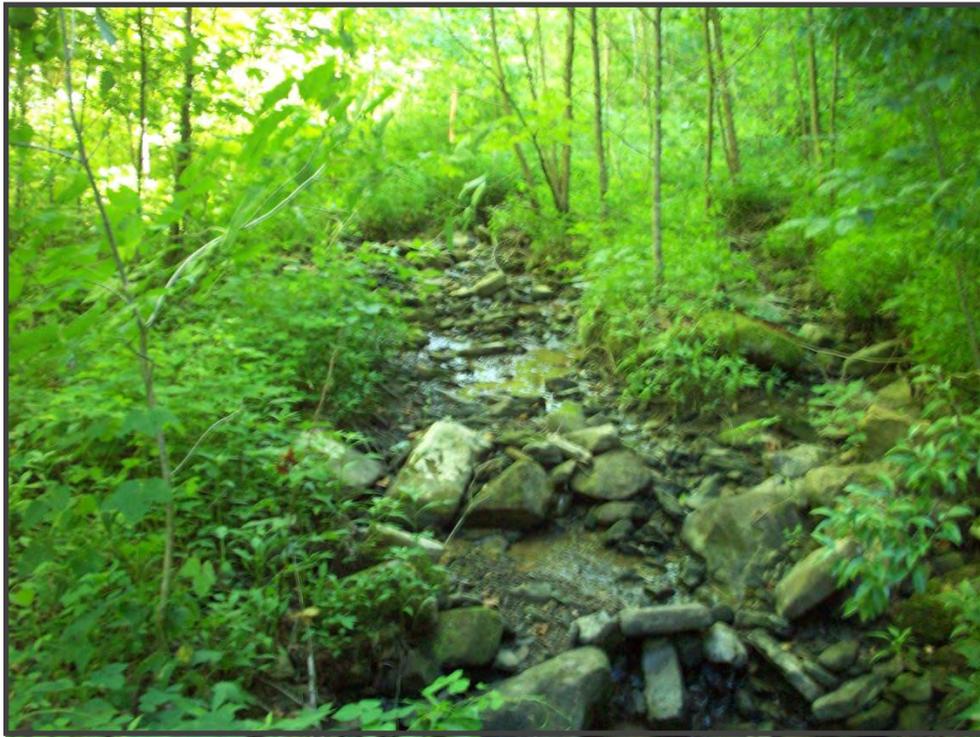




BIOLOGICAL SYSTEMS
CONSULTANTS, INC.



Nally & Hamilton Enterprises, Inc.
Clean Water Act Section 404 Individual Permit Application for Mill Creek
LRN 2012-00914/ KDNR #848-0290
BSC #2924 Revision #1

February 09, 2013

P.O. Box 54954
Lexington, KY 40555
(859) 263-4142

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Executive Summary

The following Clean Water Act (CWA) Section 404 Individual Permit application is being submitted on behalf of Nally & Hamilton Enterprises, Inc. The proposed impacts to “waters of the U.S.” would occur during the proposed contour surface mining operation.

Mitigation is provided through on-site stream restoration and through the purchase of Ecological Integrity Unit (EIU) credits from an approved mitigation bank.

“Water of the U.S.” Determination (TAB 1)

Jurisdictional “waters of the U.S.” Preliminary Jurisdictional Determination (PJD) correspondence from United States Army Corps of Engineers (USACE); dated 09-06-2011.

External Agency Correspondence (TAB2)

State Historic Preservation Office (SHPO), the Kentucky Department for Natural Resources (KDNR), and the Kentucky Division of Water (KDOW) is contained in this section. As discussed, the SHPO and KDNR have concluded that no impacts to historic places would occur. KDOW issued the related Section 402 Kentucky Pollutant Discharge Elimination System (KPDES) permit no. KYG046331 on November 28, 2012.

Impact Summary (TAB 3)

The proposed impacts include 18,671 linear feet of ephemeral, intermittent and perennial streams. All impacts are temporary and occur within sixteen mine through areas. These impacts include: 2,113 linear feet of ephemeral and 3,342 linear feet of intermittent and 13,216 linear feet of perennial streams. No permanent stream impacts are proposed. Table 3.1 and Figure 3-1 summarize the proposed impacts of the project.

Project Description (TAB 4)

The site can be located near Pathfork, KY on the Balkan, Ewing, Wallins Creek, and Varilla 7.5' USGS topographic maps. The total surface disturbance is 252.9 acres with contour mining is proposed along the Hance coal seam (243.2 acres). To facilitate the contour mining method sixteen mine-through areas that will impact “waters of the U.S.” are needed.

Stream Assessments and Threatened and Endangered Species (TAB 5)

The Eastern Kentucky Stream Assessment Protocol (EKSAP) was used to compare the pre-project impact sites and the post-project mitigation sites as well as calculate compensatory mitigation. This method included the Rapid Bioassessment Protocol (RBP) for use in Streams and Wadeable Rivers. The “waters of the U.S.” were graded within the proposed impact areas using the data sheets which were used to determine the existing ecological integrity index (EII) of the stream. All reaches contain pre-SMCRA mining impacts which have decreased stream functions and overall quality. The EII scores ranged from 0.20-0.84 on a scale of 0-1. Habitat scores ranged from 87-156 on a scale of 0-200. The previous impacts in these reaches are revealed by the decreased habitat scores in many areas. Conductivity readings ranged from 70-730 microsiemens/cm across the project area.

Threatened and Endangered Species

No Blackside dace (*chrosomus Cumberlandensis*) were encountered during the fish census of the watershed. The Indiana Bat (*Myotis sodalis*) was determined absent from the area during the initial mist net survey, but due to the expiration of this data a new survey is scheduled to occur during the 2013 netting season. The results will be provided to the United States Fish and Wildlife Service (USFWS) for Section 7 concurrence.

Cumulative Impact Analysis (TAB 6)

A cumulative impact analysis has been conducted and discusses past, present and future activities in the areas of cumulative socioeconomic impacts, highway development, mining, land cover, oil and gas activities, logging, and residential, agricultural and commercial developments.

Avoidance and Minimization (TAB 7)

The following avoidance and minimization measures have been taken by the applicant:

1. The applicant has evaluated practicable alternatives in the alternatives analysis and avoided permanent stream impacts which would increase the environmental impacts of the project.
2. Water quality monitoring through the Section 402 Kentucky Pollutant Discharge Elimination System (KPDES) program also provides avoidance and minimization of adverse affects and would provide remedial actions should any exceedance occur.
3. Compensatory mitigation provided through purchase of EIU credits from approved mitigation banks as well as the contingency plan for the on-site mitigation areas should ensure a successful mitigation project.
4. The applicant has proposed within the SMCRA permit that the permit area would be returned to approximate original contour upon the reclamation phases.
5. SMCRA permits Best Management Practices minimize overall impacts.

Public Interest Factors and 404(b) 1 Guideline Discussions (TAB 8)

As illustrated, direct, indirect, and cumulative impacts to human health or welfare, aquatic life and other water dependent life, aquatic ecosystems diversity, productivity, and stability, recreation, economic, and aesthetic values have been considered by the applicant.

Compensatory Mitigation (TAB 9)

Mitigation efforts for impacts are as follows:

Compensatory mitigation for 18,671 linear feet of stream is offered through incremental EIU credits purchases from an approved mitigation bank as well as on-site mitigation activities along 18,273 linear feet of stream utilizing natural stream design techniques.

All information contained within this application is as found in the areas investigated on the dates of the investigation.

TAB 1

“Waters of the U.S.” Preliminary Jurisdictional Determination

2924



DEPARTMENT OF THE ARMY
NASHVILLE DISTRICT, CORPS OF ENGINEERS
EASTERN REGULATORY FIELD OFFICE
501 ADESA BLVD., SUITE 250
LENOIR CITY, TENNESSEE 37771

REPLY TO
ATTENTION OF:

September 6, 2011

Regulatory Branch

SUBJECT: LRN-2009-0741, Nally and Hamilton Enterprises, Inc.; Proposed Mine Operation, KDNR # 848-0290, Mill Creek and Unnamed Tributaries to Cumberland River Mile 674.9 L, Harlan County, Kentucky

Mr. James Robinson
Biological Systems Consultants, Inc.
PO Box 54954
Lexington, Kentucky 40555

Dear Mr. Robinson:

This letter is in regard to the Preliminary Jurisdictional Determination (PJD) report for Kentucky Department of Natural Resources (KDNR) mine site #848-0290, located approximately 0.1 mile west of Path Fork. This PJD report was prepared by Biological Systems Consultants, Inc. I conducted the field verification with Mr. Jesse Robinson on August 24, 2011. The project has been assigned Department of the Army (DA) File # LRN-2009-0741. Please refer to this number in future correspondence regarding this project. **I understand that some of these aquatic resources identified within this PJD may also be located within the project boundary of KDNR # 848-0294.**

The PJD report contains information regarding potential waters of the United States (WOUS) identified on the proposed mining site. Your report included correspondence indicating your preference for the proposal to be reviewed as a PJD.

Based on a field review of the information provided, the site contains 29 WOUS totaling 37,845 linear feet of stream channel. This office has determined these waters **may** be jurisdictional WOUS in accordance with the Regulatory Guidance Letter for Jurisdictional Determinations issued by the U.S. Army Corps of Engineers (USACE) on June 26, 2008 (RGL No. 08-02). As indicated in the guidance, this PJD is non-binding and cannot be appealed and only provides a written indication that WOUS, including wetlands, may be present on-site. For purposes of computation of impacts, compensatory mitigation requirements and other resource protection measures, a permit decision made on the basis of a PJD will treat all waters and wetlands on the site as if they are jurisdictional WOUS.

Attached please find two copies of the PJD. If you agree with the findings of this PJD and understand your options regarding the same, please have the applicant or authorized agent sign and date one copy of the form and return it to this office within 30 days of receipt of this letter. You should submit the signed copy to the following address:

U.S. Army Corps of Engineers
Attn: Joe McMahan
501 Adesa Blvd., Suite 250
Lenoir City, Tennessee 37771

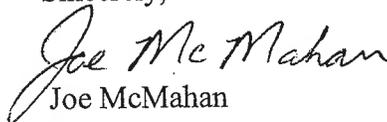
Typically a completed permit application (DA form 4345) including a development plan would be required to further evaluate the proposed project. You may supplement the completed application with additional information that may be beneficial in our evaluation of the proposed project. Guidance for submitting additional information including DA form 4345 is available for download or review at: <http://www.lrn.usace.army.mil/permits>.

Please contact me if you would like to schedule a pre-application meeting to further discuss alternatives for site development and I can assist you in avoiding and minimizing impacts to WOUS. If the proposed mining plan requires the discharge of material into WOUS, a DA Permit would be required. Depending on the type and amount of impact, you may be requested to prepare and submit an alternatives analysis and mitigation plan to compensate for the loss of WOUS associated with your project. In addition to a USACE permit, authorization may also be required from other federal and state agencies.

In accordance with the July 2010 Memorandum of Understanding between the USACE, the Environmental Protection Agency, the Office of Surface Mining, and KDNR, known as the "Fill Placement Optimization Process" (FPOP), **you are required to place the WOUS identified in this PJD on the Mining and Reclamation Plan (MRP) Map.** A hard copy of the MRP will be sent to this office for verification and approval prior to review under FPOP.

We appreciate your awareness of the USACE regulatory program. If you have any questions, please contact me at (865) 986-7296.

Sincerely,



Joe McMahan
Project Manager
Regulatory Branch

Enclosures

1. PJD Form
2. PJD Map

Copy Furnished:
Nally and Hamilton Enterprises, Inc.
Attn: Mr. Stephen Hamilton
PO Box 2323
London, Kentucky 40741

Mr. Tim Chandler
Department for Natural Resources
Division of Mine Reclamation and Enforcement
1804 East Cumberland Ave.
Middlesboro, KY 40965-1229

Mr. Thomas Barbour
Kentucky Department for Natural Resources
2 Hudson Hollow
Frankfort, Kentucky 40601

Ms. Danita LaSage
Kentucky Division of Mine Permits
#2 Hudson Hollow Road
Frankfort, KY 40601

Mr. Todd Bowers
U.S. Environmental Protection Agency - Region 4
Atlanta Federal Center, 61 Forsyth Street, S.W.
Atlanta, GA 30303-8960

Ms. Carrie Allison
U.S. Fish and Wildlife Service
J.C. Watts Federal Building, Room 265
330 W. Broadway
Frankfort, KY 40601

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD):

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

Nally & Hamilton Enterprises Inc.
P.O. Box 2323
London, KY 40741

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

**D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)**

State:KY County/parish/borough: Harlan City: Pathfork
Center coordinates of site (lat/long in degree decimal format): Lat.
36.728527° N, Long. -83.483995° W.
Universal Transverse Mercator:
Name of nearest waterbody: Mill Creek

Identify (estimate) amount of waters in the review area: SEE ATTACHMENT

Non-wetland waters: linear feet: width (ft) and/or acres.
Cowardin Class:
Stream Flow:
Wetlands: acres.
Cowardin Class:

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal:

Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

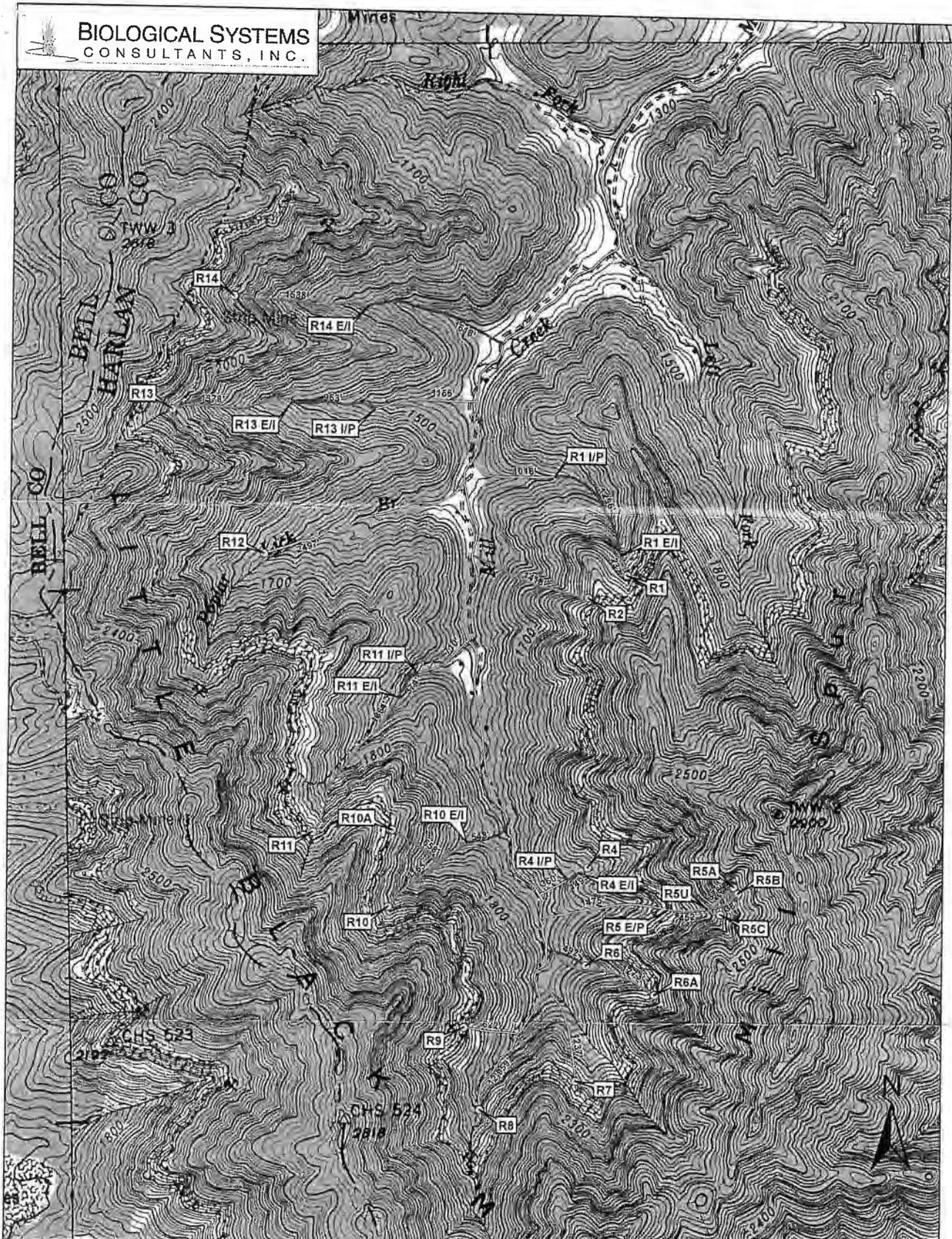
Office (Desk) Determination. Date:

Field Determination. Date(s): 06-15-16-2010, 10-05-06-2010, 06-07-2011, 06-09-2011

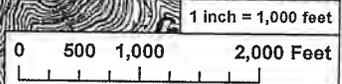
1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
R1	36.73371504	-83.47815739	R6	237'	Non-RPW
R1 E/I	36.73433940	-83.47838211	R4	1,296'	Seasonal RPW
R1 I/P	36.73686076	-83.48087766	R5	1,016'	Perennial RPW
R2	36.73301666	-83.47965625	R6	1,418'	Non-RPW
R4	36.72447734	-83.47982296	R6	122'	Non-RPW
R4 E/I	36.72432295	-83.48019177	R4	149'	Seasonal RPW
R4 I/P	36.72410937	-83.48062695	R5	360'	Perennial RPW
R5U	36.72315500	-83.47525800	R6	452'	Non-RPW
R5 E/P	36.72312643	-83.47675242	R5	1,475'	Perennial RPW
R5A	36.72380637	-83.47423198	R6	378'	Non-RPW
R5B	36.72361736	-83.47407750	R6	387'	Non-RPW
R5C	36.72295703	-83.47477647	R6	151'	Non-RPW
R6	36.72139246	-83.47997174	R5	492'	Seasonal RPW
R6A	36.72046132	-83.47733882	R6	1,273'	Non-RPW
R7	36.71784860	-83.48043501	R5	1,237'	Perennial RPW
R8	36.71699532	-83.48415607	R5	12,959'	Perennial RPW
R9	36.71956295	-83.48471908	R5	622'	Perennial RPW
R10	36.72334830	-83.48759005	R6	1,165'	Non-RPW
R10 E/I	36.72531696	-83.48449252	R4	548'	Seasonal RPW
R11	36.72570202	-83.49044183	R6	1,864'	Non-RPW
R11 E/I	36.72993086	-83.48709217	R4	374'	Seasonal RPW
R11 I/P	36.73070208	-83.48631726	R5	710'	Perennial RPW
R12	36.73453378	-83.49216070	R5	2,497'	Perennial RPW
R13	36.73906445	-83.49561011	R6	1,378'	Non-RPW
R13 E/I	36.73922195	-83.49101926	R4	963'	Seasonal RPW
R13 I/P	36.73898239	-83.48781561	R5	1,166'	Perennial RPW
R14	36.74247195	-83.49318522	R6	1,538'	Non-RPW
R14 E/I	36.74213826	-83.48799121	R4	1,618'	Seasonal RPW



- Legend**
- End of Jurisdiction
 - Uplands
 - NRPW (Ephemeral)
 - RPW:S (Intermittent)
 - RPW (Perennial)



Excerpt from Ewing, KY
7.5' USGS Topographic Quadrangle
NAD 1983 StatePlane Kentucky FIPS 1600 (feet)

DRAWING NAME: Figure 2
CLIENT: Nally & Hamilton Enterprises, Inc.
KDNR#: 848-0294
DATE: 8/26/2011
DRAWN BY: ARB **CHECKED BY:** JRR
SCALE: 1:24,000

TAB 2

External Agency Correspondence



ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR NATURAL RESOURCES

Steven L. Beshear
Governor

Division of Mine Permits

2 Hudson Hollow
Frankfort, Kentucky 40601
Phone (502) 564-2320
Fax (502) 564-6764
www.minepermits.ky.gov

Leonard K. Peters
Secretary

Carl E. Campbell
Commissioner

February 21, 2009

DON ROBERTS
LOGOS ENGINEERING
PO BOX 350
MANCHESTER KY 40962

RE: Nally & Hamilton Enterprises, Inc.
Application # 848-0290 NW

Dear Mr. Roberts:

The Division of Mine Permits has conducted the critical resources review of the above referenced application. Attached are the Division's findings, listed by application item, describing the issues that must be addressed. The findings for each application item are summarized below.

- 11.1 Areas Designated Unsuitable for Mining: None identified
- 12.2 General Description of Mining and Reclamation Operations: BMPs recommended, Stream restoration
- 13.1 Cultural or Historic Resources: Archaeological survey required
- 14.1 Fish and Wildlife Information: T/E species identified - Indiana bat
- 14.4 Fish and Wildlife Survey: Required as listed below
 - Indiana bat survey or PEP
 - Aquatic Survey
- 21.11 Fish and Wildlife Enhancement Plan: Required

These attachments and supporting documentation must be incorporated into the appropriate sections of the comprehensive application.

Significant changes from the preliminary application or to the mine plan may require additional environmental review.

If you have any questions concerning this matter, please contact the review biologist, Thomas Barbour, or archaeologist, Rose Moore, Critical Resources Review Section, at (502) 564-2320.

Sincerely,


Davie Ransdell, Supervisor
Critical Resources Review Section
Division of Mine Permits

Enclosure to Applicant

c: Rose Moore (e)
Thomas Barbour (e)
Mark Dennen, SHPO
Mike Hardin, KDFWR
Lee Andrews, USFWS
Permit File - w/enclosure (e)



**ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR NATURAL RESOURCES**

Steven L. Beshear
Governor

Division of Mine Permits

2 Hudson Hollow
Frankfort, Kentucky 40601
Phone (502) 564-2320
Fax (502) 564-6764
www.minepermits.ky.gov

Leonard K. Peters
Secretary

Carl E. Campbell
Commissioner

November 13, 2009

DON R. ROBERTS
LOGOS ENGINEERING
P.O. BOX 350
MANCHESTER, KENTUCKY 40962

RE: Nally & Hamilton Enterprises, Inc.
Application # 848-0290, NW

Dear Mr. Roberts:

This office recently received the report, "Phase I Archaeological Survey of a Proposed 252.9-Acre Coal Mine Area Near Mill Creek in Harlan County, Kentucky," prepared by Contractor. This report presents the results of a preliminary reconnaissance survey of the above referenced permit application.

During the course of the archaeological investigation, it was determined that no sites eligible for listing in the National Register of Historic Places exist within the proposed permit area. Therefore, the investigator has **recommended that no additional work be conducted within this area.** Division of Mine Permits personnel and the State Historic Preservation Officer have reviewed the author's methodology and conclusions, and concur with this recommendation. A copy of the SHPO comments is attached for your information.

The Department now considers the applicant to have successfully completed the permitting requirement to consider and protect significant cultural resources for the subject permit application. If you have any questions concerning this matter, please contact Rose Moore, staff archaeologist, Critical Resources Review Section at (502) 564-2320.

Sincerely,


Davie Ransdell, Supervisor
Critical Resources Review Section
Division of Mine Permits

c: Rose Moore (e)
Permit File Darcie Jarman (e)
Dr. Steven Ahler, UK-PAR, 1020A Export Street, Lexington, KY 40506-9854
James B. Robinson, Southeast Archaeology, Inc., P.O. Box 54954,
Lexington, KY 40555-4954
Mark Dennen, SHPO (e)



STEVEN L. BESHEAR
GOVERNOR

**TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL**

MARCHETA SPARROW
SECRETARY

THE STATE HISTORIC PRESERVATION OFFICE

300 WASHINGTON STREET
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-7005
FAX (502) 564-5820
www.heritage.ky.gov

MARK DENNEN
EXECUTIVE DIRECTOR AND
STATE HISTORIC PRESERVATION OFFICER

November 4, 2009

Ms. Davie Ransdell, Supervisor
Critical Resources Review Section
DSMRE/Division of Permits
#2 Hudson Hollow Complex
U.S. 127 South
Frankfort, Kentucky 40601

Re: Nally & Hamilton Enterprises, Inc
Application #848-0290 NW

Dear Ms. Ransdell:

Thank you for your letter regarding the above referenced project. I have completed my review of the archaeological report entitled "Phase I Archaeological Survey of a Proposed 252.9 Acre Coal Mine Area Near Mill Creek in Harlan County, Kentucky by Jason Ross of the UK Program for Archaeological Research. During the course of the survey, landscape features, rock piles and rock overhangs were identified but were not assigned archaeological site numbers. The consulting archaeologist does not recommend any further work for this proposed permit area. We concur with these findings.

Should you have any questions, feel free to contact Lori Stahlgren of my staff at (502) 564-700, ext 151.

Sincerely,

Mark Dennen, Executive Director
Kentucky Heritage Council and
State Historic Preservation Officer

LCS/lcs

Cc: Dr. George Crothers
Steve Ahler

2009 NOV 1
RECEIVED
ENVIRONMENTAL
DIVISION



STEVEN L BESHEAR
GOVERNOR

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

LEONARD K PETERS
SECRETARY

DIVISION OF WATER
200 FAIR OAKS LANE
FRANKFORT, KENTUCKY 40601
www.kentucky.gov
November 28, 2012

Nally & Hamilton Enterprises Inc
109 S 4th St
Bardstown, KY 40004

Re: Coal General Permit Coverage
AI No.: 103468
KPDES No.: KYG046331
DNR No.: 848-0290 NW
Harlan County, Kentucky

Dear Permittee:

Effective on the Approval Date in Table 1 the Kentucky Division of Water (DOW) has determined to grant and/or extend coverage under the “General Permit for Coal Mining Activities in the Commonwealth of Kentucky” (KYG040000) for the following DNR actions:

TABLE 1			
DNR Permit No	Action No.	Description of Action	Approval Date
848-0290	NW	+ 252.9 surface acreage, + 18 KPDES monitoring points	11/28/2012

Discharges of wastewaters from sediment control structures associated with these actions are subject to the requirements and conditions of KYG040000 until either expiration of the KYG040000, final bond release or termination of coverage. A copy of KYG040000 and its accompanying Fact Sheet are available for downloading at the following DOW web address:

<http://water.ky.gov/permitting/General%20Permit%20Fact%20Sheets/SFinalKYG040000.pdf>

The following additional conditions apply to the referenced permitted activity:

- Only those outfalls (ponds) listed in Table 2 of this letter are authorized to discharge. Please contact the Division of Water within thirty (30) days regarding any omissions or errors to Table 2.
- Discharges of runoff from a coal haul road shall be managed using Best Management Practices (BMP). The permittee shall select, install, operate and maintain those BMPs that are necessary to minimize the discharge of pollutants from haul roads.

Coverage Letter

KPDES No.: KYG046331

DNR No.: 848-0290 NW

Page 2

- Discharges of runoff from the repair of slides associated with DNR enforcement actions shall be addressed in a specific section of the BMP plan for that mine.
- The permittee shall install, operate, and maintain wastewater treatment facilities consistent with those identified in the permittee's Socioeconomic Demonstration and Alternatives Analysis (SDAA) form as accepted by the Division of Water as a part of this KPDES general permit coverage.

Failure to comply with these conditions shall result in the termination of this general permit coverage. A copy of this coverage letter and the associated Best Management Practices plan shall be kept on-site.

Should you have any questions regarding this matter, please contact Brenda Taylor at 502-564-8158 extension 4921, or by e-mail at Brenda.Taylor@ky.gov.

Sincerely,



Brenda F. Taylor, Permit Writer
Resource Extraction Section
Surface Water Permits Branch
Division of Water

Cc: logosengineering@windstream.net
Division of Mine Reclamation and Enforcement
TEMPO

Effective on the first of the month following the date of this letter and lasting through either expiration of the “General Permit for Coal Mining Activities in the Commonwealth of Kentucky” (KYG040000), final bond release or termination of coverage the following outfalls are authorized to discharge.

Table 2								
Outfall No.	Pond No.	Latitude	Longitude	Receiving Water	Active or Post	Status	Shared	KPDES Permit No
001	SS1	36.748	-83.478194	Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-
002	SS2	36.748056	-83.480694	Right Fork Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-
003	SS3	36.747361	-83.480333	Right Fork Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-
004	SS4	36.744667	-83.479361	Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-
005	SS5	36.74275	-83.481111	Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-
006	SS6	36.741667	-83.483111	Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-
007	SS7	36.741722	-83.484806	Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-
008	SS8	36.740472	-83.484278	Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-
009	SS9	36.739139	-83.48525	Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-
010	SS11	36.73725	-83.484139	Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-
011	SS13	36.740528	-83.481833	Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-
012	SS14	36.7425	-83.478389	Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-
013	SS15	36.74225	-83.476583	Left Fork Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-
014	SS16	36.743361	-83.477528	Left Fork Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-

Table 2

Outfall No.	Pond No.	Latitude	Longitude	Receiving Water	Active or Post	Status	Shared	KPDES Permit No
015	SS17	36.745472	-83.477806	Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-
016	SS18	36.747222	-83.477194	Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-
017	SS2A	36.748	-83.474583	Right Fork Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-
018	SS15A	36.74225	-83.476917	Left Fork Mill Creek	Active Mining & Post Mining (Underground Drainage)	Proposed	-	-



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Kentucky Ecological Services Field Office
330 West Broadway, Suite 265
Frankfort, Kentucky 40601
(502) 695-0468

Indiana Bat Summer Survey and Winter Habitat Assessment Report For Surface Mining Projects

Date: 7/25/2013

Project Information

KYFO No: 2009-B-0326

Project Name: Nally & Hamilton, DNR 848-0290

Location: Harlan Co., KY

Acreage: 190 acres

Mist Net Sites: 2

Surveyor: BSC

On Behalf of: Nally & Hamilton Enterprises, Inc.

Exp. Date: June 13th, 2018

The U.S. Fish and Wildlife Service's Kentucky Field Office (KYFO) has reviewed an Indiana Bat Summer Mist Net Survey and Winter Habitat Assessment report for the above-referenced project. No Indiana bats were captured and no potential Indiana bat winter habitat was identified onsite. We find the survey acceptable and believe that any potential effects to summer and/or winter habitat of the Indiana bat would not be attributable to the Kentucky Department of Natural Resources (DNR) or the U.S. Army Corps of Engineers (COE) permitting process. Pursuant to the Range-wide Indiana Bat Protection and Enhancement Plan Guidelines (2009), the results of this survey are valid for a period of five years. These comments have been discussed and approved by Mr. Virgil Lee Andrews, Jr., Field Supervisor and therefore should be considered the comments of the KYFO. If you have any questions regarding this letter, please contact me at (502) 695-0468, Ext. 103.

Sincerely,

Carrie L. Allison
Fish and Wildlife Biologist

SCANNED

TAB 3

Impact Summary

TAB 3: IMPACT SUMMARY

Nally & Hamilton Enterprises, Inc.

Individual Permit Application and Stream Restoration Plan

LRN-2012-00914

KDNR #848-0290

Revised May 8, 2013

Table 3.1 Impact Summary

Impact Name	Flow Regime	Linear Feet (ft)	Acreage	Existing EIUs	RBP Score	EII Score	Conductivity	Total Ephemeral (ft)	Total Intermittent (ft)	Total Perennial (ft)	Total Wetland (acres)
DUG-OUT BENCH PONDS (SS)											
SS#7	RPW:S	86	0.015	66.22	142	0.77	70	-	86	-	-
SS#9	RPW:P	124	0.019	93	140	0.75	80	-	-	124	-
SS#11	RPW:P	188	0.06	52.64	135	0.28	730	-	-	188	-
MINE AREAS (MA)											
MA-A	RPW:S	868	0.09	529.48	112	0.61	70		868		-
	NRPW	300	0.025	165	87	0.55	70	300			-
MA-B	RPW:S	50	0.01	34.5	127	0.69	70		50		-
	RPW:P	1,430	0.28	1029.6	133	0.72	70			1,430	-
MA-C	RPW:S	106	0.008	58.3	90	0.55	70		106		-
	NRPW	491	0.04	270.05	90	0.55	70	491			-
MA-D	RPW:S	727	0.085	559.79	142	0.77	70		727		-
MA-E	RPW:P	706	0.11	529.5	140	0.75	80			706	-
	RPW:S	346	0.09	245.66	132	0.71	80		346		-
MA-F	RPW:P	2,262	0.36	1606.02	132	0.71	100			2,262	-
MA-G	RPW:P	4,608	1.59	1290.24	135	0.28	730			4,608	-
MA-H	RPW:P	710	0.06	518.3	135	0.73	90			710	-
	RPW:S	365	0.03	262.8	133	0.72	90		365		-

TAB 3: IMPACT SUMMARY

Nally & Hamilton Enterprises, Inc.

Individual Permit Application and Stream Restoration Plan

LRN-2012-00914

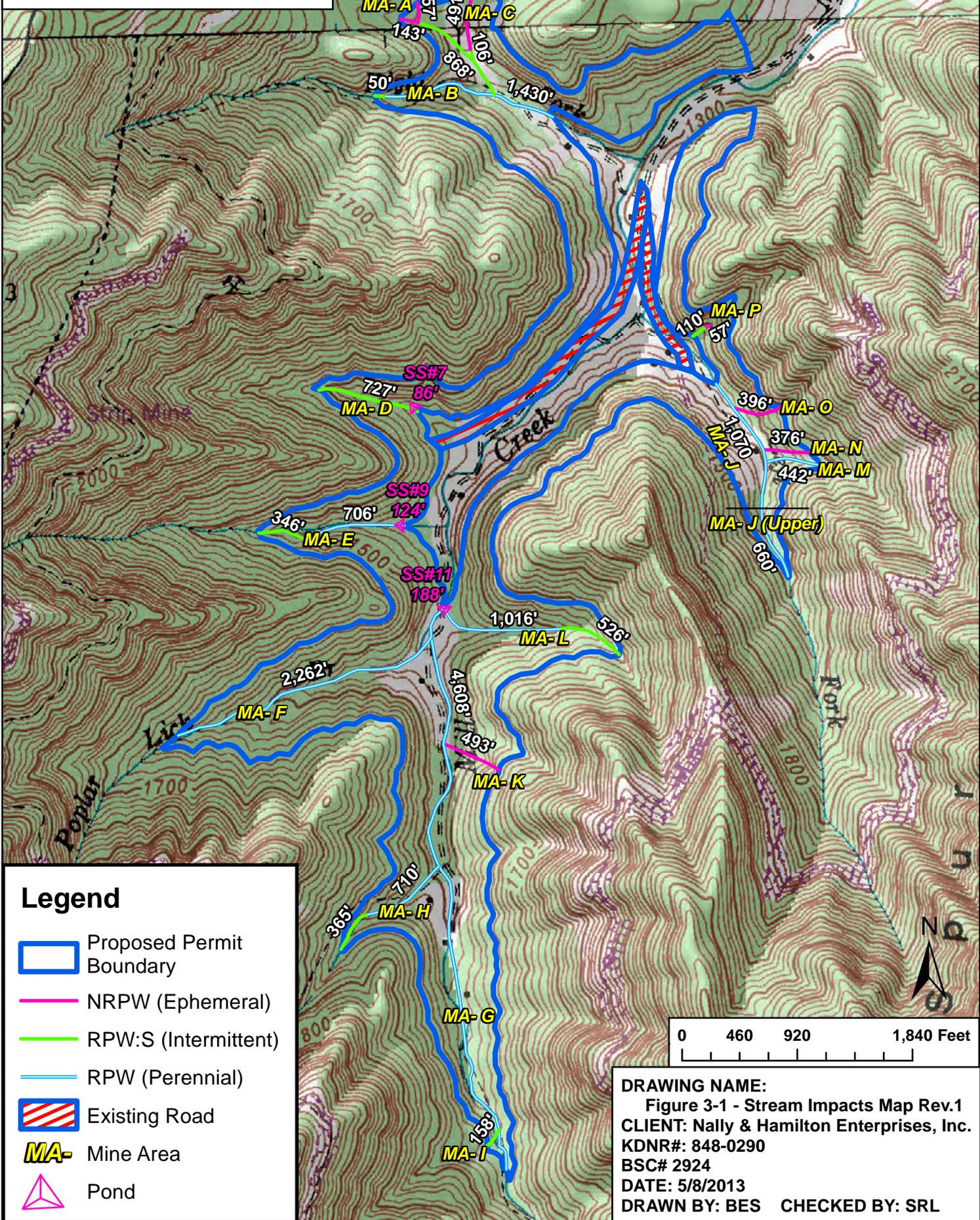
KDNR #848-0290

Revised May 8, 2013

Table 3.1 CONT. Impact Summary											
Impact Name	Flow Regime	Linear Feet (ft)	Acreage	Existing EIUs	RBP Score	EII Score	Conductivity	Total Ephemeral (ft)	Total Intermittent (ft)	Total Perennial (ft)	Total Wetland (acres)
MA-I	RPW:S	158	0.009	107.44	139	0.68	195 n=2		158		-
MA-J Lower	RPW:P	1,070	0.17	898.8	156	0.84	182.5			1,070	-
MA-J Upper	RPW:P	660	0.05	481.8	143	0.73	182.5			660	-
MA-K	NRPW	493	0.01	98.6	119	0.2	730	493			-
MA-L	RPW:P	1,016	0.11	762	140	0.75	100			1,016	-
	RPW:S	526	0.06	394.5	140	0.75	100		526		-
MA-M	RPW:P	442	0.01	349.18	145	0.79	100			442	-
MA-N	NRPW	376	0.01	263.2	129	0.70	100	376			-
MA-O	NRPW	396	0.01	233.64	125	0.59	210	396			-
MA-P	RPW:S	110	0.007	61.6	120	0.56	210		110		-
	NRPW	57	0.001	30	113	0.53	210	57			-
Total	-	18,671	3	10,992.07	-	-	-	2,113	3,342	13,216	0

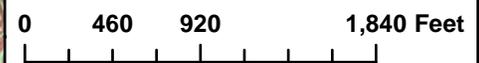
n= average

The proposed impacts include 18,671 linear feet (LF) of ephemeral, intermittent and perennial streams; with total ephemeral at 2,113 LF, total intermittent at 3,342 LF, and total perennial at 13,216 LF. Proposed impacts include sixteen temporary mine through areas (Mine Area A-P) and 3 temporary dug out bench ponds (7, 9, and 11). Stream impact locations and lengths are illustrated on **Figure 3-1**.



Legend

-  Proposed Permit Boundary
-  NRPW (Ephemeral)
-  RPW:S (Intermittent)
-  RPW (Perennial)
-  Existing Road
-  Mine Area
-  Pond



DRAWING NAME:
Figure 3-1 - Stream Impacts Map Rev.1
CLIENT: Nally & Hamilton Enterprises, Inc.
KDNR#: 848-0290
BSC# 2924
DATE: 5/8/2013
DRAWN BY: BES **CHECKED BY:** SRL

TAB 4

Introduction, Project Purpose and Need, Site Location and Description

TAB 4: INTRODUCTION

Nally & Hamilton Enterprises, Inc.
Individual Permit Application and Stream Restoration Plan
LRN-2009-00741
KDNR #848-0290
Revised February 9, 2013

INTRODUCTION

The following information is being provided to the US Army Corps of Engineers (USACE) to fulfill the requirements for an individual permit under Section 404 of the Clean Water Act (CWA). The individual permit is being applied for to allow for the discharge of dredge or fill material into “waters of the U.S.”. This is needed to facilitate the Mill Creek mining operation associated with the Kentucky Department for Natural Resources (KDNR) Mining Permit # 848-0290, proposed by Nally and Hamilton Enterprises, Inc.

Discharges are proposed along approximately 18,671 linear feet (3.32 acres) of ephemeral, intermittent, and perennial “waters of the U.S”.

PROPOSED MINE PLAN

243.2 acres of surface contour mining is proposed along the Hance coal seam. Removal of overburden and coal will be conducted by conventional surface mining methods. Equipment utilized will consist primarily of drills, dozers, loaders, and trucks. Drills (RDC~16) will assist in the blasting of material, with dozers (155 KOMATSU or D9 -DII CAT)) and loaders (988-922 CAT) moving the overburden. Trucks (769 -777 CAT) will be used if necessary to transport materials. Similar equipment may be used as determined by the operator.

Once topsoil and/or alternate material have been removed from a site, overburden removal will begin. After the removal of overburden is completed the coal will be extracted from the active pit. After coal has been removed from the pit area, overburden from the next coal extraction point will be transported to reclaim the preceding extraction point. Backfilling and grading to approximate original contour shall follow coal removal. Final grading will ensure that all highwalls are eliminated. The area will be compacted by several passes on each layer with the use of heavy equipment. Following final grading of slopes, topsoil and/or alternate material will be reapplied. Care will be taken to prevent excess compaction of this material. The area will then be seeded and mulched according to the SMCRA re-vegetation plan. In areas where stream restoration of “waters of the U.S.” is proposed, the restored channels will be constructed in accordance to the plans outlined in **TAB 9**. This will occur after backfilling has been completed.

PROJECT PURPOSE AND NEED

The purpose and need of the proposed project is to meet the market demand for coal and fulfill related contracts and agreements.

SITE LOCATION AND DESCRIPTION

The project is located in Harlan County on the USGS 7.5' Balkan, Ewing, Wallins Creek, and Varilla quadrangles (**Figure 4-1**). The proposed permit area is located in the Mill Creek watershed located between 1,200-1,600 feet AMSL in elevation.

TAB 4: INTRODUCTION

Nally & Hamilton Enterprises, Inc.
Individual Permit Application and Stream Restoration Plan
LRN-2009-00741
KDNR #848-0290
Revised February 9, 2013

Geology

Geologically, the project area is located within the Appalachian Mountains. Rock formations have been deformed or displaced through folding and faulting processes. Pine and Cumberland Mountains are the dominant topographic features in Harlan County. These areas consist of Devonian and Mississippian-age systems which contain Chattanooga shale, Grander Formation shale and siltstone, Newman limestone, and Pennington formation sandstone, shale, and limestone (**Figure 4-2**).

Soils

Soils in the survey area belong to the Highsplint-Cloverlick-Guyandotte association.¹ These soils are deep and very deep with gravelly or channery, loamy subsoil; soils of the association cover over half of Harlan County. Within this association, the soils in the project area belong to either the Cloverlick-Guyandotte-Highsplint complex or the Highsplint-Cloverlick-Guyandotte complex (**Figure 4-3**).

Cloverlick-Guyandotte-Highsplint complex (CgF):

This complex is associated with 35 to 75 percent mountain slopes and is described as very stony. The typical profile of Cloverlick soils is: 0 to 6 inches; gravelly loam, 6 to 22 inches; gravelly loam, 22 to 41 inches; very gravelly loam, 41 to 70 inches; very flaggy loam. The Guyandotte profile is typically 0 to 61 inches; very channery loam. The Highsplint soil profile is described as 0 to 60 inches; very channery loam.

Highsplint-Cloverlick-Guyandotte complex (HsF):

This complex is associated with 35 to 75 percent mountain slopes and is described as very stony. The typical profile of Highsplint soils is: 0 to 48 inches; very channery silt loam, 48 to 60 inches; very channery silty clay loam. The Cloverlick profile is typically 0 to 60 inches; very flaggy loam. The Guyandotte soil profile is described as 0 to 60 inches; extremely flaggy silt loam. The parent material is described as loamy skeletal colluvium derived from sandstone and shale.²

Flora

Harlan County is in the Mixed Mesophytic Forest Region. These forests would have included beech, yellow poplar, assorted oaks and hickories, walnut, hemlock and pine. Due to major land clearing in the region, secondary forest growth has replaced the original forest cover. The

¹ Childress, J. Daniel. 1992. *Soil Survey of Bell and Harlan Counties, Kentucky*. USDA, SCS and Forest Service.

² USDA-NRCS 2009 *Web Soil Survey* <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx> Accessed: January 31, 2013

TAB 4: INTRODUCTION

Nally & Hamilton Enterprises, Inc.
Individual Permit Application and Stream Restoration Plan
LRN-2009-00741
KDNR #848-0290
Revised February 9, 2013

secondary forest in Harlan County consists of predominately maple, beech, yellow poplar, oak and hickory.³

Drainage

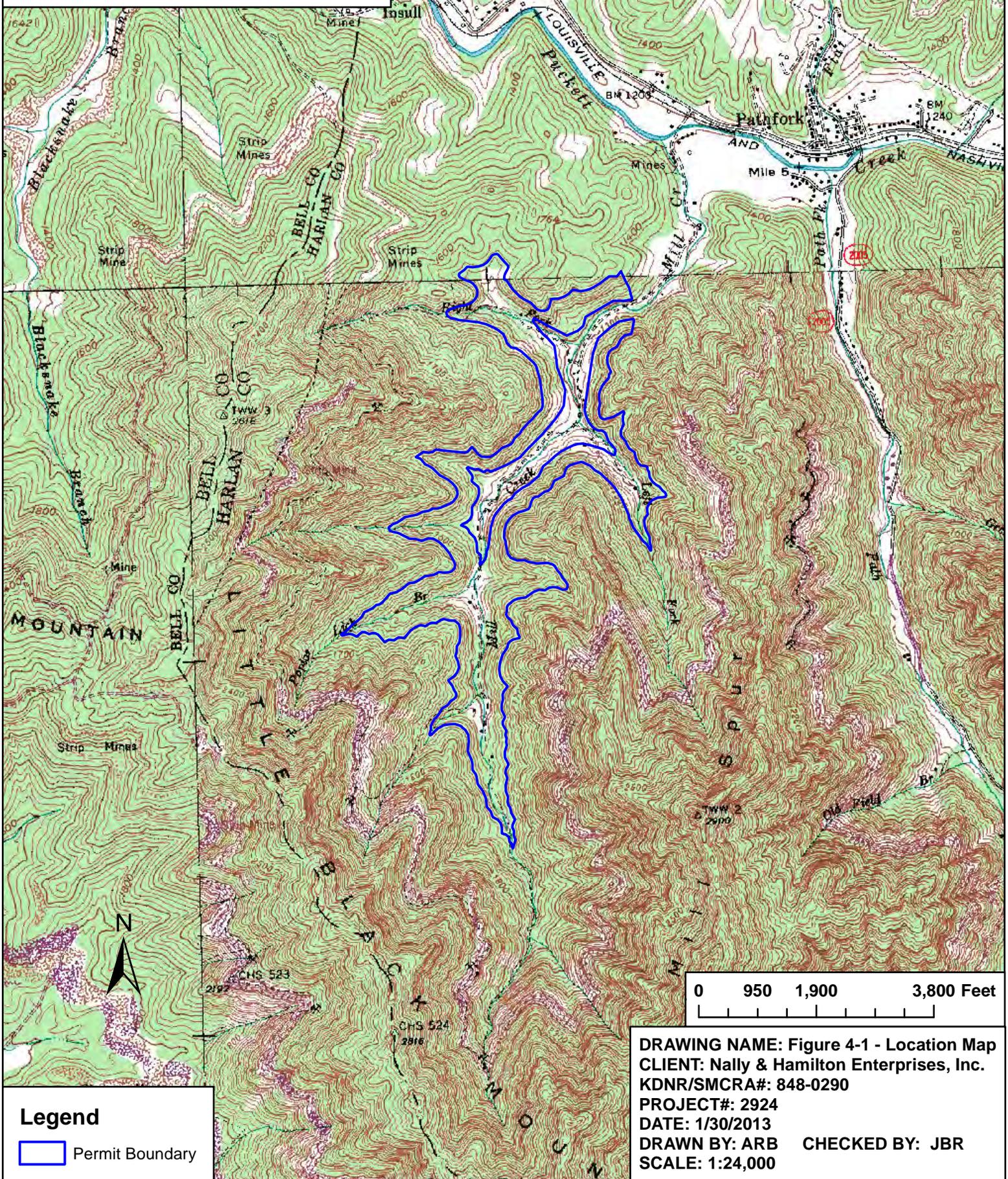
Mill Creek flows northeast into Puckett Creek which meanders approximately 4.5 miles west to the nearest traditionally navigable water (Cumberland River) near Blackmont, KY.

³ Braun, E. Lucy. 2001. *Deciduous Forests of Eastern North America* (Reprint). Hafner Press, New York. Originally published in 1950, Blackiston, Philadelphia.



BIOLOGICAL SYSTEMS
CONSULTANTS, INC.

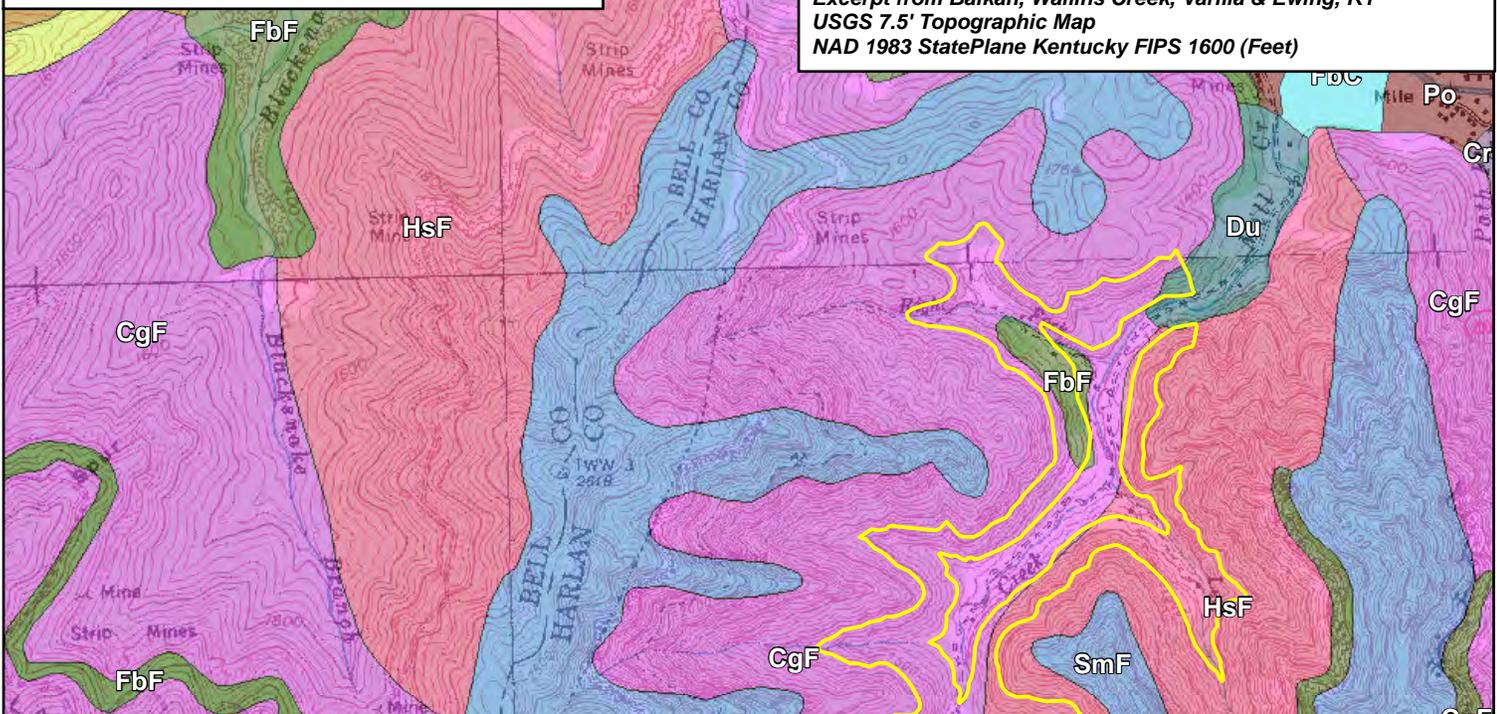
Excerpt from Balkan, Wallins Creek, Varilla & Ewing, KY
USGS 7.5' Topographic Map
NAD 1983 StatePlane Kentucky FIPS 1600 (Feet)



Legend

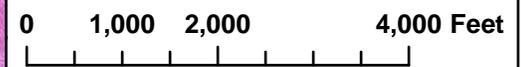
 Permit Boundary

DRAWING NAME: Figure 4-1 - Location Map
CLIENT: Nally & Hamilton Enterprises, Inc.
KDNR/SMCRA#: 848-0290
PROJECT#: 2924
DATE: 1/30/2013
DRAWN BY: ARB **CHECKED BY:** JBR
SCALE: 1:24,000



Legend

-  Permit Boundary
-  Cloverlick-Guyandotte-Highsprint complex, 35 to 75 percent slopes, very stony
-  Craigsville-Philo complex, occasionally flooded
-  Fairpoint and Bethesda soils, 2 to 20 percent slopes
-  Fairpoint and Bethesda soils, 20 to 70 percent slopes
-  Gilpin-Shelocta-Sequoia complex, 25 to 55 percent slopes, very stony
-  Highsprint very flaggy silt loam, 5 to 20 percent slopes, extremely bouldery
-  Highsprint-Cloverlick-Guyandotte complex, 35 to 75 percent slopes, very stony
-  Philo fine sandy loam, occasionally flooded
-  Pope fine sandy loam, occasionally flooded
-  Shelocta gravelly silt loam, 2 to 6 percent slopes
-  Shelocta gravelly silt loam, 6 to 12 percent slopes
-  Shelocta-Gilpin silt loams, 20 to 35 percent slopes
-  Shelocta-Highsprint complex, 35 to 75 percent slopes, very stony
-  Shelocta-Kimper-Cloverlick complex, 35 to 75 percent slopes, very stony
-  Shelocta-Kimper-Cutshin complex, 20 to 55 percent slopes, very stony



DRAWING NAME: Figure 4-3 - NRCS Soils Map
CLIENT: Nally & Hamilton Enterprises, Inc.
KDNR/SMCRA#: 848-0290
PROJECT#: 2924
DATE: 1/30/2013
DRAWN BY: ARB **CHECKED BY:** JBR
SCALE: 1:24,000

TAB 5

Stream Assessment and Threatened and Endangered Species

TAB 5: STREAM ASSESSMENT INFORMATION AND THREATENED AND ENDANGERED SPECIES

Nally & Hamilton Enterprises, Inc.

Individual Permit Application and Stream Restoration Plan

LRN-2012-00914

KDNR#848-0290

Revised May 8, 2013

STREAM HABITAT ASSESSMENTS

The Eastern Kentucky Stream Assessment Protocol (EKSAP) was used to compare the pre-project impact sites and the post-project mitigation sites, as well as calculate compensatory mitigation. This method included the Rapid Bioassessment Protocol (RBP) for use in Streams and Wadeable Rivers.¹ The streams were graded within the proposed impact areas using the data sheets, and the data was used to determine the existing ecological integrity index (EII) of the stream. All reaches contain pre-SMCRA mining impacts which have impacted characteristics such as embeddedness and sediment deposition. The EII calculator sheets and high gradient data sheet field forms are included in this section. The EII scores ranged from 0.20-0.85 on a scale of 0-1. Habitat scores ranged from 80-156 on a scale of 0-200. The previous impacts in these reaches are revealed by the decreased habitat scores in many areas. Conductivity readings ranged from 70-730 microsiemens/cm across the project area.

STREAM SURVEY DATA

Data resulting from the onsite stream surveys is contained in **TAB 9**. The current stream channel dimension, pattern, and profile are proposed as the post-mining stream conditions.

VEGATATION

Dominant vegetation within the forested areas consisted of American Beech (*Fagus grandifolia*), American Sycamore (*Plantanus occidentalis*), Northern Red Oak (*Quercus rubra*), Pignut Hickory (*Carya glabra*), Tulip Poplar (*Liriodendron tulipifera*) and White Oak (*Quercus alba*).

THREATENED AND ENDANGERED SPECIES

The presence or absence of the endangered Indiana Bat (*Myotis sodalis*) will be determined by a mist net survey during the 2013 netting season. The initial survey was negative for presence. The aquatic assessment of Mill Creek concluded that the Blackside Dace (*Chrosomus cumberlandensis*) was absent.

BIOLOGICAL SAMPLING RESULTS

Macroinvertebrate and fish sampling sites were located within the Mill Creek watersheds. An aquatic biological assessment was conducted in 2009. The assessment which is contained in this section concluded that Mill Creek contained a poor macroinvertebrate bioassessment index (MBI) score and a poor fish population.

¹ Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish, Second Edition. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water; Washington, D.C.

EII Calculation for High Gradient Streams in Eastern Kentucky Coalfield (Version 2002.6)
 (Family Level Taxonomy - All Habitats)

Project ID:	LRN-2012-00914
Stream/Reach:	Mine Area A Ephemeral
Assessment Objectives:	EXISTING CONDITIONS

EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.55	Ecological Integrity Index (Habitat Integrity + Conductivity)

Variables	Measure	Units	
Enter quantitative or categorical measure from Field Data Sheet in shaded cells			
RBP Habitat Parameters			
1. Epifaunal Substrate	6	no units	
2. Embeddedness	15	no units	
3. Velocity/Depth Regime	1	no units	
4. Sediment Deposition	6	no units	
5. Channel Flow Status	0	no units	
6. Channel Alteration	15	no units	
7. Freq. Of Riffles (bends)	11	no units	
8. Bank stability (both combined)	4	no units	
9. Veg. Protection (both combined)	16	no units	
10. Riparian Width (both combined)	13	no units	
Total Habitat Score	87	no units	Subindex
Habitat Integrity Index			0.10
Macroinvertebrate Data - Family Level (All Habitats)			
11. Family Taxa Richness		# of taxa sampled	
12. Family EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. mFBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	70	microMHOs	1.00



EII Calculation for High Gradient Streams in Eastern Kentucky Coalfield (Version 2002.6)
 (Family Level Taxonomy - All Habitats)

Project ID:	LRN-2012-00914
Stream/Reach:	Mine Area A Intermittent
Assessment Objectives:	Existing Conditions

EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.61	Ecological Integrity Index (Habitat Integrity + Conductivity)

Variables	Measure	Units	
Enter quantitative or categorical measure from Field Data Sheet in shaded cells			
RBP Habitat Parameters			
1. Epifaunal Substrate	12	no units	
2. Embeddedness	15	no units	
3. Velocity/Depth Regime	4	no units	
4. Sediment Deposition	12	no units	
5. Channel Flow Status	6	no units	
6. Channel Alteration	15	no units	
7. Freq. Of Riffles (bends)	11	no units	
8. Bank stability (both combined)	8	no units	
9. Veg. Protection (both combined)	16	no units	
10. Riparian Width (both combined)	13	no units	
Total Habitat Score	112	no units	Subindex
Habitat Integrity Index			0.22
Macroinvertebrate Data - Family Level (All Habitats)			
11. Family Taxa Richness		# of taxa sampled	
12. Family EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. mFBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	70	microMHOs	1.00



EII Calculation for High Gradient Streams in Eastern Kentucky Coalfield (Version 2002.6)
 (Family Level Taxonomy - All Habitats)

Project ID:	LRN-2012-00914
Stream/Reach:	Mine Area B Perennial
Assessment Objectives:	EXISTING CONDITIONS

EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.72	Ecological Integrity Index (Habitat Integrity + Conductivity)

Variables	Measure	Units	
Enter quantitative or categorical measure from Field Data Sheet in shaded cells			
RBP Habitat Parameters			
1. Epifaunal Substrate	16	no units	
2. Embeddedness	15	no units	
3. Velocity/Depth Regime	7	no units	
4. Sediment Deposition	9	no units	
5. Channel Flow Status	8	no units	
6. Channel Alteration	16	no units	
7. Freq. Of Riffles (bends)	16	no units	
8. Bank stability (both combined)	12	no units	
9. Veg. Protection (both combined)	18	no units	
10. Riparian Width (both combined)	16	no units	
Total Habitat Score	133	no units	Subindex
Habitat Integrity Index			0.43
Macroinvertebrate Data - Family Level (All Habitats)			
11. Family Taxa Richness		# of taxa sampled	
12. Family EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. mFBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	70	microMHOs	1.00



EII Calculation for High Gradient Streams in Eastern Kentucky Coalfield (Version 2002.6)
 (Family Level Taxonomy - All Habitats)

Project ID:	LRN-2012-00914
Stream/Reach:	Mine Area B Intermittent
Assessment Objectives:	Existing Conditions

EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.69	Ecological Integrity Index (Habitat Integrity + Conductivity)

Variables	Measure	Units	
Enter quantitative or categorical measure from Field Data Sheet in shaded cells			
RBP Habitat Parameters			
1. Epifaunal Substrate	15	no units	
2. Embeddedness	15	no units	
3. Velocity/Depth Regime	7	no units	
4. Sediment Deposition	9	no units	
5. Channel Flow Status	6	no units	
6. Channel Alteration	16	no units	
7. Freq. Of Riffles (bends)	13	no units	
8. Bank stability (both combined)	12	no units	
9. Veg. Protection (both combined)	18	no units	
10. Riparian Width (both combined)	16	no units	
Total Habitat Score	127	no units	Subindex
Habitat Integrity Index			0.37
Macroinvertebrate Data - Family Level (All Habitats)			
11. Family Taxa Richness		# of taxa sampled	
12. Family EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. mFBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	70	microMHOs	1.00



EII Calculation for High Gradient Streams in Eastern Kentucky Coalfield (Version 2002.6)
 (Family Level Taxonomy - All Habitats)

Project ID:	LRN-2012-00914
Stream/Reach:	Mine Area C
Assessment Objectives:	EXISTING CONDITIONS

EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.55	Ecological Integrity Index (Habitat Integrity + Conductivity)

Variables	Measure	Units	
Enter quantitative or categorical measure from Field Data Sheet in shaded cells			
RBP Habitat Parameters			
1. Epifaunal Substrate	5	no units	
2. Embeddedness	15	no units	
3. Velocity/Depth Regime	5	no units	
4. Sediment Deposition	6	no units	
5. Channel Flow Status	6	no units	
6. Channel Alteration	18	no units	
7. Freq. Of Riffles (bends)	13	no units	
8. Bank stability (both combined)	4	no units	
9. Veg. Protection (both combined)	9	no units	
10. Riparian Width (both combined)	9	no units	
Total Habitat Score	90	no units	Subindex
Habitat Integrity Index			0.10
Macroinvertebrate Data - Family Level (All Habitats)			
11. Family Taxa Richness		# of taxa sampled	
12. Family EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. mFBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	70	microMHOs	1.00



EII Calculation for High Gradient Streams in Eastern Kentucky Coalfield (Version 2002.6)
 (Family Level Taxonomy - All Habitats)

Project ID:	LRN-2012-00914
Stream/Reach:	Mine Area D / Pond 7
Assessment Objectives:	EXISTING CONDITIONS

EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.77	Ecological Integrity Index (Habitat Integrity + Conductivity)

Variables	Measure	Units	
Enter quantitative or categorical measure from Field Data Sheet in shaded cells			
RBP Habitat Parameters			
1. Epifaunal Substrate	13	no units	
2. Embeddedness	17	no units	
3. Velocity/Depth Regime	12	no units	
4. Sediment Deposition	16	no units	
5. Channel Flow Status	12	no units	
6. Channel Alteration	18	no units	
7. Freq. Of Riffles (bends)	16	no units	
8. Bank stability (both combined)	12	no units	
9. Veg. Protection (both combined)	13	no units	
10. Riparian Width (both combined)	13	no units	
Total Habitat Score	142	no units	Subindex
Habitat Integrity Index			0.53
Macroinvertebrate Data - Family Level (All Habitats)			
11. Family Taxa Richness		# of taxa sampled	
12. Family EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. mFBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	70	microMHOs	1.00



EII Calculation for High Gradient Streams in Eastern Kentucky Coalfield (Version 2002.6)
 (Family Level Taxonomy - All Habitats)

Project ID:	LRN-2012-00914
Stream/Reach:	Mine Area E /Pond #9 Perennial
Assessment Objectives:	Existing Conditions

EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.75	Ecological Integrity Index (Habitat Integrity + Conductivity)

Variables	Measure	Units	
Enter quantitative or categorical measure from Field Data Sheet in shaded cells			
RBP Habitat Parameters			
1. Epifaunal Substrate	13	no units	
2. Embeddedness	15	no units	
3. Velocity/Depth Regime	12	no units	
4. Sediment Deposition	16	no units	
5. Channel Flow Status	12	no units	
6. Channel Alteration	18	no units	
7. Freq. Of Riffles (bends)	16	no units	
8. Bank stability (both combined)	12	no units	
9. Veg. Protection (both combined)	13	no units	
10. Riparian Width (both combined)	13	no units	
Total Habitat Score	140	no units	Subindex
Habitat Integrity Index			0.50
Macroinvertebrate Data - Family Level (All Habitats)			
11. Family Taxa Richness		# of taxa sampled	
12. Family EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. mFBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	80	microMHOs	1.00



EII Calculation for High Gradient Streams in Eastern Kentucky Coalfield (Version 2002.6)
 (Family Level Taxonomy - All Habitats)

Project ID:	LRN-2012-00914
Stream/Reach:	Mine Area E Intermittent
Assessment Objectives:	Existing Conditions

EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.71	Ecological Integrity Index (Habitat Integrity + Conductivity)

Variables	Measure	Units	
Enter quantitative or categorical measure from Field Data Sheet in shaded cells			
RBP Habitat Parameters			
1. Epifaunal Substrate	13	no units	
2. Embeddedness	14	no units	
3. Velocity/Depth Regime	6	no units	
4. Sediment Deposition	16	no units	
5. Channel Flow Status	8	no units	
6. Channel Alteration	18	no units	
7. Freq. Of Riffles (bends)	16	no units	
8. Bank stability (both combined)	12	no units	
9. Veg. Protection (both combined)	13	no units	
10. Riparian Width (both combined)	16	no units	
Total Habitat Score	132	no units	Subindex
Habitat Integrity Index			0.42
Macroinvertebrate Data - Family Level (All Habitats)			
11. Family Taxa Richness		# of taxa sampled	
12. Family EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midge & Worms (0-100)	
15. mFBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	80	microMHOs	1.00



EII Calculation for High Gradient Streams in Eastern Kentucky Coalfield (Version 2002.6)
 (Family Level Taxonomy - All Habitats)

Project ID:	LRN-2012-00914
Stream/Reach:	Mine Area F
Assessment Objectives:	EXISTING CONDITIONS

EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.71	Ecological Integrity Index (Habitat Integrity + Conductivity)

Variables	Measure	Units	
Enter quantitative or categorical measure from Field Data Sheet in shaded cells			
RBP Habitat Parameters			
1. Epifaunal Substrate	12	no units	
2. Embeddedness	15	no units	
3. Velocity/Depth Regime	9	no units	
4. Sediment Deposition	7	no units	
5. Channel Flow Status	11	no units	
6. Channel Alteration	17	no units	
7. Freq. Of Riffles (bends)	16	no units	
8. Bank stability (both combined)	12	no units	
9. Veg. Protection (both combined)	16	no units	
10. Riparian Width (both combined)	17	no units	
Total Habitat Score	132	no units	Subindex
Habitat Integrity Index			0.42
Macroinvertebrate Data - Family Level (All Habitats)			
11. Family Taxa Richness		# of taxa sampled	
12. Family EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. mFBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	100	microMHOs	1.00



EII Calculation for High Gradient Streams in Eastern Kentucky Coalfield (Version 2002.6)
 (Family Level Taxonomy - All Habitats)

Project ID:	LRN-2012-00914
Stream/Reach:	Mine Area G / Pond 11
Assessment Objectives:	EXISTING CONDITIONS

EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.28	Ecological Integrity Index (Habitat Integrity + Conductivity)

Variables	Measure	Units	
Enter quantitative or categorical measure from Field Data Sheet in shaded cells			
RBP Habitat Parameters			
1. Epifaunal Substrate	10	no units	
2. Embeddedness	11	no units	
3. Velocity/Depth Regime	8	no units	
4. Sediment Deposition	6	no units	
5. Channel Flow Status	16	no units	
6. Channel Alteration	16	no units	
7. Freq. Of Riffles (bends)	16	no units	
8. Bank stability (both combined)	16	no units	
9. Veg. Protection (both combined)	18	no units	
10. Riparian Width (both combined)	18	no units	
Total Habitat Score	135	no units	Subindex
Habitat Integrity Index			0.45
Macroinvertebrate Data - Family Level (All Habitats)			
11. Family Taxa Richness		# of taxa sampled	
12. Family EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)	
15. mFBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	730	microMHOs	0.10



EII Calculation for High Gradient Streams in Eastern Kentucky Coalfield (Version 2002.6)
 (Family Level Taxonomy - All Habitats)

Project ID:	LRN-2012-00914
Stream/Reach:	Mine Area H Perennial
Assessment Objectives:	EXISTING CONDITIONS

EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.73	Ecological Integrity Index (Habitat Integrity + Conductivity)

Variables	Measure	Units	
Enter quantitative or categorical measure from Field Data Sheet in shaded cells			
RBP Habitat Parameters			
1. Epifaunal Substrate	10	no units	
2. Embeddedness	11	no units	
3. Velocity/Depth Regime	8	no units	
4. Sediment Deposition	6	no units	
5. Channel Flow Status	16	no units	
6. Channel Alteration	16	no units	
7. Freq. Of Riffles (bends)	16	no units	
8. Bank stability (both combined)	16	no units	
9. Veg. Protection (both combined)	18	no units	
10. Riparian Width (both combined)	18	no units	
Total Habitat Score	135	no units	Subindex
Habitat Integrity Index			0.45
Macroinvertebrate Data - Family Level (All Habitats)			
11. Family Taxa Richness		# of taxa sampled	
12. Family EPT Richness		# of EPT species sampled	
13. % Ephemeroptera		% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta		% Midge & Worms (0-100)	
15. mFBI		no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	90	microMHOs	1.00

