YEAR ONE MONITORING REPORT
UNITED STATES CORPS OF ENGINEERS
Beechgrove Mitigation
KDNR PERMIT NO. 866-0281 AM 8

ICG Hazard, LLC.

A SUBSIDARY OF:

ICG
International Coal Group, Inc.

Prepared:
November 29, 2010

Prepared by:

Aquatic Resources Management
2265 Harrodsburg Rd., Suite 200
Lexington, KY 40504
(859) 388-9595

AQUATIC RESOURCES MANAGEMENT, LLC

29 November, 2010

United States Army Corps of Engineers
Louisville District
845 Sassafras Creek Road
Sassafras, KY 41759-8806

Re: DNR# 866-0281 Am. 8, LRL-2007-334-odm

Dear Reviewer,

Please find enclosed one (1) original copy of the First Year Monitoring report for the Beech Grove Mitigation site.

Should you require any more information upon your review of this package or require a site visit feel free to contact me at 859-388-9595 or by e-mail at nbaker@aquaticresources.us.

Sincerely,

Nick Baker
Vice President and Environmental Scientist

2265 Harrodsburg Road • Suite 210 • Lexington • Kentucky • 40504
Office 859.388.9595 • Fax 859.381.1005 • Web www.aquaticresources...

ICG Hazard, LLC. Beech Grove Mitigation Year One Monitoring Report

Project Overview

This report is to notify the United States Army Corps of Engineers (USACE) of the completion on one full growing season for the ICG Hazard, LLC (ICG) Beech Grove Mitigation site. This USACE permit is an Individual Permit associated with ICG Permit #866-0281 AM. 8. Aquatic Resources Management is the agent responsible for conducting the monitoring reports on behalf of ICG. The inspection date of the field visit was conducted on May 11, 2010.

Purpose of the Approved Project

This mitigation project was conducted in order to offset stream impacts associated with ICG's 866-0281 Am. 8 mining project. Stream impacts occurred from the surface mining method of extraction of coal reserves. Four hollowfills were necessitated by this method to contain all overburden as well as in-stream ponds needed to control and treat the sediment runoff. The hollow fills associated with the mining project will be permanently impacting approximately 4,719 linear feet of intermittent stream and 4,425 linear feet of ephemeral stream. The in-stream ponds will be temporarily impacting 1,818 linear feet of intermittent stream. Utilizing the Eastern Kentucky Stream Assessment protocol the mitigation determined for the associated impacts to this permitting action equates to 1,195 linear feet of intermittent stream mitigation. The Beach Grove mitigation will provide the structural and functional aspects which were lost at the mining impact site.

Site Location

Beech Grove is located 2.2 miles south of the intersection of State Highway 30 and Canoe Rd. in Breathitt County Kentucky. The latitude and longitude of the project is 37.4622 and 83.4712 respectively. Beech Grove is located in the Middle Fork of the Kentucky River watershed Hydrologic Unit Code (HUC) 05100202.

Mitigation Commencement and Completion Dates

Construction on Beech Grove started in June of 2008 and was completed in September of 2008.

Performance Standards

After one full growing season, post construction completion, all performance standards are being met. Some sections of the restored reach were impacted by a flood event that occurred after the mitigation was completed. Stream banks were eroded due to lack of vegetation and improper flood-plane construction, structures were altered or destroyed, and a large volume of sand was introduced to the riffle and pool habitat areas. The flood occurred at the stream's most vulnerable time, due to the lack of initial vegetation. However all the impacts originating from the flood were quickly ameliorated. The applicant initially deviated from the submitted design plans due to field constraints and conditions. After the flooding event ICG reconstructed the stream to the pre-flood dimension pattern and profile. All the structures which had been altered or damaged were repaired or replaced. The excess sediment was removed after multiple rain events and new substrate more conducive for fish and macroinvertebrate habitat was installed in its place. Overall the restoration activities have achieved channel stability with enhanced fish and macroinvertebrate habitat.

Requirements

The requirements as stated in the approved Clean Water Act Section 404 permit are as follows; Mitigation efforts will be implemented by the applicant using their own qualified equipment operators to conduct the mitigation plan under Best Management Practices. The stream morphology will be deemed successful when the proposed structures are constructed in the approximate location proposed in this mitigation plan. Stream stability will be examined for successful erosion controls. The erosion controls will be considered successful if the stream and proposed stream structures are stable laterally and vertically. The limits of the mitigation sites will be delineated and flagged with surveyor's stake to indicate restored reaches.

The vegetation will be maintained at an 80% success rate for native species in the riparian corridors. It is also anticipated that natural succession of native species will occur on-site in the riparian zones. Non-native and invasive species will be kept to less than 20% overall on the project restoration area.

After stream restoration standards have been met for all areas the applicant or consultant will be responsible for conducting annual monitoring reports to inform the Louisville District of the United States Army Corps of Engineers of progress. The applicant is obligated to maintain the project area mitigation by following requirements set forth by DSMRE and USACE. Monitoring and maintenance of the mitigation site will continue until final mitigation approval is achieved.
The compensatory mitigation project site is successfully achieving the standards set forth in the approved USACE permit. The Rapid Bioassessment Protocol demonstrates trends toward the stated mitigation goals in Table 1.

Table 1:

Beech Grove Mitigation Monitoring						
RPB Habitat Parameters	**Pre-mitigation**	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Predicted Year Five**
Epifaunal Substrate	5	12				15
Embeddedness	6	12				16
Velocity/Depth Regime	3	13				15
Sediment Deposition	8	10				13
Channel Flow Status	6	12				15
Channel Alteration	2	13				15
Frequency of Riffles	3	15				15
Bank Stability (both)	6	12				12
Veg. Protection (both)	6	12				14
Riparian Width (both)	8	12				12
Total Habitat Score	53	123				142

Summary Data

The success of the project is based on the stabilization of the stream as well as the creation of fish and macroinvertebrate habitat. The pre-mitigation vs. year-one post mitigation scores are listed in Table 1 above. The table shows the general trend toward the stated goals in the compensatory mitigation plan.

The Beach Grove stream restoration project had various challenges to overcome to ensure its success. One of the major challenges was the low gradient that dominated the lower section of the project. In this case, the applicant benefited from a large floodplain to minimize inaccuracy during dimension pattern and profile construction. A low gradient channel posed the problem of maintaining proper channel slopes to advocate shear stress at such a level that transportation of the needed sediment was achieved. Survey equipment was utilized throughout this process to ensure proper results were obtained.

A natural sinuous pattern was established for the stream throughout the original drainage corridor and meandered through preexisting trees (approximately ten years old) which served as immediate riparian erosion control as well as providing stream canopy cover. The more natural stream design, coupled with the previously established floral community, will not only maintain and enhance stream bank stability, but advances in recolonization of macroinvertebrate and ichthyological communities are expected as well. Pictures of the mitigation site are illustrating the current condition (figures 1-6), as well as the map showing the locations of the photos (figure 7).

Figure 1 Looking Upstream Upper Reach 5/11/10 Pic. 3123

Figure 2 Looking Upstream Upper Reach 5/11/10 Pic. 3110

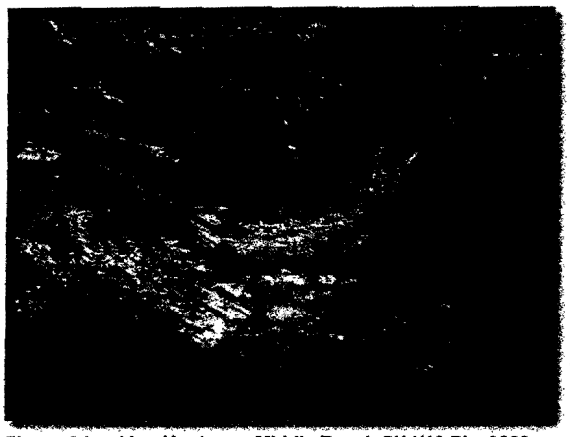

Figure 3 Looking Upstream Middle Reach 5/11/10 Pic. 3099

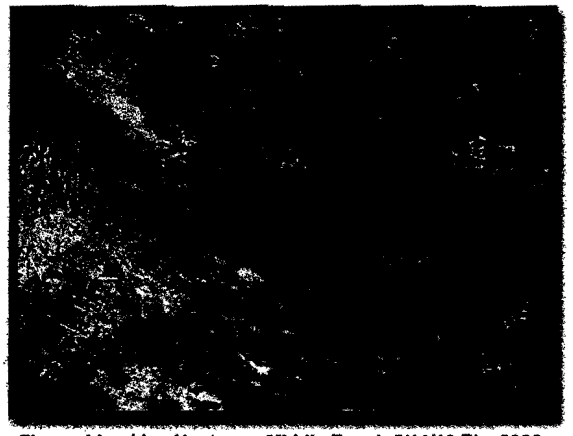

Figure 4 Looking Upstream Middle Reach 5/11/10 Pic. 3096

Figure 5 Looking Upstream Lower Reach 5/11/10 Pic. 3064

Figure 6 Looking Upstream Lower Reach 5/11/10 Pic. 3057

Conclusions

The Beech Grove mitigation site is currently meeting all performance standards set forth in the issued USACE 404 permit. The stabilization structures are currently maintaining stable stream banks, controlling the grade of the stream bed, stabilizing riffles and pools, and creating habitat for aquatic organisms. The natural flood event slowed the first year of recovery, however all issues have now been restored to their pre-flood state and further problems are not expected. In the case that future problems do arise, ICG and/or a consultant will devise a strategy to ameliorate the issue.