



Nally & Hamilton Enterprises, Inc.
Nationwide Permit 43 Application
Cranks Creek Watershed
Harlan County, Kentucky
LRN# 2010-00267/ KDNR# 848-0304
BSC# 214132

September 14, 2014

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

**Nally & Hamilton Enterprises, Inc.
Nationwide Permit 43 Application
Crank Creek Watershed
Harlan County, Kentucky
LRN# 2010-00267/ KDNR# 848-0304
BSC# 214132**

Prepared for:

U.S. Army Corps of Engineers
Nashville District Regulatory Branch
3701 Bell Road
Nashville, TN 37214

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

Prepared by:

**Biological Systems Consultants, Inc.
P.O. Box 54954
Lexington, KY 40555-4954**

September 14, 2014

TABLE OF CONTENTS

Executive Summary	ii
1) Name and Address of the Applicant.....	1
2) Site Location.....	1
3) Project Purpose, Impact Summary, Avoidance and Minimization	1
4) “Waters of the U.S.”	3
5) Mitigation	3
6) Endangered Species Act.....	3
7) National Historic Preservation Act.....	3
8) Clean Water Act Section 401 and 402.....	3

List of Tables

Table 1. Waters of the U.S. Impact Summary	2
Table 2. EIU Purchase Summary for Mitigation	3

List of Appendices

(A) Site Location Maps.....	A-1
(B) Proposed Stormwater Management Facility Drawings	B-1
(C) Agency Correspondence.....	C-1
(D) EKSAP EII Calculators and EPA RBP Data Sheets	D-1

EXECUTIVE SUMMARY

The following Clean Water Act (CWA) Section 404 Nationwide Permit (NWP) 43 verification is being submitted to the United States Army Corps of Engineers (USACE) for file no. LRN-2010-00267 on behalf of Nally & Hamilton Enterprises, Inc. This verification is applicable to the Kentucky Department for Natural Resources (KDNR) Surface Mine Control and Reclamation Act (SMCRA) permit application number 848-0304. The SMCRA permit was issued November 08, 2013. The Individual Section 401 Water Quality Certification (WQC) and the Section 402 Kentucky Pollutant Discharge Elimination System (KPDES) permits are pending.

This project consists of contour, area, and auger re-mining of the Harlan coal seams and area mining of the Kellioka and Darby coal seams in Harlan County, Kentucky. Two stormwater management facilities are proposed to support the proposed operation. The two temporary structures would impact a total of 271 linear feet of intermittent and 101 linear feet of ephemeral streams.

Project Description

The site can be located 0.5 miles southeast from KY 987's junction with KY 3099 on the Evarts and Hubbard Springs 7.5' U.S.G.S topographic maps, near latitude and longitude N36.7527208/ W83.2327543 (See Maps in Appendix A).

Impact Summary

In order to meet the purpose and need of the project, 271 linear feet of previously impacted intermittent stream and 101 linear feet of previously impacted ephemeral streams considered to be “waters of the U.S.” would be temporarily impacted (Table 1). In order to comply with SMCRA regulations and capture sediments from the mine area, these two facilities are required by State and Federal laws. Appendix B contains detailed drawings of the two proposed facilities.

Avoidance and Minimization

The following avoidance and minimization measures have been taken by the applicant, in addition to a mine plan that avoids all other jurisdictional waters:

1. Water quality monitoring through the KPDES program provides avoidance and minimization of adverse affects, and would provide remedial actions should any exceedance occur.
2. The Best Management Practices (BMPs) for the SMCRA permit minimize the overall project impacts.
3. The applicant has avoided any jurisdictional waters that have not been previously impacted.

4. No impacts to perennial streams are proposed.
5. Re-mining of areas that have been previously mined.
6. No permanent impacts are proposed.
7. A revision to the SMCRA permit avoided approximately 1,300 linear feet of previously proposed impacts.
8. The ponds are located as close as practicable to the mine site.

Based on these avoidance and minimization measures the applicant has minimized the effects of mining on the aquatic functions in the vicinity of the project.

Agency Correspondence

All available correspondence from the KDNR, State Historic Preservation Office (SHPO), U.S. Fish and Wildlife Service (USFWS) and the USACE is presented in Appendix C.

1) NAME AND ADDRESS OF THE APPLICANT:

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

2) SITE LOCATION

The site can be located 0.5 miles southeast from KY987's junction with KY 3099 on the Evarts and Hubbard Springs 7.5' U.S.G.S topographic maps, near latitude and longitude N 36.7519775/ W 83.2271756 (See Maps in Appendix A).

3) PROJECT PURPOSE, IMPACT SUMMARY, AVOIDANCE AND MINIMIZATION

The overall purpose of the project is to meet the market demand for coal and fulfill the contracts and agreements that are in place to meet the demand.

Impact Summary

The proposed facilities will be constructed in unnamed tributaries to Cranks Creek (Figure 2, Appendix A). These watersheds are primarily dominated by second or third growth hardwood forest with approximately 75-100% canopy coverage. The upper reaches of both watersheds have been impacted by pre-law mining which occurred approximately 50 years ago. These activities have impacted stream substrate characteristics, epifaunal substrate, and bank stability scores. These streams are partially embedded and aggraded due to these activities.

Both tributaries were evaluated using the Eastern Kentucky Stream Assessment Protocol (EKSAP) to establish the baseline stream conditions as well as quantify the impacts and determine mitigation requirements. Pond 8 would impact 131 linear feet of intermittent stream and 101 linear feet of high gradient ephemeral stream. Pond #2 would impact 140 linear feet of intermittent stream. The applicant is proposing to purchase a total of 156 EIUs to compensate for the proposed impacts.

Table 1 on the following page summarizes the proposed impacts to jurisdictional waters.

Table 1. Waters of the U.S. Impact Summary

Impact Name	Reach ID	Flow Regime	Linear Feet/Ac	EIUs	RBP Score	EII Score	Conductivity (µS/cm)	Total Ephemeral	Total Intermittent	Total Perennial
Pond #8	R2A	Intermittent	96 / 0.008	47.04	103	0.49	205	-	96	-
Pond #8	R2A	Ephemeral	48 / 0.004	23.52	103	0.49	205	48	-	-
Pond #8	R2	Intermittent	35 / (0.004)	17.15	103	0.49	205	-	35	-
Pond #8	R2	Ephemeral	53 / 0.004	25.97	103	0.49	205	53	-	-
Pond #2	R1	Intermittent	140 / 0.01	53.2	103	0.38	280	-	140	-
Total	-	-	372 (0.03 ac)	166.88	-	-	-	101	271	0

As illustrated, a total of 372 linear feet (0.03 ac) of direct stream impacts are proposed to occur due to the construction of the two temporary stormwater management facilities. Appendix D contains the EKSAP calculator spreadsheets and EPA Rapidbioassessment Protocol (RBP) forms used for these calculations.

Avoidance and Minimization

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

1. Water quality monitoring through the Kentucky Pollutant Discharge Elimination System (KPDES) program provides avoidance and minimization of adverse affects, and would provide remedial actions should any exceedance occur.
2. The Best Management Practices (BMPs) for the SMCRA permit minimize the overall project impacts.
3. The applicant has avoided any jurisdictional waters that have not been previously impacted.
4. The applicant revised their originally proposed mine plan to avoid all perennial stream impacts.
5. Re-mining of areas that have been previously mined.
6. No permanent impacts to jurisdictional waters
7. A revision to the SMCRA permit avoided approximately 1,300 additional linear feet of permanent intermittent, perennial, and ephemeral stream impacts.
8. The ponds are located as close as practicable to the mine site.

4) “Waters of the U.S”

Jurisdictional “waters of the U.S.” correspondence from the USACE dated December 13, 2011 is contained in Appendix C.

5) Mitigation

In order to mitigate for the unavoidable impacts proposed by this project, compensatory mitigation for 271 linear feet of intermittent and 101 linear feet of ephemeral stream is offered through the purchase of 156 Ecological Integrity Unit (EIU) credits from the Kentucky Wetland Mitigation Fund.

Table 2 illustrates the EIU purchases which would take place prior to the proposed impacts occurring in each watershed.

Table 2 EIU Purchase Summary for Mitigation				
Site	EII Score	Length of Impact (ft)	Post-Impact EII	EIUs Lost / To be Purchased
Watershed A – UT1 Cranks Creek				
Pond #2	0.38	140	0.1	39.2
Watershed A Total				39
Watershed A Total x 1.2				47
Watershed B – UT2 Cranks Creek				
Pond #8	0.49	232	0.1	90.48
Watershed B Total				91
Watershed B Total x 1.2				109
Overall Totals				
Overall Total				130
Overall Total x 1.2				156

6) Endangered Species Act

No threatened or endangered species are anticipated to be impacted by the proposed project. Section 7 correspondence is presented in Appendix C.

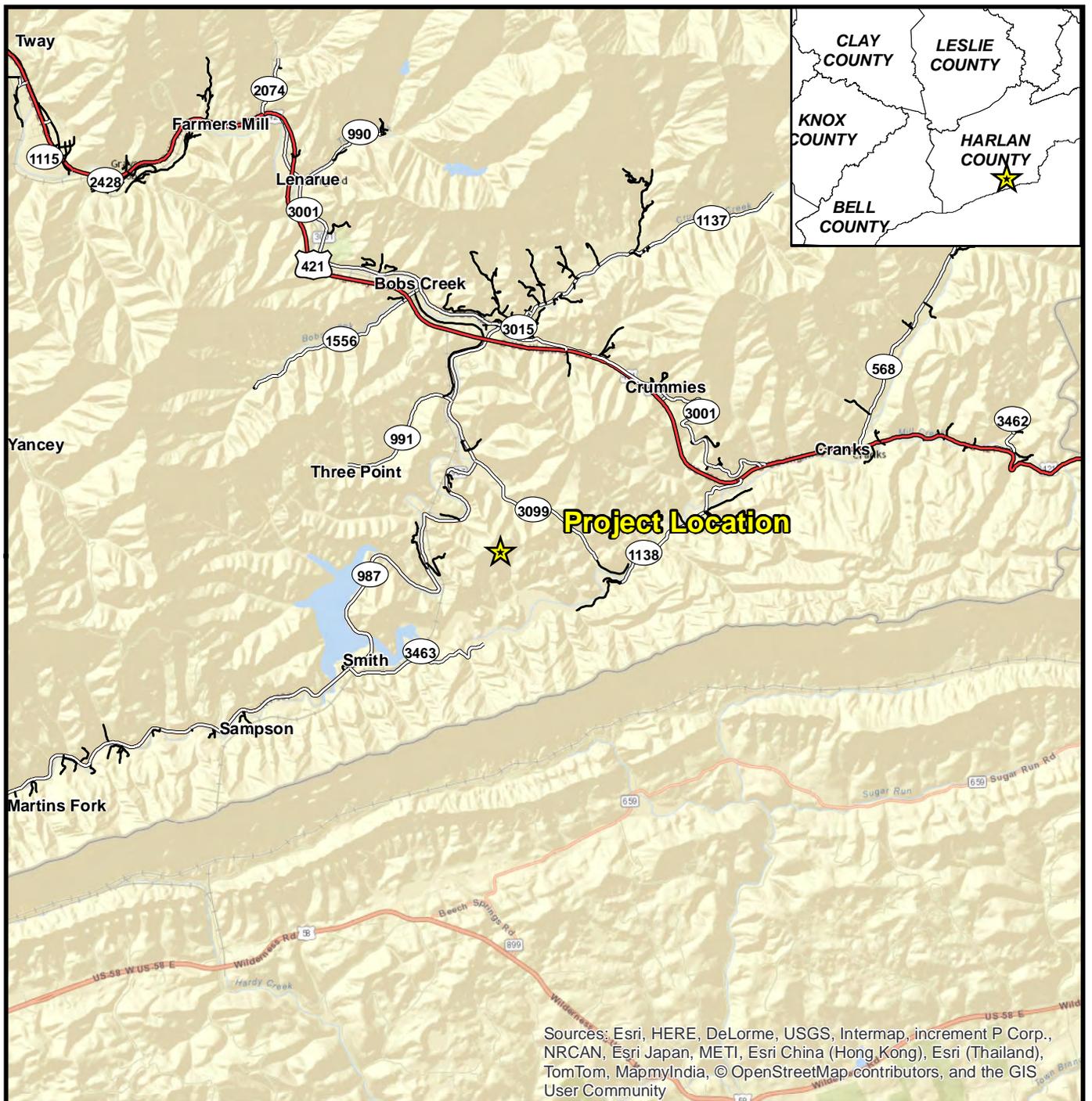
7) National Historic Preservation Act

No cultural or historic properties are anticipated to be impacted by the proposed project. Correspondence regarding Section 106 is presented in Appendix C.

8) CWA Section 401 and 402 Permitting

The individual Section 401 water quality certification and Section 402 KPDES permit are currently pending.

Appendix A
Site Location Maps



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community



Legend

★ Project Location

Prepared By:



Prepared For:



Figure 1 Highway Location Map

KDNR: 848-0304 MI-01

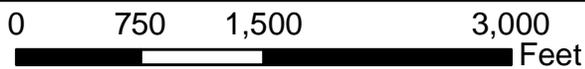
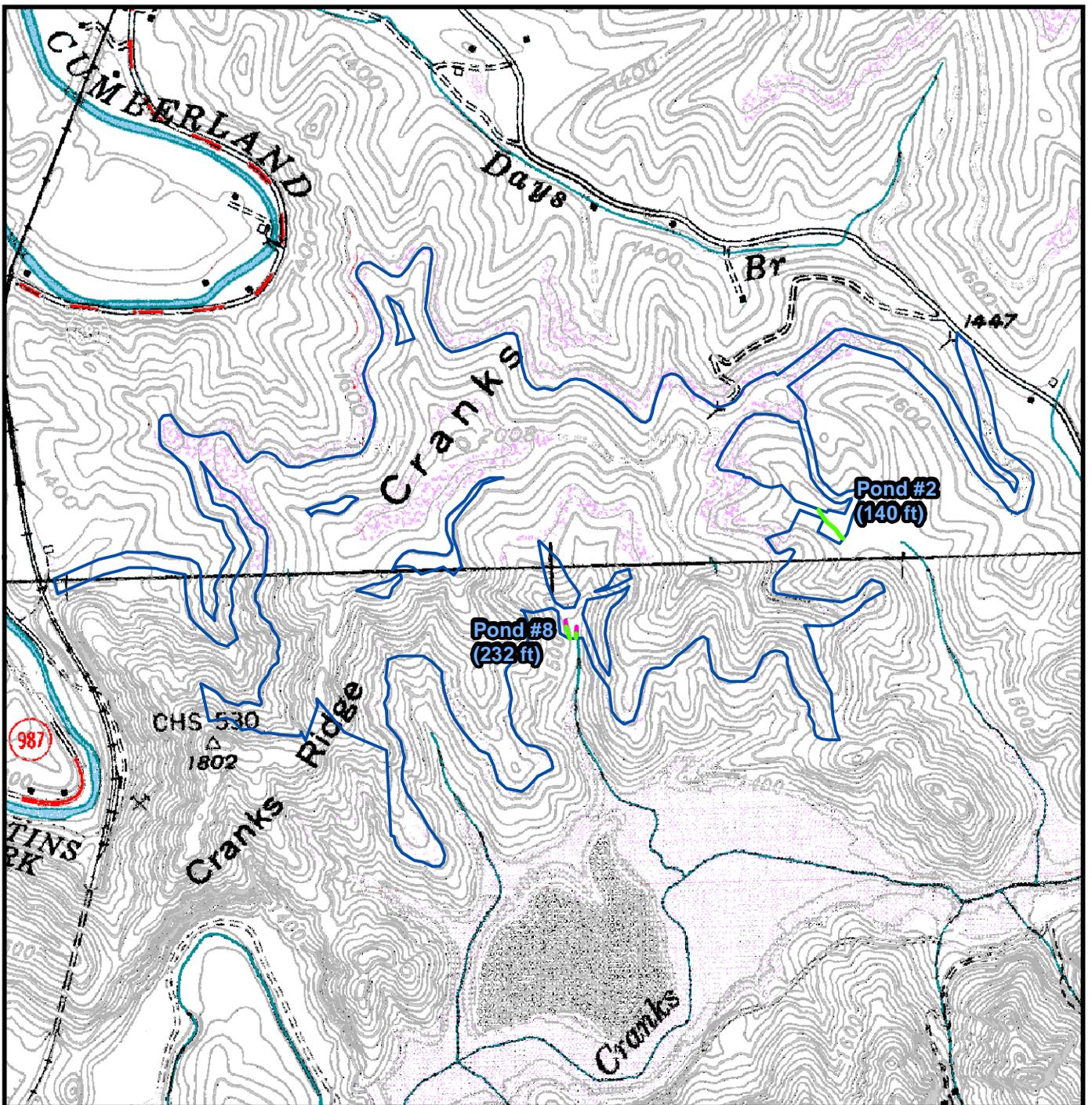
BSC#: 214132

DATE: Sep. 10, 2014

SCALE: 1" = 1.5 Mile

DRAWN BY: BES

CHECKED BY: JRR



Legend

 Proposed Permit Boundary

Waters Of the U.S.*

 NRPW (Ephemeral)

 RPW:S (Intermittent)

* As Defined By USACE

Prepared By:



**BIOLOGICAL SYSTEMS
CONSULTANTS, INC.**

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

Prepared For:



Nally & Hamilton
Enterprises, Inc.

Figure 2 Impacts Map

KDNR: 848-0304

BSC#: 214132

DATE: Sep. 12, 2014

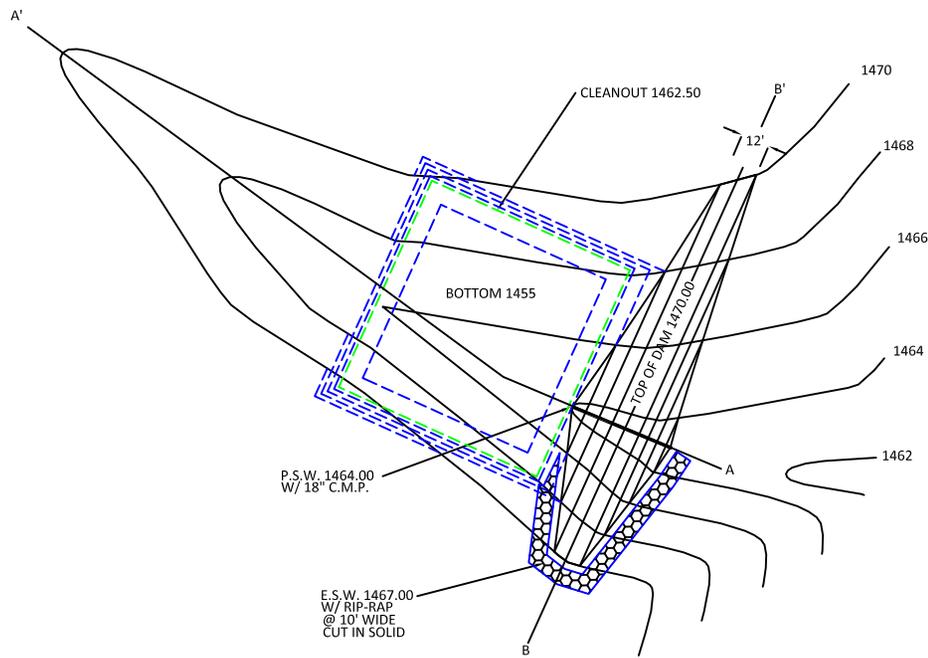
SCALE: 1" = 1,158.7'

DRAWN BY: BES

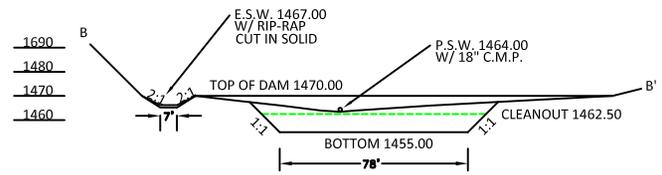
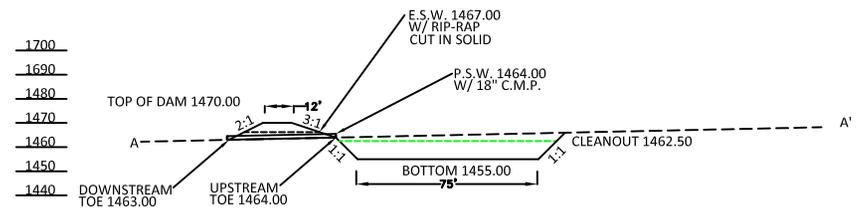
CHECKED BY: JRR

Excerpt from Evarts, & Hubbard Springs, KY
7.5' USGS Topographic Quadrangle
NAD 1983 StatePlane Kentucky FIPS 1600 (Feet)

Appendix B
Proposed Stormwater Management Facility Drawings



— ORIGINAL CONTOURS
 - - - - - CONSTRUCTED CONTOURS



I, _____, Name _____, 24,487, Lic. # _____, 07-11-14, Date _____
 Hereby certify, in accordance with 405 KAR 7:040, Section 10 that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

ALL RIGHTS RESERVED

FACSIMILES OF PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR SEALS, IF AFFIXED TO THIS DOCUMENT, SHALL BE LEGITIMATE ONLY IF SIGNED AND DATED BY THE REGISTRANT.

THIS DOCUMENT IS THE PROPERTY OF NALLY & HAMILTON ENTERPRISES, INC. AND SHALL NOT BE REPRODUCED IN WHOLE OR IN PART, OR USED IN THE CONSTRUCTION OF ANY PROJECT OTHER THAN THIS SPECIFIC PROJECT WITHOUT THE WRITTEN PERMISSION OF A REPRESENTATIVE OF NALLY & HAMILTON ENTERPRISES, INC.



Nally & Hamilton Enterprises, Inc.
 P.O. Box 2323
 London, Kentucky 40741
 Ph: (606) 878-1500
 Fax: (606) 878-5880

848-0304 MINOR REVISION 1

POND 2

DESIGN DRAWING

Drawing: POND_02.DWG Scale 1"=50'

Appendix C
Agency Correspondence



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

December 15, 2010

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

RECEIVED
DNR/MINE PERMIT
2010 DEC 27 A

Re: *A Phase I Archaeological Survey 304 Acres in a Proposed Coal Mining Permit Area (Application # 848-0304) Near the Community of Cawood, Harlan County, Kentucky by Vincent Versluis and Jesse Robinson*

Nally & Hamilton Enterprises, Inc.
Application 848-0304 NW

Dear Ms. Johnson,

This office has received the above mentioned report for review. The authors report no evidence of prehistoric or early historic occupation in the project area, and recommend no further archaeological investigation. I concur with the authors' findings. Therefore, we have no further comments and responsibility to consult with the Kentucky State Historic Preservation Officer under the Section 106 review process for archaeology on this project is fulfilled.

If you have any questions, please do not hesitate to contact Phillip Johnson of my staff at (502) 564-7005 ext 122.

Sincerely,

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

MD:prj

cc. Dr. George Crothers (UK-OSA)
Vincent Versluis



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
December 27, 2010

Leonard K. Peters
Secretary

Carl E. Campbell
Commissioner

LEO MILLER
LEO MILLER & ASSOCIATES
P.O. BOX 488
HARLAN, KENTUCKY 40831

RE: Nally & Hamilton Enterprises, Inc.
Application # 848-0304, NW

Dear Mr. Miller:

This office recently received the report, "A Phase I Archaeological Survey of 304 Acres in a Proposed Coal Mining Permit Area (Application # 848-0304) near the Community of Cawood, Harlan County, Kentucky," prepared by Vincent Versluis and Jesse Robinson of Great Rivers Archaeological Services. 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,

Rose Moore for P.J.
Perry Johnson, Supervisor
Critical Resources Review Section
Division of Mine Permits

c: Rose Moore (e)
Permit File Bruce Kells(e)
Vincent Versluis, Great Rivers Archaeological Services,
6038 Lakeview Dr., Burlington, KY 41005
Nally & Hamilton Enterprises, Inc., P.O. Box 157, Bardstown, KY 40004
Mark Dennen, SHPO (e)



DEPARTMENT OF THE ARMY
NASHVILLE DISTRICT, CORPS OF ENGINEERS
Eastern Regulatory Field Office
Spring Cress Business Park
501 Adesa Boulevard, Suite 250
LENOIR CITY, TENNESSEE 37771

December 13, 2011

REPLY TO
ATTENTION OF:

Eastern Regulatory Field Office

SUBJECT: File No. LRN-2010-00267, Proposed Mine Operation in Cranks Creek Watershed, Martin's Fork of the Cumberland River Mile 12.0 R, Harlan County, Kentucky: 848-0304

Nally & Hamilton Enterprises, Inc.
Attn: Mr. Stephen Hamilton
PO Box 157
Bardstown, KY 40004-0157

Dear Mr. Hamilton:

This is in response to your request for a waters of the United States jurisdictional determination at the proposed Nally & Hamilton Pencil Round Mountain coal mine project in Knox County, Kentucky. Please refer to Department of the Army (DA) File No. LRN-2010-00267 in future correspondence and permit application submittals regarding this project.

Our agency has regulatory responsibilities pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403). The Clean Water Act prohibits the discharge of dredged or fill without a Section 404 permit. The Rivers and Harbors Act requires Section 10 permit for work in navigable water of the United States. It appears the project area does not include navigable waters of the U.S. and would not be subject to the provisions of Section 10. Under Section 404, the USACE regulates the discharge of dredged and/or fill material into waters of the U.S., including wetlands.

Based upon a my November 2, 2011 site visit and the revised Jurisdictional Waters Investigation report you submitted on November 4, 2011, areas within the proposed project area were found to meet all the required characteristics to be considered waters of the U.S.

Our preliminary jurisdictional determination is that the streams on this site are waters of the U.S. and are subject to Corps of Engineers' regulatory jurisdiction under Section 404 of the Clean Water Act. Enclosed is a map indicating the areas reviewed. If any additional resources which may be considered waters of the U.S. are located during design or construction, these areas should be avoided until a jurisdiction determination can be provided. This determination is valid for a period of five years from the date of this letter. Two copies of the Preliminary Jurisdictional Determination Form and a Notification of Administrative Appeal Options that explains available options regarding this determination are enclosed. **You need to sign both copies of the Preliminary Jurisdictional Determination Form, retain one copy for your files, and return the other copy in the enclosed envelope.**

It should be noted that this verification is only for the streams shown on the attached maps, and does not authorize any work on the site. Impacts to waters of the United States should be avoided during the design phase whenever practicable. When these resources cannot be avoided, the work should be designed to minimize adverse impacts. A Department of Army (DA) permit pursuant to Section 404 of the Clean Water Act will be required for any work which entails the direct filling or excavation in waters of the United States. A DA permit application should include a survey of all waters of the U.S. on the site, a plan showing any proposed fill or excavation in waters of the U.S., a description of efforts taken to avoid and minimize the proposed fill which will include the Fill Placement and Optimization Process (FPOP) and a plan to mitigate any unavoidable fill in waters of the U.S.

Our permitting requirements for the project would depend on the specific construction methods and associated stream and wetland impacts. Any activity that would not involve substantial stream or wetland alterations or fills may be authorized under our Nationwide Permit (NWP) program. Work or discharges of dredged or fill material into waters and wetlands that do not qualify for authorization under our NWP program would require authorization by a standard DA permit.

Should you have questions or wish to discuss this matter, please contact me at 501 Adesa Blvd., Suite 250, Lenoir City, Tennessee, 37771, telephone (865) 986-7296 or ken.m.jones@usace.army.mil.

Sincerely,



Ken M Jones
Regulatory Specialist
Operations Division

Enclosures

Copy furnished:

Kentucky Energy and Environment Cabinet
Attn: Mr. Thomas Barbour
2 Hudson Hollow
Frankfort, Kentucky 40601

Danita Maynard LaSage, PhD, PG
Environmental Scientist
Kentucky Division of Mine Permits
2 Hudson Hollow
Frankfort, Kentucky 40601

US EPA Region 4
Attn: Mr. Todd Bowers
Water Protection Division
61 Forsyth Street, SW
Atlanta, GA 30303-8960

US Fish and Wildlife Service
Attn: Ms. Carrie L Lona
330 W. Broadway, Room 265
Frankfort, Kentucky 40601

Kentucky Division of Mine Reclamation and Enforcement
1804 East Cumberland Avenue
Middlesboro, Kentucky 40965-1229

Biological Systems Consultants, Inc
P.O. Box 54954
Lexington, Kentucky 40555

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

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

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

Stephen Hamilton
Nally & Hamilton Enterprises, Inc.
P.O. Box 157
Bardstown, Kentucky 40004-0157

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

Nashville District, Nally & Hamilton Enterprises: Pencil Round Mountain (848-0304),
LRN-2010-00267

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

Cranks Creek Watershed, Martin's Fork of the Cumberland River Mile 12.0 R, Harlan
County, Kentucky: 848-0304

State: KY **County/parish/borough:** Harlan **City:**

Center coordinates of site (lat/long in degree decimal format):

Lat. 36.75444, Long. -83.2226062380981

Universal Transverse Mercator: 17 301592.86 4069935.59

Name of nearest waterbody: Cranks Creek

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

(SEE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES)

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

Tidal: N/A

Non-Tidal: N/A

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

Office (Desk) Determination. Date: 13-Dec-11

Field Determination. Date(s): 3-Nov-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:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Biological Systems Consultants, Inc.

Data sheets prepared/submitted by or on behalf of the applicant/consultant.

Office concurs with data sheets/delineation report.

Office does not concur with data sheets/delineation report.

Data sheets prepared by the Corps:

Corps navigable waters' study:

U.S. Geological Survey Hydrologic Atlas:

USGS NHD data.

USGS 8 and 12 digit HUC maps.

U.S. Geological Survey map(s). Cite scale & quad name:

1:24K, KY-EVARTS, KY-HUBBARD SPRINGS.

USDA Natural Resources Conservation Service Soil Survey. Citation:

National wetlands inventory map(s). Cite name:

State/Local wetland inventory map(s):

FEMA/FIRM maps:

100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

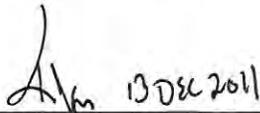
Photographs: Aerial (Name & Date):from ORM2.

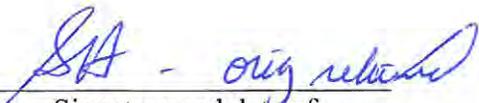
or Other (Name & Date):on site inspection 2-Nov-2011.

Previous determination(s). File no. and date of response letter:

Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.


Signature and date of
Regulatory Project Manager
(REQUIRED)


Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining the
signature is impracticable)

File LRIN-2010-00267: Jurisdictional Reaches

Waters_Name	Cowadin_Code	HGM_Code	Area (acres)	Linear (ft)	Waters Types	Latitude(dd nad83)	Longitude dd nad83)	Local_Waterway
R1	R6	Riverine		486'	NRPW	36.752217	-83.227769	UT to Cranks Creek
R1 E/I	R4	Riverine		577'	RPW	36.751495	-83.226453	UT to Cranks Creek
R1 P/I	R5	Riverine		1,581'	RPW	36.750517	-83.225074	UT to Cranks Creek
R2	R6	Riverine		53'	NRPW	36.748816	-83.232617	UT to Cranks Creek
R2 E/I	R4	Riverine		467'	RPW	36.748682	-83.232671	UT to Cranks Creek
R2A	R6	Riverine		48'	NRPW	36.748963	-83.232914	UT to Cranks Creek
R2A E/I	R4	Riverine		216'	RPW	36.748830	-83.232890	UT to Cranks Creek

210108



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: 9/10/2013

Project Information

KYFO No: 2010-B-0330

Project Name: Nally & Hamilton, DNR # 848-0304

Location: Harlan Co., KY

Acreage: 1109

Mist Net Sites: 2

Surveyor: BSC

On Behalf of: Nally & Hamilton Enterprises

Exp. Date: July 19, 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



Surface Coal Mining and Reclamation Operations Permit



Department for Natural Resources

NALLY & HAMILTON ENTERPRISES INC
 PO BOX 157
 109 SOUTH FOURTH ST
 BARDSTOWN KY 40004

This permit is issued based on ownership and control information contained in the permit application. The permittee shall notify the Division of Mine Permits in writing of any change in officers, directors, persons performing functions similar to directors, stockholders owning ten percent (10%) or more of any class of voting stock, or addresses of the permittee or other persons listed above. Written notification shall be made within thirty (30) days of such changes. After notifying the Division of such changes in writing, the permittee shall make all necessary changes in the permit application on forms supplied by the Division. The Department for Natural Resources hereby grants the above-named operator a permit to engage in surface coal mining and reclamation operations. This permit has been issued under the provisions of KRS Chapter 350 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits, licenses or approvals required by this Cabinet and/or other state, federal and local agencies. Conformance with all such laws and regulations is the responsibility of the permittee. Further, this permit is subject to any conditions and operating limitations specified below.

A. PERMIT ACTION

(1) This original permit is issued for 248.72 surface disturbance acres and 44.36 acres overlying underground/auger area.

B. POST MINING LAND USE

(1) Approval is granted for the following post mining land use(s):

<u>Land Use</u>	<u>Acres</u>
Fish & Wildlife	248.72

(OVER)

No deviation from the plans and specifications submitted with your application or the conditions specified above is permitted, unless previously authorized in writing by the Division of Mine Permits. At any time the terms and conditions contained in this permit are violated, it shall become null and void. All rights of inspection by representatives of the Department for Natural Resources are reserved. Receipt of the permit fee and bond amount specified below is hereby acknowledged.

Major Watershed:	Upper Cumberland River	Effective Date:	11/08/2013
Legal Structure:	Corporation	Expiration Date:	11/08/2018
Permit Fee:	\$2,925	Type of Operation:	Surface Contour/Area/ Auger/Highwall Miner
Bond Type:	Surety	County:	Harlan
Bond Amount:	\$85,000	Acres:	293.08
Bond Number:	See Condition No. E(1)	Issued:	11/08/2013
Permit Number:	848-0304		



Deem Rutledge
 Director, Division of Mine Permits

C. GENERAL

(1) Disposal of hazardous waste and solid waste other than "coal mining solid waste" is prohibited on the permit area unless a permit is obtained from the Division of Waste Management.

(2) As required by the Indiana Bat Protection and Enhancement Plan, trees can only be removed from November 15 to March 31. If it is necessary to remove trees between April 01 to November 14, DNR and USFWS must be notified, and approval obtained before tree removal can occur.

D. WAIVERS / VARIANCES

(1) Approval is granted for alternate contemporaneous reclamation specifications as justified in the permit application. The permittee has paid supplemental assurance in the amount of \$0 and is required to pay a total of \$450,000 in payment of \$150,000 as per the payment schedule in the Original application.

(2) A tentative waiver is granted approving the retention of road(s) A, B, C, D, and E, as permanent roads. Final approval will be contingent on the establishment of the dependent post mining land use.

(3) A variance is granted to install culverts beneath road(s) A, B, C, D, and E on the interval spacing proposed in the original permit application.

(4) A variance is granted allowing surface disturbance operations within 100 feet, but no closer than 0 feet, of two (2) unnamed tributaries of Cranks Creek.

(5) A variance is granted for the use of alternate topsoil material on 207.81 acres, as proposed in the original permit application.

(6) Surface blasting is prohibited within 1,000 feet of a dwelling; public building; school; church; or commercial, community, or institutional building until the Anticipated Blast Design (SMP-61) has been submitted, and either 30 days have expired or the SMP-61 is approved.

E. BOND AND ACREAGE DETAIL

(1) This permit is issued for 248.72 acres of surface disturbance (of which 16.89 acres overlie underground/auger area), and 44.36 acres of underground/auger operations, for a total of 293.08 acres divided into 5 increments. The increments currently bonded are listed below:

Surface Disturbance <u>Acreage</u>	Underground <u>Acreage</u>	Bond <u>Amount</u>	Acreage <u>Fee</u>
33.84	0.00	\$85,000	\$2,550

The permittee shall not conduct any surface coal mining and reclamation operations on other increments of the permit area until the full bond amount and acreage fees have been filed for that increment.

(2) In accordance with 405 KAR 10:015, the reclamation bonds for increments 1, 2, 3, 4 and 5 have been calculated as part of the original application.

Appendix D
EKSAP EII Calculators and EPA RBP Data Sheets

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

Project ID:	Nally & Hamilton Enterprises, Inc. / NWP43 Pre-construction Notification / LRN-2010-00267
Stream/Reach:	Pond #2
Assessment Objectives:	EXISTING CONDITIONS

EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.38	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	6	no units	
3. Velocity/Depth Regime	3	no units	
4. Sediment Deposition	6	no units	
5. Channel Flow Status	11	no units	
6. Channel Alteration	13	no units	
7. Freq. Of Riffles (bends)	17	no units	
8. Bank stability (both combined)	11	no units	
9. Veg. Protection (both combined)	14	no units	
10. Riparian Width (both combined)	16	no units	
Total Habitat Score	103	no units	Subindex
Habitat Integrity Index			0.13
Macroinvertebrate Data - Family Level (All Habitats)			
11. Family Taxa Richness	0	# of taxa sampled	
12. Family EPT Richness	0	# of EPT species sampled	
13. % Ephemeroptera	0	% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta	0	% Midge & Worms (0-100)	
15. mFBI	0	no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	280	microMHOs	0.63



Pond #2

High Gradient Stream Data Sheet

plots 891-896

STREAM NAME: <u>UT Cranks Creek</u>		LOCATION: <u>Doug Brown</u>		
STATION #: <u>Corridor A</u> MILE:		BASIN/WATERSHED: <u>Upper Cumberland</u>		
LAT. <u>36.75088</u> LONG. <u>83.22607</u>		COUNTY: <u>Warren</u> USGS 7.5 TOPO: <u>Evarts/Huk</u>		
DATE: <u>2-14-12</u> TIME: <u>12:20</u> <input type="checkbox"/> AM <input checked="" type="checkbox"/> PM		INVESTIGATORS: <u>BS/BR</u>		
TYPE SAMPLE: <input type="checkbox"/> P-CHEM <input type="checkbox"/> Macroinvertebrate <input type="checkbox"/> FISH <input type="checkbox"/> BACT.				
WEATHER: Now Past 24 hours Has there been a heavy rain in the last 7 days? <input type="checkbox"/> 0 Heavy rain <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 0 Steady rain Air Temperature <u>5</u> °C. Inches rainfall in past 24 hours ___ in. <input checked="" type="checkbox"/> Intermittent showers <u>100</u> % Cloud Cover <input type="checkbox"/> 0 Clear/sunny				
P-Chem: Temp(°C) <u>7.3</u> D.O. (mg/l) _____ %Saturation _____ pH(S.U.) <u>5.9</u> Cond. <u>290</u> <input type="checkbox"/> Grab				
INSTREAM WATERSHED FEATURES: Stream Width <u>2</u> ft Range of Depth <u>1-1</u> ft Average Velocity <u>slow</u> ft/s Discharge _____ cfs Est. Reach Length <u>300 m</u>		LOCAL WATERSHED FEATUREES: Predominant Surrounding Land Use: <input checked="" type="checkbox"/> Surface Mining <input type="checkbox"/> Construction <input checked="" type="checkbox"/> Forest <input checked="" type="checkbox"/> Deep Mining <input type="checkbox"/> Commercial <input type="checkbox"/> Pasture/Grazing <input checked="" type="checkbox"/> Oil Wells <input type="checkbox"/> Industrial <input type="checkbox"/> Silviculture <input type="checkbox"/> Land Disposal <input type="checkbox"/> Row Crops <input type="checkbox"/> Urban Runoff/Storm Sewers		
Hydraulic Structures: <input type="checkbox"/> Dams <input type="checkbox"/> Bridge Abutments <input type="checkbox"/> Island <input type="checkbox"/> Waterfalls <u>NA</u> <input type="checkbox"/> Other		Stream Flow: Stream Type: <input type="checkbox"/> Dry <input type="checkbox"/> Pooled <input type="checkbox"/> Low <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Perennial <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> High <input type="checkbox"/> Very Rapid or Torrential <input type="checkbox"/> Ephemeral <input type="checkbox"/> Seep		
Riparian Vegetation: Dom. Tree/Shrub Taxa Dominate Type: <input type="checkbox"/> Trees <input type="checkbox"/> Shrubs <input type="checkbox"/> Grasses <input type="checkbox"/> Herbaceous Number of strata _____		Canopy Cover: Channel Alterations: <input type="checkbox"/> Fully Exposed (0-25%) <input type="checkbox"/> Dredging <input type="checkbox"/> Partially Exposed (25-50%) <input checked="" type="checkbox"/> Channelization <u>Pre Low Mining</u> <input type="checkbox"/> Partially Shaded (50-75%) <input type="checkbox"/> Full (Partial) <input type="checkbox"/> Fully Shaded (75-100%)		
Substrate 0 Est. 0P.C.		Riffle <u>90</u> % Run <u>10</u> % Pool <u>26</u> %		
Silt/Clay (<0.06 mm)		<u>10</u>		
Sand (0.06 - 2 mm)		<u>10</u>		
Gravel (2-64 mm)		<u>90</u>		
Cobble (64 - 256 mm)		<u>10</u>		
Boulders (>256 mm)		-		
Bedrock		-		
Habitat		Condition Category		
Parameter	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 <u>6</u>	5 4 3 2 1 0
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 <u>6</u>	5 4 3 2 1 0
3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/depth regime (usually slow-deep).
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 <u>3</u> 2 1 0

band springs

Corridor A

4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment: 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr.) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score

NOTES/COMMENTS:

103

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

Project ID:	Nally & Hamilton Enterprises, Inc. / NWP43 Pre-construction Notification / LRN-2010-00267
Stream/Reach:	Pond #8
Assessment Objectives:	EXISTING CONDITIONS

EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.49	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	8	no units	
2. Embeddedness	9	no units	
3. Velocity/Depth Regime	5	no units	
4. Sediment Deposition	8	no units	
5. Channel Flow Status	6	no units	
6. Channel Alteration	11	no units	
7. Freq. Of Riffles (bends)	8	no units	
8. Bank stability (both combined)	12	no units	
9. Veg. Protection (both combined)	18	no units	
10. Riparian Width (both combined)	18	no units	
Total Habitat Score	103	no units	Subindex
Habitat Integrity Index			0.13
Macroinvertebrate Data - Family Level (All Habitats)			
11. Family Taxa Richness	0	# of taxa sampled	
12. Family EPT Richness	0	# of EPT species sampled	
13. % Ephemeroptera	0	% Mayflies (0-100)	
14. % Chironomidae & Oligochaeta	0	% Midge & Worms (0-100)	
15. mFBI	0	no units	
Macroinvertebrate Bioassessment	NA	no units	NA
Conductivity	205	microMHOs	0.84



High Gradient Stream Data Sheet

21015
E

STREAM NAME: <u>UT Cranks Creek</u>		LOCATION: <u>Lawood</u>		
STATION #: <u>Pond #8</u> MILE:		BASIN/WATERSHED: <u>0103</u>		
LAT.: <u>36.74814</u> LONG.: <u>-83.23290</u>		COUNTY: <u>Harlan</u> USGS 7.5 TOPO: <u>Evarts/Hub Springs</u>		
DATE: <u>8-31-11</u> TIME: <u>1130</u> <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM		INVESTIGATORS: <u>JR</u>		
TYPE SAMPLE: <input type="checkbox"/> P-CHEM <input type="checkbox"/> Macroinvertebrate <input type="checkbox"/> FISH <input type="checkbox"/> BACT.				
WEATHER: Now Past 24 hours Has there been a heavy rain in the last 7 days? <input type="checkbox"/> <input type="checkbox"/> Heavy rain <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/> Steady rain Air Temperature _____ °C. Inches rainfall in past 24 hours <u>0</u> in. <input type="checkbox"/> <input type="checkbox"/> Intermittent showers <u>0</u> % Cloud Cover <input checked="" type="checkbox"/> <input type="checkbox"/> Clear/sunny				
P-Chem: Temp(°C) _____ D.O. (mg/l) _____ %Saturation _____ pH(S.U.) _____ Cond. <u>205</u> <input type="checkbox"/> Grab				
INSTREAM WATERSHED FEATURES: Stream Width <u>3-4</u> ft Range of Depth <u>0.1-2</u> ft Average Velocity <u>slow</u> ft/s Discharge _____ cfs Est. Reach Length <u>300-500</u>		LOCAL WATERSHED FEATURES: Predominant Surrounding Land Use: <input checked="" type="checkbox"/> Surface Mining <input type="checkbox"/> Construction <input checked="" type="checkbox"/> Forest <input checked="" type="checkbox"/> Deep Mining <input type="checkbox"/> Commercial <input type="checkbox"/> Pasture/Grazing <input type="checkbox"/> Oil Wells <input type="checkbox"/> Industrial <input type="checkbox"/> Silviculture <input type="checkbox"/> Land Disposal <input type="checkbox"/> Row Crops <input type="checkbox"/> Urban Runoff/Storm Sewers		
Hydraulic Structures: <input type="checkbox"/> Dams <input type="checkbox"/> Bridge Abutments <u>N/A</u> <input type="checkbox"/> Island <input type="checkbox"/> Waterfalls <input type="checkbox"/> Other		Stream Flow: <input type="checkbox"/> Dry <input type="checkbox"/> Pooled <input type="checkbox"/> Low <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Perennial <input type="checkbox"/> Intermittent <input type="checkbox"/> High <input type="checkbox"/> Very Rapid or Torrential <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Seep		
Riparian Vegetation: Dom. Tree/Shrub Taxa Dominate Type: <u>Am. Beach</u> <input checked="" type="checkbox"/> Trees <input type="checkbox"/> Shrubs <input type="checkbox"/> Grasses <input checked="" type="checkbox"/> Herbaceous Number of strata <u>2</u>		Canopy Cover: <input type="checkbox"/> Fully Exposed (0-25%) <input type="checkbox"/> Partially Exposed (25-50%) <input type="checkbox"/> Partially Shaded (50-75%) <input checked="" type="checkbox"/> Fully Shaded (75-100%)		
Channel Alterations: <input type="checkbox"/> Dredging <u>Pre-law</u> <input type="checkbox"/> Channelization <u>mining</u> <input type="checkbox"/> Full <input type="checkbox"/> Partial				
Substrate <input checked="" type="checkbox"/> Est. <input type="checkbox"/> P.C.	Riffle <u>90</u> %	Run <u>7</u> %	Pool <u>10</u> %	
Silt/Clay (<0.06 mm)	<u>10</u>		<u>80</u>	
Sand (0.06 - 2 mm)	<u>20</u>		<u>15</u>	
Gravel (2-64 mm)	<u>20</u>		<u>5</u>	
Cobble (64 - 256 mm)	<u>40</u>		<u>0</u>	
Boulders (>256 mm)	<u>10</u>		<u>-</u>	
Bedrock	<u>-</u>		<u>-</u>	
Habitat	Condition Category			
Parameter	Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 8	20 19 18 17 16	15 14 13 12 11	10 9 <u>8</u> 7 6	5 4 3 2 1 0
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 9	20 19 18 17 16	15 14 13 12 11	10 <u>9</u> 8 7 6	5 4 3 2 1 0
3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Sow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/depth regime (usually slow-deep).
SCORE 5	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	<u>5</u> 4 3 2 1 0

4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 8	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 6	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Channel Alteration <i>Pre-law mining</i>	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr.) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE 11	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE 8	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE (LB) 6	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE (RB) 6	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE (LB) 9	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE (RB) 9	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE (LB) 9	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE (RB) 9	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score

NOTES/COMMENTS:

103