Monitoring Data Record

Project Title: B-4183
COE Action ID: 2011-00417 DWQ Number: 20110060
Stream Name: Crooked Creek and Middle Fork Creek
City, County and other Location Information: Madison County, replaced Br. #29 over Middle Fork Creek and Br. #28 over Crooked Creek on SR 1526 adjacent to US 19
Date Construction Completed: Completed Planting on 11-26-12 Monitoring Year: (2) of 5
Ecoregion: 8 digit HUC unit 06010105
USGS Quad Name and Coordinates: N 35.85350 W 82.48853
Rosgen Classification:
Length of Project: 107' Urban or Rural: Rural Watershed Size:
Monitoring DATA collected by: M. Green & J. Young Date: 8/21/13
Applicant Information:
Name: NCDOT Roadside Environmental Unit
Address: 1425 Rock Quarry Road Raleigh, NC 27610
Telephone Number: (919) 861-3772 Email address: mlgreen@ncdot.gov
Consultant Information:
Name:
Address:
Telephone Number: Email address:
Project Status: Complete

Monitoring Level required by COE and DWQ (404 permit/ 401 Cert.): Level 1 ~~2~~ ~~3~~
Monitoring Level 1 requires completion of *Section 1, Section 2 and Section 3*

Permit States: ***(ACOE Permit Requirements):***

Condition #4. While the channel relocation of a portion of Crooked Creek is not designed to mimic natural pattern, profile and dimension, stability of the relocated channel is a concern. The permittee shall perform monitoring for 5 years on the relocated channel. This monitoring will include reference photos, plant survival (i.e., identify specific problem areas such as missing, stressed, damaged or dead plantings, estimate causes, and propose remedial actions), and visual inspections of channel stability; physical measurements of channel stability/morphology will not be performed. A monitoring report will be submitted to the USACE within sixty days after completion of the monitoring period. If, during the 5-year monitoring period, aggradation, degradation, bank erosion, or any other evidence of other minor instability occurs which is attributable to design of the relocated stream or work conducted by the permittee or the permittee's contractor(s), the permittee, upon discovery of the instability, shall contact the USACE and recommend corrective action; this corrective action must be approved by the USACE prior to implementation by the permittee.

Condition #5. The permittee shall monitor the stability of the right bank of Middle Fork Creek, at and immediately downstream of the confluence of Crooked Creek and Middle Fork Creek for 5 years. This monitoring will include reference photos and visual inspection of channel stability; physical measurements of channel stability/morphology will not be performed. A monitoring report will be submitted to the USACE within sixty days after completion of the monitoring period. If during the 5-year monitoring period, aggradation, degradation, bank erosion, or any other evidence of other than minor instability occurs which is attributable to design of the relocated stream or work conducted by the permittee or the permittee's contractor(s), the permittee, upon discovery of the instability, shall contact the USACE and recommend corrective action; this corrective action must be approved by the USACE prior to implementation by the permittee.

Section 1. PHOTO REFERENCE SITES
(Monitoring at all levels must complete this section)

Total number of reference photo locations at this site:
4 photos were taken from 2 photo point locations and 2 overview photos
Dates reference photos have been taken at this site: 11/8/12, 8/21/13

Individual from whom additional photos can be obtained (name, address, phone):

Other Information relative to site photo reference: A site map with photo point locations is included with this report.

If required to complete Level 3 monitoring only stop here; otherwise, complete section 2.

Section 2. PLANT SURVIVAL
Attach plan sheet indicating reference photos.

Identify specific problem areas (missing, stressed, damaged or dead plantings):
Japanese knotweed was noted onsite.

Estimated causes, and proposed/required remedial action: Japanese Knotweed was sprayed on August 21, 2013.

ADDITIONAL COMMENTS: Live stakes were planted along the streambank on 11/26/12. Black willow, alder, jewelweed, *Juncus* sp., Japanese knotweed, tear-thumb, and various grasses were noted onsite.

If required to complete Level 1 and Level 2 monitoring only stop here; otherwise, complete section 3.

Section 3. CHANNEL STABILITY

Visual Inspection: The entire stream project as well as each in-stream structure and bank stabilization/revetment structure must be evaluated and problems addressed.

Report on the visual inspection of channel stability. Physical measurements of channel stability/morphology will not be required. Include a discussion of any deviations from as-built and an evaluation of the significance of these deviations and whether they are indicative of a stabilizing or destabilizing situation.

The Crooked Creek stream relocation is stable for the Year 2 evaluation. The right bank of Middle Fork Creek at the confluence of Crooked Creek and Middle Fork Creek is also stable for the Year 2 evaluation. NCDOT will continue to monitor the channel stability at the Crooked Creek and Middle Fork Creek sites.

Date	Station Number	Station Number	Station Number	Station Number	Station Number
Structure Type					
Is water piping through or around structure?					
Head cut or down cut present?					
Bank or scour erosion present?					
Other problems noted?					

Section 4. DEBIT LEDGER

The entire Crooked Creek and Middle Fork Creek stream relocation sites were used for the B-4183 project to compensate for unavoidable stream impacts.

Crooked Creek

Photo Point #1 (Upstream)

Photo Point #1 (Downstream)

Photo Point #2 (Upstream)

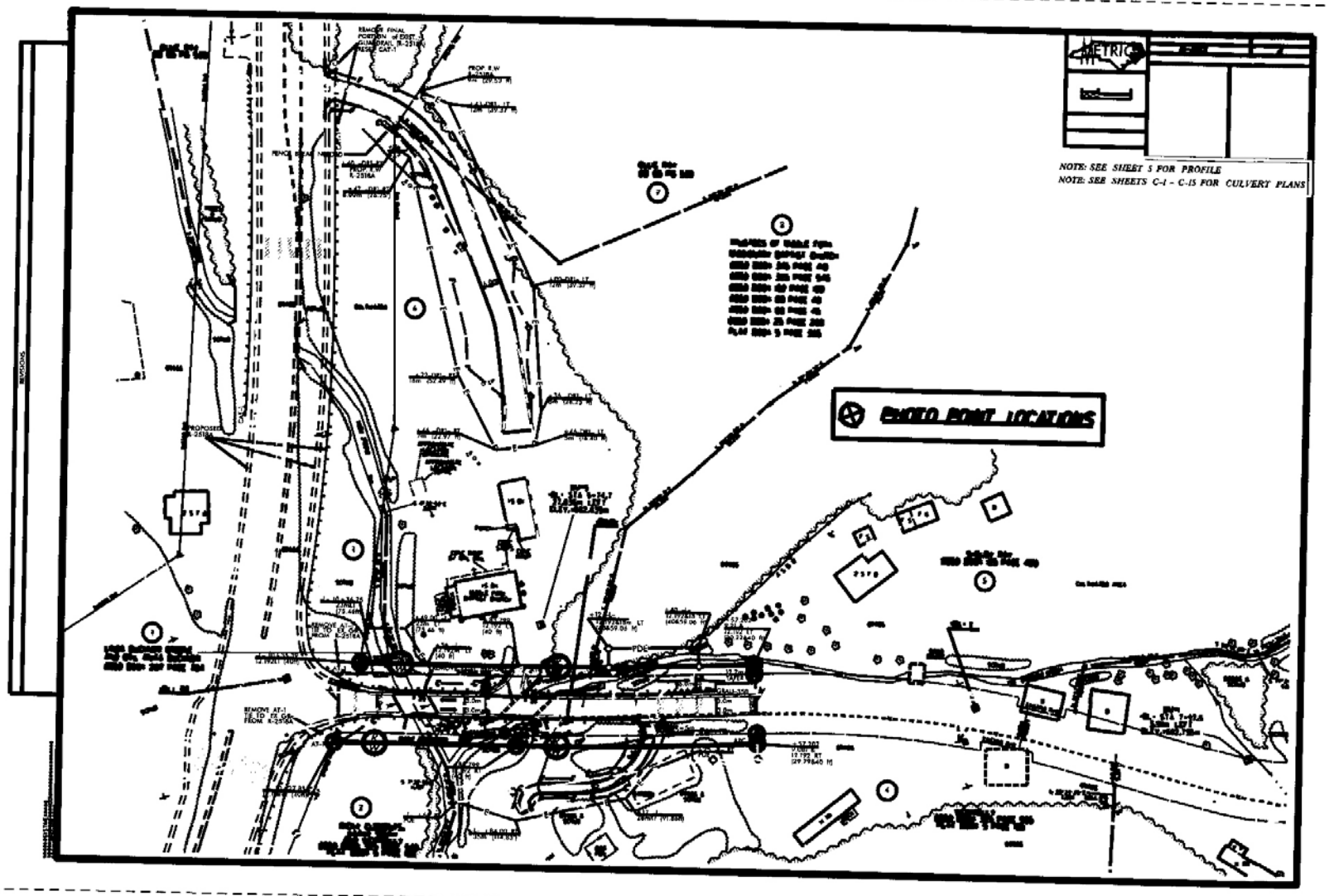
Photo Point #2 (Downstream)

Overview Photo Looking Downstream of Crooked Creek

Middle Fork Creek

Overview Photo Looking Downstream of Middle Fork Creek

Year 2 – August 2013


METRIC
NOTE: SEE SHEET 5 FOR PROFILE
NOTE: SEE SHEETS C-1 - C-15 FOR CULVERT PLANS
PHOTO POINT LOCATIONS