AQUATIC RESOURCES MANAGEMENT, LLC

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By

December 28, 2011

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

2005- 408

Re: DNR# 813-0361

2005- 408

Dear Reviewer,

Please find enclosed one (1) original copy of the First Year Monitoring report for the Little Sue Branch Reach 11 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

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YEAR ONE MONITORING REPORT
UNITED STATES CORPS OF ENGINEERS
Little Sue Branch Reach 11
KDNR PERMIT NO. 813-0361

Laurel Mountain Resources, LLC.

Prepared:
December 19, 2011

Prepared by:

Aquatic Resources Management

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Lexington, KY 40504
(859) 388-9595

Laurel Mountain Resources, LLC Little Sue Branch Reach 11 Mitigation Year One Monitoring Report

Project Overview

This report is to notify the United States Army Corps of Engineers (USACE) of the completion of one full growing season for the Laurel Mountain Resources, LLC (LMR) Little Sue Branch Reach 11 Mitigation site. This USACE permit (ID # 200500408) is an Individual Permit associated with LMR KDSMRE Permit # 813-0361 (previously 813-0311). Aquatic Resources Management is the agent responsible for conducting the monitoring reports on behalf of LMR. The inspection date of the field visit was conducted on 10 November 2011.

Purpose of the Approved Project

This mitigation project was conducted in order to offset stream impacts associated with LMR's 813-0361 mining project. Stream impacts occurred from the surface mining method of extraction of coal reserves. One hollow fill and associated impacts were necessitated at this project to facilitate the surface mining project. Restoration performed at Little Sue Branch partially mitigates losses of 1,653 linear feet from the structures. The mitigation provided for the associated impacts to this permitting action equates to 2,111 linear feet intermittent stream mitigation.

Site Location

The Little Sue Branch mitigation site is located approximately 1.75 miles east of the intersection of Highway 30 and Highway 542 in Breathitt County. The latitude

and longitude of the project is 37° 35' 6.35" and 83° 9' 36.93" respectively. Little Sue Branch is located on Big Caney Creek of Quicksand Creek in the North Fork of the Kentucky River watershed Hydrologic Unit Code (HUC) 05100201.

Mitigation Commencement and Completion Dates

Construction on Little Sue Branch was started in the fall of 2010 and completed in the winter of 2010.

Performance Standards

After one full growing season of construction completion all performance standards are being met with the exception of the riparian plantings. The restoration activities have decreased the amount of sediment entering the stream from the past impacts, improved bank stability, created macroinvertebrate habitat, as well as achieved vertical and lateral channel stability. Further tree plantings are necessary along the riparian corridor and repairs to the eroding bank and failing stream enhancement structure at the embankment of the removed pond to achieve full potential of the mitigation reach. These problems will be corrected during the dormant season of 2012. After transplanting trees and completing the described construction, LMR will be meeting all of their performance standards.

Requirements

The requirements as stated in the approved Clean Water Act Section 404 permit are as follows; Mitigation efforts were implemented by the applicant using their own qualified equipment operators to conduct the mitigation plan under Best Management Practices. The stream morphology will be determined 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. As stated, the aforementioned tree plantings and described maintenance will be performed by LMR to meet performance standards. The Rapid Bioassessment Protocol demonstrates trends toward the stated mitigation goals in table 1.

Table 1.

Little Sue Branch Reach 11 Mitigation Monitoring						
RPB Habitat Parameters	Pre-mitigation	Year One	Year Two	Year Three	Year Four	Predicted Five Year
Epifaunal Substrate	14	13				16
Embeddedness	13	12				16
Velocity/Depth Regime	7	10				10
Sediment Deposition	7	14				10

Channel Flow Status	8	14				12
Channel Alteration	16	13				16
Frequency of Riffles	17	14				17
Bank Stability (both)	9	16				12
Veg. Protection (both)	12	12				12
Riparian Width (both)	13	12				13
Total Habitat Score	116	130				134

Summary Data

The success of the project is based on the stabilization of the stream as well as the creation of 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 Little Sue Branch restoration project had various challenges to overcome to ensure its success. The entrenched stream bed was causing unstable banks and the introduction of excess sediment. LMR was able to remedy impacts by restoring the natural plan and profile, re-grading, planting native riparian species, and improving habitat to a minimum width of 50 feet beyond stream banks to create a continuous corridor along the channel. Rock and log cross vanes were installed at the beginning and end of each segment to increase sediment transport, and create macroinvertebrate habitat.

Pictures of the mitigation site illustrating the past and current conditions (figures 1-6), as well as a map showing the locations of the photos (figure 7), and map depicting the site location (figure 8) are included. The only part of the mitigation that is not meeting the stated standards is the riparian survival rate and damaged stream enhancement structure as aforementioned.

Figure 1. Little Sue Branch Reach 11 11/10/11
Pic. 763 Facing Upstream, 37.58225, -83.15538

Figure 2. Little Sue Branch Reach 11 11/10/11
Pic. 765 Facing Upstream, 37.58263,-83.15628

Figure 3. Little Sue Branch Reach 11 11/10/11
Pic. 766 Facing Upstream, 37.58287, -83.15638

Figure 4. Little Sue Branch Reach 11 11/10/11
Pic. 769 Facing Upstream, 37.58381, -83.15745

Figure 5. Little Sue Branch Reach 11 11/10/11
Pic. 770 Facing Upstream, 37.58387, -83.15769

Figure 6. Little Sue Branch Reach 11 11/10/11
Pic. 772 Facing Upstream, 37.58447, -83.15853

Conclusions

The Little Sue Branch mitigation site is meeting performance standards with the exception of tree survival rate and the aforementioned eroding bank. LMR will return to the site and transplant more trees and perform necessary construction in 2012. Once this condition is corrected the LMR mitigation site will continue to trend toward the stated mitigation performance standards in the approved Clean Water Act section 404 permit.