



AQUATIC RESOURCES MANAGEMENT, LLC



27 December, 2011

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

2003 - 1428

RE: Laurel Mountain Resources, LLC KDSMRE Permit #813-0359, Big Caney Creek Unnamed Tributary Reach 13 Construction Completion Notification

Dear Reviewer,

This letter is to serve as notification of the completion of mitigation construction at Big Caney Creek Unnamed Tributary Reach 13 in Breathitt County, KY. This mitigation is to serve as the compensation for the jurisdictional stream impacts associated with Laurel Mountain Resources, LLC KDSMRE surface mining permit #813-0359. The Construction was completed in fall/winter 2010. This construction completion report was not submitted to the USACE initially after completion, please accept this as notification the project has been completed. A year one monitoring report is also included in this submittal to ensure that LMR stays in compliance with the requirements of the issued USACE permit. If you would like to conduct a site visit, please let me know and I will arrange access to the site.

Should you require any additional information or need any clarification, please feel free to contact me at 859-388-9595.

Sincerely,

Nick Baker
Vice President/Senior Environmental Scientist



Figure 1. Reach 13 Unnamed Tributary 11/10/11
Pic. 754 Facing Upstream, 37.58127, 83.16577



Figure 2. Reach 13 Unnamed Tributary 11/10/11
Pic. 753 Facing Upstream, 37.58052, 83.16584



Figure 3. Reach 13 Unnamed Tributary 11/10/11
Pic. 751 Facing Upstream, 37.57966, 83.16620



Figure 4. Reach 13 Unnamed Tributary 11/10/11
Pic. 750 Facing Upstream, 37.57928, 83.16608



AQUATIC RESOURCES MANAGEMENT, LLC

December 19, 2011

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

Re: DNR# 813-0360

Dear Reviewer,

Please find enclosed one (1) original copy of the First Year Monitoring report for the Big Sue Branch Unnamed Tributary Reach 13 Mitigation site and a copy of the construction completion report.

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,

A handwritten signature in dark ink, appearing to read 'Nick Baker'. The signature is fluid and cursive, with the first name 'Nick' being more prominent than the last name 'Baker'.

Nick Baker
Vice President and Environmental Scientist

YEAR ONE MONITORING REPORT
UNITED STATES CORPS OF ENGINEERS
Big Sue Branch Unnamed Tributary Reach 13
KDNR PERMIT NO. 813-0360



Laurel Mountain Resources, LLC.

Prepared:
December 19, 2011

Prepared by:



**Aquatic Resources
Management**

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

Laurel Mountain Resources, LLC Big Caney Creek Unnamed Tributary Reach 13 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) unnamed tributary of Big Caney Creek (Reach 13) mitigation site. This USACE permit (ID # 200301428) is an Individual Permit associated with LMR KDSMRE Permit # 813-0359 (previously 813-0309). 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 813-0359 mining project. Stream impacts occurred from the surface mining method of extraction of coal reserves. Construction of four hollow fills were necessitated at this project to contain the overburden associated with the mining methods. Restoration performed at Reach 13 partially mitigates losses of 1,488 linear feet from impacts associated with the hollow fill construction. The mitigation provided for the associated impacts to this permitting action equates to 1,917 linear feet of intermittent stream mitigation and 450 linear feet of ephemeral stream mitigation. Total length of off-site stream mitigation is 2,367 linear feet.

Site Location

Unnamed tributary Reach 13 is located approximately 1.4 miles east of the intersection of Highway 30 and Highway 542 in Breathitt County Kentucky. The latitude and longitude of the project is 37° 34' 54.08" and -83° 9' 56.37" respectively. Reach 13 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 Reach 13 was started in the fall of 2010 and was completed in the winter of 2010.

Performance Standards

After one full growing season of construction completion all performance standards are being met. 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 to achieve full potential within the mitigation reach. These problems will be corrected in the dormant season of this year. After transplanting trees, 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 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.

Unnamed Tributary of Big Caney Creek Reach 13 Mitigation Monitoring						
Reach 13 Segment 1 - Intermittent						
RPB Habitat Parameters	Pre-mitigation	Year One	Year Two	Year Three	Year Four	Predicted Five Year
Epifaunal Substrate	8	13				13
Embeddedness	4	13				13
Velocity/Depth Regime	6	10				11
Sediment Deposition	3	13				14
Channel Flow Status	6	14				12
Channel Alteration	10	15				14
Frequency of Riffles	10	15				13
Bank Stability (both)	8	18				14
Veg. Protection (both)	6	18				14
Riparian Width (both)	18	14				18
Total Habitat Score	79	143				136
Reach 13 Segment 2 - Intermittent						
RPB Habitat Parameters	Pre-mitigation	Year One	Year Two	Year Three	Year Four	Predicted Five Year
Epifaunal Substrate	4	13				13
Embeddedness	5	13				12
Velocity/Depth Regime	6	10				11
Sediment Deposition	5	13				12
Channel Flow Status	6	14				12
Channel Alteration	6	15				14
Frequency of Riffles	6	15				13
Bank Stability (both)	10	18				14
Veg. Protection (both)	8	18				14
Riparian Width (both)	18	14				18
Total Habitat Score	74	143				133
Reach 13 Segment 3 - Ephemeral						
RPB Habitat Parameters	Pre-mitigation	Year One	Year Two	Year Three	Year Four	Predicted Year Five
Epifaunal Substrate	8	13				12
Embeddedness	7	13				12

Velocity/Depth Regime	9	10				9
Sediment Deposition	7	13				12
Channel Flow Status	10	14				12
Channel Alteration	10	15				13
Frequency of Riffles	9	15				13
Bank Stability (both)	10	18				18
Veg. Protection (both)	16	18				18
Riparian Width (both)	16	14				18
Total Habitat Score	102	143				137

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.

Reach 13 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 pattern, 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 cross vanes were installed at designed intervals within each segment to increase sediment transport and create macroinvertebrate habitat.

Pictures of the mitigation site illustrating the current condition (figures 1-4), as well as the map showing the locations of the photos (figure 5) and site location map (figure 6) are included. Mitigation that is not meeting the stated standards is the riparian survival rate, damaged stream enhancement structures, and eroding banks as aforementioned.



Figure 1. Reach 13 Unnamed Tributary 11/10/11
Pic. 754 Facing Upstream, 37.58127, -83.16577



Figure 2. Reach 13 Unnamed Tributary 11/10/11
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Figure 4. Reach 13 Unnamed Tributary 11/10/11
Pic. 750 Facing Upstream, 37.57928, -83.16608

Conclusions

The unnamed tributary to Big Caney Creek Reach 13 mitigation site is meeting all performance standards with the exception of tree survival rate and structure stability. LMR will return to the site and transplant more trees and perform necessary maintenance during the dormant season of 2012. Once these conditions are corrected the LMR mitigation site will continue to trend toward the stated mitigation performance standards in the approved Clean Water Act Section 404 permit.