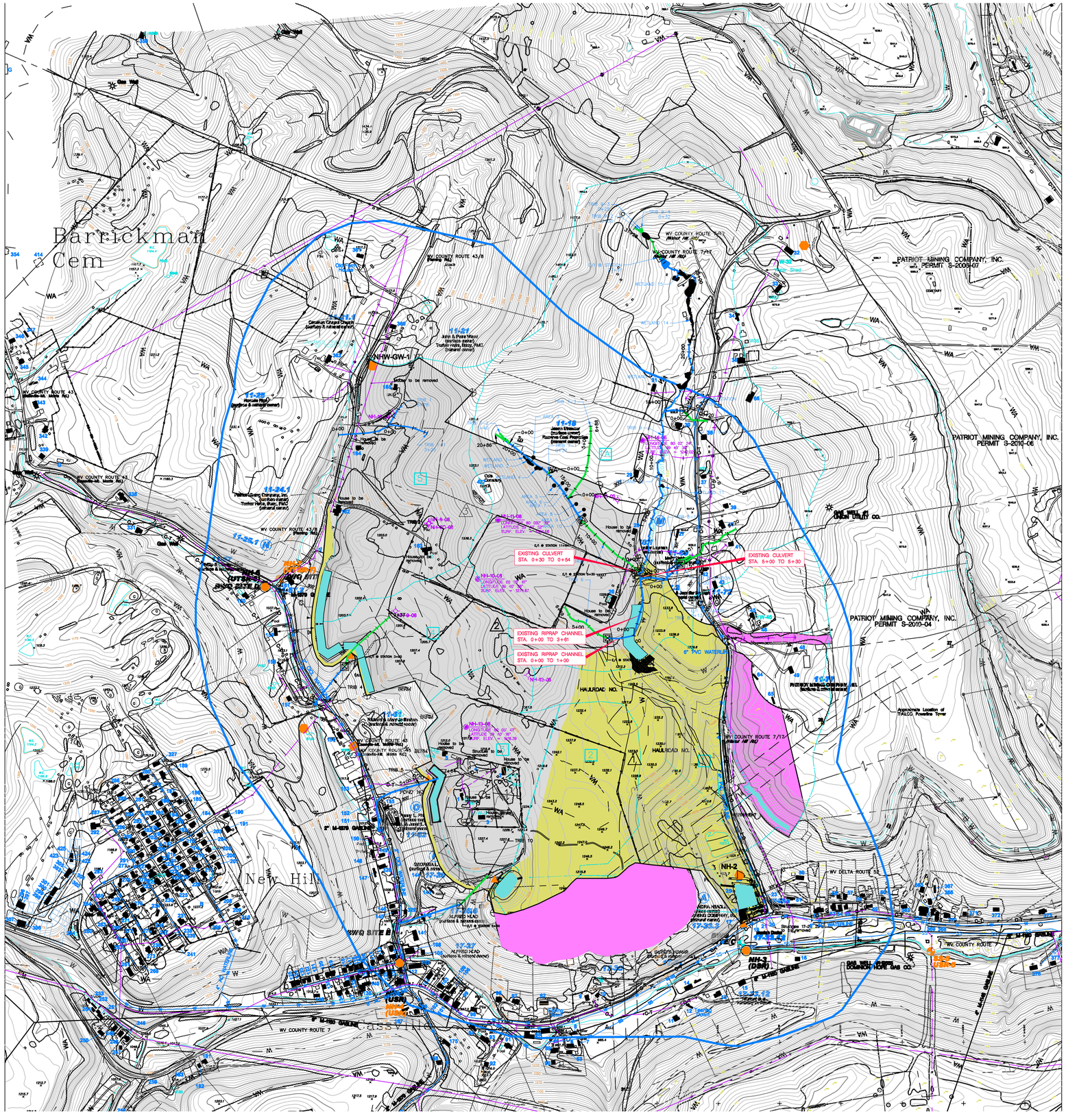
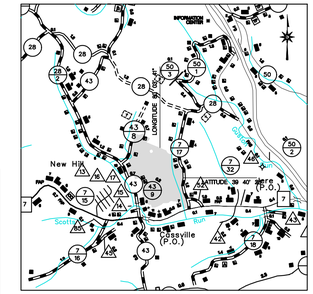


DISTURBED ACREAGE BREAKDOWN

PERMIT AREA NOT DISTURBED	219.40 AC.
HAULROAD ACCESS ROAD	0.00 AC.
DRAINAGE SYSTEM (Temporary)	5.60 AC.
TOTAL PERMITTED AREA	225.00 AC.

DRAINAGE AREA BREAKDOWN

DRAINAGE AREA	TOTAL ACREAGE	DISTURBED ACREAGE	REQUIRED SEDIMENT STORAGE	AVAILBALE SEDIMENT STORAGE	CONTROLLING SEDIMENT STORAGE
1	88.50	24.20	3.025 ac. ft.		Pond No. 1
2	160.30	50.30	6.29 ac. ft.	6.37 ac. ft.	Pond No. 1A
2	28.30	28.30	3.54 ac. ft.	3.76 ac. ft.	Existing Pond No. 2
3	30.20	30.20	3.775 ac. ft.	4.112 ac. ft.	Pond No. 3
4	72.20	69.60	8.70 ac. ft.	10.90 ac. ft.	Pond No. 4



LOCATION MAP

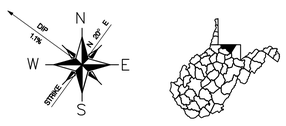
SCALE: 1 INCH = 1 MILE
CASS DISTRICT, MONONGALIA COUNTY
OSAGE, WV – 7.5 MINUTE TOPOGRAPHIC QUADRANGLE
SMA NO. S-2009-09

LEGEND

- NPDES OUTLET
- PRE-MINING TEST SITE
- NPDES MONITORING SITES
- NPDES GROUNDWATER MONITORING SITE
- ARTICLE 3 MONITORING SITE
- ARTICLE 3 GROUNDWATER SITE
- DOMESTIC WELL
- SPRING
- DRILL HOLE
- NH-1-00 OVERBURDEN TEST SITE
- PERMANENT MONUMENT
- DWELLING
- OUT BUILDING (BARN, SHED, GARAGE)
- (T) TOPSOIL STOCKPILE (Temporary)
- PERIMETER MARKER
- 1000' BOUNDARY
- ½ MILE BOUNDARY
- PROPERTY BOUNDARY
- DRAINAGE AREA DIVISION
- CONSTRUCTED DRAINWAY
- NATURAL DRAINWAY
- EARTH DIKE
- —W— WAYNESBURG CROPLINE
- —WA— WAYNESBURG 'A' CROPLINE
- POWER, TELEPHONE & CABLE LINE (ALLEGHENY POWER CO.)
- GAS LINE (DOMINION HOPE GAS CO.)
- W- SS WATER LINE & SANITARY SEWER (PLEASANT VALLEY PSD)
- C – T CABLE & TELEPHONE LINE (ADELPHIA COMMUNICATIONS & VERIZON)
- A A REGRADING & GEOLOGICAL CROSS-SECTION
- ASH PLACEMENT AREA
- FORESTLAND
- 0' DISTANCE TO NEAREST BLASTING STRUCTURE (POWER POLE)
- 150' DISTANCE TO NEAREST PROTECTED STRUCTURE (FOR BLASTING)–STRUCTURE #143-144
- DEEP MINE OPENING
- RAIN GAUGE
- PREVIOUS UNDERGROUND MINED AREAS
- ADJACENT PERMIT AREAS (PATRIOT MINING COMPANY, INC.)
- ADJACENT OVERBONDED PERMIT AREAS (PATRIOT MINING COMPANY, INC. – PERMIT NO. S-2010-01)
- PREVIOUS SURFACE MINE AREAS (FROM USGS DATA)
- INTERMITTENT STREAM
- PERENNIAL STREAM

TRACT	SURFACE OWNER	MINERAL OWNER	100 ft. LANDOWNERS
A	*(17-33.3) Homer & Sandra Headley, Jr.	Patriot Mining Company, Inc.	(17-28.6, 27) Alfred Hiad – SMO
B	*(17-33.6) Dan Martinelli	Patriot Mining Company, Inc.	(11-21) John & Petra Wood – SO (11-22) Tucker Heirs ½ & PMC, Inc. ½ – MO
C	(11-64, 65, 17-28) David B. Adams	David B. Adams	Tucker Heirs ½ – Patricia H. Tucker; Ruth E. & John F. Rowles
D	*(11-66, 70) Jason Sawser	Patriot Mining Company, Inc.	Barbara Buoy ½ & PMC, Inc. ½
E	(11-59, 60) Diane Spooner	Diane Spooner	(11-28) Roselle Rice – SMO
F	(11-25.3) Tucker Heirs ½ – Patricia H. Tucker; Ruth E. & John F. Rowles	Tucker Heirs ½ – Patricia H. Tucker; Ruth E. & John F. Rowles Barbara Buoy ½ & PMC, Inc. ½	(11-13) Jason Sawser – SO (11-58) Reserve Coal Properties – MO (11-60) Richard & Mary Jo Strahan – SMO
G	(11-58) Patriot Mining Company, Inc.	Barbara Buoy ½ & PMC, Inc. ½ Tucker Heirs ½ – Patricia H. Tucker; Ruth E. & John F. Rowles	(11-24.1) Patriot Mining Company, Inc. – SO (11-24.1) Tucker Heirs ½ – Patricia H. Tucker; Ruth E. & John F. Rowles Barbara Buoy ½ & PMC, Inc. ½
H	(11-24.3) Patriot Mining Company, Inc.	Barbara Buoy ½ & PMC, Inc. ½ Tucker Heirs ½ – Patricia H. Tucker; Ruth E. & John F. Rowles	(11-56) Mary DeVault – SMO (11-57.2) Eva Thomas – SO (11-27) Patriot Mining Company, Inc. – SMO
I	(11-24.2) Patriot Mining Company, Inc.	Barbara Buoy ½ & PMC, Inc. ½ Tucker Heirs ½ – Patricia H. Tucker; Ruth E. & John F. Rowles	(17-33.3) Richard Sperandino – SMO (17-33.12) Beulah Drake – SMO (17-33.5) Richard D. & Kimberly D. Glass – SMO
J	(11-56) Patriot Mining Company, Inc.	Barbara Buoy ½ & PMC, Inc. ½ Jack & Marsha Gillis	(11-70.1) Bruno Sawser – SO (11-70.1) Patriot Mining Company, Inc. – MO
K	(11-67) David B. Adams	Jack & Marsha Gillis	(11-72) Dorothy Cosner – SMO
L	(11-67.1) Patriot Mining Company, Inc.	Jack & Marsha Gillis	
M	(11-67.2, 68.1) Stephen G. & Jennifer Layman	Stephen G. & Jennifer Layman	
N	(11-25.1, 57) Phillip & Carolyn P. Glizzi	Tucker Heirs ½ – Patricia H. Tucker; Ruth E. & John F. Rowles Barbara Buoy ½ & PMC, Inc. ½	
O	(11-52) Penny L. Phillips	Kevin K. & Janet L. Chumney	
P	(17-26) Georgia L. Liming	Georgia L. Liming	
Q	(11-63.3) Patriot Mining Company, Inc.	Patriot Mining Company, Inc.	
R	(11-63.2,63.4,63.5) Jorge Montemayor	Jorge Montemayor	
S	(11-63.1,63.6) Paulette King	Paulette King	
T	(11-63) William F. & Sandy King	William F. & Sandy King	

*NOTE: These tracts have surface mining rights.
PMC, Inc. now owns Tracts M, O, R & S



I, THE UNDERSIGNED, HEREBY CERTIFY(1) THAT THIS MAP IS CORRECT, AND SHOWS TO THE BEST OF MY KNOWLEDGE AND BELIEF ALL INFORMATION REQUIRED BY THE SURFACE MINING LAWS OF THIS STATE.

BY_____ R.P.E. NO._____
STATE OF WEST VIRGINIA
COUNTY OF MONONGALIA

TAKEN, SUBSCRIBED AND SWORN TO ME THIS

_____DAY OF_____, 2010.

MY COMMISSION EXPIRES:

_____

(1) THE TERM "CERTIFY" AS USED HEREIN, IS DEFINED AS FOLLOWS: "AN ENGINEER'S CERTIFICATION OF CONDITIONS IS A DECLARATION OF PROFESSIONAL JUDGEMENT. IT DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EITHER EXPRESSED OR IMPLIED, NOR DOES IT RELIEVE ANY OTHER PARTY OF THEIR RESPONSIBILITY TO ABIDE BY CONTRACT DOCUMENTS, APPLICABLE CODES, STANDARDS, REGULATIONS AND ORDINANCES."

INCREMENTAL BONDING

1	INCREMENT NO. 1 = 59.00 AC.
2	INCREMENT NO. 2 = 99.00 AC.
3	INCREMENT NO. 3 = 67.00 AC.
	TOTAL PERMITTED AREA = 225.00 AC.

NOTES

1) NO KNOWN OR PROBABLE CULTURAL, HISTORIC OR ARCHAEOLOGICAL SITES LISTED OR ELIGIBLE FOR LISTING IN THE NATIONAL REGISTER OF HISTORIC PLACES ARE LOCATED WITHIN THE PROPOSED PERMIT AREA.

2) NO LAND WITHIN THE PROPOSED PERMIT AREA AND ADJACENT AREAS LIE WITHIN THE BOUNDARIES OF ANY PUBLIC PARKS.

3) THE CURRENT AND HISTORIC LAND USE CLASSIFICATION WITHIN THE PROPOSED PERMIT AREA AND ADJACENT AREAS IS FOREST LAND (TIMBERED) PASTURELAND, TILLAGE LAND AND PREVIOUSLY MINED-NOT RECLAIMED. NO LAND USE HAS CHANGED WITHIN THE PAST 5 YEARS. NO PRIME FARMLAND IS LOCATED WITHIN THE PROPOSED PERMIT AREA. SEE SECTION F.

4) NO HABITATS OF LISTED THREATENED OR ENDANGERED SPECIES ARE LOCATED WITHIN 1000 FEET OF THE PROPOSED PERMIT AREA.

5) Locations and extent of known workings of active, inactive or abandoned underground mines, including mine openings to the surface within the proposed permit and adjacent areas are identified

6) Locations of lands within the proposed permit area, which lie within or are adjacent to the boundaries of a National Park System, National Forest, National Wildlife Refuge System, National System of Trails, National Wilderness Preservation System, National Wild and Scenic River Systems, National Recreation Area and areas under study for inclusion in these systems.

7) THE DATUM and ORIGIN OF THE MAP IS WV STATE PLANE, NAD 27

SMA NO. S-2009-09

REVISED BY:	DATE:	
		Patriot WV, Inc 2708 Cranberry Square, Morgantown, WV 26508
		PROPOSED NEW HILL WEST SURFACE MINE
		EXHIBIT 1-VI-A **PROPOSAL & DRAINAGE MAP**
		DRAWN BY: Terry A. Noir SCALE: 1" = 400'
		DIRECTORY: E:\DWG\PMC\\NEW HILL\NEW HILL WEST\ — DATE ORIGINATED: January, 2009
		DRAWING NO.: new hill west-v1 — PLOTTING DATE:

PREPARED BY:

HUNTER RIDGE

DEPARTMENT OF THE ARMY
PITTSBURGH DISTRICT, CORPS OF ENGINEERS
WILLIAM S. MOORHEAD FEDERAL BUILDING
1000 LIBERTY AVENUE
PITTSBURGH, PA 15222-4186

REPLY TO
ATTENTION OF

May 19, 2010

Operations Division
Regulatory Branch
2009-759

Patriot Mining Company
Attn: Greg Nair.
2700 Cranberry Square
Morgantown, WV 26508

Dear Mr. Nair:

Reference is made to your request for review of delineation, received on April 15, 2009, for the New Hill West Surface Mine. Aquatic resources delineated were in the watersheds of unnamed tributaries of Scotts Run, which is a direct tributary of the Monongahela River. The "Area of Interest" (AOI) is located near the community of New Hill in Monongalia County, West Virginia. This delineation was field verified by Allen Edris and Greg Currey on April 22, 2009.

RECEIVED
MAY 21 2010

The Corps of Engineers' authority to regulate waters of the United States is based on the definitions and limits of jurisdiction contained in 33 CFR 328. Navigable waters, their tributaries, and surrounding wetlands are waters of the United States subject to the provisions of Section 404 of the Clean Water Act. Based on the field verification and review of the information submitted it has been determined that the following jurisdictional waters exist in the review area:

* 10,451 linear feet of jurisdictional streams were observed at this site, within the area of interest. These were Relatively Permanent Waters (RPW's) and Seasonal Relatively Permanent Waters. These were Tributaries 1, 1-1, 4, 5, 6, 7, 8, 8-1, 9, and 9-1, all of which are unnamed tributaries to Scotts Run of the Monongahela River.

* 0.59 acres of jurisdictional wetlands were observed at this site (8 wetlands in all). These were Wetlands 1, 2, 4, 11, 12, 13, 14, and 15. These were all emergent abutting wetlands to unnamed tributaries of Scotts Run. Jurisdiction was asserted over the aforementioned resources as a result of inline connections to the Relatively Permanent Waters and Seasonally Relatively Permanent Waters described above.

The following non-jurisdictional waters exist in the AOI:

* 952 linear feet of non-jurisdictional streams. These were all ephemeral Non-Relatively Permanent waters. These were Tributaries 7-1, 7-2, 7-3, 9-2, 9-3, and 9-4, which are also unnamed tributaries of Scotts Run.

At this time we agree with this revised stream and wetland delineation and mapping dated April 2010. This letter serves as an "Approved Jurisdictional Determination" for the subject site. If you object to this determination, you may request an administrative appeal under the Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process fact sheet and Request for Appeal form.

This delineation verification will remain valid for a period of five years from the date of this letter, unless new information warrants revision of the delineation. Every effort should be made to avoid impacts to the aquatic resources on-site. If stream or wetland impacts are proposed, this office should be contacted to discuss permit requirements.

If you have any questions, please contact Greg Currey at 412-395-7517 or at gregory.currey@usace.army.mil and reference Project No. **2009-759**. This project number should also be referenced in all future correspondence with this office regarding this delineation.

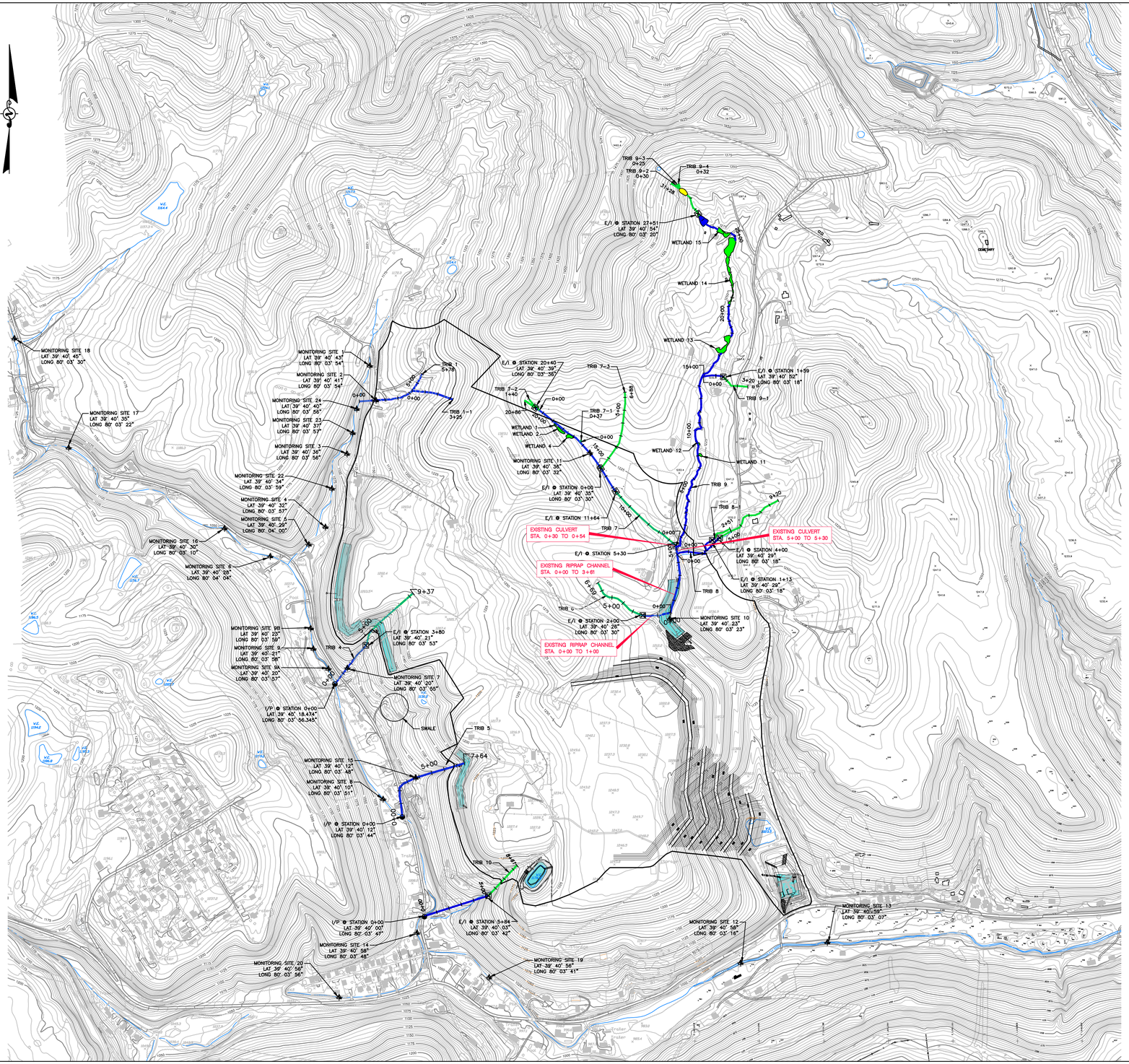
Sincerely,

SIGNED

Marcia H. Haberman
Chief, Southern Section
Regulatory Branch

Copies Furnished:

Potesta & Associates, Inc. (Jessica Yeager)
WVDEP/OMR (Dennis Stottlemeyer)
WVDEP/OMR (Dennis Phipps)



No.	Date	Revision

09-0081-K3
CAD File No.

PSB
Drawn

KBR
Checked

KBR
Approved

NOTED
Scale:

MAY 2010
Date:

09-0081
Project No.

POTESTA & ASSOCIATES, INC.
ENGINEERS AND ENVIRONMENTAL CONSULTANTS
7012 MacCorkle Ave. SE, Charleston, WV 25304
TEL: (304) 342-1400 FAX: (304) 343-9031
E-Mail Address: potesta@potesta.com.

POTESTA

PRELIMINARY

Client
PATRIOT MINING COMPANY, INC.
2708 CRANBERRY SQUARE
MORGANTOWN, WV 26508

Title
AREA OF INTEREST MAPPING
USACE FILE #2009-759
MONONGALIA COUNTY, WV

2
Drawing No.

LEGEND

SYMBOL	DESCRIPTION
	INTERMITTENT STREAM
	EPHEMERAL STREAM
	EPHEMERAL/INTERMITTENT CONVERSION POINT
	INTERMITTENT/PERENNIAL CONVERSION POINT
	ATYPICAL HYDROLOGIC AREA
	OPEN WATER
	WETLAND
	NON-JURISDICTIONAL STREAMS
	MONITORING SITE

GRAPHIC SCALE

400 200 0 400 800

MAPPING REFERENCE:
BASE MAPPING PROVIDED BY ICG.

PRELIMINARY

XREF Files: POND 1_revised_012710 IMAGE Files: m-k08-06.bid
Plot Date: Wednesday, April 07, 2010 - 11:29am Plot By: PATRIOT NEW HILL\jessica
Plot Scale: 1:1 Layout: K3 Model: 02041\09-0081-K3.DWG
Paper Size: 22"x34" Plotter: Xerox 6279 Color PS
Pen Table: Color.tbl

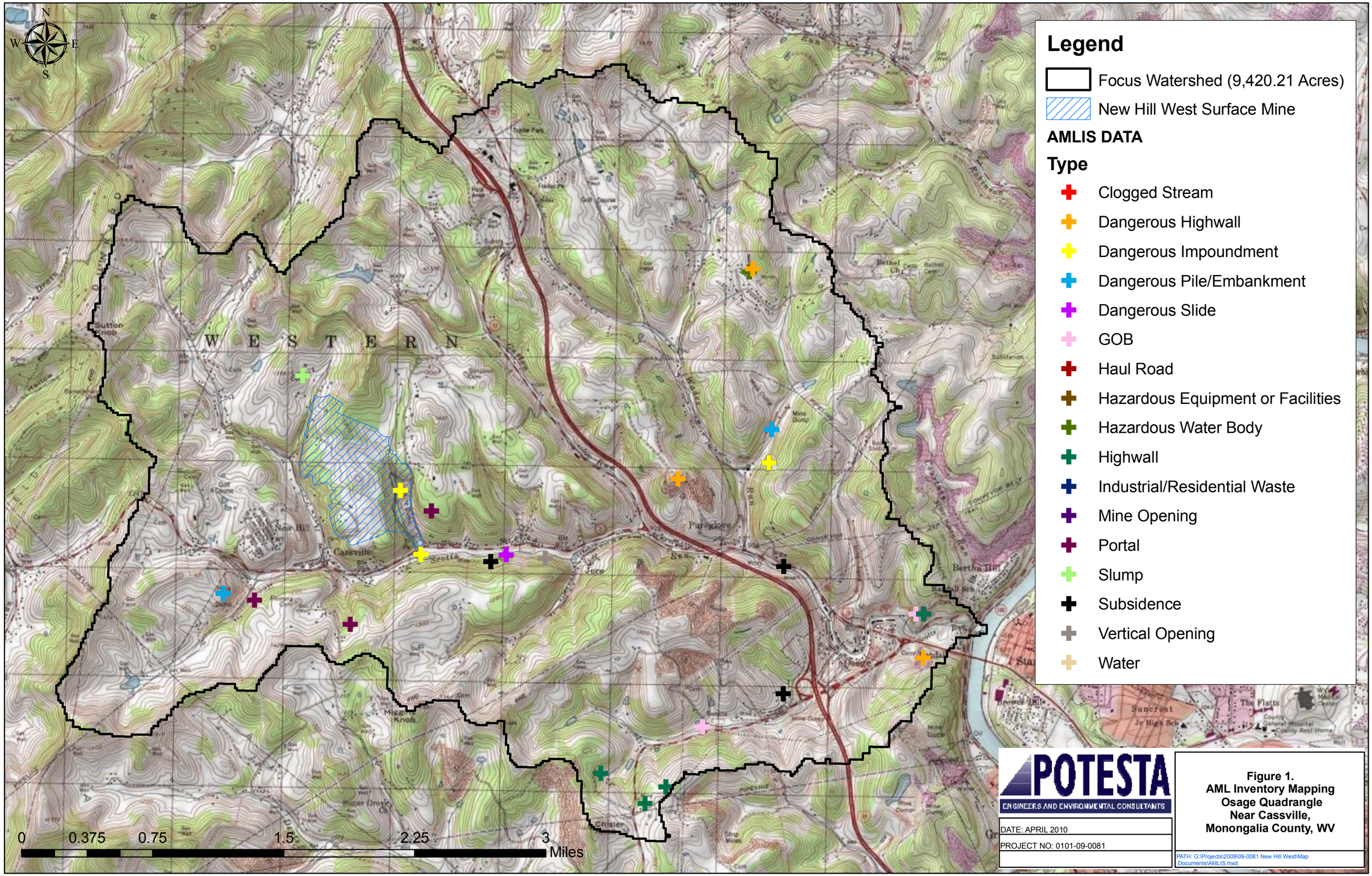
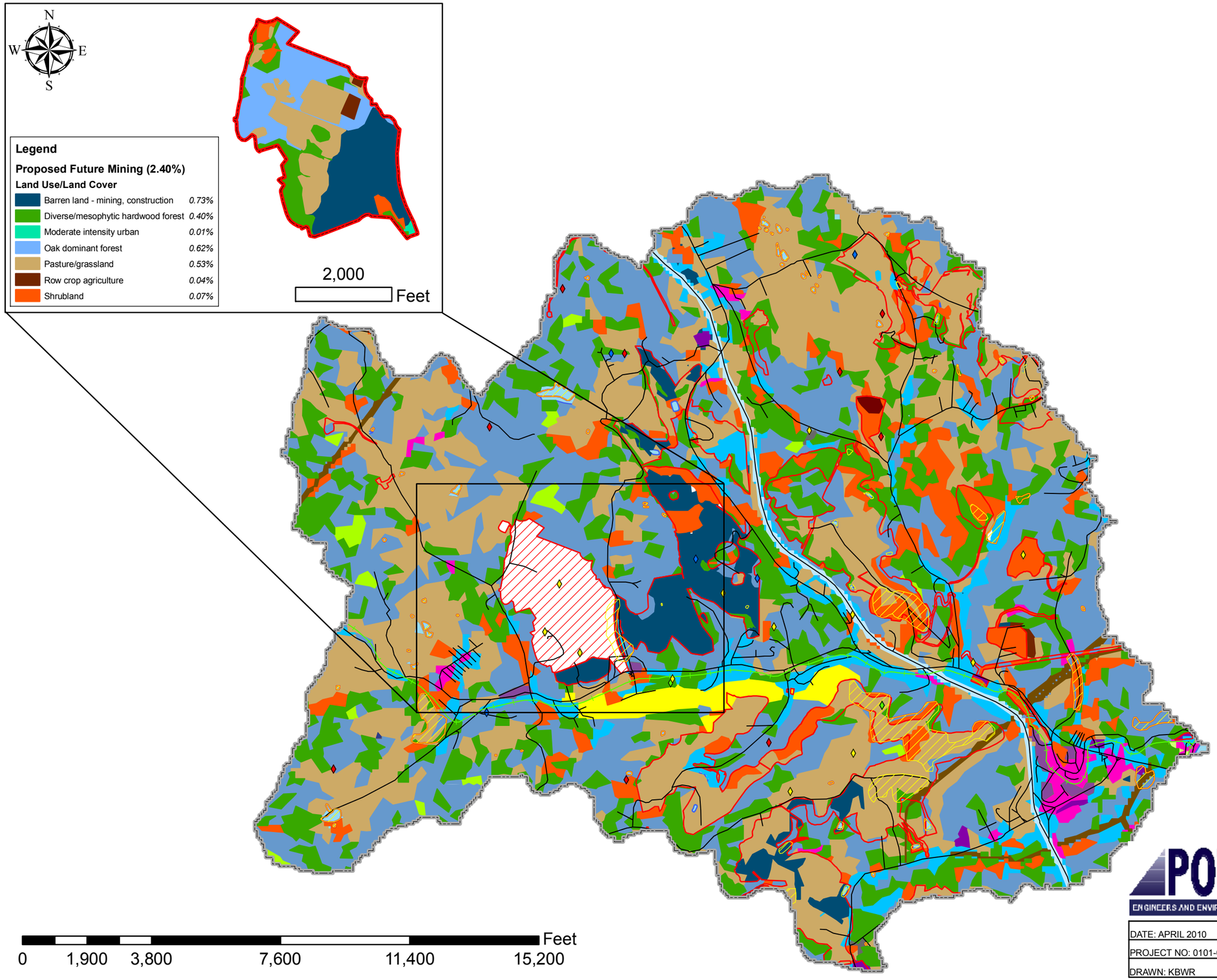


Figure 1.
AML Inventory Mapping
Osage Quadrangle
Near Cassville,
Monongalia County, WV



Legend

Focus Watershed (9,420.21 Acres)
Post Mining Land Use Reviewed Area (17.25%)
Future Mining (New Hill West Surface Mine - 2.40%)

WVGAP Land Use/Land Cover Data (80.35%

Barren land - mining, construction	0.10%
Diverse/mesophytic hardwood forest	14.55%
Floodplain forest	0.01%
Hardwood/conifer forest	0.53%
Herbaceous wetland	0.01%
Intensive urban	0.18%
Light intensity urban	1.15%
Major power lines	0.69%
Major roads	0.78%
Moderate intensity urban	5.05%
Mountain hardwood forest	1.18%
Oak dominant forest	30.16%
Pasture/grassland	19.89%
Populated areas	0.30%
Row crop agriculture	0.06%
Shrubland	5.54%
Surface Water	0.12%
Woodland	0.05%

Post Mining Land Use Reviewed Areas

Land Use/ Land Cover

Barren land - mining, construction	3.38%
Diverse/mesophytic hardwood forest	1.48%
Intensive urban	0.05%
Light intensity urban	0.01%
Major power lines	0.10%
Moderate intensity urban	0.46%
Mountain hardwood forest	0.02%
Oak dominant forest	1.11%
Pasture/grassland	7.88%
Row crop agriculture	0.06%
Shrubland	2.37%
Surface water	0.33%

Gas Wells (< 0.01%)

Status

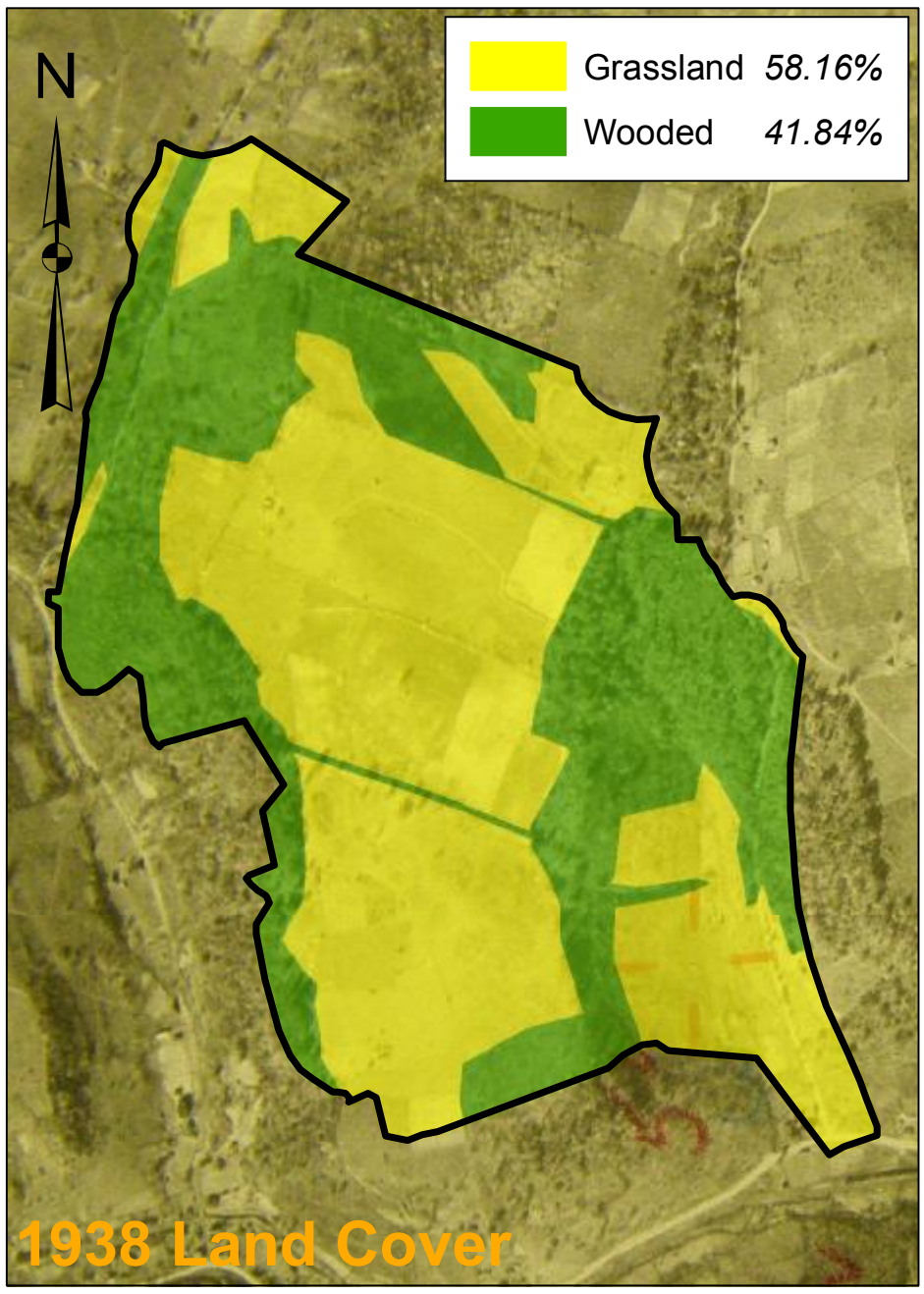
Active Well (8)
Abandoned Well
Abandoned/Ordered
Plugged
Roads (63.64 Miles)
Railroad (5.75 Miles)
Pre-SMCRA Mining (2.49%)

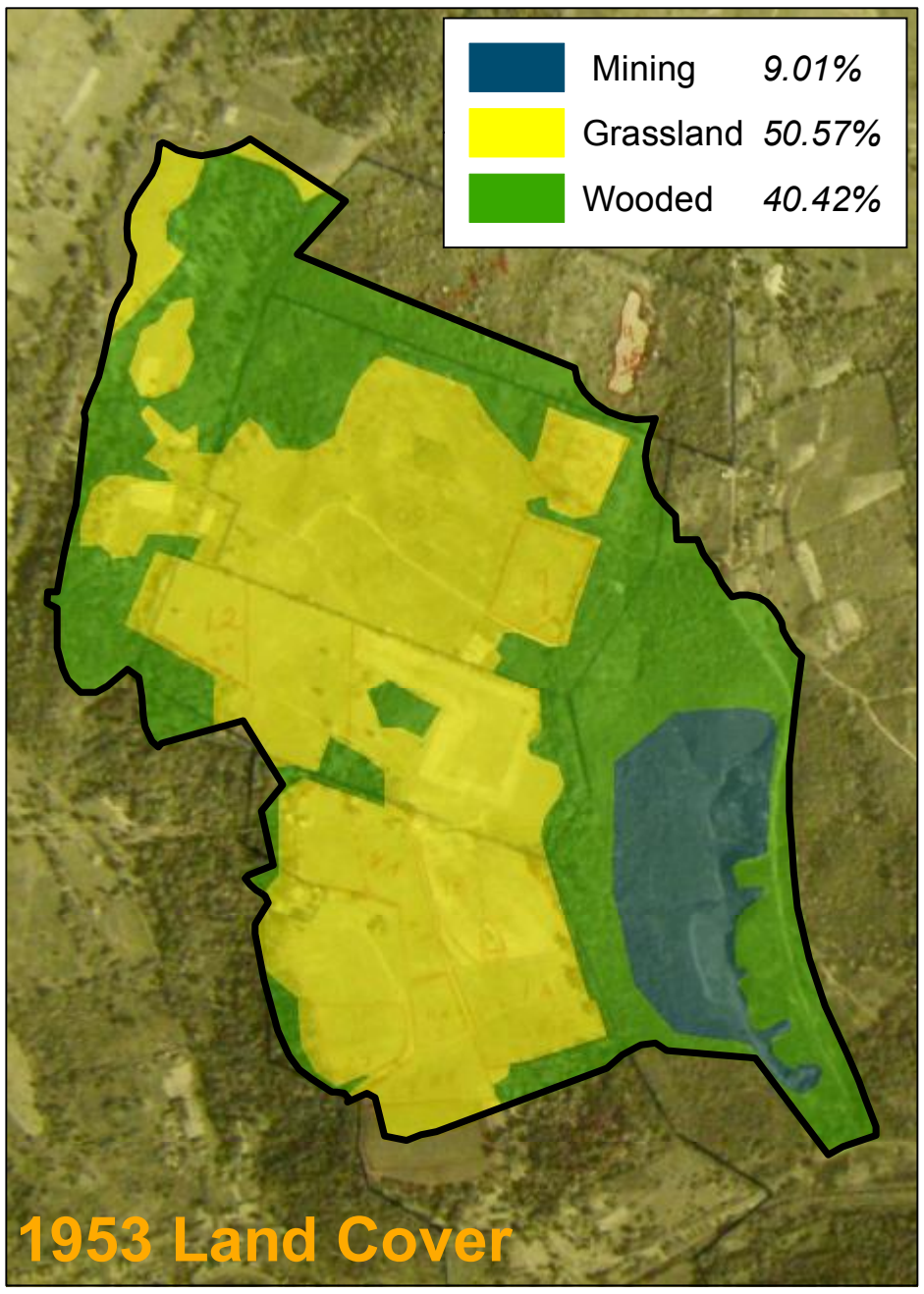
POTESTA
ENGINEERS AND ENVIRONMENTAL CONSULTANTS

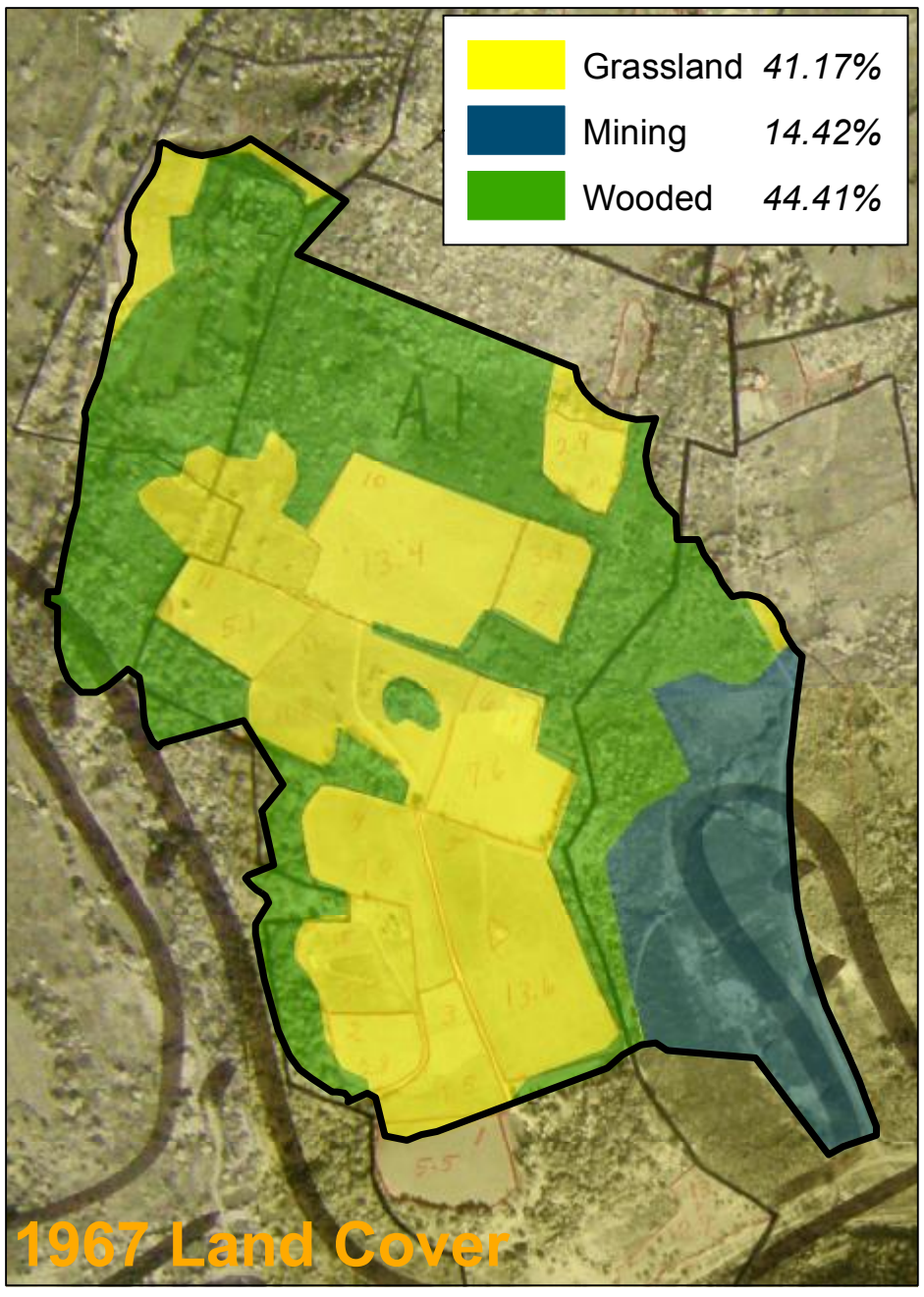
DATE: APRIL 2010
PROJECT NO: 0101-09-0081
DRAWN: KBWR

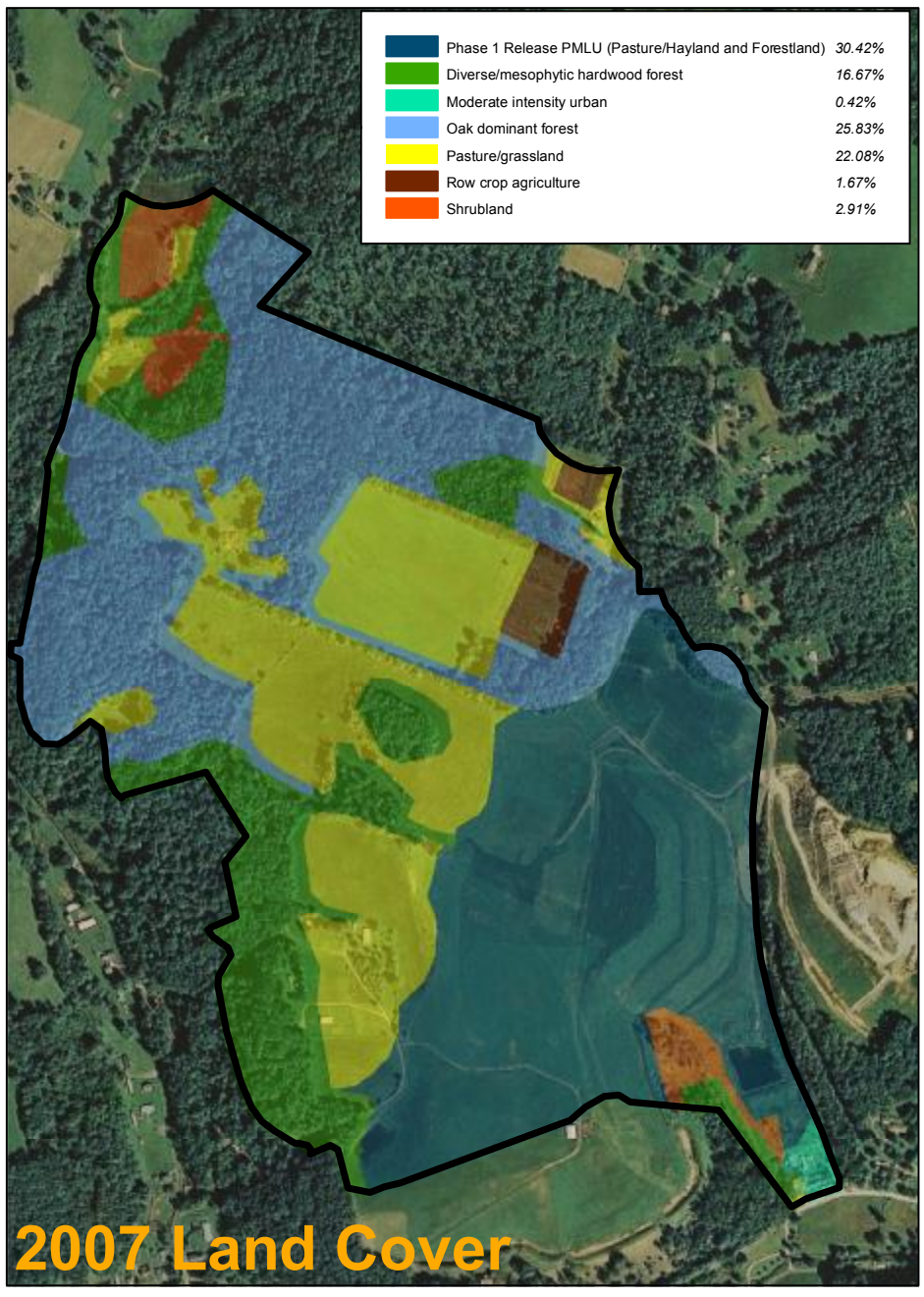
Figure 2.
Cumulative Land Use/Land Cover
Scott Run & Associated Watersheds
Osage Quadrangle
Near Cassville, Monongalia County, WV

PATH: G:\Projects\2009\09-0081 New Hill West\Map Documents\Land Cover v2.mxd









Scale: 1" = 830'	Drawn: KBWR	POTESTA ENGINEERS AND ENVIRONMENTAL CONSULTANTS	Historical Land Cover/Land Use Review Mapping Within New Hill West Surface Mine Project Boundary Osage Quadrangle Monongalia County, WV	Patriot Mining Company, Inc. 2708 Cranberry Square Morgantown, West Virginia 26508	FIGURE 3
Date: April 2010	Checked: JLY				
Project No. 09-0081	Approved: JLY				
G:\Projects\2009\09-0081 New Hill West\Map Documents\ Aerial Review - Land Use.mxd					

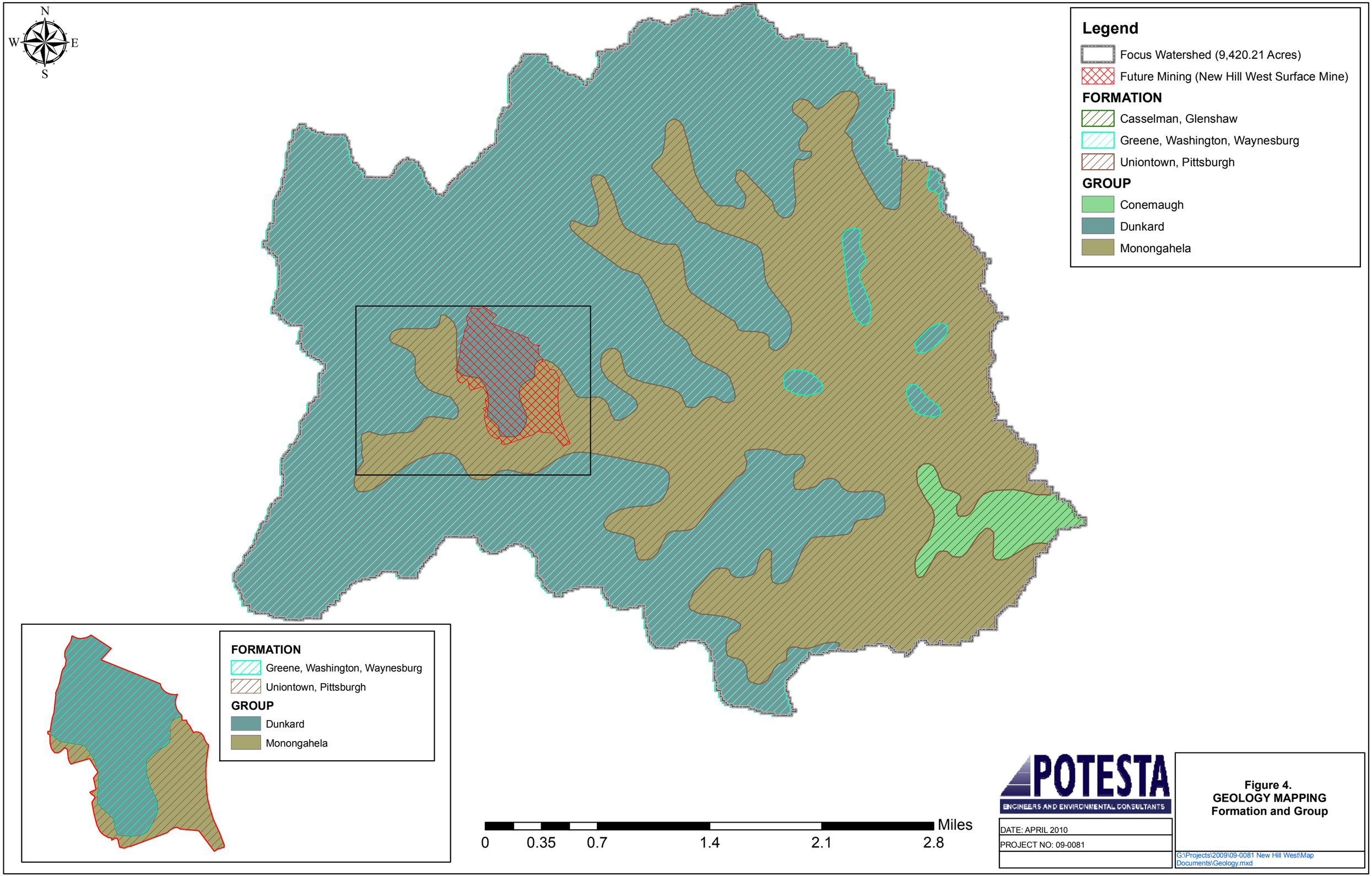


Figure 4.
GEOLOGY MAPPING
Formation and Group

Legend

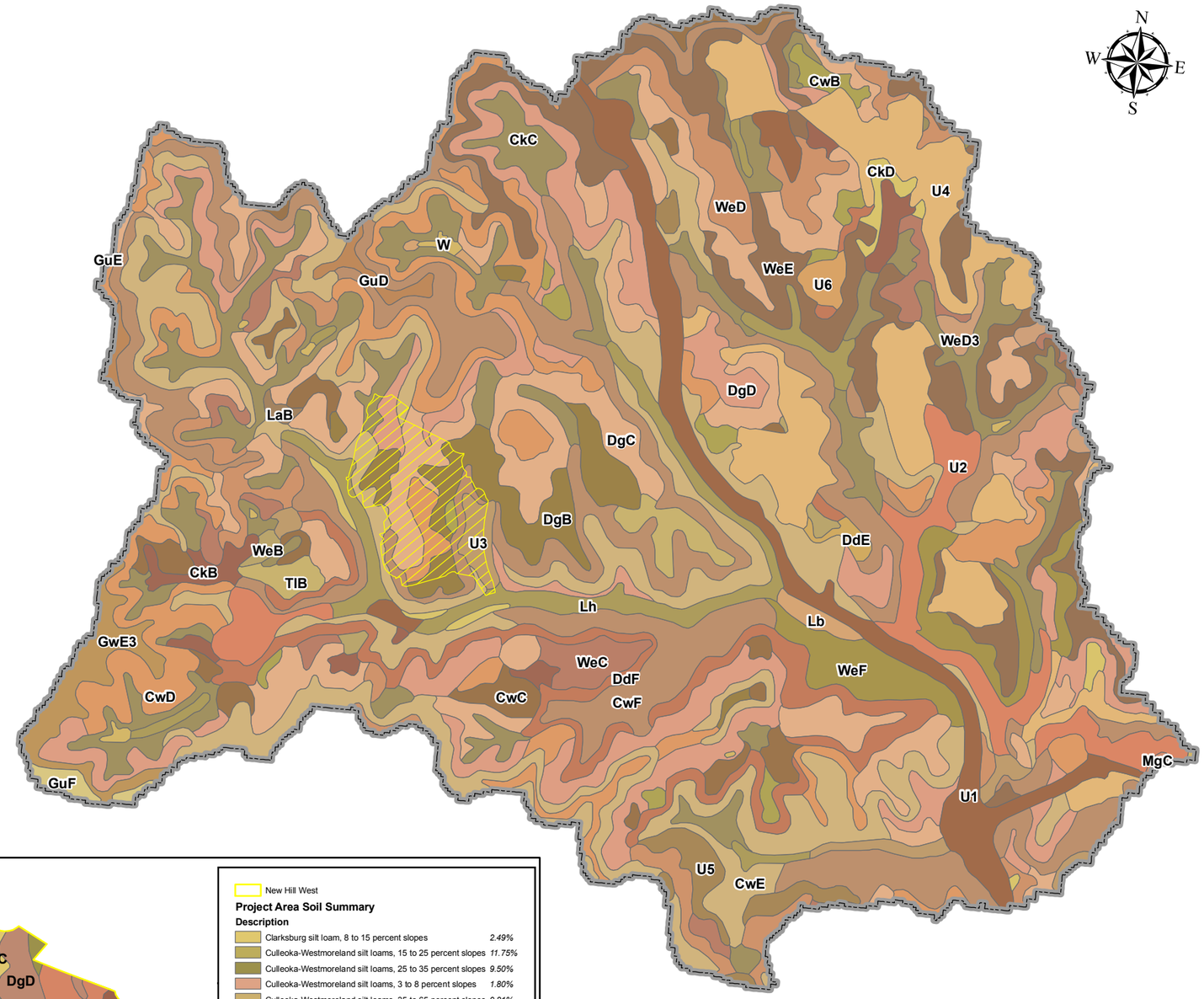
Focus Watershed (9,420.21 Acres)

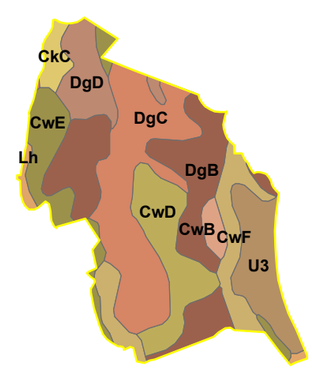
Proposed New Hill West Surface Mine (226.21 Acres)

Focus Watershed Soil Summary

Description	
Clarksburg silt loam, 15 to 25 percent slopes	*0.53%*
Clarksburg silt loam, 3 to 8 percent slopes	*0.98%*
Clarksburg silt loam, 8 to 15 percent slopes	*8.41%*
Culleoka-Westmoreland silt loams, 15 to 25 percent slopes	*6.97%*
Culleoka-Westmoreland silt loams, 25 to 35 percent slopes	*11.79%*
Culleoka-Westmoreland silt loams, 3 to 8 percent slopes	*0.87%*
Culleoka-Westmoreland silt loams, 35 to 65 percent slopes	*11.90%*
Culleoka-Westmoreland silt loams, 8 to 15 percent slopes	*1.88%*
Dekalb very stony loam, 15 to 35 percent slopes	*0.16%*
Dekalb very stony loam, 35 to 65 percent slopes	*3.24%*
Dormont and Guernsey silt loams, 15 to 25 percent slopes	*7.81%*
Dormont and Guernsey silt loams, 3 to 8 percent slopes	*2.21%*
Dormont and Guernsey silt loams, 8 to 15 percent slopes	*9.28%*
Gilpin-Culleoka-Upshur complex, 25 to 35 percent slopes, severely eroded	*1.13%*
Gilpin-Culleoka-Upshur silt loams, 15 to 25 percent slopes	*0.40%*
Gilpin-Culleoka-Upshur silt loams, 25 to 35 percent slopes	*0.02%*
Gilpin-Culleoka-Upshur silt loams, 35 to 65 percent slopes	*0.27%*
Lily loam, 3 to 8 percent slopes	*0.08%*
Lobdell silt loam	*0.26%*
Lobdell-Holly silt loams	*2.48%*
Monongahela silt loam, 8 to 15 percent slopes	*0.03%*
Tilsit silt loam, 3 to 8 percent slopes	*0.76%*
Udorthents, cut and fill	*3.64%*
Udorthents, dumps, low base	*2.62%*
Udorthents, dumps, very low base	*0.83%*
Udorthents, mudstone and sandstone, high base	*6.31%*
Udorthents, mudstone and sandstone, low base	*0.89%*
Udorthents, sandstone, low base	*0.25%*
Water	*0.17%*
Westmoreland silt loam, 15 to 25 percent slopes	*3.21%*
Westmoreland silt loam, 15 to 25 percent slopes, severely eroded	*0.39%*
Westmoreland silt loam, 25 to 35 percent slopes	*6.11%*
Westmoreland silt loam, 3 to 8 percent slopes	*0.25%*
Westmoreland silt loam, 35 to 65 percent slopes	*2.17%*
Westmoreland silt loam, 8 to 15 percent slopes	*1.70%*

0 0.5 1 2 Miles





New Hill West

Project Area Soil Summary

Description	
Clarksburg silt loam, 8 to 15 percent slopes	*2.49%*
Culleoka-Westmoreland silt loams, 15 to 25 percent slopes	*11.75%*
Culleoka-Westmoreland silt loams, 25 to 35 percent slopes	*9.50%*
Culleoka-Westmoreland silt loams, 3 to 8 percent slopes	*1.80%*
Culleoka-Westmoreland silt loams, 35 to 65 percent slopes	*9.81%*
Dormont and Guernsey silt loams, 15 to 25 percent slopes	*7.46%*
Dormont and Guernsey silt loams, 3 to 8 percent slopes	*22.21%*
Dormont and Guernsey silt loams, 8 to 15 percent slopes	*23.80%*
Lobdell-Holly silt loams	*1.21%*
Udorthents, dumps, very low base	*9.97%*

0 3,050 6,100 Feet

POTESTA
ENGINEERS AND ENVIRONMENTAL CONSULTANTS

DATE: APRIL 2010

PROJECT NO: 09-0081

Figure 5.
Soil Mapping
Marion & Monongalia Counties, WV
SSURGO v2.1

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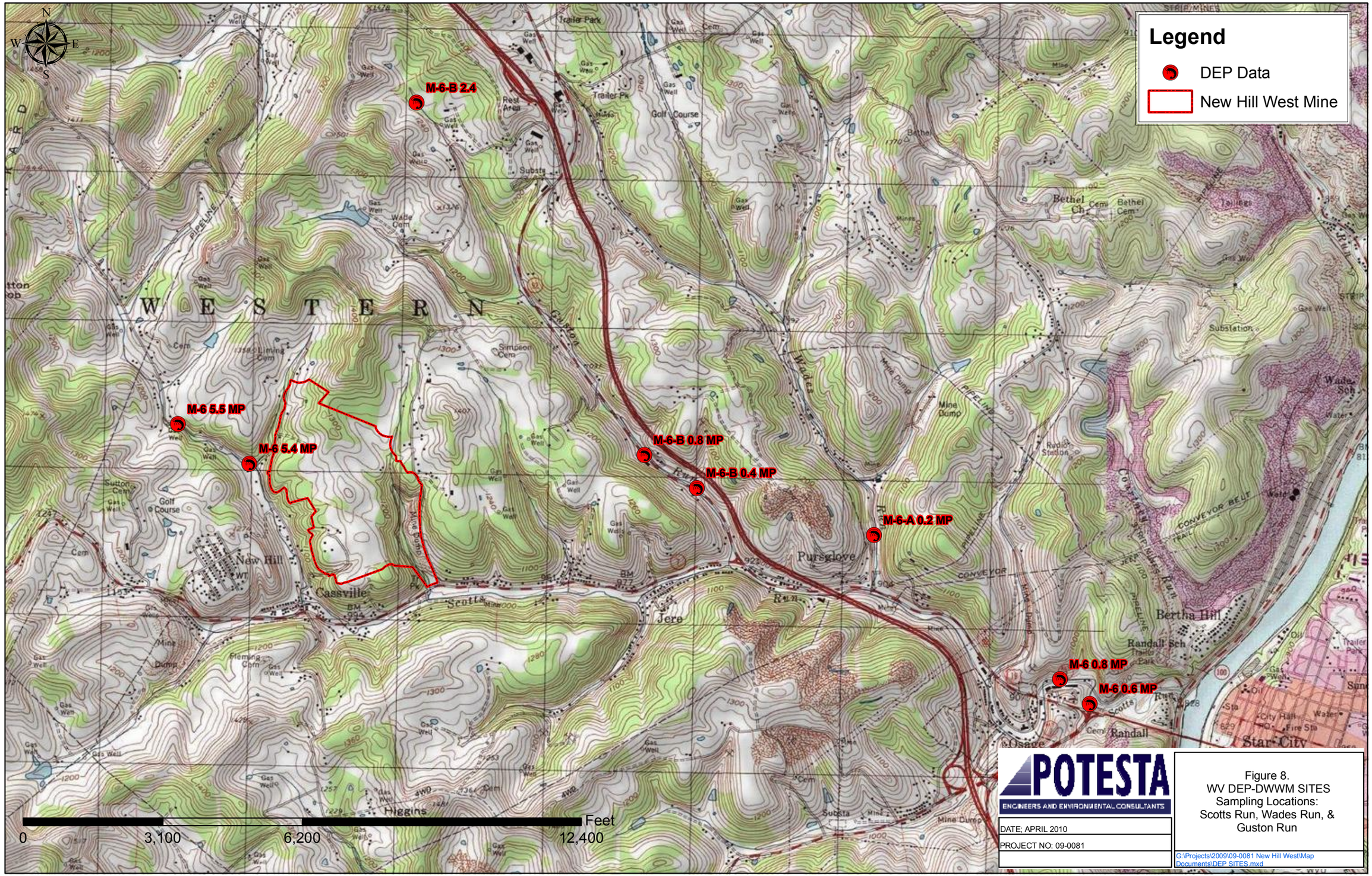
Legend
Habitat Survey Sites
N
S
E
W
Site 18
Site 1
Site 2
Site 24
Site 23
Site 3
Site 22
Site 4
Site 5
Site 6
Site 17
Site 16
Site 11
Site 21
Site 9B
Site 9
Site 9A
Site 7
Site 10
Site 15
Site 8
Site 14
Site 20
Site 19
Site 12
Site 13
Cem
Liming Cem
Gas Well
Sutton Cem
Golf Course
New Hill
WT
Cassville
BM 994
Mine Dump
Scotts
Fleming
1200
1300
1407
1274
1153
1240
Feet
0
600
1,200
2,400
POTESTA
ENGINEERS AND ENVIRONMENTAL CONSULTANTS
DATE: APRIL 2010
PROJECT NO: 0101-09-0081
DRAWN: KBWR
Figure 6.
Habitat Survey Sites
Location Mapping
Osage USGS Quadrangle
Near Cassvile
Monongalia County, WV
PATH: G:\Projects\2009\09-0081 New Hill West\Map Documents\Potesta Habitat Locations 2.mxd

Figure 7.
Basline Surface Water Sampling
Location Mapping
Osage USGS Quadrangle
Near Cassvile
Monongalia County, WV



POTESTA
ENGINEERS AND ENVIRONMENTAL CONSULTANTS

DATE; APRIL 2010

PROJECT NO: 09-0081

Figure 8.
WV DEP-DWWM SITES
Sampling Locations:
Scotts Run, Wades Run, &
Guston Run

G:\Projects\2009\09-0081 New Hill West\Map Documents\DEP SITES.mxd

Date: April 27, 2010 Time:
Project: 0101-09-0081-003 Stream: Restoration Reach 2

V. Visual Riparian Estimate	Left Bank					Right Bank					Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)					D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None					
CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)		X							X		
Small Trees (Trunk < 0.3 m DBH)		X							X		
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings		X						X			
Non-Woody Herbs, Grasses, & Forbs			X					X			
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings		X						X			
Non-Woody Herbs, Grasses, & Forbs					X			X			
Barren, Bare Dirt or Duff				X				X			
Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam				X					X		
Buildings		X							X		
Pavement				X					X		
Road/Railroad				X					X		
Pipers (Inlet/Outlet)	X								X		
Landfill/Trash				X					X		
Park/Lawn	X								X		
Row Crops				X					X		
Pasture/Range/Hay Field	X					X					
Logging Operation				X					X		
Mining Activity				X					X		

Additional Information:

Date: April 27, 2010 Time: _____
Project: 0101-09-0081-003 Stream: Restoration Reach 3

V. Visual Riparian Estimate	Left Bank					Right Bank					Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)					D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None					
CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)			X					X			
Small Trees (Trunk < 0.3 m DBH)			X					X			
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings			X					X			
Non-Woody Herbs, Grasses, & Forbs				X					X		
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings				X					X		
Non-Woody Herbs, Grasses, & Forbs				X						X	
Barren, Bare Dirt or Duff			X					X			
Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam	X								X		
Buildings				X				X			
Pavement		X							X		
Road/Railroad		X							X		
Pipers (Inlet/Outlet)				X					X		
Landfill/Trash				X					X		
Park/Lawn			X					X			
Row Crops				X					X		
Pasture/Range/Hay Field				X					X		
Logging Operation				X					X		
Mining Activity				X					X		

Additional Information:

Date: April 27, 2010 Time: _____
Project: 0101-09-0081-003 Stream: Restoration Reach 4

V. Visual Riparian Estimate	Left Bank					Right Bank					Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)					D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None					
CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)				X					X		
Small Trees (Trunk < 0.3 m DBH)				X					X		
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings			X					X			
Non-Woody Herbs, Grasses, & Forbs			X					X			
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings				X					X		
Non-Woody Herbs, Grasses, & Forbs			X					X			
Barren, Bare Dirt or Duff			X					X			
Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam				X					X		
Buildings			X						X		
Pavement				X					X		
Road/Railroad		X					X				
Pipers (Inlet/Outlet)	X					X					
Landfill/Trash		X						X			
Park/Lawn				X					X		
Row Crops				X					X		
Pasture/Range/Hay Field				X					X		
Logging Operation				X					X		
Mining Activity				X					X		

Additional Information:

Date: April 27, 2010 Time: _____
Project: 0101-09-0081-003 Stream: Restoration Reach 5

V. Visual Riparian Estimate	Left Bank					Right Bank					Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)					D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None					
CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)			X					X			
Small Trees (Trunk < 0.3 m DBH)				X					X		
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings				X					X		
Non-Woody Herbs, Grasses, & Forbs			X					X			
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings				X					X		
Non-Woody Herbs, Grasses, & Forbs				X					X		
Barren, Bare Dirt or Duff			X					X			
Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam				X					X		
Buildings				X					X		
Pavement				X					X		
Road/Railroad				X					X		
Pipers (Inlet/Outlet)				X					X		
Landfill/Trash				X					X		
Park/Lawn				X					X		
Row Crops				X					X		
Pasture/Range/Hay Field				X					X		
Logging Operation				X					X		
Mining Activity				X					X		

Additional Information:

Date: April 27, 2010 Time: _____
Project: 0101-09-0081-003 Stream: Restoration Reach 6

V. Visual Riparian Estimate	Left Bank					Right Bank					Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)					D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None					
CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)				X					X		
Small Trees (Trunk < 0.3 m DBH)			X					X			
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings				X					X		
Non-Woody Herbs, Grasses, & Forbs			X					X			
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings			X					X			
Non-Woody Herbs, Grasses, & Forbs			X					X			
Barren, Bare Dirt or Duff			X					X			
Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam				X					X		
Buildings				X					X		
Pavement				X					X		
Road/Railroad		X					X				
Pipers (Inlet/Outlet)	X					X					
Landfill/Trash				X					X		
Park/Lawn				X					X		
Row Crops				X					X		
Pasture/Range/Hay Field				X					X		
Logging Operation				X					X		
Mining Activity				X					X		

Additional Information:

Date: April 27, 2010 Time: _____
Project: 0101-09-0081-003 Stream: Restoration Reach 7

V. Visual Riparian Estimate	Left Bank					Right Bank					Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)					D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None					
CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)		X				X					
Small Trees (Trunk < 0.3 m DBH)		X				X					
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings				X				X			
Non-Woody Herbs, Grasses, & Forbs			X					X			
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings			X					X			
Non-Woody Herbs, Grasses, & Forbs					X					X	
Barren, Bare Dirt or Duff				X					X		
Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam				X					X		
Buildings				X					X		
Pavement				X					X		
Road/Railroad											
Pipers (Inlet/Outlet)											
Landfill/Trash				X					X		
Park/Lawn				X					X		
Row Crops				X					X		
Pasture/Range/Hay Field				X					X		
Logging Operation				X					X		
Mining Activity	X					X					

Additional Information:

Date: April 27, 2010 Time:
Project: 0101-09-0081-003 Stream: Tributary 1

V. Visual Riparian Estimate	Left Bank	Right Bank	Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)	D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None	

CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)		X					X				
Small Trees (Trunk < 0.3 m DBH)			X					X			
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings				X					X		
Non-Woody Herbs, Grasses, & Forbs				X					X		
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings			X					X			
Non-Woody Herbs, Grasses, & Forbs			X					X			
Barren, Bare Dirt or Duff				X					X		
Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam				X					X		
Buildings		X						X			
Pavement				X					X		
Road/Railroad				X					X		
Pipers (Inlet/Outlet)	X					X					
Landfill/Trash				X					X		
Park/Lawn		X					X				
Row Crops				X					X		
Pasture/Range/Hay Field				X					X		
Logging Operation				X					X		
Mining Activity				X					X		

Additional Information:
Culvert located between Stations 2+10 to 2+22

Date: April 27, 2010 Time: _____
Project: 0101-09-0081-003 Stream: Tributary 1-1

V. Visual Riparian Estimate	Left Bank					Right Bank					Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)					D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None					
CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)		X					X				
Small Trees (Trunk < 0.3 m DBH)			X					X			
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings				X						X	
Non-Woody Herbs, Grasses, & Forbs			X					X			
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings					X					X	
Non-Woody Herbs, Grasses, & Forbs			X					X			
Barren, Bare Dirt or Duff			X					X			
Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam				X					X		
Buildings				X					X		
Pavement				X					X		
Road/Railroad				X					X		
Pipers (Inlet/Outlet)				X					X		
Landfill/Trash				X					X		
Park/Lawn				X					X		
Row Crops				X					X		
Pasture/Range/Hay Field				X					X		
Logging Operation				X					X		
Mining Activity				X					X		

Additional Information:

Date: April 27, 2010 Time:
Project: 0101-09-0081-003 Stream: Tributary 4

V. Visual Riparian Estimate	Left Bank	Right Bank	Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)	D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None	

CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)			X					X			
Small Trees (Trunk < 0.3 m DBH)			X					X			
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings			X					X			
Non-Woody Herbs, Grasses, & Forbs			X					X			
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings			X					X			
Non-Woody Herbs, Grasses, & Forbs			X					X			
Barren, Bare Dirt or Duff		X					X				

Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam	X					X					
Buildings				X					X		
Pavement				X					X		
Road/Railroad				X					X		
Pipers (Inlet/Outlet)				X					X		
Landfill/Trash				X					X		
Park/Lawn				X					X		
Row Crops				X					X		
Pasture/Range/Hay Field				X					X		
Logging Operation				X					X		
Mining Activity				X					X		

Additional Information:
Some rip-rap was noted in channel in upper portion of reach

Date: April 27, 2010 Time:
Project: 0101-09-0081-003 Stream: Tributary 5

V. Visual Riparian Estimate	Left Bank					Right Bank					Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)					D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None					
CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)		X						X			
Small Trees (Trunk < 0.3 m DBH)			X					X			
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings				X					X		
Non-Woody Herbs, Grasses, & Forbs				X				X			
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings			X					X			
Non-Woody Herbs, Grasses, & Forbs				X					X		
Barren, Bare Dirt or Duff			X					X			
Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam	X					X					
Buildings				X					X		
Pavement				X					X		
Road/Railroad				X					X		
Pipers (Inlet/Outlet)	X					X					
Landfill/Trash				X					X		
Park/Lawn				X					X		
Row Crops				X					X		
Pasture/Range/Hay Field				X					X		
Logging Operation				X					X		
Mining Activity				X					X		

Additional Information:
Rip-rap located @ end of OHWM

Date: April 27, 2010 Time:
Project: 0101-09-0081-003 Stream: Tributary 6

V. Visual Riparian Estimate	Left Bank					Right Bank					Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)					D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None					
CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)				X					X		
Small Trees (Trunk < 0.3 m DBH)			X					X			
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings			X					X			
Non-Woody Herbs, Grasses, & Forbs			X				X				
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings				X				X			
Non-Woody Herbs, Grasses, & Forbs			X					X			
Barren, Bare Dirt or Duff		X					X				
Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam	X					X					
Buildings				X					X		
Pavement				X					X		
Road/Railroad				X					X		
Pipers (Inlet/Outlet)				X					X		
Landfill/Trash				X					X		
Park/Lawn				X					X		
Row Crops				X					X		
Pasture/Range/Hay Field				X					X		
Logging Operation				X					X		
Mining Activity				X					X		

Additional Information:

Date: April 27, 2010 Time:
Project: 0101-09-0081-003 Stream: Tributary 7

V. Visual Riparian Estimate	Left Bank					Right Bank					Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)					D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None					
CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)			X					X			
Small Trees (Trunk < 0.3 m DBH)				X					X		
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings				X					X		
Non-Woody Herbs, Grasses, & Forbs				X					X		
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings					X				X		
Non-Woody Herbs, Grasses, & Forbs				X					X		
Barren, Bare Dirt or Duff				X					X		
Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam	X					X					
Buildings				X					X		
Pavement				X					X		
Road/Railroad		X					X				
Pipers (Inlet/Outlet)		X					X				
Landfill/Trash				X					X		
Park/Lawn		X					X				
Row Crops				X					X		
Pasture/Range/Hay Field			X					X			
Logging Operation				X					X		
Mining Activity				X					X		

Additional Information:

Date: April 27, 2010 Time: _____
Project: 0101-09-0081-003 Stream: Tributary 7-1

V. Visual Riparian Estimate	Left Bank					Right Bank					Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)					D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None					
CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)		X					X				
Small Trees (Trunk < 0.3 m DBH)		X					X				
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings				X					X		
Non-Woody Herbs, Grasses, & Forbs				X					X		
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings				X					X		
Non-Woody Herbs, Grasses, & Forbs				X					X		
Barren, Bare Dirt or Duff			X					X			
Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam				X					X		
Buildings				X					X		
Pavement				X					X		
Road/Railroad				X					X		
Pipers (Inlet/Outlet)				X					X		
Landfill/Trash				X					X		
Park/Lawn				X					X		
Row Crops				X					X		
Pasture/Range/Hay Field				X					X		
Logging Operation				X					X		
Mining Activity				X					X		

Additional Information:

Date: April 27, 2010 Time: _____
Project: 0101-09-0081-003 Stream: Tributary 7-3

V. Visual Riparian Estimate	Left Bank					Right Bank					Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)					D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None					
CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)				X					X		
Small Trees (Trunk < 0.3 m DBH)				X					X		
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings				X					X		
Non-Woody Herbs, Grasses, & Forbs				X					X		
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings				X					X		
Non-Woody Herbs, Grasses, & Forbs					X					X	
Barren, Bare Dirt or Duff				X					X		
Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam				X					X		
Buildings				X					X		
Pavement				X					X		
Road/Railroad				X					X		
Pipers (Inlet/Outlet)				X					X		
Landfill/Trash				X					X		
Park/Lawn				X					X		
Row Crops				X					X		
Pasture/Range/Hay Field				X					X		
Logging Operation				X					X		
Mining Activity				X					X		

Additional Information:

Date: April 27, 2010 Time: _____
Project: 0101-09-0081-003 Stream: Tributary 8

V. Visual Riparian Estimate	Left Bank					Right Bank					Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)					D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None					
CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)			X					X			
Small Trees (Trunk < 0.3 m DBH)			X					X			
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings				X					X		
Non-Woody Herbs, Grasses, & Forbs			X					X			
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings				X					X		
Non-Woody Herbs, Grasses, & Forbs				X				X			
Barren, Bare Dirt or Duff			X					X			
Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam				X					X		
Buildings				X					X		
Pavement				X					X		
Road/Railroad				X				X			
Pipers (Inlet/Outlet)				X					X		
Landfill/Trash				X					X		
Park/Lawn				X					X		
Row Crops				X					X		
Pasture/Range/Hay Field				X					X		
Logging Operation				X					X		
Mining Activity				X					X		

Additional Information:

Date: April 27, 2010 Time:
Project: 0101-09-0081-003 Stream: Tributary 9

V. Visual Riparian Estimate	Left Bank					Right Bank					Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)					D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None					
CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)	X					X					
Small Trees (Trunk < 0.3 m DBH)			X				X				
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings		X					X				
Non-Woody Herbs, Grasses, & Forbs			X				X				
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings				X			X				
Non-Woody Herbs, Grasses, & Forbs			X							X	
Barren, Bare Dirt or Duff			X						X		
Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam				X					X		
Buildings				X					X		
Pavement				X					X		
Road/Railroad				X					X		
Pipers (Inlet/Outlet)		X					X				
Landfill/Trash				X					X		
Park/Lawn		X				X					
Row Crops				X					X		
Pasture/Range/Hay Field				X					X		
Logging Operation				X					X		
Mining Activity				X					X		

Additional Information:

Date: April 27, 2010 Time:
Project: 0101-09-0081-003 Stream: Tributary 10

V. Visual Riparian Estimate	Left Bank					Right Bank					Comments
Riparian Vegetation Cover	0 = Absent (0%) 1 = Spare (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (> 75%)					D = Deciduous C = Coniferous E = Broadleaf Evergreen M = Mixed N = None					
CANOPY (> 5m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Big Trees (Trunk > 0.3 m DBH)		X					X				
Small Trees (Trunk < 0.3 m DBH)			X					X			
UNDERSTORY (0.5 to 5 m High)											
Vegetation Type	D	C	E	M	N	D	C	E	M	N	
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Saplings			X					X			
Non-Woody Herbs, Grasses, & Forbs			X					X			
GROUND COVER (< 0.5 m High)											
	0	1	2	3	4	0	1	2	3	4	
Woody Shrubs & Seedlings			X					X			
Non-Woody Herbs, Grasses, & Forbs			X					X			
Barren, Bare Dirt or Duff			X					X			
Human Influence	3 = Not Present 2 = Within 10 m					1 = > 10 m 0 = On Bank					
	0	1	2	3		0	1	2	3		Comments
Wall/Dike/Revetment/Riprap/Dam	X					X					
Buildings				X					X		
Pavement				X					X		
Road/Railroad			X					X			
Pipers (Inlet/Outlet)	X					X					
Landfill/Trash				X					X		
Park/Lawn				X					X		
Row Crops				X					X		
Pasture/Range/Hay Field				X					X		
Logging Operation				X					X		
Mining Activity				X					X		

Additional Information:
Rip-rap located @ upper end of channel

Surface Water

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Sulfates mg/L
BWQ- B	8/15/2008	7.90	10				0.114	0.005				0.231	
BWQ- B	8/22/2008	8.00	5				< 0.014	< .003				< 0.065	
BWQ- B	9/5/2008	7.80	5				0.025	< .003				0.145	
BWQ- B	9/16/2008	8.30	10				0.07	< .003				0.204	
BWQ- B	10/1/2008	8.00	5				< 0.014	< .003				0.153	
BWQ- B	10/13/2008	8.30	< 1				0.108	0.029				0.190	
BWQ- B	11/1/2008	8.40	5				0.102	< .003				< 0.065	
BWQ- B	11/10/2008	8.20	< 1				0.018	< .003				< 0.065	
BWQ- B	12/3/2008	8.00	9	< 3		113	0.108	< .003	< 3	220	400	< 0.065	70
BWQ- B	12/15/2008	8.20	31				0.097	.008				0.079	
BWQ- B	1/3/2009	8.00	50	3		97	0.075	< 0.002	< 3	268	335	0.04	75
BWQ- B	1/13/2009	8.00	50				0.061	< 0.002				0.073	

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or gpm	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Dissolved Al mg/L	Selenium ug/L
BWQ- B	8/15/2008		10									0.164	< 0.856
BWQ- B	8/22/2008		5									< 0.065	2.32
BWQ- B	9/5/2008		5									0.134	< 0.856
BWQ- B	9/16/2008		10									0.07	< 0.856
BWQ- B	10/1/2008		5									0.134	< 0.856
BWQ- B	10/13/2008		< 1									0.156	< 0.856
BWQ- B	11/1/2008		5									< 0.065	1.13
BWQ- B	11/10/2008		< 1									< 0.065	< 0.856
BWQ- B	12/3/2008		9									< 0.065	< 0.856
BWQ- B	12/15/2008		31									< 0.065	< 0.856
BWQ- B	1/3/2009		50									< 0.008	0.84
BWQ- B	1/13/2009		50									0.021	1.08

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Sulfates mg/L
BWQ- B	2/28/2009	8.00	31	< 2		108	0.078	0.008	4	292	392	0.06	75
BWQ- B	3/10/2009	8.00	31	< 2		117	0.082	0.006	< 3	336	388	0.05	80
BWQ- B	4/01/2009	8.00	75	< 2		73	0.08	0.004	< 3	268	269	0.056	65
BWQ- B	5/01/2009	7.80	250	< 2		68	0.251	0.029	9	144	210	0.205	42
BWQ- B	1/14/2010	8.00	20	< 2		77	0.081	0.004	< 3	188	291	0.097	50
BWQ- B	1/21/2010	8.00	50	< 2		57	0.078	0.004	< 3	140	293	0.078	50

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Dissolved Al mg/L	Selenium ug/L
BWQ- B	2/28/2009		31									0.026	< 0.80
BWQ- B	3/10/2009		31									0.016	< 0.80
BWQ- B	4/01/2009		75									0.026	< 0.80
BWQ- B	5/01/2009		250									0.099	1.76
BWQ- B	1/14/2010		20									< 0.04	< 0.80
BWQ- B	1/21/2010		50									0.045	< 0.80

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Sulfates mg/L
BWQ- C	8/15/2008	7.00	20				32.54	4.043				0.321	
BWQ- C	8/22/2008	7.00	5				44.77	4.506				1.037	
BWQ- C	9/5/2008	7.00	5				66.83	6.864				0.421	
BWQ- C	9/16/2008	7.00	10				30.28	4.115				0.405	
BWQ- C	10/1/2008	7.00	< 1				0.797	0.778				0.317	
BWQ- C	10/13/2008	7.00	< 1				52.43	7.642				0.227	
BWQ- C	11/1/2008	7.00	< 1				33.124	6.053				0.073	
BWQ- C	11/10/2008	7.00	< 1				34.744	7.36				< 0.065	
BWQ- C	12/3/2008	7.00	5	< 3		24	24.236	3.455	13	1600	2150	0.202	1350
BWQ- C	12/15/2008	7.00	76				2.453	0.334				0.399	
BWQ- C	1/3/2009	7.00	40	3		59	5.855	0.975	16	1712	2170	0.14	1450
BWQ- C	2/28/2009	7.00	50	< 2		41	10.404	1.381	11	1820	2320	0.14	1450

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or gpm	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Dissolved Al mg/L	Selenium ug/L
BWQ- C	8/15/2008		20									0.228	7.57
BWQ- C	8/22/2008		5									< 0.065	3.82
BWQ- C	9/5/2008		5									0.181	2.07
BWQ- C	9/16/2008		10									0.171	1.62
BWQ- C	10/1/2008		< 1									0.189	< 0.856
BWQ- C	10/13/2008		< 1									0.223	3.30
BWQ- C	11/1/2008		< 1									< 0.065	5.18
BWQ- C	11/10/2008		< 1									< 0.065	< 0.856
BWQ- C	12/3/2008		5									0.128	1.95
BWQ- C	12/15/2008		76									0.089	< 0.856
BWQ- C	1/3/2009		40									0.056	5.41
BWQ- C	2/28/2009		50									0.073	1.72

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Sulfates mg/L
BWQ- C	3/10/2009	7.00	31	< 2		37	10.388	1.389	11	1724	360	0.13	1450
BWQ- C	4/01/2009	7.00	30	< 2		49	4.601	0.535	19	1264	1752	0.123	1050
BWQ- C	5/01/2009	7.00	60	< 2		56	2.799	0.492	23	672	1011	0.403	525
BWQ- C	1/14/2010	7.00	20	< 2		39	7.878	1.137	7	968	1382	0.295	750
BWQ- C	1/21/2010	7.00	40	< 2		38	7.80	1.116	15	936	1385	0.294	775

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or gpm	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Dissolved Al mg/L	Selenium ug/L
BWQ- C	3/10/2009		31									0.081	< 0.80
BWQ- C	4/01/2009		30									0.096	2.59
BWQ- C	5/01/2009		60									0.06	4.27
BWQ- C	1/14/2010		20									0.048	2.71
BWQ- C	1/21/2010		40									0.047	1.67

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Sulfates mg/L
BWQ- D	8/15/2008	8.00	50				0.257	0.035				0.269	
BWQ- D	8/22/2008	8.00	25				0.068	< 0.003				< 0.065	
BWQ- D	9/5/2008	8.00	10				0.180	0.006				0.255	
BWQ- D	9/16/2008	8.20	40				0.072	< 0.003				0.193	
BWQ- D	10/1/2008	8.40	10				< 0.014	< 0.003				0.151	
BWQ- D	10/13/2008	8.40	10				0.139	0.034				0.190	
BWQ- D	11/1/2008	8.50	9				0.027	< 0.003				< 0.065	
BWQ- D	11/10/2008	8.30	5				< 0.014	< 0.003				< 0.065	
BWQ- D	12/3/2008	8.00	40	< 3		113	< 0.014	< 0.003	5	20	351	< 0.065	56
BWQ- D	12/15/2008	8.00	9				0.142	0.012				0.075	
BWQ- D	1/3/2009	8.00	100	3		101	0.05	< 0.002	< 3	264	323	0.034	55
BWQ- D	2/28/2009	8.00	31	< 2		130	0.112	0.007	5	316	362	0.01	60

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Dissolved Al mg/L	Selenium ug/L
BWQ- D	8/15/2008											0.180	1.12
BWQ- D	8/22/2008											< 0.065	1.92
BWQ- D	9/5/2008											0.131	< 0.856
BWQ- D	9/16/2008											0.069	< 0.856
BWQ- D	10/1/2008											0.134	< 0.856
BWQ- D	10/13/2008											0.171	1.00
BWQ- D	11/1/2008											< 0.065	2.62
BWQ- D	11/10/2008											< 0.065	< 0.856
BWQ- D	12/3/2008											< 0.065	< 0.856
BWQ- D	12/15/2008											< 0.065	< 0.856
BWQ- D	1/3/2009											< 0.008	1.08
BWQ- D	2/28/2009		31									0.012	< 0.80

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or gpm	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Sulfates mg/L
BWQ- D	3/10/2009	8.00	31	< 2		115	0.141	0.006	< 3	288	360	0.09	60
BWQ- D	4/01/2009	8.00	150	< 2		67	0.129	0.012	6	256	245	0.073	50
BWQ- D	5/01/2009	8.00	50	< 2		64	0.385	0.044	12	12	232	0.240	46
BWQ- D	1/14/2010	8.00	75	< 2		75	0.119	0.008	< 3	172	276	0.114	40
BWQ- D	1/21/2010	8.00	100	< 2		63	0.122	0.008	< 3	184	278	0.092	35

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Dissolved Al mg/L	Selenium ug/L
BWQ- D	3/10/2009		31									< 0.008	< 0.80
BWQ- D	4/01/2009		150									0.046	< 0.80
BWQ- D	5/01/2009		50									0.024	1.82
BWQ- D	1/14/2010		75									< 0.04	< 0.80
BWQ- D	1/21/2010		100									< 0.04	< 0.80

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Sulfates mg/L
BWQ- E	8/15/2008	7.80	50				0.120	0.008				0.194	
BWQ- E	8/22/2008	8.40	25				0.056	< 0.003				< 0.065	
BWQ- E	9/5/2008	8.50	10				0.047	< 0.003				0.144	
BWQ- E	9/16/2008	7.80	40				0.051	< 0.003				0.202	
BWQ- E	10/1/2008	8.00	25				< 0.014	< 0.003				0.120	
BWQ- E	10/13/2008	8.00	15				0.139	0.04				0.166	
BWQ- E	11/1/2008	8.30	9				0.112	0.021				< 0.065	
BWQ- E	11/10/2008	8.30	9				0.125	< 0.003				< 0.065	
BWQ- E	12/3/2008	8.00	31	< 3		137	< 0.014	< 0.003	< 3	260	442	< 0.065	100
BWQ- E	12/15/2008	8.00	148				0.128	0.011				0.082	
BWQ- E	1/3/2009	8.20	148	3		136	0.035	< 0.002	5	312	409	0.025	110
BWQ- E	2/28/2009	8.20	148	< 2		156	0.064	0.006	4	336	471	0.05	115

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Dissolved Al mg/L	Selenium ug/L
BWQ- E	8/15/2008											0.194	< 0.856
BWQ- E	8/22/2008											< 0.065	3.71
BWQ- E	9/5/2008											0.136	< 0.856
BWQ- E	9/16/2008											0.123	< 0.856
BWQ- E	10/1/2008											0.100	< 0.856
BWQ- E	10/13/2008											0.165	1.00
BWQ- E	11/1/2008											< 0.065	2.23
BWQ- E	11/10/2008											< 0.065	< 0.856
BWQ- E	12/3/2008											< 0.065	< 0.856
BWQ- E	12/15/2008											< 0.065	< 0.856
BWQ- E	1/3/2009											0.025	1.19
BWQ- E	2/28/2009											0.017	< 0.80

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Sulfates mg/L
BWQ- E	3/10/2009	8.30	148	< 2		150	0.05	0.006	< 3	344	470	0.03	100
BWQ- E	4/01/2009	8.00	150	< 2		84	0.071	0.006	< 3	292	315	0.047	60
BWQ- E	5/01/2009	8.00	250	< 2		73	0.250	0.028	7	216	263	0.207	50
BWQ- E	1/14/2010	8.00	75	< 2		93	0.077	0.005	< 3	196	357	0.082	65
BWQ- E	1/21/2010	8.00	150	< 2		80	0.079	0.016	< 3	204	346	0.081	60

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Dissolved Al mg/L	Selenium ug/L
BWQ- E	3/10/2009		148									0.010	< 0.80
BWQ- E	4/01/2009		150									0.023	< 0.80
BWQ- E	5/01/2009		250									0.064	1.21
BWQ- E	1/14/2010		75									< 0.04	< 0.80
BWQ- E	1/21/2010		150									< 0.04	< 0.80

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Dissolved Al mg/L
DSR (NH-3)	1/4/2008	7.70	2,500	< 3		86	1.45	0.221	10	384	542	0.836	0.160
DSR (NH-3)	1/21/2008	7.80	1,200				1.095	0.199				0.597	
DSR (NH-3)	2/4/2008	7.60	5,000	< 3		64	0.898	0.103	15	284	367	0.514	< 0.065
DSR (NH-3)	2/18/2008	7.80	3,000				0.829	0.161				0.467	
DSR (NH-3)	3/3/2008	7.60	4,000	< 3		63	0.750	0.151	6	308	377	0.475	< 0.065
DSR (NH-3)	3/17/2008	7.60	3,000				0.644	0.216				0.482	
DSR (NH-3)	4/1/2008	7.60	1,500	< 3		86	0.375	0.117	8	360	479	0.351	0.134
DSR (NH-3)	4/14/2008	7.60	1,200				0.334	0.221				0.312	
DSR (NH-3)	5/1/2008	7.60	4,000				0.417	0.110				0.305	
DSR (NH-3)	5/12/2008	7.60	5,000	< 3		65	1.084	0.200	6	310	380	0.742	< 0.065
DSR (NH-3)	6/1/2008	7.60	1,200				0.240	0.105				0.212	
DSR (NH-3)	6/16/2008	7.80	550	< 3		112	0.116	0.210	6	408	606	0.159	< 0.065

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Dissolved Al mg/L
DSR (NH-3)	7/1/2008	7.80	1,200	< 3		107	0.154	0.115	6	388	550	0.250	< 0.065
DSR (NH-3)	7/14/2008	7.80	250				0.061	0.098				< 0.065	
DSR (NH-3)	8/1/2008	7.80	750	< 3		151	0.077	0.065	< 3	472	758	0.110	0.072
DSR (NH-3)	8/18/2008	7.60	250				0.183	0.264				0.186	
DSR (NH-3)	9/2/2008	7.80	100	< 3		152	< 0.014	< 0.003	5	736	1037	0.081	< 0.065
DSR (NH-3)	9/15/2008	7.80	100				0.083	0.044				0.150	
DSR (NH-3)	10/1/2008	7.60	75	< 3		188	< 0.014	< 0.003	< 3	684	1045	0.141	0.127
DSR (NH-3)	10/13/2008	7.80	100				< 0.014	< 0.003				0.103	
DSR (NH-3)	11/1/2008	7.80	40	< 3		187	0.025	0.013	< 3	720	1088	< 0.065	< 0.065
DSR (NH-3)	11/10/2008	7.80	25				0.188	0.022				< 0.065	
DSR (NH-3)	12/1/2008	7.80	350	< 3		106	0.214	< 0.003	< 3	332	456	0.167	< 0.065
DSR (NH-3)	12/15/2008	7.80	750				0.336	0.061				0.205	

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Dissolved Al mg/L
DSR (NH-3)	1/3/2009	7.80	550	3		120	0.695	0.097	< 3	376	555	0.385	0.031
DSR (NH-3)	1/13/2009	7.80	550				0.961	0.099				0.65	
DSR (NH-3)	2/2/2009	7.80	750				0.438	0.089				0.29	
DSR (NH-3)	2/16/2009	7.80	1,200	< 2		86	0.780	0.124	< 3	256	465	0.414	0.053
DSR (NH-3)	3/2/2009	7.80	750	< 2		100	0.354	0.180	< 3	368	598	0.181	0.053
DSR (NH-3)	3/24/2009	7.30	300				1.138	0.327				0.15	

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Dissolved Al mg/L
USR (NH-4)	1/4/2008	7.00	750				3.949	0.372				2.201	
USR (NH-4)	1/21/2008	7.60	550				4.094	0.417				2.018	
USR (NH-4)	2/4/2008	7.00	2,500				2.577	0.231				1.237	
USR (NH-4)	2/18/2008	7.00	1,500				2.666	0.254				1.325	
USR (NH-4)	3/3/2008	7.00	1,500				2.619	0.263				1.364	
USR (NH-4)	3/17/2008	7.00	750				2.990	0.294				1.634	
USR (NH-4)	4/1/2008	7.00	750				1.85	0.174				1.190	
USR (NH-4)	4/14/2008	7.00	550				1.891	0.277				1.111	
USR (NH-4)	5/1/2008	7.00	1,200				1.520	0.200				0.951	
USR (NH-4)	5/12/2008	7.00	2,500				1.386	0.129				0.959	
USR (NH-4)	6/1/2008	7.00	550				1.911	0.188				1.074	
USR (NH-4)	6/16/2008	7.00	150				1.181	0.267				0.616	

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Dissolved Al mg/L
USR (NH-4)	7/1/2008	7.00	550				0.977	0.210				0.594	
USR (NH-4)	7/14/2008	7.00	75				0.441	0.169				0.208	
USR (NH-4)	8/1/2008	7.00	100				0.186	0.04				0.118	
USR (NH-4)	8/18/2008	7.00	75				0.283	0.101				0.172	
USR (NH-4)	9/2/2008	7.00	50				0.098	< 0.003				0.122	
USR (NH-4)	9/15/2008	7.00	30				0.188	0.022				0.187	
USR (NH-4)	10/1/2008	7.00	20				0.036	< 0.003				0.099	
USR (NH-4)	10/13/2008	7.00	20				0.076	< 0.003				0.073	
USR (NH-4)	11/1/2008	7.00	10				0.061	0.031				< 0.065	
USR (NH-4)	11/10/2008	7.00	10				0.019	< 0.003				< 0.065	
USR (NH-4)	12/1/2008	7.00	150				0.562	0.076				0.368	
USR (NH-4)	12/15/2008	7.00	550				1.527	0.228				0.88	

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Dissolved Al mg/L
USR (NH-4)	1/3/2009	7.00	250	< 2		30	3.436	0.413	17	296	499	1.89	
USR (NH-4)	1/13/2009	7.00	350				3.311	0.295				1.75	
USR (NH-4)	2/2/2009	7.00	550				1.567	0.223				0.88	
USR (NH-4)	2/16/2009	7.00	350				3.508	0.342				1.74	
USR (NH-4)	3/2/2009	7.00	250				2.587	0.392				1.29	
USR (NH-4)	3/24/2009	7.40	100				1.411	0.373				0.67	

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or gpm	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Dissolved Al mg/L
USR-5	1/5/2008	7.60	3,000				0.939	0.349				0.523	< 0.065
USR-5	1/21/2008	7.60	3,000				1.019	0.247				0.474	0.118
USR-5	2/5/2008	7.60	8,000				0.901	0.231				0.484	0.119
USR-5	2/19/2008	7.60	3,000				0.739	0.442				0.513	< 0.065
USR-5	3/4/2008	7.60	3,000				0.857	0.421				0.628	0.174
USR-5	3/17/2008	7.60	3,000				2.886	0.726				1.484	0.099
USR-5	4/2/2008	7.60	3,000				0.465	0.580				0.362	0.120
USR-5	4/14/2008	7.60	120				0.371	0.439				0.345	0.168
USR-5	5/2/2008	7.50	4,000				0.456	0.343				0.459	0.087
USR-5	5/13/2008	7.60	5,000				0.603	0.318				0.486	0.216
USR-5	6/3/2008	7.60	1,500				0.396	0.402				0.414	0.187
USR-5	6/16/2008	7.60	2,000				0.288	0.382				0.255	0.189

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Dissolved Al mg/L
USR-5	7/2/2008	7.60	1,000				0.293	0.153				0.209	0.094
USR-5	7/14/2008	7.60	250				0.165	< 0.003				< 0.065	< 0.065
USR-5	8/4/2008	7.60	150				0.186	0.028				0.124	< 0.065
USR-5	8/19/2008	7.60	150				0.302	0.148				0.150	0.110
USR-5	9/3/2008	7.60	150				0.029	< 0.003				0.119	< 0.065
USR-5	9/15/2008	7.60	250				0.095	< 0.003				0.109	0.102
USR-5	10/2/2008	7.60	350				0.163	0.016				0.180	0.151
USR-5	10/14/2008	7.60	75				0.079	< 0.003				0.137	0.135
USR-5	11/3/2008	7.60	50				0.063	0.016				< 0.065	< 0.065
USR-5	11/11/2008	7.00	20				0.021	< 0.003				< 0.065	< 0.065
USR-5	12/3/2008	7.60	200				0.163	0.025				< 0.065	< 0.065
USR-5	12/15/2008	7.60	550				0.388	0.130				0.196	< 0.065

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or gpm	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Dissolved Al mg/L
USR-5	1/2/2009	7.60	550				0.766	0.186				0.334	0.04
USR-5	1/13/2009	7.60	550				0.856	0.163				0.414	0.059
USR-5	2/3/2009	7.60	750				0.400	0.141				0.198	0.031
USR-5	2/16/2009	7.60	1,000				0.512	0.180				0.23	0.048
USR-5	3/3/2009	7.60	1,000				0.016	2.375				0.054	0.026
USR-5	3/20/2009	8.00	1,000				0.299	0.209				0.066	0.035

NATURAL EARTH SCIENCE TESTING SERVICES, INC.

Route 2, Box 88-C, Belington, WV 26250

Company	Patriot Mining Company, Inc.	Sampled By:	Danny Sager
Identification	New Hill Surface Mine	Analyzed By:	NEST, Inc.
	NH-6	Lab Manager	Connie Phillips

Water Analyses

		DATE					
PARAMETER	UNITS	07/19/00	08/09/00	09/01/00	10/04/00	11/01/00	12/01/00
Flow	gpm	100	100	50	35	20	100
pH	S.U.	8.02	7.57	7.82	7.81	7.98	7.75
Acidity	mg/l $CaCO_3$	<4.752	<4.752	<4.752	<4.752	<4.752	<4.752
Mineral Acidity	mg/l $CaCO_3$						
Alkalinity	mg/l $CaCO_3$	140	114	150	150	160	140
Iron	mg/l	0.05	0.11	<0.034	0.11	<0.034	<0.034
Manganese	mg/l	<0.017	<0.017	<0.021	0.04	<0.0215	<0.0215
Suspended Solids	mg/l	<3.143	5	<3.143	<3.143	11	<3.143
Dissolved Solids	mg/l	240	244	268	280	316	264
Total Solids	mg/l						
Turbidity	N.T.U.						
Conductivity	µumhos/cm						
Sulfates	mg/l						
Potassium	mg/l						
Calcium	mg/l						
Magnesium	mg/l						
Aluminum	mg/l	0.60	<0.3819	<0.3819	0.279	<0.3819	<0.3819
Chlorides	mg/l						
Bicarbonates	mg/l						
Sodium	mg/l						

LEGEND: NT — Flow not taken
NS — No sample taken
NF — No flow
Normal, High, Low — Qualitative estimates

NATURAL EARTH SCIENCE TESTING SERVICES, INC.

Route 2, Box 88-C, Belington, WV 26250

Company	Patriot Mining Company, Inc.	Sampled By:	Danny Sager
Identification	New Hill Surface Mine	Analyzed By:	NEST, Inc.
	NH-6	Lab Manager	Connie Phillips

Water Analyses

		DATE					
PARAMETER	UNITS	01/03/01	02/07/01	03/02/01	04/04/01	05/04/01	06/04/01
Flow	gpm	50	100	100	100	78	50
pH	S.U.	7.86	7.57	7.78	7.73	7.91	8.14
Acidity	mg/l $CaCO_3$	<4.752	<4.752	<4.752	<4.752	<4.752	<4.752
Mineral Acidity	mg/l $CaCO_3$						
Alkalinity	mg/l $CaCO_3$	146	80	102	86	126	118
Iron	mg/l	0.06	0.119	0.074	0.057	0.077	0.114
Manganese	mg/l	<0.0215	<0.0215	<0.0215	<0.0279	0.035	<0.0279
Suspended Solids	mg/l	<3.143	<3.143	<3.143	4	<3.143	4
Dissolved Solids	mg/l	284	188	220	188	276	256
Total Solids	mg/l						
Turbidity	N.T.U.						
Conductivity	µumhos/cm						
Sulfates	mg/l						
Potassium	mg/l						
Calcium	mg/l						
Magnesium	mg/l						
Aluminum	mg/l	0.217	0.273	0.203	<0.1081	<0.1081	<0.1081
Chlorides	mg/l						
Bicarbonates	mg/l						
Sodium	mg/l						

LEGEND: NT — Flow not taken
NS — No sample taken
NF — No flow
Normal, High, Low — Qualitative estimates

NATURAL EARTH SCIENCE TESTING SERVICES, INC.

Route 2, Box 88-C, Belington, WV 26250

Company	Patriot Mining Company, Inc.	Sampled By:	Danny Sager
Identification	New Hill Surface Mine	Analyzed By:	NEST, Inc.
	NH-7	Lab Manager	Connie Phillips

Water Analyses

		DATE					
PARAMETER	UNITS	07/19/00	08/09/00	09/01/00	10/04/00	11/01/00	12/01/00
Flow	gpm	25	25	15	20	5	5
pH	S.U.	8.03	7.49	7.35	7.58	7.88	7.82
Acidity	mg/l $CaCO_3$	<4.752	<4.752	<4.752	<4.752	<4.752	<4.752
Mineral Acidity	mg/l $CaCO_3$						
Alkalinity	mg/l $CaCO_3$	128	132	174	158	170	148
Iron	mg/l	0.16	1.47	0.043	0.15	<0.034	<0.034
Manganese	mg/l	<0.017	0.16	<0.021	0.04	<0.0215	<0.0215
Suspended Solids	mg/l	<3.143	98	7	<3.143	8	<3.143
Dissolved Solids	mg/l	252	228	284	272	324	312
Total Solids	mg/l						
Turbidity	N.T.U.						
Conductivity	µumhos/cm						
Sulfates	mg/l						
Potassium	mg/l						
Calcium	mg/l						
Magnesium	mg/l						
Aluminum	mg/l	1.20	0.40	<0.381	0.28	<0.3819	<0.3819
Chlorides	mg/l						
Bicarbonates	mg/l						
Sodium	mg/l						

LEGEND: NT — Flow not taken
NS — No sample taken
NF — No flow
Normal, High, Low — Qualitative estimates

NATURAL EARTH SCIENCE TESTING SERVICES, INC.

Route 2, Box 88-C, Belington, WV 26250

Company	Patriot Mining Company, Inc.	Sampled By:	Danny Sager
Identification	New Hill Surface Mine	Analyzed By:	NEST, Inc.
	NH-7	Lab Manager	Connie Phillips

Water Analyses

		DATE					
PARAMETER	UNITS	01/03/01	02/07/01	03/02/01	04/04/01	05/04/01	06/04/01
Flow	gpm	10	50	75	100	30	30
pH	S.U.	7.75	7.77	7.78	7.76	8.32	7.93
Acidity	mg/l $CaCO_3$	<4.752	<4.752	<4.752	<4.752	<4.752	<4.752
Mineral Acidity	mg/l $CaCO_3$						
Alkalinity	mg/l $CaCO_3$	140	74	116	100	170	114
Iron	mg/l	0.30	<0.034	<0.034	<0.0277	0.045	0.042
Manganese	mg/l	0.07	<0.0215	0.03	<0.0279	0.027	<0.0279
Suspended Solids	mg/l	41	<3.143	<3.143	<3.143	4	6
Dissolved Solids	mg/l	312	216	236	212	288	280
Total Solids	mg/l						
Turbidity	N.T.U.						
Conductivity	µumhos/cm						
Sulfates	mg/l						
Potassium	mg/l						
Calcium	mg/l						
Magnesium	mg/l						
Aluminum	mg/l	0.344	0.246	<0.0215	<0.1081	<0.1081	<0.1081
Chlorides	mg/l						
Bicarbonates	mg/l						
Sodium	mg/l						

LEGEND: NT — Flow not taken
NS — No sample taken
NF — No flow
Normal, High, Low — Qualitative estimates

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or gpm	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Dissolved Al mg/L
NH-2	7/19/2000	3.03	20	154		< 3.629	42.40	6.60	6	1624		8	
NH-2	8/9/2000	3.11	10	176		< 3.629	38.40	6.60	27	1668		5.90	
NH-2	9/1/2000	3.38	10	154		< 3.629	66.50	9.78	48	1764		6.73	
NH-2	10/4/2000	5.00	3	140		10	13.93	8.60	15	2152		1.642	
NH-2	11/1/2000	6.36	< 1	80		70	65.00	8.20	23	2136		< 0.3819	
NH-2	12/1/2000	No Flow											
NH-2	1/13/2001	No Flow											
NH-2	2/7/2001	3.61	10	98		< 3.629	24.49	6.75	4	1500		6.67	
NH-2	2/20/2001	2.82	75	144		< 3.629	24.627	4.875	23	1332		5.804	
NH-2	3/2/2001	4.00	30	156		< 3.629	31.876	5.811	4	1568		7.174	
NH-2	3/22/2001	2.93	50	98		< 3.629	27.25	4.46	23	1140		5.20	
NH-2	4/4/2001	2.98	60	114		< 3.629	31.746	4.564	4	1272		4.79	

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or gpm	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Dissolved Al mg/L
NH-2	4/18/2001	2.88	75	144		< 3.629	54.35	4.58	23	1380		4.48	
NH-2	5/4/2001	2.76	35	232		< 3.629	64.54	6.29	< 3.143	1804		4.82	
NH-2	5/14/2001	3.24	30	182		< 3.629	52.76	8.064	6	1756		6.872	
NH-2	6/4/2001	3.09	25	146		< 3.629	39.093	7.415	33	1716		4.649	
NH-2	6/18/2001	3.09	25	160		< 3.629	33.392	5.287	29	1552		3.705	
NH-2	7/3/2001	3.01	25	156		< 3.629	36.57	6.111	22	1696		3.662	
NH-2	7/16/2001	3.13	20	140		< 3.629	36.689	3.611	33	1788		3.805	
NH-2	8/3/2001	3.11	20	140		< 3.629	34.88	7.706	56	1920		7.706	
NH-2	8/13/2001	3.12	10	138		< 3.629	43.807	7.849	69	2052		7.849	
NH-2	9/5/2001	5.94	10	160		36	107.275	10.921	20	2304		10.921	
NH-2	9/18/2001	5.50	10	60		40	98.9	11.075	17	1444		11.075	
NH-2	10/1/2001	6.13	10	90		30	64.87	7.126	45	2400		7.126	

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or gpm	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Dissolved Al mg/L
NH-2	10/16/2001	6.03	5	154		46	5.04	0.279	84	2126		< 0.1081	
NH-2	11/3/2001	6.13	< 1	< 4.752		92	106.16	6.48	624	3296		0.527	
NH-2	11/13/2001	No Flow											
NH-2	12/4/2001	No Flow											
NH-2	12/18/2001	5.83	2	8		10	1.123	0.633	< 3.143	532		0.223	
NH-2	1/3/2002	6.56	< 1	< 4.752		90	6.357	4.291	66	2188		0.325	
NH-2	1/15/2002	6.15	3	< 4.752		24	3.358	4.4	4	1542		0.364	
NH-2	2/1/2002	3.23	5	90		< 3.629	10.582	4.411	4	1700		3.581	
NH-2	2/18/2002	3.43	5	104		< 3.629	19.792	6.337	10	1808		4.753	
NH-2	3/1/2002	3.27	5	18.4		< 3.629	15.991	5.373	3.143	1604		4.572	
NH-2	3/19/2002	3.23	25	18		< 3.629	45.597	8.88	8	1140		7.401	
NH-2	4/1/2002	3.26	35	116		< 3.629	45.117	6.2978	< 3.143	1484		6.8234	

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or gpm	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Sulfates mg/L
NH-2	4/16/2002	3.08	20	164		< 3.629	57.214	5.368	29	1564		4.46	
NH-2	5/2/2002	3.14	25	144		< 3.629	45.879	5	37	1476		4.06	
NH-2	5/13/2002	3.115	30	184		< 3.629	38.381	4.782	49	1484		3.605	
NH-2	8/27/2002	4.71	3	222		< 3.629	174.929	8.039	36	2416	2500	0.132	500
NH-2	10/1/2002	3.30	< 1	82		< 3.629	28.644	10.47	55	1716	2050	3.109	400
NH-2	3/3/2003	7.96		1		138	53.330	6.92	384	2280	2610	4.65	270
NH-2	4/1/2003	3.17	25	60		< 3.629	97.584	9.255	33	2184	2720	6.449	490
NH-2	7/1/2003	3.02	25	200		< 3.629	60.308	7.721	23	2192	2600	3.939	290
NH-2	10/1/2003	3.70	20	56		< 3.629	13.928	2.998	25	1584	1900	2.021	570
NH-2	1/2/2004	3.38	30	108		< 4.00	38.970	3.63	23	1680		0.80	720
NH-2	4/1/2004	3.34	40	118		< 4.00	80.034	6.37	71	1868		1.088	670
NH-2	7/1/2004	3.13	25	144		< 4.00	70.246	6.69	76	1976		1.274	1280

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or **gpm**	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Sulfates mg/L
NH-2	10/1/2004	3.00	10	102		< 4.00	86.70	6.813	84	2032		1.088	530
NH-2	1/3/2005	3.14	15	138		< 4.00	50.719	5.766	120	1988		1.459	670
NH-2	4/4/2005	3.09	25	150		< 4.00	109.353	10.357	39	1968		1.127	48
NH-2	7/5/2005	3.17	2	118		< 4.00	67.801	6.206	71	2432		0.317	660
NH-2	10/3/2005	No Flow											
NH-2	1/9/2006	7.16	5	< 5		36	0.614	0.572	< 3	1144		0.212	510
NH-2	4/1/2006	3.37	< 1	56		< 4.00	24.786	4.66	56	2092		1.594	580
NH-2	7/3/2006	3.42	10	38		< 4.00	25.408	6.265	54	2112		1.246	450
NH-2	10/3/2006	6.95	< 1	< 5		36	1.94	0.28	10	1696		0.138	430
NH-2	1/2/2007	6.71	11	< 3		30	2.274	0.251	17	1692		0.239	330
NH-2	4/3/2007	3.10	10	94		< 5	42.673	6.053	53	2024		0.787	800
NH-2	7/2/2007	6.08	< 1	< 3		32	40.618	5.13	59	1956		0.309	580

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name **Patriot Mining Company, Inc.**
Mine Name **New Hill West Surface Mine**
Laboratory Name **Standard Laboratories, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow cfs or gpm	Total Hot Acidity mg/L $CaCO_3$	Mineral Acidity mg/L $CaCO_3$	Total Alkalinity mg/L $CaCO_3$	Total Fe mg/L	Total Mn mg/L	TSS mg/L	TDS mg/L	Spec. Cond. µmhos	Total Al mg/L	Sulfates mg/L
NH-2	10/1/2007	5.63	< 1	60		20	88.56	4.49	87	2224		< 0.065	490
NH-2	1/4/2008	3.36	3	48		< 5	31.774	6.431	25	2044		1.605	1250
NH-2	4/1/2008	3.04	5	103		< 5	21.820	3.51	52	2084		0.527	1650
NH-2	7/1/2008	3.35	2	94		< 5	36.77	6.786	43	1992		0.427	1950
NH-2	10/1/2008	No Flow											
NH-2	1/3/2009	5.60	5	< 2		14	15.898	5.211	36	2108		1.568	1700
NH-2	4/1/2009	3.52	< 1	40		< 2	22.82	5.424	30	2092		0.407	1650
NH-2	7/1/2009	2.98	4	76		< 2	19.391	5.827	14	2188		0.20	1650
NH-2	10/1/2009	No Flow											

Groundwater

WELL, SPRING AND POND SAMPLE SITES

AS PER GROUNDWATER INVENTORY

Natural Earth Science Testing Services, Inc.
Rt. 2, Box 88-C Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
Coallab@access.mountain.net

Environmental Analysis

Company: Patriot Mining Company, Inc. (WV)
Location:
Outlet/Site: W-1 Water Study
Outlet Name: 2000-353 W-1
State Permit #: NEW HILL
DOE Permit/Article:
Laboratory #: 2000-16333

Field Sampler: SA
Sampled By: SURVEYORS
Date Sampled: 10/19/2000
Date Received: 10/24/2000
Date Completed:
Time Sampled: 16:00:00
Report Date: 11/06/2000 1:19PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
9	Field Temp		0.00	Degree F	EPA 170.1					
58	Flow	<	1.0000	GPM	EPA-170.1		SA	10/19/2000	16:00:00	
95	Specific Conductance		670.0000	UMHO/CM	SM 2510B	13.4230	MB	10/25/2000		
399	Lab pH		7.1400	Std. Unit	SM 4500B	0.3690	RW	10/25/2000		
400	Field pH		0.00	Std. Unit	SM 4500B	0.5000	SA	10/19/2000	16:00:00	
410	Alkalinity, Total		208.0000	mg/l	SM-2320B	3.6290	RW	10/25/2000		
435	Acidity, Total Hot	<	4.7520	mg/l	SM-2310B	4.7520	RW	10/25/2000		
530	Solids, Total Suspended	<	3.1430	mg/l	SM 2540D	3.1430	TS	10/25/2000		
945	Sulfates		120.0000	mg/l	EPA-375.4	3.6800	MB	10/25/2000		
1045	Iron, Total		0.38000	mg/l	EPA 200.7 ICP	0.0340	KF	10/25/2000		
1055	Manganese, Total		0.04000	mg/l	EPA 200.7 ICP	0.0215	KF	10/25/2000		
1105	Aluminum	<	0.38190	mg/l	EPA 200.7 ICP	0.3819	TS	10/25/2000		
70296	TDS		416.0000	mg/l	SM 2540C	14.0560	TS	10/25/2000		

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020
MDL: Method Detection Limit (mg/l: ppm)

Respectfully Submitted,
Timothy Shrout

Timothy Shrout; Staff Chemist
Natural Earth Science Testing Services, Inc.

WV-68 WV - DEP Certification Number

Approved By,
Connie Phillips

Connie Phillips; Enviromental Lab. Manager
Natural Earth Science Testing Services, Inc.

Natural Earth Science Testing Services, Inc.
Rt. 2, Box 88-C Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
Coallab@access.mountain.net

Environmental Analysis

Company:	**Patriot Mining Company, Inc. (WV)**	Elevation (ft):	Field Sampler: RH
Location:	New Hill Sampled By Surveyor & Associates	Latitude:	Sampled By: AWVMC
Outlet/Site:	W-2 Unknown Site Type	Longitude:	Date Sampled: 02/15/2005
Outlet Name:	W-2	Rain Fall 24Hr Prior:	Date Received: 02/23/2005
State Permit #:	05/31502	Rain Fall 72Hr Prior:	Date Completed: 02/24/2005
DOE Permit/Article:			Time Sampled: 08:30:00
Laboratory #:	2205-22693		Report Date: 01/26/2010 12:06PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
58	Flow (Outlet)		0.00	GPM	EPA 170.1		RH	2/15/2005	08:30:00	
95	Conductance, Specific		355.000	UMHO/CM	SM-2510 B	13.423	MB	2/24/2005		
399	pH, Lab		6.770	Std. Unit	SM-4500 B	0.041	KF	2/24/2005		
410	Alkalinity, Total (As CACO3		108.000	mg/l	SM-2320 B	4.000	KF	2/24/2005		
435	Acidity, Total (As CACO3)	<	5.000	mg/l	SM-2310 B	5.000	KF	2/24/2005		None Detected at the reporting level (MDL)
530	Solids, Suspened Total	<	3.000	mg/l	SM-2540 D	3.000	MB	2/24/2005		None Detected at the reporting level (MDL)
945	Sulfates, Total (As SO4)		100.000	mg/l	EPA-375.4	2.000	MB	2/24/2005		
1045	Iron, Total		0.3150	mg/l	EPA 200.7 ICP	0.014	CP	2/24/2005		
1055	Manganese, Total (Mn)		0.0480	mg/l	EPA 200.7 ICP	0.003	CP	2/24/2005		
1105	Aluminum, Total (As AL)		0.0880	mg/l	EPA 200.7 ICP	0.065	CP	2/24/2005		
70296	Solids,Total Dissolved		312.000	mg/l	SM-2540C	14.000	MB	2/24/2005		

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Margaret A. Bartlett; President
Natural Earth Science Testing Services, Inc.

Approved By,

Connie Phillips; Enviromental Lab. Manager
Natural Earth Science Testing Services, Inc.

WV168 WV - DEP Certification Number

Standard Laboratories, Inc.

Environmental Analysis

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Company:	**Patriot Mining Company/Active Permits**		Elevation (ft):	Field Sampler:	HS
Location:	Surveyor & Associates		Latitude:	Sampled By:	Surveyor & Asso
Outlet/Site:	W-2	Unknown Site Type	Longitude:	Date Sampled:	03/24/2009
Outlet Name:	W-2		Rain Fall 24Hr Prior:	Date Received:	04/07/2009
State Permit #:	09.510		Rain Fall 72Hr Prior:	Date Completed:	04/10/2009
DOE Permit/Article:				Time Sampled:	14:10:00
Laboratory #:	000-00609			Report Date:	01/26/2010 11:56AM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		130.0	UMHO/CM	SM-2510 B	4.8	KF	4/09/2009	10:30:00	
403	pH, Lab		7.00	Std. Unit	SM 4500-H+ B	1.00	TE	4/08/2009	16:00:00	
410	Alkalinity, Total (As CACO3		147.00	mg/l	SM-2320 B	2.00	TE	4/08/2009	16:00:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	4/08/2009	16:40:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total	<	3.00	mg/l	SM-2540 D	3.00	KF	4/09/2009	11:30:00	None Detected at the reporting level (MDL)
945	Sulfates, Total (As SO4)		110	mg/l	ASTM D516-90, 03	2	KF	4/09/2009	10:45:00	
1045	Iron, Total		0.906	mg/l	EPA 200.7 Rev. 4.4	0.004	VH	4/10/2009	13:00:00	
1055	Manganese, Total (Mn)		0.150	mg/l	EPA 200.7 Rev. 4.4	0.002	VH	4/10/2009	13:00:00	
1105	Aluminum, Total (As AL)		0.019	mg/l	EPA 200.7 Rev. 4.4	0.008	VH	4/10/2009	13:00:00	
70296	Solids,Total Dissolved		400	mg/l	SM-2540C	10	KF	4/09/2009	11:00:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty D. Crites, Environmental Lab. Manager
Standard Laboratories, Inc.

Natural Earth Science Testing Services, Inc.

Environmental Analysis

(304)-457-5609 Fax (304)-457-1562
Coallab@access.mountain.net

Company: **Patriot Mining Company, Inc. (WV)**
Location: New Hill Sampled By Surveyor & Associates
Outlet/Site: W-3 Unknown Site Type
Outlet Name: W-3
State Permit #: 05/31502
DOE Permit/Article:
Laboratory #: 2205-22694

Elevation (ft):
Latitude:
Longitude:
Rain Fall 24Hr Prior:
Rain Fall 72Hr Prior:

Field Sampler: RH
Sampled By: AWVMC
Date Sampled: 02/15/2005
Date Received: 02/23/2005
Date Completed: 02/24/2005
Time Sampled: 09:00:00
Report Date: 01/26/2010 12:06PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
58	Flow (Outlet)		0.00	GPM	EPA 170.1		RH	2/15/2005	09:00:00	
95	Conductance, Specific		333.000	UMHO/CM	SM-2510 B	13.423	MB			
399	pH, Lab		6.820	Std. Unit	SM-4500 B	0.041	KF			
410	Alkalinity, Total (As CACO3		106.000	mg/l	SM-2320 B	4.000	KF			
435	Acidity, Total (As CACO3)	<	5.000	mg/l	SM-2310 B	5.000	KF			None Detected at the reporting level (MDL)
530	Solids, Suspened Total		7.000	mg/l	SM-2540 D	3.000	MB			
945	Sulfates, Total (As SO4)		100.000	mg/l	EPA-375.4	2.000	MB			
1045	Iron, Total		1.289	mg/l	EPA 200.7 ICP	0.014	CP			
1055	Manganese, Total (Mn)		0.9260	mg/l	EPA 200.7 ICP	0.003	CP			
1105	Aluminum, Total (As AL)		1.060	mg/l	EPA 200.7 ICP	0.065	CP			
70296	Solids,Total Dissolved		220.000	mg/l	SM-2540C	14.000	MB			

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Margaret A. Bartlett; President
Natural Earth Science Testing Services, Inc.

WV168 WV - DEP Certification Number

Approved By,

Connie Phillips; Enviromental Lab. Manager
Natural Earth Science Testing Services, Inc.

Standard Laboratories, Inc.

Environmental Analysis

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Company:	**Patriot Mining Company/Active Permits**		Elevation (ft):	Field Sampler:	HS
Location:	Surveyor & Associates		Latitude:	Sampled By:	Surveyor & Asso
Outlet/Site:	W-3	Unknown Site Type	Longitude:	Date Sampled:	03/24/2009
Outlet Name:	W-3		Rain Fall 24Hr Prior:	Date Received:	04/07/2009
State Permit #:	09.510		Rain Fall 72Hr Prior:	Date Completed:	04/10/2009
DOE Permit/Article:				Time Sampled:	13:30:00
Laboratory #:	000-00608			Report Date:	01/26/2010 11:56AM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		1508.0	UMHO/CM	SM-2510 B	4.8	KF	4/09/2009	10:30:00	
403	pH, Lab		7.30	Std. Unit	SM 4500-H+ B	1.00	TE	4/08/2009	16:00:00	
410	Alkalinity, Total (As CACO3		173.00	mg/l	SM-2320 B	2.00	TE	4/08/2009	16:00:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	4/08/2009	16:40:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total	<	3.00	mg/l	SM-2540 D	3.00	KF	4/09/2009	11:30:00	None Detected at the reporting level (MDL)
945	Sulfates, Total (As SO4)		700	mg/l	ASTM D516-90, 03	2	KF	4/09/2009	10:45:00	
1045	Iron, Total		0.149	mg/l	EPA 200.7 Rev. 4.4	0.004	VH	4/10/2009	13:00:00	
1055	Manganese, Total (Mn)		0.016	mg/l	EPA 200.7 Rev. 4.4	0.002	VH	4/10/2009	13:00:00	
1105	Aluminum, Total (As AL)		0.024	mg/l	EPA 200.7 Rev. 4.4	0.008	VH	4/10/2009	13:00:00	
70296	Solids,Total Dissolved		1036	mg/l	SM-2540C	10	KF	4/09/2009	11:00:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

Approved By,

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Natural Earth Science Testing Services, Inc.
Rt. 2, Box 88-C Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
Coallab@access.mountain.net

Environmental Analysis

Company: Patriot Mining Company, Inc. (WV)
Location: Patriot New Hill
Outlet/Site: W-[redacted] S Permit Water Study Ongoing
Outlet Name: W
State Permit #: 00/353
DOE Permit/Article:
Laboratory #: 2001-02946

Field Sampler: KS
Sampled By: KS/RH
Date Sampled: 04/04/2001
Date Received: 04/05/2001
Date Completed: 04/09/2001
Time Sampled: 12:49:00
Report Date: 04/11/2001 1:03PM

Id	Parameter Name	Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
46	Filtered, Iron Dissolved	0.26500	mg/l			TS	4/09/2001		
56	Filtered, Manganese Dissol\	0.03000	mg/l			TS	4/09/2001		
95	Specific Conductance	519.0000	UMHO/CM	SM 2510B	13.4230	KF	4/09/2001		
105	Filtered, Alumnium Dissolve	0.11800	mg/l			TS	4/09/2001		
399	Lab pH	7.3000	Std. Unit	SM 4500B	0.3690	RW	4/09/2001		
410	Alkalinity, Total	190.0000	mg/l	SM-2320B	3.6290	RW	4/09/2001		
435	Acidity, Total Hot	< 4.7520	mg/l	SM-2310B	4.7520	RW	4/09/2001		
530	Solids, Total Suspended	9.0000	mg/l	SM 2540D	3.1430	KF	4/09/2001		
945	Sulfates	170.0000	mg/l	EPA-375.4	3.6800	KF	4/09/2001		
1045	Iron, Total	0.51900	mg/l	EPA 200.7 ICP	0.0340	TS	4/09/2001		
1055	Manganese, Total	0.02500	mg/l	EPA 200.7 ICP	0.0215	TS	4/09/2001		
1105	Aluminum	< 0.10810	mg/l	EPA 200.7 ICP	0.1081	TS	4/09/2001		
70296	TDS	428.0000	mg/l	SM 2540C	14.0560	KF	4/09/2001		

FIELD RESULTS

PH 6.5
FE 1.0 Mg/L
TEMP 14°C
SWL 7.8'
SAMPLED BY: RANDY HARTMAN/KEVIN SHAFFER

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020
MDL: Method Detection Limit (mg/l: ppm)

Respectfully Submitted,

Margaret A. Bartlett; President
Natural Earth Science Testing Services, Inc.

WV168 WV - DEP Certification Number

Approved By,

Connie Phillips

Connie Phillips; Enviromental Lab. Manager
Natural Earth Science Testing Services, Inc.

Standard Laboratories, Inc.

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Environmental Analysis

Company:	Patriot Mining Company/Active Permits	Elevation (ft):		Field Sampler:	HS
Location:	Surveyor & Associates	Latitude:		Sampled By:	Surveyor & Asso
Outlet/Site:	S9 Unknown Site Type	Longitude:		Date Sampled:	04/01/2009
Outlet Name:	S9	Rain Fall 24Hr Prior:		Date Received:	04/07/2009
State Permit #:	09.510	Rain Fall 72Hr Prior:		Date Completed:	04/10/2009
DOE Permit/Article:				Time Sampled:	13:36:00
Laboratory #:	000-00601			Report Date:	04/13/2009 1:47PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		3550.0	UMHO/CM	SM-2510 B	4.8	KF	4/09/2009	10:30:00	
403	pH, Lab		7.78	Std. Unit	SM 4500-H+ B	1.00	TE	4/08/2009	16:00:00	
410	Alkalinity, Total (As CACO3		111.00	mg/l	SM-2320 B	2.00	TE	4/08/2009	16:00:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	4/08/2009	16:40:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total		8.00	mg/l	SM-2540 D	3.00	KF	4/09/2009	11:30:00	
945	Sulfates, Total (As SO4)		2400	mg/l	ASTM D516-90, 03	2	KF	4/09/2009	10:45:00	
1045	Iron, Total		0.059	mg/l	EPA 200.7 Rev. 4.4	0.004	VH	4/10/2009	13:00:00	
1055	Manganese, Total (Mn)		12.467	mg/l	EPA 200.7 Rev. 4.4	0.002	VH	4/10/2009	13:00:00	
1105	Aluminum, Total (As AL)		0.055	mg/l	EPA 200.7 Rev. 4.4	0.008	VH	4/10/2009	13:00:00	
70296	Solids,Total Dissolved		2996	mg/l	SM-2540C	10	KF	4/09/2009	11:00:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty D. Crites

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

Standard Laboratories, Inc.

Environmental Analysis

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Company:	**Patriot Mining Company/Active Permits**	Elevation (ft):		Field Sampler:	HS
Location:	Surveyor & Associates	Latitude:		Sampled By:	Surveyor & Asso
Outlet/Site:	P9 Unknown Site Type	Longitude:		Date Sampled:	04/01/2009
Outlet Name:	P9	Rain Fall 24Hr Prior:		Date Received:	04/07/2009
State Permit #:	09.510	Rain Fall 72Hr Prior:		Date Completed:	04/10/2009
DOE Permit/Article:				Time Sampled:	13:50:00
Laboratory #:	000-00602			Report Date:	04/13/2009 1:47PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		166.0	UMHO/CM	SM-2510 B	4.8	KF	4/09/2009	10:30:00	
403	pH, Lab		7.60	Std. Unit	SM 4500-H+ B	1.00	TE	4/08/2009	16:00:00	
410	Alkalinity, Total (As CACO3		37.00	mg/l	SM-2320 B	2.00	TE	4/08/2009	16:00:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	4/08/2009	16:40:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total		25.00	mg/l	SM-2540 D	3.00	KF	4/09/2009	11:30:00	
945	Sulfates, Total (As SO4)		36	mg/l	ASTM D516-90, 03	2	KF	4/09/2009	10:45:00	
1045	Iron, Total		0.413	mg/l	EPA 200.7 Rev. 4.4	0.004	VH	4/10/2009	13:00:00	
1055	Manganese, Total (Mn)		0.048	mg/l	EPA 200.7 Rev. 4.4	0.002	VH	4/10/2009	13:00:00	
1105	Aluminum, Total (As AL)		0.386	mg/l	EPA 200.7 Rev. 4.4	0.008	VH	4/10/2009	13:00:00	
70296	Solids,Total Dissolved		180	mg/l	SM-2540C	10	KF	4/09/2009	11:00:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty D. Crites

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

Standard Laboratories, Inc.

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Environmental Analysis

Company: Patriot Mining Company/Active Permits
Location: Surveyor & Associates
Outlet/Site: W-32 Unknown Site Type
Outlet Name: W-32
State Permit #: 09.510
DOE Permit/Article:
Laboratory #: 000-01083

Elevation (ft):
Latitude:
Longitude:
Rain Fall 24Hr Prior:
Rain Fall 72Hr Prior:

Field Sampler: HS
Sampled By: Surveyor&Assoc
Date Sampled: 05/19/2009
Date Received: 05/20/2009
Date Completed: 06/01/2009
Time Sampled: 08:00:00
Report Date: 01/08/2010 8:05AM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		838.0	UMHO/CM	SM-2510 B	4.8	KF	5/28/2009	10:10:00	
403	pH, Lab		7.35	Std. Unit	SM 4500-H+ B	1.00	TE	5/28/2009	14:30:00	
410	Alkalinity, Total (As CACO3		267.00	mg/l	SM-2320 B	2.00	TE	5/28/2009	14:30:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	5/28/2009	15:00:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total	<	3.00	mg/l	SM-2540 D	3.00	KF	5/29/2009	08:30:00	None Detected at the reporting level (MDL)
945	Sulfates, Total (As SO4)		160	mg/l	ASTM D516-90, 03	2	KF	5/28/2009	15:15:00	
1045	Iron, Total		0.067	mg/l	EPA 200.7 Rev. 4.4	0.004	KH	6/01/2009	11:00:00	
1055	Manganese, Total (Mn)		0.004	mg/l	EPA 200.7 Rev. 4.4	0.002	KH	6/01/2009	11:00:00	
1105	Aluminum, Total (As AL)	<	0.008	mg/l	EPA 200.7 Rev. 4.4	0.008	KH	6/01/2009	11:00:00	None Detected at the reporting level (MDL)
70296	Solids,Total Dissolved		620	mg/l	SM-2540C	10	KF	5/28/2009	15:30:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty D. Crites; Environmental Lab Manager
Standard Laboratories, Inc.

Standard Laboratories, Inc.

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Environmental Analysis

Company: Patriot Mining Company/Active Permits
Location: Surveyor & Associates
Outlet/Site: W35 Unknown Site Type
Outlet Name: W35
State Permit #: 09.510
DOE Permit/Article:
Laboratory #: 000-00794

Elevation (ft):
Latitude:
Longitude:
Rain Fall 24Hr Prior:
Rain Fall 72Hr Prior:

Field Sampler: HS
Sampled By: Surveyor& Assoc
Date Sampled: 04/15/2009
Date Received: 04/21/2009
Date Completed: 04/27/2009
Time Sampled: 13:40:00
Report Date: 01/08/2010 8:21AM

Id	Parameter Name	Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific	466.0	UMHO/CM	SM-2510 B	4.8	KF	4/24/2009	09:45:00	
403	pH, Lab	7.56	Std. Unit	SM 4500-H+ B	1.00	TE	4/24/2009	12:20:00	
410	Alkalinity, Total (As CACO3	190.00	mg/l	SM-2320 B	2.00	TE	4/24/2009	12:20:00	
435	Acidity, Total (As CACO3)	< 2.00	mg/l	SM-2310 B	2.00	TE	4/24/2009	14:00:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total	55.00	mg/l	SM-2540 D	3.00	KF	4/27/2009	08:30:00	
945	Sulfates, Total (As SO4)	44	mg/l	ASTM D516-90, 03	2	KF	4/24/2009	16:15:00	
1045	Iron, Total	1.974	mg/l	EPA 200.7 Rev. 4.4	0.004	KH	4/27/2009	14:35:00	
1055	Manganese, Total (Mn)	1.026	mg/l	EPA 200.7 Rev. 4.4	0.002	KH	4/27/2009	14:35:00	
1105	Aluminum, Total (As AL)	0.416	mg/l	EPA 200.7 Rev. 4.4	0.008	KH	4/27/2009	14:35:00	
70296	Solids,Total Dissolved	296	mg/l	SM-2540C	10	KF	4/24/2009	16:30:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

Standard Laboratories, Inc.

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1582
mdcrites@standardlabs.com

Environmental Analysis

Company: Patriot Mining Company/Active Permits
Location: Surveyor & Associates
Outlet/Site: P35 Unknown Site Type
Outlet Name: P35
State Permit #: 09.510
DOE Permit/Article:
Laboratory #: 000-00795

Elevation (ft):
Latitude:
Longitude:
Rain Fall 24Hr Prior:
Rain Fall 72Hr Prior:

Field Sampler: HS
Sampled By: Surveyor& Assoc
Date Sampled: 04/15/2009
Date Received: 04/21/2009
Date Completed: 04/27/2009
Time Sampled: 13:55:00
Report Date: 01/08/2010 8:21AM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		82.0	UMHO/CM	SM-2510 B	4.8	KF	4/24/2009	09:45:00	
403	pH, Lab		6.45	Std. Unit	SM 4500-H+ B	1.00	TE	4/24/2009	12:20:00	
410	Alkalinity, Total (As CACO3		11.00	mg/l	SM-2320 B	2.00	TE	4/24/2009	12:20:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	4/24/2009	14:00:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total	<	3.00	mg/l	SM-2540 D	3.00	KF	4/27/2009	09:30:00	None Detected at the reporting level (MDL)
945	Sulfates, Total (As SO4)		29	mg/l	ASTM D516-90, 03	2	KF	4/24/2009	16:15:00	
1045	Iron, Total		0.385	mg/l	EPA 200.7 Rev. 4.4	0.004	KH	4/27/2009	14:35:00	
1055	Manganese, Total (Mn)		0.077	mg/l	EPA 200.7 Rev. 4.4	0.002	KH	4/27/2009	14:35:00	
1105	Aluminum, Total (As AL)		0.187	mg/l	EPA 200.7 Rev. 4.4	0.008	KH	4/27/2009	14:35:00	
70296	Solids,Total Dissolved		40	mg/l	SM-2540C	10	KF	4/24/2009	16:30:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

Standard Laboratories, Inc.

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Environmental Analysis

Company: Patriot Mining Company/Active Permits
Location: Surveyor & Associates
Outlet/Site: P35.1 Unknown Site Type
Outlet Name: P35.1
State Permit #: 09.510
DOE Permit/Article:
Laboratory #: 000-00796

Elevation (ft):
Latitude:
Longitude:
Rain Fall 24Hr Prior:
Rain Fall 72Hr Prior:

Field Sampler: HS
Sampled By: Surveyor& Assoc
Date Sampled: 04/15/2009
Date Received: 04/21/2009
Date Completed: 04/27/2009
Time Sampled: 14:15:00
Report Date: 01/08/2010 8:21AM

Id	Parameter Name	Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific	129.0	UMHO/CM	SM-2510 B	4.8	KF	4/24/2009	09:45:00	
403	pH, Lab	6.96	Std. Unit	SM 4500-H+ B	1.00	TE	4/24/2009	12:20:00	
410	Alkalinity, Total (As CACO3	39.00	mg/l	SM-2320 B	2.00	TE	4/24/2009	12:20:00	
435	Acidity, Total (As CACO3)	< 2.00	mg/l	SM-2310 B	2.00	TE	4/24/2009	14:00:00	None Detected at the reporting level. (MDL)
530	Solids, Suspened Total	20.00	mg/l	SM-2540 D	3.00	KF	4/27/2009	09:30:00	
945	Sulfates, Total (As SO4)	25	mg/l	ASTM D516-90, 03	2	KF	4/24/2009	16:15:00	
1045	Iron, Total	1.123	mg/l	EPA 200.7 Rev. 4.4	0.004	KH	4/27/2009	14:35:00	
1055	Manganese, Total (Mn)	1.527	mg/l	EPA 200.7 Rev. 4.4	0.002	KH	4/27/2009	14:35:00	
1105	Aluminum, Total (As AL)	0.174	mg/l	EPA 200.7 Rev. 4.4	0.008	KH	4/27/2009	14:35:00	
70296	Solids,Total Dissolved	96	mg/l	SM-2540C	10	KF	4/24/2009	16:30:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

Standard Laboratories, Inc.

Environmental Analysis

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Company:	**Patriot Mining Company/Active Permits**		Elevation (ft):	Field Sampler:	HS
Location:	Surveyor & Associates		Latitude:	Sampled By:	Surveyor & Asso
Outlet/Site:	W-37	Unknown Site Type	Longitude:	Date Sampled:	04/21/2009
Outlet Name:	W-37		Rain Fall 24Hr Prior:	Date Received:	05/08/2009
State Permit #:	09.510		Rain Fall 72Hr Prior:	Date Completed:	05/13/2009
DOE Permit/Article:				Time Sampled:	
Laboratory #:	000-00978			Report Date:	05/15/2009 10:19AM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		380.0	UMHO/CM	SM-2510 B	4.8	KF	4/21/2009	09:45:00	
403	pH, Lab		7.52	Std. Unit	SM 4500-H+ B	1.00	TE	5/11/2009	11:50:00	
410	Alkalinity, Total (As CACO3		107.00	mg/l	SM-2320 B	2.00	TE	5/11/2009	11:50:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	5/11/2009	13:20:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total		312.00	mg/l	SM-2540 D	3.00	KF	5/12/2009	11:30:00	
945	Sulfates, Total (As SO4)		85	mg/l	ASTM D516-90, 03	2	KF	5/12/2009	16:00:00	
1045	Iron, Total		20.786	mg/l	EPA 200.7 Rev. 4.4	0.004	KH	5/13/2009	12:15:00	
1055	Manganese, Total (Mn)		4.492	mg/l	EPA 200.7 Rev. 4.4	0.002	KH	5/13/2009	12:15:00	
1105	Aluminum, Total (As AL)		1.988	mg/l	EPA 200.7 Rev. 4.4	0.008	KH	5/13/2009	12:15:00	
70296	Solids,Total Dissolved		264	mg/l	SM-2540C	10	KF	5/12/2009	16:15:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

Approved By,

Misty D. Crites

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Standard Laboratories, Inc.

Environmental Analysis

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Company:	**Patriot Mining Company/Active Permits**	Elevation (ft):		Field Sampler:	HS
Location:	Surveyor & Associates	Latitude:		Sampled By:	Surveyor & Asso
Outlet/Site:	W-45 Unknown Site Type	Longitude:		Date Sampled:	04/21/2009
Outlet Name:	W-45	Rain Fall 24Hr Prior:		Date Received:	05/08/2009
State Permit #:	09.510	Rain Fall 72Hr Prior:		Date Completed:	05/13/2009
DOE Permit/Article:				Time Sampled:	
Laboratory #:	000-00979			Report Date:	05/15/2009 10:19AM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		367.0	UMHO/CM	SM-2510 B	4.8	KF	5/12/2009	09:45:00	
403	pH, Lab		7.02	Std. Unit	SM 4500-H+ B	1.00	TE	5/11/2009	11:50:00	
410	Alkalinity, Total (As CACO3		93.00	mg/l	SM-2320 B	2.00	TE	5/11/2009	11:50:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	5/11/2009	13:20:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total		140.00	mg/l	SM-2540 D	3.00	KF	5/12/2009	11:30:00	
945	Sulfates, Total (As SO4)		105	mg/l	ASTM D516-90, 03	2	KF	5/12/2009	16:00:00	
1045	Iron, Total		21.766	mg/l	EPA 200.7 Rev. 4.4	0.004	KH	5/13/2009	12:15:00	
1055	Manganese, Total (Mn)		3.667	mg/l	EPA 200.7 Rev. 4.4	0.002	KH	5/13/2009	12:15:00	
1105	Aluminum, Total (As AL)		0.182	mg/l	EPA 200.7 Rev. 4.4	0.008	KH	5/13/2009	12:15:00	
70296	Solids,Total Dissolved		172	mg/l	SM-2540C	10	KF	5/12/2009	16:15:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
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Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

Standard Laboratories, Inc.

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Environmental Analysis

Company:	Patriot Mining Company/Active Permits	Elevation (ft):	
Location:	Surveyor & Associates	Latitude:	
Outlet/Site:	W154 Unknown Site Type	Longitude:	
Outlet Name:	W154	Rain Fall 24Hr Prior:	
State Permit #:	09.510	Rain Fall 72Hr Prior:	
DOE Permit/Article:			
Laboratory #:	000-00603		

Field Sampler:	HS
Sampled By:	Surveyor & Asso
Date Sampled:	03/31/2009
Date Received:	04/07/2009
Date Completed:	04/10/2009
Time Sampled:	10:00:00
Report Date:	04/13/2009 1:47PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		583.0	UMHO/CM	SM-2510 B	4.8	KF	4/09/2009	10:30:00	
403	pH, Lab		7.91	Std. Unit	SM 4500-H+ B	1.00	TE	4/08/2009	16:00:00	
410	Alkalinity, Total (As CACO3		233.00	mg/l	SM-2320 B	2.00	TE	4/08/2009	16:00:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	4/08/2009	16:40:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total	<	3.00	mg/l	SM-2540 D	3.00	KF	4/09/2009	11:30:00	None Detected at the reporting level (MDL)
945	Sulfates, Total (As SO4)		95	mg/l	ASTM D516-90, 03	2	KF	4/09/2009	10:45:00	
1045	Iron, Total		0.294	mg/l	EPA 200.7 Rev. 4.4	0.004	VH	4/10/2009	13:00:00	
1055	Manganese, Total (Mn)		0.083	mg/l	EPA 200.7 Rev. 4.4	0.002	VH	4/10/2009	13:00:00	
1105	Aluminum, Total (As AL)		0.033	mg/l	EPA 200.7 Rev. 4.4	0.008	VH	4/10/2009	13:00:00	
70296	Solids,Total Dissolved		404	mg/l	SM-2540C	10	KF	4/09/2009	11:00:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty D. Crites

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

S...ndard Laboratories, Inc.

Environmental A... lysis

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Company:	**Patriot Mining Company/Active Permits**		Elevation (ft):	Field Sampler:	HS
Location:	Surveyor & Associates		Latitude:	Sampled By:	Surveyor & Asso
Outlet/Site:	S154	Unknown Site Type	Longitude:	Date Sampled:	03/31/2009
Outlet Name:	S154		Rain Fall 24Hr Prior:	Date Received:	04/07/2009
State Permit #:	09.510		Rain Fall 72Hr Prior:	Date Completed:	04/10/2009
DOE Permit/Article:				Time Sampled:	10:20:00
Laboratory #:	000-00604			Report Date:	04/13/2009 1:47PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		379.0	UMHO/CM	SM-2510 B	4.8	KF	4/09/2009	10:30:00	
403	pH, Lab		7.34	Std. Unit	SM 4500-H+ B	1.00	TE	4/08/2009	16:00:00	
410	Alkalinity, Total (As CACO3		137.00	mg/l	SM-2320 B	2.00	TE	4/08/2009	16:00:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	4/08/2009	16:40:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total	<	3.00	mg/l	SM-2540 D	3.00	KF	4/09/2009	11:30:00	None Detected at the reporting level (MDL)
945	Sulfates, Total (As SO4)		55	mg/l	ASTM D516-90, 03	2	KF	4/09/2009	10:45:00	
1045	Iron, Total		0.044	mg/l	EPA 200.7 Rev. 4.4	0.004	VH	4/10/2009	13:00:00	
1055	Manganese, Total (Mn)		0.012	mg/l	EPA 200.7 Rev. 4.4	0.002	VH	4/10/2009	13:00:00	
1105	Aluminum, Total (As AL)		0.035	mg/l	EPA 200.7 Rev. 4.4	0.008	VH	4/10/2009	13:00:00	
70296	Solids,Total Dissolved		256	mg/l	SM-2540C	10	KF	4/09/2009	11:00:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty D. Crites

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

S...ndard Laboratories, Inc.

Environmental A... lysis

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Company:	**Patriot Mining Company/Active Permits**	Elevation (ft):		Field Sampler:	HS
Location:	Surveyor & Associates	Latitude:		Sampled By:	Surveyor & Asso
Outlet/Site:	P154 Unknown Site Type	Longitude:		Date Sampled:	03/31/2009
Outlet Name:	P154	Rain Fall 24Hr Prior:		Date Received:	04/07/2009
State Permit #:	09.510	Rain Fall 72Hr Prior:		Date Completed:	04/10/2009
DOE Permit/Article:				Time Sampled:	10:40:00
Laboratory #:	000-00605			Report Date:	04/13/2009 1:47PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		57.0	UMHO/CM	SM-2510 B	4.8	KF	4/09/2009	10:30:00	
403	pH, Lab		6.45	Std. Unit	SM 4500-H+ B	1.00	TE	4/08/2009	16:00:00	
410	Alkalinity, Total (As CACO3		9.00	mg/l	SM-2320 B	2.00	TE	4/08/2009	16:00:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	4/08/2009	16:40:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total		9.00	mg/l	SM-2540 D	3.00	KF	4/09/2009	11:30:00	
945	Sulfates, Total (As SO4)		17	mg/l	ASTM D516-90, 03	2	KF	4/09/2009	10:45:00	
1045	Iron, Total		0.849	mg/l	EPA 200.7 Rev. 4.4	0.004	VH	4/10/2009	13:00:00	
1055	Manganese, Total (Mn)		0.161	mg/l	EPA 200.7 Rev. 4.4	0.002	VH	4/10/2009	13:00:00	
1105	Aluminum, Total (As AL)		0.325	mg/l	EPA 200.7 Rev. 4.4	0.008	VH	4/10/2009	13:00:00	
70296	Solids,Total Dissolved		20	mg/l	SM-2540C	10	KF	4/09/2009	11:00:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty D. Crites

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

S...ndard Laboratories, Inc.

Environmental A... lysis

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Company:	**Patriot Mining Company/Active Permits**		Elevation (ft):	Field Sampler:	HS
Location:	Surveyor & Associates		Latitude:	Sampled By:	Surveyor & Asso
Outlet/Site:	S157	Unknown Site Type	Longitude:	Date Sampled:	03/31/2009
Outlet Name:	S157		Rain Fall 24Hr Prior:	Date Received:	04/07/2009
State Permit #:	09.510		Rain Fall 72Hr Prior:	Date Completed:	04/10/2009
DOE Permit/Article:				Time Sampled:	10:50:00
Laboratory #:	000-00606			Report Date:	04/13/2009 1:47PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		502.0	UMHO/CM	SM-2510 B	4.8	KF	4/09/2009	10:30:00	
403	pH, Lab		7.30	Std. Unit	SM 4500-H+ B	1.00	TE	4/08/2009	16:00:00	
410	Alkalinity, Total (As CACO3		157.00	mg/l	SM-2320 B	2.00	TE	4/08/2009	16:00:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	4/08/2009	16:40:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total		5.00	mg/l	SM-2540 D	3.00	KF	4/09/2009	11:30:00	
945	Sulfates, Total (As SO4)		90	mg/l	ASTM D516-90, 03	2	KF	4/09/2009	10:45:00	
1045	Iron, Total		0.081	mg/l	EPA 200.7 Rev. 4.4	0.004	VH	4/10/2009	13:00:00	
1055	Manganese, Total (Mn)		0.006	mg/l	EPA 200.7 Rev. 4.4	0.002	VH	4/10/2009	13:00:00	
1105	Aluminum, Total (As AL)		0.057	mg/l	EPA 200.7 Rev. 4.4	0.008	VH	4/10/2009	13:00:00	
70296	Solids,Total Dissolved		336	mg/l	SM-2540C	10	KF	4/09/2009	11:00:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty D. Crites

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

S...ndard Laboratories, Inc.

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Environmental A lysis

Company:	Patriot Mining Company/Active Permits	Elevation (ft):		Field Sampler:	HS
Location:	Surveyor & Associates	Latitude:		Sampled By:	Surveyor & Asso
Outlet/Site:	P157 Unknown Site Type	Longitude:		Date Sampled:	03/31/2009
Outlet Name:	P157	Rain Fall 24Hr Prior:		Date Received:	04/07/2009
State Permit #:	09.510	Rain Fall 72Hr Prior:		Date Completed:	04/10/2009
DOE Permit/Article:				Time Sampled:	11:22:00
Laboratory #:	000-00607			Report Date:	04/13/2009 1:47PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		608.0	UMHO/CM	SM-2510 B	4.8	KF	4/09/2009	10:30:00	
403	pH, Lab		8.15	Std. Unit	SM 4500-H+ B	1.00	TE	4/08/2009	16:00:00	
410	Alkalinity, Total (As CACO3		209.00	mg/l	SM-2320 B	2.00	TE	4/08/2009	16:00:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	4/08/2009	16:40:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total		11.00	mg/l	SM-2540 D	3.00	KF	4/09/2009	11:30:00	
945	Sulfates, Total (As SO4)		110	mg/l	ASTM D516-90, 03	2	KF	4/09/2009	10:45:00	
1045	Iron, Total		0.039	mg/l	EPA 200.7 Rev. 4.4	0.004	VH	4/10/2009	13:00:00	
1055	Manganese, Total (Mn)		0.017	mg/l	EPA 200.7 Rev. 4.4	0.002	VH	4/10/2009	13:00:00	
1105	Aluminum, Total (As AL)		0.034	mg/l	EPA 200.7 Rev. 4.4	0.008	VH	4/10/2009	13:00:00	
70296	Solids,Total Dissolved		376	mg/l	SM-2540C	10	KF	4/09/2009	11:00:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

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Misty D. Crites

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

Standard Laboratories, Inc.

Environmental Analysis

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Company:	**Patriot Mining Company/Active Permits**		Elevation (ft):	Field Sampler:	HS
Location:	Surveyor & Associates		Latitude:	Sampled By:	Surveyor & Asso
Outlet/Site:	S169	Unknown Site Type	Longitude:	Date Sampled:	04/23/2009
Outlet Name:	S169		Rain Fall 24Hr Prior:	Date Received:	05/08/2009
State Permit #:	09.510		Rain Fall 72Hr Prior:	Date Completed:	05/13/2009
DOE Permit/Article:				Time Sampled:	12:00:00
Laboratory #:	000-00977			Report Date:	05/15/2009 10:19AM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		328.0	UMHO/CM	SM-2510 B	4.8	KF	5/12/2009	09:45:00	
403	pH, Lab		7.08	Std. Unit	SM 4500-H+ B	1.00	TE	5/11/2009	11:50:00	
410	Alkalinity, Total (As CACO3		106.00	mg/l	SM-2320 B	2.00	TE	5/11/2009	11:50:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	5/11/2009	13:20:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total		8.00	mg/l	SM-2540 D	3.00	KF	5/12/2009	11:30:00	
945	Sulfates, Total (As SO4)		50	mg/l	ASTM D516-90, 03	2	KF	5/12/2009	16:00:00	
1045	Iron, Total		0.155	mg/l	EPA 200.7 Rev. 4.4	0.004	KH	5/13/2009	12:15:00	
1055	Manganese, Total (Mn)		0.006	mg/l	EPA 200.7 Rev. 4.4	0.002	KH	5/13/2009	12:15:00	
1105	Aluminum, Total (As AL)		0.129	mg/l	EPA 200.7 Rev. 4.4	0.008	KH	5/13/2009	12:15:00	
70296	Solids,Total Dissolved		232	mg/l	SM-2540C	10	KF	5/12/2009	16:15:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

Approved By,

Misty D. Crites

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

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Standard Laboratories, Inc.

Environmental Analysis

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Company:	Patriot Mining Company/Active Permits		Elevation (ft):	Field Sampler:	HS
Location:	Surveyor & Associates		Latitude:	Sampled By:	Surveyor & Asso
Outlet/Site:	W-173	Unknown Site Type	Longitude:	Date Sampled:	03/10/2009
Outlet Name:	W-173		Rain Fall 24Hr Prior:	Date Received:	03/24/2009
State Permit #:	09.510		Rain Fall 72Hr Prior:	Date Completed:	03/27/2009
DOE Permit/Article:				Time Sampled:	11:44:00
Laboratory #:	000-00527			Report Date:	01/14/2010 9:20AM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		464.0	UMHO/CM	SM-2510 B	4.8	KF	3/26/2009	11:30:00	
403	pH, Lab		7.63	Std. Unit	SM 4500-H+ B	1.00	TE	3/26/2009	14:15:00	
410	Alkalinity, Total (As CACO3		188.00	mg/l	SM-2320 B	2.00	TE	3/26/2009	14:15:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	3/26/2009	15:10:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total	<	3.00	mg/l	SM-2540 D	3.00	KF	3/27/2009	08:30:00	None Detected at the reporting level (MDL)
945	Sulfates, Total (As SO4)		60	mg/l	ASTM D516-90, 03	2	KF	3/26/2009	15:30:00	
1045	Iron, Total		2.490	mg/l	EPA 200.7 Rev. 4.4	0.004	KH	3/27/2009	15:20:00	
1055	Manganese, Total (Mn)		0.024	mg/l	EPA 200.7 Rev. 4.4	0.002	KH	3/27/2009	15:20:00	
1105	Aluminum, Total (As AL)		0.017	mg/l	EPA 200.7 Rev. 4.4	0.006	KH	3/27/2009	15:20:00	
70296	Solids,Total Dissolved		276	mg/l	SM-2540C	10	KF	3/26/2009	16:15:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty D. Crites

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

Natural Earth Science Testing Services, Inc.
Rt. 2, Box 88-C Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
Coallab@access.mountain.net

Environmental Analysis

Company: Patriot Mining Company, Inc. (WV)
Location: Patriot New Hill
Outlet/Site: W-176 Permit Water Study Ongoing
Outlet Name: W
State Permit #: 00/353
DOE Permit/Article:
Laboratory #: 2001-02946

Field Sampler: KS
Sampled By: KS/RH
Date Sampled: 04/04/2001
Date Received: 04/05/2001
Date Completed: 04/09/2001
Time Sampled: 12:49:00
Report Date: 04/11/2001 1:03PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
46	Filtered, Iron Dissolved		0.26500	mg/l			TS	4/09/2001		
56	Filtered, Manganese Dissol\		0.03000	mg/l			TS	4/09/2001		
95	Specific Conductance		519.0000	UMHO/CM	SM 2510B	13.4230	KF	4/09/2001		
105	Filtered, Alumnium Dissolve		0.11800	mg/l			TS	4/09/2001		
399	Lab pH		7.3000	Std. Unit	SM 4500B	0.3690	RW	4/09/2001		
410	Alkalinity, Total		190.0000	mg/l	SM-2320B	3.6290	RW	4/09/2001		
435	Acidity, Total Hot	<	4.7520	mg/l	SM-2310B	4.7520	RW	4/09/2001		
530	Solids, Total Suspended		9.0000	mg/l	SM 2540D	3.1430	KF	4/09/2001		
945	Sulfates		170.0000	mg/l	EPA-375.4	3.6800	KF	4/09/2001		
1045	Iron, Total		0.51900	mg/l	EPA 200.7 ICP	0.0340	TS	4/09/2001		
1055	Manganese, Total		0.02500	mg/l	EPA 200.7 ICP	0.0215	TS	4/09/2001		
1105	Aluminum	<	0.10810	mg/l	EPA 200.7 ICP	0.1081	TS	4/09/2001		
70296	TDS		428.0000	mg/l	SM 2540C	14.0560	KF	4/09/2001		

FIELD RESULTS

PH 6.5
FE 1.0 Mg/L
TEMP 14°C
SWL 78'
SAMPLED BY: RANDY HARTMAN/KEVIN SHAFFER

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020
MDL: Method Detection Limit (mg/l: ppm)

Respectfully Submitted,

Margaret A. Bartlett; President
Natural Earth Science Testing Services, Inc.

Approved By,
Connie Phillips

Connie Phillips; Enviromental Lab. Manager
Natural Earth Science Testing Services, Inc.

WV168 WV - DEP Certification Number

Standard Laboratories, Inc.

Rt. 2, Box 88-C Whitman Run Road Bellington, WV 26250
(304)-457-5609 Fax (304)-457-1552
mdcrites@standardlabs.com

Environmental Analysis

Company:	Patriot Mining Company/Active Permits	Elevation (ft):	Field Sampler: HS
Location:	Surveyor & Associates	Latitude:	Sampled By: Surveyor & Asso
Outlet/Site:	S- 183 Unknown Site Type	Longitude:	Date Sampled: 03/10/2009
Outlet Name:	S- 183	Rain Fall 24Hr Prior:	Date Received: 03/24/2009
State Permit #:	09.510	Rain Fall 72Hr Prior:	Date Completed: 03/27/2009
DOE Permit/Article:			Time Sampled: 15:00:00
Laboratory #:	000-00528		Report Date: 01/14/2010 9:20AM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		275.0	UMHO/CM	SM-2510 B	4.8	KF	3/26/2009	11:30:00	
403	pH, Lab		7.37	Std. Unit	SM 4500-H+ B	1.00	TE	3/26/2009	14:15:00	
410	Alkalinity, Total (As CACO3		49.00	mg/l	SM-2320 B	2.00	TE	3/26/2009	14:15:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	3/26/2009	15:10:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total	<	3.00	mg/l	SM-2540 D	3.00	KF	3/27/2009	08:30:00	None Detected at the reporting level (MDL)
945	Sulfates, Total (As SO4)		75	mg/l	ASTM D516-90, 03	2	KF	3/26/2009	15:30:00	
1045	Iron, Total		0.088	mg/l	EPA 200.7 Rev. 4.4	0.004	KH	3/27/2009	15:20:00	
1055	Manganese, Total (Mn)	<	0.002	mg/l	EPA 200.7 Rev. 4.4	0.002	KH	3/27/2009	15:20:00	None Detected at the reporting level (MDL)
1105	Aluminum, Total (As AL)		0.015	mg/l	EPA 200.7 Rev. 4.4	0.008	KH	3/27/2009	15:20:00	
70298	Solids,Total Dissolved		172	mg/l	SM-2540C	10	KF	3/26/2009	16:15:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV188 WV - DEP Certification Number

Approved By,

Misty D. Crites

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

Standard Laboratories, Inc.

Environmental Analysis

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Company:	**Patriot Mining Company/Active Permits**		Elevation (ft):	Field Sampler:	HS
Location:	Surveyor & Associates		Latitude:	Sampled By:	Surveyor & Asso
Outlet/Site:	W256	Unknown Site Type	Longitude:	Date Sampled:	04/23/2009
Outlet Name:	W256		Rain Fall 24Hr Prior:	Date Received:	05/08/2009
State Permit #:	09.510		Rain Fall 72Hr Prior:	Date Completed:	05/13/2009
DOE Permit/Article:				Time Sampled:	09:00:00
Laboratory #:	000-00976			Report Date:	05/15/2009 10:19AM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		1929.0	UMHO/CM	SM-2510 B	4.8	KF	5/12/2009	09:45:00	
403	pH, Lab		8.19	Std. Unit	SM 4500-H+ B	1.00	TE	5/11/2009	11:50:00	
410	Alkalinity, Total (As CACO3		511.00	mg/l	SM-2320 B	2.00	TE	5/11/2009	11:50:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	5/11/2009	13:20:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total		5.00	mg/l	SM-2540 D	3.00	KF	5/12/2009	11:30:00	
945	Sulfates, Total (As SO4)		19	mg/l	ASTM D516-90, 03	2	KF	5/12/2009	16:00:00	
1045	Iron, Total		0.382	mg/l	EPA 200.7 Rev. 4.4	0.004	KH	5/13/2009	12:15:00	
1055	Manganese, Total (Mn)		0.055	mg/l	EPA 200.7 Rev. 4.4	0.002	KH	5/13/2009	12:15:00	
1105	Aluminum, Total (As AL)		0.046	mg/l	EPA 200.7 Rev. 4.4	0.008	KH	5/13/2009	12:15:00	
70296	Solids,Total Dissolved		1232	mg/l	SM-2540C	10	KF	5/12/2009	16:15:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

Approved By,

Misty D. Crites

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

S...ndard Laboratories, Inc.

Environmental ... lysis

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Company:	**Patriot Mining Company/Active Permits**	Elevation (ft):	Field Sampler: HS
Location:	Surveyor & Associates	Latitude:	Sampled By: Surveyor & Asso
Outlet/Site:	P340 Unknown Site Type	Longitude:	Date Sampled: 04/02/2009
Outlet Name:	P340	Rain Fall 24Hr Prior:	Date Received: 04/07/2009
State Permit #:	09.510	Rain Fall 72Hr Prior:	Date Completed: 04/10/2009
DOE Permit/Article:			Time Sampled: 11:45:00
Laboratory #:	000-00598		Report Date: 04/13/2009 1:47PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		54.0	UMHO/CM	SM-2510 B	4.8	KF	4/09/2009	10:30:00	
403	pH, Lab		6.41	Std. Unit	SM 4500-H+ B	1.00	TE	4/08/2009	16:00:00	
410	Alkalinity, Total (As CACO3		8.00	mg/l	SM-2320 B	2.00	TE	4/08/2009	16:00:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	4/08/2009	16:40:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total	<	3.00	mg/l	SM-2540 D	3.00	KF	4/09/2009	11:30:00	None Detected at the reporting level (MDL)
945	Sulfates, Total (As SO4)		21	mg/l	ASTM D516-90, 03	2	KF	4/09/2009	10:45:00	
1045	Iron, Total		0.483	mg/l	EPA 200.7 Rev. 4.4	0.004	VH	4/10/2009	13:00:00	
1055	Manganese, Total (Mn)		0.080	mg/l	EPA 200.7 Rev. 4.4	0.002	VH	4/10/2009	13:00:00	
1105	Aluminum, Total (As AL)		0.208	mg/l	EPA 200.7 Rev. 4.4	0.008	VH	4/10/2009	13:00:00	
70296	Solids,Total Dissolved		12	mg/l	SM-2540C	10	KF	4/09/2009	11:00:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty D. Crites

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

Standard Laboratories, Inc.

Environmental Analysis

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Company:	**Patriot Mining Company/Active Permits**		Elevation (ft):	Field Sampler:	HS
Location:	Surveyor & Associates		Latitude:	Sampled By:	Surveyor & Asso
Outlet/Site:	S343	Unknown Site Type	Longitude:	Date Sampled:	04/02/2009
Outlet Name:	S343		Rain Fall 24Hr Prior:	Date Received:	04/07/2009
State Permit #:	09.510		Rain Fall 72Hr Prior:	Date Completed:	04/10/2009
DOE Permit/Article:				Time Sampled:	13:20:00
Laboratory #:	000-00600			Report Date:	04/13/2009 1:47PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		623.0	UMHO/CM	SM-2510 B	4.8	KF	4/09/2009	10:30:00	
403	pH, Lab		7.61	Std. Unit	SM 4500-H+ B	1.00	TE	4/08/2009	16:00:00	
410	Alkalinity, Total (As CACO3		145.00	mg/l	SM-2320 B	2.00	TE	4/08/2009	16:00:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	4/08/2009	16:40:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total		6.00	mg/l	SM-2540 D	3.00	KF	4/09/2009	11:30:00	
945	Sulfates, Total (As SO4)		180	mg/l	ASTM D516-90, 03	2	KF	4/09/2009	10:45:00	
1045	Iron, Total		0.091	mg/l	EPA 200.7 Rev. 4.4	0.004	VH	4/10/2009	13:00:00	
1055	Manganese, Total (Mn)		0.080	mg/l	EPA 200.7 Rev. 4.4	0.002	VH	4/10/2009	13:00:00	
1105	Aluminum, Total (As AL)		0.063	mg/l	EPA 200.7 Rev. 4.4	0.008	VH	4/10/2009	13:00:00	
70296	Solids,Total Dissolved		404	mg/l	SM-2540C	10	KF	4/09/2009	11:00:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty D. Crites

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

Standard Laboratories, Inc.

Environmental Analysis

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Company:	**Patriot Mining Company/Active Permits**	Elevation (ft):		Field Sampler:	HS
Location:	Surveyor & Associates	Latitude:		Sampled By:	Surveyor & Asso
Outlet/Site:	P343 Unknown Site Type	Longitude:		Date Sampled:	04/02/2009
Outlet Name:	P343	Rain Fall 24Hr Prior:		Date Received:	04/07/2009
State Permit #:	09.510	Rain Fall 72Hr Prior:		Date Completed:	04/10/2009
DOE Permit/Article:				Time Sampled:	13:15:00
Laboratory #:	000-00599			Report Date:	04/13/2009 1:47PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		152.0	UMHO/CM	SM-2510 B	4.8	KF	4/09/2009	10:30:00	
403	pH, Lab		7.58	Std. Unit	SM 4500-H+ B	1.00	TE	4/08/2009	16:00:00	
410	Alkalinity, Total (As CACO3		36.00	mg/l	SM-2320 B	2.00	TE	4/08/2009	16:00:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	4/08/2009	16:40:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total		16.00	mg/l	SM-2540 D	3.00	KF	4/09/2009	11:30:00	
945	Sulfates, Total (As SO4)		42	mg/l	ASTM D516-90, 03	2	KF	4/09/2009	10:45:00	
1045	Iron, Total		0.620	mg/l	EPA 200.7 Rev. 4.4	0.004	VH	4/10/2009	13:00:00	
1055	Manganese, Total (Mn)		0.148	mg/l	EPA 200.7 Rev. 4.4	0.002	VH	4/10/2009	13:00:00	
1105	Aluminum, Total (As AL)		0.242	mg/l	EPA 200.7 Rev. 4.4	0.008	VH	4/10/2009	13:00:00	
70296	Solids,Total Dissolved		104	mg/l	SM-2540C	10	KF	4/09/2009	11:00:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty D. Crites

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

Standard Laboratories, Inc.

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5809 Fax (304)-457-1562
mdcrites@standardlabs.com

Environmental Analysis

Company: Patriot Mining Company/Active Permits
Location: Surveyor & Associates
Outlet/Site: P357 Unknown Site Type
Outlet Name: P357
State Permit #: 09.510
DOE Permit/Article:
Laboratory #: 000-00793

Elevation (ft):
Latitude:
Longitude:
Rain Fall 24Hr Prior:
Rain Fall 72Hr Prior:

Field Sampler: HS
Sampled By: Surveyor& Assoc
Date Sampled: 04/16/2009
Date Received: 04/21/2009
Date Completed: 04/27/2009
Time Sampled: 12:55:00
Report Date: 01/14/2010 9:21AM

Id	Parameter Name	Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific	247.0	UMHO/CM	SM-2510 B	4.8	KF	4/24/2009	09:45:00	
403	pH, Lab	7.01	Std. Unit	SM 4500-H+ B	1.00	TE	4/24/2009	12:20:00	
410	Alkalinity, Total (As CACO3	43.00	mg/l	SM-2320 B	2.00	TE	4/24/2009	12:20:00	
435	Acidity, Total (As CACO3) <	2.00	mg/l	SM-2310 B	2.00	TE	4/24/2009	14:00:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total	52.00	mg/l	SM-2540 D	3.00	KF	4/27/2009	09:30:00	
945	Sulfates, Total (As SO4)	60	mg/l	ASTM D516-90, 03	2	KF	4/24/2009	16:15:00	
1045	Iron, Total	1.884	mg/l	EPA 200.7 Rev. 4.4	0.004	KH	4/27/2009	14:35:00	
1055	Manganese, Total (Mn)	0.619	mg/l	EPA 200.7 Rev. 4.4	0.002	KH	4/27/2009	14:35:00	
1105	Aluminum, Total (As AL)	0.637	mg/l	EPA 200.7 Rev. 4.4	0.008	KH	4/27/2009	14:35:00	
70296	Solids,Total Dissolved	160	mg/l	SM-2540C	10	KF	4/24/2009	16:30:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty D. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

Standard Laboratories, Inc.

Rt. 2, Box 88-C Whitman Run Road Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
mdcrites@standardlabs.com

Environmental Analysis

Company:	Patriot Mining Company/Active Permits	Elevation (ft):	Field Sampler: HS
Location:	Surveyor & Associates	Latitude:	Sampled By: Surveyor& Assoc
Outlet/Site:	W359 Unknown Site Type	Longitude:	Date Sampled: 04/07/2009
Outlet Name:	W359	Rain Fall 24Hr Prior:	Date Received: 04/21/2009
State Permit #:	09.510	Rain Fall 72Hr Prior:	Date Completed: 04/27/2009
DOE Permit/Article:			Time Sampled: 11:00:00
Laboratory #:	000-00792		Report Date: 01/14/2010 9:21AM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
95	Conductance, Specific		582.0	UMHO/CM	SM-2510 B	4.8	KF	4/24/2009	09:45:00	
403	pH, Lab		7.57	Std. Unit	SM 4500-H+ B	1.00	TE	4/24/2009	12:20:00	
410	Alkalinity, Total (As CACO2		229.00	mg/l	SM-2320 B	2.00	TE	4/24/2009	12:20:00	
435	Acidity, Total (As CACO3)	<	2.00	mg/l	SM-2310 B	2.00	TE	4/24/2009	14:00:00	None Detected at the reporting level (MDL)
530	Solids, Suspened Total	<	3.00	mg/l	SM-2540 D	3.00	KF	4/27/2009	09:30:00	None Detected at the reporting level (MDL)
945	Sulfates, Total (As SO4)		100	mg/l	ASTM D516-90, 03	2	KF	4/24/2009	16:15:00	
1045	Iron, Total		0.010	mg/l	EPA 200.7 Rev. 4.4	0.004	KH	4/27/2009	14:35:00	
1055	Manganese, Total (Mn)		0.008	mg/l	EPA 200.7 Rev. 4.4	0.002	KH	4/27/2009	14:35:00	
1105	Aluminum, Total (As AL)		0.020	mg/l	EPA 200.7 Rev. 4.4	0.008	KH	4/27/2009	14:35:00	
70296	Solids,Total Dissolved		440	mg/l	SM-2540C	10	KF	4/27/2009	16:30:00	

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020

Respectfully Submitted,

Connie Phillips; Quality Control Officer
Standard Laboratories, Inc.

WV168 WV - DEP Certification Number

Approved By,

Misty B. Crites; Environmental Lab. Manager
Standard Laboratories, Inc.

Natural Earth Science Testing Services, Inc.
Rt. 2, Box 88-C Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
Coallab@access.mountain.net

Environmental Analysis

Company: Patriot Mining Company, Inc. (WV)
Location:
Outlet/Site: S 1387 Water Study
Outlet Name: S
State Permit #: NEW HILL
DOE Permit/Article:
Laboratory #: 2001-01871

Field Sampler: KS
Sampled By: Surveyors
Date Sampled: 02/07/2001
Date Received: 02/08/2001
Date Completed: 02/14/2001
Time Sampled: 11:08:00
Report Date: 02/22/2001 1:41PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
9	Field Temp		0.00	Degree F	EPA 170.1					
58	Flow	<	1.0000	GPM	EPA-170.1			2/07/2001	11:08:00	
399	Lab pH		7.9000	UMHO/CM	SM 4500B	0.3690	MB	2/14/2001		
400	Field pH		0.00	UMHO/CM	SM 4500B			2/07/2001	11:08:00	
410	Alkalinity, Total		206.0000	mg/l	SM-2320B	3.6290	MB	2/14/2001		
435	Acidity, Total Hot	<	4.7520	mg/l	SM-2310B	4.7520	MB	2/14/2001		
530	Solids, Total Suspended	<	3.1430	mg/l	SM 2540D	3.1430	MB	2/14/2001		
1045	Iron, Total	<	0.03400	mg/l	EPA 200.7 ICP	0.0340	MB	2/14/2001		
1055	Manganese, Total	<	0.02150	mg/l	EPA 200.7 ICP	0.0215	MB	2/14/2001		
1105	Aluminum		0.29500	mg/l	EPA 200.7 ICP	0.1081	MB	2/14/2001		
70296	TDS		412.0000	mg/l	SM 2540C	14.0560	MB	2/14/2001		

FIELD RESULTS

PH 7.5
FE <0.5 Mg/L
TEMP 9°C
FLOW 4.27 GPM
SAMPLED BY: KEVIN SHAFFER

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020
MDL: Method Detection Limit (mg/l: ppm)

Respectfully Submitted,

Margaret A. Bartlett; President
Natural Earth Science Testing Services, Inc.

Approved By, Connie Phillips

Connie Phillips; Enviromental Lab. Manager
Natural Earth Science Testing Services, Inc.

WV168 WV - DEP Certification Number

Natural Earth Science Testing Services, Inc.
Rt. 2, Box 88-C Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
Coallab@access.mountain.net

Environmental Analysis

Company: Patriot Mining Company, Inc. (WV)
Location:
Outlet/Site: S- 387A Water Study
Outlet Name: S
State Permit #: NEW HILL
DOE Permit/Article:
Laboratory #: 2001-01870

Field Sampler: KS
Sampled By: Surveyors
Date Sampled: 02/07/2001
Date Received: 02/08/2001
Date Completed: 02/14/2001
Time Sampled: 10:46:00
Report Date: 02/22/2001 1:41PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
9	Field Temp		0.00	Degree F	EPA 170.1					
58	Flow	<	1.0000	GPM	EPA-170.1			2/07/2001	10:46:00	
399	Lab pH		7.7600	UMHO/CM	SM 4500B	0.3690	MB	2/14/2001		
400	Field pH		0.00	UMHO/CM	SM 4500B			2/07/2001	10:46:00	
410	Alkalinity, Total		252.0000	mg/l	SM-2320B	3.6290	MB	2/14/2001		
435	Acidity, Total Hot	<	4.7520	mg/l	SM-2310B	4.7520	MB	2/14/2001		
530	Solids, Total Suspended	<	3.1430	mg/l	SM 2540D	3.1430	MB	2/14/2001		
1045	Iron, Total	<	0.03400	mg/l	EPA 200.7 ICP	0.0340	MB	2/14/2001		
1055	Manganese, Total	<	0.02150	mg/l	EPA 200.7 ICP	0.0215	MB	2/14/2001		
1105	Aluminum		0.24700	mg/l	EPA 200.7 ICP	0.1081	MB	2/14/2001		
70296	TDS		520.0000	mg/l	SM 2540C	14.0560	MB	2/14/2001		

FIELD RESULTS
PH 7.5
FE <0.5 Mg/L
TEMP 8°C
FLOW 0.81 GPM
SAMPLED BY: KEVIN SHAFFER

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020
MDL: Method Detection Limit (mg/l: ppm)

Respectfully Submitted,

Margaret A. Bartlett; President
Natural Earth Science Testing Services, Inc.

WV168 WV - DEP Certification Number

Approved By, Connie Phillips

Connie Phillips; Enviromental Lab. Manager
Natural Earth Science Testing Services, Inc.

Natural Earth Science Testing Services, Inc.
Rt. 2, Box 88-C Bellington, WV 26250
(304)-457-5609 Fax (304)-457-1562
Coallab@access.mountain.net

Environmental Analysis

Company: Patriot Mining Company, Inc. (WV)
Location:
Outlet/Site: S 388 Water Study
Outlet Name: S
State Permit #: NEW HILL
DOE Permit/Article:
Laboratory #: 2001-01873

Field Sampler: KS
Sampled By: Surveyors
Date Sampled: 02/07/2001
Date Received: 02/08/2001
Date Completed: 02/14/2001
Time Sampled: 11:32:00
Report Date: 02/22/2001 1:41PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
9	Field Temp		0.00	Degree F	EPA 170.1					
58	Flow	<	1.0000	GPM	EPA-170.1			2/07/2001	11:32:00	
399	Lab pH		7.6300	UMHO/CM	SM 4500B	0.3690	MB	2/14/2001		
400	Field pH		0.00	UMHO/CM	SM 4500B			2/07/2001	11:32:00	
410	Alkalinity, Total		124.0000	mg/l	SM-2320B	3.6290	MB	2/14/2001		
435	Acidity, Total Hot	<	4.7520	mg/l	SM-2310B	4.7520	MB	2/14/2001		
530	Solids, Total Suspended	<	3.1430	mg/l	SM 2540D	3.1430	MB	2/14/2001		
1045	Iron, Total	<	0.03400	mg/l	EPA 200.7 ICP	0.0340	MB	2/14/2001		
1055	Manganese, Total	<	0.02150	mg/l	EPA 200.7 ICP	0.0215	MB	2/14/2001		
1105	Aluminum		0.20900	mg/l	EPA 200.7 ICP	0.1081	MB	2/14/2001		
70296	TDS		288.0000	mg/l	SM 2540C	14.0560	MB	2/14/2001		

FIELD RESULTS

PH 7.5
FE <0.5 Mg/L
TEMP 8°C
FLOW 30 GPM
SAMPLED BY: KEVIN SHAFFER

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020
MDL: Method Detection Limit (mg/l: ppm)

Respectfully Submitted,

Margaret A. Bartlett; President
Natural Earth Science Testing Services, Inc.

WV168 WV - DEP Certification Number

Approved By, Connie Phillips

Connie Phillips; Enviromental Lab. Manager
Natural Earth Science Testing Services, Inc.

Natural Earth Science Testing Services, Inc.
Rt. 2, Box 88-C Belington, WV 26250
(304)-457-5609 Fax (304)-457-1562
Coallab@access.mountain.net

Environmental Analysis

Company: Patriot Mining Company, Inc. (WV)
Location:
Outlet/Site: S- 1388A Water Study
Outlet Name: S
State Permit #: NEW HILL
DOE Permit/Article:
Laboratory #: 2001-01872

Field Sampler: KS
Sampled By: Surveyors
Date Sampled: 02/07/2001
Date Received: 02/08/2001
Date Completed: 02/14/2001
Time Sampled: 11:18:00
Report Date: 02/22/2001 1:41PM

Id	Parameter Name		Result	Unit	Method	MDL	Analyst	Date Analyzed	Time Analyzed	Analysis Comment
9	Field Temp		0.00	Degree F	EPA 170.1					
58	Flow	<	1.0000	GPM	EPA-170.1			2/07/2001	11:18:00	
399	Lab pH		7.8600	UMHO/CM	SM 4500B	0.3690	MB	2/14/2001		
400	Field pH		0.00	UMHO/CM	SM 4500B			2/07/2001	11:18:00	
410	Alkalinity, Total		210.0000	mg/l	SM-2320B	3.6290	MB	2/14/2001		
435	Acidity, Total Hot	<	4.7520	mg/l	SM-2310B	4.7520	MB	2/14/2001		
530	Solids, Total Suspended	<	3.1430	mg/l	SM 2540D	3.1430	MB	2/14/2001		
1045	Iron, Total	<	0.03400	mg/l	EPA 200.7 ICP	0.0340	MB	2/14/2001		
1055	Manganese, Total	<	0.02150	mg/l	EPA 200.7 ICP	0.0215	MB	2/14/2001		
1105	Aluminum		0.29700	mg/l	EPA 200.7 ICP	0.1081	MB	2/14/2001		
70296	TDS		388.0000	mg/l	SM 2540C	14.0560	MB	2/14/2001		

FIELD RESULTS
PH 7.5
FE <0.5 Mg/L
TEMP 9°C
FLOW 3.0 GPM
SAMPLED BY: KEVIN SHAFFER

US-EPA: "Methods For Chemical Analysis Of Water And Waste", EPA Manual 600/4-79-020
MDL: Method Detection Limit (mg/l: ppm)

Respectfully Submitted,

Margaret A. Bartlett; President
Natural Earth Science Testing Services, Inc.

WV168 WV - DEP Certification Number

Approved By, Connie Phillips

Connie Phillips; Enviromental Lab. Manager
Natural Earth Science Testing Services, Inc.

Stream Code	Hydrology Functions	Biogeochemical Functions	Plant Community Functions	Habitat Function	WVHSA Reach Average
Impact Areas					
Tributary No. 1	0.59	0.59	0.39	0.54	0.53
Tributary No. 1-1	0.62	0.61	0.36	0.58	0.54
Tributary No. 4	0.55	0.55	0.32	0.44	0.47
Tributary No. 5	0.36	0.36	0.16	0.24	0.28
Tributary No. 6	0.61	0.62	0.47	0.60	0.58
Tributary No. 7a	0.48	0.46	0.43	0.44	0.45
Tributary No. 7b	0.70	0.68	0.64	0.65	0.67
Tributary No. 7-1	0.61	0.61	0.45	0.47	0.53
Tributary No. 7-3	0.69	0.66	0.51	0.57	0.61
Tributary No. 8	0.70	0.68	0.55	0.63	0.64
Tributary No. 9	0.58	0.51	0.38	0.47	0.49
Tributary No. 10	0.43	0.44	0.15	0.33	0.34

Project Name	New Hill West Surface Mine
Project Number	0101-09-0081-003
Site Name	Tributary 1
Assessment Date	
Investigators	KBWR
Reach Length	465

NOTES:
Photo No.
Domanant vegetation includes:

Stream Channel Alteration (CHANNELALT)			
Type of Alteration	%	Score	Weighted Average
unaltered	20	1.00	0.200
restored	0	0.75	0.000
incised/excess sediment in channel	50	0.50	0.250
dammed	0	0.10	0.000
channelized/straightened	30	0.10	0.030
dredged	0	0.10	0.000
channel >50% filled	0	0.00	0.000
	Variable Score		0.480

Average Percent Cover of Trees (TREE)			
Percent Cover	%	Score	Weighted Average
Greater than 90	10	1.00	0.100
70 to 90	10	0.75	0.075
50 to 69	25	0.50	0.125
20 to 49	25	0.25	0.063
10 to 19	15	0.10	0.015
less than 10	15	0.00	0.000
	Variable Score		0.378

Average Percent Cover of Detritus (DETRITUS)			
Percent Cover	%	Score	Weighted Average
Greater than 75	20	1.00	0.200
50 to 75	25	0.75	0.188
25 to 49	30	0.50	0.150
10 to 24	25	0.25	0.063
less than 10	0	0.10	0.000
	Variable Score		0.600

Average Percent Slope of Watershed (SLOPE)			
Percent Slope	%	Score	Weighted Average
30 to 45 or unaltered	100	1.00	1.000
(20 to 29) or (46 to 65)	0	0.75	0.000
10 to 19	0	0.50	0.000
(5 to 9) or (65 to 90)	0	0.25	0.000
less than 5	0	0.10	0.000
	Variable Score		1.000

Average Percent Cover of Shrubs (SHRUB)			
Percent Cover	%	Score	Weighted Average
Greater than 50	0	1.00	0.000
20 to 50	15	0.50	0.075
10 to 19	15	0.10	0.015
less than 10	70	0.00	0.000
	Variable Score		0.090

Large Woody Debris in Channel (LWDEBRIS)	
Total Number in Reach	Score
1	0.14
Variable Score	0.143

Average Stream Sediment Size (SED)			
USDA Texture	%	Score	Weighted Average
boulder and cobble	23	1.00	0.230
gravel	52	0.75	0.390
sand	18	0.50	0.090
silt	7	0.10	0.007
clay/pavement	0	0.00	0.000
	Variable Score		0.717

Average % Cover of Herbaceous Vegetation (HERB)			
Percent Cover	%	Score	Weighted Average
70 to 100	30	0.10	0.030
less than 70	70	0.00	0.000
	Variable Score		0.030

Channel Geomorphology (CHANNGEO)			
Slope and Pools	%	Score	Weighted Average
Greater than 4% slope with many step pools	100	1.00	1.000
2 to 4% slope with common step pools	0	0.50	0.000
1 to 1.9% slope with few step pools	0	0.10	0.000
Less than 1% slope with no step pools	0	0.00	0.000
	Variable Score		1.000

Land Cover Within Watershed (COVER)			
Land Cover	%	Score	Weighted Average
forest	70	1.00	0.700
reclaimed mine (logging	0	0.75	0.000
orchards	0	0.50	0.000
pasture or hay	25	0.25	0.063
urban, roads	5	0.00	0.000
	Variable Score		0.763

Number of Native Species (COMP)	
Total Number of Species	Weighted Average
3	0.500
Variable Score	0.500

Trees and Shrubs	
Hydrology Functions	0.59
Biogeochemical Functions	0.59
Plant Community Functions	0.39
Habitat Functions	0.54
SCORE	**0.53**

Herbaceous	
Hydrology Functions	0.56
Biogeochemical Functions	0.49
Plant Community Functions	0.12
Habitat Functions	0.50
SCORE	**0.42**

Project Name	New Hill West Surface Mine
Project Number	0101-09-0081
Site Name	Tributary 1-1
Assessment Date	
Investigators	KBWR
Reach Length	325

NOTES:
Photo No.
Domanant vegetation includes:

Stream Channel Alteration (CHANNELALT)			
Type of Alteration	%	Score	Weighted Average
unaltered	30	1.00	0.300
restored	0	0.75	0.000
incised/excess sediment in channel	70	0.50	0.350
dammed	0	0.10	0.000
channelized/straightened	0	0.10	0.000
dredged	0	0.10	0.000
channel >50% filled	0	0.00	0.000
	Variable Score		0.650

Average Percent Cover of Trees (TREE)			
Percent Cover	%	Score	Weighted Average
Greater than 90	0	1.00	0.000
70 to 90	10	0.75	0.075
50 to 69	10	0.50	0.050
20 to 49	40	0.25	0.100
10 to 19	0	0.10	0.000
less than 10	40	0.00	0.000
	Variable Score		0.225

Average Percent Cover of Detritus (DETRITUS)			
Percent Cover	%	Score	Weighted Average
Greater than 75	15	1.00	0.150
50 to 75	30	0.75	0.225
25 to 49	30	0.50	0.150
10 to 24	25	0.25	0.063
less than 10	0	0.10	0.000
	Variable Score		0.588

Average Percent Slope of Watershed (SLOPE)			
Percent Slope	%	Score	Weighted Average
30 to 45 or unaltered	100	1.00	1.000
(20 to 29) or (46 to 65)	0	0.75	0.000
10 to 19	0	0.50	0.000
(5 to 9) or (65 to 90)	0	0.25	0.000
less than 5	0	0.10	0.000
	Variable Score		1.000

Average Percent Cover of Shrubs (SHRUB)			
Percent Cover	%	Score	Weighted Average
Greater than 50	0	1.00	0.000
20 to 50	20	0.50	0.100
10 to 19	20	0.10	0.020
less than 10	60	0.00	0.000
	Variable Score		0.120

Large Woody Debris in Channel (LWDEBRIS)	
Total Number in Reach	Score
1	0.21
Variable Score	0.205

Average Stream Sediment Size (SED)			
USDA Texture	%	Score	Weighted Average
boulder and cobble	2	1.00	0.020
gravel	31	0.75	0.233
sand	42	0.50	0.210
silt	20	0.10	0.020
clay/pavement	5	0.00	0.000
	Variable Score		0.483

Average % Cover of Herbaceous Vegetation (HERB)			
Percent Cover	%	Score	Weighted Average
70 to 100	40	0.10	0.040
less than 70	60	0.00	0.000
	Variable Score		0.040

Channel Geomorphology (CHANNGEO)			
Slope and Pools	%	Score	Weighted Average
Greater than 4% slope with many step pools	90	1.00	0.900
2 to 4% slope with common step pools	10	0.50	0.050
1 to 1.9% slope with few step pools	0	0.10	0.000
Less than 1% slope with no step pools	0	0.00	0.000
	Variable Score		0.950

Land Cover Within Watershed (COVER)			
Land Cover	%	Score	Weighted Average
forest	60	1.00	0.600
reclaimed mine (logging	0	0.75	0.000
orchards	0	0.50	0.000
pasture or hay	40	0.25	0.100
urban, roads	0	0.00	0.000
	Variable Score		0.700

Number of Native Species (COMP)	
Total Number of Species	Weighted Average
2	0.250
Variable Score	0.250

Trees and Shrubs	
Hydrology Functions	0.62
Biogeochemical Functions	0.61
Plant Community Functions	0.36
Habitat Functions	0.58
SCORE	**0.54**

Herbaceous	
Hydrology Functions	0.60
Biogeochemical Functions	0.54
Plant Community Functions	0.16
Habitat Functions	0.56
SCORE	**0.46**

Project Name	New Hill West Surface Mine
Project Number	0101-09-0081
Site Name	Tributary 4
Assessment Date	
Investigators	KBWR
Reach Length	422

NOTES:
Photo No.
Domanant vegetation includes:

Stream Channel Alteration (CHANNELALT)			
Type of Alteration	%	Score	Weighted Average
unaltered	15	1.00	0.150
restored	0	0.75	0.000
incised/excess sediment in channel	15	0.50	0.075
dammed	0	0.10	0.000
channelized/straightened	70	0.10	0.070
dredged	0	0.10	0.000
channel >50% filled	0	0.00	0.000
		Variable Score	0.295

Average Percent Cover of Trees (TREE)			
Percent Cover	%	Score	Weighted Average
Greater than 90	10	1.00	0.100
70 to 90	5	0.75	0.038
50 to 69	15	0.50	0.075
20 to 49	10	0.25	0.025
10 to 19	10	0.10	0.010
less than 10	50	0.00	0.000
		Variable Score	0.248

Average Percent Cover of Detritus (DETRITUS)			
Percent Cover	%	Score	Weighted Average
Greater than 75	10	1.00	0.100
50 to 75	30	0.75	0.225
25 to 49	50	0.50	0.250
10 to 24	10	0.25	0.025
less than 10	0	0.10	0.000
		Variable Score	0.600

Average Percent Slope of Watershed (SLOPE)			
Percent Slope	%	Score	Weighted Average
30 to 45 or unaltered	100	1.00	1.000
(20 to 29) or (46 to 65)	0	0.75	0.000
10 to 19	0	0.50	0.000
(5 to 9) or (65 to 90)	0	0.25	0.000
less than 5	0	0.10	0.000
		Variable Score	1.000

Average Percent Cover of Shrubs (SHRUB)			
Percent Cover	%	Score	Weighted Average
Greater than 50	0	1.00	0.000
20 to 50	0	0.50	0.000
10 to 19	50	0.10	0.050
less than 10	50	0.00	0.000
		Variable Score	0.050

Large Woody Debris in Channel (LWDEBRIS)	
Total Number in Reach	Score
5	0.79
	Variable Score 0.790

Average Stream Sediment Size (SED)			
USDA Texture	%	Score	Weighted Average
boulder and cobble	46	1.00	0.460
gravel	26	0.75	0.195
sand	8	0.50	0.040
silt	20	0.10	0.020
clay/pavement	0	0.00	0.000
		Variable Score	0.715

Average % Cover of Herbaceous Vegetation (HERB)			
Percent Cover	%	Score	Weighted Average
70 to 100	50	0.10	0.050
less than 70	50	0.00	0.000
		Variable Score	0.050

Channel Geomorphology (CHANNGEO)			
Slope and Pools	%	Score	Weighted Average
Greater than 4% slope with many step pools	100	1.00	1.000
2 to 4% slope with common step pools	0	0.50	0.000
1 to 1.9% slope with few step pools	0	0.10	0.000
Less than 1% slope with no step pools	0	0.00	0.000
		Variable Score	1.000

Land Cover Within Watershed (COVER)			
Land Cover	%	Score	Weighted Average
forest	50	1.00	0.500
reclaimed mine (logging	0	0.75	0.000
orchards	0	0.50	0.000
pasture or hay	50	0.25	0.125
urban, roads	0	0.00	0.000
		Variable Score	0.625

Number of Native Species (COMP)	
Total Number of Species	Weighted Average
4	0.750
Variable Score	0.750

Trees and Shrubs	
Hydrology Functions	0.55
Biogeochemical Functions	0.55
Plant Community Functions	0.32
Habitat Functions	0.44
SCORE	**0.47**

Herbaceous	
Hydrology Functions	0.54
Biogeochemical Functions	0.55
Plant Community Functions	0.12
Habitat Functions	0.43
SCORE	**0.41**

Project Name	New Hill West Surface Mine
Project Number	0101-09-0081
Site Name	Tributary 5
Assessment Date	
Investigators	KBWR
Reach Length	86

NOTES:
Photo No.
Domanant vegetation includes:

Stream Channel Alteration (CHANNELALT)			
Type of Alteration	%	Score	Weighted Average
unaltered	0	1.00	0.000
restored	0	0.75	0.000
incised/excess sediment in channel	0	0.50	0.000
dammed	0	0.10	0.000
channelized/straightened	100	0.10	0.100
dredged	0	0.10	0.000
channel >50% filled	0	0.00	0.000
	Variable Score		0.100

Average Percent Cover of Trees (TREE)			
Percent Cover	%	Score	Weighted Average
Greater than 90	0	1.00	0.000
70 to 90	10	0.75	0.075
50 to 69	20	0.50	0.100
20 to 49	20	0.25	0.050
10 to 19	0	0.10	0.000
less than 10	50	0.00	0.000
	Variable Score		0.225

Average Percent Cover of Detritus (DETRITUS)			
Percent Cover	%	Score	Weighted Average
Greater than 75	10	1.00	0.100
50 to 75	30	0.75	0.225
25 to 49	50	0.50	0.250
10 to 24	10	0.25	0.025
less than 10	0	0.10	0.000
	Variable Score		0.600

Average Percent Slope of Watershed (SLOPE)			
Percent Slope	%	Score	Weighted Average
30 to 45 or unaltered	100	1.00	1.000
(20 to 29) or (46 to 65)	0	0.75	0.000
10 to 19	0	0.50	0.000
(5 to 9) or (65 to 90)	0	0.25	0.000
less than 5	0	0.10	0.000
	Variable Score		1.000

Average Percent Cover of Shrubs (SHRUB)			
Percent Cover	%	Score	Weighted Average
Greater than 50	0	1.00	0.000
20 to 50	0	0.50	0.000
10 to 19	50	0.10	0.050
less than 10	50	0.00	0.000
	Variable Score		0.050

Large Woody Debris in Channel (LWDEBRIS)	
Total Number in Reach	Score
0	0.00
Variable Score	0.000

Average Stream Sediment Size (SED)			
USDA Texture	%	Score	Weighted Average
boulder and cobble	67	1.00	0.670
gravel	28	0.75	0.210
sand	5	0.50	0.025
silt	0	0.10	0.000
clay/pavement	0	0.00	0.000
	Variable Score		0.905

Average % Cover of Herbaceous Vegetation (HERB)			
Percent Cover	%	Score	Weighted Average
70 to 100	50	0.10	0.050
less than 70	50	0.00	0.000
	Variable Score		0.050

Channel Geomorphology (CHANNGEO)			
Slope and Pools	%	Score	Weighted Average
Greater than 4% slope with many step pools	100	1.00	1.000
2 to 4% slope with common step pools	0	0.50	0.000
1 to 1.9% slope with few step pools	0	0.10	0.000
Less than 1% slope with no step pools	0	0.00	0.000
	Variable Score		1.000

Land Cover Within Watershed (COVER)			
Land Cover	%	Score	Weighted Average
forest	50	1.00	0.500
reclaimed mine (logging	0	0.75	0.000
orchards	0	0.50	0.000
pasture or hay	50	0.25	0.125
urban, roads	0	0.00	0.000
	Variable Score		0.625

Number of Native Species (COMP)	
Total Number of Species	Weighted Average
3	0.500
Variable Score	0.500

Trees and Shrubs	
Hydrology Functions	0.36
Biogeochemical Functions	0.36
Plant Community Functions	0.16
Habitat Functions	0.24
SCORE	**0.28**

Herbaceous	
Hydrology Functions	0.35
Biogeochemical Functions	0.30
Plant Community Functions	0.07
Habitat Functions	0.23
SCORE	**0.24**

Project Name	New Hill West Surface Mine
Project Number	0101-09-0081
Site Name	Tributary 6
Assessment Date	
Investigators	KBWR
Reach Length	569

NOTES:
Photo No.
Domanant vegetation includes:

Stream Channel Alteration (CHANNELALT)			
Type of Alteration	%	Score	Weighted Average
unaltered	45	1.00	0.450
restored	0	0.75	0.000
incised/excess sediment in channel	40	0.50	0.200
dammed	0	0.10	0.000
channelized/straightened	15	0.10	0.015
dredged	0	0.10	0.000
channel >50% filled	0	0.00	0.000
		Variable Score	0.665

Average Percent Cover of Trees (TREE)			
Percent Cover	%	Score	Weighted Average
Greater than 90	0	1.00	0.000
70 to 90	0	0.75	0.000
50 to 69	25	0.50	0.125
20 to 49	25	0.25	0.063
10 to 19	25	0.10	0.025
less than 10	25	0.00	0.000
		Variable Score	0.213

Average Percent Cover of Detritus (DETRITUS)			
Percent Cover	%	Score	Weighted Average
Greater than 75	15	1.00	0.150
50 to 75	30	0.75	0.225
25 to 49	20	0.50	0.100
10 to 24	20	0.25	0.050
less than 10	15	0.10	0.015
		Variable Score	0.540

Average Percent Slope of Watershed (SLOPE)			
Percent Slope	%	Score	Weighted Average
30 to 45 or unaltered	90	1.00	0.900
(20 to 29) or (46 to 65)	0	0.75	0.000
10 to 19	10	0.50	0.050
(5 to 9) or (65 to 90)	0	0.25	0.000
less than 5	0	0.10	0.000
		Variable Score	0.950

Average Percent Cover of Shrubs (SHRUB)			
Percent Cover	%	Score	Weighted Average
Greater than 50	0	1.00	0.000
20 to 50	0	0.50	0.000
10 to 19	50	0.10	0.050
less than 10	50	0.00	0.000
		Variable Score	0.050

Large Woody Debris in Channel (LWDEBRIS)		
Total Number in Reach	Score	
5	0.59	
	Variable Score	0.586

Average Stream Sediment Size (SED)			
USDA Texture	%	Score	Weighted Average
boulder and cobble	6	1.00	0.060
gravel	38	0.75	0.285
sand	26	0.50	0.130
silt	20	0.10	0.020
clay/pavement	10	0.00	0.000
		Variable Score	0.495

Average % Cover of Herbaceous Vegetation (HERB)			
Percent Cover	%	Score	Weighted Average
70 to 100	70	0.10	0.070
less than 70	30	0.00	0.000
		Variable Score	0.070

Channel Geomorphology (CHANNGEO)			
Slope and Pools	%	Score	Weighted Average
Greater than 4% slope with many step pools	100	1.00	1.000
2 to 4% slope with common step pools	0	0.50	0.000
1 to 1.9% slope with few step pools	0	0.10	0.000
Less than 1% slope with no step pools	0	0.00	0.000
		Variable Score	1.000

Land Cover Within Watershed (COVER)			
Land Cover	%	Score	Weighted Average
forest	20	1.00	0.200
reclaimed mine	10	0.75	0.075
orchards	0	0.50	0.000
pasture or hay	70	0.25	0.175
urban, roads	0	0.00	0.000
		Variable Score	0.450

Number of Native Species (COMP)	
Total Number of Species	Weighted Average
4	0.750
Variable Score	0.750

Trees and Shrubs	
Hydrology Functions	0.61
Biogeochemical Functions	0.62
Plant Community Functions	0.47
Habitat Functions	0.60
SCORE	**0.58**

Herbaceous	
Hydrology Functions	0.60
Biogeochemical Functions	0.61
Plant Community Functions	0.22
Habitat Functions	0.59
SCORE	**0.50**

Project Name	New Hill West Surface Mine
Project Number	0101-09-0081
Site Name	Tributary 7a
Assessment Date	
Investigators	KBWR
Reach Length	139

NOTES: Ninth Left Descending Unnamed Tributary of Scotts Run (Tributary No. 7

Photo No.

Domanant vegetation includes:

Stream Channel Alteration (CHANNELALT)			
Type of Alteration	%	Score	Weighted Average
unaltered	30	1.00	0.300
restored	0	0.75	0.000
incised/excess sediment in channel	0	0.50	0.000
dammed	0	0.10	0.000
channelized/straightened	70	0.10	0.070
dredged	0	0.10	0.000
channel >50% filled	0	0.00	0.000
		Variable Score	0.370

Average Percent Cover of Trees (TREE)			
Percent Cover	%	Score	Weighted Average
Greater than 90	0	1.00	0.000
70 to 90	20	0.75	0.150
50 to 69	25	0.50	0.125
20 to 49	25	0.25	0.063
10 to 19	10	0.10	0.010
less than 10	20	0.00	0.000
		Variable Score	0.348

Average Percent Cover of Detritus (DETRITUS)			
Percent Cover	%	Score	Weighted Average
Greater than 75	20	1.00	0.200
50 to 75	25	0.75	0.188
25 to 49	25	0.50	0.125
10 to 24	10	0.25	0.025
less than 10	20	0.10	0.020
		Variable Score	0.558

Average Percent Slope of Watershed (SLOPE)			
Percent Slope	%	Score	Weighted Average
30 to 45 or unaltered	90	1.00	0.900
(20 to 29) or (46 to 65)	0	0.75	0.000
10 to 19	10	0.50	0.050
(5 to 9) or (65 to 90)	0	0.25	0.000
less than 5	0	0.10	0.000
		Variable Score	0.950

Average Percent Cover of Shrubs (SHRUB)			
Percent Cover	%	Score	Weighted Average
Greater than 50	10	1.00	0.100
20 to 50	10	0.50	0.050
10 to 19	10	0.10	0.010
less than 10	70	0.00	0.000
		Variable Score	0.160

Large Woody Debris in Channel (LWDEBRIS)	
Total Number in Reach	Score
1	0.48
	Variable Score 0.480

Average Stream Sediment Size (SED)			
USDA Texture	%	Score	Weighted Average
boulder and cobble	75	1.00	0.750
gravel	10	0.75	0.075
sand	5	0.50	0.025
silt	5	0.10	0.005
clay/pavement	5	0.00	0.000
		Variable Score	0.855

Average % Cover of Herbaceous Vegetation (HERB)			
Percent Cover	%	Score	Weighted Average
70 to 100	15	0.10	0.015
less than 70	85	0.00	0.000
		Variable Score	0.015

Channel Geomorphology (CHANNGEO)			
Slope and Pools	%	Score	Weighted Average
Greater than 4% slope with many step pools	0	1.00	0.000
2 to 4% slope with common step pools	100	0.50	0.500
1 to 1.9% slope with few step pools	0	0.10	0.000
Less than 1% slope with no step pools	0	0.00	0.000
		Variable Score	0.500

Land Cover Within Watershed (COVER)			
Land Cover	%	Score	Weighted Average
forest	70	1.00	0.700
reclaimed mine (logging	10	0.75	0.075
orchards	0	0.50	0.000
pasture or hay	15	0.25	0.038
urban, roads	5	0.00	0.000
		Variable Score	0.813

Number of Native Species (COMP)	
Total Number of Species	Weighted Average
5	1.000
Variable Score	1.000

Trees and Shrubs	
Hydrology Functions	0.53
Biogeochemical Functions	0.49
Plant Community Functions	0.43
Habitat Functions	0.47
SCORE	**0.48**

Herbaceous	
Hydrology Functions	0.50
Biogeochemical Functions	0.44
Plant Community Functions	0.07
Habitat Functions	0.44
SCORE	**0.37**

Project Name	New Hill West Surface Mine
Project Number	0101-09-0081
Site Name	Tributary 7b
Assessment Date	
Investigators	KBWR
Reach Length	1383

NOTES: Second Right Unnamed Tributary of the Ninth Left Descending Unnamed Tributary of Scotts Run (Tributary 7

Photo No.

Domanant vegetation includes:

Stream Channel Alteration (CHANNELALT)			
Type of Alteration	%	Score	Weighted Average
unaltered	50	1.00	0.500
restored	0	0.75	0.000
incised/excess sediment in channel	50	0.50	0.250
dammed	0	0.10	0.000
channelized/straightened	0	0.10	0.000
dredged	0	0.10	0.000
channel >50% filled	0	0.00	0.000
	Variable Score		0.750

Average Percent Cover of Trees (TREE)			
Percent Cover	%	Score	Weighted Average
Greater than 90	0	1.00	0.000
70 to 90	20	0.75	0.150
50 to 69	25	0.50	0.125
20 to 49	25	0.25	0.063
10 to 19	10	0.10	0.010
less than 10	20	0.00	0.000
	Variable Score		0.348

Average Percent Cover of Detritus (DETRITUS)			
Percent Cover	%	Score	Weighted Average
Greater than 75	10	1.00	0.100
50 to 75	25	0.75	0.188
25 to 49	30	0.50	0.150
10 to 24	25	0.25	0.063
less than 10	10	0.10	0.010
	Variable Score		0.510

Average Percent Slope of Watershed (SLOPE)			
Percent Slope	%	Score	Weighted Average
30 to 45 or unaltered	100	1.00	1.000
(20 to 29) or (46 to 65)	0	0.75	0.000
10 to 19	0	0.50	0.000
(5 to 9) or (65 to 90)	0	0.25	0.000
less than 5	0	0.10	0.000
	Variable Score		1.000

Average Percent Cover of Shrubs (SHRUB)			
Percent Cover	%	Score	Weighted Average
Greater than 50	25	1.00	0.250
20 to 50	10	0.50	0.050
10 to 19	10	0.10	0.010
less than 10	55	0.00	0.000
	Variable Score		0.310

Large Woody Debris in Channel (LWDEBRIS)	
Total Number in Reach	Score
8	0.39
Variable Score	0.386

Average Stream Sediment Size (SED)			
USDA Texture	%	Score	Weighted Average
boulder and cobble	3	1.00	0.030
gravel	29	0.75	0.218
sand	42	0.50	0.210
silt	20	0.10	0.020
clay/pavement	6	0.00	0.000
	Variable Score		0.478

Average % Cover of Herbaceous Vegetation (HERB)			
Percent Cover	%	Score	Weighted Average
70 to 100	20	0.10	0.020
less than 70	80	0.00	0.000
	Variable Score		0.020

Channel Geomorphology (CHANNGEO)			
Slope and Pools	%	Score	Weighted Average
Greater than 4% slope with many step pools	100	1.00	1.000
2 to 4% slope with common step pools	0	0.50	0.000
1 to 1.9% slope with few step pools	0	0.10	0.000
Less than 1% slope with no step pools	0	0.00	0.000
	Variable Score		1.000

Land Cover Within Watershed (COVER)			
Land Cover	%	Score	Weighted Average
forest	45	1.00	0.450
reclaimed mine (logging	25	0.75	0.188
orchards	0	0.50	0.000
pasture or hay	20	0.25	0.050
urban, roads	0	0.00	0.000
	Variable Score		0.688

Number of Native Species (COMP)	
Total Number of Species	Weighted Average
5	1.000
Variable Score	1.000

Trees and Shrubs	
Hydrology Functions	0.70
Biogeochemical Functions	0.68
Plant Community Functions	0.64
Habitat Functions	0.65
SCORE	**0.67**

Herbaceous	
Hydrology Functions	0.64
Biogeochemical Functions	0.60
Plant Community Functions	0.12
Habitat Functions	0.62
SCORE	**0.50**

Project Name	New Hill West Surface Mine
Project Number	0101-09-0081
Site Name	Tributary 7-1
Assessment Date	
Investigators	KBWR
Reach Length	37

NOTES:
Photo No.
Domanant vegetation includes:

Stream Channel Alteration (CHANNELALT)			
Type of Alteration	%	Score	Weighted Average
unaltered	0	1.00	0.000
restored	0	0.75	0.000
incised/excess sediment in channel	100	0.50	0.500
dammed	0	0.10	0.000
channelized/straightened	0	0.10	0.000
dredged	0	0.10	0.000
channel >50% filled	0	0.00	0.000
	Variable Score		0.500

Average Percent Cover of Trees (TREE)			
Percent Cover	%	Score	Weighted Average
Greater than 90	0	1.00	0.000
70 to 90	0	0.75	0.000
50 to 69	25	0.50	0.125
20 to 49	25	0.25	0.063
10 to 19	25	0.10	0.025
less than 10	25	0.00	0.000
	Variable Score		0.213

Average Percent Cover of Detritus (DETRITUS)			
Percent Cover	%	Score	Weighted Average
Greater than 75	0	1.00	0.000
50 to 75	25	0.75	0.188
25 to 49	25	0.50	0.125
10 to 24	25	0.25	0.063
less than 10	25	0.10	0.025
	Variable Score		0.400

Average Percent Slope of Watershed (SLOPE)			
Percent Slope	%	Score	Weighted Average
30 to 45 or unaltered	100	1.00	1.000
(20 to 29) or (46 to 65)	0	0.75	0.000
10 to 19	0	0.50	0.000
(5 to 9) or (65 to 90)	0	0.25	0.000
less than 5	0	0.10	0.000
	Variable Score		1.000

Average Percent Cover of Shrubs (SHRUB)			
Percent Cover	%	Score	Weighted Average
Greater than 50	50	1.00	0.500
20 to 50	50	0.50	0.250
10 to 19	0	0.10	0.000
less than 10	0	0.00	0.000
	Variable Score		0.750

Large Woody Debris in Channel (LWDEBRIS)	
Total Number in Reach	Score
0	0.00
Variable Score	0.000

Average Stream Sediment Size (SED)			
USDA Texture	%	Score	Weighted Average
boulder and cobble	0	1.00	0.000
gravel	25	0.75	0.188
sand	25	0.50	0.125
silt	25	0.10	0.025
clay/pavement	25	0.00	0.000
	Variable Score		0.338

Average % Cover of Herbaceous Vegetation (HERB)			
Percent Cover	%	Score	Weighted Average
70 to 100	0	0.10	0.000
less than 70	100	0.00	0.000
	Variable Score		0.000

Channel Geomorphology (CHANNGEO)			
Slope and Pools	%	Score	Weighted Average
Greater than 4% slope with many step pools	100	1.00	1.000
2 to 4% slope with common step pools	0	0.50	0.000
1 to 1.9% slope with few step pools	0	0.10	0.000
Less than 1% slope with no step pools	0	0.00	0.000
	Variable Score		1.000

Land Cover Within Watershed (COVER)			
Land Cover	%	Score	Weighted Average
forest	0	1.00	0.000
reclaimed mine (logging	100	0.75	0.750
orchards	0	0.50	0.000
pasture or hay	0	0.25	0.000
urban, roads	0	0.00	0.000
	Variable Score		0.750

Number of Native Species (COMP)	
Total Number of Species	Weighted Average
2	0.250
Variable Score	0.250

Trees and Shrubs	
Hydrology Functions	0.61
Biogeochemical Functions	0.61
Plant Community Functions	0.45
Habitat Functions	0.47
SCORE	**0.53**

Herbaceous	
Hydrology Functions	0.54
Biogeochemical Functions	0.45
Plant Community Functions	0.00
Habitat Functions	0.46
SCORE	**0.36**

Project Name	New Hill West Surface Mine
Project Number	0101-09-0081
Site Name	Tributary 7-3
Assessment Date	
Investigators	KBWR
Reach Length	209

NOTES:
Photo No.
Domanant vegetation includes:

Stream Channel Alteration (CHANNELALT)			
Type of Alteration	%	Score	Weighted Average
unaltered	40	1.00	0.400
restored	0	0.75	0.000
incised/excess sediment in channel	60	0.50	0.300
dammed	0	0.10	0.000
channelized/straightened	0	0.10	0.000
dredged	0	0.10	0.000
channel >50% filled	0	0.00	0.000
	Variable Score		0.700

Average Percent Cover of Trees (TREE)			
Percent Cover	%	Score	Weighted Average
Greater than 90	0	1.00	0.000
70 to 90	0	0.75	0.000
50 to 69	25	0.50	0.125
20 to 49	25	0.25	0.063
10 to 19	25	0.10	0.025
less than 10	25	0.00	0.000
	Variable Score		0.213

Average Percent Cover of Detritus (DETRITUS)			
Percent Cover	%	Score	Weighted Average
Greater than 75	0	1.00	0.000
50 to 75	25	0.75	0.188
25 to 49	25	0.50	0.125
10 to 24	25	0.25	0.063
less than 10	25	0.10	0.025
	Variable Score		0.400

Average Percent Slope of Watershed (SLOPE)			
Percent Slope	%	Score	Weighted Average
30 to 45 or unaltered	100	1.00	1.000
(20 to 29) or (46 to 65)	0	0.75	0.000
10 to 19	0	0.50	0.000
(5 to 9) or (65 to 90)	0	0.25	0.000
less than 5	0	0.10	0.000
	Variable Score		1.000

Average Percent Cover of Shrubs (SHRUB)			
Percent Cover	%	Score	Weighted Average
Greater than 50	25	1.00	0.250
20 to 50	25	0.50	0.125
10 to 19	25	0.10	0.025
less than 10	25	0.00	0.000
	Variable Score		0.400

Large Woody Debris in Channel (LWDEBRIS)	
Total Number in Reach	Score
1	0.32
Variable Score	0.319

Average Stream Sediment Size (SED)			
USDA Texture	%	Score	Weighted Average
boulder and cobble	0	1.00	0.000
gravel	0	0.75	0.000
sand	0	0.50	0.000
silt	0	0.10	0.000
clay/pavement	100	0.00	0.000
	Variable Score		0.000

Average % Cover of Herbaceous Vegetation (HERB)			
Percent Cover	%	Score	Weighted Average
70 to 100	0	0.10	0.000
less than 70	100	0.00	0.000
	Variable Score		0.000

Channel Geomorphology (CHANNGEO)			
Slope and Pools	%	Score	Weighted Average
Greater than 4% slope with many step pools	100	1.00	1.000
2 to 4% slope with common step pools	0	0.50	0.000
1 to 1.9% slope with few step pools	0	0.10	0.000
Less than 1% slope with no step pools	0	0.00	0.000
	Variable Score		1.000

Land Cover Within Watershed (COVER)			
Land Cover	%	Score	Weighted Average
forest	25	1.00	0.250
reclaimed mine (logging	75	0.75	0.563
orchards	0	0.50	0.000
pasture or hay	0	0.25	0.000
urban, roads	0	0.00	0.000
	Variable Score		0.813

Number of Native Species (COMP)	
Total Number of Species	Weighted Average
3	0.500
Variable Score	0.500

Trees and Shrubs	
Hydrology Functions	0.69
Biogeochemical Functions	0.66
Plant Community Functions	0.51
Habitat Functions	0.57
SCORE	**0.61**

Herbaceous	
Hydrology Functions	0.64
Biogeochemical Functions	0.58
Plant Community Functions	0.00
Habitat Functions	0.55
SCORE	**0.44**

Project Name	New Hill West Surface Mine
Project Number	0101-09-0081
Site Name	Tributary 8
Assessment Date	
Investigators	KBWR
Reach Length	139

NOTES:
Photo No.
Domanant vegetation includes:

Stream Channel Alteration (CHANNELALT)			
Type of Alteration	%	Score	Weighted Average
unaltered	50	1.00	0.500
restored	0	0.75	0.000
incised/excess sediment in channel	40	0.50	0.200
dammed	0	0.10	0.000
channelized/straightened	10	0.10	0.010
dredged	0	0.10	0.000
channel >50% filled	0	0.00	0.000
	Variable Score		0.710

Average Percent Cover of Trees (TREE)			
Percent Cover	%	Score	Weighted Average
Greater than 90	0	1.00	0.000
70 to 90	20	0.75	0.150
50 to 69	25	0.50	0.125
20 to 49	20	0.25	0.050
10 to 19	5	0.10	0.005
less than 10	30	0.00	0.000
	Variable Score		0.330

Average Percent Cover of Detritus (DETRITUS)			
Percent Cover	%	Score	Weighted Average
Greater than 75	10	1.00	0.100
50 to 75	20	0.75	0.150
25 to 49	40	0.50	0.200
10 to 24	25	0.25	0.063
less than 10	5	0.10	0.005
	Variable Score		0.518

Average Percent Slope of Watershed (SLOPE)			
Percent Slope	%	Score	Weighted Average
30 to 45 or unaltered	100	1.00	1.000
(20 to 29) or (46 to 65)	0	0.75	0.000
10 to 19	0	0.50	0.000
(5 to 9) or (65 to 90)	0	0.25	0.000
less than 5	0	0.10	0.000
	Variable Score		1.000

Average Percent Cover of Shrubs (SHRUB)			
Percent Cover	%	Score	Weighted Average
Greater than 50	0	1.00	0.000
20 to 50	30	0.50	0.150
10 to 19	40	0.10	0.040
less than 10	30	0.00	0.000
	Variable Score		0.190

Large Woody Debris in Channel (LWDEBRIS)	
Total Number in Reach	Score
1	0.48
Variable Score	0.480

Average Stream Sediment Size (SED)			
USDA Texture	%	Score	Weighted Average
boulder and cobble	10	1.00	0.100
gravel	15	0.75	0.113
sand	5	0.50	0.025
silt	0	0.10	0.000
clay/pavement	70	0.00	0.000
	Variable Score		0.238

Average % Cover of Herbaceous Vegetation (HERB)			
Percent Cover	%	Score	Weighted Average
70 to 100	25	0.10	0.025
less than 70	75	0.00	0.000
	Variable Score		0.025

Channel Geomorphology (CHANNGEO)			
Slope and Pools	%	Score	Weighted Average
Greater than 4% slope with many step pools	100	1.00	1.000
2 to 4% slope with common step pools	0	0.50	0.000
1 to 1.9% slope with few step pools	0	0.10	0.000
Less than 1% slope with no step pools	0	0.00	0.000
	Variable Score		1.000

Land Cover Within Watershed (COVER)			
Land Cover	%	Score	Weighted Average
forest	70	1.00	0.700
reclaimed mine (logging	0	0.75	0.000
orchards	0	0.50	0.000
pasture or hay	25	0.25	0.063
urban, roads	5	0.00	0.000
	Variable Score		0.763

Number of Native Species (COMP)	
Total Number of Species	Weighted Average
4	0.750
Variable Score	0.750

Trees and Shrubs	
Hydrology Functions	0.70
Biogeochemical Functions	0.68
Plant Community Functions	0.55
Habitat Functions	0.63
SCORE	**0.64**

Herbaceous	
Hydrology Functions	0.66
Biogeochemical Functions	0.62
Plant Community Functions	0.13
Habitat Functions	0.60
SCORE	**0.50**

Project Name	New Hill West Surface Mine
Project Number	0101-09-0081
Site Name	Tributary 9
Assessment Date	
Investigators	KBWR
Reach Length	127

NOTES:
Photo No.
Domanant vegetation includes:

Stream Channel Alteration (CHANNELALT)			
Type of Alteration	%	Score	Weighted Average
unaltered	0	1.00	0.000
restored	0	0.75	0.000
incised/excess sediment in channel	65	0.50	0.325
dammed	0	0.10	0.000
channelized/straightened	35	0.10	0.035
dredged	0	0.10	0.000
channel >50% filled	0	0.00	0.000
	Variable Score		0.360

Average Percent Cover of Trees (TREE)			
Percent Cover	%	Score	Weighted Average
Greater than 90	0	1.00	0.000
70 to 90	15	0.75	0.113
50 to 69	25	0.50	0.125
20 to 49	25	0.25	0.063
10 to 19	5	0.10	0.005
less than 10	30	0.00	0.000
	Variable Score		0.305

Average Percent Cover of Detritus (DETRITUS)			
Percent Cover	%	Score	Weighted Average
Greater than 75	10	1.00	0.100
50 to 75	35	0.75	0.263
25 to 49	30	0.50	0.150
10 to 24	20	0.25	0.050
less than 10	5	0.10	0.005
	Variable Score		0.568

Average Percent Slope of Watershed (SLOPE)			
Percent Slope	%	Score	Weighted Average
30 to 45 or unaltered	100	1.00	1.000
(20 to 29) or (46 to 65)	0	0.75	0.000
10 to 19	0	0.50	0.000
(5 to 9) or (65 to 90)	0	0.25	0.000
less than 5	0	0.10	0.000
	Variable Score		1.000

Average Percent Cover of Shrubs (SHRUB)			
Percent Cover	%	Score	Weighted Average
Greater than 50	10	1.00	0.100
20 to 50	10	0.50	0.050
10 to 19	20	0.10	0.020
less than 10	60	0.00	0.000
	Variable Score		0.170

Large Woody Debris in Channel (LWDEBRIS)	
Total Number in Reach	Score
2	1.05
Variable Score	1.000

Average Stream Sediment Size (SED)			
USDA Texture	%	Score	Weighted Average
boulder and cobble	25	1.00	0.250
gravel	35	0.75	0.263
sand	20	0.50	0.100
silt	10	0.10	0.010
clay/pavement	10	0.00	0.000
	Variable Score		0.623

Average % Cover of Herbaceous Vegetation (HERB)			
Percent Cover	%	Score	Weighted Average
70 to 100	40	0.10	0.040
less than 70	60	0.00	0.000
	Variable Score		0.040

Channel Geomorphology (CHANNGEO)			
Slope and Pools	%	Score	Weighted Average
Greater than 4% slope with many step pools	0	1.00	0.000
2 to 4% slope with common step pools	100	0.50	0.500
1 to 1.9% slope with few step pools	0	0.10	0.000
Less than 1% slope with no step pools	0	0.00	0.000
	Variable Score		0.500

Land Cover Within Watershed (COVER)			
Land Cover	%	Score	Weighted Average
forest	60	1.00	0.600
reclaimed mine (logging	0	0.75	0.000
orchards	0	0.50	0.000
pasture or hay	35	0.25	0.088
urban, roads	5	0.00	0.000
	Variable Score		0.688

Number of Native Species (COMP)	
Total Number of Species	Weighted Average
4	0.750
Variable Score	0.750

Trees and Shrubs	
Hydrology Functions	0.58
Biogeochemical Functions	0.51
Plant Community Functions	0.38
Habitat Functions	0.47
SCORE	**0.49**

Herbaceous	
Hydrology Functions	0.55
Biogeochemical Functions	0.52
Plant Community Functions	0.12
Habitat Functions	0.45
SCORE	**0.41**

Project Name	New Hill West Surface Mine
Project Number	0101-09-0081
Site Name	Tributary 10
Assessment Date	
Investigators	KBWR
Reach Length	217

NOTES:
Photo No.
Domanant vegetation includes:

Stream Channel Alteration (CHANNELALT)			
Type of Alteration	%	Score	Weighted Average
unaltered	5	1.00	0.050
restored	0	0.75	0.000
incised/excess sediment in channel	0	0.50	0.000
dammed	0	0.10	0.000
channelized/straightened	95	0.10	0.095
dredged	0	0.10	0.000
channel >50% filled	0	0.00	0.000
	Variable Score		0.145

Average Percent Cover of Trees (TREE)			
Percent Cover	%	Score	Weighted Average
Greater than 90	0	1.00	0.000
70 to 90	0	0.75	0.000
50 to 69	25	0.50	0.125
20 to 49	25	0.25	0.063
10 to 19	25	0.10	0.025
less than 10	25	0.00	0.000
	Variable Score		0.213

Average Percent Cover of Detritus (DETRITUS)			
Percent Cover	%	Score	Weighted Average
Greater than 75	15	1.00	0.150
50 to 75	30	0.75	0.225
25 to 49	20	0.50	0.100
10 to 24	20	0.25	0.050
less than 10	15	0.10	0.015
	Variable Score		0.540

Average Percent Slope of Watershed (SLOPE)			
Percent Slope	%	Score	Weighted Average
30 to 45 or unaltered	30	1.00	0.300
(20 to 29) or (46 to 65)	0	0.75	0.000
10 to 19	30	0.50	0.150
(5 to 9) or (65 to 90)	40	0.25	0.100
less than 5	0	0.10	0.000
	Variable Score		0.550

Average Percent Cover of Shrubs (SHRUB)			
Percent Cover	%	Score	Weighted Average
Greater than 50	0	1.00	0.000
20 to 50	0	0.50	0.000
10 to 19	30	0.10	0.030
less than 10	70	0.00	0.000
	Variable Score		0.030

Large Woody Debris in Channel (LWDEBRIS)	
Total Number in Reach	Score
4	1.23
Variable Score	1.000

Average Stream Sediment Size (SED)			
USDA Texture	%	Score	Weighted Average
boulder and cobble	95	1.00	0.950
gravel	3	0.75	0.023
sand	2	0.50	0.010
silt	0	0.10	0.000
clay/pavement	0	0.00	0.000
	Variable Score		0.983

Average % Cover of Herbaceous Vegetation (HERB)			
Percent Cover	%	Score	Weighted Average
70 to 100	70	0.10	0.070
less than 70	30	0.00	0.000
	Variable Score		0.070

Channel Geomorphology (CHANNGEO)			
Slope and Pools	%	Score	Weighted Average
Greater than 4% slope with many step pools	100	1.00	1.000
2 to 4% slope with common step pools	0	0.50	0.000
1 to 1.9% slope with few step pools	0	0.10	0.000
Less than 1% slope with no step pools	0	0.00	0.000
	Variable Score		1.000

Land Cover Within Watershed (COVER)			
Land Cover	%	Score	Weighted Average
forest	30	1.00	0.300
reclaimed mine	60	0.75	0.450
orchards	0	0.50	0.000
pasture or hay	10	0.25	0.025
urban, roads	0	0.00	0.000
	Variable Score		0.775

Number of Native Species (COMP)	
Total Number of Species	Weighted Average
2	0.250
Variable Score	0.250

Trees and Shrubs	
Hydrology Functions	0.43
Biogeochemical Functions	0.44
Plant Community Functions	0.15
Habitat Functions	0.33
SCORE	**0.34**

Herbaceous	
Hydrology Functions	0.42
Biogeochemical Functions	0.47
Plant Community Functions	0.10
Habitat Functions	0.33
SCORE	**0.33**

Streams

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.	39.6778077	Lon.	-80.06504433	DATE: 18-Feb-09
STREAM CLASSIFICATION:	Intermittent	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run, RPW, Tributary No. 1 6 to 45% Streambed Slope, Some Canopy Tree			PRECIPITATION PAST 48 HRS: 0
STREAM IMPACT LENGTH: 465	FORM OF MITIGATION:	Permittee Responsible-Onsite	WEATHER CONDITIONS:	Sunny			Mitigation Length: 465

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	2
2. Embeddedness	0-20		16
3. Velocity/ Depth Regime	0-20		7
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		12
6. Channel Alteration	0-20		16
7. Frequency of Riffles (or bends)	0-20		16
8. Bank Stability (LB & RB)	0-20		10
9. Vegetative Protection (LB & RB)	0-20		4
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Suboptimal		117
Sub-Total			0.585
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	342
pH			
6.0-8.0 = 80 points	0-80		7.41
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.7425	465	345.2625

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		0
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		0
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		0
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		0
9. Vegetative Protection (LB & RB)	0-20		0
10. Riparian Vegetative Zone Width (LB and RB)	0-20		0
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	350
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.45	465	209.25

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	8
2. Embeddedness	0-20		14
3. Velocity/ Depth Regime	0-20		8
4. Sediment Deposition	0-20		15
5. Channel Flow Status	0-20		14
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		16
8. Bank Stability (LB & RB)	0-20		12
9. Vegetative Protection (LB & RB)	0-20		11
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Suboptimal		124
Sub-Total			0.62
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	350
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.76	465	353.4

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	10
2. Embeddedness	0-20		16
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		15
6. Channel Alteration	0-20		16
7. Frequency of Riffles (or bends)	0-20		17
8. Bank Stability (LB & RB)	0-20		16
9. Vegetative Protection (LB & RB)	0-20		16
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Suboptimal		150
Sub-Total			0.75
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	350
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.825	465	383.625

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.7425	Mitigation Existing Condition (Credit)	0.45	Mitigation Projected at Five Years Post Completion (Credit)	0.760000	Mitigation Projected At Maturity (Credit)	0.825

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	3
Sub-Total	0.066825

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
30%	20
Sub-Total	0.22275

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
40% + 15 Year Monitoring	21
Sub-Total	0.297

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
1.329075	465	618.019875	$247,207.95

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	618.0199	Mitigation Existing Condition - Baseline (Credit)	209.25	Mitigation Projected at Five Years Post Completion (Credit)	353.4	Mitigation Projected At Maturity (Credit)	383.625
FINAL PROJECTED NET BALANCE					144.15		174.375

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Tributary No. 1	345.2625	618.019875	174.375

Ratio Straight Preservation (10:1)
38.3625

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.	39.67790099	Lon.	-80.06387295	DATE: 8-Dec-09
STREAM CLASSIFICATION:	Intermittent	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run, RPW, Tributary No. 1-1 3 to15% Streambed Slope, Some Canopy Tree			PRECIPITATION PAST 48 HRS: 0.02
STREAM IMPACT LENGTH: 325	FORM OF MITIGATION:	Permittee Responsible-Onsite	WEATHER CONDITIONS:	Sunny			Mitigation Length: 325

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	2
2. Embeddedness	0-20		16
3. Velocity/ Depth Regime	0-20		7
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		12
6. Channel Alteration	0-20		16
7. Frequency of Riffles (or bends)	0-20		16
8. Bank Stability (LB & RB)	0-20		10
9. Vegetative Protection (LB & RB)	0-20		4
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Suboptimal		117
Sub-Total			0.585
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	342
pH			
6.0-8.0 = 80 points	0-80		7.41
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	0
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.7425	325	241.3125

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		0
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		0
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		0
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		0
9. Vegetative Protection (LB & RB)	0-20		0
10. Riparian Vegetative Zone Width (LB and RB)	0-20		0
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
	0-90	0-1	0
pH			
	5-90		0
DO			
	10-30		0
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	0
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0	325	0

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	7
2. Embeddedness	0-20		16
3. Velocity/ Depth Regime	0-20		9
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		13
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		15
8. Bank Stability (LB & RB)	0-20		12
9. Vegetative Protection (LB & RB)	0-20		10
10. Riparian Vegetative Zone Width (LB and RB)	0-20		16
Total RBP Score	Suboptimal		122
Sub-Total			0.61
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	350
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	0
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.755	325	245.375

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	11
2. Embeddedness	0-20		17
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		17
5. Channel Flow Status	0-20		15
6. Channel Alteration	0-20		16
7. Frequency of Riffles (or bends)	0-20		15
8. Bank Stability (LB & RB)	0-20		16
9. Vegetative Protection (LB & RB)	0-20		18
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Suboptimal		154
Sub-Total			0.77
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	350
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	0
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.835	325	271.375

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.7425	Mitigation Existing Condition (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	0.755000	Mitigation Projected At Maturity (Credit)	0.835

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	3
Sub-Total	0.066825

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
20%	15
Sub-Total	0.1485

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
40% + 15 Year Monitoring	21
Sub-Total	0.297

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
1.254825	325	407.818125	$163,127.25

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	407.8181	Mitigation Existing Condition - Baseline (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	245.375	Mitigation Projected At Maturity (Credit)	271.375
FINAL PROJECTED NET BALANCE					245.375		271.375

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Tributary No. 1-1	241.3125	407.818125	271.375

Ratio Straight Preservation (10:1)
27.1375

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.		Lon.	DATE:	18-Feb-09
STREAM CLASSIFICATION:	Ephemeral	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run, non-RPW, Tributary No. 4 12 to 35% Streambed Slope, Some Canopy Tree		PRECIPITATION PAST 48 HRS:	0
STREAM IMPACT LENGTH:	422	FORM OF MITIGATION:	Permittee Responsible-Onsite	WEATHER CONDITIONS:	Sunny	Mitigation Length:	422

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	3
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		3
4. Sediment Deposition	0-20		13
5. Channel Flow Status	0-20		6
6. Channel Alteration	0-20		13
7. Frequency of Riffles (or bends)	0-20		12
8. Bank Stability (LB & RB)	0-20		12
9. Vegetative Protection (LB & RB)	0-20		14
10. Riparian Vegetative Zone Width (LB and RB)	0-20		14
Total RBP Score	Marginal		105
Sub-Total			0.525
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	0
pH			
5.6-6.0 = 45 points	0-80		0
DO			
>5.0 = 30 points	10-30		0
Sub-Total			
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.6625	422	279.575

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		0
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		0
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		0
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		0
9. Vegetative Protection (LB & RB)	0-20		0
10. Riparian Vegetative Zone Width (LB and RB)	0-20		0
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
	0-90	0-1	0
pH			
	5-90		0
DO			
	10-30		0
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0	422	0

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	6
2. Embeddedness	0-20		14
3. Velocity/ Depth Regime	0-20		7
4. Sediment Deposition	0-20		14
5. Channel Flow Status	0-20		9
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		13
8. Bank Stability (LB & RB)	0-20		16
9. Vegetative Protection (LB & RB)	0-20		15
10. Riparian Vegetative Zone Width (LB and RB)	0-20		15
Total RBP Score	Suboptimal		117
Sub-Total			0.585
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.7425	422	313.335

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	11
2. Embeddedness	0-20		16
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		15
6. Channel Alteration	0-20		16
7. Frequency of Riffles (or bends)	0-20		15
8. Bank Stability (LB & RB)	0-20		16
9. Vegetative Protection (LB & RB)	0-20		18
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Suboptimal		151
Sub-Total			0.755
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.8275	422	349.205

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.6625	Mitigation Existing Condition (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	0.742500	Mitigation Projected At Maturity (Credit)	0.8275

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	5
Sub-Total	0.099375

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
20%	15
Sub-Total	0.1325

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
40% + 15 Year Monitoring	21
Sub-Total	0.265

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
1.159375	422	489.25625	$195,702.50

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	489.2563	Mitigation Existing Condition - Baseline (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	313.335	Mitigation Projected At Maturity (Credit)	349.205
FINAL PROJECTED NET BALANCE					313.335		349.205

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Tributary No. 4	279.575	489.25625	349.205

Ratio Straight Preservation (10:1)
34.9205

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.	39.66887684	Lon.	-80.06359337	DATE: 18-Feb-09
STREAM CLASSIFICATION:	Intermittent	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run, RPW, Tributary No. 5 3 to 55% Streambed Slope, Some Canopy Tree			PRECIPITATION PAST 48 HRS: 0
STREAM IMPACT LENGTH: 86	FORM OF MITIGATION:	Permittee Responsible-Onsite	WEATHER CONDITIONS:	Sunny			Mitigation Length: 86

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	10
2. Embeddedness	0-20		13
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		10
6. Channel Alteration	0-20		12
7. Frequency of Riffles (or bends)	0-20		16
8. Bank Stability (LB & RB)	0-20		11
9. Vegetative Protection (LB & RB)	0-20		4
10. Riparian Vegetative Zone Width (LB and RB)	0-20		11
Total RBP Score	Suboptimal		113
Sub-Total			0.565
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	314
pH			
6.0-8.0 = 80 points	0-80		7.57
DO			
>5.0 = 30 points	10-30		10.86
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.7325	86	62.995

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		0
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		0
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		0
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		0
9. Vegetative Protection (LB & RB)	0-20		0
10. Riparian Vegetative Zone Width (LB and RB)	0-20		0
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
	0-90	0-1	0
pH			
	5-90		0
DO			
	10-30		0
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0	86	0

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	10
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		12
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		16
8. Bank Stability (LB & RB)	0-20		14
9. Vegetative Protection (LB & RB)	0-20		14
10. Riparian Vegetative Zone Width (LB and RB)	0-20		14
Total RBP Score	Suboptimal		129
Sub-Total			0.645
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	350
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.7725	86	66.435

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	14
2. Embeddedness	0-20		16
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		17
5. Channel Flow Status	0-20		14
6. Channel Alteration	0-20		15
7. Frequency of Riffles (or bends)	0-20		16
8. Bank Stability (LB & RB)	0-20		18
9. Vegetative Protection (LB & RB)	0-20		18
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Suboptimal		156
Sub-Total			0.78
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	350
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.84	86	72.24

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.7325	Mitigation Existing Condition (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	0.772500	Mitigation Projected At Maturity (Credit)	0.84

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	5
Sub-Total	0.109875

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
20%	15
Sub-Total	0.1465

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
40% + 15 Year Monitoring	21
Sub-Total	0.293

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
1.281875	86	110.24125	$44,096.50

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	110.2413	Mitigation Existing Condition - Baseline (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	66.435	Mitigation Projected At Maturity (Credit)	72.24
FINAL PROJECTED NET BALANCE					66.435		72.24

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Tributary No. 5	62.995	110.24125	72.24

Ratio Straight Preservation (10:1)
7.224

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.	39.67326303	Lon.	-80.05652598	DATE: 18-Feb-09
STREAM CLASSIFICATION:	Ephemeral	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run, Tributary No. 6 3 to 9% Streambed Slope, Some Canopy Tree			PRECIPITATION PAST 48 HRS: 0
STREAM IMPACT LENGTH: 469	FORM OF MITIGATION:	Permittee Responsible-Onsite	WEATHER CONDITIONS:	Sunny			Mitigation Length: 1169

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		3
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		3
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		16
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		6
9. Vegetative Protection (LB & RB)	0-20		6
10. Riparian Vegetative Zone Width (LB and RB)	0-20		16
Total RBP Score	Poor		50
Sub-Total			0.25
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	0
pH			
5.6-6.0 = 45 points	0-80		0
DO			
>5.0 = 30 points	10-30		0
Sub-Total			
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	0
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.525	469	246.225

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		0
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		0
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		0
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		0
9. Vegetative Protection (LB & RB)	0-20		0
10. Riparian Vegetative Zone Width (LB and RB)	0-20		0
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
	0-90	0-1	0
pH			
	5-90		0
DO			
	10-30		0
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0	1169	0

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		7
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		7
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		13
9. Vegetative Protection (LB & RB)	0-20		13
10. Riparian Vegetative Zone Width (LB and RB)	0-20		16
Total RBP Score	Marginal		64
Sub-Total			0.32
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.61	1169	713.09

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		15
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		15
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		18
9. Vegetative Protection (LB & RB)	0-20		18
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Marginal		99
Sub-Total			0.495
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.6975	1169	815.3775

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.525	Mitigation Existing Condition (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	0.610000	Mitigation Projected At Maturity (Credit)	0.6975

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	5
Sub-Total	0.07875

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
20%	15
Sub-Total	0.105

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
40% + 15 Year Monitoring	21
Sub-Total	0.21

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
0.91875	469	469	$187,600.00

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	469	Mitigation Existing Condition - Baseline (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	713.09	Mitigation Projected At Maturity (Credit)	815.3775
FINAL PROJECTED NET BALANCE					713.09		815.3775

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Tributary No. 6 eph	246.225	469	815.3775

Ratio Straight Preservation (10:1)
81.53775

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.	39.6733061	Lon.	-80.05652875	DATE: 18-Feb-09
STREAM CLASSIFICATION:	Intermittent	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run, Tributary No. 6 3 to 9% Streambed Slope, Some Canopy Tree			PRECIPITATION PAST 48 HRS: 0
STREAM IMPACT LENGTH:	100	FORM OF MITIGATION:	Permittee Responsible-Onsite	WEATHER CONDITIONS:	Sunny		Mitigation Length: 200

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	2
2. Embeddedness	0-20		10
3. Velocity/ Depth Regime	0-20		3
4. Sediment Deposition	0-20		14
5. Channel Flow Status	0-20		14
6. Channel Alteration	0-20		4
7. Frequency of Riffles (or bends)	0-20		6
8. Bank Stability (LB & RB)	0-20		16
9. Vegetative Protection (LB & RB)	0-20		16
10. Riparian Vegetative Zone Width (LB and RB)	0-20		16
Total RBP Score	Marginal		101
Sub-Total			0.505
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
200-299 - 80 points	0-90	0-1	207
pH			
6.0-8.0 = 80 points	0-80		7.42
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.95
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.7275	100	72.75

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		0
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		0
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		0
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		0
9. Vegetative Protection (LB & RB)	0-20		0
10. Riparian Vegetative Zone Width (LB and RB)	0-20		0
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
	0-90	0-1	0
pH			
	5-90		0
DO			
	10-30		0
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0	200	0

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	10
2. Embeddedness	0-20		12
3. Velocity/ Depth Regime	0-20		7
4. Sediment Deposition	0-20		14
5. Channel Flow Status	0-20		14
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		7
8. Bank Stability (LB & RB)	0-20		16
9. Vegetative Protection (LB & RB)	0-20		16
10. Riparian Vegetative Zone Width (LB and RB)	0-20		16
Total RBP Score	Suboptimal		120
Sub-Total			0.6
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.75	200	150

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	12
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		15
5. Channel Flow Status	0-20		15
6. Channel Alteration	0-20		15
7. Frequency of Riffles (or bends)	0-20		13
8. Bank Stability (LB & RB)	0-20		18
9. Vegetative Protection (LB & RB)	0-20		18
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Suboptimal		149
Sub-Total			0.745
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.8225	200	164.5

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.7275	Mitigation Existing Condition (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	0.750000	Mitigation Projected At Maturity (Credit)	0.8225

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	5
Sub-Total	0.109125

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
20%	15
Sub-Total	0.1455

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
40% + 15 Year Monitoring	21
Sub-Total	0.291

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
1.273125	100	127.3125	$50,925.00

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	127.3125	Mitigation Existing Condition - Baseline (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	150	Mitigation Projected At Maturity (Credit)	164.5
FINAL PROJECTED NET BALANCE					150		164.5

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Tributary No. 6 int	72.75	127.3125	164.5

Ratio Straight Preservation (10:1)
16.45

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.	39.67505452	Lon.	-80.05643522	DATE: 18-Feb-09
STREAM CLASSIFICATION:	Ephemeral	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run, Tributary No. 7 1 to 15% Streambed Slope, Some Canopy Tree			PRECIPITATION PAST 48 HRS: 0
STREAM IMPACT LENGTH: 652	FORM OF MITIGATION:	Permittee Responsible-Onsite	WEATHER CONDITIONS:	Sunny			Mitigation Length: 652

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		9
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		8
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		16
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		12
9. Vegetative Protection (LB & RB)	0-20		15
10. Riparian Vegetative Zone Width (LB and RB)	0-20		16
Total RBP Score	Marginal		76
Sub-Total			0.38
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	0
pH			
5.6-6.0 = 45 points	0-80		0
DO			
>5.0 = 30 points	10-30		0
Sub-Total			
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.59	652	384.68

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		0
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		0
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		0
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		0
9. Vegetative Protection (LB & RB)	0-20		0
10. Riparian Vegetative Zone Width (LB and RB)	0-20		0
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
	0-90	0-1	0
pH			
	5-90		0
DO			
	10-30		0
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0	652	0

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		12
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		12
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		15
9. Vegetative Protection (LB & RB)	0-20		15
10. Riparian Vegetative Zone Width (LB and RB)	0-20		16
Total RBP Score	Marginal		78
Sub-Total			0.39
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.645	652	420.54

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		15
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		15
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		18
9. Vegetative Protection (LB & RB)	0-20		18
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Marginal		99
Sub-Total			0.495
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.6975	652	454.77

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.59	Mitigation Existing Condition (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	0.645000	Mitigation Projected At Maturity (Credit)	0.6975

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	5
Sub-Total	0.0885

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
20%	15
Sub-Total	0.118

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
40% + 15 Year Monitoring	21
Sub-Total	0.236

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
1.0325	652	673.19	$269,276.00

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	673.19	Mitigation Existing Condition - Baseline (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	420.54	Mitigation Projected At Maturity (Credit)	454.77
FINAL PROJECTED NET BALANCE					420.54		454.77

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Tributary No. 7 eph	384.68	673.19	454.77

Ratio Straight Preservation (10:1)
45.477

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.	39.6733061	Lon.	-80.05652875	DATE: 18-Feb-09
STREAM CLASSIFICATION:	Intermittent	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run, RPW, Tributary No. 7 1 to 15% Streambed Slope, Some Canopy Tree			PRECIPITATION PAST 48 HRS: 0
STREAM IMPACT LENGTH:	870	FORM OF MITIGATION:	Permittee Responsible-Onsite	WEATHER CONDITIONS:	Sunny		Mitigation Length: 870

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	3
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		6
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		7
6. Channel Alteration	0-20		16
7. Frequency of Riffles (or bends)	0-20		6
8. Bank Stability (LB & RB)	0-20		4
9. Vegetative Protection (LB & RB)	0-20		2
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Marginal		93
Sub-Total			0.465
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	142.9
pH			
6.0-8.0 = 80 points	0-80		7.35
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.975
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.72	870	626.4

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		0
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		0
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		0
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		0
9. Vegetative Protection (LB & RB)	0-20		0
10. Riparian Vegetative Zone Width (LB and RB)	0-20		0
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
	0-90	0-1	
pH			
	5-90		0
DO			
	10-30		0
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0	870	0

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	8
2. Embeddedness	0-20		14
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		15
5. Channel Flow Status	0-20		15
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		12
8. Bank Stability (LB & RB)	0-20		15
9. Vegetative Protection (LB & RB)	0-20		13
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Suboptimal		128
Sub-Total			0.64
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.77	870	669.9

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	12
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		15
6. Channel Alteration	0-20		15
7. Frequency of Riffles (or bends)	0-20		14
8. Bank Stability (LB & RB)	0-20		18
9. Vegetative Protection (LB & RB)	0-20		18
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Suboptimal		151
Sub-Total			0.755
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.8275	870	719.925

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.72	Mitigation Existing Condition (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	0.770000	Mitigation Projected At Maturity (Credit)	0.8275

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	5
Sub-Total	0.108

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
20%	15
Sub-Total	0.144

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
40% + 15 Year Monitoring	21
Sub-Total	0.288

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
1.26	870	1096.2	$438,480.00

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	1096.2	Mitigation Existing Condition - Baseline (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	669.9	Mitigation Projected At Maturity (Credit)	719.925
FINAL PROJECTED NET BALANCE					669.9		719.925

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Tributary No. 7 int	626.4	1096.2	719.925

Ratio Straight Preservation (10:1)
71.9925

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.	39.67670632	Lon.	-80.05877568	DATE: 18-Feb-09
STREAM CLASSIFICATION:	Ephemeral	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run, non-RPW, Tributary No. 7-1 15% Streambed Slope, Some Canopy Tree			PRECIPITATION PAST 48 HRS: 0
STREAM IMPACT LENGTH:	37	FORM OF MITIGATION:	Permittee Responsible-Onsite	WEATHER CONDITIONS:	Sunny		Mitigation Length: 37

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		4
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		5
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		16
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		11
9. Vegetative Protection (LB & RB)	0-20		12
10. Riparian Vegetative Zone Width (LB and RB)	0-20		16
Total RBP Score	Marginal		64
Sub-Total			0.32
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity		0-1	
100-199 - 85 points	0-90		
pH			
5.6-6.0 = 45 points	0-80		
DO			
>5.0 = 30 points	10-30		
Sub-Total			
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.56	37	20.72

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		0
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		0
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		0
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		0
9. Vegetative Protection (LB & RB)	0-20		0
10. Riparian Vegetative Zone Width (LB and RB)	0-20		0
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity		0-1	
	0-90		
pH			
	5-90		
DO			
	10-30		
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0	37	0

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		8
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		10
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		14
9. Vegetative Protection (LB & RB)	0-20		14
10. Riparian Vegetative Zone Width (LB and RB)	0-20		16
Total RBP Score	Marginal		70
Sub-Total			0.35
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity		0-1	
300-399 - 70 points	0-90		300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.625	37	23.125

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		15
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		15
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		18
9. Vegetative Protection (LB & RB)	0-20		18
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Marginal		99
Sub-Total			0.495
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity		0-1	
300-399 - 70 points	0-90		300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.6975	37	25.8075

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.56	Mitigation Existing Condition (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	0.625000	Mitigation Projected At Maturity (Credit)	0.6975

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	5
Sub-Total	0.084

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
20%	15
Sub-Total	0.112

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
40% + 15 Year Monitoring	21
Sub-Total	0.224

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
0.98	37	37	$14,800.00

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	37	Mitigation Existing Condition - Baseline (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	23.125	Mitigation Projected At Maturity (Credit)	25.8075
FINAL PROJECTED NET BALANCE					23.125		25.8075

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Tributary No. 7-1	20.72	37	25.8075

Ratio Straight Preservation (10:1)
2.58075

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.	39.67642689	Lon.	-80.05836987	DATE: 18-Feb-09
STREAM CLASSIFICATION:	Ephemeral	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run, non-RPW, Tributary No. 7-3 2 to 9% Streambed Slope			PRECIPITATION PAST 48 HRS: 0
STREAM IMPACT LENGTH: 209	FORM OF MITIGATION:	Permittee Responsible-Onsite	WEATHER CONDITIONS:	Sunny			Mitigation Length: 209

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		2
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		4
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		16
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		8
9. Vegetative Protection (LB & RB)	0-20		4
10. Riparian Vegetative Zone Width (LB and RB)	0-20		16
Total RBP Score	Poor		50
Sub-Total			0.25
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	0
pH			
5.6-6.0 = 45 points	0-80		0
DO			
>5.0 = 30 points	10-30		0
Sub-Total			
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.525	209	109.725

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		0
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		0
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		0
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		0
9. Vegetative Protection (LB & RB)	0-20		0
10. Riparian Vegetative Zone Width (LB and RB)	0-20		0
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
	0-90	0-1	
pH			
	5-90		0
DO			
	10-30		0
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0	209	0

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		8
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		8
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		12
9. Vegetative Protection (LB & RB)	0-20		12
10. Riparian Vegetative Zone Width (LB and RB)	0-20		16
Total RBP Score	Marginal		64
Sub-Total			0.32
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.61	209	127.49

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		15
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		15
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		18
9. Vegetative Protection (LB & RB)	0-20		18
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Marginal		99
Sub-Total			0.495
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.6975	209	145.7775

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.525	Mitigation Existing Condition (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	0.610000	Mitigation Projected At Maturity (Credit)	0.6975

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	5
Sub-Total	0.07875

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
20%	15
Sub-Total	0.105

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
40% + 15 Year Monitoring	21
Sub-Total	0.21

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
0.91875	209	209	$83,600.00

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	209	Mitigation Existing Condition - Baseline (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	127.49	Mitigation Projected At Maturity (Credit)	145.7775
FINAL PROJECTED NET BALANCE					127.49		145.7775

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Tributary No. 7-3	109.725	209	145.7775

Ratio Straight Preservation (10:1)
14.57775

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.	39.67461447	Lon.	-80.05659983	DATE: 18-Feb-09
STREAM CLASSIFICATION:	Intermittent	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run, non-RPW, Tributary No. 8 6% Streambed Slope, Some Canopy Tree			PRECIPITATION PAST 48 HRS: 0
STREAM IMPACT LENGTH: 139	FORM OF MITIGATION:	Permittee Responsible-Onsite	WEATHER CONDITIONS:	Sunny			Mitigation Length: 139

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	1
2. Embeddedness	0-20		6
3. Velocity/ Depth Regime	0-20		1
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		1
6. Channel Alteration	0-20		16
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		4
9. Vegetative Protection (LB & RB)	0-20		4
10. Riparian Vegetative Zone Width (LB and RB)	0-20		13
Total RBP Score	Marginal		62
Sub-Total			0.31
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	142.9
pH			
6.0-8.0 = 80 points	0-80		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.975
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.6425	139	89.3075

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		0
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		0
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		0
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		0
9. Vegetative Protection (LB & RB)	0-20		0
10. Riparian Vegetative Zone Width (LB and RB)	0-20		0
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
	0-90	0-1	
pH			
	5-90		0
DO			
	10-30		0
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0	139	0

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	5
2. Embeddedness	0-20		12
3. Velocity/ Depth Regime	0-20		8
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		8
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		6
8. Bank Stability (LB & RB)	0-20		14
9. Vegetative Protection (LB & RB)	0-20		14
10. Riparian Vegetative Zone Width (LB and RB)	0-20		13
Total RBP Score	Marginal		104
Sub-Total			0.52
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.71	139	98.69

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	5
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		13
6. Channel Alteration	0-20		16
7. Frequency of Riffles (or bends)	0-20		8
8. Bank Stability (LB & RB)	0-20		18
9. Vegetative Protection (LB & RB)	0-20		18
10. Riparian Vegetative Zone Width (LB and RB)	0-20		13
Total RBP Score	Suboptimal		132
Sub-Total			0.66
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.78	139	108.42

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.6425	Mitigation Existing Condition (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	0.710000	Mitigation Projected At Maturity (Credit)	0.78

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	3
Sub-Total	0.057825

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
20%	15
Sub-Total	0.1285

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
40% + 15 Year Monitoring	21
Sub-Total	0.257

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
1.085825	139	150.929675	$60,371.87

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	150.9297	Mitigation Existing Condition - Baseline (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	98.69	Mitigation Projected At Maturity (Credit)	108.42
FINAL PROJECTED NET BALANCE					98.69		108.42

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Tributary No. 8	89.3075	150.929675	108.42

Ratio Straight Preservation (10:1)
10.842

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.	39.67505452	Lon.	-80.05643522	DATE: 18-Feb-09
STREAM CLASSIFICATION:	Intermittent	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run, RPW, Tributary No. 9 2 to 15% Streambed Slope, Some Canopy Tree			PRECIPITATION PAST 48 HRS: 0
STREAM IMPACT LENGTH: 127	FORM OF MITIGATION:	Permittee Responsible-Onsite	WEATHER CONDITIONS:	Sunny			Mitigation Length: 127

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	1
2. Embeddedness	0-20		6
3. Velocity/ Depth Regime	0-20		1
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		1
6. Channel Alteration	0-20		16
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		4
9. Vegetative Protection (LB & RB)	0-20		4
10. Riparian Vegetative Zone Width (LB and RB)	0-20		13
Total RBP Score	Marginal		62
Sub-Total			0.31
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	142.9
pH			
6.0-8.0 = 80 points	0-80		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.975
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.6425	127	81.5975

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		0
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		0
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		0
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		0
9. Vegetative Protection (LB & RB)	0-20		0
10. Riparian Vegetative Zone Width (LB and RB)	0-20		0
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
	0-90	0-1	
pH			
	5-90		0
DO			
	10-30		0
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0	127	0

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	5
2. Embeddedness	0-20		12
3. Velocity/ Depth Regime	0-20		8
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		8
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		6
8. Bank Stability (LB & RB)	0-20		14
9. Vegetative Protection (LB & RB)	0-20		14
10. Riparian Vegetative Zone Width (LB and RB)	0-20		13
Total RBP Score	Marginal		104
Sub-Total			0.52
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.71	127	90.17

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	5
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		13
6. Channel Alteration	0-20		16
7. Frequency of Riffles (or bends)	0-20		8
8. Bank Stability (LB & RB)	0-20		18
9. Vegetative Protection (LB & RB)	0-20		18
10. Riparian Vegetative Zone Width (LB and RB)	0-20		13
Total RBP Score	Suboptimal		132
Sub-Total			0.66
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		7.5
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.78	127	99.06

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.6425	Mitigation Existing Condition (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	0.710000	Mitigation Projected At Maturity (Credit)	0.78

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	3
Sub-Total	0.057825

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
20%	15
Sub-Total	0.1285

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
40% + 15 Year Monitoring	21
Sub-Total	0.257

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
1.085825	127	137.899775	$55,159.91

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	137.8998	Mitigation Existing Condition - Baseline (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	90.17	Mitigation Projected At Maturity (Credit)	99.06
FINAL PROJECTED NET BALANCE					90.17		99.06

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Tributary No. 9	81.5975	137.899775	99.06

Ratio Straight Preservation (10:1)
9.906

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine		COORDINATES:	Lat.		Lon.	DATE: 1-Oct-09
STREAM CLASSIFICATION:	Ephemeral		STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run, RPW, Tributary No. 10 45% Streambed Slope, Some Canopy Tree		PRECIPITATION PAST 48 HRS: 0
STREAM IMPACT LENGTH:	217	FORM OF MITIGATION:	Permittee Responsible-Onsite	WEATHER CONDITIONS:	Sunny		Mitigation Length: 680

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		6
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		13
9. Vegetative Protection (LB & RB)	0-20		4
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Marginal		72
Sub-Total			0.36
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	0
pH			
5.6-6.0 = 45 points	0-80		0
DO			
>5.0 = 30 points	10-30		0
Sub-Total			
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.58	217	125.86

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		0
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		0
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		0
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		0
9. Vegetative Protection (LB & RB)	0-20		0
10. Riparian Vegetative Zone Width (LB and RB)	0-20		0
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
	0-90	0-1	0
pH			
	5-90		0
DO			
	10-30		0
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0	680	0

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		15
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		14
9. Vegetative Protection (LB & RB)	0-20		14
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Marginal		84
Sub-Total			0.42
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		8
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.66	680	448.8

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		16
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		15
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		18
9. Vegetative Protection (LB & RB)	0-20		18
10. Riparian Vegetative Zone Width (LB and RB)	0-20		18
Total RBP Score	Marginal		101
Sub-Total			0.505
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	300
pH			
6.0-8.0 = 80 points	5-90		8
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.7025	680	477.7

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.58	Mitigation Existing Condition (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	0.660000	Mitigation Projected At Maturity (Credit)	0.7025

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	3
Sub-Total	0.0522

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
20%	15
Sub-Total	0.116

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
40% + 15 Year Monitoring	21
Sub-Total	0.232

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
0.9802	217	217	$86,800.00

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	217	Mitigation Existing Condition - Baseline (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	448.8	Mitigation Projected At Maturity (Credit)	477.7
FINAL PROJECTED NET BALANCE					448.8		477.7

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Tributary No. 10	125.86	217	477.7

Ratio Straight Preservation (10:1)
47.77

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.		Lon.	DATE:	1-Mar-10
STREAM CLASSIFICATION:	Perennial	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		Scotts Run, RPW, Tributary No. 11 Restoration Reach No. 2		PRECIPITATION PAST 48 HRS:	0
STREAM IMPACT LENGTH:	0	FORM OF MITIGATION:	Permittee Responsible-Offsite	WEATHER CONDITIONS:	Sunny	Mitigation Length:	900

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	
2. Embeddedness	0-20		
3. Velocity/ Depth Regime	0-20		
4. Sediment Deposition	0-20		
5. Channel Flow Status	0-20		
6. Channel Alteration	0-20		
7. Frequency of Riffles (or bends)	0-20		
8. Bank Stability (LB & RB)	0-20		
9. Vegetative Protection (LB & RB)	0-20		
10. Riparian Vegetative Zone Width (LB and RB)	0-20		
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	0
pH			
5.6-6.0 = 45 points	0-80		0
DO			
>5.0 = 30 points	10-30		0
Sub-Total			
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.4	0	0

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	9
2. Embeddedness	0-20		12
3. Velocity/ Depth Regime	0-20		13
4. Sediment Deposition	0-20		14
5. Channel Flow Status	0-20		16
6. Channel Alteration	0-20		11
7. Frequency of Riffles (or bends)	0-20		13
8. Bank Stability (LB & RB)	0-20		4
9. Vegetative Protection (LB & RB)	0-20		2
10. Riparian Vegetative Zone Width (LB and RB)	0-20		1
Total RBP Score	Marginal		95
Sub-Total			0.475
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	192.6
pH			
6.0-8.0 = 80 points	5-90		7.76
DO			
>5.0 = 30 points	10-30		11.87
Sub-Total			0.975
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.725	900	652.5

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	10
2. Embeddedness	0-20		12
3. Velocity/ Depth Regime	0-20		13
4. Sediment Deposition	0-20		13
5. Channel Flow Status	0-20		16
6. Channel Alteration	0-20		9
7. Frequency of Riffles (or bends)	0-20		13
8. Bank Stability (LB & RB)	0-20		8
9. Vegetative Protection (LB & RB)	0-20		7
10. Riparian Vegetative Zone Width (LB and RB)	0-20		6
Total RBP Score	Marginal		107
Sub-Total			0.535
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	199
pH			
6.0-8.0 = 80 points	5-90		7.7
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.975
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.755	900	679.5

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	14
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		15
4. Sediment Deposition	0-20		15
5. Channel Flow Status	0-20		16
6. Channel Alteration	0-20		15
7. Frequency of Riffles (or bends)	0-20		15
8. Bank Stability (LB & RB)	0-20		15
9. Vegetative Protection (LB & RB)	0-20		16
10. Riparian Vegetative Zone Width (LB and RB)	0-20		11
Total RBP Score	Suboptimal		147
Sub-Total			0.735
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	199
pH			
6.0-8.0 = 80 points	5-90		7.7
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.975
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.855	900	769.5

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.4	Mitigation Existing Condition (Credit)	0.725	Mitigation Projected at Five Years Post Completion (Credit)	0.755000	Mitigation Projected At Maturity (Credit)	0.855

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	0
Sub-Total	0

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	0
Sub-Total	0

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	101
Sub-Total	0

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
0.4	0	0	$0.00

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	0	Mitigation Existing Condition - Baseline (Credit)	652.5	Mitigation Projected at Five Years Post Completion (Credit)	679.5	Mitigation Projected At Maturity (Credit)	769.5
FINAL PROJECTED NET BALANCE					27		117

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Restoration Reach No. 2	0	0	117

Ratio Straight Preservation (10:1)
76.95

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.		Lon.	DATE:	8-Dec-09
STREAM CLASSIFICATION:	Perennial	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		Scotts Run, RPW, Tributary No. 11 Restoration Reach No. 3		PRECIPITATION PAST 48 HRS:	0
STREAM IMPACT LENGTH:	0	FORM OF MITIGATION:	Permittee Responsible-Offsite	WEATHER CONDITIONS:	Sunny	Mitigation Length:	1850

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	
2. Embeddedness	0-20		
3. Velocity/ Depth Regime	0-20		
4. Sediment Deposition	0-20		
5. Channel Flow Status	0-20		
6. Channel Alteration	0-20		
7. Frequency of Riffles (or bends)	0-20		
8. Bank Stability (LB & RB)	0-20		
9. Vegetative Protection (LB & RB)	0-20		
10. Riparian Vegetative Zone Width (LB and RB)	0-20		
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	0
pH			
5.6-6.0 = 45 points	0-80		0
DO			
>5.0 = 30 points	10-30		0
Sub-Total			
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.4	0	0

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	9
2. Embeddedness	0-20		16
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		15
5. Channel Flow Status	0-20		14
6. Channel Alteration	0-20		13
7. Frequency of Riffles (or bends)	0-20		11
8. Bank Stability (LB & RB)	0-20		12
9. Vegetative Protection (LB & RB)	0-20		12
10. Riparian Vegetative Zone Width (LB and RB)	0-20		2
Total RBP Score	Suboptimal		114
Sub-Total			0.57
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
200-299 - 80 points	0-90	0-1	260
pH			
8.1-9.0 = 45 points	5-90		8.15
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.775
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.6725	1850	1244.125

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	10
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		12
4. Sediment Deposition	0-20		15
5. Channel Flow Status	0-20		15
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		13
8. Bank Stability (LB & RB)	0-20		14
9. Vegetative Protection (LB & RB)	0-20		14
10. Riparian Vegetative Zone Width (LB and RB)	0-20		7
Total RBP Score	Suboptimal		123
Sub-Total			0.615
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
200-299 - 80 points	0-90	0-1	260
pH			
8.1-9.0 = 45 points	5-90		8.15
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.775
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.695	1850	1285.75

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	15
2. Embeddedness	0-20		16
3. Velocity/ Depth Regime	0-20		15
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		15
6. Channel Alteration	0-20		15
7. Frequency of Riffles (or bends)	0-20		15
8. Bank Stability (LB & RB)	0-20		16
9. Vegetative Protection (LB & RB)	0-20		16
10. Riparian Vegetative Zone Width (LB and RB)	0-20		12
Total RBP Score	Suboptimal		151
Sub-Total			0.755
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
200-299 - 80 points	0-90	0-1	260
pH			
8.1-9.0 = 45 points	5-90		8.15
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.775
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.765	1850	1415.25

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.4	Mitigation Existing Condition (Credit)	0.6725	Mitigation Projected at Five Years Post Completion (Credit)	0.695000	Mitigation Projected At Maturity (Credit)	0.765

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	0
Sub-Total	0

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	0
Sub-Total	0

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	101
Sub-Total	0

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
0.4	0	0	$0.00

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	0	Mitigation Existing Condition - Baseline (Credit)	1244.125	Mitigation Projected at Five Years Post Completion (Credit)	1285.75	Mitigation Projected At Maturity (Credit)	1415.25
FINAL PROJECTED NET BALANCE					41.625		171.125

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Restoration Reach No. 3	0	0	171.125

Ratio Straight Preservation (10:1)
141.525

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine		COORDINATES:	Lat.		Lon.	DATE: 8-Dec-09
STREAM CLASSIFICATION:	Intermittent		STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run Restoration Reach No. 4		PRECIPITATION PAST 48 HRS: 0
STREAM IMPACT LENGTH:	0	FORM OF MITIGATION:	Permittee Responsible-Onsite	WEATHER CONDITIONS:	Sunny		Mitigation Length: 107

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	
2. Embeddedness	0-20		
3. Velocity/ Depth Regime	0-20		
4. Sediment Deposition	0-20		
5. Channel Flow Status	0-20		
6. Channel Alteration	0-20		
7. Frequency of Riffles (or bends)	0-20		
8. Bank Stability (LB & RB)	0-20		
9. Vegetative Protection (LB & RB)	0-20		
10. Riparian Vegetative Zone Width (LB and RB)	0-20		
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	0
pH			
5.6-6.0 = 45 points	0-80		0
DO			
>5.0 = 30 points	10-30		0
Sub-Total			
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.4	0	0

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	6
2. Embeddedness	0-20		16
3. Velocity/ Depth Regime	0-20		8
4. Sediment Deposition	0-20		17
5. Channel Flow Status	0-20		8
6. Channel Alteration	0-20		10
7. Frequency of Riffles (or bends)	0-20		11
8. Bank Stability (LB & RB)	0-20		4
9. Vegetative Protection (LB & RB)	0-20		6
10. Riparian Vegetative Zone Width (LB and RB)	0-20		14
Total RBP Score	Marginal		100
Sub-Total			0.5
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	319
pH			
6.0-8.0 = 80 points	5-90		7.12
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.7	107	74.9

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	7
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		9
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		10
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		12
8. Bank Stability (LB & RB)	0-20		10
9. Vegetative Protection (LB & RB)	0-20		12
10. Riparian Vegetative Zone Width (LB and RB)	0-20		14
Total RBP Score	Suboptimal		113
Sub-Total			0.565
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	319
pH			
6.0-8.0 = 80 points	5-90		7.12
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.7325	107	78.3775

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	12
2. Embeddedness	0-20		16
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		14
6. Channel Alteration	0-20		15
7. Frequency of Riffles (or bends)	0-20		14
8. Bank Stability (LB & RB)	0-20		16
9. Vegetative Protection (LB & RB)	0-20		16
10. Riparian Vegetative Zone Width (LB and RB)	0-20		16
Total RBP Score	Suboptimal		145
Sub-Total			0.725
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	319
pH			
6.0-8.0 = 80 points	5-90		7.12
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.8125	107	86.9375

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.4	Mitigation Existing Condition (Credit)	0.7	Mitigation Projected at Five Years Post Completion (Credit)	0.732500	Mitigation Projected At Maturity (Credit)	0.8125

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	0
Sub-Total	0

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	0
Sub-Total	0

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	101
Sub-Total	0

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
0.4	0	0	$0.00

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	0	Mitigation Existing Condition - Baseline (Credit)	74.9	Mitigation Projected at Five Years Post Completion (Credit)	78.3775	Mitigation Projected At Maturity (Credit)	86.9375
FINAL PROJECTED NET BALANCE					3.4775		12.0375

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Restoration Reach No. 4	0	0	12.0375

Ratio Straight Preservation (10:1)
8.69375

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.		Lon.	DATE:	8-Dec-09
STREAM CLASSIFICATION:	Intermittent	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run Restoration Reach No. 5		PRECIPITATION PAST 48 HRS:	0
STREAM IMPACT LENGTH:	0	FORM OF MITIGATION:	Permittee Responsible-Offsite	WEATHER CONDITIONS:	Sunny	Mitigation Length:	530

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	
2. Embeddedness	0-20		
3. Velocity/ Depth Regime	0-20		
4. Sediment Deposition	0-20		
5. Channel Flow Status	0-20		
6. Channel Alteration	0-20		
7. Frequency of Riffles (or bends)	0-20		
8. Bank Stability (LB & RB)	0-20		
9. Vegetative Protection (LB & RB)	0-20		
10. Riparian Vegetative Zone Width (LB and RB)	0-20		
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	0
pH			
5.6-6.0 = 45 points	0-80		0
DO			
>5.0 = 30 points	10-30		0
Sub-Total			
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.4	0	0

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		0
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		0
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		0
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		0
9. Vegetative Protection (LB & RB)	0-20		0
10. Riparian Vegetative Zone Width (LB and RB)	0-20		0
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
	0-90	0-1	0
pH			
	5-90		0
DO			
	10-30		0
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0	530	0

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	7
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		9
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		10
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		12
8. Bank Stability (LB & RB)	0-20		10
9. Vegetative Protection (LB & RB)	0-20		12
10. Riparian Vegetative Zone Width (LB and RB)	0-20		14
Total RBP Score	Suboptimal		113
Sub-Total			0.565
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	319
pH			
6.0-8.0 = 80 points	5-90		7.12
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.7325	530	388.225

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	12
2. Embeddedness	0-20		16
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		16
5. Channel Flow Status	0-20		14
6. Channel Alteration	0-20		15
7. Frequency of Riffles (or bends)	0-20		14
8. Bank Stability (LB & RB)	0-20		16
9. Vegetative Protection (LB & RB)	0-20		16
10. Riparian Vegetative Zone Width (LB and RB)	0-20		16
Total RBP Score	Suboptimal		145
Sub-Total			0.725
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	319
pH			
6.0-8.0 = 80 points	5-90		7.12
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.8125	530	430.625

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.4	Mitigation Existing Condition (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	0.732500	Mitigation Projected At Maturity (Credit)	0.8125

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	0
Sub-Total	0

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	0
Sub-Total	0

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	101
Sub-Total	0

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
0.4	0	0	$0.00

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	0	Mitigation Existing Condition - Baseline (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	388.225	Mitigation Projected At Maturity (Credit)	430.625
FINAL PROJECTED NET BALANCE					388.225		430.625

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Restoration Reach No. 5	0	0	430.625

Ratio Straight Preservation (10:1)
43.0625

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.		Lon.	DATE:	1-Feb-10
STREAM CLASSIFICATION:	Intermittent	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run Restoration Reach No. 6		PRECIPITATION PAST 48 HRS:	0
STREAM IMPACT LENGTH:	0	FORM OF MITIGATION:	Permittee Responsible-Offsite	WEATHER CONDITIONS:	Sunny	Mitigation Length:	95

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	
2. Embeddedness	0-20		
3. Velocity/ Depth Regime	0-20		
4. Sediment Deposition	0-20		
5. Channel Flow Status	0-20		
6. Channel Alteration	0-20		
7. Frequency of Riffles (or bends)	0-20		
8. Bank Stability (LB & RB)	0-20		
9. Vegetative Protection (LB & RB)	0-20		
10. Riparian Vegetative Zone Width (LB and RB)	0-20		
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	
pH			
5.6-6.0 = 45 points	0-80		
DO			
>5.0 = 30 points	10-30		
Sub-Total			
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.4	0	0

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	4
2. Embeddedness	0-20		8
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		14
5. Channel Flow Status	0-20		14
6. Channel Alteration	0-20		12
7. Frequency of Riffles (or bends)	0-20		12
8. Bank Stability (LB & RB)	0-20		6
9. Vegetative Protection (LB & RB)	0-20		8
10. Riparian Vegetative Zone Width (LB and RB)	0-20		13
Total RBP Score	Marginal		101
Sub-Total			0.505
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	303
pH			
6.0-8.0 = 80 points	5-90		7.06
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.7025	95	66.7375

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	11
2. Embeddedness	0-20		11
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		13
5. Channel Flow Status	0-20		14
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		13
8. Bank Stability (LB & RB)	0-20		11
9. Vegetative Protection (LB & RB)	0-20		13
10. Riparian Vegetative Zone Width (LB and RB)	0-20		13
Total RBP Score	Suboptimal		117
Sub-Total			0.585
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	303
pH			
6.0-8.0 = 80 points	5-90		7.06
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.7425	95	70.5375

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	14
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		11
4. Sediment Deposition	0-20		15
5. Channel Flow Status	0-20		15
6. Channel Alteration	0-20		15
7. Frequency of Riffles (or bends)	0-20		13
8. Bank Stability (LB & RB)	0-20		16
9. Vegetative Protection (LB & RB)	0-20		16
10. Riparian Vegetative Zone Width (LB and RB)	0-20		13
Total RBP Score	Suboptimal		143
Sub-Total			0.715
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	303
pH			
6.0-8.0 = 80 points	5-90		7.06
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.8075	95	76.7125

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.4	Mitigation Existing Condition (Credit)	0.7025	Mitigation Projected at Five Years Post Completion (Credit)	0.742500	Mitigation Projected At Maturity (Credit)	0.8075

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	0
Sub-Total	0

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	0
Sub-Total	0

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	101
Sub-Total	0

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
0.4	0	0	$0.00

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	0	Mitigation Existing Condition - Baseline (Credit)	66.7375	Mitigation Projected at Five Years Post Completion (Credit)	70.5375	Mitigation Projected At Maturity (Credit)	76.7125
FINAL PROJECTED NET BALANCE					3.8		9.975

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Restoration Reach No. 6	0	0	9.975

Ratio Straight Preservation (10:1)
7.67125

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine	COORDINATES:	Lat.		Lon.	DATE:	1-Feb-10
STREAM CLASSIFICATION:	Intermittent	STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size (acreage), unaltered or impairments)		U/T Scotts Run Restoration Reach No. 6		PRECIPITATION PAST 48 HRS:	0
STREAM IMPACT LENGTH:	0	FORM OF MITIGATION:	Permittee Responsible-Offsite	WEATHER CONDITIONS:	Sunny	Mitigation Length:	500

Column No. 1- Impact Existing Condition (Debit)

All applicants shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	
2. Embeddedness	0-20		
3. Velocity/ Depth Regime	0-20		
4. Sediment Deposition	0-20		
5. Channel Flow Status	0-20		
6. Channel Alteration	0-20		
7. Frequency of Riffles (or bends)	0-20		
8. Bank Stability (LB & RB)	0-20		
9. Vegetative Protection (LB & RB)	0-20		
10. Riparian Vegetative Zone Width (LB and RB)	0-20		
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
100-199 - 85 points	0-90	0-1	
pH			
5.6-6.0 = 45 points	0-80		
DO			
>5.0 = 30 points	10-30		
Sub-Total			
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
0	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.4	0	0

Column No. 2- Mitigation Existing Condition - Baseline (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION or shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	0
2. Embeddedness	0-20		0
3. Velocity/ Depth Regime	0-20		0
4. Sediment Deposition	0-20		0
5. Channel Flow Status	0-20		0
6. Channel Alteration	0-20		0
7. Frequency of Riffles (or bends)	0-20		0
8. Bank Stability (LB & RB)	0-20		0
9. Vegetative Protection (LB & RB)	0-20		0
10. Riparian Vegetative Zone Width (LB and RB)	0-20		0
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
	0-90	0-1	0
pH			
	5-90		0
DO			
	10-30		0
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0	500	0

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	11
2. Embeddedness	0-20		11
3. Velocity/ Depth Regime	0-20		10
4. Sediment Deposition	0-20		13
5. Channel Flow Status	0-20		14
6. Channel Alteration	0-20		8
7. Frequency of Riffles (or bends)	0-20		13
8. Bank Stability (LB & RB)	0-20		11
9. Vegetative Protection (LB & RB)	0-20		13
10. Riparian Vegetative Zone Width (LB and RB)	0-20		13
Total RBP Score	Suboptimal		117
Sub-Total			0.585
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	303
pH			
6.0-8.0 = 80 points	5-90		7.06
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Stream Condition Index			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.7425	500	371.25

Column No. 4- Mitigation Projected At Maturity (Credit)

Only applicants proposing PERMITTEE RESPONSIBLE MITIGATION shall complete this column

PART I - Physical, Chemical and Biological Indicators

	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	14
2. Embeddedness	0-20		15
3. Velocity/ Depth Regime	0-20		11
4. Sediment Deposition	0-20		15
5. Channel Flow Status	0-20		15
6. Channel Alteration	0-20		15
7. Frequency of Riffles (or bends)	0-20		13
8. Bank Stability (LB & RB)	0-20		16
9. Vegetative Protection (LB & RB)	0-20		16
10. Riparian Vegetative Zone Width (LB and RB)	0-20		13
Total RBP Score	Suboptimal		143
Sub-Total			0.715
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Data Sheet			
Specific Conductivity			
300-399 - 70 points	0-90	0-1	303
pH			
6.0-8.0 = 80 points	5-90		7.06
DO			
>5.0 = 30 points	10-30		9
Sub-Total			0.9
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVSCI			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score

Index	Linear Foot	Unit Score
0.8075	500	403.75

WV Stream and Wetland Valuation Metric Worksheet

(Stream Valuation Metric Page 2 of 2)

PART III - Sub-Index Correlation

(See instruction page for default values for Mitigation Banking and ILF)

Impact Existing Condition (Debit)	0.4	Mitigation Existing Condition (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	0.742500	Mitigation Projected At Maturity (Credit)	0.8075

PART IV - Factors

(See instruction page for default values for MITIGATION BANKING and ILF)

Temporal Loss-Construction

**Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).*

Years	0
Sub-Total	0

Temporal Loss-Maturity

**Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).*

% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	0
Sub-Total	0

Long-term Protection

% Add. Mitigation and Monitoring Period	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	101
Sub-Total	0

PART V - Index to Unit Score Conversion

Final Index Score (Debit)	Linear Feet	Unit Score (Debit)	Estimated ILF Costs
0.4	0	0	$0.00

PART VI - Comparison of Unit Scores and Projected Balance

Final Unit Score (Debit) [No Net Loss Value]	0	Mitigation Existing Condition - Baseline (Credit)	0	Mitigation Projected at Five Years Post Completion (Credit)	371.25	Mitigation Projected At Maturity (Credit)	403.75
FINAL PROJECTED NET BALANCE					371.25		403.75

Site	Raw Unit Score	Impact Unit Yield (Debit)	Mitigation Unit Yield (Credit)
Restoration Reach No. 7	0	0	403.75

Ratio Straight Preservation (10:1)
40.375

Wetlands

WV Stream and Wetland Metric Worksheet

(Wetland Valuation Metric-Page 1 of 2)

USACE FILE NO./Project Name:	USACE File No. 2009-759/New Hill West Surface Mine			COORDINATES:	Lat.	39.67733168	Lon. -80.05964504
STREAM/SITE ID AND SITE DESCRIPTION: (% stream slope, watershed size {acreage}, unaltered or impairments)				Wetland Nos. 1, 2, and 4 (Located in an Altered Watershed)			
WETLAND IMPACT ACREAGE:	0.064	FORM OF MITIGATION:	In-Lieu Fee	Sunny/Dry	Mitigation Acreage: (N/A if Mit. Bank or ILF)		
DATE:	16-May-10		WEATHER CONDITIONS:		PRECIPITATION PAST 48 HRS:		0

PART I - Wetland Indicators

Wetland ID:	Existing Classification	Impacts	Mitigation Classification
Wetalnd No. 1	Emergent	0.005	Emergent
Wetland No. 2	Emergent	0.03	Emergent
Wetland No. 4	Emergent	0.029	Emergent
Total Impact		0.064	

PART II - Unit Scores

Wetland Classification	Replacement Unit(s)
Total Emergent	0.128
Total Scrub-Shrub	0
Total Forested	0
Total Open Water	0

PART III - Advanced Mitigation

Sustainable Determination Made on Advanced Mitigation (Y or N)	n

Estimated ILF Costs	
	$7,680.00

WV Stream and Wetland Valuation Metric Worksheet

(Wetland Valuation Metric-Page 2 of 2)

PART IV- Factors
(See instruction page for default values for MITIGATION BANKING and ILF.)

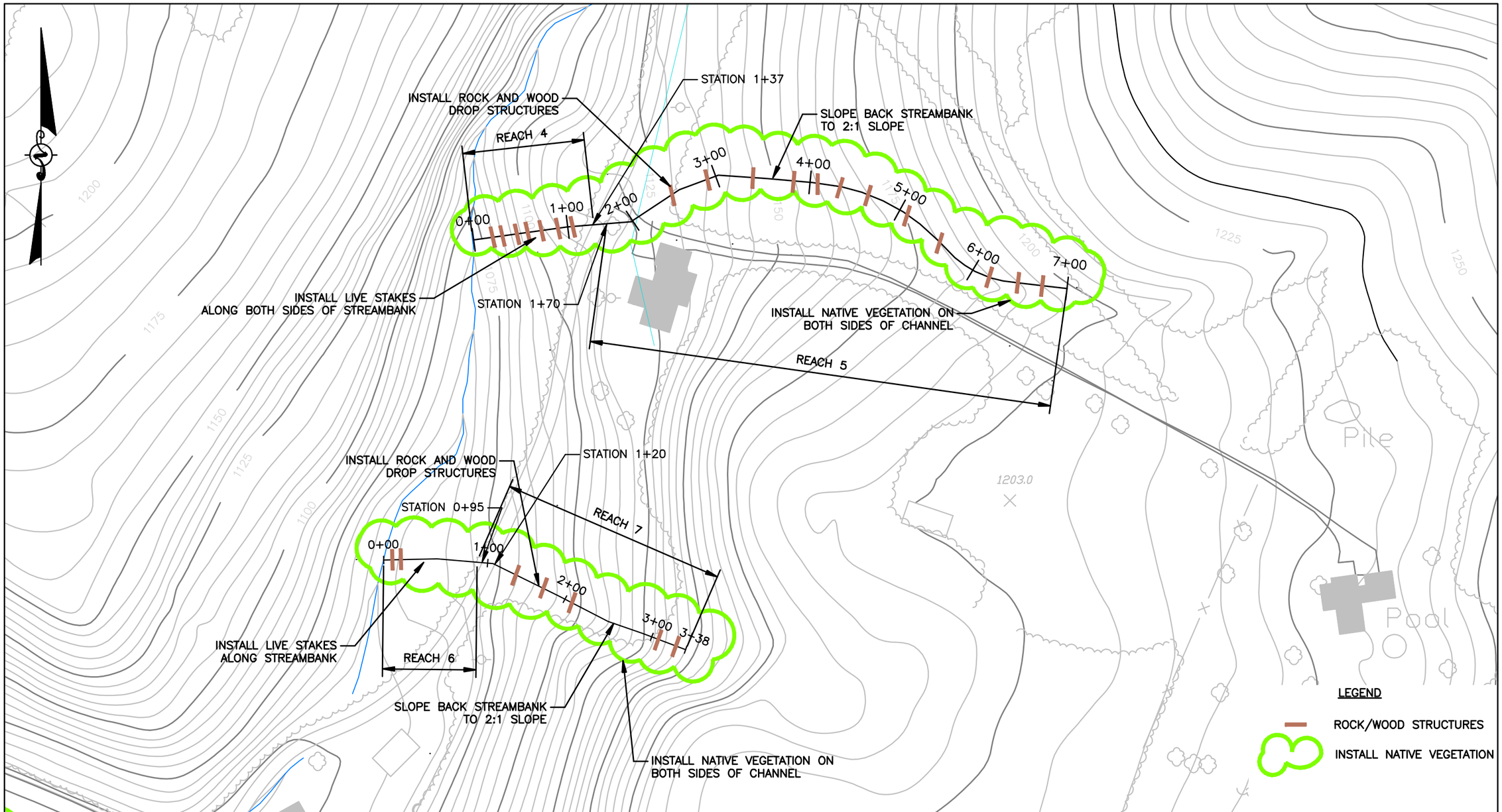
Temporal Loss-Construction	
*Note: Reflects duration of aquatic functional loss between the time of an impact (debit) and completion of compensatory mitigation (credit).	
Years	4
Sub-Total	0.12

Temporal Loss-Maturity	
*Note: Period between completion of compensatory mitigation measures and the time required for maturity, as it relates to function (i.e. maturity of tree stratum to provide organic matter and detritus within riparian stream or wetland buffer corridor).	
% Add. Mitigation	Temporal Loss-Maturity (Years)
0%	
Sub-Total	0

Long-term Protection	
% Add. Mitigation and Monitoring	Long-Term Protection (Years)
0 + 5/10 Year Monitoring	101
Sub-Total	0

PART V - Final Unit Score

Wetland Classification	Replacement Index (Debit)	Form of Mitigation	Final Unit Score to Offset (Credit)	Applicant Input Mitigation (Acres)	Balance
Emergent	0.128	Enhancement	0.14336	0	0.01536
Scrub-Shrub	0		0		0
Forested	0		0	0	0
Open Water	0		0		0
Net-Total	0.128		0.14336	0	



PROJECT #: 09-0081 FILENAME: 09-0081-RESTORATION

POTESTA

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7012 MacCorkle Ave. SE, Charleston, WV 25304
TEL: (304) 342-1400 FAX: (304) 343-9031
E-Mail Address: potesta@potesta.com

Project COMPENSATION MITIGATION PLAN
NEW HILL WEST SURFACE MINE
S-2009-09/USACE NO. 2009-759
RESTORATION MEASURES-REACHS 4,5,6, & 7

Scale NO SCALE

Date APRIL 2010

Dwg. No. FIGURE 1

XREF Files: IMAGE Files:
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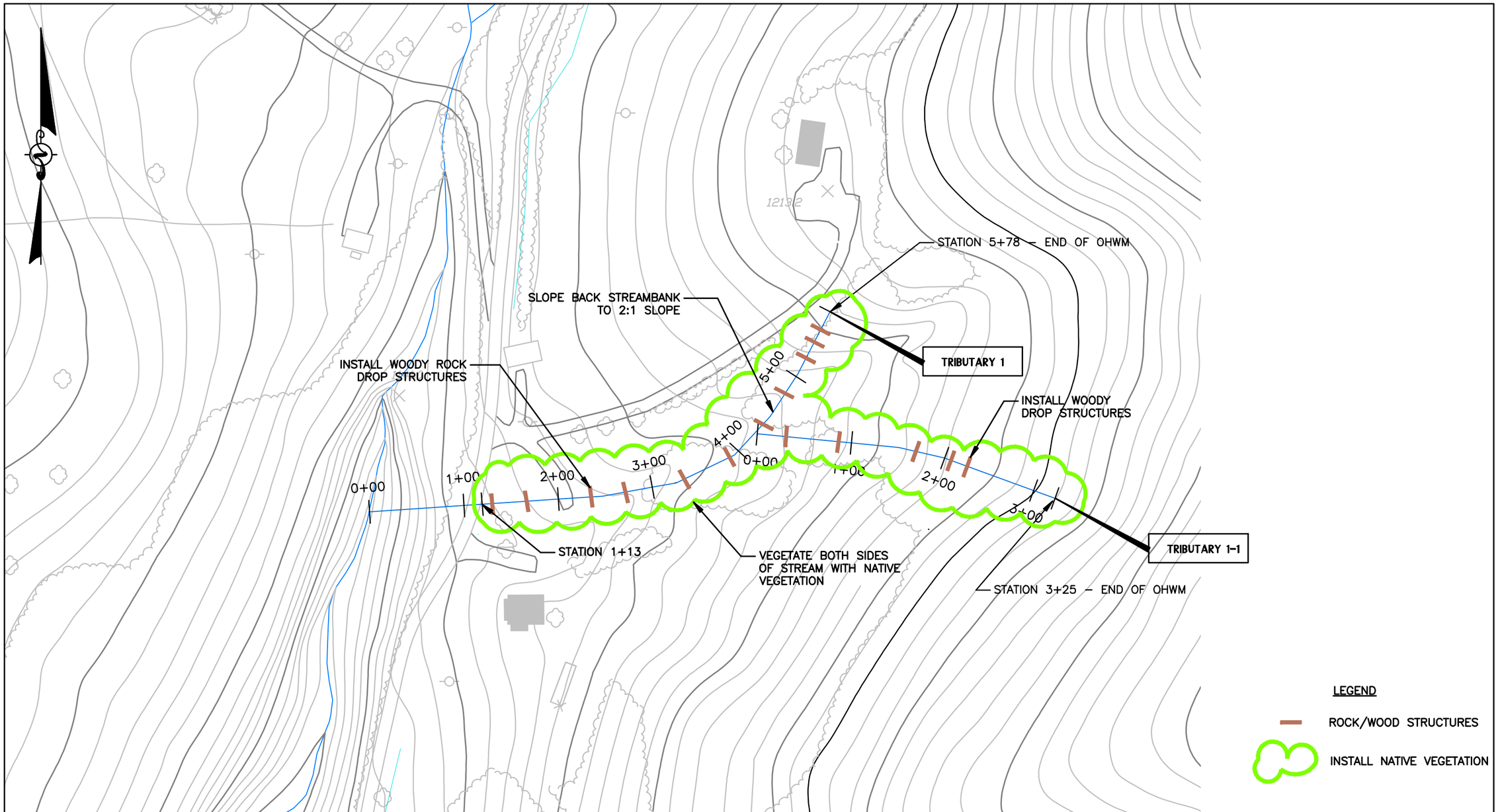

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NEW HILL WEST SURFACE MINE
S-2009-09/USACE NO. 2009-759
RESTORATION MEASURES-TRIBUTARY NOS. 1 & 1-1

Scale: NO SCALE
Date: APRIL 2010
Dwg. No. FIGURE 2

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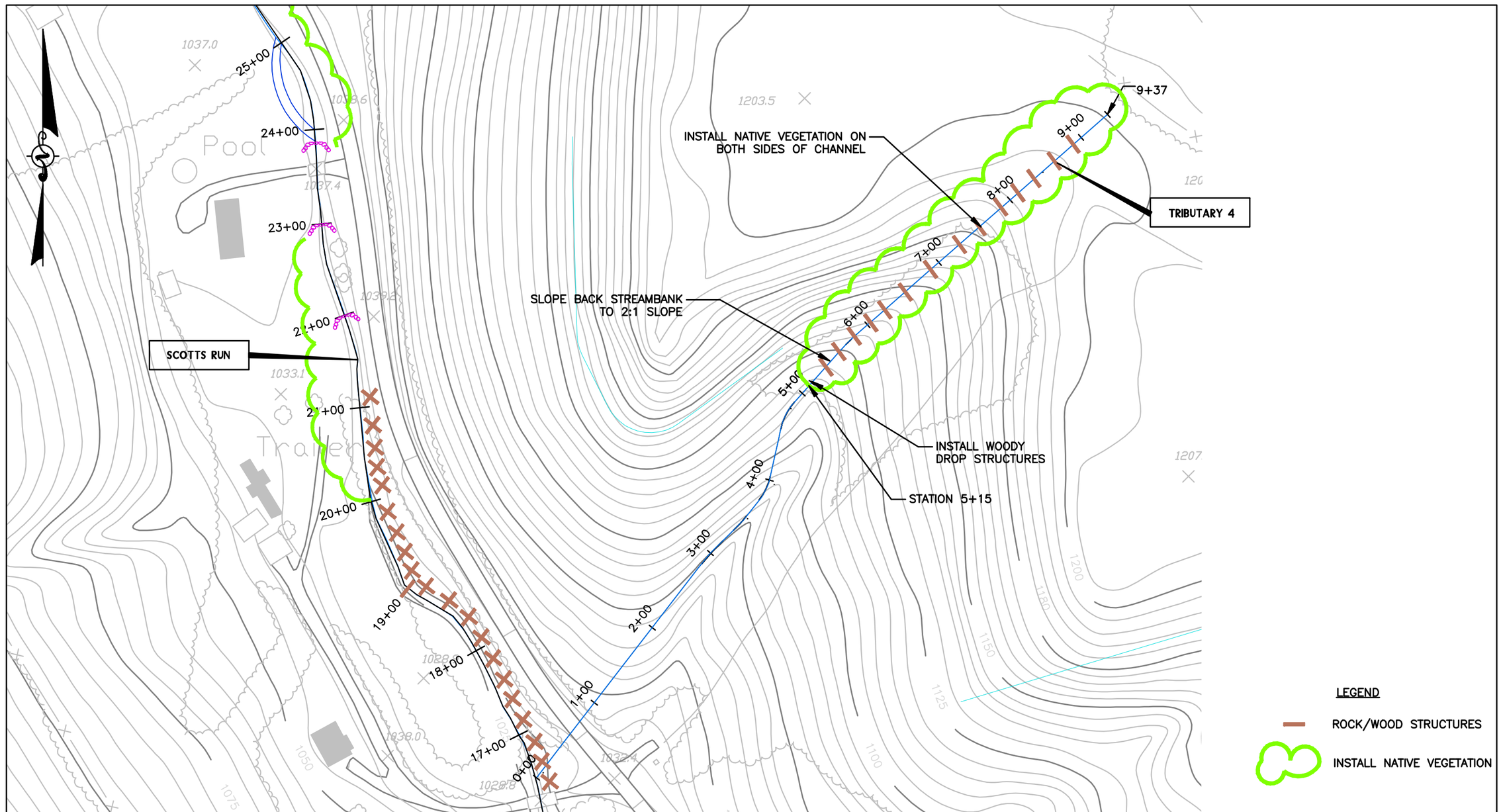

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NEW HILL WEST SURFACE MINE
S-2009-09/USACE NO. 2009-759
RESTORATION MEASURES-TRIBUTARY NO. 4

Scale: NO SCALE
Date: APRIL 2010
Dwg. No. FIGURE 3

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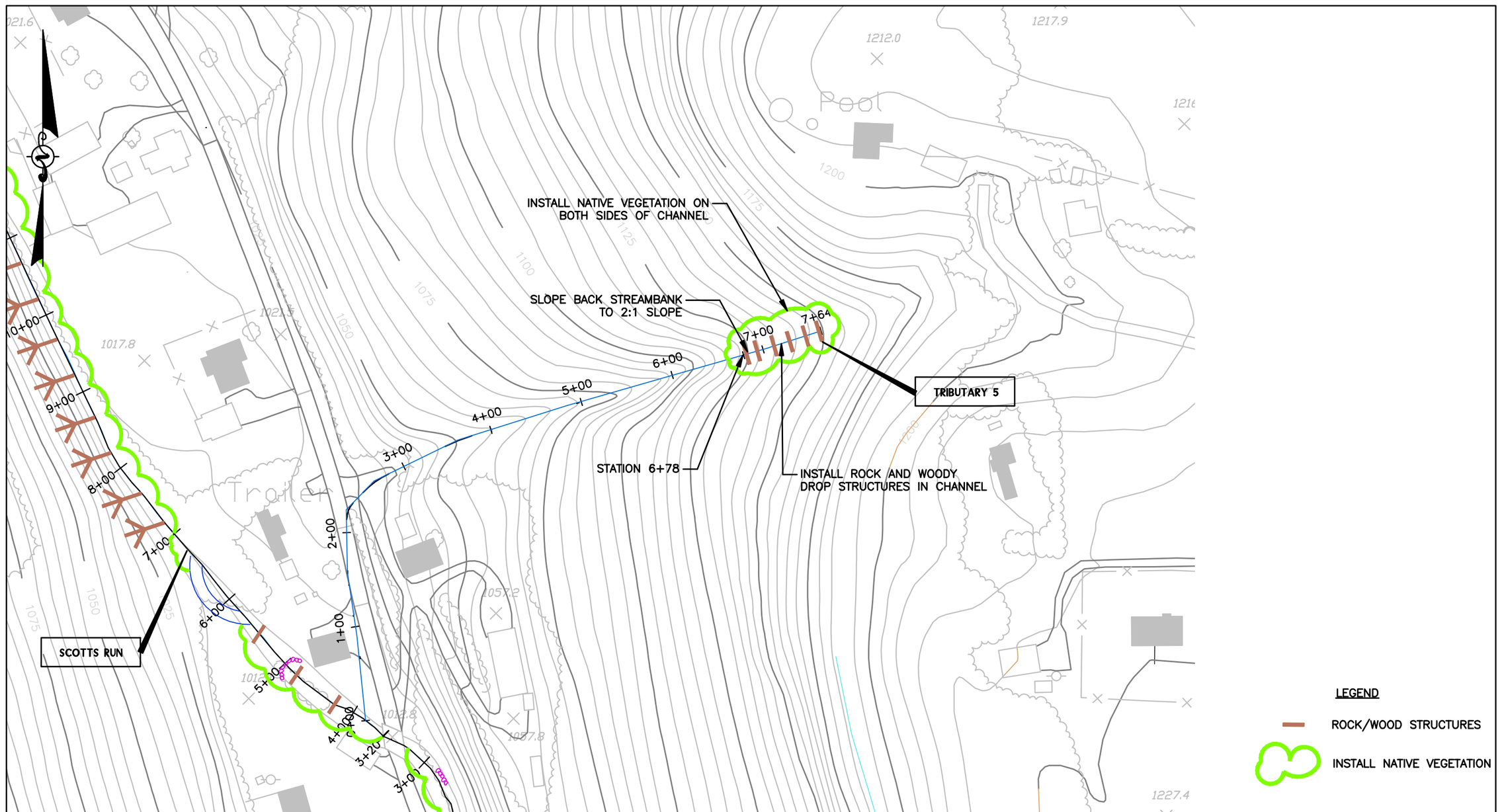

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NEW HILL WEST SURFACE MINE
S-2009-09/USACE NO. 2009-759
RESTORATION MEASURES-TRIBUTARY NO. 5

Scale: NO SCALE
Date: APRIL 2010
Dwg. No. FIGURE 4

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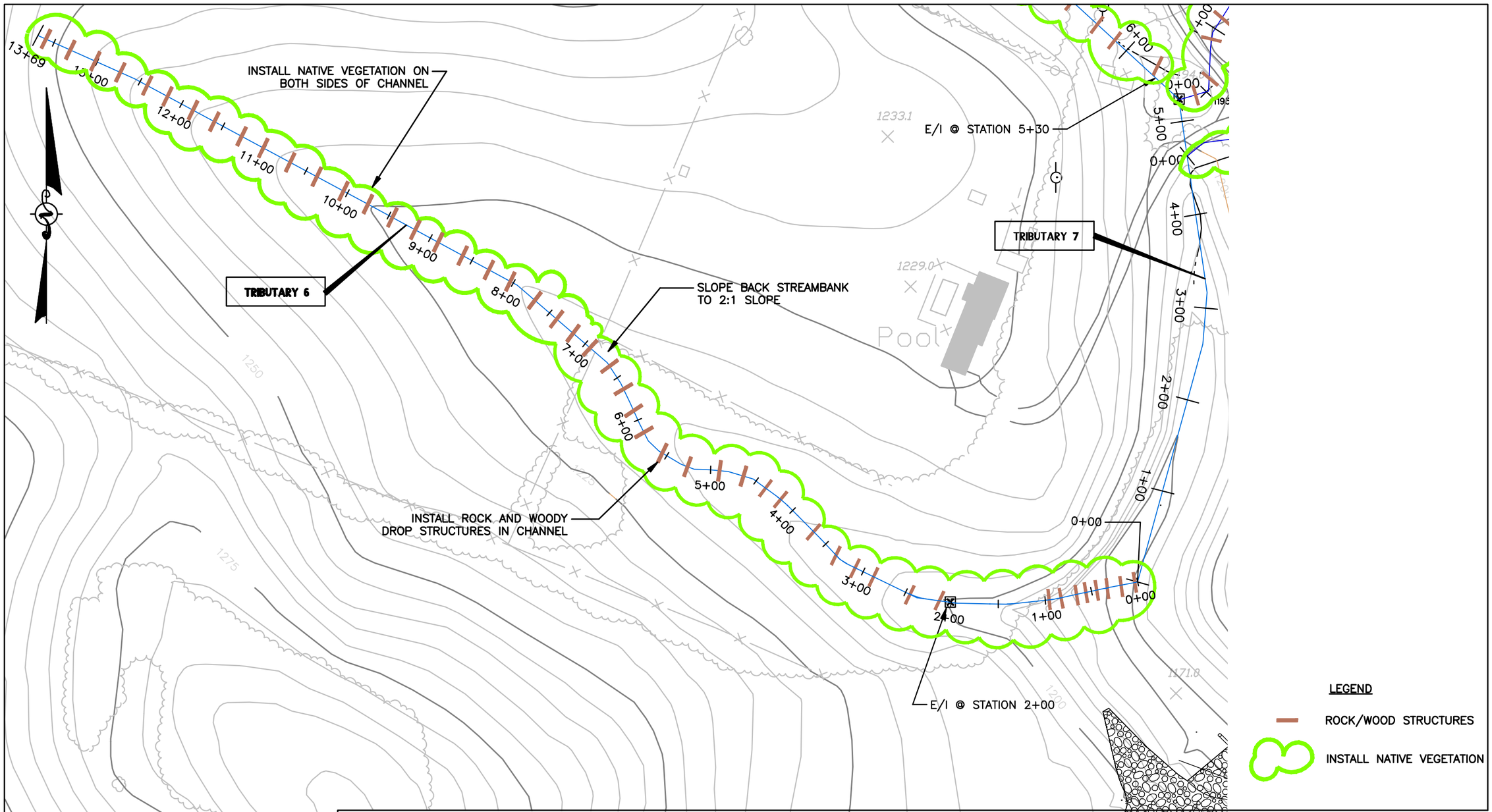

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TEL: (304) 342-1400 FAX: (304) 343-9031
E-Mail Address: potesta@potesta.com

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NEW HILL WEST SURFACE MINE
S-2009-09/USACE NO. 2009-759
RESTORATION MEASURES-TRIBUTARY NO. 6

Scale: NO SCALE
Date: APRIL 2010
Dwg. No. FIGURE 5

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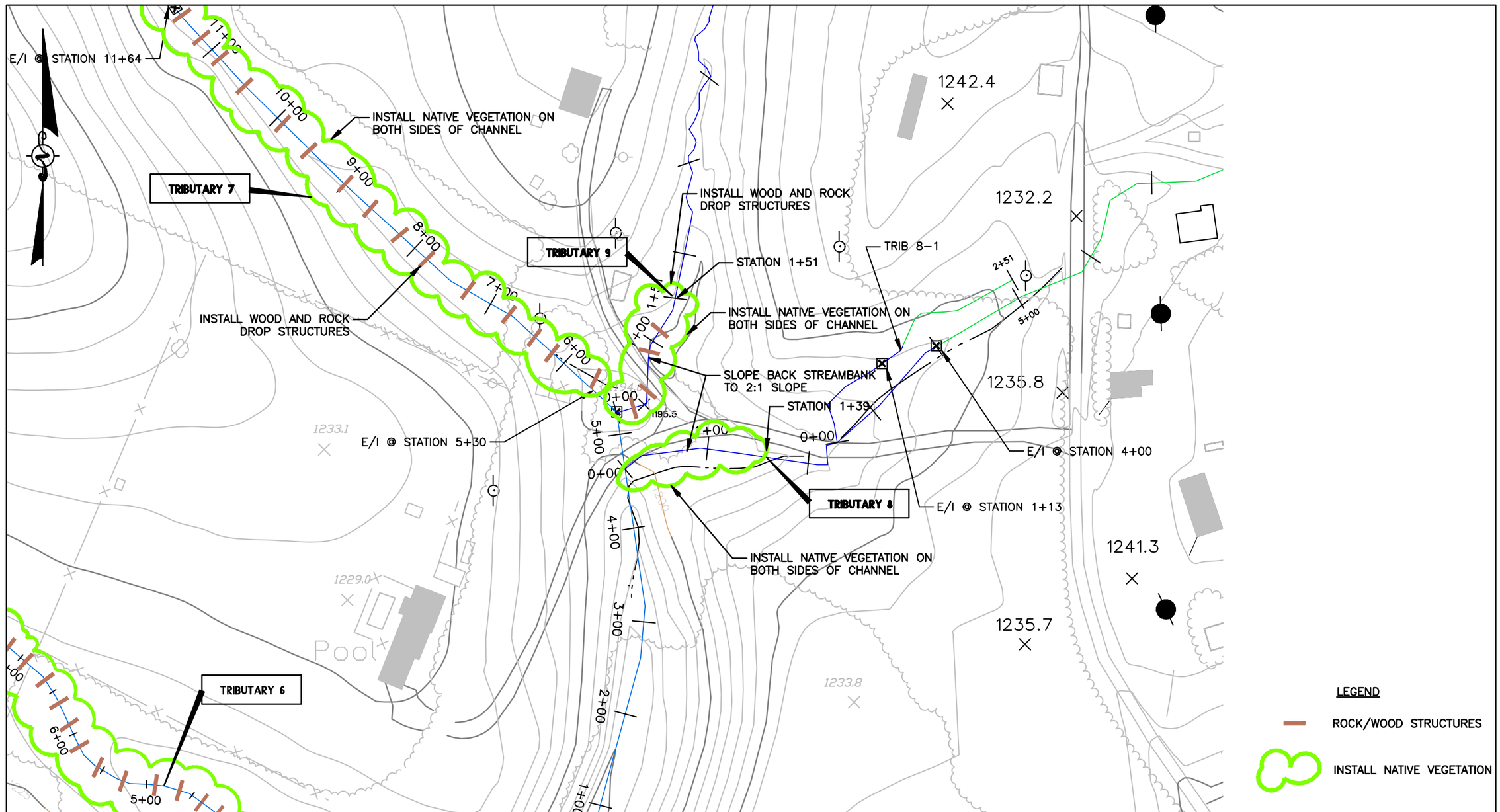

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NEW HILL WEST SURFACE MINE
S-2009-09/USACE NO. 2009-759
RESTORATION MEASURES-TRIBUTARY NOS. 7,8, & 9

Scale: NO SCALE
Date: APRIL 2010
Dwg. No. FIGURE 6

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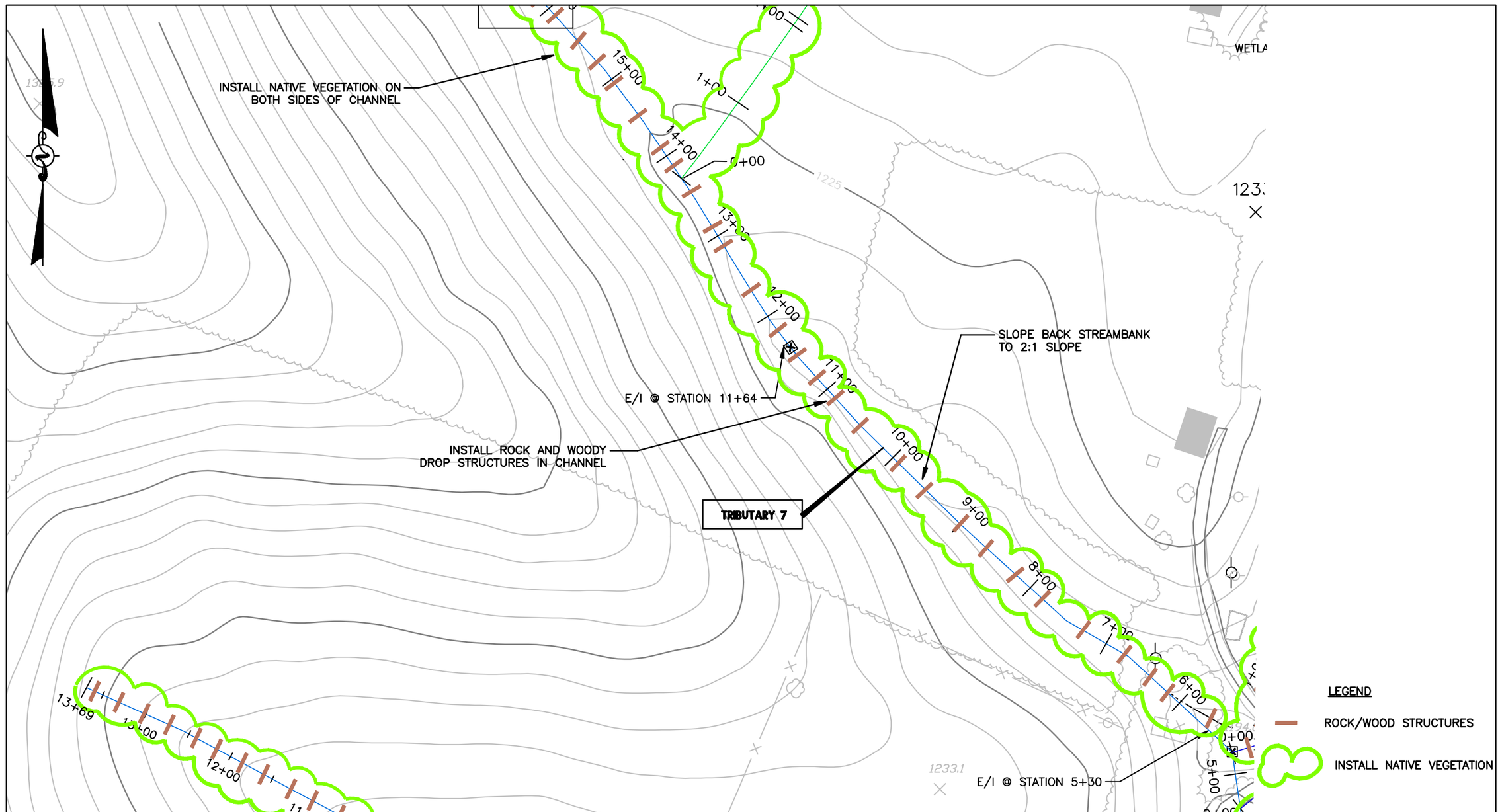

PROJECT #: 09-0081 FILENAME: 09-0081-RESTORATION

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TEL: (304) 342-1400 FAX: (304) 343-9031
E-Mail Address: potesta@potesta.com

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NEW HILL WEST SURFACE MINE
S-2009-09/USACE NO. 2009-759
RESTORATION MEASURES-TRIBUTARY NO. 7

Scale: NO SCALE
Date: APRIL 2010
Dwg. No. FIGURE 7

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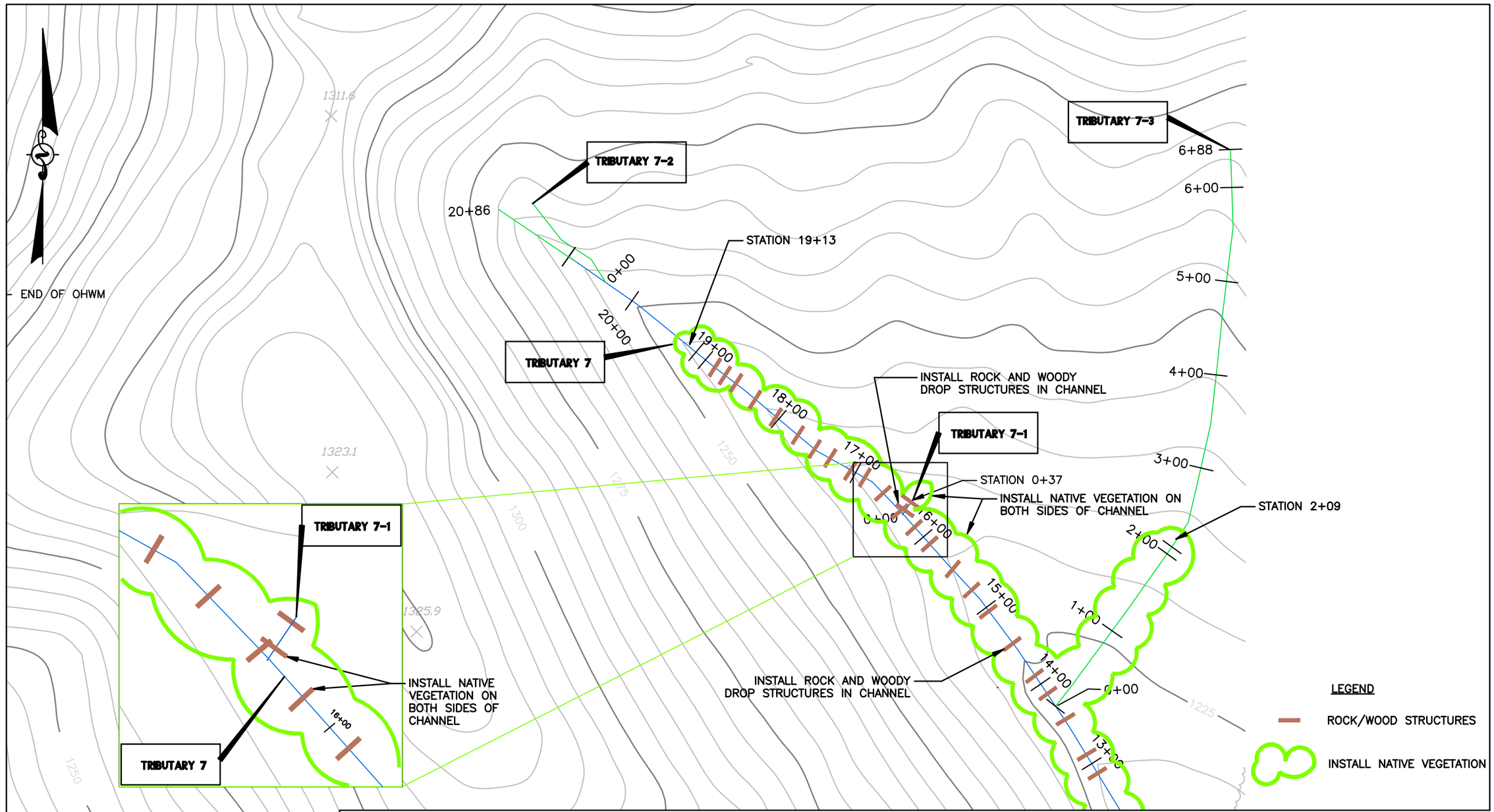

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TEL: (304) 342-1400 FAX: (304) 343-9031
E-Mail Address: potesta@potesta.com

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NEW HILL WEST SURFACE MINE
S-2009-09/USACE NO. 2009-759
RESTORATION MEASURES-TRIBUTARY 7,7-1 & 7-3

Scale: NO SCALE
Date: APRIL 2010
Dwg. No.: FIGURE 8

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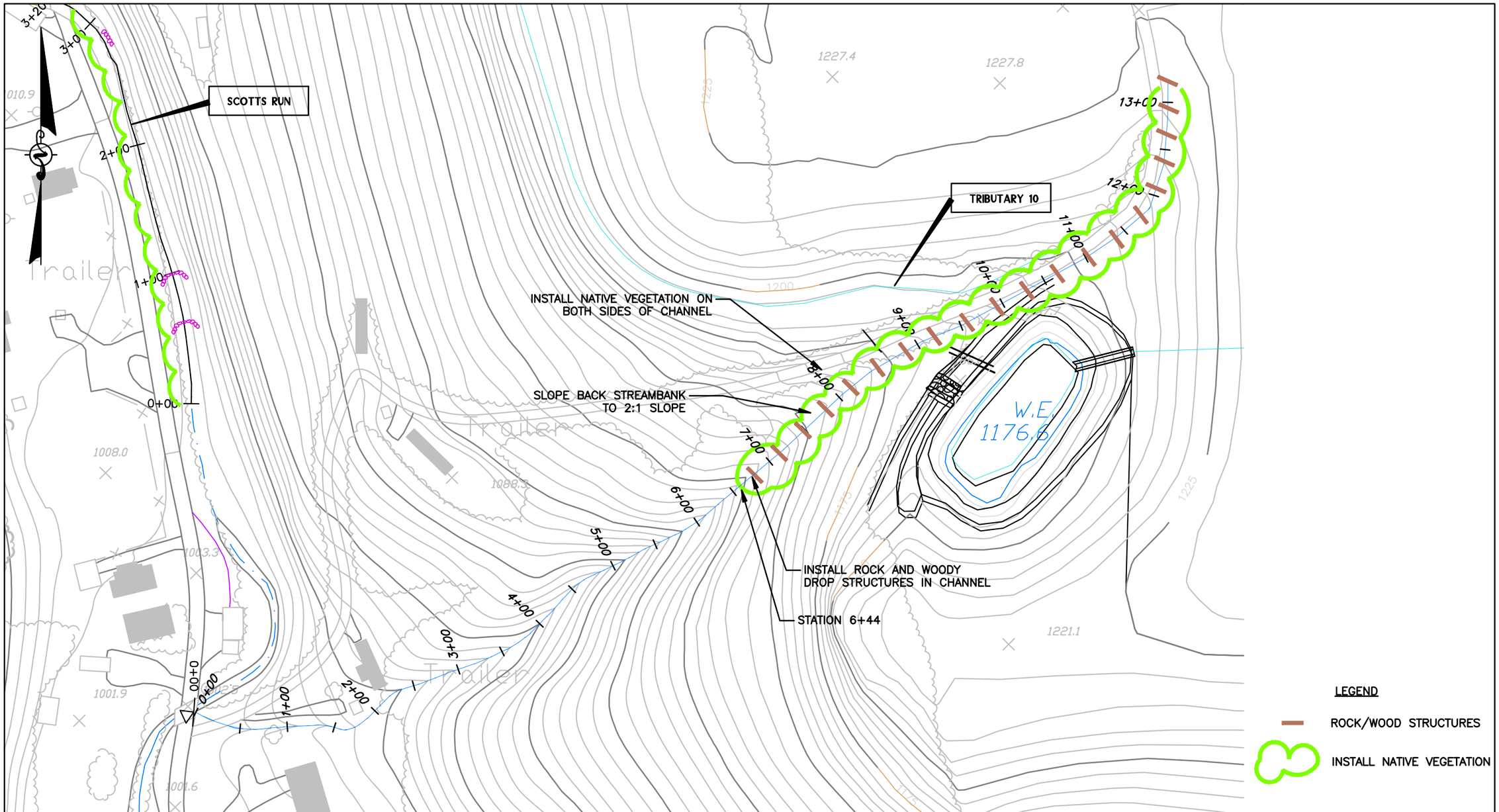

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TEL: (304) 342-1400 FAX: (304) 343-9031
E-Mail Address: potesta@potesta.com

Project COMPENSATION MITIGATION PLAN
NEW HILL WEST SURFACE MINE
S-2009-09/USACE NO. 2009-759
RESTORATION MEASURES-TRIBUTARY NO. 10

Scale NO SCALE
Date APRIL 2010
Dwg. No. FIGURE 9

XREF Files: IMAGE Files:
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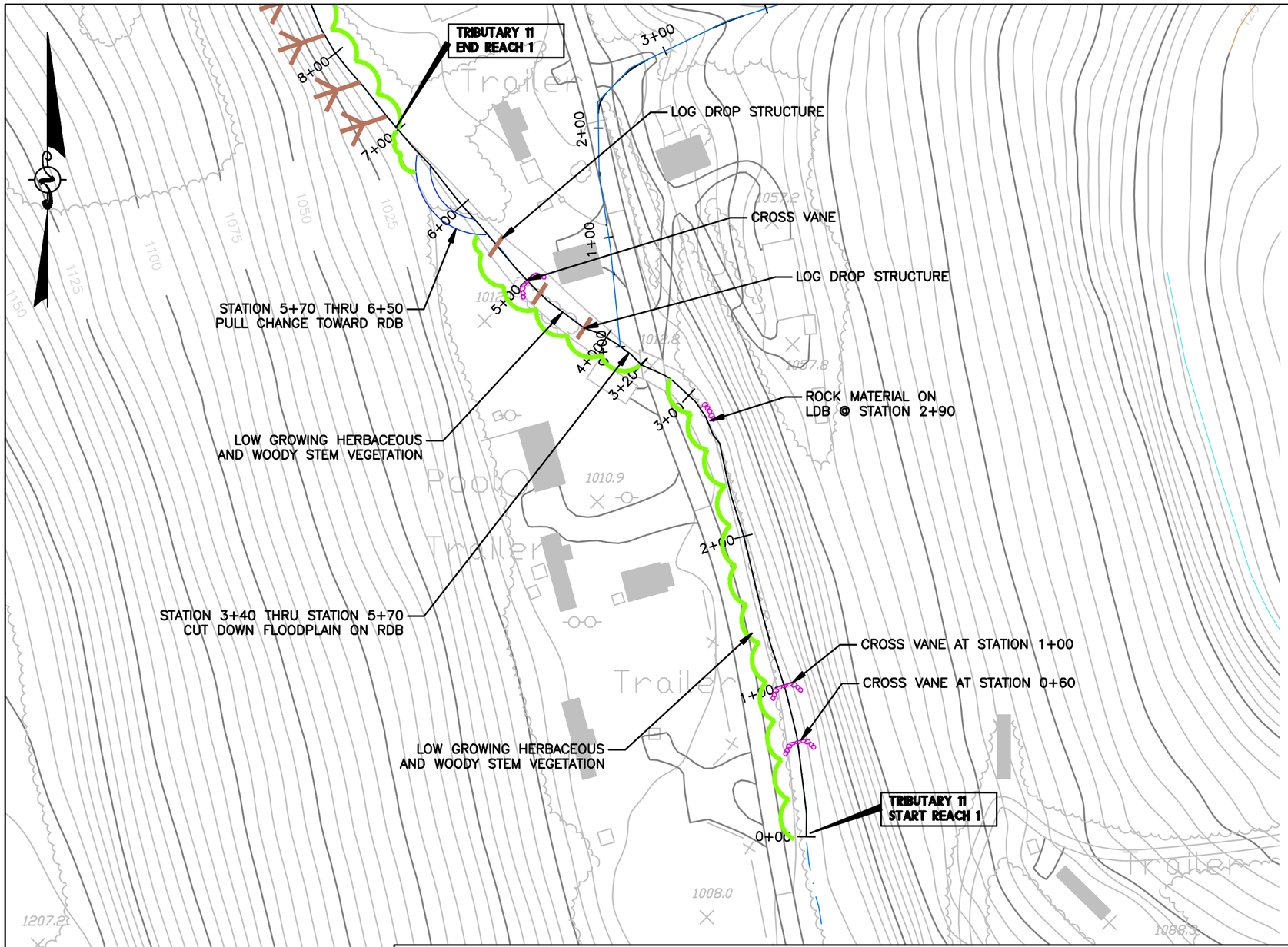

LEGEND

- CROSS VANE
- ROCK MATERIAL
- ROCK/WOOD STRUCTURES
- INSTALL NATIVE VEGETATION

PROJECT #: 09-0081 FILENAME: 09-0081-RESTORATION

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ENGINEERS AND ENVIRONMENTAL CONSULTANTS
7012 MacCorkle Ave. SE, Charleston, WV 25304
TEL: (304) 342-1400 FAX: (304) 343-9031
E-Mail Address: potesta@potesta.com

Project: COMPENSATION MITIGATION PLAN
NEW HILL WEST SURFACE MINE
S-2009-09/USACE NO. 2009-759
RESTORATION MEASURES-REACH 1

Scale: NO SCALE
Date: APRIL 2010
Dwg. No. FIGURE 10

XREF Files: IMAGE Files:
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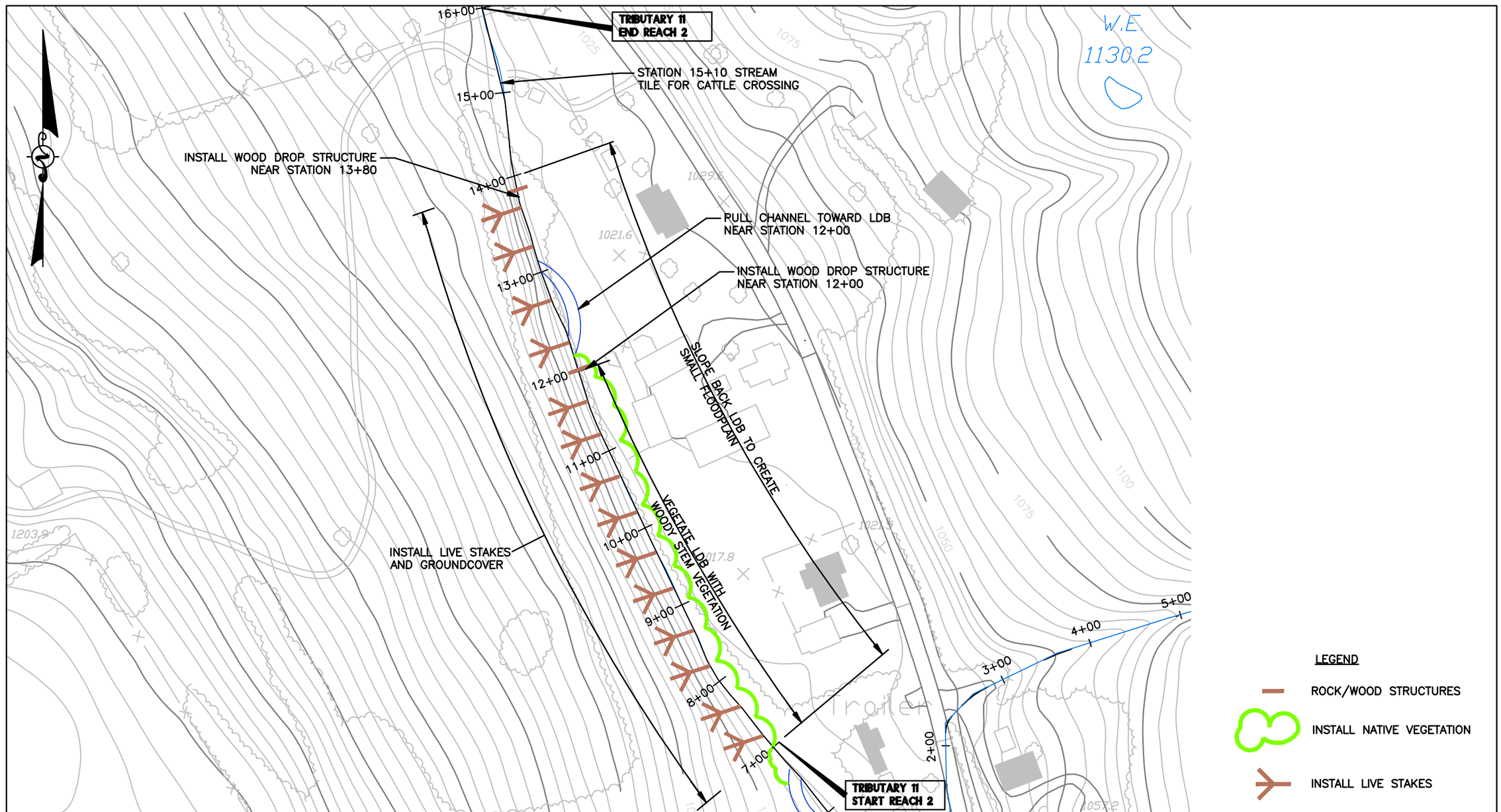

PROJECT #: 09-0081 FILENAME: 09-0081-RESTORATION

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7012 MacCorkle Ave. SE, Charleston, WV 25304
TEL: (304) 342-1400 FAX: (304) 343-9031
E-Mail Address: potesta@potesta.com

Project COMPENSATION MITIGATION PLAN
NEW HILL WEST SURFACE MINE
S-2009-09/USACE NO. 2009-759
RESTORATION MEASURES-REACH 2

Scale NO SCALE
Date APRIL 2010
Dwg. No. FIGURE 11

XREF Files: IMAGE Files:
File: S:\C3D-Projects\09-0081-HUNTER-PATRIOT NEW HILL\jessica 020410\09-0081-RESTORATION.DWG
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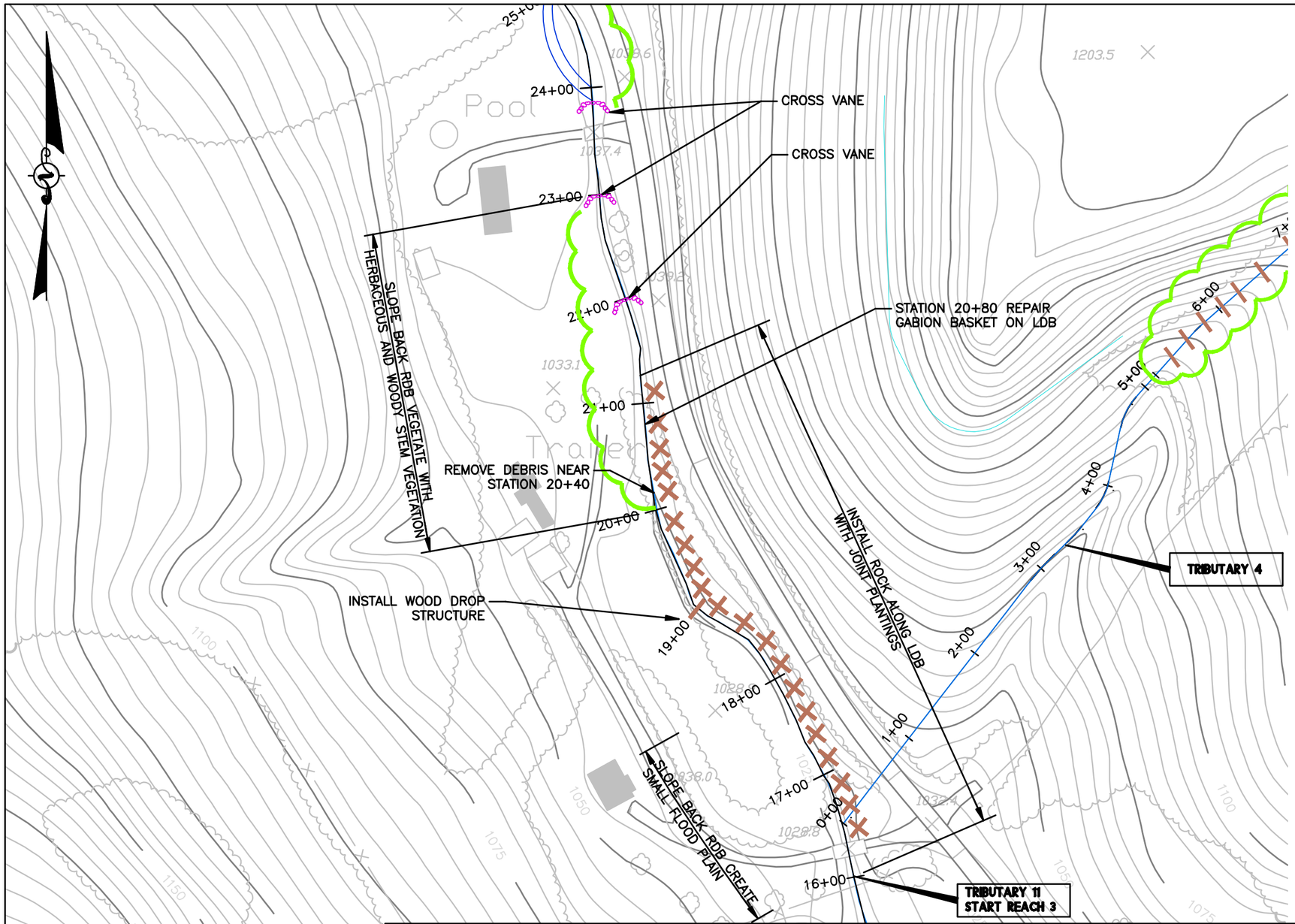

LEGEND

- CROSS VANE
- ROCK/WOOD STRUCTURES
- INSTALL NATIVE VEGETATION
- INSTALL JOINT PLANTINGS/ WITH ROCK

PROJECT #: 09-0081 FILENAME: 09-0081-RESTORATION

XREF Files: IMAGE Files:
File: S:\C3D-Projects\09-0081-HUNTER-PATRIOT NEW HILL\jessica 020410\09-0081-RESTORATION.DWG
Plot Date/Time: May 27, 2010 - 1:27pm
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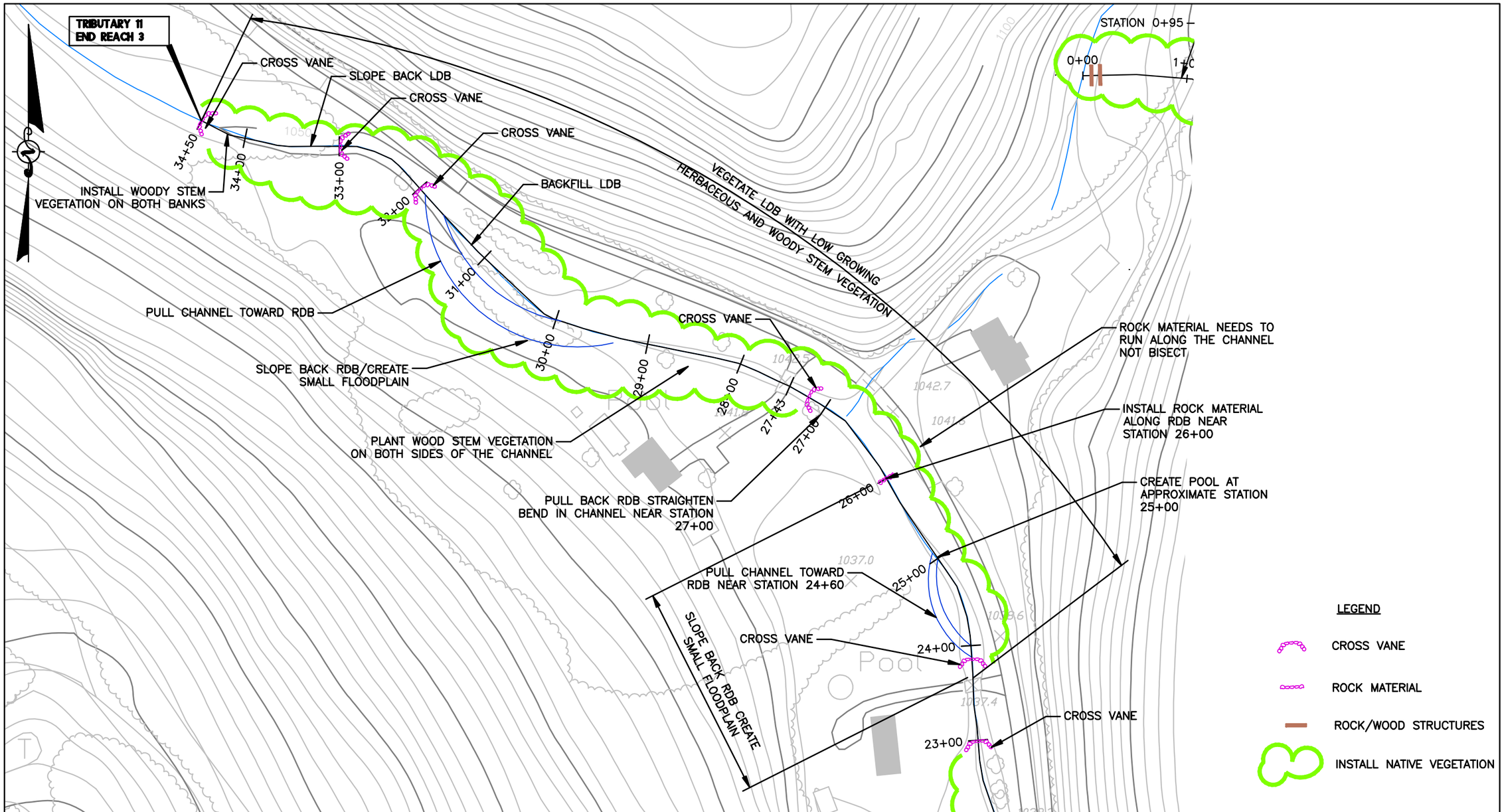
ENGINEERS AND ENVIRONMENTAL CONSULTANTS
7012 MacCorkle Ave. SE, Charleston, WV 25304
TEL: (304) 342-1400 FAX: (304) 343-9031
E-Mail Address: potesta@potesta.com

Project COMPENSATION MITIGATION PLAN
NEW HILL WEST SURFACE MINE
S-2009-09/USACE NO. 2009-759
RESTORATION MEASURES-REACH 3

Scale NO SCALE
Date APRIL 2010
Dwg. No. FIGURE 12



PROJECT #: 09-0081 FILENAME: 09-0081-RESTORATION

POTESTA

POTESTA & ASSOCIATES, INC.

ENGINEERS AND ENVIRONMENTAL CONSULTANTS

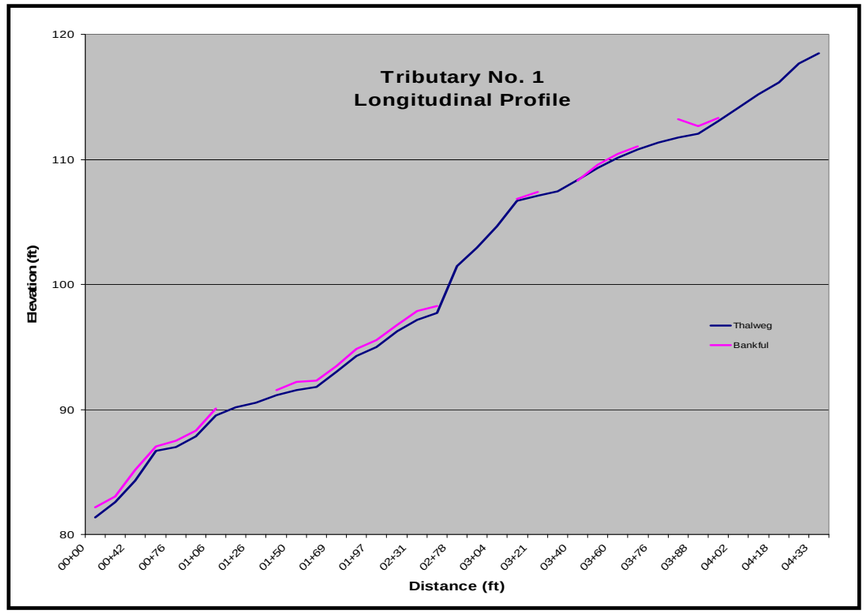
7012 MacCorkle Ave. SE, Charleston, WV 25304
TEL: (304) 342-1400 FAX: (304) 343-9031
E-Mail Address: potesta@potesta.com

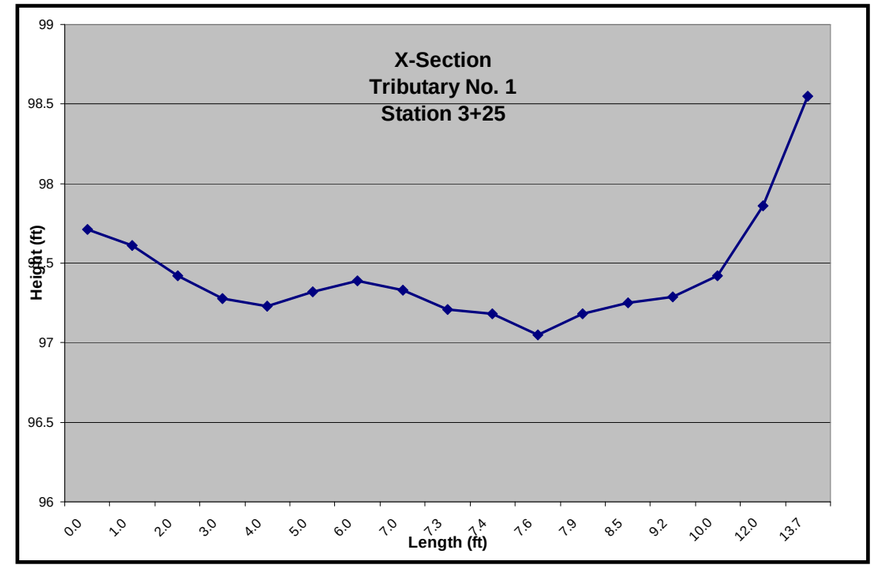
Project: COMPENSATION MITIGATION PLAN
NEW HILL WEST SURFACE MINE
S-2009-09/USACE NO. 2009-759
RESTORATION MEASURES-REACH 3

Scale: NO SCALE
Date: APRIL 2010
Dwg. No. FIGURE 13

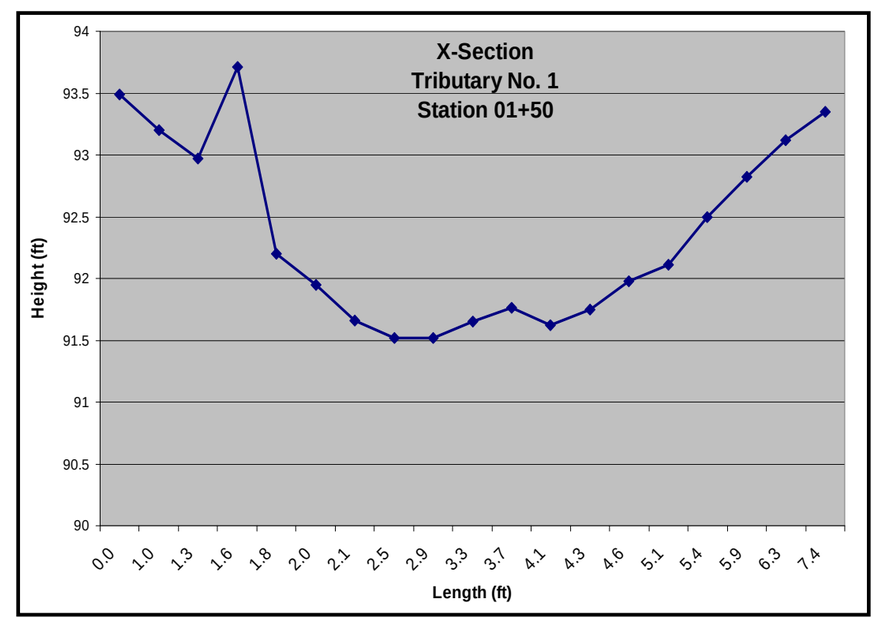
XREF Files: IMAGE Files:
File: S:\C3D-Projects\09-0081-HUNTER-PATRIOT NEW HILL\jessica 020410\09-0081-RESTORATION.DWG
Plot Date/Time: May 27, 2010 - 1:27pm
Plotted By: REOsborne

Tributary No. 1





X-Section	Measure	Value (ft)
01+50	W_{bkf}	2.6
	D_{bkf}	0.3
	A_{bkf}	0.8
03+25	W_{bkf}	4.9
	D_{bkf}	0.1
	A_{bkf}	0.4



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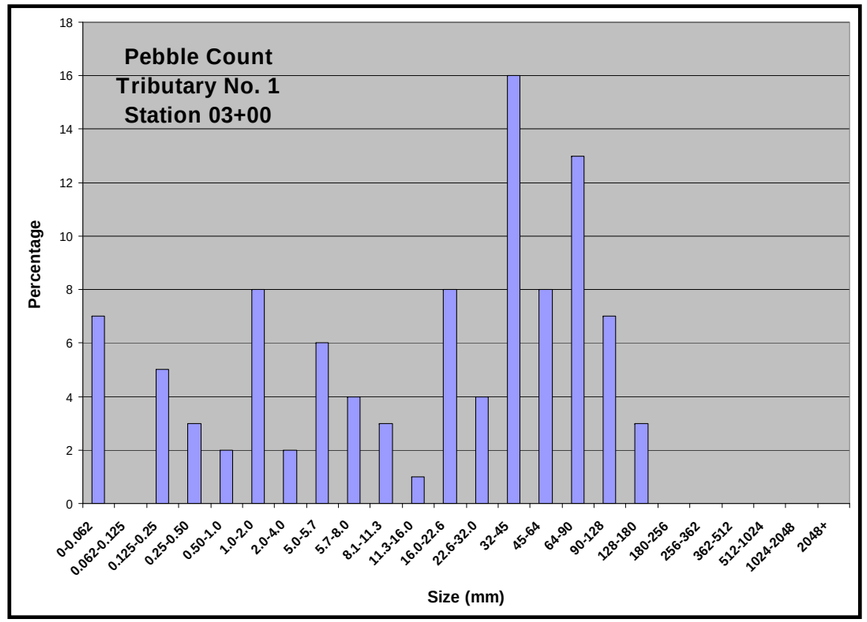
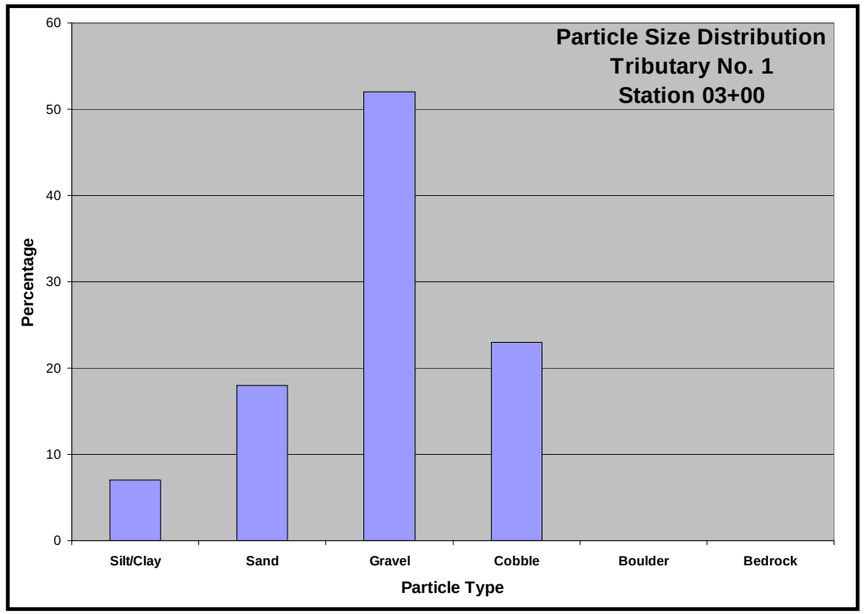
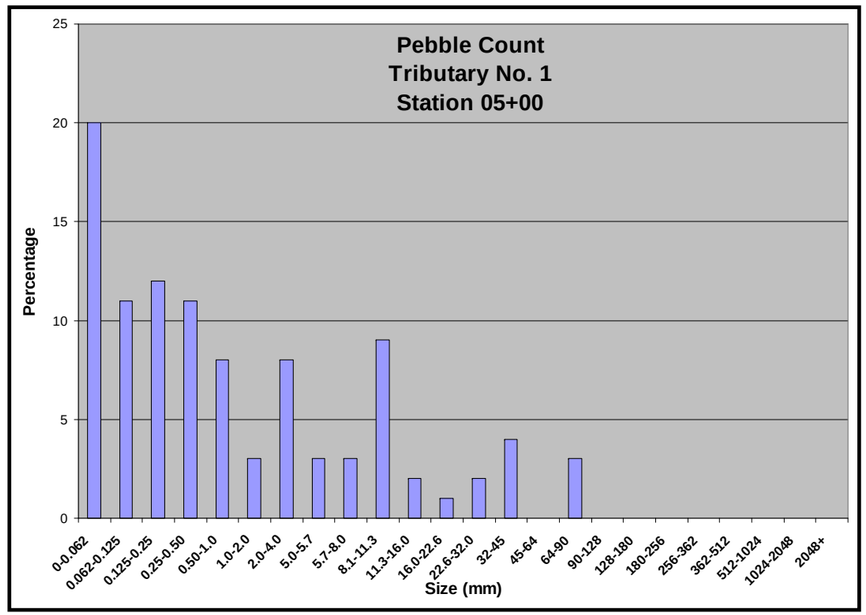
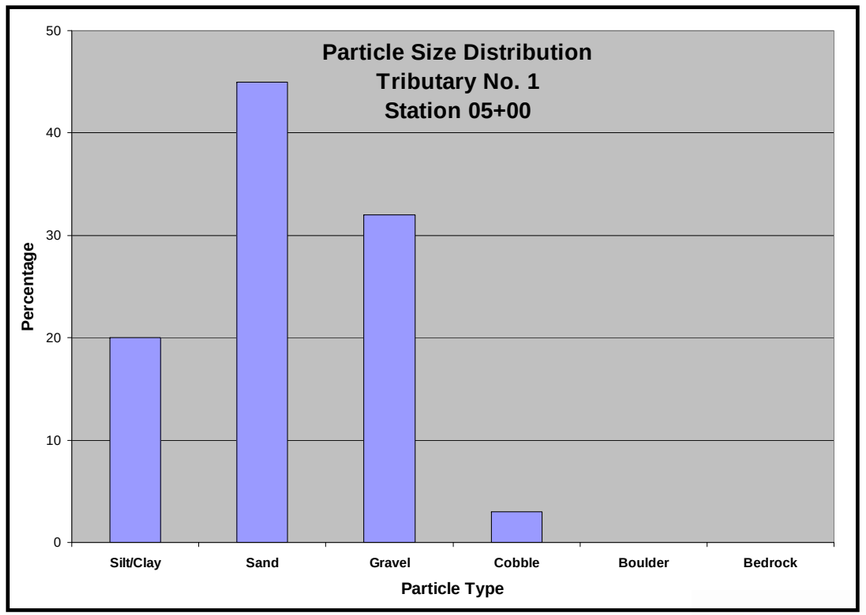
Tributary No. 1 - Particulate Information







Particle Sizes (mm)	Station 03+00	Station 05+00
D_{16}	0.75	0.05
D_{35}	6.85	0.17
D_{50}	24.95	0.41
D_{84}	78	9.83
D_{95}	117.14	38.5
D_{100}	180	90



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Tributary No. 1
Station 03+00

Upstream View

Downstream View

POTESTA
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Tributary No. 1
Station 05+00

Upstream View

Downstream View

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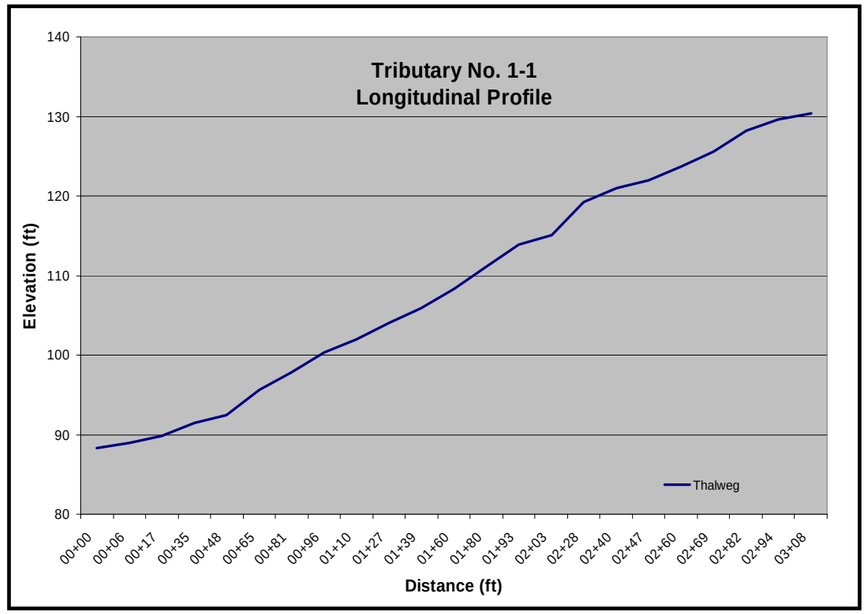
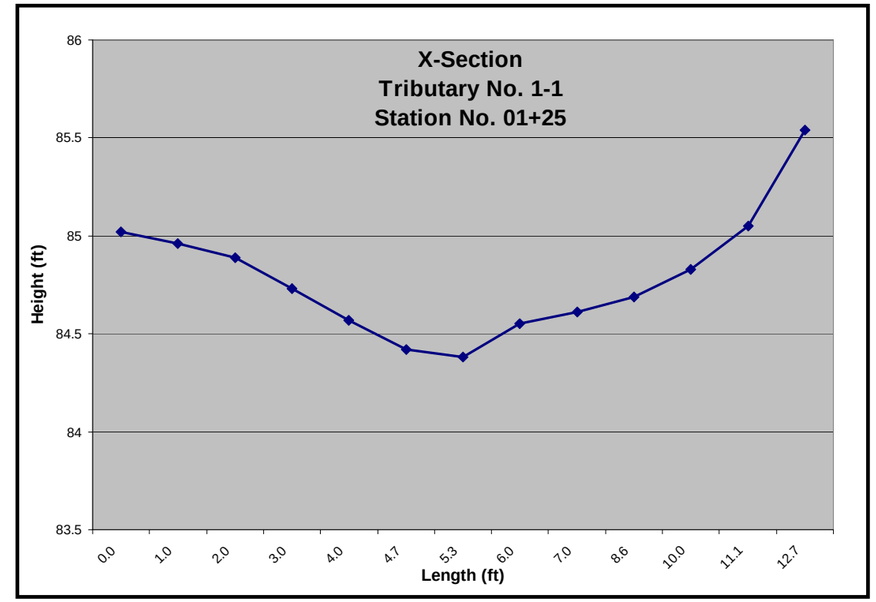
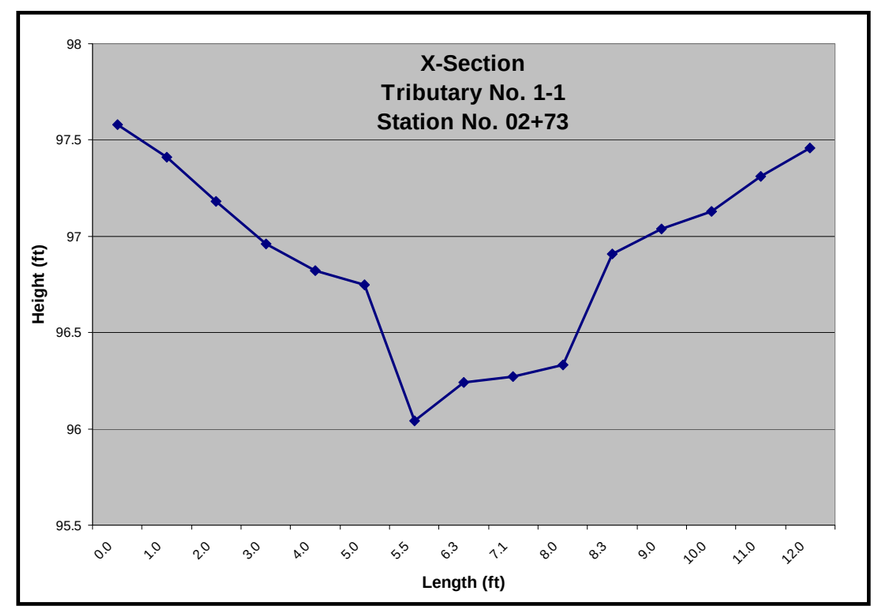
Tributary No. 1-1 - X-Sections





X-Section	Measure	Value (ft)
01+25	W_{bkf}	1.9
	D_{bkf}	0.1
	A_{bkf}	0.2
02+73	W_{bkf}	3.2
	D_{bkf}	0.5
	A_{bkf}	1.5



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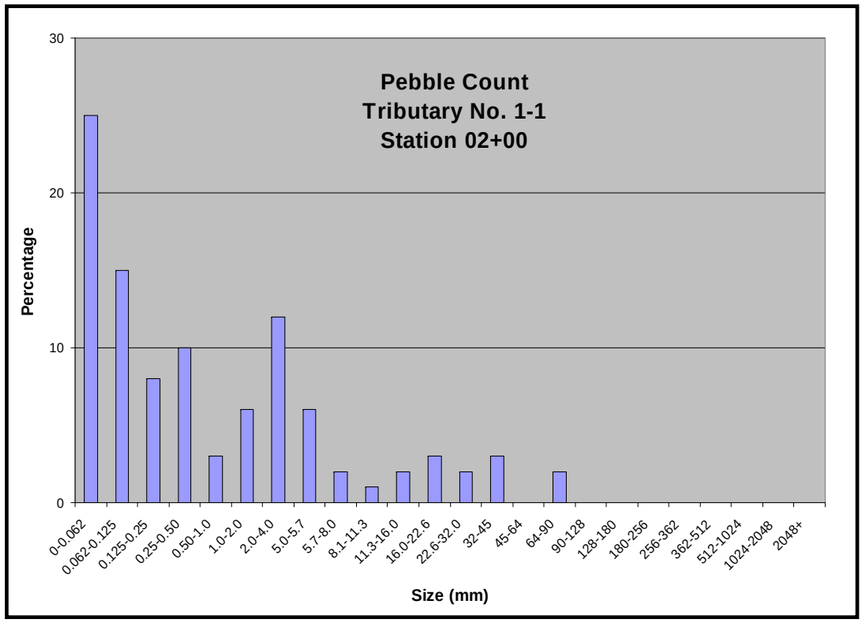
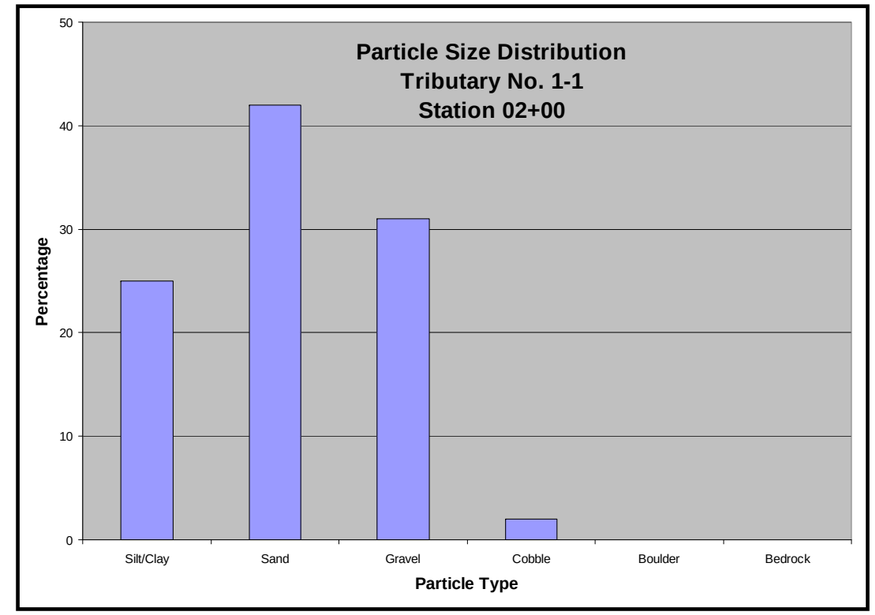
Tributary No. 1-1 - Particulate Information





Particle Sizes (mm)	Station 02+00
D_{16}	0.04
D_{35}	0.1
D_{50}	0.3
D_{84}	5.42
D_{95}	32
D_{100}	90

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Tributary No. 1-1
Station 02+00

Upstream View

Downstream View

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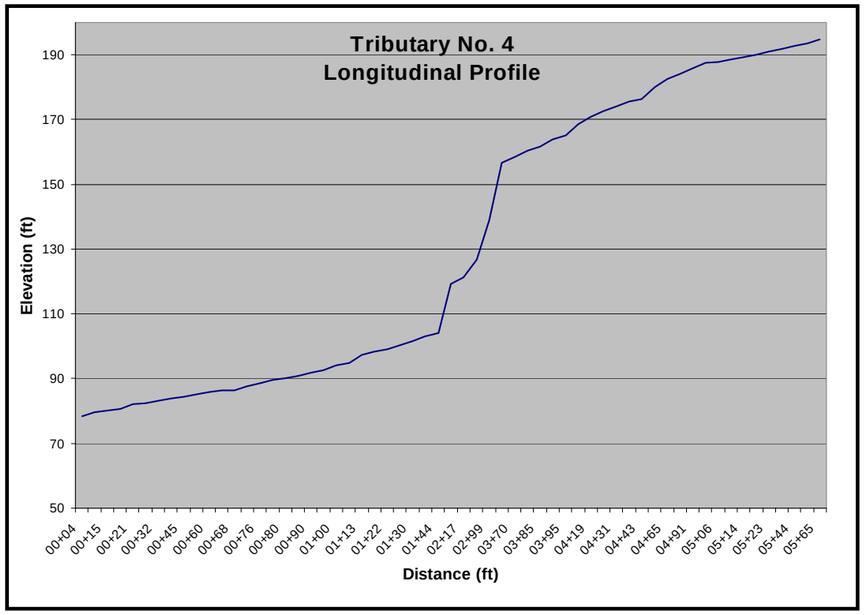
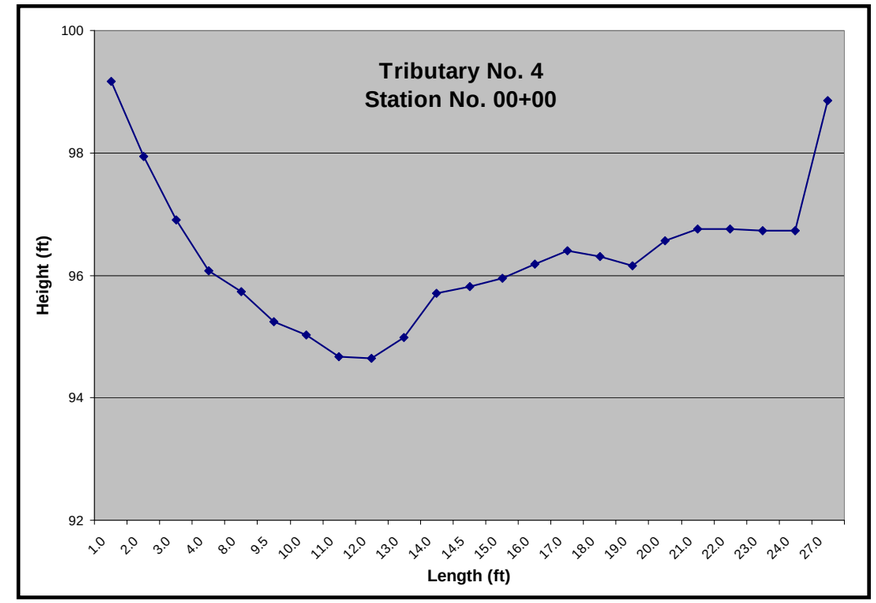
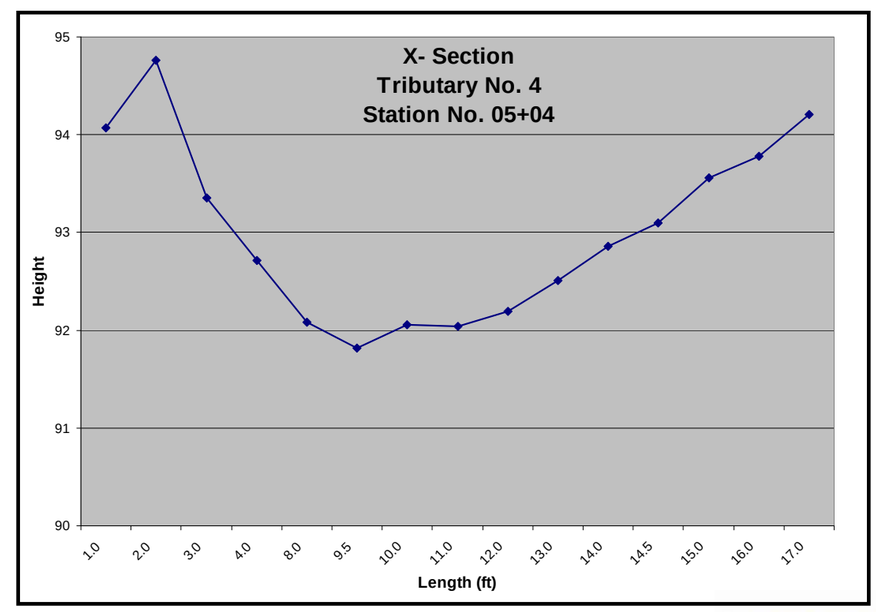
Tributary No. 4





X-Section	Measure	Value (ft)
00+00	W_{bkf}	6.1
	D_{bkf}	0.6
	A_{bkf}	4
05+04	W_{bkf}	2.6
	D_{bkf}	0.1
	A_{bkf}	0.3



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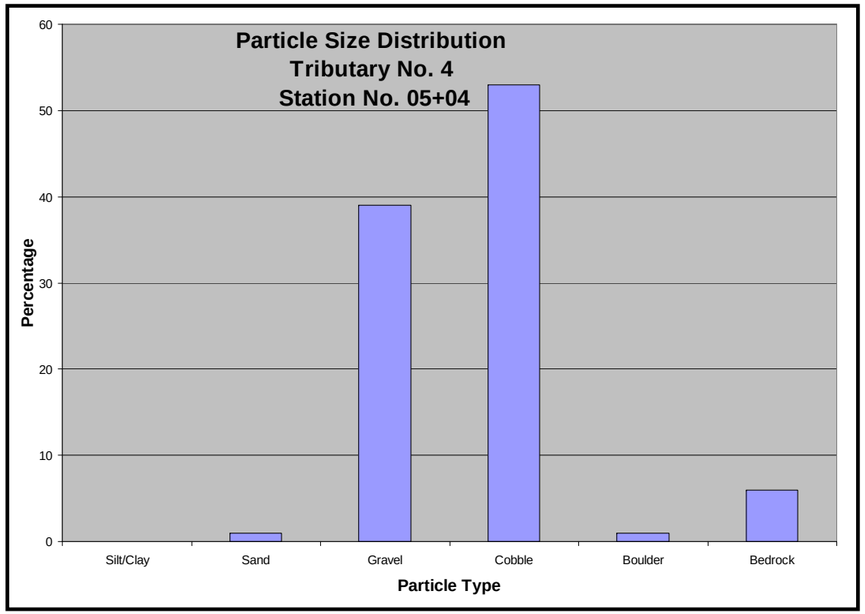
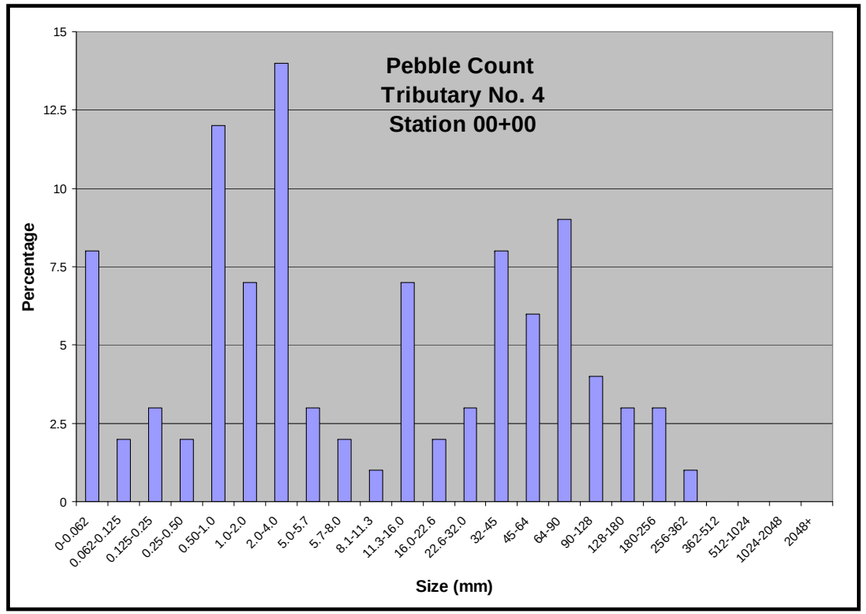
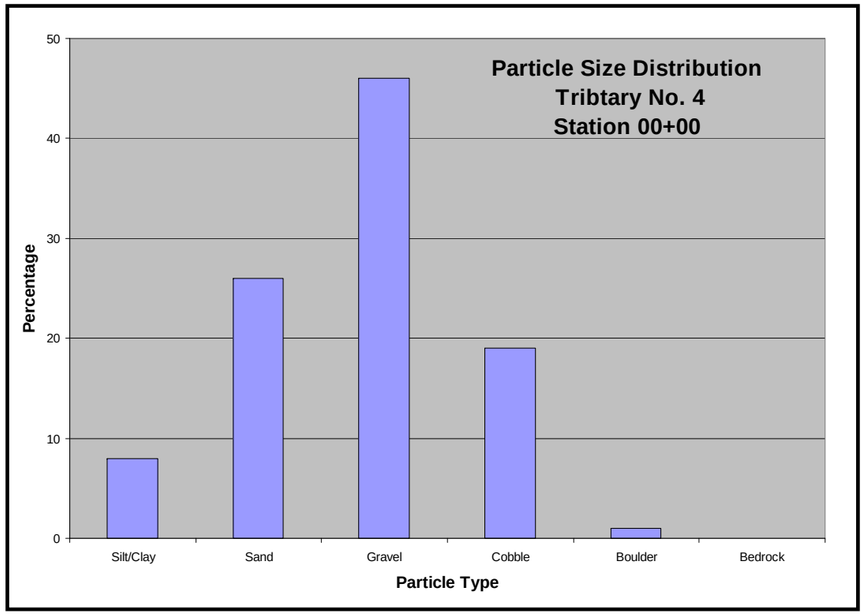
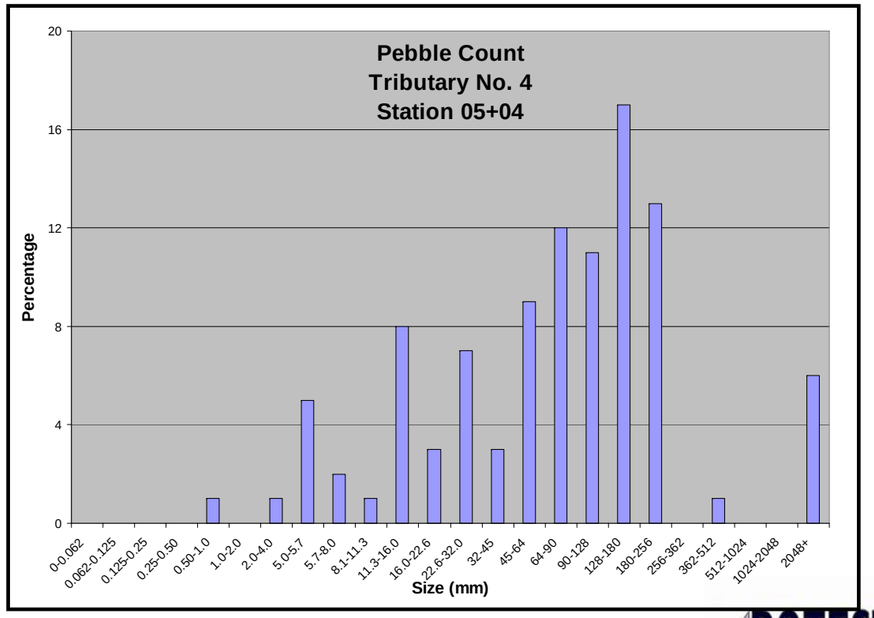
Tributary No. 4 - Particulate Information





Particle Sizes (mm)	Station 00+00	Station 05+04
D_{16}	0.54	14.83
D_{35}	2.14	53.44
D_{50}	5.13	85.67
D_{84}	75.56	203.38
D_{95}	162.67	2048
D_{100}	361.99	2048





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Tributary No. 4
Station 00+00

Upstream View

Downstream View

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Tributary No. 4
Station 05+04

Upstream View

Downstream View

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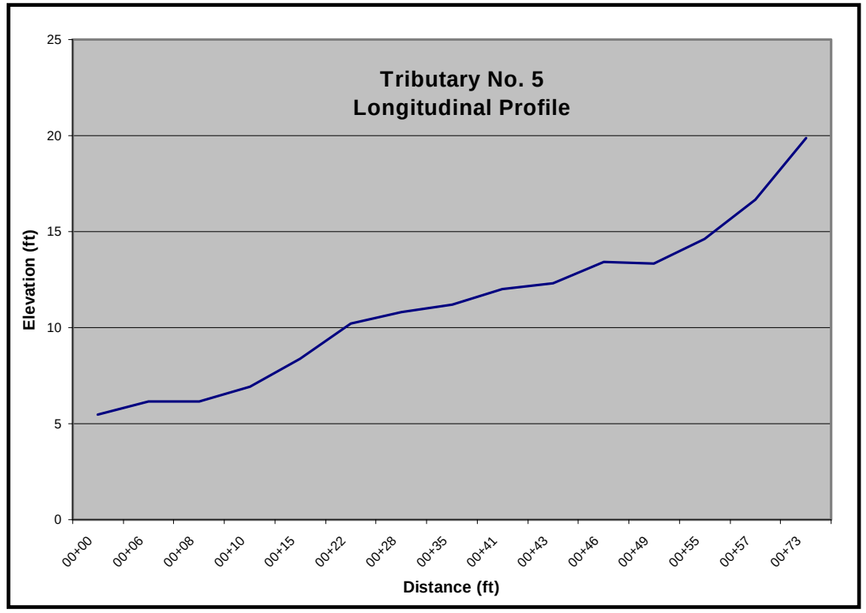
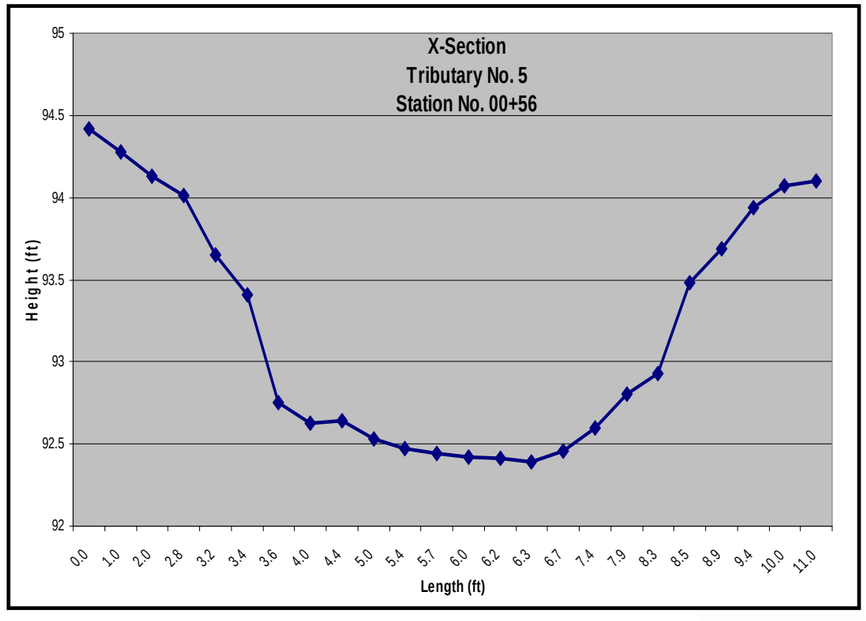
Tributary No. 5

X-Section	Measure	Value (ft)
00+56	W_{bkf}	5.2
	D_{bkf}	0.9
	A_{bkf}	4.4





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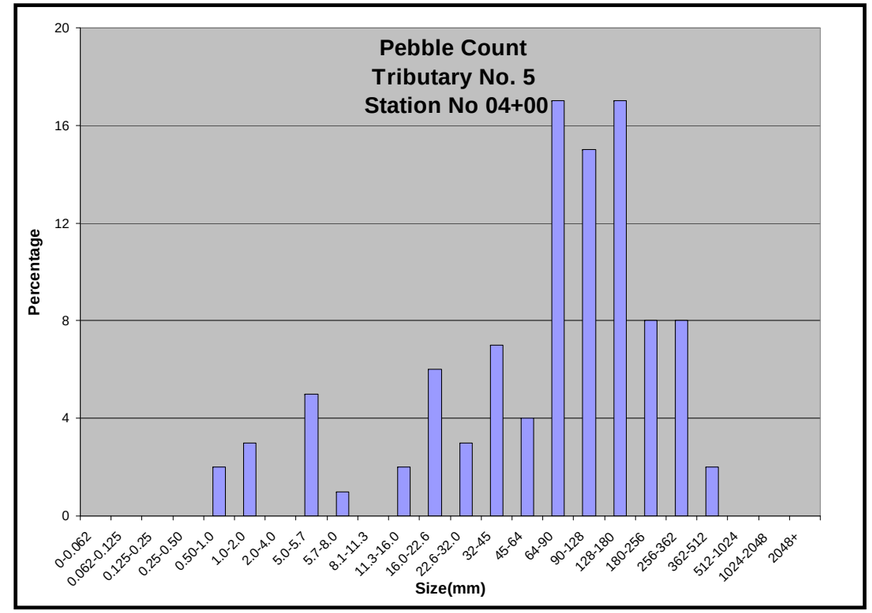
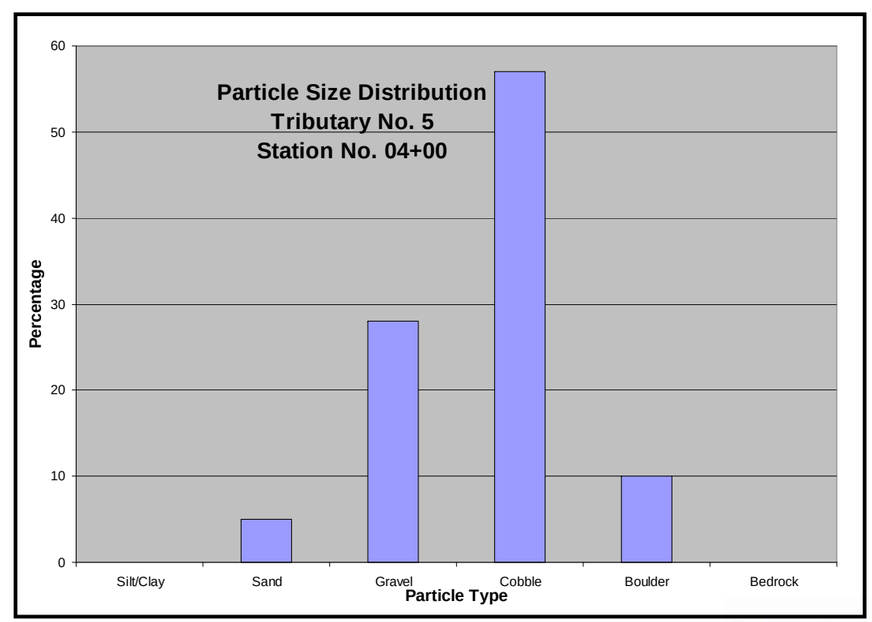
Tributary No. 5 - Particulate Information

Particle Sizes (mm)	Station 00+18
D_{16}	19.3
D_{35}	67.06
D_{50}	90
D_{84}	199
D_{95}	322.25
D_{100}	511.99





Tributary No. 5
Station 04+00

Upstream View

Downstream View

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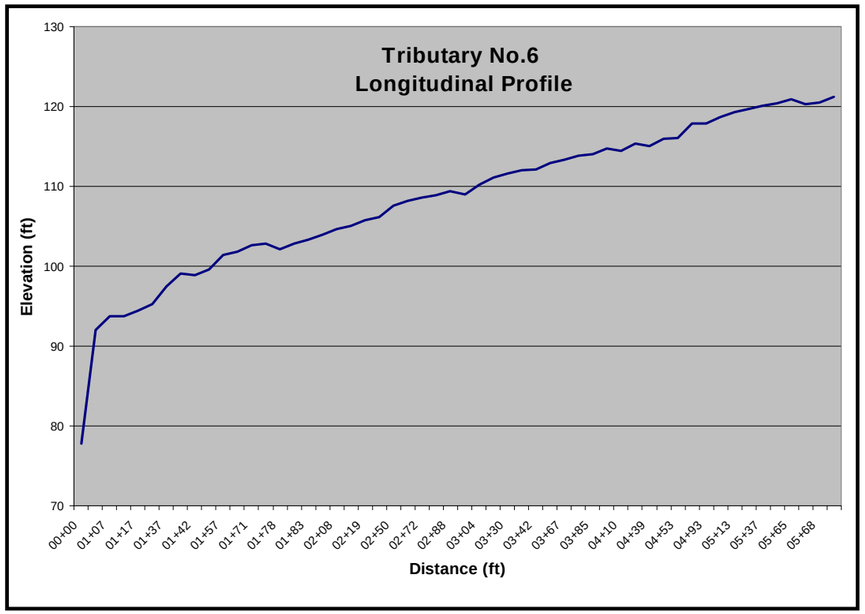
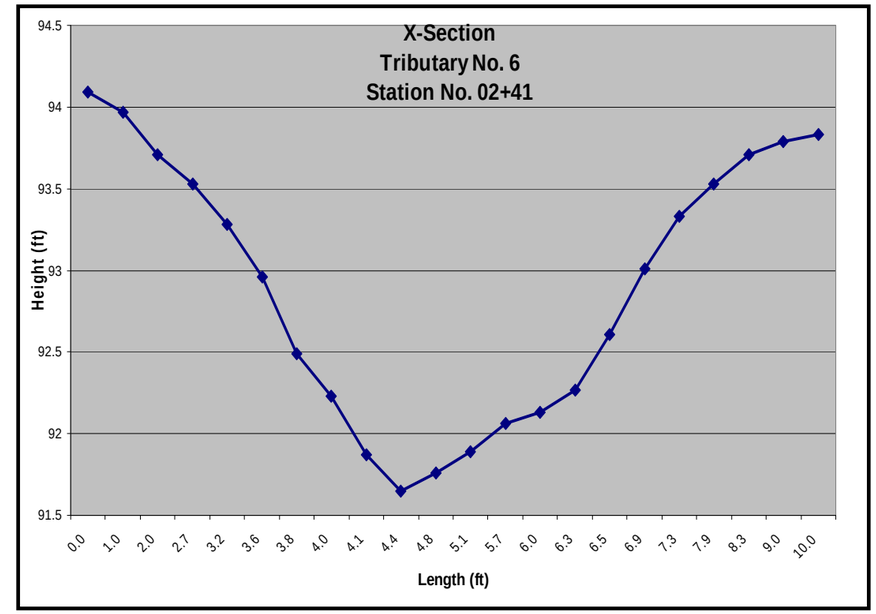
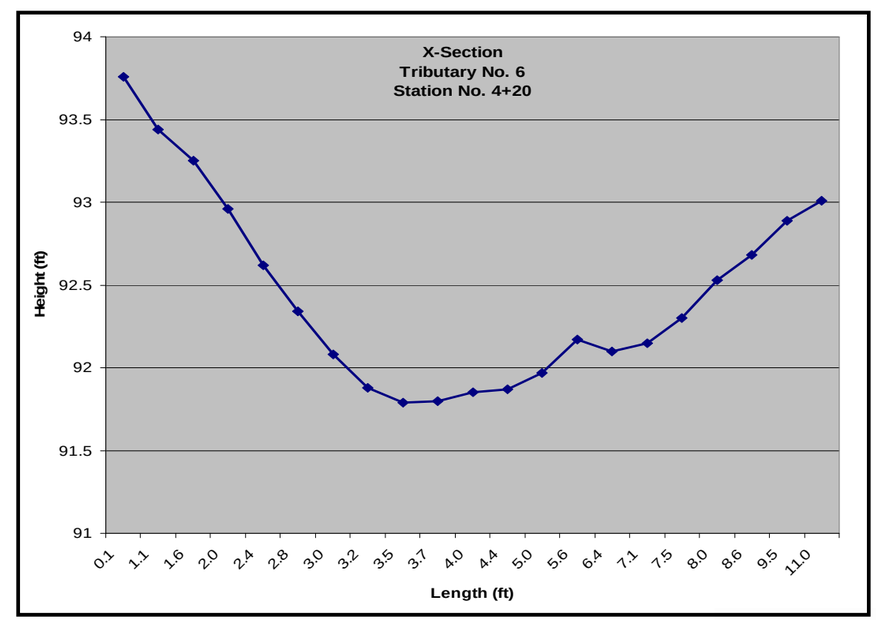
Tributary No. 6





X-Section	Measure	Value (ft)
02+41	W_{bkf}	3.2
	D_{bkf}	0.8
	A_{bkf}	2.7
04+20	W_{bkf}	4.2
	D_{bkf}	0.2
	A_{bkf}	0.7



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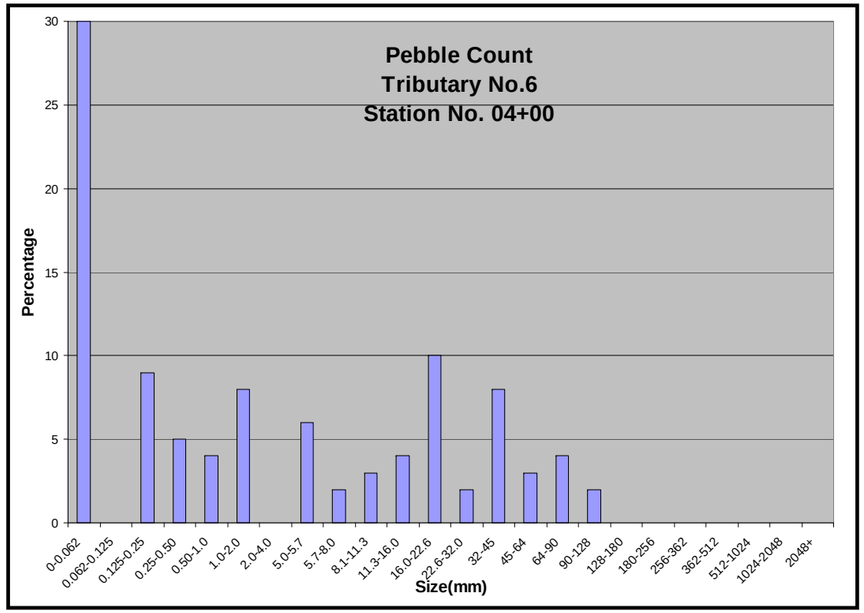
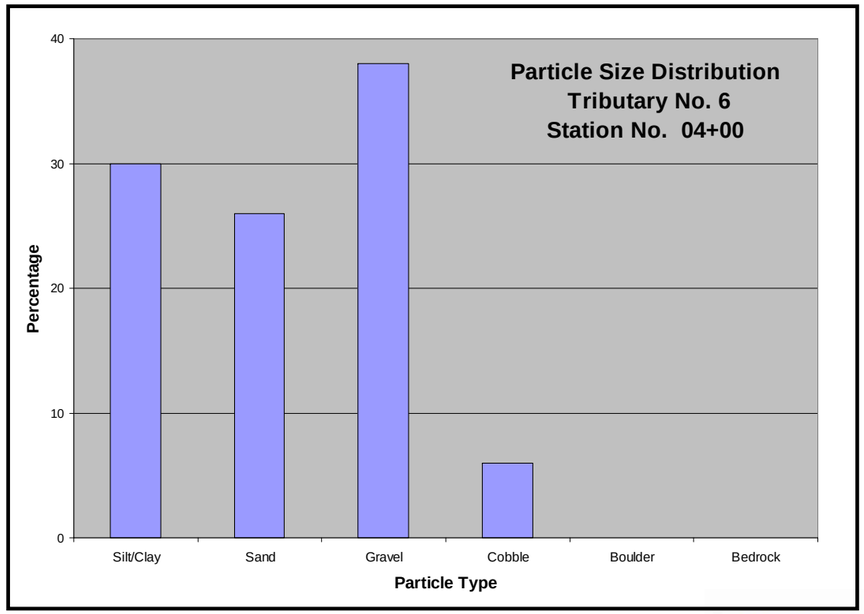
Tributary No. 6 - Particulate Information

Particle Sizes (mm)	Station 04+00
D_{16}	0.03
D_{35}	0.19
D_{50}	1.25
D_{84}	33.63
D_{95}	70.5
D_{100}	128





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Tributary No. 6
Station 04+00

Upstream View

Downstream View

POTESTA
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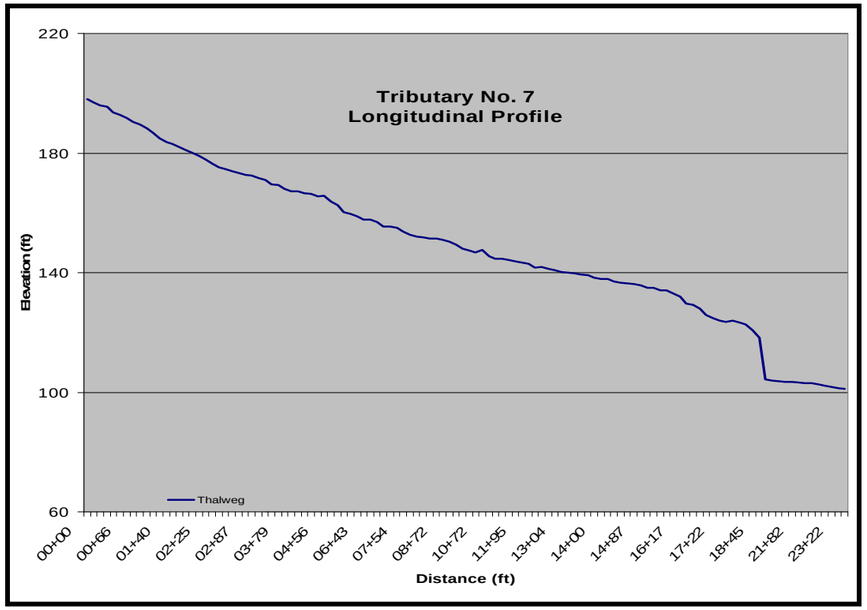
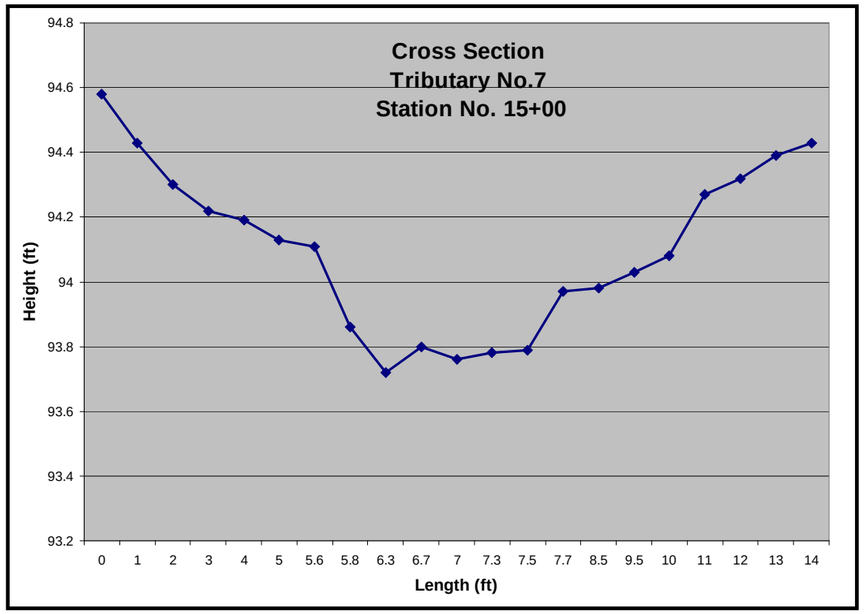
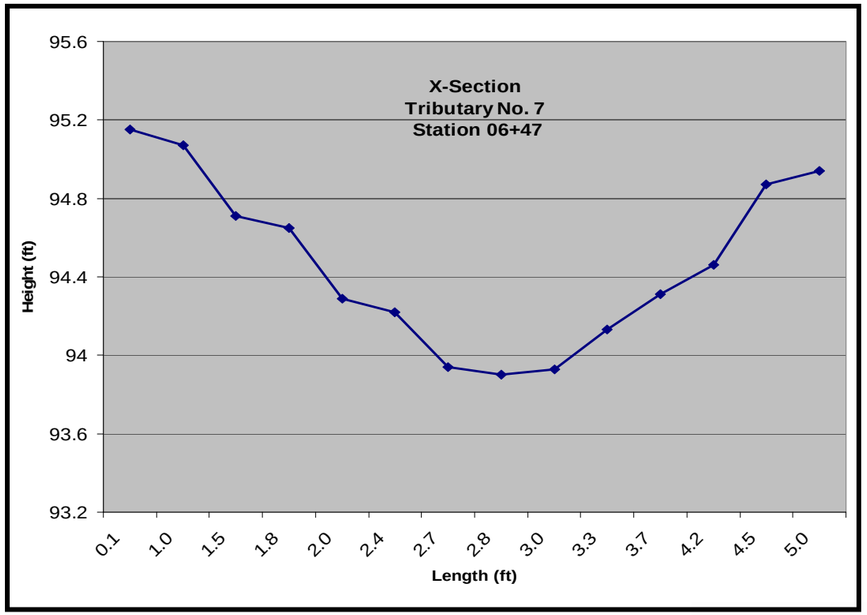
Tributary No. 7





X-Section	Measure	Value (ft)
06+47	W_{bkf}	2.5
	D_{bkf}	0.4
	A_{bkf}	1.1
15+00	W_{bkf}	2.0
	D_{bkf}	0.2
	A_{bkf}	0.4



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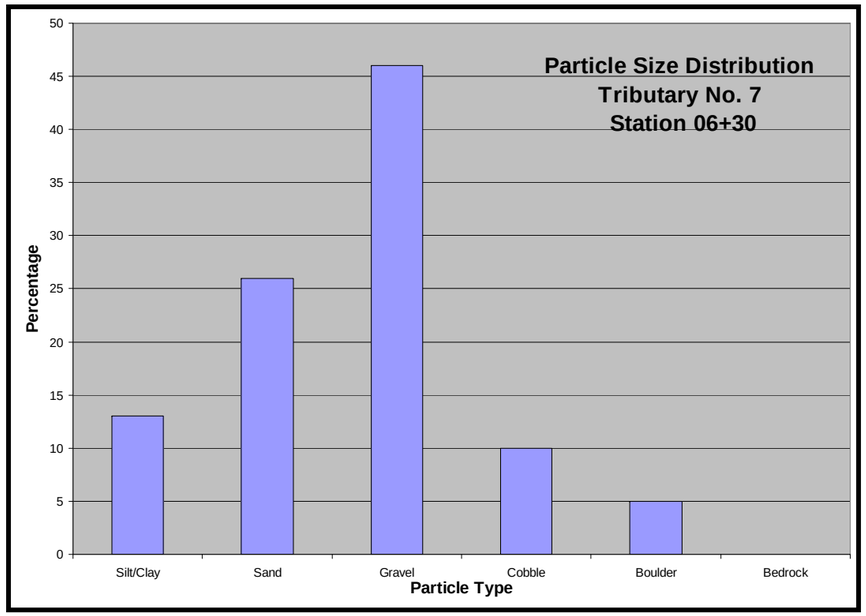
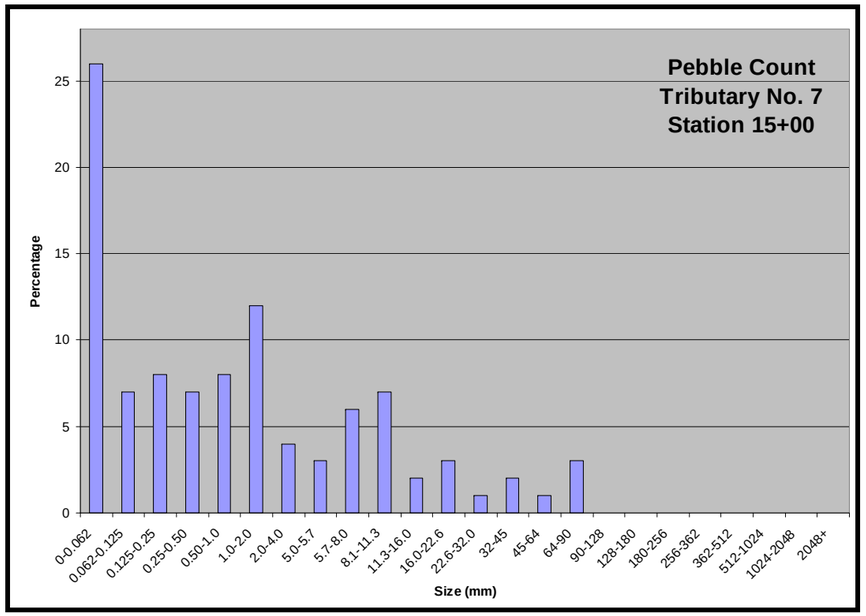
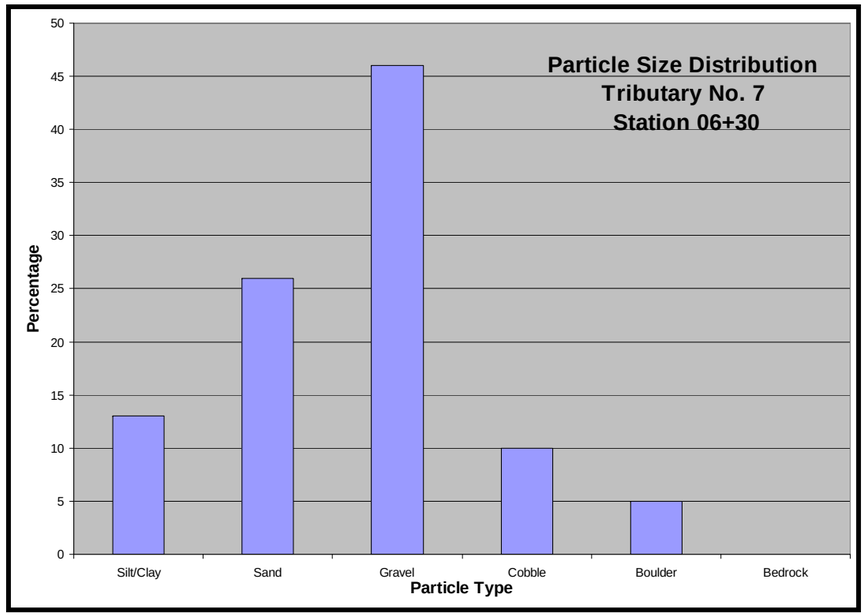
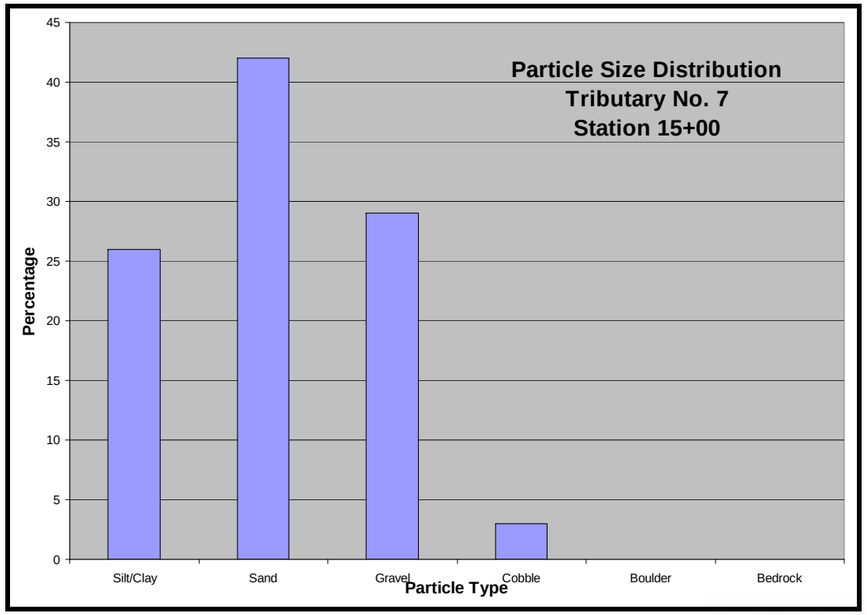
Tributary No. 7 - Particulate Information





Particle Sizes (mm)	Station 06+30	Station 15+00
D_{16}	0.09	0.04
D_{35}	0.94	0.16
D_{50}	6.47	0.63
D_{84}	57.67	9.41
D_{95}	180	38.5
D_{100}	362	90





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Tributary No. 7
Station 06+30

Upstream View

Downstream View

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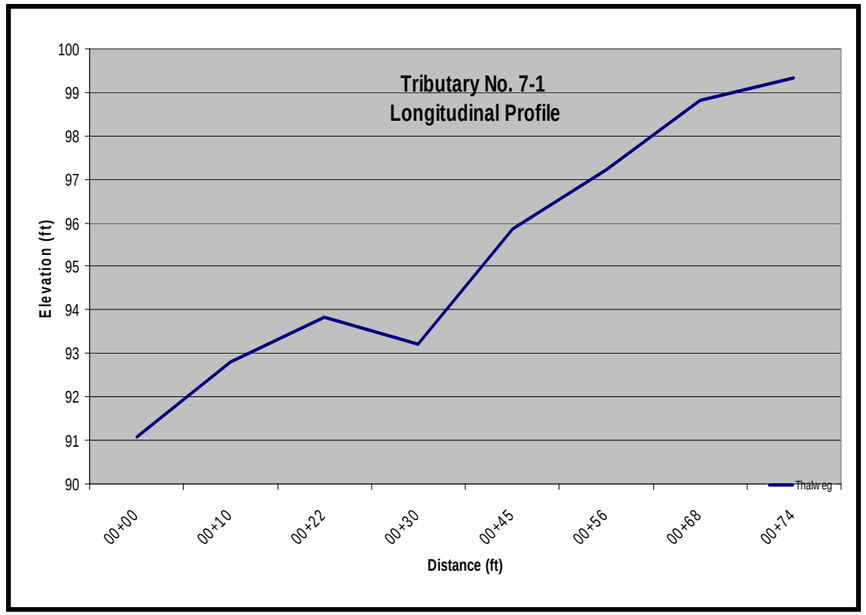
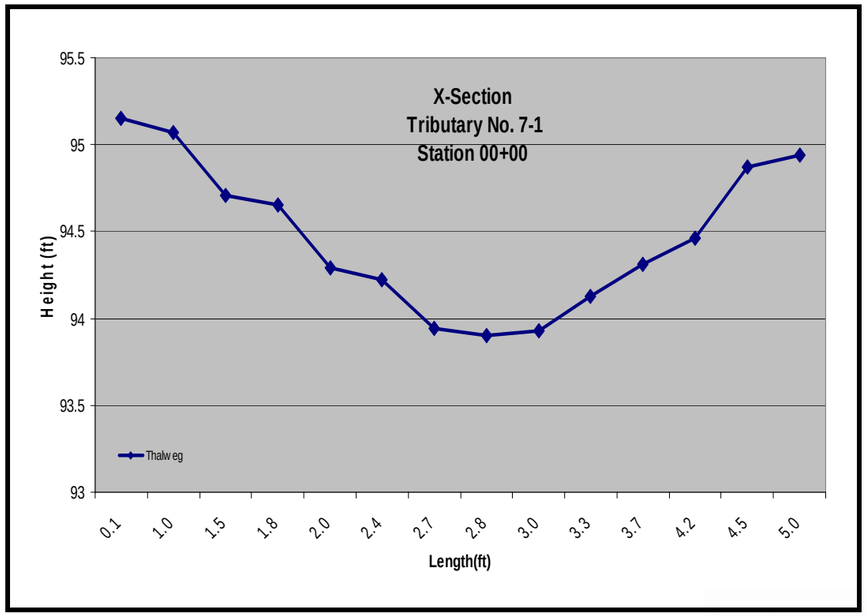
Tributary No. 7-1

X-Section	Measure	Value (ft)
00+00	W_{bkf}	3.4
	D_{bkf}	0.4
	A_{bkf}	1.3





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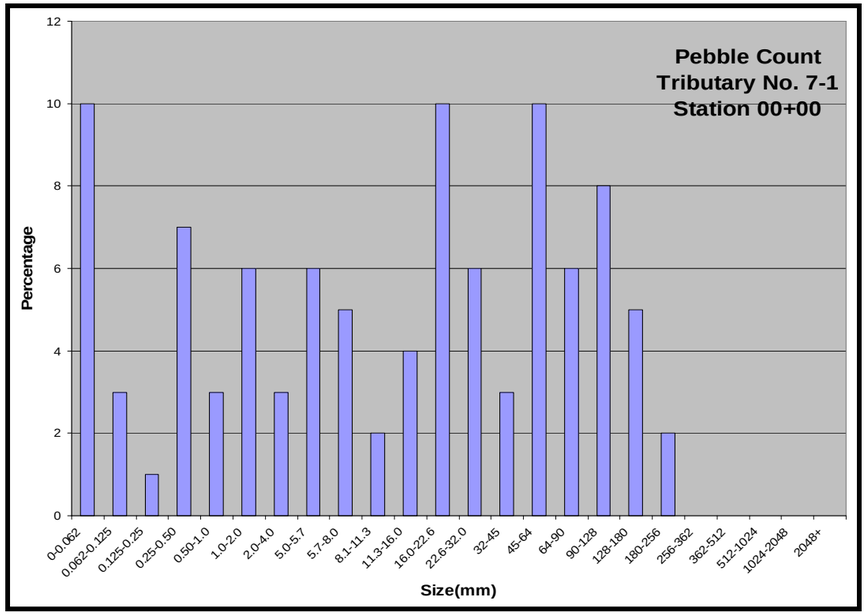
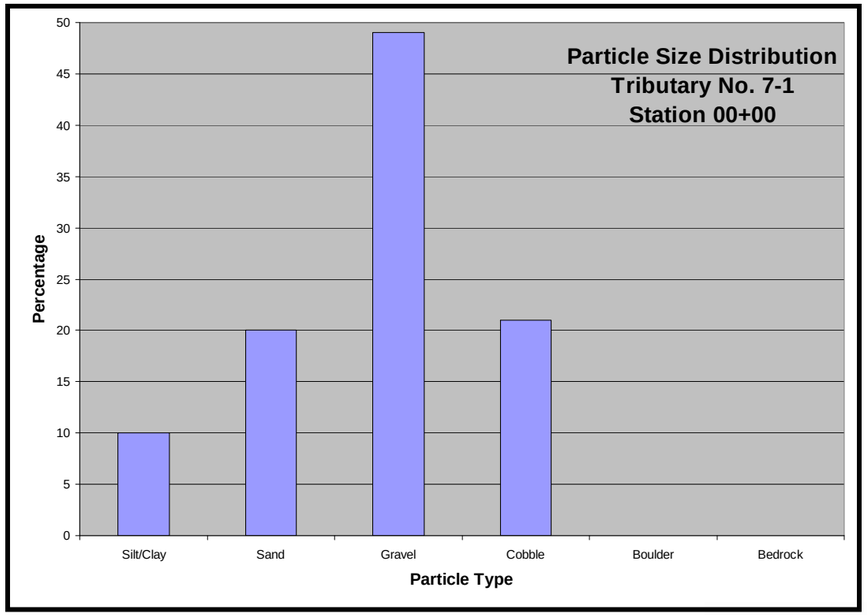
Tributary No. 7-1 - Particulate Information

Particle Sizes (mm)	Station 00+00
D_{16}	0.32
D_{35}	4.57
D_{50}	16
D_{84}	85.67
D_{95}	148.8
D_{100}	256





Tributary 7-1
Station 00+00

Upstream View

Downstream View

POTESTA
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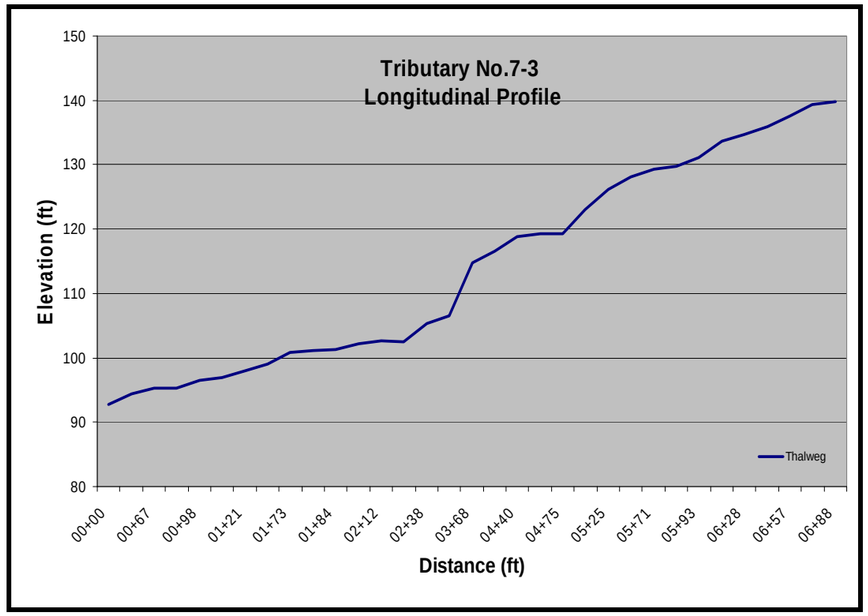
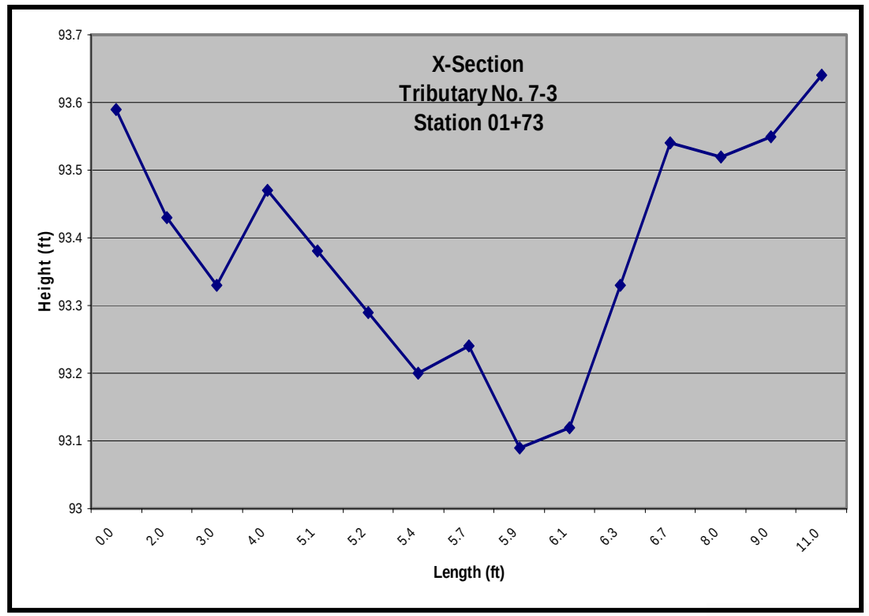
Tributary No. 7-3

X-Section	Measure	Value (ft)
01+73	W_{bkf}	2.2
	D_{bkf}	0.1
	A_{bkf}	0.2





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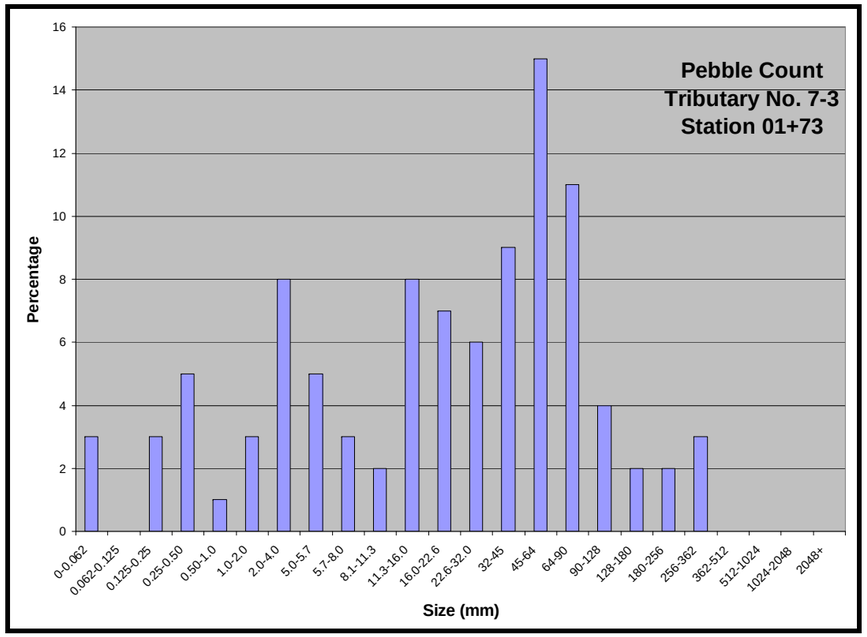
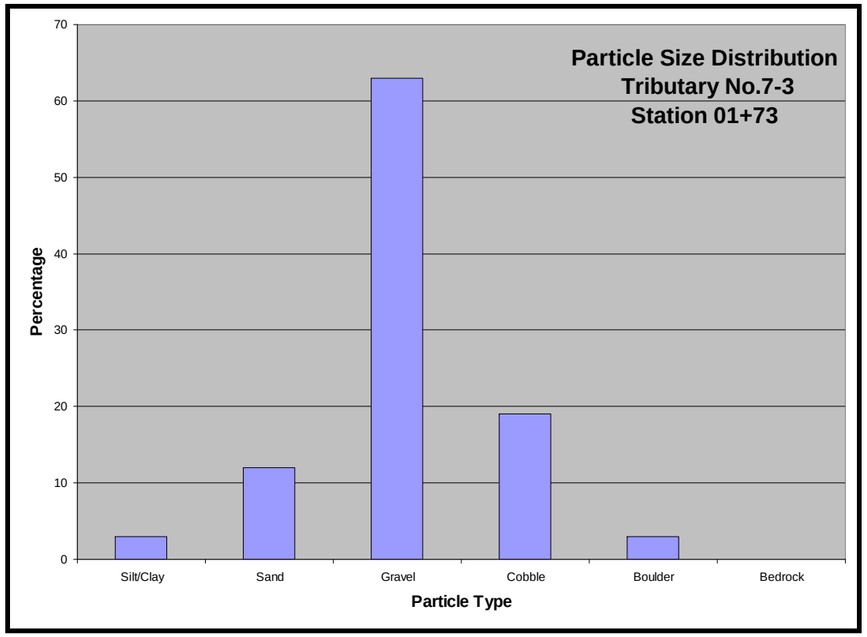
Tributary No. 7-3 - Particulate Information

Particle Sizes (mm)	Station 01+73
D_{16}	2.25
D_{35}	12.48
D_{50}	25.73
D_{84}	78.18
D_{95}	180
D_{100}	362





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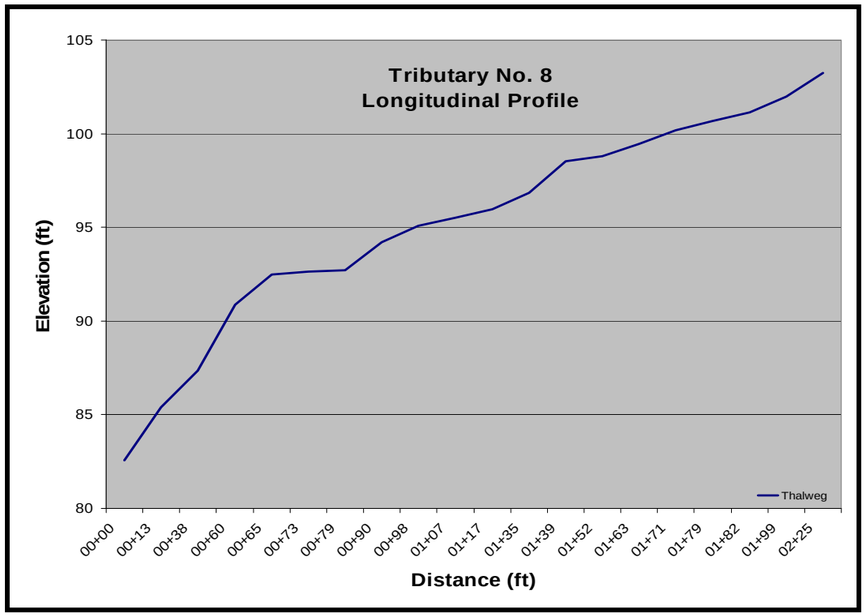
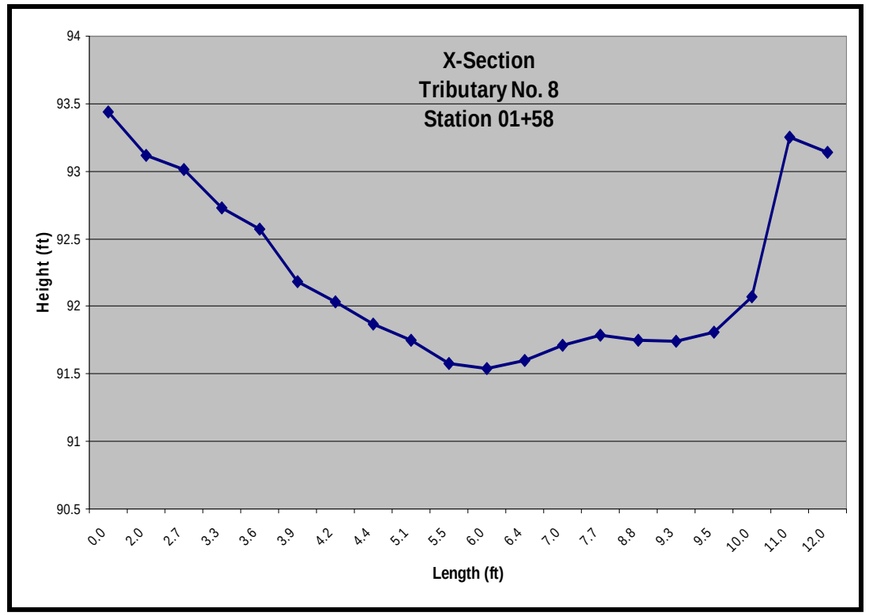
Tributary No. 8

X-Section	Measure	Value (ft)
01+58	W_{bkf}	5.7
	D_{bkf}	0.3
	A_{bkf}	1.7





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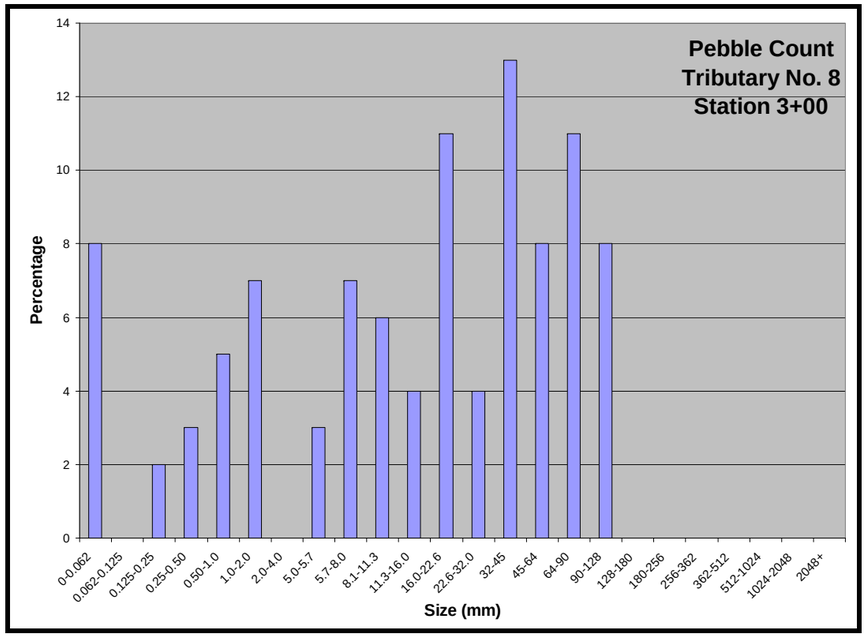
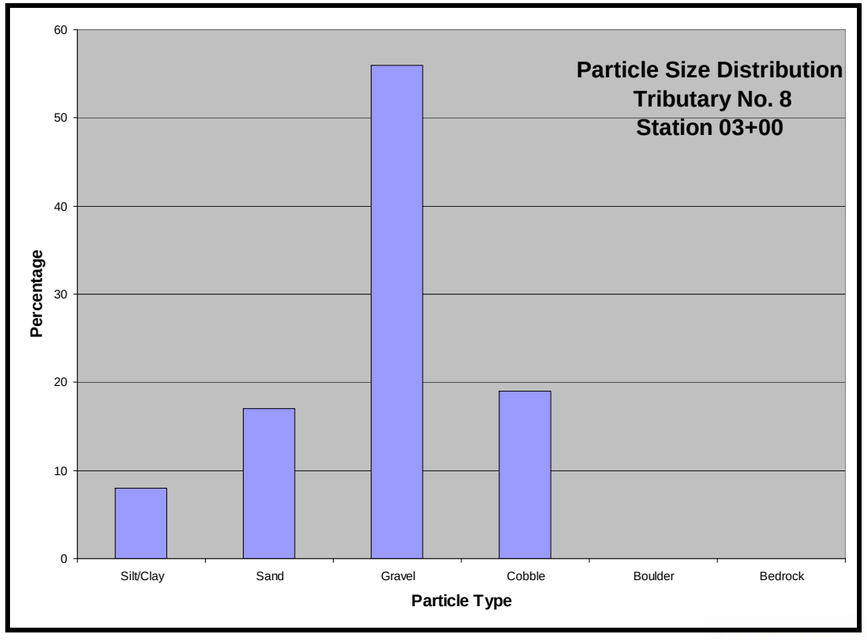
Tributary No. 8 - Particulate Information

Particle Sizes (mm)	Station 03+00
D_{16}	0.8
D_{35}	8
D_{50}	19
D_{84}	71.1
D_{95}	104
D_{100}	128





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Tributary No. 8
Station 03+00

Upstream View

Downstream View

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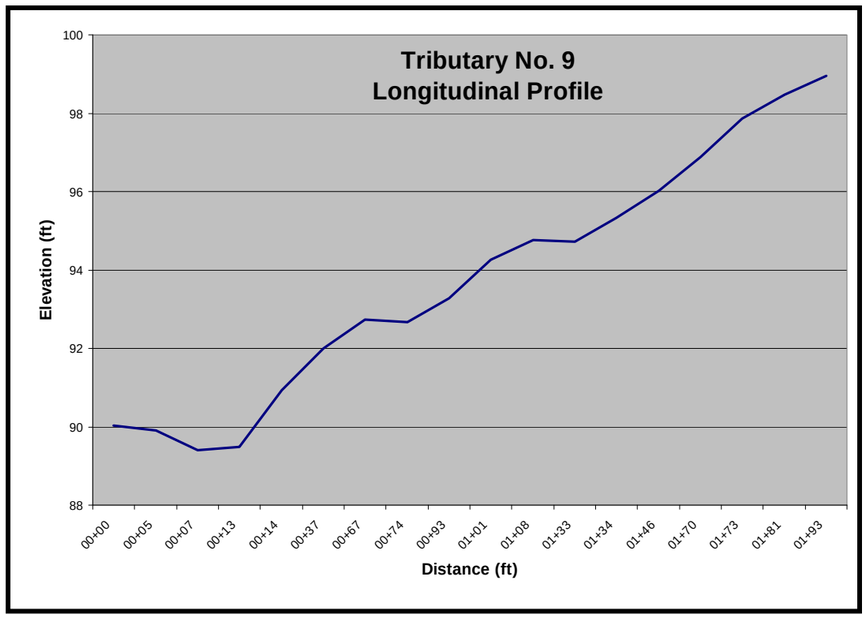
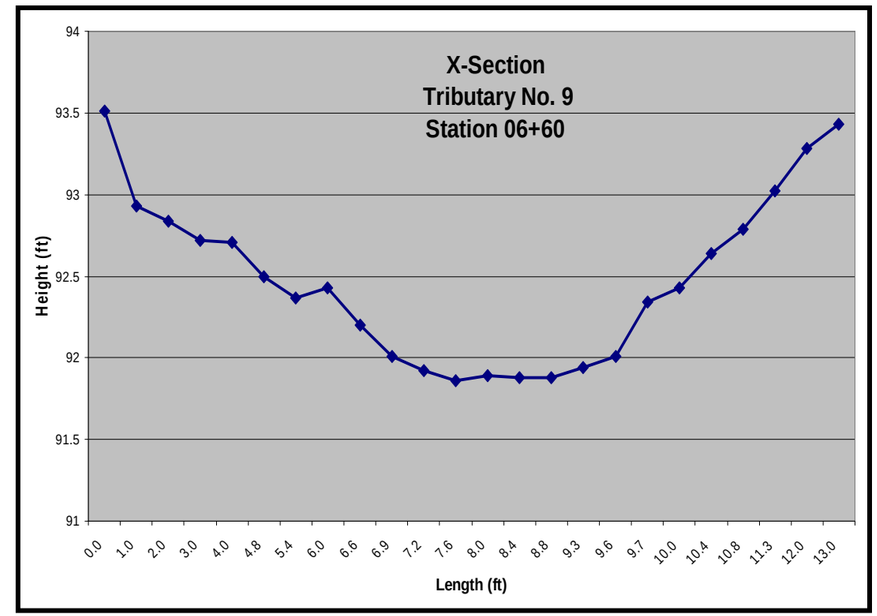
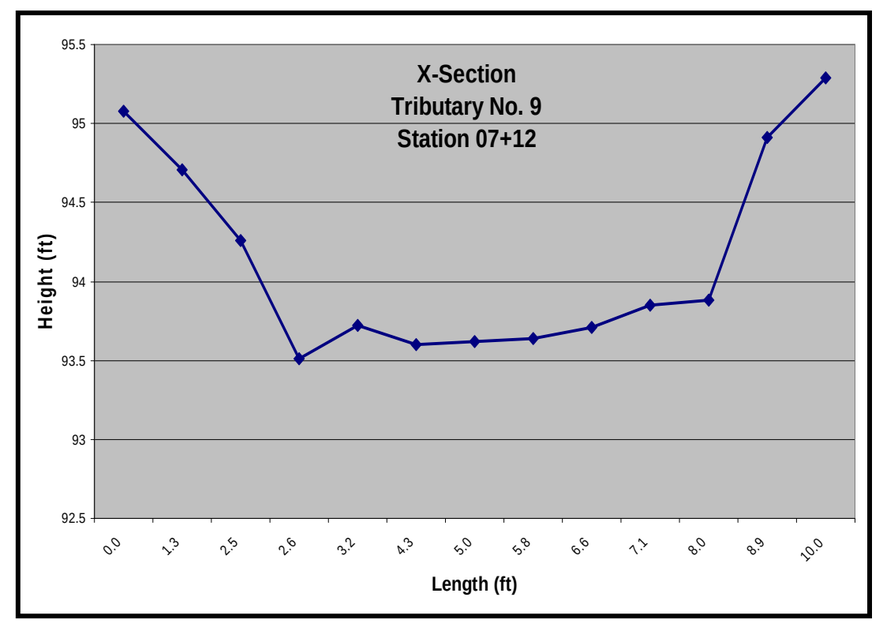
Tributary No. 9





X-Section	Measure	Value (ft)
6+60	W_{bkf}	3.5
	D_{bkf}	0.4
	A_{bkf}	1.3
7+12	W_{bkf}	4.5
	D_{bkf}	0.2
	A_{bkf}	0.9



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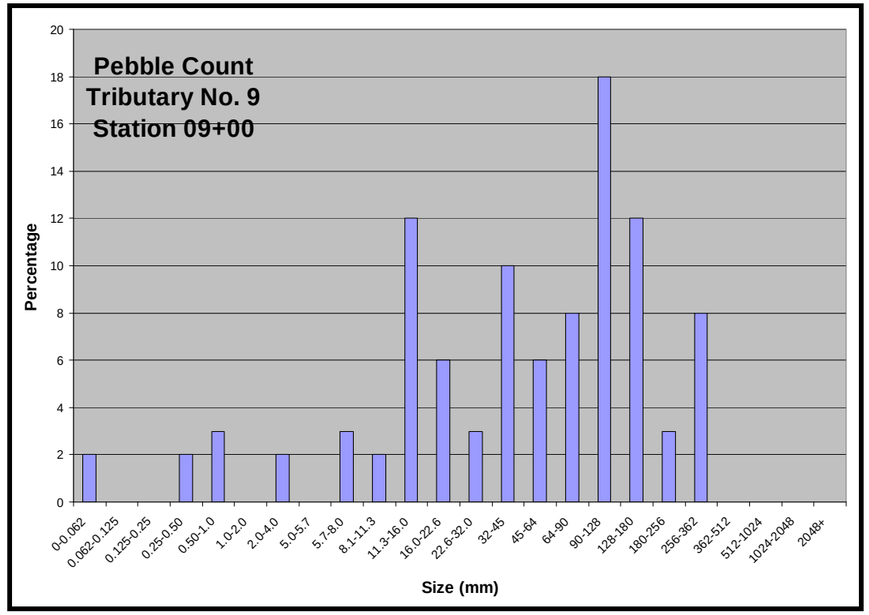
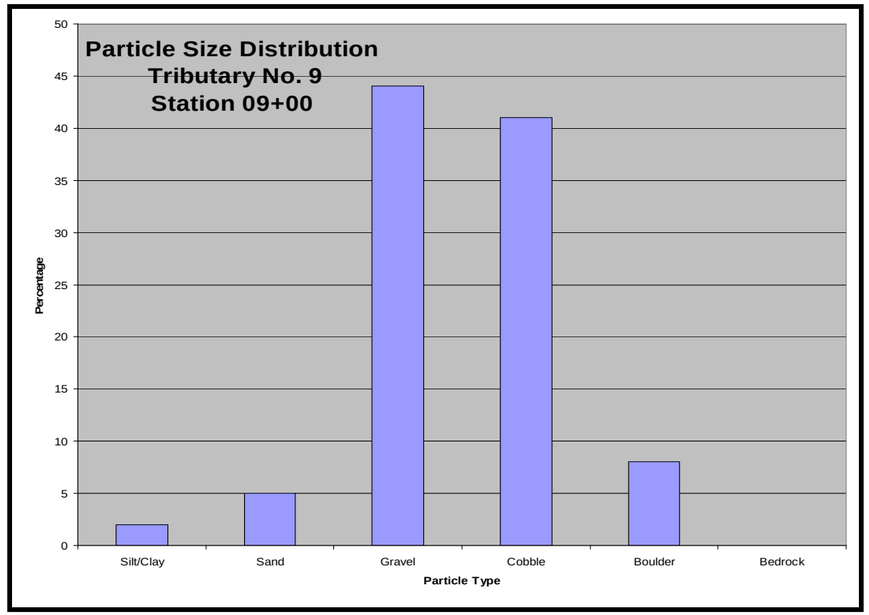
Tributary No. 9 - Particulate Information

Particle Sizes (mm)	Station 09+00
D_{16}	12.1
D_{35}	32
D_{50}	60.8
D_{84}	158
D_{95}	296
D_{100}	362





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Tributary No. 9
Station 09+00

Upstream View

Downstream View

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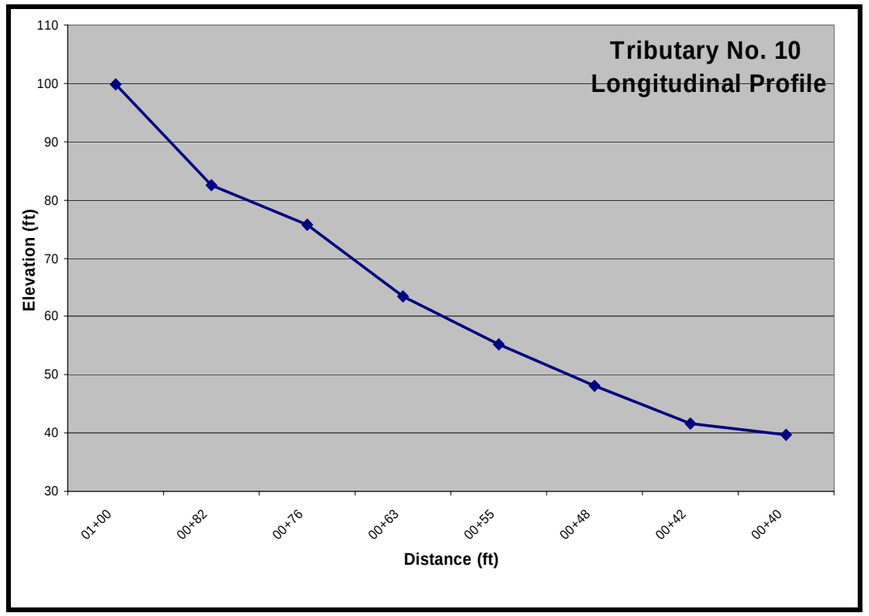
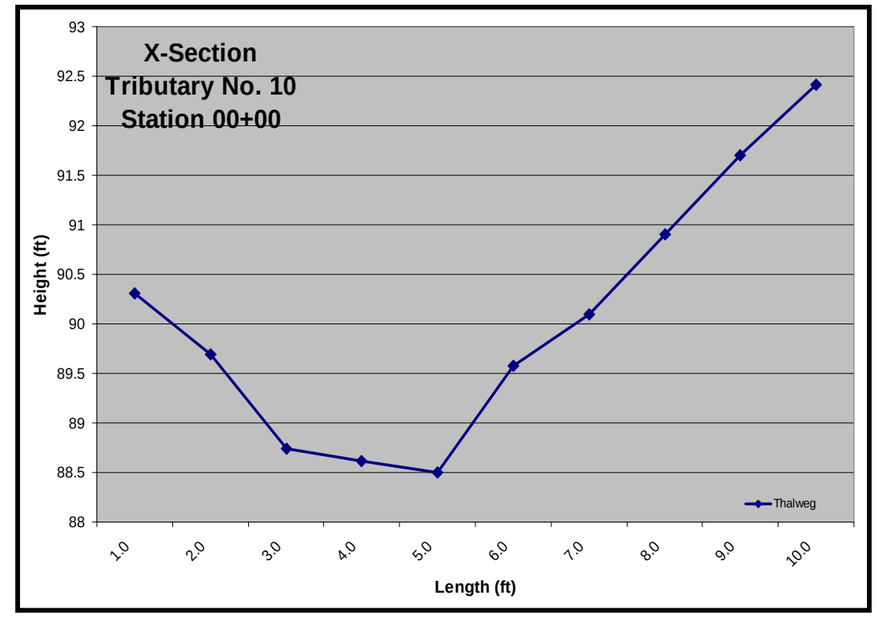
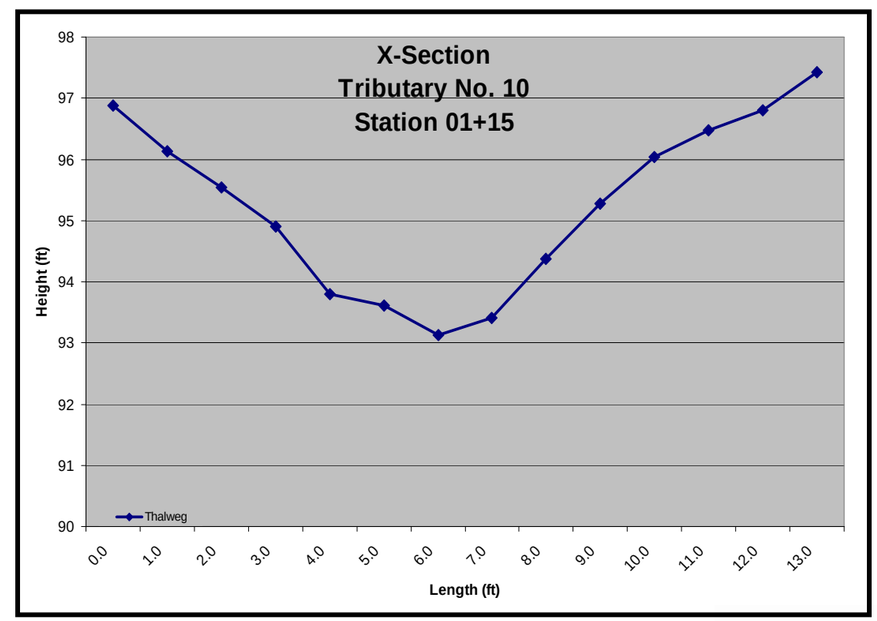
Tributary No. 10





X-Section	Measure	Value (ft)
0+00	W_{bkf}	3.9
	D_{bkf}	0.7
	A_{bkf}	2.8
1+15	W_{bkf}	3.4
	D_{bkf}	0.3
	A_{bkf}	1.1



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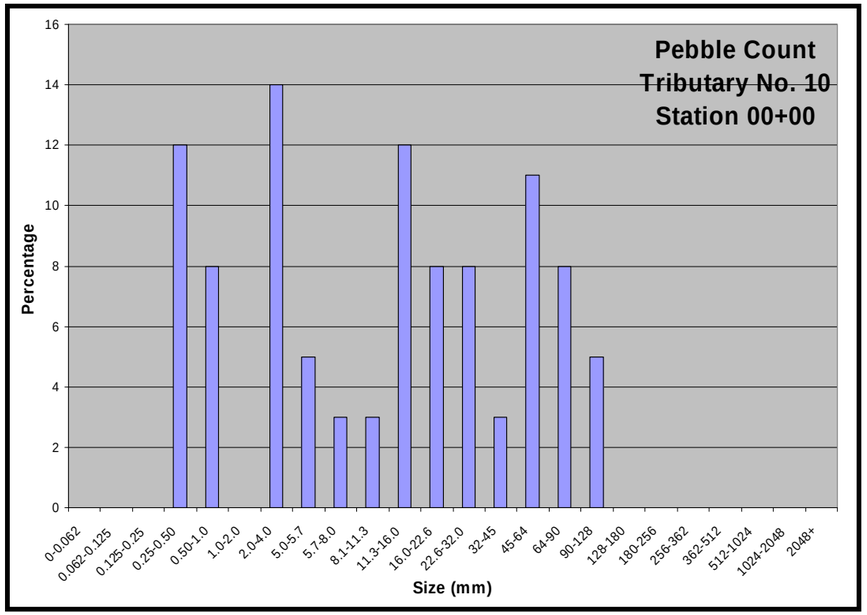
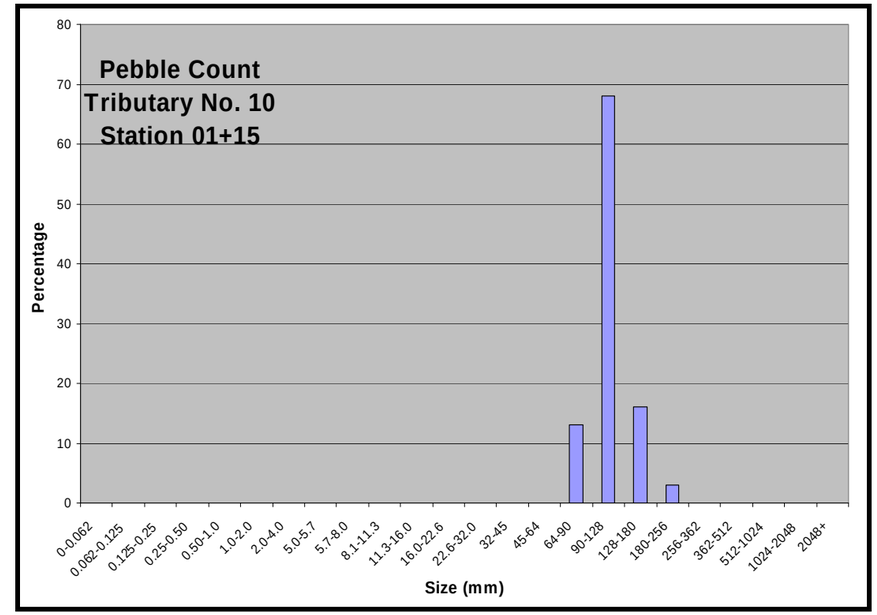
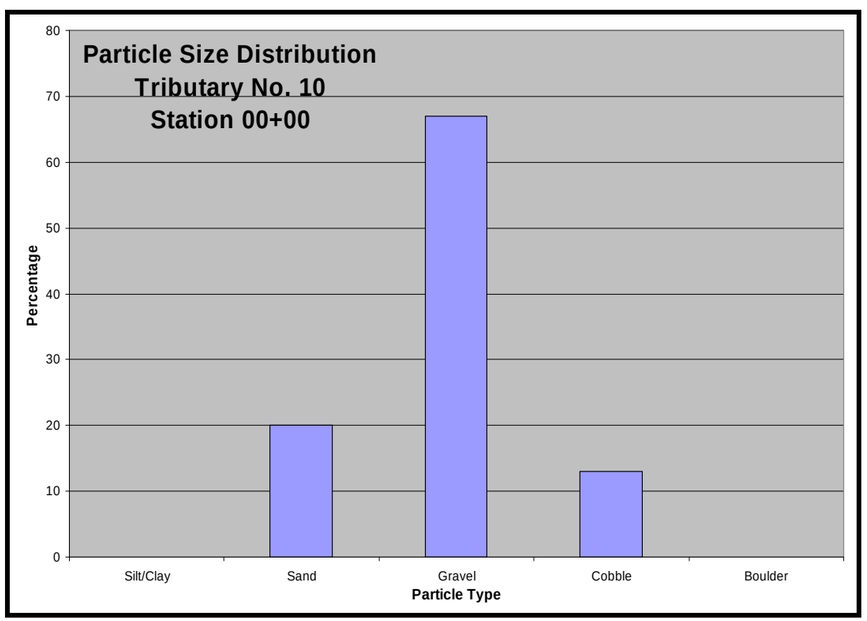
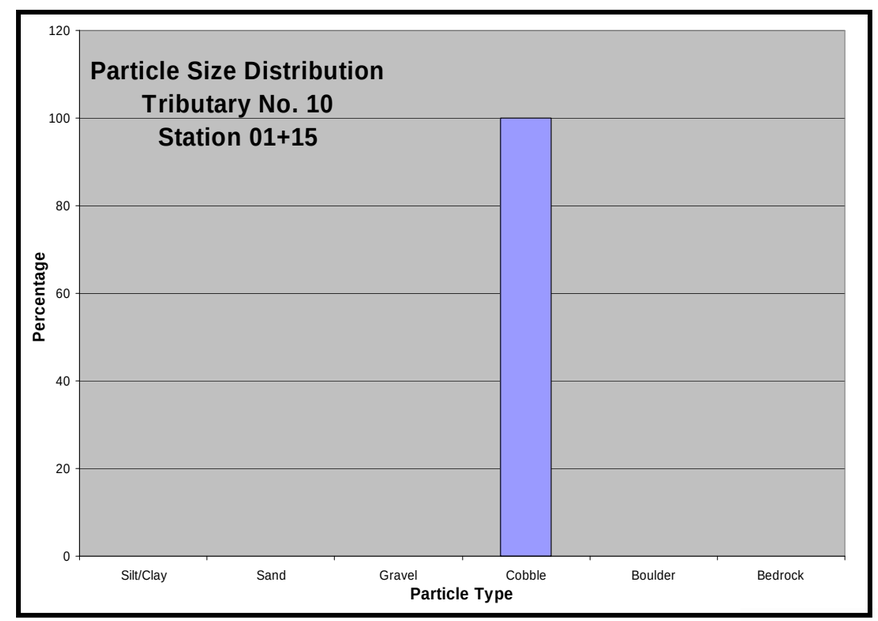
Tributary No. 10 - Particulate Information



Particle Sizes (mm)	Station 00+00
D_{16}	0.75
D_{35}	4.34
D_{50}	13.26
D_{84}	58.82
D_{95}	90
D_{100}	128







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Tributary No. 10
Station 00+00

Upstream View

Downstream View

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Tributary No. 10
Station 06+99

Upstream View

Downstream View

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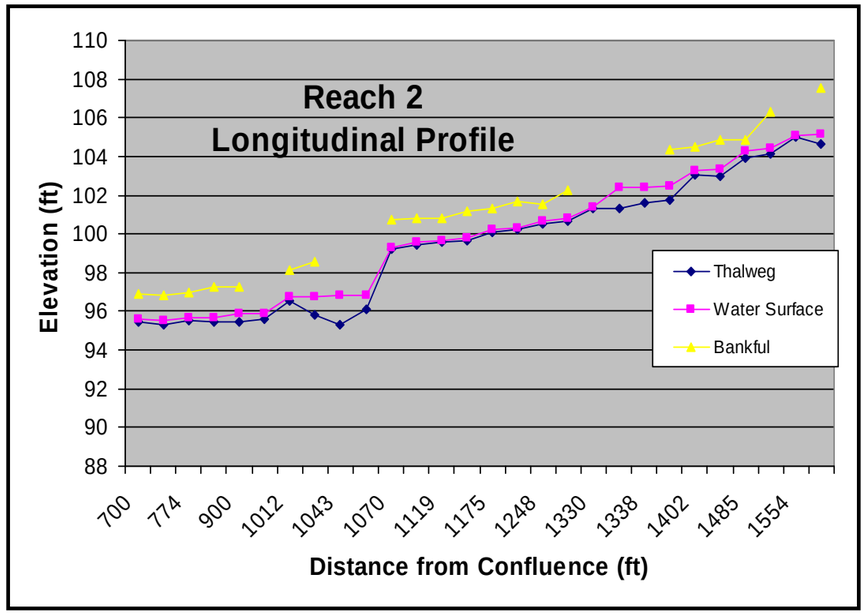
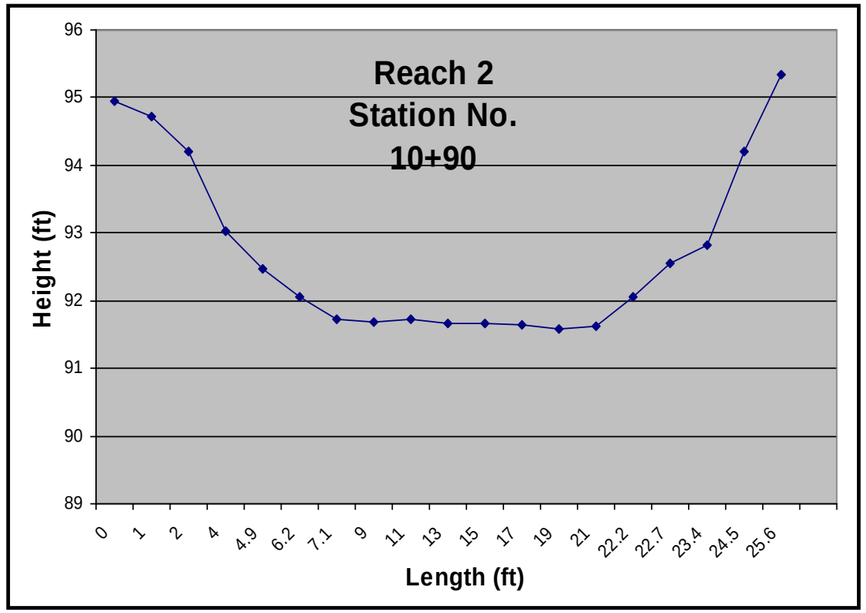
Reaches

Reach No. 2

X-Section	Measure	Value (ft)
Run 10+90	W_{bkf}	18
	D_{bkf}	.8
	A_{bkf}	14.5
Riffle 10+00	W_{bkf}	20.5
	D_{bkf}	1.5
	A_{bkf}	29.9
Pool 10+40	W_{bkf}	18.3
	D_{bkf}	1.9
	A_{bkf}	35.3





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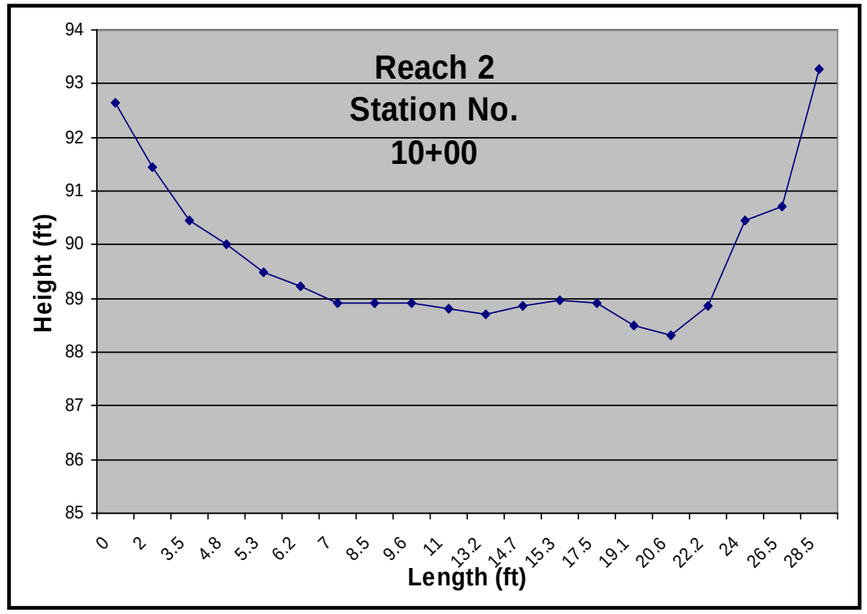
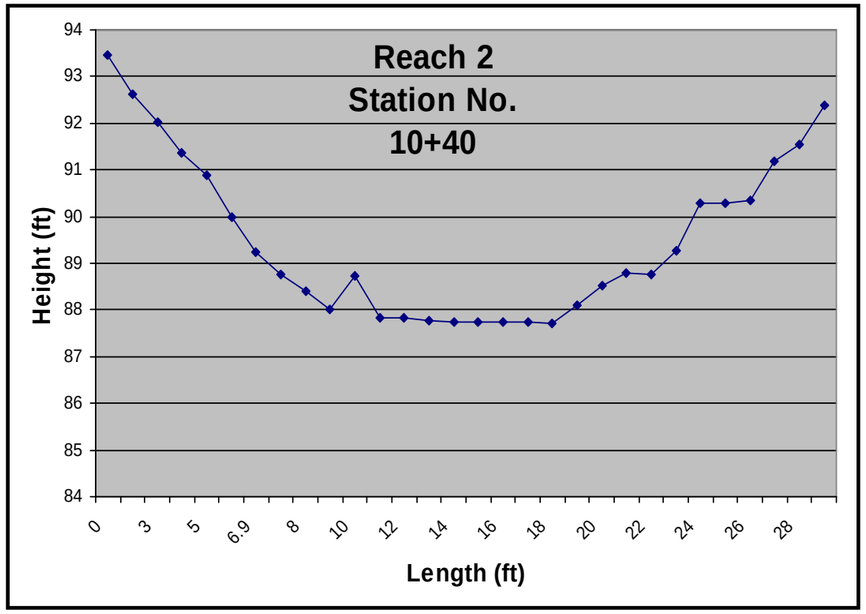
Reach No. 2





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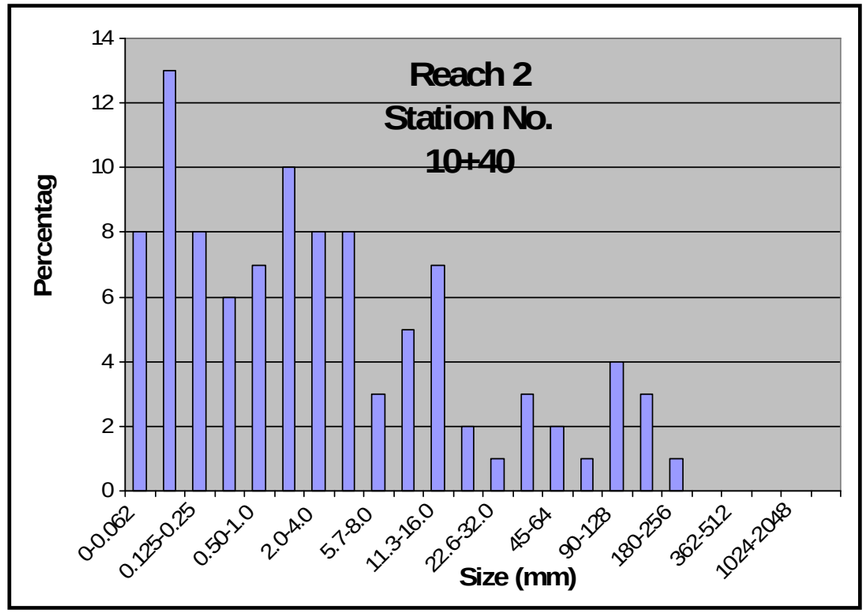
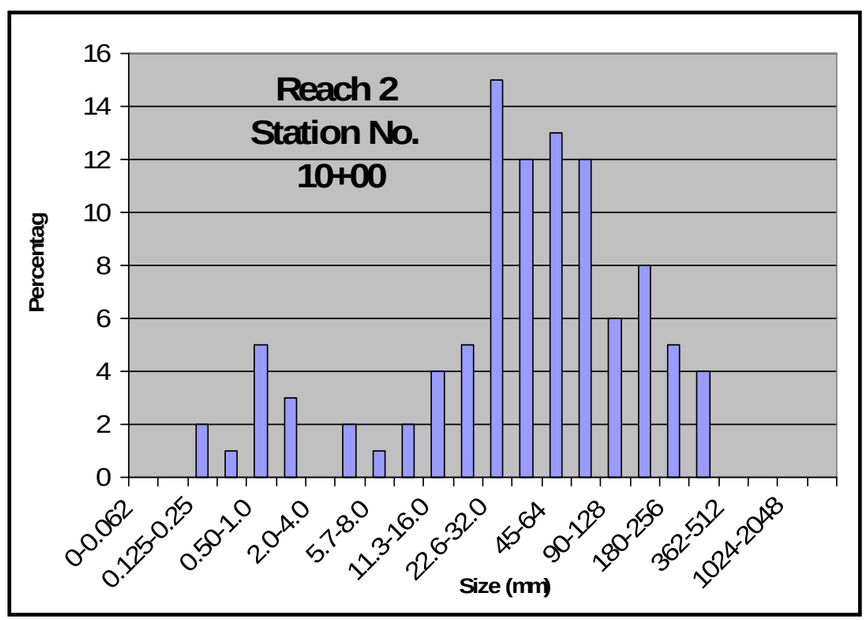
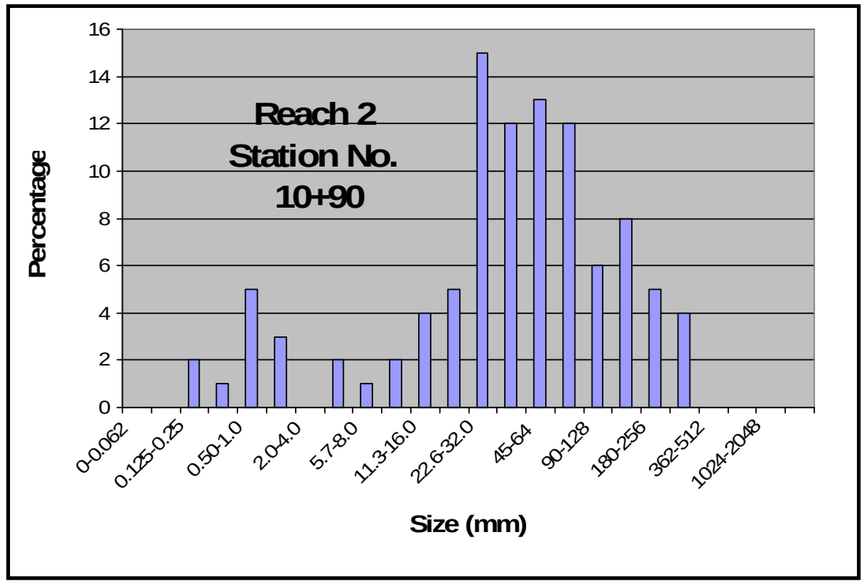
Reach No. 2
Particulate Information







Particle Sizes (mm)	Station No. 10+40	Station No. 10+90
D_{16}	0.1	11.3
D_{35}	0.5	28.87
D_{50}	1.8	42.83
D_{84}	19.3	134.5
D_{95}	118.5	240.8
D_{100}	255.99	362

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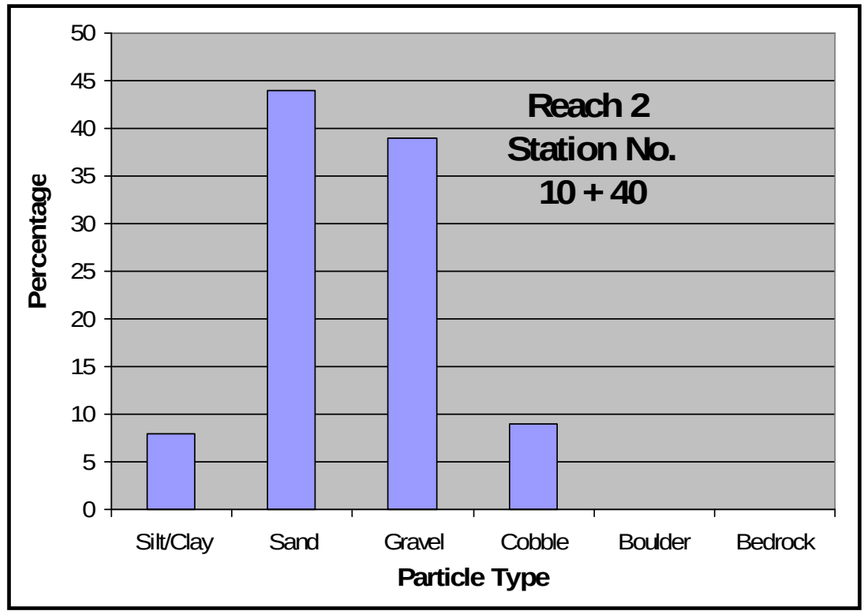
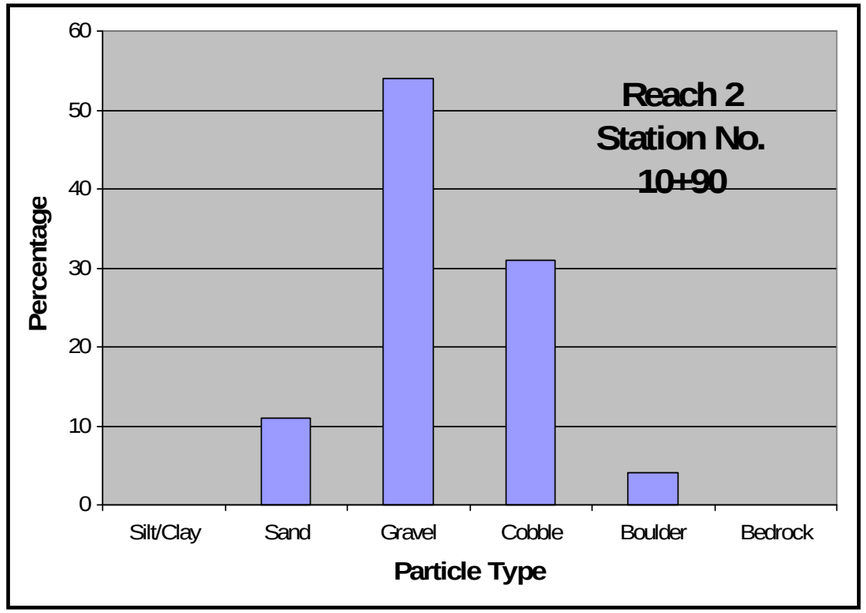
Reach 2 - Particulate Information





Reach 2

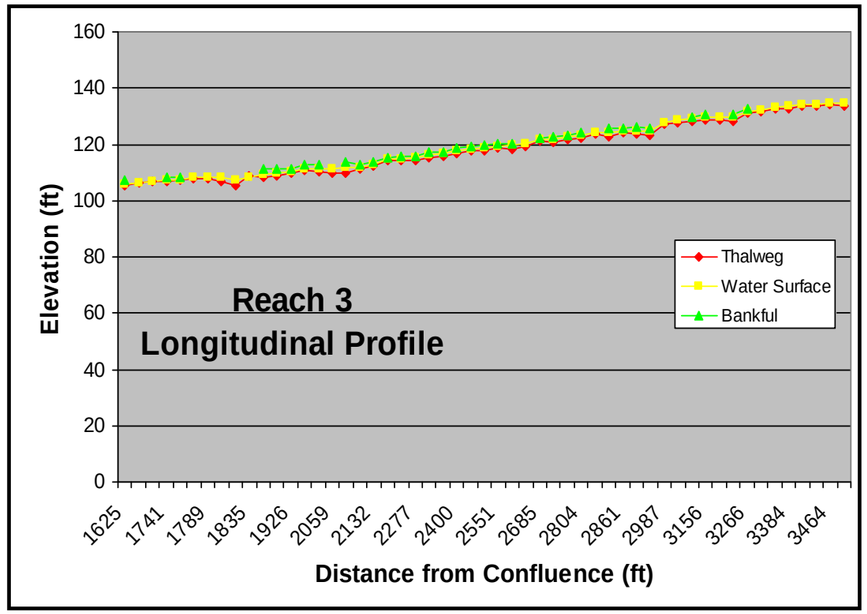
Station No. 10+40

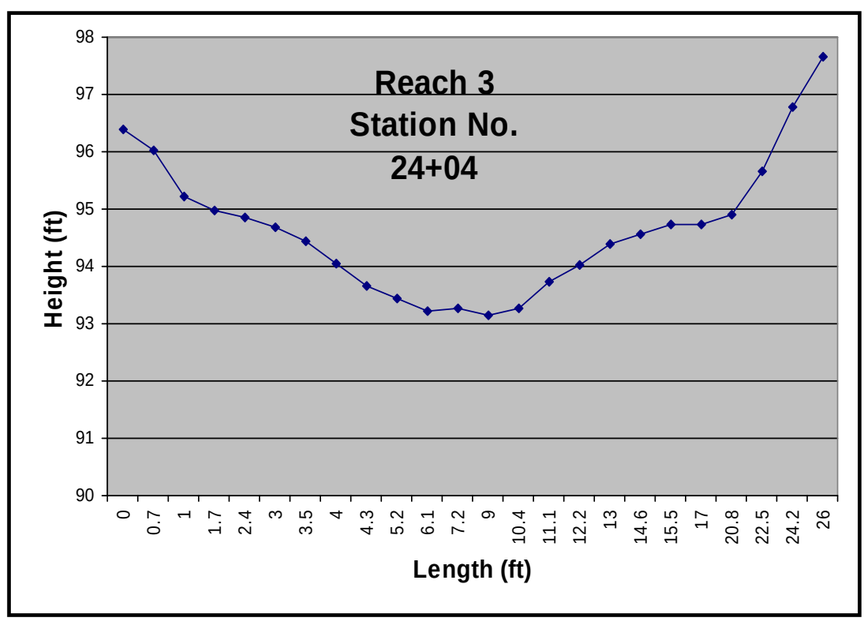
Station No. 10+00

Reach 2

Station No. 10+90

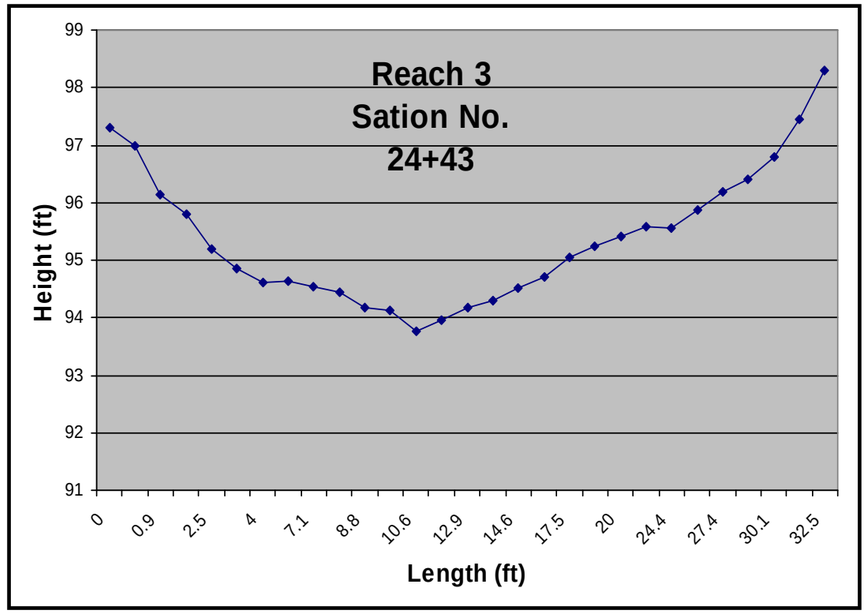
Reach No. 3

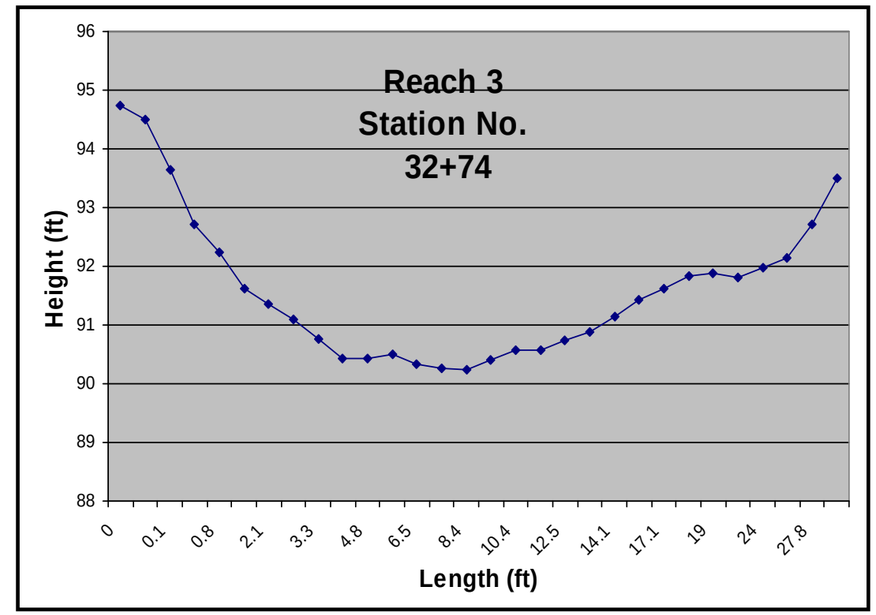


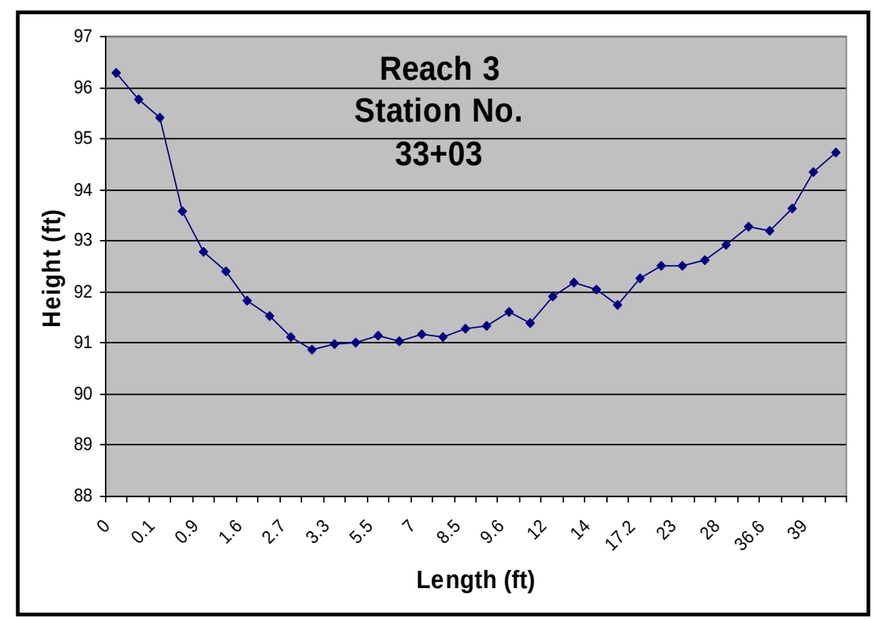


X-Section	Measure	Value (ft)
Run 24+04	W_{bkf}	12.7
	D_{bkf}	1
	A_{bkf}	12.3
Riffle 24+43	W_{bkf}	22.7
	D_{bkf}	.8
	A_{bkf}	18.4
Run 32+74	W_{bkf}	17.4
	D_{bkf}	1
	A_{bkf}	16.7
Riflle 33+03	W_{bkf}	22.2
	D_{bkf}	.7
	A_{bkf}	16.2

Reach No. 3







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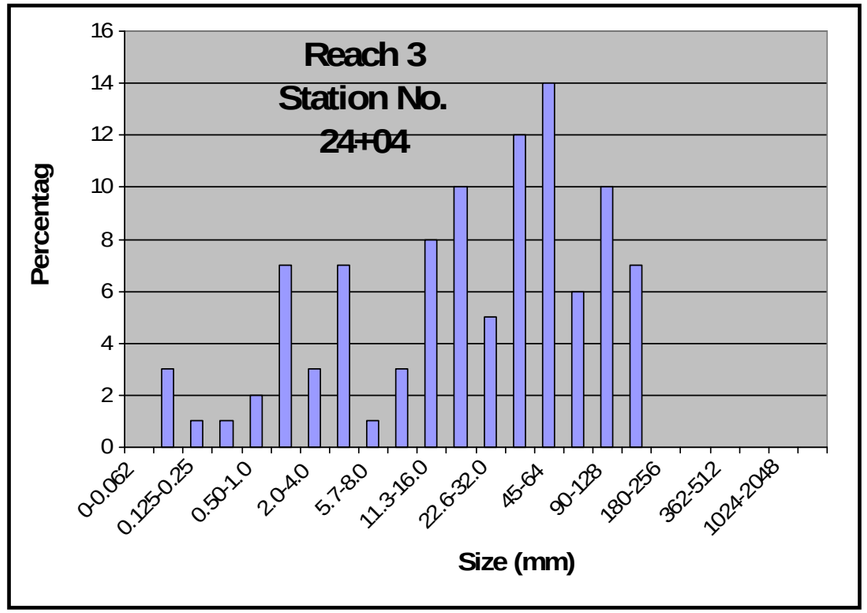
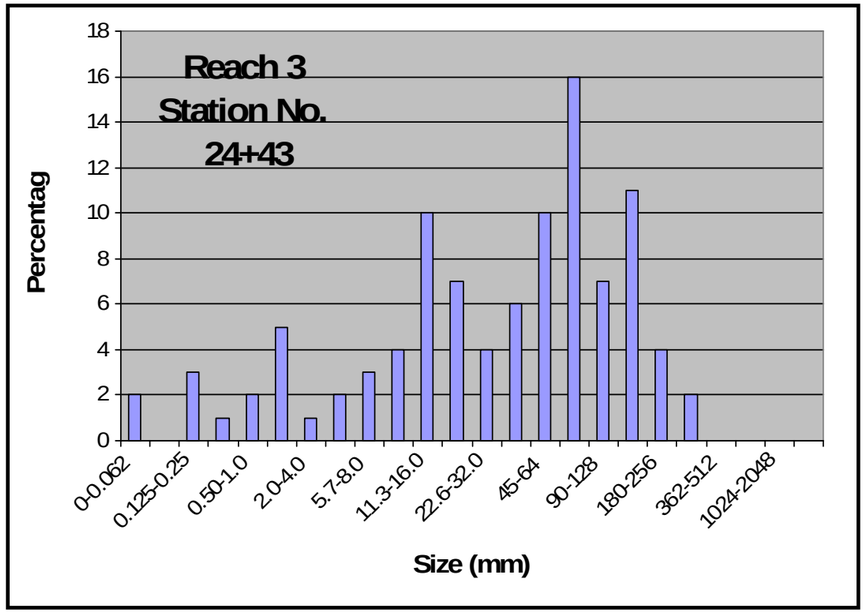
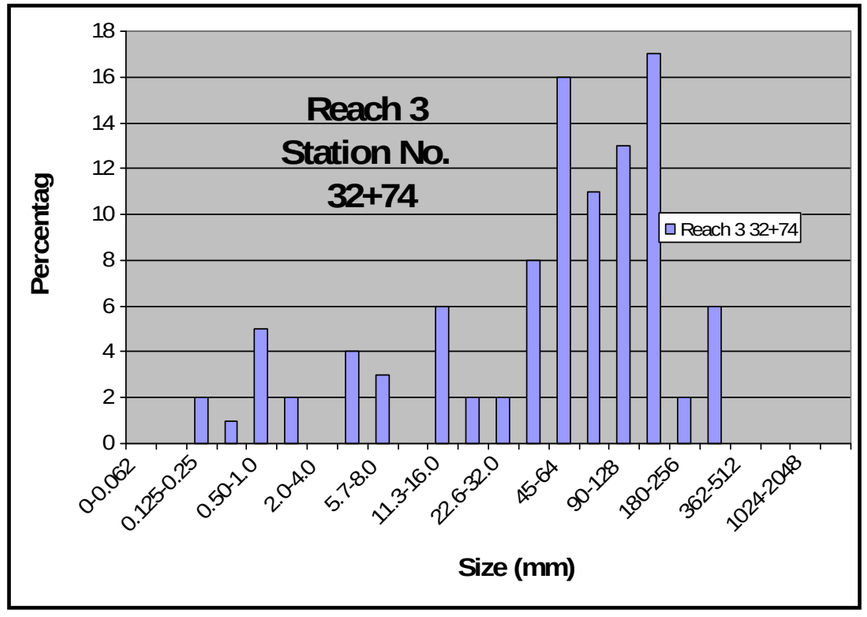
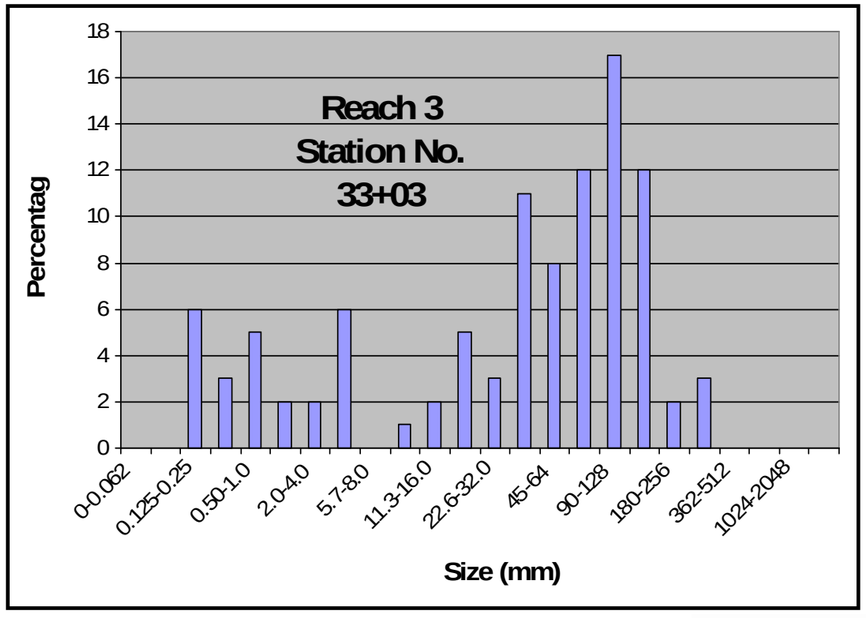
Reach 3 - Particulate Information









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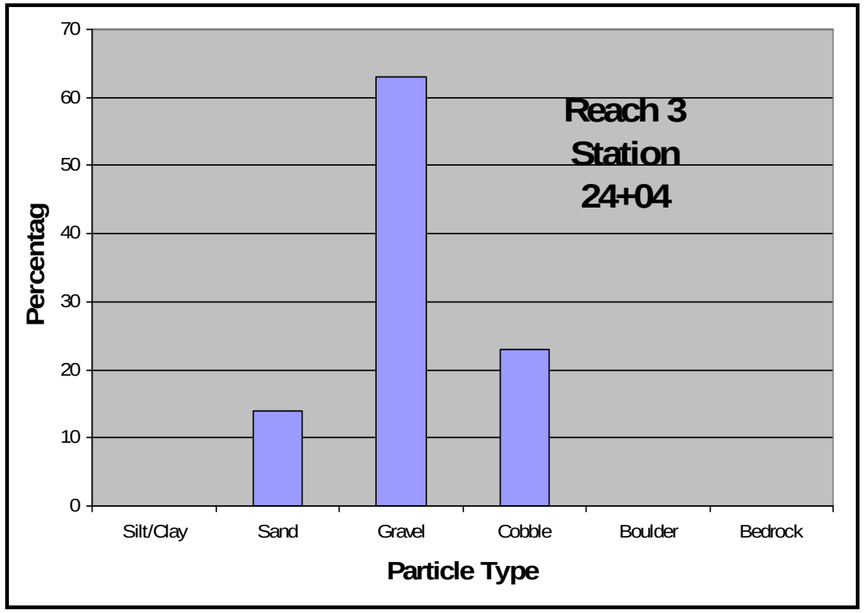
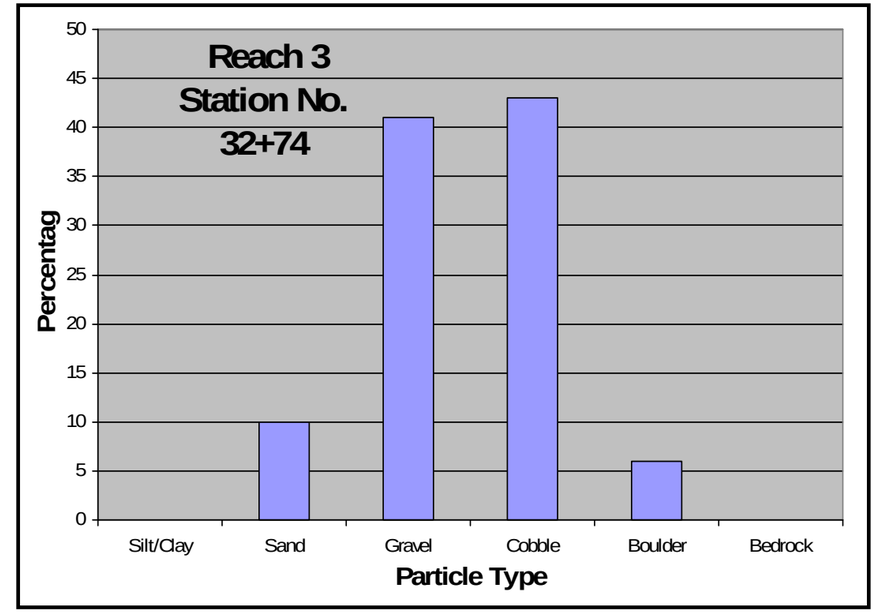
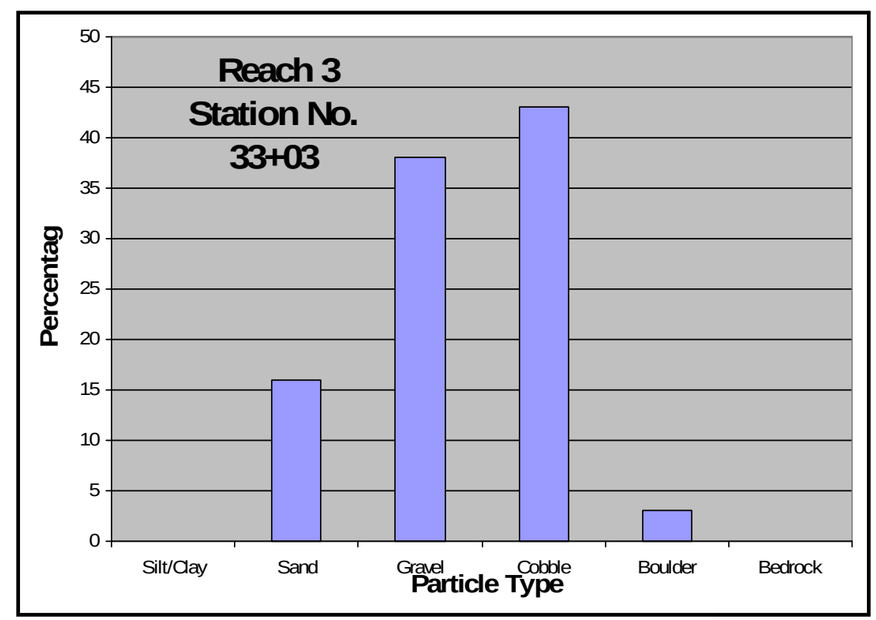
Reach 3 - Particulate Information





Particle Sizes (mm)	Run 24+04	Run 32+74	Riffle 33+03
D_{16}	3.33	7.23	2
D_{35}	15.41	45	32
D_{50}	30.12	62.81	54.5
D_{84}	93.8	155.53	132.33
D_{95}	142.86	273.67	180
D_{100}	180	362	362



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Reach 3

Station No. 24+43

Station No. 24+04

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Reach No. 3

Station No. 32+74

Station No. 33+03

Restoration Reach 2

Photo No. 1: Restoration Reach 2 – Station 7+25 – Upstream View

Photo No. 2: Restoration Reach 2 – Station 7+25 – Downstream View

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7012 MacCorkle Avenue, SE
Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

Patriot Mining Company, Inc.
Cassville, West Virginia
Stream Mitigation- Restoration Reach 2
Project No. 0101-09-0081-003

Photo No. 3: Restoration Reach 2 – Station 9+00 – Upstream View

Photo No. 4: Restoration Reach 2 – Station 9+00 – Downstream View

Photo No. 5: Restoration Reach 2 – Station 10+00 – Upstream View

Photo No. 6: Restoration Reach 2 – Station 10+00 – Downstream View

Photo No. 7: Restoration Reach 2 – Station 10+30 – Downstream View

Photo No. 8: Restoration Reach 2 – Station 11+00 – Upstream View

Photo No. 9: Restoration Reach 2 – Station 11+00 – Downstream View

Photo No. 10: Restoration Reach 2 – Station 12+00 – Upstream View

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Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

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Photo No. 11: Restoration Reach 2 – Station 12+00 – Downstream View

Photo No. 12: Restoration Reach 2 – Station 13+50 – Upstream View

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Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

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Photo No. 13: Restoration Reach 2 – Station 13+50 – Downstream View

Photo No. 14: Restoration Reach 2 – Station 13+50 – Log Jam

Photo No. 15: Restoration Reach 2 – Station 14+00 – Upstream View

Photo No. 16: Restoration Reach 2 – Station 14+00– Downstream View

Photo No. 17: Restoration Reach 2 – Station 16+00 – Upstream View

Photo No. 18: Restoration Reach 2 – Station 16+00– Downstream View

Restoration Reach 3

Photo No. 1: Restoration Reach 3 – Station 18+00 – Downstream View

Photo No. 2: Restoration Reach 3 – Station 18+00– Upstream View

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Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

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Cassville, West Virginia
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Project No. 0101-09-0081-003

Photo No. 3: Restoration Reach 3 – Station 18+20 – Downstream View

Photo No. 4: Restoration Reach 3 – Station 18+50– Upstream View

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Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

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Project No. 0101-09-0081-003

Photo No. 5: Restoration Reach 3 – Station 19+50 – Upstream View

Photo No. 6: Restoration Reach 3 – Station 19+50– Downstream View

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Charleston, West Virginia 25304
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Fax: (304) 343-9031

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Stream Mitigation- Restoration Reach 3
Project No. 0101-09-0081-003

Photo No. 7: Restoration Reach 3 – Station 20+80 – Upstream View

Photo No. 8: Restoration Reach 3 – Station 20+80– Downstream View

Photo No. 9: Restoration Reach 3 – Station 20+80 – LDB

Photo No. 10: Restoration Reach 3 – Station 21+20– Upstream View

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Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

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Stream Mitigation- Restoration Reach 3
Project No. 0101-09-0081-003

Photo No. 11: Restoration Reach 3 – Station 21+20 – Downstream View

Photo No. 12: Restoration Reach 3 – Station 22+30– Upstream View

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Phone: (304) 342-1400
Fax: (304) 343-9031

Patriot Mining Company, Inc.
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Stream Mitigation- Restoration Reach 3
Project No. 0101-09-0081-003

Photo No. 13: Restoration Reach 3 – Station 22+30 – Downstream View

Photo No. 14: Restoration Reach 3 – Station 23+50– Upstream View

Photo No. 15: Restoration Reach 3 – Station 23+50 – Downstream View

Photo No. 16: Restoration Reach 3 – Station 24+00– Upstream View

Photo No. 17: Restoration Reach 3 – Station 24+00 – Downstream View

Photo No. 18: Restoration Reach 3 – Station 25+00– Upstream View

Photo No. 19: Restoration Reach 3 – Station 25+00 – Downstream View

Photo No. 20: Restoration Reach 3 – Station 26+00– Upstream View

Photo No. 21: Restoration Reach 3 – Station 26+00 – Downstream View

Photo No. 22: Restoration Reach 3 – Station 26+50– Upstream View

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Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

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Cassville, West Virginia
Stream Mitigation- Restoration Reach 3
Project No. 0101-09-0081-003

Photo No. 23: Restoration Reach 3 – Station 26+50 – Downstream View

Photo No. 24: Restoration Reach 3 – Station 27+00– Upstream View

Photo No. 25: Restoration Reach 3 – Station 28+00 – Upstream View

Photo No. 26: Restoration Reach 3 – Station 28+00– Downstream View

Photo No. 27: Restoration Reach 3 – Station 29+00 – Upstream View

Photo No. 28: Restoration Reach 3 – Station 29+00– Downstream View

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Charleston, West Virginia 25304
Phone: (304) 342-1400
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Patriot Mining Company, Inc.
Cassville, West Virginia
Stream Mitigation- Restoration Reach 3
Project No. 0101-09-0081-003

Photo No. 29: Restoration Reach 3 – Station 30+00 – Upstream View

Photo No. 30: Restoration Reach 3 – Station 30+00– Downstream View

Photo No. 31: Restoration Reach 3 – Station 31+00 – Upstream View

Photo No. 32: Restoration Reach 3 – Station 31+00– Downstream View

POTESTA
Engineers and Environmental Consultants

7012 MacCorkle Avenue, SE
Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

Patriot Mining Company, Inc.
Cassville, West Virginia
Stream Mitigation- Restoration Reach 3
Project No. 0101-09-0081-003

Photo No. 33: Restoration Reach 3 – Station 31+70 – Upstream View

Photo No. 34: Restoration Reach 3 – Station 31+70– Downstream View

Photo No. 35: Restoration Reach 3 – Station 32+20 – Upstream View

Photo No. 36: Restoration Reach 3 – Station 32+20– Downstream View

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Patriot Mining Company, Inc.
Cassville, West Virginia
Stream Mitigation- Restoration Reach 3
Project No. 0101-09-0081-003

Photo No. 37: Restoration Reach 3 – Station 33+50 – Upstream View

Photo No. 38: Restoration Reach 3 – Station 33+50– Downstream View

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Cassville, West Virginia
Stream Mitigation- Restoration Reach 3
Project No. 0101-09-0081-003

Photo No. 39: Restoration Reach 3 – Station 34+50 – Upstream View

Photo No. 40: Restoration Reach 3 – Station 34+50– Downstream View

Restoration Reach 4

Photo No. 1: Restoration Reach 4 – Station 0+20 – Upstream View

Photo No. 2: Restoration Reach 4 – Station 0+20 – Downstream View

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Patriot Mining Company, Inc.
Cassville, West Virginia
Stream Mitigation- Restoration Reach 4
Project No. 0101-09-0081-003

Photo No. 3: Restoration Reach 4 – Station 0+40 – Upstream View

Photo No. 4: Restoration Reach 4 – Station 0+40 – Downstream View

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Charleston, West Virginia 25304
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Patriot Mining Company, Inc.
Cassville, West Virginia
Stream Mitigation- Restoration Reach 4
Project No. 0101-09-0081-003

Photo No. 5: Restoration Reach 4 – Station 0+60 – Upstream View

Photo No. 6: Restoration Reach 4 – Station 0+60 – Downstream View

Photo No. 7: Restoration Reach 4 – Station 0+80 – Upstream View

Photo No. 8: Restoration Reach 4 – Station 0+80 – Downstream View

Photo No. 9: Restoration Reach 4 – Station 1+00 – Upstream View

Photo No. 10: Restoration Reach 4 – Station 1+00 – Downstream View

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Charleston, West Virginia 25304
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Fax: (304) 343-9031

Patriot Mining Company, Inc.
Cassville, West Virginia
Stream Mitigation- Restoration Reach 4
Project No. 0101-09-0081-003

Photo No. 11: Restoration Reach 4 – Station 1+20 – Upstream View

Photo No. 12: Restoration Reach 4 – Station 1+20 – Downstream View

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Engineers and Environmental Consultants

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Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

Restoration Reach 5

Photo No. 1: Restoration Reach 5– Station 1+70 – Upstream View

Photo No. 2: Restoration Reach 5- Station 1+70 – Downstream View

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Patriot Mining Company, Inc.
Cassville, West Virginia
Stream Mitigation- Restoration Reach 5
Project No. 0101-09-0081-003

Photo No. 3: Restoration Reach 5- Station 2+70 – Downstream View

Photo No. 4: Restoration Reach 5- Station 3+70 – Upstream View

Photo No. 5: Restoration Reach 5- Station 3+70 – Downstream View

Restoration Reaches 6 and 7

Photo No. 1: Restoration Reach 6 – Station 0+00 – Upstream View

Photo No. 2: Restoration Reach 6 – Station 0+00 – Downstream View

POTESTA
Engineers and Environmental Consultants

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Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

Patriot Mining Company, Inc.
Cassville, West Virginia
Stream Mitigation- Restoration Reach 6
Project No. 0101-09-0081-003

Photo No. 3: Restoration Reach 6 – Station 0+40 – Upstream View

Photo No. 4: Restoration Reach 6 – Station 0+40 – Downstream View

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Engineers and Environmental Consultants

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Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

Patriot Mining Company, Inc.
Cassville, West Virginia
Stream Mitigation- Restoration Reach 6
Project No. 0101-09-0081-003

Photo No. 5: Restoration Reach 6 – Station 0+56 – Upstream View

Photo No. 6: Restoration Reach 6 – Station 0+56 – Downstream View

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Engineers and Environmental Consultants

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Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

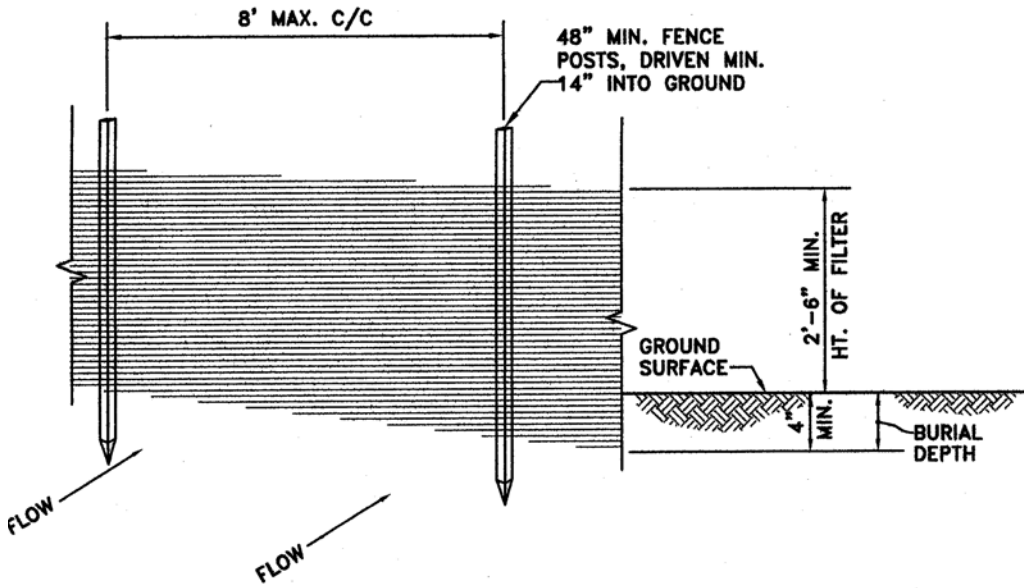
Patriot Mining Company, Inc.
Cassville, West Virginia
Stream Mitigation- Restoration Reach 6
Project No. 0101-09-0081-003

Photo No. 7: Restoration Reach 6 – Station 0+75 – Upstream View

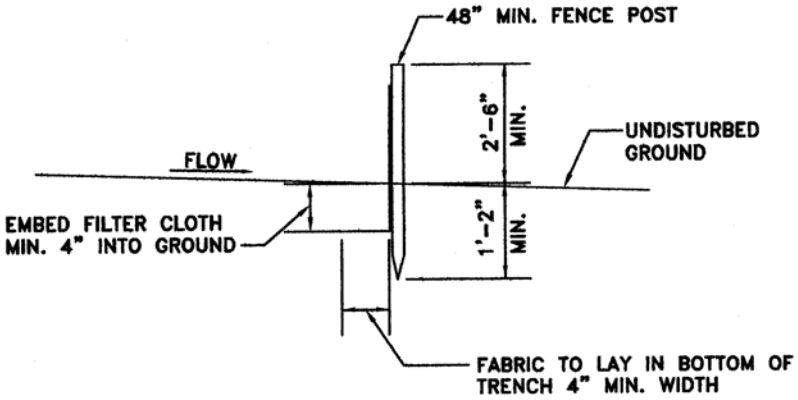
Photo No. 8: Restoration Reach 6 – Station 0+75 – Downstream View

Photo No. 9: Restoration Reach 7 – Upstream View

Photo No. 10: Restoration Reach 7 – Downstream View



PERSPECTIVE VIEW



SECTION

NOTES:

1. WHEN TWO SECTIONS OF SILT FENCE JOIN. OVERLAP ACCORDING TO MANUFACTURERS PUBLISHED RECOMMENDATIONS.
2. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE, OR WHEN HALF OF EXPOSED SILT FENCE IS COVERED WITH SEDIMENT.
3. POSTS SHALL BE CONSTRUCTED OF STEEL EITHER "T" OR "U" TYPE OR 1.5" HARDWOOD.
4. FILTER CLOTH SHALL BE "FILTER X", "MIRAFI 100X", "LINQ GTF 180" OR APPROVED EQUAL.
5. ALL SILT FENCE SHALL BE CHECKED AFTER ANY SIGNIFICANT RAINFALL (IN EXCESS OF 1/2"). DAMAGED SILT FENCE MUST BE REPAIRED WITHIN 24 HOURS; SOONER, IF ADDITIONAL RAINFALL IS EXPECTED.

POTESTA
Engineers and Environmental Consultants
7012 MacCorkle Avenue, SE
Charleston, West Virginia 25304
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Fax: (304) 343-9031

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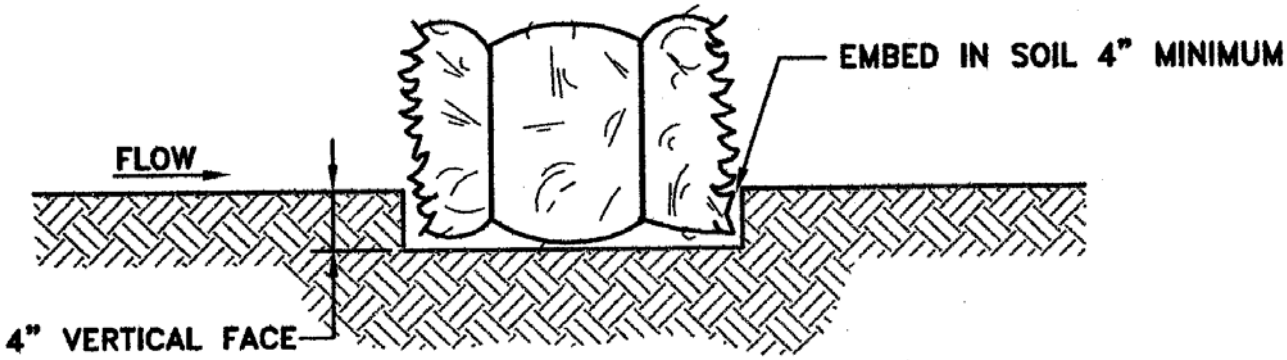
SILT FENCE DETAIL

Scale No Scale	Drawing No.
Date May 2010	FIGURE 1



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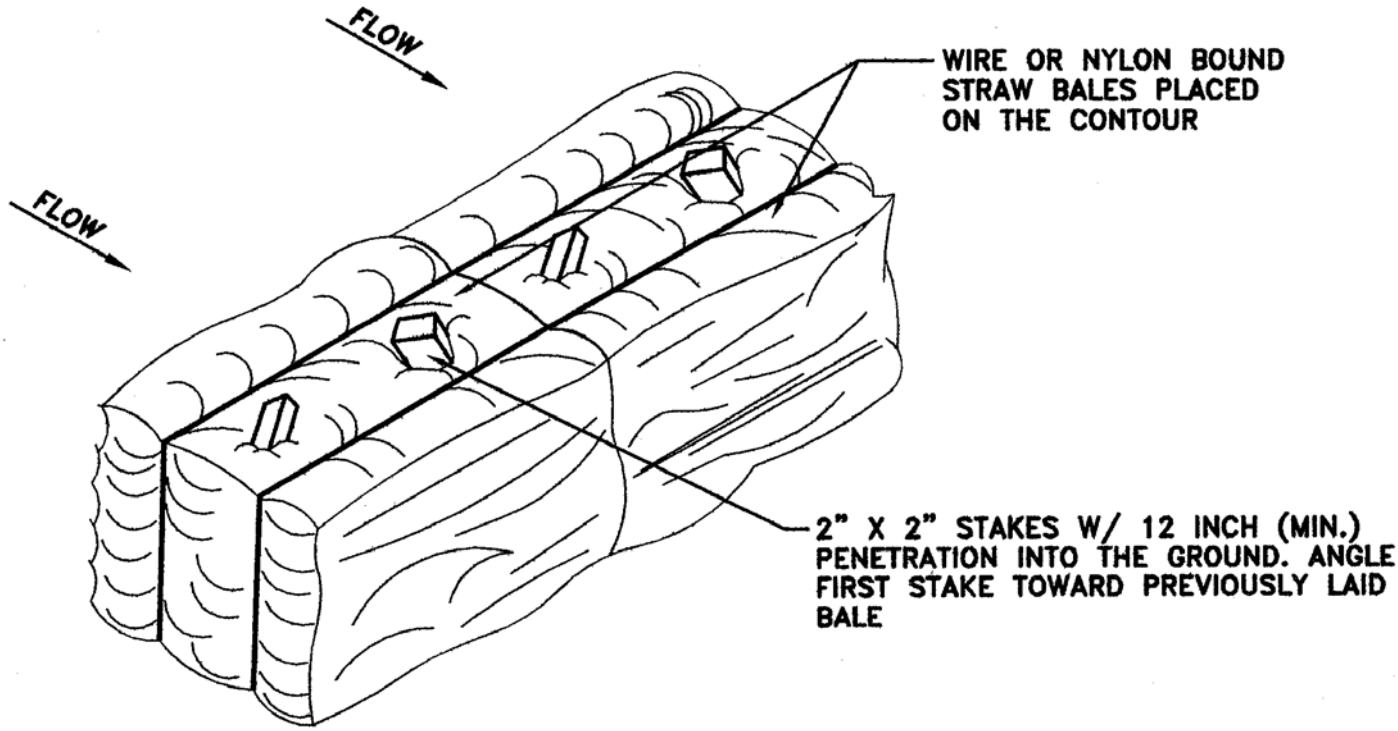
STRAW BALE EMBEDDING DETAIL

Scale No Scale	Drawing No.
Date May 2010	FIGURE 2



NOTES:

1. STAKING TO BE DRIVEN THROUGH THE BALE 12 INCH (MIN.) INTO THE GROUND.
2. STRAW BALES SHALL BE PLACED AND SECURED IN A SUITABLE ARRANGEMENT TO CONTAIN AND FILTER SURFACE WATER.

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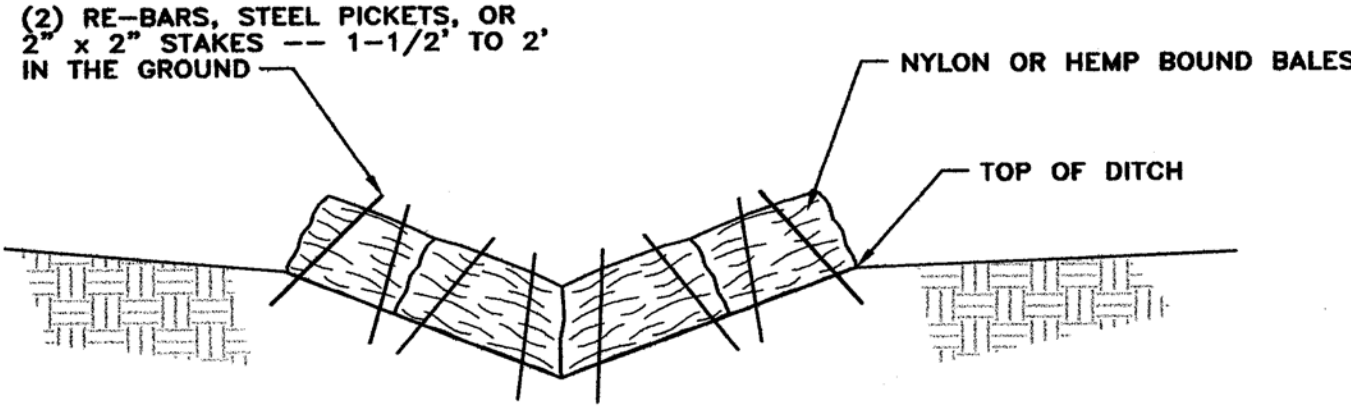
Engineers and Environmental Consultants
7012 MacCorkle Avenue, SE
Charleston, West Virginia 25304
Phone: (304) 342-1400
Fax: (304) 343-9031

Project 0101-09-0081-003

STRAW DIKE ANCHORING DETAIL

Scale No Scale	Drawing No.
Date May 2010	FIGURE 3



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Charleston, West Virginia 25304
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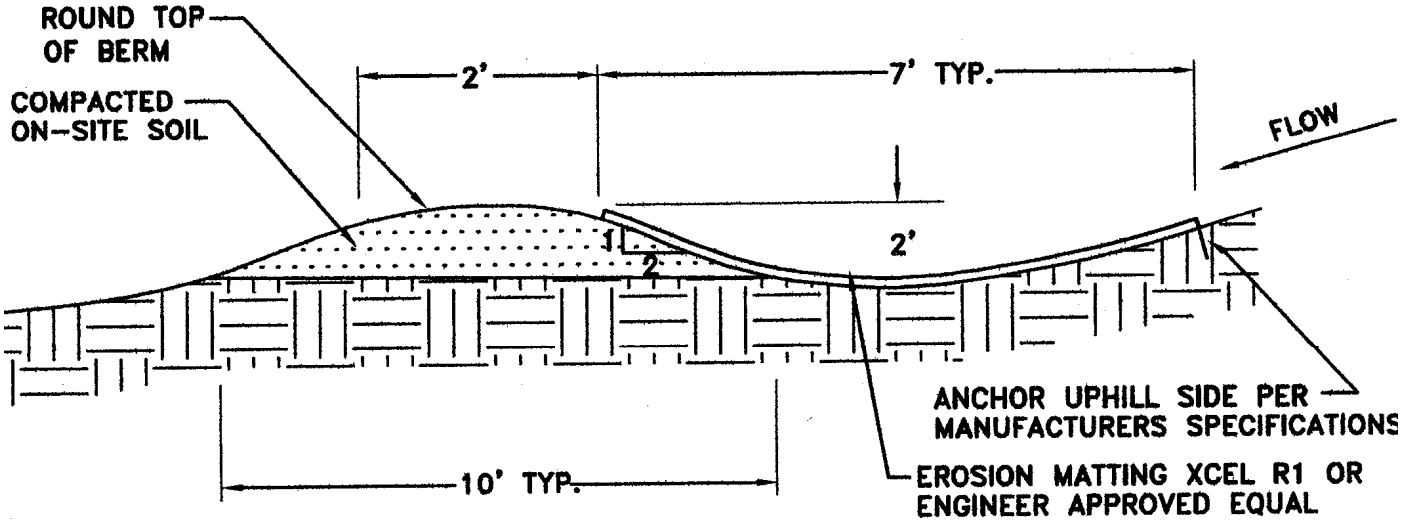
HAYBALE DITCH CHECK

Scale No Scale	Drawing No.
Date May 2010	FIGURE 4



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DIVERSION BERM

Scale No Scale

Date May 2010

Drawing No.

FIGURE 5

Tributary 1

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Patriot Mining Company
New Hill West Surface Mine

Tributary 1 @ Sta. 1+00

100 year Storm Flow

Triad Engineering, Inc.
P.O. Box 889
Morgantown, WV 26505

Phone: 304-296-2562

SURFACE RUNOFF CURVE NUMBER COMPUTATION SHEET

Type of Structure	**Tributary 1 - Post-mining Conditions**				
Drainage Area			Acres	**12.9**	
County	**Monongalia**		Date	**March 2010**	
Rainfall Frequency	**100**	Years	Rainfall	**5.50**	Inches
Average Watershed Slope	**25**	Percent			

HYDROLOGIC SOIL GROUP 1	LAND USE 2	HYDROLOGIC CONDITION 3	RUNOFF CURVE 4	ACRE (Ac.) 5	COL. 4 X COL. 5 6
C	Disturbed	Poor	87	0.00	0.00
C	Woods	Fair	73	2.10	153.30
C	Grass	Fair	79	0.00	0.00
C	Grass/Regrade	Good	74	10.80	799.20
			TOTALS =	12.90	952.50
Weighted Runoff Curve No. = Tot. Col. 6/Tot. Col. 5				73.84	**Use 73.8**

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	100 yr - 24 hr
Rainfall Depth:	5.500 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	Tributary 1

#1
Null

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	12.900	12.900	37.53	2.95

Structure Detail:

Structure #1 (Null)

Tributary 1

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	12.900	0.059	0.000	0.000	73.800	M	37.53	2.954
	Σ	**12.900**						**37.53**	**2.954**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	1. Forest with heavy ground litter	19.00	19.00	100.00	1.100	0.025
		7. Paved area and small upland gullies	24.53	181.00	738.00	9.960	0.020
		8. Large gullies, diversions, and low flowing streams	10.00	48.00	480.00	9.480	0.014
#1	**1**	**Time of Concentration:**					**0.059**

Worksheet for Tributary 1

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.05500	ft/ft
Discharge	37.53	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	1157.00
0+02	1156.00
0+07	1155.50
0+09	1155.00
0+11	1155.50
0+16	1156.00
0+18	1157.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 1157.00)	(0+07, 1155.50)	0.045
(0+07, 1155.50)	(0+09, 1155.00)	0.045
(0+09, 1155.00)	(0+11, 1155.50)	0.050
(0+11, 1155.50)	(0+16, 1156.00)	0.050
(0+16, 1156.00)	(0+18, 1157.00)	0.045

Results

Normal Depth	1.16	ft
Elevation Range	1155.00 to 1157.00 ft	
Flow Area	7.84	ft^2
Wetted Perimeter	14.90	ft
Top Width	14.65	ft
Normal Depth	1.16	ft
Critical Depth	1.22	ft

Worksheet for Tributary 1

Results

Critical Slope		0.04025	ft/ft
Velocity		4.79	ft/s
Velocity Head		0.36	ft
Specific Energy		1.52	ft
Froude Number		1.15	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.16	ft
Critical Depth	1.22	ft
Channel Slope	0.05500	ft/ft
Critical Slope	0.04025	ft/ft

Cross Section for Tributary 1

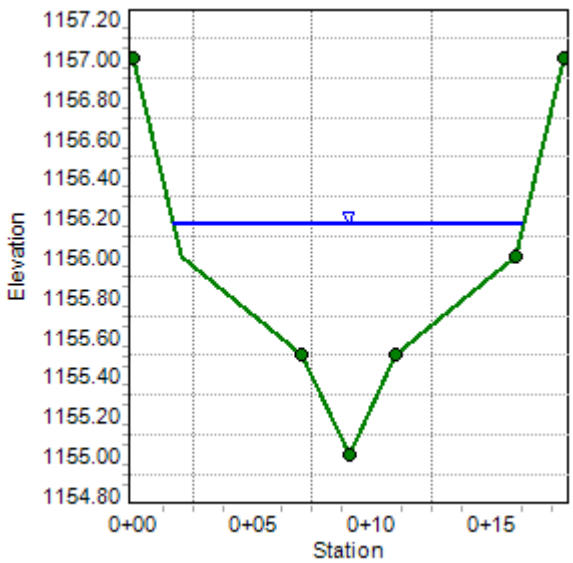
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.05500	ft/ft
Normal Depth	1.16	ft
Discharge	37.53	ft^3/s

Cross Section Image



Tributary 1-1

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Patriot Mining Company

New Hill West Surface Mine

Tributary 1-1

100 year Storm Flow

Triad Engineering, Inc.
P.O. Box 889
Morgantown, WV 26505

Phone: 304-296-2562

SURFACE RUNOFF CURVE NUMBER COMPUTATION SHEET

Type of Structure	**Tributary 1-1 - Post-mining Conditions**				
Drainage Area			Acres	**2.5**	
County	**Monongalia**		Date	**March 2010**	
Rainfall Frequency	**100**	Years	Rainfall	**5.50**	Inches
Average Watershed Slope	**25**	Percent			

HYDROLOGIC SOIL GROUP 1	LAND USE 2	HYDROLOGIC CONDITION 3	RUNOFF CURVE 4	ACRE (Ac.) 5	COL. 4 X COL. 5 6
C	Disturbed	Poor	87	0.00	0.00
C	Woods	Fair	73	0.00	0.00
C	Grass	Fair	79	0.00	0.00
C	Grass/Regrade	Good	74	2.50	185.00
			TOTALS =	2.50	185.00
Weighted Runoff Curve No. = Tot. Col. 6/Tot. Col. 5				74.00	**Use 74.0**

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	100 yr - 24 hr
Rainfall Depth:	5.500 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	Tributary 1-1

#1
Null

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	2.500	2.500	7.31	0.58

Structure Detail:

Structure #1 (Null)

Tributary 1-1

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	2.500	0.033	0.000	0.000	74.000	M	7.31	0.576
	Σ	**2.500**						**7.31**	**0.576**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	5.00	5.00	100.00	1.780	0.015
		7. Paved area and small upland gullies	19.44	70.00	360.00	8.870	0.011
		8. Large gullies, diversions, and low flowing streams	17.96	58.00	323.00	12.710	0.007
#1	**1**	**Time of Concentration:**					**0.033**

Worksheet for Tributary 1-1

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.14200	ft/ft
Discharge	7.31	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	1185.00
0+02	1184.00
0+07	1183.50
0+07	1183.40
0+08	1183.50
0+13	1184.00
0+15	1185.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 1185.00)	(0+07, 1183.50)	0.045
(0+07, 1183.50)	(0+07, 1183.40)	0.045
(0+07, 1183.40)	(0+08, 1183.50)	0.050
(0+08, 1183.50)	(0+13, 1184.00)	0.050
(0+13, 1184.00)	(0+15, 1185.00)	0.045

Results

Normal Depth	0.48	ft
Elevation Range	1183.40 to 1185.00 ft	
Flow Area	1.76	ft^2
Wetted Perimeter	8.40	ft
Top Width	8.33	ft
Normal Depth	0.48	ft
Critical Depth	0.57	ft

Worksheet for Tributary 1-1

Results

Critical Slope		0.05256	ft/ft
Velocity		4.16	ft/s
Velocity Head		0.27	ft
Specific Energy		0.75	ft
Froude Number		1.59	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.48	ft
Critical Depth	0.57	ft
Channel Slope	0.14200	ft/ft
Critical Slope	0.05256	ft/ft

Cross Section for Tributary 1-1

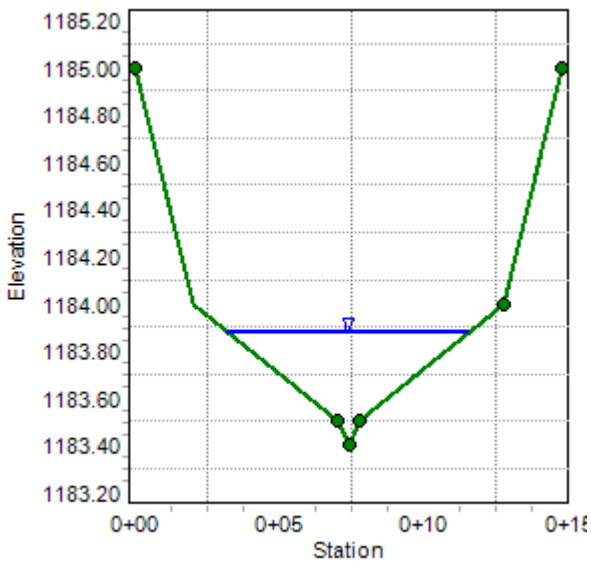
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.14200	ft/ft
Normal Depth	0.48	ft
Discharge	7.31	ft³/s

Cross Section Image



Tributary 5

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Patriot Mining Company

New Hill West Surface Mine

Tributary 5 @ Sta. 6+80

100 year Storm Flow

Triad Engineering, Inc.
P.O. Box 889
Morgantown, WV 26505

Phone: 304-296-2562

SURFACE RUNOFF CURVE NUMBER COMPUTATION SHEET

Type of Structure	**Tributary 5 - Post-mining Conditions**				
Drainage Area			Acres	**10.9**	
County	**Monongalia**		Date	**March 2010**	
Rainfall Frequency	**100**	Years	Rainfall	**5.50**	Inches
Average Watershed Slope	**25**	Percent			

HYDROLOGIC SOIL GROUP 1	LAND USE 2	HYDROLOGIC CONDITION 3	RUNOFF CURVE 4	ACRE (Ac.) 5	COL. 4 X COL. 5 6
C	Disturbed	Poor	87	0.00	0.00
C	Woods	Fair	73	0.00	0.00
C	Grass	Fair	79	0.00	0.00
C	Grass/Regrade	Good	74	10.90	806.60
			TOTALS =	10.90	806.60
Weighted Runoff Curve No. = Tot. Col. 6/Tot. Col. 5				74.00	**Use 74.0**

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	100 yr - 24 hr
Rainfall Depth:	5.500 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	Tributary 5 @ Sta. 6+80

#1
Null

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	10.900	10.900	31.87	2.51

Structure Detail:

Structure #1 (Null)

Tributary 5 @ Sta. 6+80

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	10.900	0.067	0.000	0.000	74.000	M	31.87	2.513
	Σ	**10.900**						**31.87**	**2.513**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	3.00	3.00	100.00	1.380	0.020
		7. Paved area and small upland gullies	12.76	155.00	1,215.00	7.180	0.047
#1	**1**	**Time of Concentration:**					**0.067**

Worksheet for Tributary 5

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.29000	ft/ft
Discharge	31.87	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	1130.00
0+02	1129.00
0+07	1128.50
0+08	1128.10
0+09	1128.50
0+14	1129.00
0+16	1130.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 1130.00)	(0+07, 1128.50)	0.045
(0+07, 1128.50)	(0+08, 1128.10)	0.045
(0+08, 1128.10)	(0+09, 1128.50)	0.050
(0+09, 1128.50)	(0+14, 1129.00)	0.050
(0+14, 1129.00)	(0+16, 1130.00)	0.045

Results

Normal Depth	0.91	ft
Elevation Range	1128.10 to 1130.00 ft	
Flow Area	4.00	ft^2
Wetted Perimeter	12.24	ft
Top Width	12.03	ft
Normal Depth	0.91	ft
Critical Depth	1.18	ft

Worksheet for Tributary 5

Results

Critical Slope		0.04118	ft/ft
Velocity		7.98	ft/s
Velocity Head		0.99	ft
Specific Energy		1.90	ft
Froude Number		2.44	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.91	ft
Critical Depth	1.18	ft
Channel Slope	0.29000	ft/ft
Critical Slope	0.04118	ft/ft

Cross Section for Tributary 5

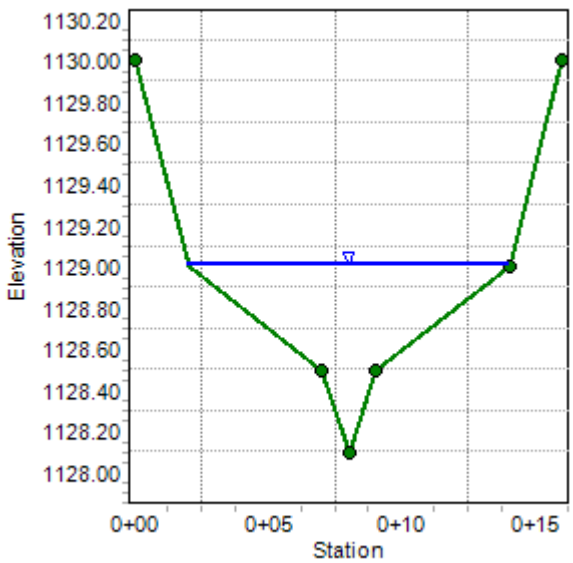
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.29000	ft/ft
Normal Depth	0.91	ft
Discharge	31.87	ft^3/s

Cross Section Image



Tributary 6

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Patriot Mining Company
New Hill West Surface Mine

Tributary 6

100 year Storm Flow

Triad Engineering, Inc.
P.O. Box 889
Morgantown, WV 26505

Phone: 304-296-2562

SURFACE RUNOFF CURVE NUMBER COMPUTATION SHEET

Type of Structure	**Tributary 6 - Post-mining Conditions**				
Drainage Area			Acres	**21.9**	
County	**Monongalia**		Date	**March 2010**	
Rainfall Frequency	**100**	Years	Rainfall	**5.50**	Inches
Average Watershed Slope	**25**	Percent			

HYDROLOGIC SOIL GROUP 1	LAND USE 2	HYDROLOGIC CONDITION 3	RUNOFF CURVE 4	ACRE (Ac.) 5	COL. 4 X COL. 5 6
C	Disturbed	Poor	87	0.00	0.00
C	Woods	Fair	73	0.00	0.00
C	Grass	Fair	79	0.00	0.00
C	Grass/Regrade	Good	74	21.90	1620.60
			TOTALS =	21.90	1620.60
Weighted Runoff Curve No. = Tot. Col. 6/Tot. Col. 5				74.00	**Use 74.0**

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	100 yr - 24 hr
Rainfall Depth:	5.500 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	Tributary 6

#1
Null

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	21.900	21.900	64.04	5.05

Structure Detail:

Structure #1 (Null)

Tributary 6

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	21.900	0.084	0.000	0.000	74.000	M	64.04	5.049
	Σ	**21.900**						**64.04**	**5.049**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	6.00	6.00	100.00	1.950	0.014
		7. Paved area and small upland gullies	9.12	98.00	1,075.00	6.070	0.049
		8. Large gullies, diversions, and low flowing streams	7.32	47.00	642.00	8.110	0.021
#1	**1**	**Time of Concentration:**					**0.084**

Worksheet for Tributary 6

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.16700	ft/ft
Discharge	64.04	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	1180.00
0+02	1179.00
0+07	1178.50
0+08	1178.10
0+09	1178.50
0+14	1179.00
0+16	1180.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 1180.00)	(0+07, 1178.50)	0.045
(0+07, 1178.50)	(0+08, 1178.10)	0.045
(0+08, 1178.10)	(0+09, 1178.50)	0.050
(0+09, 1178.50)	(0+14, 1179.00)	0.050
(0+14, 1179.00)	(0+16, 1180.00)	0.045

Results

Normal Depth	1.16	ft
Elevation Range	1178.10 to 1180.00 ft	
Flow Area	7.47	ft^2
Wetted Perimeter	13.66	ft
Top Width	13.35	ft
Normal Depth	1.16	ft
Critical Depth	1.51	ft

Worksheet for Tributary 6

Results

Critical Slope		0.03615	ft/ft
Velocity		8.58	ft/s
Velocity Head		1.14	ft
Specific Energy		2.30	ft
Froude Number		2.02	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.16	ft
Critical Depth	1.51	ft
Channel Slope	0.16700	ft/ft
Critical Slope	0.03615	ft/ft

Cross Section for Tributary 6

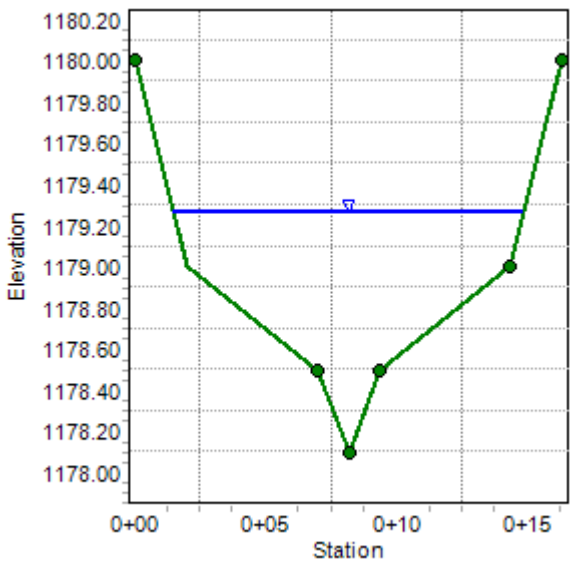
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.16700	ft/ft
Normal Depth	1.16	ft
Discharge	64.04	ft^3/s

Cross Section Image



Tributary 7

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Patriot Mining Company
New Hill West Surface Mine

Tributary 7

100 year Storm Flow

Triad Engineering, Inc.
P.O. Box 889
Morgantown, WV 26505

Phone: 304-296-2562

SURFACE RUNOFF CURVE NUMBER COMPUTATION SHEET

Type of Structure	**Tributary 7 - Post-mining Conditions**				
Drainage Area			Acres	**40.7**	
County	**Monongalia**		Date	**March 2010**	
Rainfall Frequency	**100**	Years	Rainfall	**5.50**	Inches
Average Watershed Slope	**25**	Percent			

HYDROLOGIC SOIL GROUP 1	LAND USE 2	HYDROLOGIC CONDITION 3	RUNOFF CURVE 4	ACRE (Ac.) 5	COL. 4 X COL. 5 6
C	Disturbed	Poor	87	0.00	0.00
C	Woods	Fair	73	25.10	1832.30
C	Grass	Fair	79	0.40	31.60
C	Grass/Regrade	Good	74	14.90	1102.60
			TOTALS =	40.40	2966.50
Weighted Runoff Curve No. = Tot. Col. 6/Tot. Col. 5				73.43	**Use 73.4**

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	100 yr - 24 hr
Rainfall Depth:	5.500 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	Tributary 7

#1
Null

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	40.700	40.700	117.18	9.20

Structure Detail:

Structure #1 (Null)

Tributary 7

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	40.700	0.117	0.000	0.000	73.400	M	117.18	9.199
	Σ	**40.700**						**117.18**	**9.199**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	1. Forest with heavy ground litter	15.00	15.00	100.00	0.970	0.028
		7. Paved area and small upland gullies	19.66	228.00	1,160.00	8.920	0.036
		8. Large gullies, diversions, and low flowing streams	3.51	38.00	1,082.00	5.620	0.053
#1	**1**	**Time of Concentration:**					**0.117**

Worksheet for Tributary 7

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.01700	ft/ft
Discharge	117.18	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	1200.00
0+02	1199.00
0+07	1198.50
0+11	1198.17
0+15	1198.50
0+20	1199.00
0+22	1200.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 1200.00)	(0+07, 1198.50)	0.045
(0+07, 1198.50)	(0+11, 1198.17)	0.045
(0+11, 1198.17)	(0+15, 1198.50)	0.050
(0+15, 1198.50)	(0+20, 1199.00)	0.050
(0+20, 1199.00)	(0+22, 1200.00)	0.045

Results

Normal Depth	1.75	ft
Elevation Range	1198.17 to 1200.00 ft	
Flow Area	25.68	ft^2
Wetted Perimeter	21.98	ft
Top Width	21.47	ft
Normal Depth	1.75	ft
Critical Depth	1.50	ft

Worksheet for Tributary 7

Results

Critical Slope		0.03310	ft/ft
Velocity		4.56	ft/s
Velocity Head		0.32	ft
Specific Energy		2.07	ft
Froude Number		0.74	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.75	ft
Critical Depth	1.50	ft
Channel Slope	0.01700	ft/ft
Critical Slope	0.03310	ft/ft

Cross Section for Tributary 7

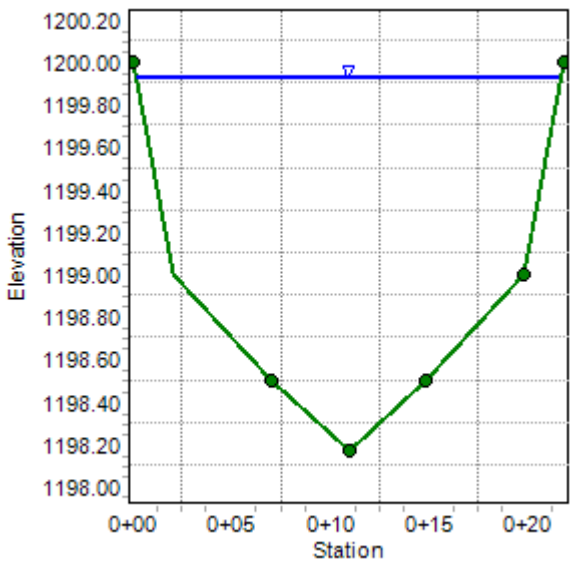
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.01700	ft/ft
Normal Depth	1.75	ft
Discharge	117.18	ft^3/s

Cross Section Image



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Patriot Mining Company
New Hill West Surface Mine

Tributary 7

100 year Storm Flow

Triad Engineering, Inc.
P.O. Box 889
Morgantown, WV 26505

Phone: 304-296-2562

SURFACE RUNOFF CURVE NUMBER COMPUTATION SHEET

Type of Structure	**Tributary 7 - Post-mining Conditions**				
Drainage Area			Acres	**40.7**	
County	**Monongalia**		Date	**March 2010**	
Rainfall Frequency	**100**	Years	Rainfall	**5.50**	Inches
Average Watershed Slope	**25**	Percent			

HYDROLOGIC SOIL GROUP 1	LAND USE 2	HYDROLOGIC CONDITION 3	RUNOFF CURVE 4	ACRE (Ac.) 5	COL. 4 X COL. 5 6
C	Disturbed	Poor	87	0.00	0.00
C	Woods	Fair	73	25.10	1832.30
C	Grass	Fair	79	0.40	31.60
C	Grass/Regrade	Good	74	14.90	1102.60
			TOTALS =	40.40	2966.50
Weighted Runoff Curve No. = Tot. Col. 6/Tot. Col. 5				73.43	**Use 73.4**

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	100 yr - 24 hr
Rainfall Depth:	5.500 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	Tributary 7

#1
Null

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	40.700	40.700	117.18	9.20

Structure Detail:

Structure #1 (Null)

Tributary 7

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	40.700	0.117	0.000	0.000	73.400	M	117.18	9.199
	Σ	**40.700**						**117.18**	**9.199**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	1. Forest with heavy ground litter	15.00	15.00	100.00	0.970	0.028
		7. Paved area and small upland gullies	19.66	228.00	1,160.00	8.920	0.036
		8. Large gullies, diversions, and low flowing streams	3.51	38.00	1,082.00	5.620	0.053
#1	**1**	**Time of Concentration:**					**0.117**

Worksheet for Tributary 7

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.01700	ft/ft
Discharge	117.18	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	1200.00
0+02	1199.00
0+07	1198.50
0+11	1198.17
0+15	1198.50
0+20	1199.00
0+22	1200.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 1200.00)	(0+07, 1198.50)	0.045
(0+07, 1198.50)	(0+11, 1198.17)	0.045
(0+11, 1198.17)	(0+15, 1198.50)	0.050
(0+15, 1198.50)	(0+20, 1199.00)	0.050
(0+20, 1199.00)	(0+22, 1200.00)	0.045

Results

Normal Depth	1.75	ft
Elevation Range	1198.17 to 1200.00 ft	
Flow Area	25.68	ft^2
Wetted Perimeter	21.98	ft
Top Width	21.47	ft
Normal Depth	1.75	ft
Critical Depth	1.50	ft

Worksheet for Tributary 7

Results

Critical Slope		0.03310	ft/ft
Velocity		4.56	ft/s
Velocity Head		0.32	ft
Specific Energy		2.07	ft
Froude Number		0.74	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.75	ft
Critical Depth	1.50	ft
Channel Slope	0.01700	ft/ft
Critical Slope	0.03310	ft/ft

Cross Section for Tributary 7

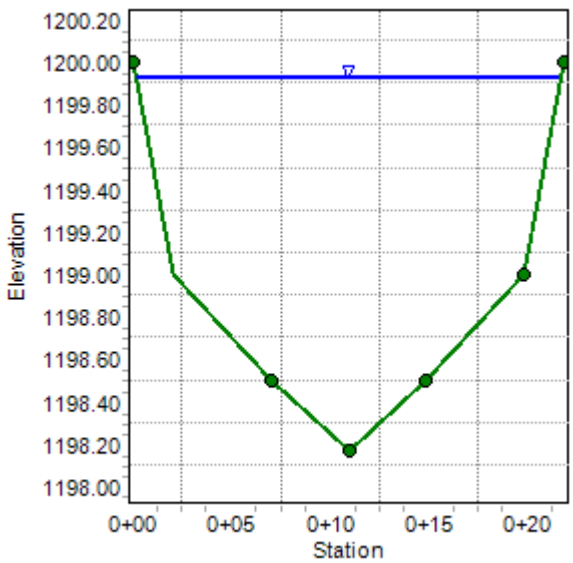
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.01700	ft/ft
Normal Depth	1.75	ft
Discharge	117.18	ft^3/s

Cross Section Image



Tributary 8

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Patriot Mining Company
New Hill West Surface Mine

Tributary 8

100 year Storm Flow

Triad Engineering, Inc.
P.O. Box 889
Morgantown, WV 26505

Phone: 304-296-2562

SURFACE RUNOFF CURVE NUMBER COMPUTATION SHEET

Type of Structure	**Tributary 8 - Post-mining Conditions**				
Drainage Area			Acres	**24.8**	
County	**Monongalia**		Date	**March 2010**	
Rainfall Frequency	**100**	Years	Rainfall	**5.50**	Inches
Average Watershed Slope	**25**	Percent			

HYDROLOGIC SOIL GROUP 1	LAND USE 2	HYDROLOGIC CONDITION 3	RUNOFF CURVE 4	ACRE (Ac.) 5	COL. 4 X COL. 5 6
C	Disturbed	Poor	87	0.50	43.50
C	Woods	Fair	73	12.70	927.10
C	Grass	Fair	79	10.10	797.90
C	Grass/Regrade	Good	74	1.50	111.00
			TOTALS =	24.80	1879.50
Weighted Runoff Curve No. = Tot. Col. 6/Tot. Col. 5				75.79	**Use 75.8**

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	100 yr - 24 hr
Rainfall Depth:	5.500 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	Tributary 8

#1
Null

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	24.800	24.800	75.82	6.06

Structure Detail:

Structure #1 (Null)

Tributary 8

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	24.800	0.095	0.000	0.000	75.800	M	75.82	6.059
	Σ	**24.800**						**75.82**	**6.059**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	1. Forest with heavy ground litter	21.00	21.00	100.00	1.150	0.024
		7. Paved area and small upland gullies	14.53	138.00	950.00	7.670	0.034
		8. Large gullies, diversions, and low flowing streams	5.16	47.00	910.00	6.810	0.037
#1	**1**	**Time of Concentration:**					**0.095**

Worksheet for Tributary 8

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.05200	ft/ft
Discharge	75.82	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	1205.00
0+02	1204.00
0+07	1203.50
0+10	1202.60
0+12	1203.50
0+17	1204.00
0+19	1205.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 1205.00)	(0+07, 1203.50)	0.045
(0+07, 1203.50)	(0+10, 1202.60)	0.045
(0+10, 1202.60)	(0+12, 1203.50)	0.050
(0+12, 1203.50)	(0+17, 1204.00)	0.050
(0+17, 1204.00)	(0+19, 1205.00)	0.045

Results

Normal Depth	1.75	ft
Elevation Range	1202.60 to 1205.00 ft	
Flow Area	12.78	ft^2
Wetted Perimeter	16.94	ft
Top Width	16.41	ft
Normal Depth	1.75	ft
Critical Depth	1.85	ft

Worksheet for Tributary 8

Results

Critical Slope		0.03593	ft/ft
Velocity		5.93	ft/s
Velocity Head		0.55	ft
Specific Energy		2.30	ft
Froude Number		1.19	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.75	ft
Critical Depth	1.85	ft
Channel Slope	0.05200	ft/ft
Critical Slope	0.03593	ft/ft

Cross Section for Tributary 8

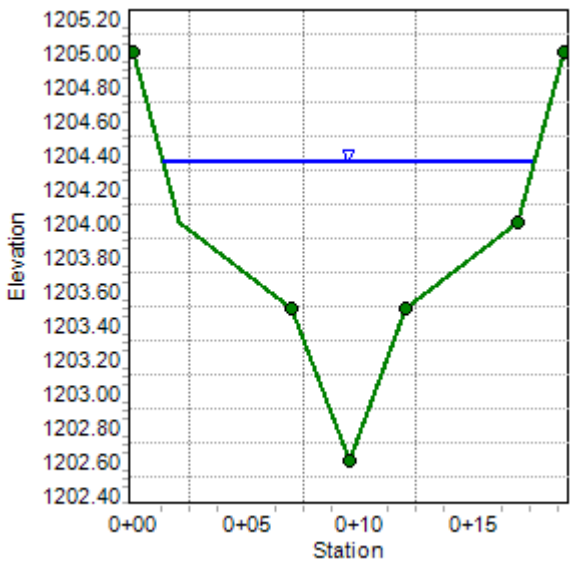
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.05200	ft/ft
Normal Depth	1.75	ft
Discharge	75.82	ft^3/s

Cross Section Image



Tributary 9

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Patriot Mining Company

New Hill West Surface Mine

Tributary 9

100 year Storm Flow

Triad Engineering, Inc.
P.O. Box 889
Morgantown, WV 26505

Phone: 304-296-2562

SURFACE RUNOFF CURVE NUMBER COMPUTATION SHEET

Type of Structure	**Tributary 9 - Post-mining Conditions**				
Drainage Area			Acres	**155.3**	
County	**Monongalia**		Date	**March 2010**	
Rainfall Frequency	**100**	Years	Rainfall	**5.50**	Inches
Average Watershed Slope	**25**	Percent			

HYDROLOGIC SOIL GROUP 1	LAND USE 2	HYDROLOGIC CONDITION 3	RUNOFF CURVE 4	ACRE (Ac.) 5	COL. 4 X COL. 5 6
C	Disturbed	Poor	87	1.90	165.30
C	Woods	Fair	73	77.70	5672.10
C	Grass	Fair	79	50.70	4005.30
C	Grass/Regrade	Good	74	25.00	1850.00
			TOTALS =	155.30	11692.70
Weighted Runoff Curve No. = Tot. Col. 6/Tot. Col. 5				75.29	**Use 75.3**

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	100 yr - 24 hr
Rainfall Depth:	5.500 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	Tributary 9

#1
Null

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	155.300	155.300	297.90	30.07

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Structure Detail:

Structure #1 (Null)

Tributary 9

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	155.300	0.236	0.000	0.000	75.300	M	297.90	30.073
	Σ	**155.300**						**297.90**	**30.073**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	1. Forest with heavy ground litter	26.00	26.00	100.00	1.290	0.021
		7. Paved area and small upland gullies	20.86	195.00	935.00	9.190	0.028
		8. Large gullies, diversions, and low flowing streams	2.90	100.00	3,450.06	5.100	0.187
#1	**1**	**Time of Concentration:**					**0.236**

Worksheet for Tributary 9

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.01300	ft/ft
Discharge	297.90	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00	1176.50
0+05	1174.00
0+13	1173.50
0+14	1173.00
0+16	1173.50
0+23	1174.00
0+28	1176.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 1176.50)	(0+13, 1173.50)	0.045
(0+13, 1173.50)	(0+14, 1173.00)	0.045
(0+14, 1173.00)	(0+16, 1173.50)	0.050
(0+16, 1173.50)	(0+23, 1174.00)	0.050
(0+23, 1174.00)	(0+28, 1176.50)	0.045

Results

Normal Depth	3.10	ft
Elevation Range	1173.00 to 1176.50 ft	
Flow Area	53.24	ft^2
Wetted Perimeter	27.79	ft
Top Width	26.61	ft
Normal Depth	3.10	ft
Critical Depth	2.62	ft

Worksheet for Tributary 9

Results

Critical Slope		0.02827	ft/ft
Velocity		5.60	ft/s
Velocity Head		0.49	ft
Specific Energy		3.59	ft
Froude Number		0.70	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	3.10	ft
Critical Depth	2.62	ft
Channel Slope	0.01300	ft/ft
Critical Slope	0.02827	ft/ft

Cross Section for Tributary 9

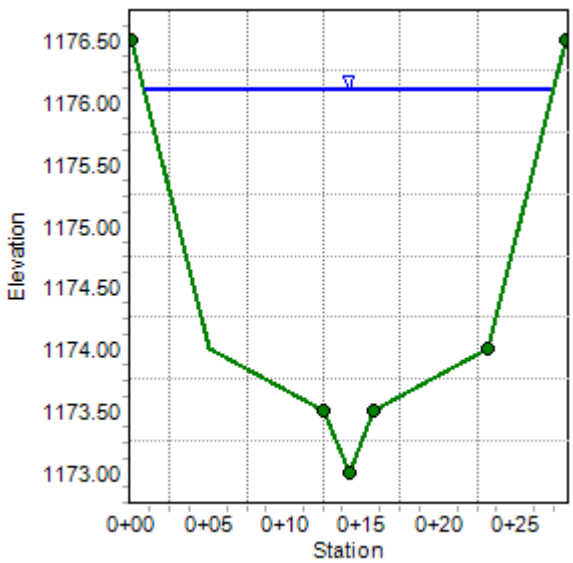
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.01300	ft/ft
Normal Depth	3.10	ft
Discharge	297.90	ft^3/s

Cross Section Image



Plant Species	**Pure Live Seeds (lbs/acre)**
Giant Cane (*Arundinaria gigantea*)	2
Fringed Brome (*Bromus ciliatus*)	2
Deertounge (*Dichanthelium clandestinum*)	3
Streambank Wild Rye (*Elymus riparius*)	5
Virginia Wildrye (*Elymus virginicus*)	4
Red Fescue (*Festuca rubra*)	10
Little Bluestem (*Schizachyrium scoparium*)	5
Indiangrass (*Sorghastrum nutans*)	5
Alsike Clover (*Trifolium pratense*)	10

Plant Species	**Pure Live Seeds (lbs/acre)**
Deertounge (*Dichanthelium clandestinum*)	3
Streambank Wild Rye (*Elymus riparius*)	5
Virginia Wildrye (*Elymus virginicus*)	4
Red Fescue (*Festuca rubra*)	10
Alsike Clover (*Trifolium pratense*)	10
Red Clover (*Trifolium pratense*)	10
Little Bluestem (*Schizachyrium scoparium*)	5
Indiangrass (*Sorghastrum nutans*)	5

Plant Species	**Pure Live Seeds (lbs/acre)**
Giant Cane (*Arundinaria gigantea*)	2
Fringed Brome (*Bromus ciliatus*)	2
Water Sedge (*Carex aquatilis*)	5
Deertounge (*Dichanthelium clandestinum*)	3
Streambank Wild Rye (*Elymus riparius*)	5
Virginia Wildrye (*Elymus virginicus*)	4
Red Fescue (*Festuca rubra*)	10
Alsike Clover (*Trifolium pratense*)	10
Red Clover (*Trifolium pratense*)	10
Baltic Rush (*Juncus balticus*)	2
Fowl Bluegrass (*Poa palustris*)	2

Plant Species	**Pure Live Seeds (lbs/acre)**
Landino Clover (*Trifolium repens*)	3
Weeping Lovegrass (*Eragrostis curvula*)	2
Kobe Lespedeza (*Lespedeza striata*)	5
Birdsfoot Trefoil (*Lotus corniculatus*)	5
Red Top (*Agrostis alba*)	2

General Vegetation List

Common Name	Scientific Name	Seeds	Plants
Large Trees (Dominant Over-Story)			
Chinese chestnut	*Castanea mollissima*		2'-3'/ $10.90 ea.
American beech	*Fagus grandifolia*		6"-12"/ $0.60 ea. 12"-18"/ $0.70 ea. 18"-24"/ $0.80 ea. 2'-3'/ $1.00 ea.
Black walnut	*Juglans nigra*		(1yr)/ $0.25 ea.
Tuliptree	*Liriodendron tulipifera*		(1yr)/ $0.17 ea.
White pine	*Pinus strobus*		6"-12"/ $1.00 ea. 12"-18"/ $1.35 ea.
American sycamore	*Platanus occidentalis*	$20/lb	6"-12"/ $0.35 ea. 12"-18"/ $0.40 ea. 18"-24"/ $0.55 ea. 2'-3'/ $0.65 ea. 3'-4'/ $0.90 ea.
Eastern hemlock	*Tsuga canadensis*		6"-12"/ $0.60 ea.
Large Trees (Less Dominant)			
Silver maple	*Acer saccharinum*	$32/lb	12"-18"/ $0.35 ea. 18"-24"/ $0.45 ea. 2'-3'/ $0.60 ea. 3'-4'/ $0.75 ea.

General Vegetation List

Common Name	Scientific Name	Seeds	Plants
Sugar maple	*Acer saccharum*		6"-12"/ $0.50 ea. 12"-18"/ $0.75 ea. 2'-3'/ $1.50 ea. 3'-4'/ $2.75 ea.
Yellow buckeye	*Aesculus flava*		2'-3'/ $13.09 ea.
Yellow birch	*Betula alleghaniensis*	$96/lb	1'-2'/ $1.60 ea. 2'-3'/ $2.10 ea. 3'-4"/ $3.20 ea.
Black birch	*Betula lenta*	$52/lb	1'-2'/ $1.60 ea. 2'-3'/ $2.10 ea. 3'-4"/ $3.20 ea.
River birch	*Betula nigra*		3'-4'/ $14.54 ea.
Bitternut hickory	*Carya cordiformis*		1'-2'/ $1.60 ea. 2'-3'/ $2.10 ea. 3'-4"/ $3.20 ea.
Shellbark hickory	*Carya laciniosa*		4"/ $0.70 ea. 6"/ $0.90 ea. 12"/ $1.25 ea. 18"/ $2.50 ea. 2'/ $3.75 ea.
Hawthorn	*Crataegus viridis*		3'/ 4.35 ea.

General Vegetation List

Common Name	Scientific Name	Seeds	Plants
Sweetgum	*Liquidambar styraciflua*	$124/lb	6"-12"/ $0.40 ea. 12"-18"/ $0.50 ea. 18"-24"/ $0.60 ea. 2'-3'/ $0.80 ea. 3'-4'/ $1.00 ea.
Umbrella magnolia	*Magnolia tripetala*		1'-2'/ $1.60 ea. 2'-3'/ $2.10 ea. 3'-4"/ $3.20 ea.
Blackgum	*Nyssa sylvatica*	$40/lb	6"-12"/ $0.50 ea. 12"-18"/ $0.60 ea. 18"-24"/ $0.70 ea. 2'-3'/ $0.90 ea.
Sourwood	*Oxydendrum arboreum*		6"-12"/ $0.45 ea. 12"-18"/ $0.60 ea. 18"-24"/ $0.75 ea.
White oak	*Quercus alba*		6"-12"/ $0.50 ea. 12"-18"/ $0.75 ea. 2'-3'/ $1.50 ea. 3'-4'/ $2.75 ea. 5'-6"/ $5.00 ea.
Scarlet oak	*Quercus coccinea*		1'-2'/ $1.60 ea. 2'-3'/ $2.10 ea. 3'-4"/ $3.20 ea.

General Vegetation List

Common Name	Scientific Name	Seeds	Plants
Southern red oak	*Quercus falcata*		1'-2'/ $1.60 ea. 2'-3'/ $2.10 ea. 3'-4"/ $3.20 ea.
Bur oak	*Quercus macrocarpa*		6"-12"/ $0.50 ea. 12"-18"/ $0.75 ea. 2'-3'/ $1.50 ea. 3'-4'/ $2.75 ea. 5'-6"/ $5.00 ea.
Pin oak	*Quercus palustris*		6"-12"/ $0.50 ea. 12"-18"/ $0.60 ea. 18"-24"/ $0.70 ea. 2'-3"/ $0.80 ea.
Chestnut oak	*Quercus prinus*		1'-2'/ $1.60 ea. 2'-3'/ $2.10 ea. 3'-4"/ $3.20 ea.
Northern red oak	*Quercus rubra*	$4/lb	6"-12"/ $0.60 ea. 12"-18"/ $0.75 ea. 18"-24"/ $1.25 ea. 2'-3'/ $1.50 ea. 3'-4'/ $2.25 ea.

General Vegetation List

Common Name	Scientific Name	Seeds	Plants
Shumard oak	*Quercus shumardii*		6"-12"/ $0.45 ea. 12"-18"/ $0.55 ea. 18"-24"/ $0.70 ea. 2'-3'/ $0.90 ea. 3'-4'/ $1.25 ea.
Black oak	*Quercus velutina*		6"-12"/ $0.60 ea. 12"-18"/ $0.75 ea. 18"-24"/ $1.25 ea. 2'-3'/ $1.50 ea. 3'-4'/ $2.25 ea.
American basswood	*Tilia americana*		6"/ $1.00 ea. 12"/ $1.25 ea. 2'/ $2.00 ea. 3'/ $3.00 ea.
Small - Medium Trees and Shrubs			
Common alder	*Alnus serrulata*		2'-4'/ $1.75 ea.
Common serviceberry	*Amelanchier arborea*		12"-18"/ $1.00 ea.
Sugarberry	*Celtis laevigata*		1 yr./ $0.22 ea.
Buttonbush	*Cephalanthus occidentalis*	$20/lb	18"/ $0.75 ea.

General Vegetation List

Common Name	Scientific Name	Seeds	Plants
Eastern redbud	*Cercis canadensis*	$48/lb	6"-12"/ $0.40 ea. 12"-18"/ $0.50 ea. 18"-24"/ $0.65 ea. 2'-3'/ $0.75 ea.
Swamp dogwood	*Cornus obliqua*	$20/lb	
Gray dogwood	*Cornus racemosa (foemina)*	$20/lb	2 gal./ $8.00
Common persimmon	*Diospyros virginiana*		6"/ $0.50 ea. 12"/ $0.60 ea. 18"/ $0.80 ea. 24"/ $1.00 ea.
Witchhazel	*Hamamelis virginiana*	$40/lb	6"-12"/ $0.55 ea. 12"-18"/ $0.75 ea. 18"-24"/ $1.00 ea. 2'-3'/ $2.50 ea.
American holly	*Ilex opaca*		(2yr)/ $0.75 ea.
Redtwig doghobble	*Leucothoe recurva*		1'-2'/ $1.60 ea. 2'-3'/ $2.10 ea. 3'-4'/ $3.20 ea.
Northern spicebush	*Lindera benzoin*	$28/lb	6"-12"/ $0.55 ea. 12"-18"/ $0.70 ea. 18"-24"/ $0.85 ea.

General Vegetation List

Common Name	Scientific Name	Seeds	Plants
Crabapple	*Malus coronaria*		2'-3'/ $2.50 ea. 3'-4'/ $4.00 ea.
Sandbar willow	*Salix interior*		2' stake $0.70 3' stake $1.05 4' stake $1.20
Black willow	*Salix nigra*		12"/ $0.45 ea. 18"/ $0.65 ea. 2'/ $0.75 ea. 3'/ $0.90 ea.
Common elderberry	*Sambucus nigra*		6"-12"/ $0.40 ea. 12"-18"/ $0.50 ea. 18"-24"/ $0.75 ea. 2'-3'/ $0.85 ea. 3'-4'/ $2.00 ea.
Silky willow	*Salix sericea*		2' stake $0.70 3' stake $1.05 4' stake $1.20
Slippery elm	*Ulmus rubra*		plugs/ $0.65 ea.
Herbs and Forbs			
Winter bentgrass	*Agrostis hyemalis*	$8/lb	
Little bluestem	*Andropogon scoparius*	$4.60/lb	

General Vegetation List

Common Name	Scientific Name	Seeds	Plants
Jack-in-the-pulpit	*Arisaema triphyllum*	$240/lb	plugs/ $0.45 ea.
Long-awned wood grass	*Brachyelytrum erectum*		2" pot/ $1.15 ea.
Fringed brome	*Bromus ciliatus*	$8/lb	
Tall brome	*Bromus latiglumis*		2" pot/ $1.15 ea.
Woodland Brome	*Bromus pubescens*		2" pot/ $1.15 ea.
Bluejoint reedgrass	*Calamagrostis canadensis*	$192/lb	
Fringed sedge	*Carex crinita*	$15/lb	
Beechwood sedge	*Carex laxiflora*		2" pot/ $1.25 ea.
Woolly sedge	*Carex pellita*		4" pot/ $0.75 ea.
Narrow-leaved cattail sedge	*Carex squarrosa*		2" pot/ $1.15 ea.
Owlfruit sedge	*Carex stipata*		2" pot/ $1.15 ea.
Northern sea oats	*Chasmanthium latifolium*		2" pot/ $1.15 ea.
Shasta daisy	*Chrysanthemum maximum*	$24/lb	
Sweet woodreed	*Cinna arundinacea*	$180/lb	
Deertongue	*Dichanthelium clandestinum*	$6.50/lb	

General Vegetation List

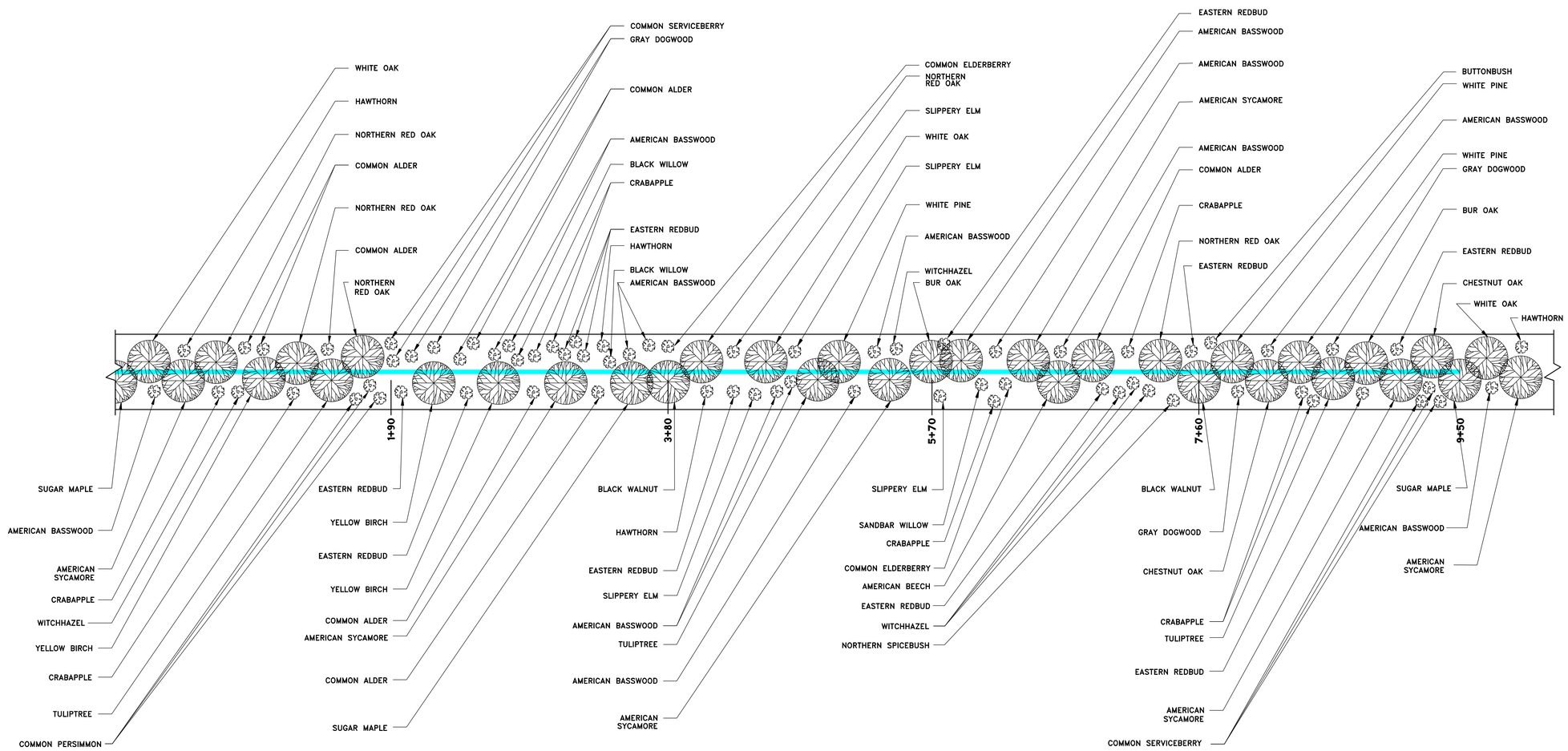
Common Name	Scientific Name	Seeds	Plants
Purple coneflower	*Echinacea purpurea*	$20/lb	
Virginia wildrye	*Elymus virginicus*	$8/lb	
Riverbank wildrye	*Elymus riparius*	$8/lb	
Spotted joe-pye	*Eupatorium maculatum*		plugs/ $0.75 ea.
White wood aster	*Eurybia divaricata*	$288/lb	
Fragrant bedstraw	*Galium triflorum*		plugs/ $1.50 ea.
Canada mannagrass	*Glyceria canadensis*	$80/lb	
Fowl mannagrass	*Glyceria striata*	$80/lb	
Daylily	*Hemerocallis spp.*		plugs/ $.30 ea.
Spotted touch-me-not	*Impatiens capensis*		4" pot/ $0.45 ea.
Pale touch-me-not	*Impatiens pallida*		4" pot/ $0.45 ea.
Baltic rush	*Juncus balticus*		4" pot/ $0.45 ea.
Rice cutgrass	*Leersia oryzoides*	$80/lb	2" pot/ $1.15 ea.
Cardinal flower	*Lobelia cardinalis*	$560/lb	plugs/ $0.40 ea.
Monkeyflower	*Mimulus ringens*	$136/lb	

General Vegetation List

Common Name	Scientific Name	Seeds	Plants
Partridgeberry	*Mitchella repens*		1 yr./ $6.00 ea.
Fowl bluegrass	*Poa palustris*	$8/lb	
Mayapple	*Podophyllum peltatum*		plugs/ $0.40 ea.
Cutleaf coneflower	*Rudbeckia laciniata*	$180/lb	
Dark green bulrush	*Scirpus atrovirens*	$160/lb	
Reddish bulrush	*Scirpus pendulus*		2" pot/ $1.15 ea.
Prarie dropseed	*Spartina pectinata*		2" pot/ $1.15 ea.
Alsike clover	*Trifolium hybridum*	$1.00/lb	

No.	Date	Revision

NOTE:
THIS IS A GENERAL VEGETATIVE DESIGN BASED ON A 1,000 FOOT REACH. THIS DESIGN IS A SUGGESTED LIST OF PLANT MATERIAL AND LAYOUT TO BE INCORPORATED ALONG THE EXISTING RIPARIAN ZONE. VEGETATIVE SPECIES MAY BE SUBSTITUTED BY OTHER ACCEPTABLE NATIVE, NON-INVASIVE WEST VIRGINIA SPECIES. BASED ON THE ESTABLISHMENT OF EXISTING PLANT MATERIAL WITHIN THE RIPARIAN ZONE, THE SCHEMATICS OF THIS DESIGN MAY BE ADJUSTED ACCORDINGLY. THE PLAN VIEW OF THE TREES AND SHRUBS ARE TYPICALS AND ARE NOT ON ABSOLUTE DIMENSIONS. EVERY EFFORT WILL BE MADE NOT TO DISTURB THE EXISTING RIPARIAN ZONE.



09-0081-PLANT
CAD File No.
RSB
Drawn
AAK
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Approved
NOTED
Scale:
MAY, 2010
Date:
09-0081
Project No.

Potesta & Associates, Inc.
ENGINEERS AND ENVIRONMENTAL CONSULTANTS
7012 MacCorkle Ave. SE, Charleston, WV 25304
TEL: (304) 342-1400 FAX: (304) 343-9031
E-Mail Address: potesta@potesta.com

POTESTA

Client
PATRIOT MINING COMPANY, INC.
NEW HILL WEST SURFACE MINE
S-2009-09/USACE NO. 2009-759
MONONGALIA COUNTY, WV

Title
PLANTING PLAN

1
Drawing No.

XREF Files:
IMAGE Files:
File Location: G:\2009\09-0081-HUNTER-PATRIOT NEW HILL\09-0081-plant.dwg
Plot Date/Time: May 27, 2010 - 1:25pm
Plotted By: REClaborne

MEASURES FOR REDUCING EFFECTS ON THE ENVIRONMENT AND HUMAN HEALTH

1. Down-stream water users and adjacent landowners who could be directly affected by chemical drift, stream transport, or an accidental spill, will be notified (normally 15 days) prior to the chemical application.

2. All applicable state and federal laws, including the labeling instructions of the United States Environmental Protection Agency (USEPA), will be strictly followed.

3. The herbicides amitrole, diuron, dalapon, and fosamine will not be used in the Region's vegetation management program

4. Any employee not wishing to be exposed to glyphosate, dicamba, tebuthiuron, triclopyr, simazine, bromacil, atrazine, or 2, 4-D will be given alternate work assignments.

5. All workers on herbicide application projects will be informed of any known potential human health impacts from the herbicides to be used, and will be provided with copies of the relevant Methods and Information Profiles.

6. Where practical and effective, pre-mixed formulations and expose-reducing equipment will be used.

7. The herbicide atrazine will not be applied aerially.

8. Diesel oil will not be used in herbicide applications, except as an adjuvant (not to exceed 5 percent of spray mixture).

9. Kerosene will not be used in herbicide applications, except as an inert ingredient in the ester formulation of triclopyr.

10. Herbicides will be applied within the prescribed environmental conditions stated on the label, in the environmental assessment, and in issued permits. This includes considerations of wind speed, relative humidity, air temperature, chemical persistence, and time since the last rainfall when determining the timing of applications in relation to drift reduction.

11. Use herbicide formulations that contain only inerts recognized as generally safe by USEPA, or which are of a low priority for testing by USEPA. Use of other inerts (identified by USEPA as a high priority for testing or those that have been shown to be hazardous) requires full assessment of human health risks incorporated into the NEPA decision-making process.

12. Protective clothing will be worn by all workers (both Forest Service employees and contract workers) involved in herbicide mixing, loading, backpack applications, and hackand-squirt applications. Where specific items of protective clothing are optional, they must be on the work site at all times during application in accordance with the requirements of the Amended Record of Decision, dated February 27, 1992.

13. Public notification will be used for all applications requesting that people who know or suspect that they are hypersensitive to herbicides contact the Forest Service to determine appropriate risk management measures. in accordance with the requirements of the Amended Record of Decision, dated February 27, 1992.

14. Workers should wear a clean set of clothes daily, and should have a complete change of clothes available at the work site in ease of accidental exposure.

15. An emergency eyewash unit and other washing facilities with an adequate supply of soap and non-contaminated water will be available at each work site.

16. Workers (both Forest Service and contract) who know that they are hypersensitive to herbicides will not be used in application projects. Workers who display symptoms of hypersensitivity to herbicides during application will be removed from the project.

17. Precautions will be taken to assure that equipment used for storage transport, mixing, or application will not leak herbicides into water or soil.

18. Areas used for mixing herbicides and cleaning equipment shall be located where spillage will not run into surface waters or result in groundwater contamination. Whenever practicable, mixing areas and heliports will not be located within watersheds which provide domestic or municipal drinking water or which supply fish hatcheries or irrigation needs.

19. Drift of herbicide vapors or sprays will be minimized to within the prescribed buffer strip boundaries. The goal is to optimize droplet size to meet control requirements and to reduce risk of contamination due to drift. For aerial applications, fine droplets will be kept to a minimum by techniques such as: 1) reducing boom pressure; 2) increasing orifice size; 3) orienting nozzles parallel to the ground; 4) using specialized boom and nozzle designs; and 5) thickening the spray mixture by addition of various foaming agents, thickening polymers, or invert emulsion carriers. Specific direction on drift control measures, calibration, and characterization of aircraft is contained in handbooks such as the Siskiyou National Forest Aerial Applicators Handbook (April 1982), the Gold Beach Ranger District Aerial Implementation Plan (Spring 1983), and the Region 5 Handbook on Aerial Application of Herbicides (June 1983). These are on file in the Regional Office in Portland, Oregon. Current technology in aircraft and guidance systems, aerial delivery systems, aerial spray models, aerial calibration, microsite weather, and quality control is provided to Forest Service personnel in training sessions.

20. Buffers are required along streams, open water, and wetlands. Local conditions may require an expansion of the minimum widths given below. The buffer width for lakes and wetlands is wider than streams because of the high water table surrounding these areas. Large quantities of herbicides can be flushed by a rise in the water table. There is also less opportunity for chemical dilution and mixing in lakes and wetlands than in flowing streams. Buffers are determined by the possible modes of chemical transport to surface waters (direct application, deft, overland flow, subsurface leaching, and mobilization in ephemeral stream channels), as well as protection of riparian vegetation. Buffers should be designed to prevent direct application to open water. Truck mounted spray rigs will have an on/off switch inside the vehicle which the driver can operate at stream crossings which would reduce drift into surface water. The acceptable amount of drift reaching waters will be determined for each proposed project based on the sensitivity of the water body including the rate of flow and the nature and amount of downstream use. Operational considerations, including topography, existing vegetation, environmental conditions, and mode of application will be incorporated into the establishment of buffer strips. The buffers will be marked prior to spraying in order to be visible to applicators in aircraft, in vehicles, or on the ground. The following unsprayed widths will be maintained and may need to be expanded depending on local conditions.

    a. For aerial application, 200 feet horizontal distance around wetlands and lakes.

    b. For aerial application, 100 feet along all flowing streams (Class I through IV).

    c. For other than aerial application, 50 feet along all flowing waters. A distance less than 50 feet may be considered depending on site specifications such as slope, soil, climate, and risk of contamination.

    d. The following items will be considered in project-level analyses and may result in expansion of the buffer widths: 1) the possibility of significant rainfall within the next 60 days, 2) topography adjacent to surface water, 3) soil infiltration capacity; 4) amount of ground cover, 5) flow obstructions that retard overland flow; and 6) herbicide persistence and mobility. The value of the water for fisheries and domestic, municipal, industrial, and agricultural uses will also be considered.

    e. Reduce the risk of subsurface leaching and mobilization due to a rising water table. Considerations include: 1) depth of water table; 2) soil permeability; 3) possibility of a rise in the water table; 4) leaching within the 60 days following application; 5) herbicide mobility and persistence; and 6) the downstream water use.

    f. Minimize the introduction of chemicals into ephemeral streams. Consider the time since the last rainfall, the chance of significant rainfall in the 60

days following chemical application, soil moisture, slope, downstream water use, and the mobility and persistence of the herbicide.

g. Protect riparian vegetation from the toxic effects of the applied herbicides. Considerations include: 1) the value of the riparian vegetation for stream channel stability and stream shading; 2) the availability of large woody debris input for fish habitat and to support the aquatic food chain; 3) the value of riparian vegetation for terrestrial wildlife; and 4) the toxicity of the herbicide to riparian plant and animal species.

21. Aircraft operators shall shut off herbicide applicators during turns and while over open water, residences, and sensitive sites.

22. Appropriate management of streamsides along dry Class IV streams will be determined during the project-level environmental assessment. Predicted rainfall, downstream uses and values, vegetative and soil conditions, and wildlife habitat will be evaluated.

23. When transporting more than 120 gallons of herbicide concentrate or 2,000 gallons of mix on forest roads within municipal, fish hatchery, or irrigation supply watersheds, a pilot vehicle will be used. Truck drivers shall be briefed on all haul route hazards, defensive driving, and the project safety plan. They must also be familiar with the Spill Incident Response Plan. Both worker and public exposure monitoring is required for all herbicide application projects. Pertinent details will be documented including herbicides used, land area treated, date and times of applications, people involved, and mitigation measures followed.

24. Monitoring must be planned as an integral part of the overall vegetation management project. Monitoring will be conducted as described in the Region 6 Water Quality Monitoring Guide for Pesticide Detection (R6-WS-040-1980). Monitoring of a spray operation will be conducted to determine if mitigation measures are being observed, are effective in maintaining water quality, and are in compliance with state water quality standards and pesticide label requirements. The potential for contamination of aquifers used by fish or for municipal water or irrigation will be considered in the project level Environmental Assessment.

25. Herbicides will be applied in accordance with Forest Service Manual 2150 (Pesticide Use Management and Coordination). This identifies the authority for Forest Service use of pesticides (the Federal Insecticide, Fungicide, and Rodenticide Act) and establishes the objectives and responsibilities of managers on all administrative levels. It describes the requirements for environmental documentation, safety planning, and training.

26. Forest Service Handbook 2109.11 (Pesticide Project Handbook) will be used to direct project planning. This establishes procedures to guide managers in planning, organizing, conducting, and reporting pesticide use projects. It also describes the requirement for a post-treatment evaluation report and the pesticide-use report.

27. Standards and guidelines in Forest Service Handbook 2109.12 (Pesticide Storage, Transportation, Spills, and Disposal Handbook) will be met. This defines standards for storage facilities, posting and handling, accountability, and transportation. It covers spill prevention, planning, cleanup, and container disposal requirements.

28. Forest Service Handbook 2109.13 (Pesticide Project Personnel Handbook) will be used to define responsibilities and personnel needs, training, and experience needed for large scale aerial or ground application projects.

29. Project safety will be guided by Forest Service Handbook 6709.11 (Health and Safety Code Handbook, Chapter 9). This directive establishes the basic safety rules, as well as storage, transportation, and disposal safety aspects. References and publications to aid in worker safety training are also identified.

30. Individual National Forests will provide guidance for large and complex projects, as appropriate. This will be in the form of Forest Application Hand books, Project Safety Plans, Environmental Monitoring Plans, Public Contact Plans, or Law Enforcement Plans. This is where specific requirements for equipment standards, training and quality control, and safety needs are identified for project implementation. Special measures such as spray drift control technology, water monitoring standards, calibration of equipment, and on-site weather limitations are prescribed. These documents also define coordination needs with support organizations and facilities.

31. Pesticide Applicator Licensing end training will be used as a quality control measure. The Pacific Northwest Region will continue to utilize the programs administered by the Departments of Agriculture in Washington and Oregon. Training and testing of applicators covers laws and safety, protection of the environment, handling and disposal, pesticide formulations and application methods, calibration of devices, use of labels and data sheets, first aid, and symptoms of pesticide exposure.

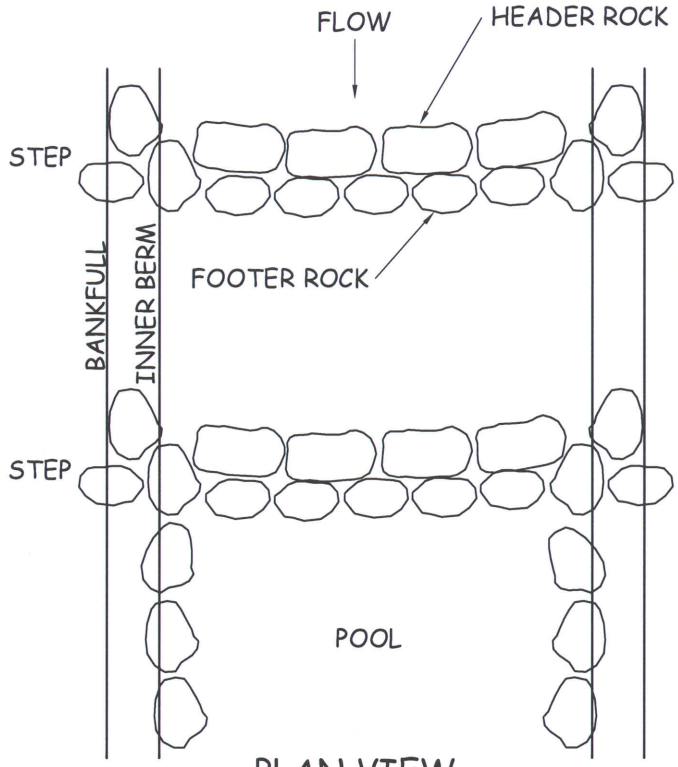
32. Material Safety Data Sheets will be posted at storage facilities and in vehicles, and will be made available to workers. These provide physical and chemical data, fire or reactivity data, specific health hazard information, spill or leak procedures, instructions for worker hygiene, and special precautions.

33. Care will be taken to avoid skin contact with diesel oil and kerosene. If contact does occur, affected skin areas should be promptly washed with soap and water, and soaked clothing will be changed.

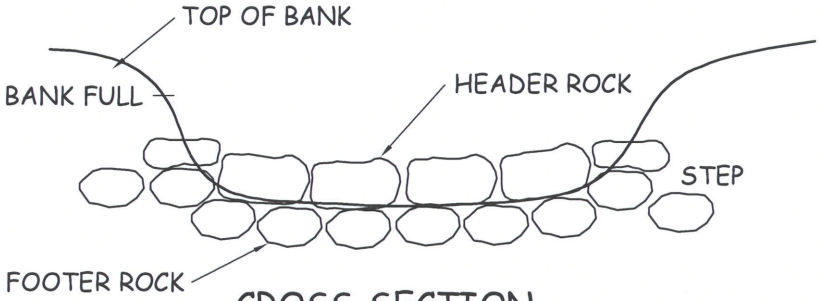
34. The burning of vegetation in the same year in which it has been treated with herbicides is prohibited.

Instream Structures

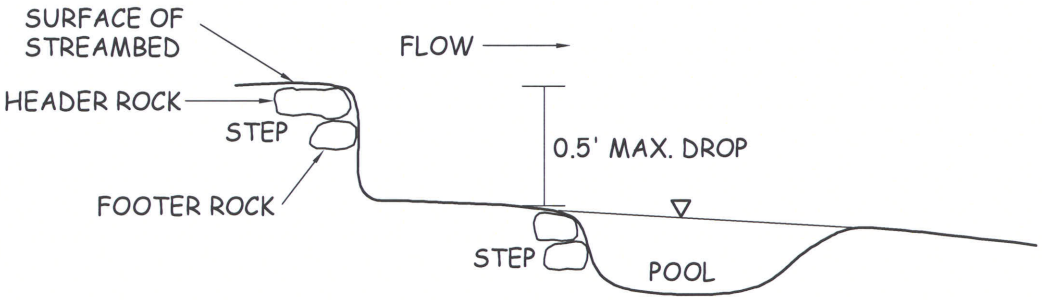
STEP POOL STRUCTURE



PLAN VIEW



CROSS-SECTION



PROFILE VIEW

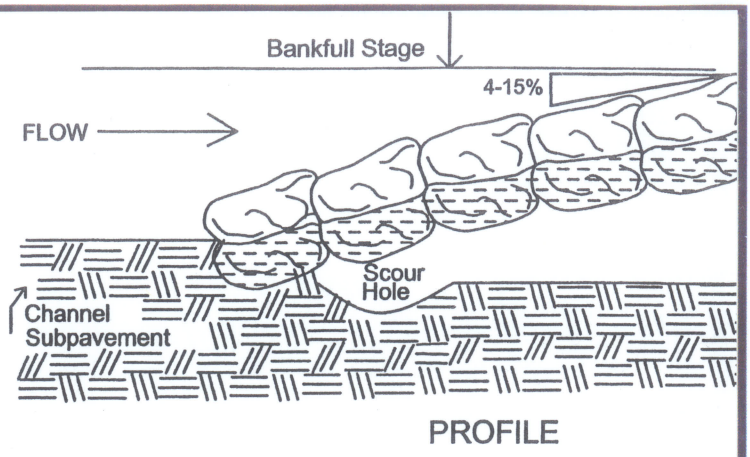
POTESTA & ASSOCIATES, INC.
ENGINEERS AND ENVIRONMENTAL CONSULTANTS
7012 MacCorkle Ave. SE, Charleston, WV 25304
TEL: (304) 342-1400 FAX: (304) 343-9031
E-Mail Address: potesta@potesta.com

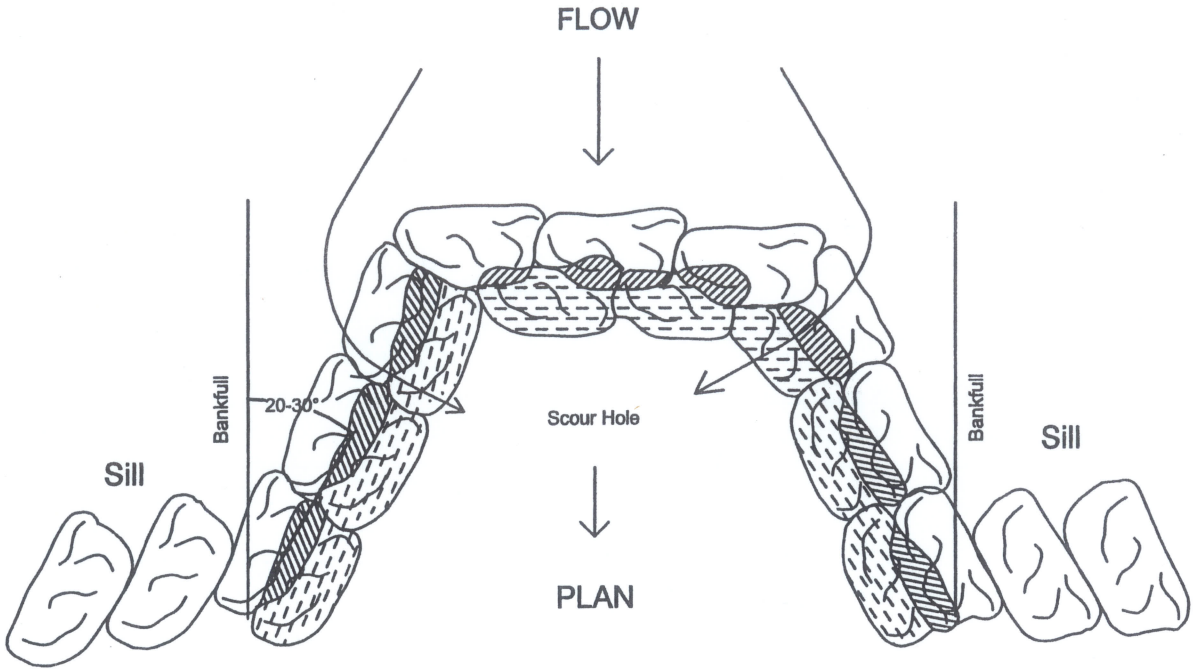
Project
DESIGN SCHEMATICS
STEP POOL STRUCTURE

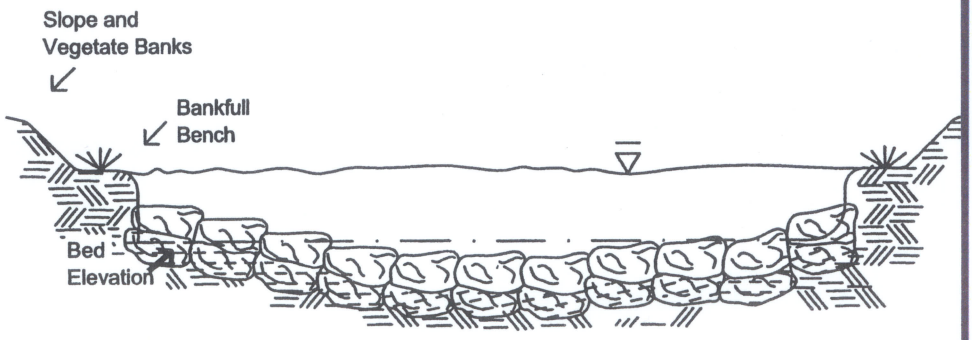
Project No. 09-0081
May 2010

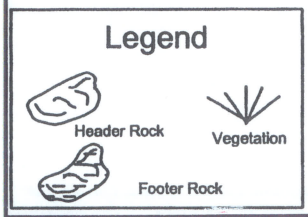
Dwg. No.
FIGURE 1

Note:
-There should be no gaps between the rocks in the cross vane.









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TEL: (304) 342-1400 FAX: (304) 343-9031
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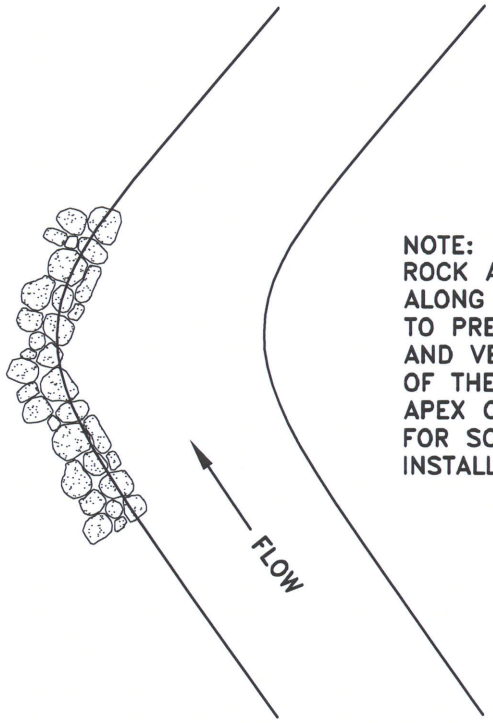
Project
DESIGN SCHEMATICS
ROOT WADS

Project No. 09-0081
May 2010

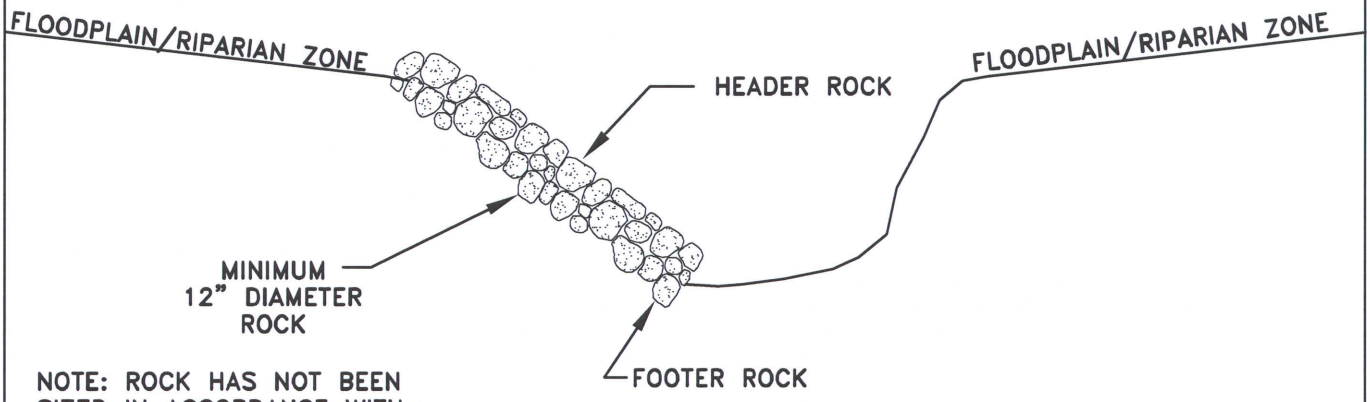
Dwg. No.
FIGURE 2

PLAN VIEW



NOTE:
ROCK AND VEGETATION ARE TO BE PLACED ALONG THE OUTER BANK IN SHARP BENDS TO PREVENT EROSION. PLACEMENT OF ROCK AND VEGETATION SHOULD BEGIN UPSTREAM OF THE BEND AND CONTINUE THROUGH THE APEX OF THE CURVE. REFER TO FIGURE 1 FOR SCHEMATIC OF VEGETATION INSTALLATION.

CROSS SECTION



NOTE: ROCK HAS NOT BEEN SIZED IN ACCORDANCE WITH STREAM FLOWS

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ENGINEERS AND ENVIRONMENTAL CONSULTANTS
7012 MacCorkle Ave. SE, Charleston, WV 25304
TEL: (304) 342-1400 FAX: (304) 343-9031
E-Mail Address: potesta@potesta.com

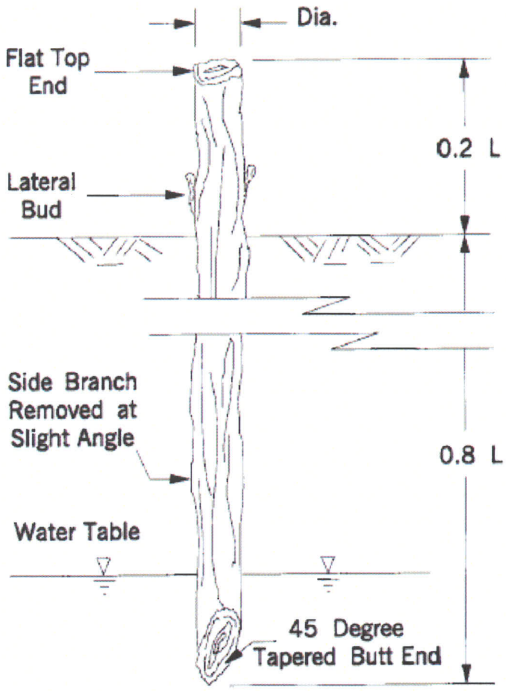
Project
ROCK SCHEMATIC FOR JOINT PLANTING

Project No. 09-0081
May 2010

Dwg. No.
FIGURE 3

Streambank Stabilization Measures

Live Stakes



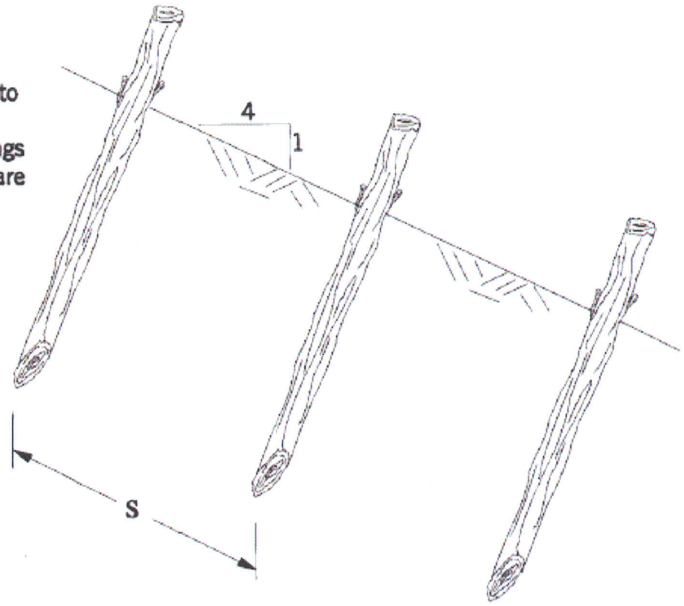
Adapted From USDA-SCS (1994)

DETAIL

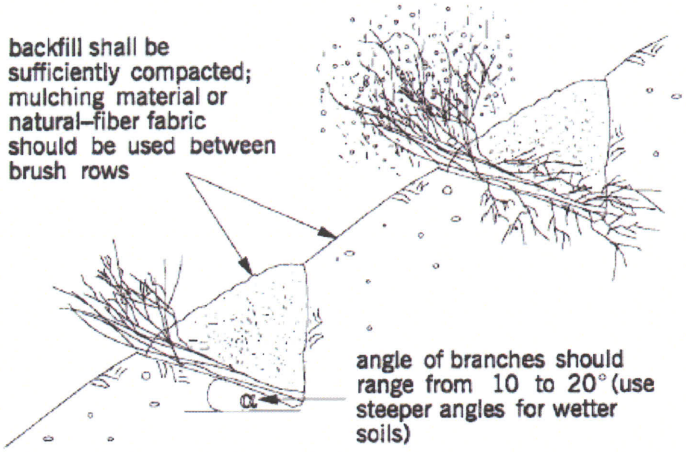
Live stout stakes should be long enough to reach below the groundwater table. (Generally, a length of 2 to 3 feet, or 0.6 to 0.9 meters, is sufficient.) Additionally, the stakes should have a diameter in the range of 0.75 to 1.5 inches (2 to 4 centimeters).

SECTION VIEW

Live stout stakes shall be spaced 2 to 3 feet (0.6 to 0.9 meters) apart to give a density of 2 to 4 cuttings per square yard (0.8 square meters).



Branch Packing

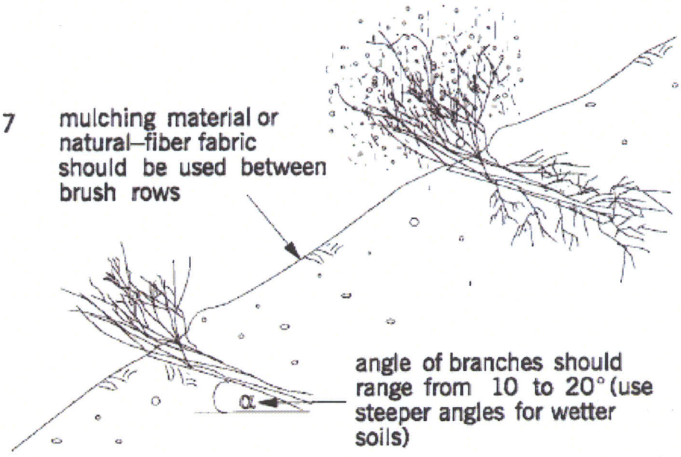


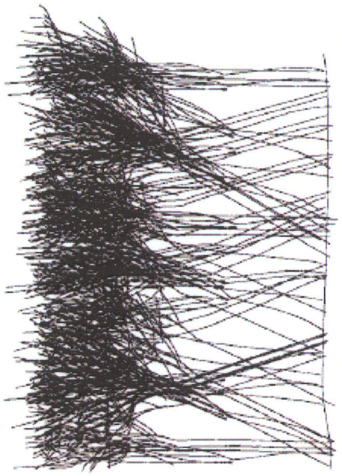
SECTION VIEW: FILL

In Fill Sections: brush layers shall be placed on prepared earth lifts 7 to 17ft (2 to 5m) wide and angled away from the contour on excessively wet sites; the distance between successive brush layers is a function of slope angle (see installation specifications)

SECTION VIEW: CUT

In Cut Sections: brush layers shall be placed on trenches 3 to 7 ft (1 to 2m) wide and angled away from the contour on excessively wet sites; the distance between successive brush layers is a function of slope angle (see installation specifications)





PLAN VIEW: CUT & FILL

live branches should have diameters between 0.5 to 2.5 inches (1.5 to 6.0cm); branch cuttings shall be arranged in a crisscross fashion in 4 to 12–inch (10 to 30–cm) thick layers with the growing tips oriented towards the slope face; a maximum of 25% of the branch length shall protrude from the slope surface

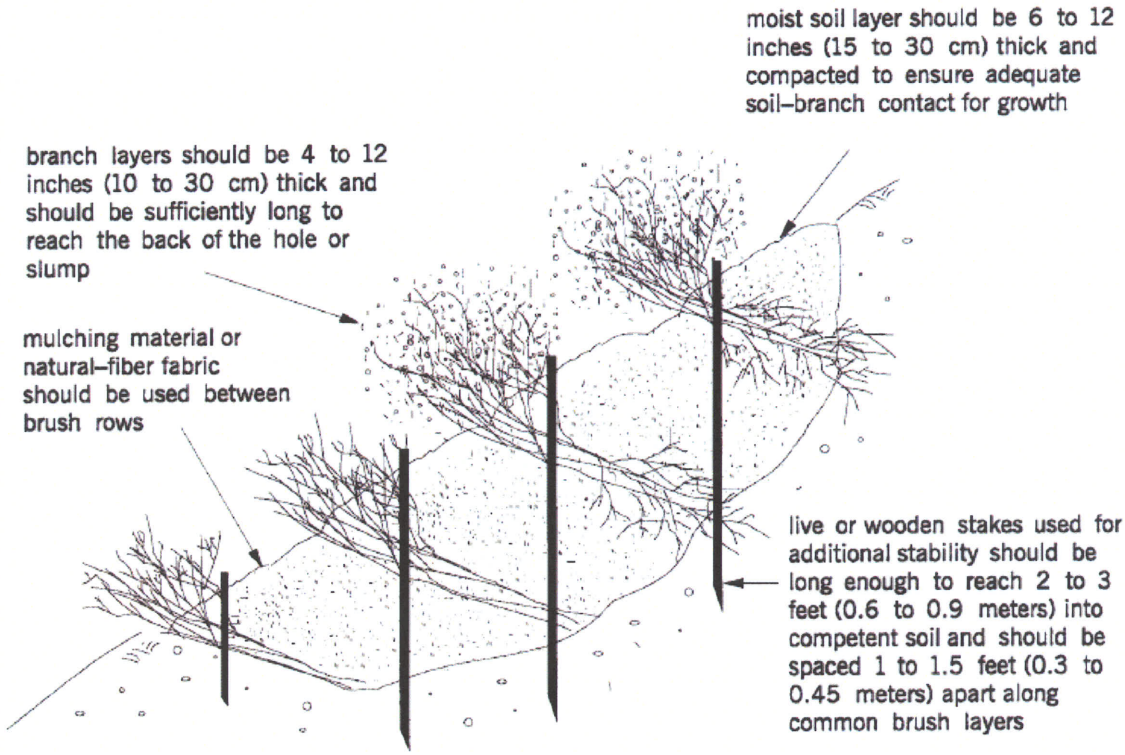
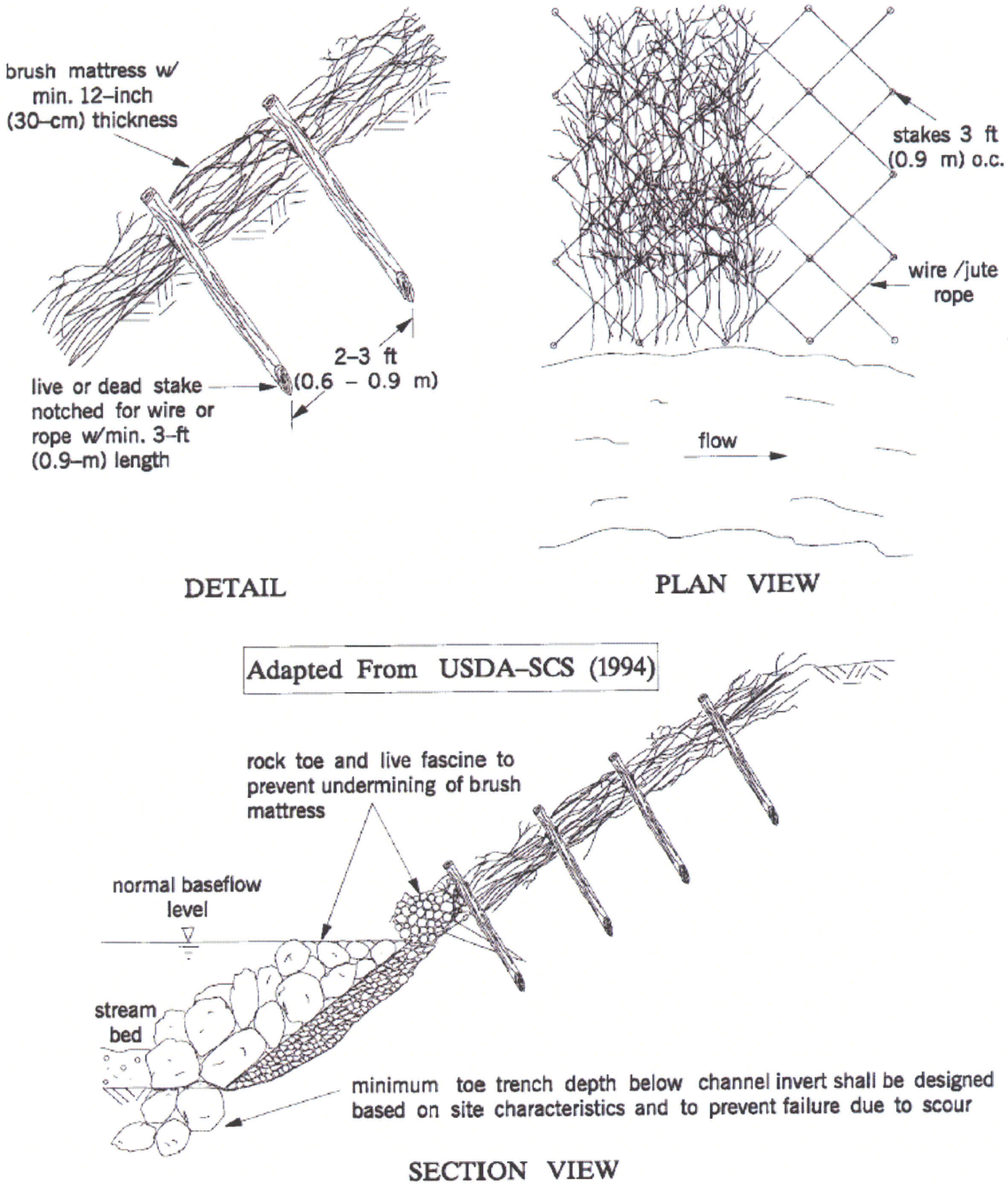
Construction Notes: installation should occur during periods of low flow and should proceed up the slope; a stable rock toe should be constructed below the normal baseflow level (see riprap guidelines)

Adapted From Gray & Sotir (1996)

Branch Packing

Adapted From Gray & Sotir (1996)

SECTION VIEW



Branch Mattresses