Channel Mitigation Monitoring Sheets I, II, III, AND IV

Monitoring Data Record

Project Title: W-5107 COE Action ID: SAW 2010-01219

Stream Name: Site 3 – Bawdy Swamp and Sites 5, 6, & 7 – Quicosin Swamp

DWR Number: 20140914

City, County and other Location Information: Site 3 is located at the intersection of US 70 and US 70 Bus. and Sites 5, 6, & 7 is located at the intersection of US 70 and Davis Mill Rd.

Date Construction Completed: Final Planting: March 2017

Monitoring Year: (1) of 3

Ecoregion: Rolling Coastal Plain 8 digit HUC unit 03020201

USGS Quad Name and Coordinates: Site 3: NC-Four Oaks NE 35.491789, -78.27223

Sites 5, 6, & 7: NC-Princeton 35.48367, -78.24511

Rosgen Classification:

Length of Project: Stream relocations of 350 linear feet and buffer restorations of 18,314 square feet of Zone 1 Buffer and 10,769 square feet of Zone 2 Buffer

Urban or Rural: Rural

Watershed Size: Site 3: 0.0000969 sq. miles and Sites 5, 6, & 7: 2.73 sq. miles

Monitoring DATA collected by: M. Green, B. Everhart, E. Gordon Date: 9-6-17

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 DWR (404 permit/ 401 Cert.): Level

NCDWR Permit: Compensatory mitigation for impacts to jurisdictional streams shall be provided by onsite stream relocations of 350 linear feet of perennial stream at Site 3 and 5. The permittee shall visually monitor the vegetative plantings to assess and ensure complete stabilization of the mitigation stream segments. The monitoring shall be conducted annually for a minimum of 3 years after final planting. Photo documentation shall be utilized to document the success of the riparian vegetation and submitted to the NCDWR in a final report within 60 days after completing monitoring. After 3 years the NCDOT shall contact the NCDWR to schedule a site visit to close out the mitigation site.

NCDOT will restore onsite 18,314 square feet of Zone 1 Buffer and 10,769 square feet of Zone 2 Buffer. In accordance with 15A NCAC 02B.0242(9), riparian vegetation establishment shall include a minimum of at least 2 native hardwood tree species planted at a density sufficient to provide 320 trees per acre at maturity. The permittee shall monitor the buffer mitigation site. The monitoring shall be conducted annually for a minimum of 3 years after final planting. Photo documentation shall be utilized to document the success of the riparian vegetation and that diffuse flow through the riparian buffer has been maintained. Documentation shall be submitted to the NCDWR in a final report within 60 days after completing monitoring. After 3 years the NCDOT shall contact the NCDWR to schedule a site visit to close out the mitigation site.

All onsite mitigation sites shall be protected by a conservation easement or through NCDOT fee simple acquisition and recorded in the NCDOT Natural Environment Unit mitigation geodatabase.

Section 1. PHOTO REFERENCE SITES

(Monitoring at all levels must complete this section)

Total number of reference photo locations at this site: A total of 8 photos were taken from 6 photo point locations.

Dates reference photos have been taken at this site: 9-6-17

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

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

Section 2. PLANT SURVIVAL

Attach plan sheet indicating reference photos.

Identify specific problem areas (missing, stressed, damaged or dead plantings):

Estimated causes, and proposed/required remedial action:

ADDITIONAL COMMENTS: NCDOT completed planting these sites in March 2017 with silky dogwood and black willow live stakes along the streambank and willow oak, river birch, swamp chestnut oak, tulip poplar, and black gum within the buffer restoration areas. Plant survival counts at Vegetation Plot #1 were conducted at Site 3 during September 2017 monitoring evaluation with the results showing an average density of 680 trees per acre, which is above the success criteria of 320 trees per acre after the first year of monitoring. Sites 5, 6, & 7 were visually inspected for plant survival and noted trees surviving within the planted areas. Other species noted on site included fennel, goldenrod, stinkweed, briars, soft rush, cattail, woolgrass, buttonbush, sweetgum, and various grasses. NCDOT proposes to continue plant survival monitoring at this site in 2018.

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

Plot	Willow Oak	Sycamore	Green Ash	River Birch	Swamp Chestnut Oak	Tulip Poplar	Black Gum	Total (Year 1)	Total (at planting)	Density (Trees/Acre)
1	8	6	4	14			4	36	36	**680**
Year 1 Average Density (Trees/Acre)										**680**

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 stream relocations are stable for the Year 1 monitoring evaluation. NCDOT will continue to monitor channel stability in 2018.

Date Inspected	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 Bawdy Swamp (Site 3) and Quicosin Swamp (Sites 5, 6 & 7) stream mitigation sites were used at a 1:1 ratio for the W-5107 project to offset 350 linear feet of unavoidable stream impacts.

W-5107

Site 3 PP #1 Upstream

Site 3 PP#1 Downstream

Site 3 PP #2 Upstream

Site 3 PP #2 Downstream

Site 3 overview photo looking downstream from US 70

Site 5 PP #1

September 2017

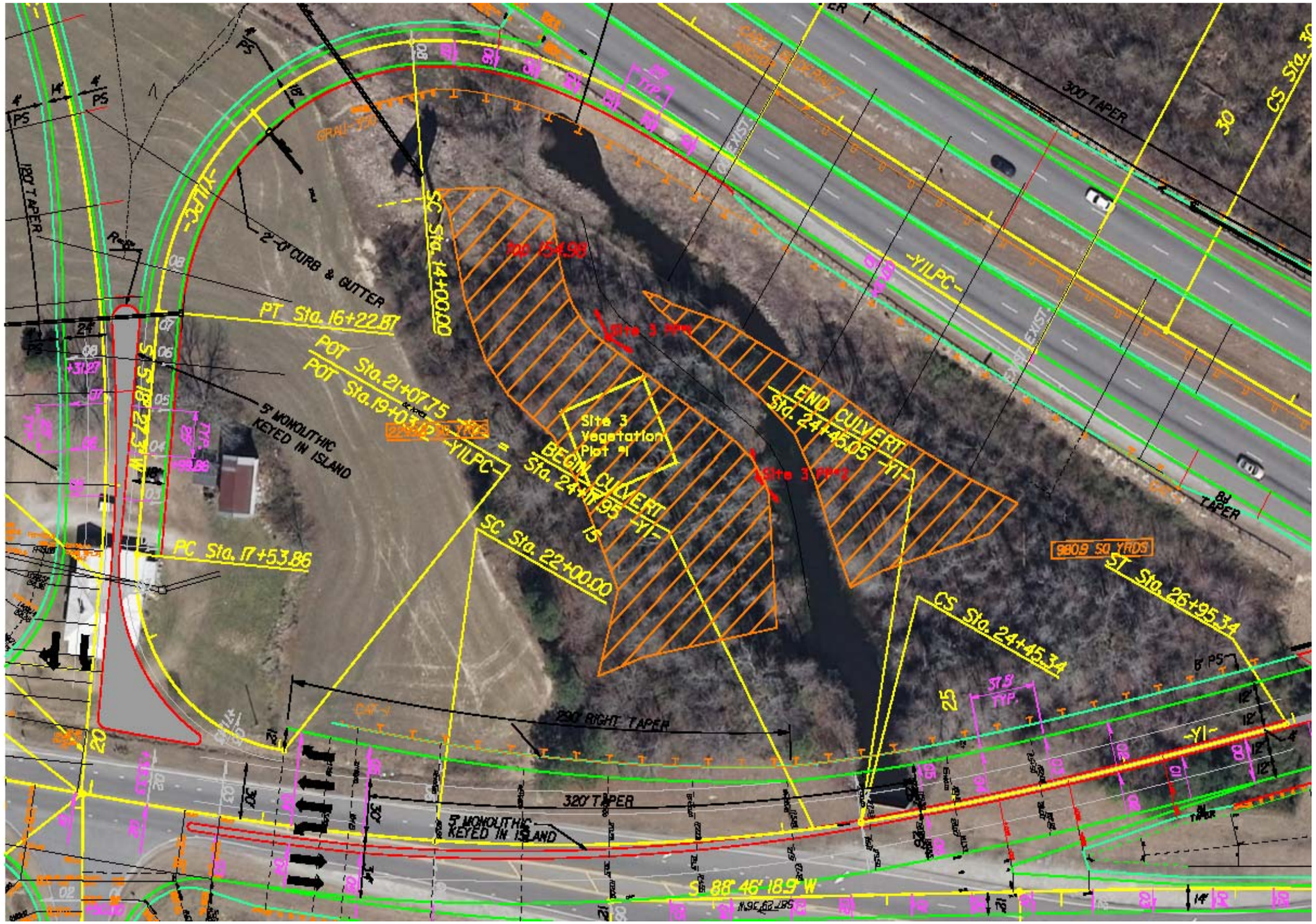
W-5107

Site 6 PP #1

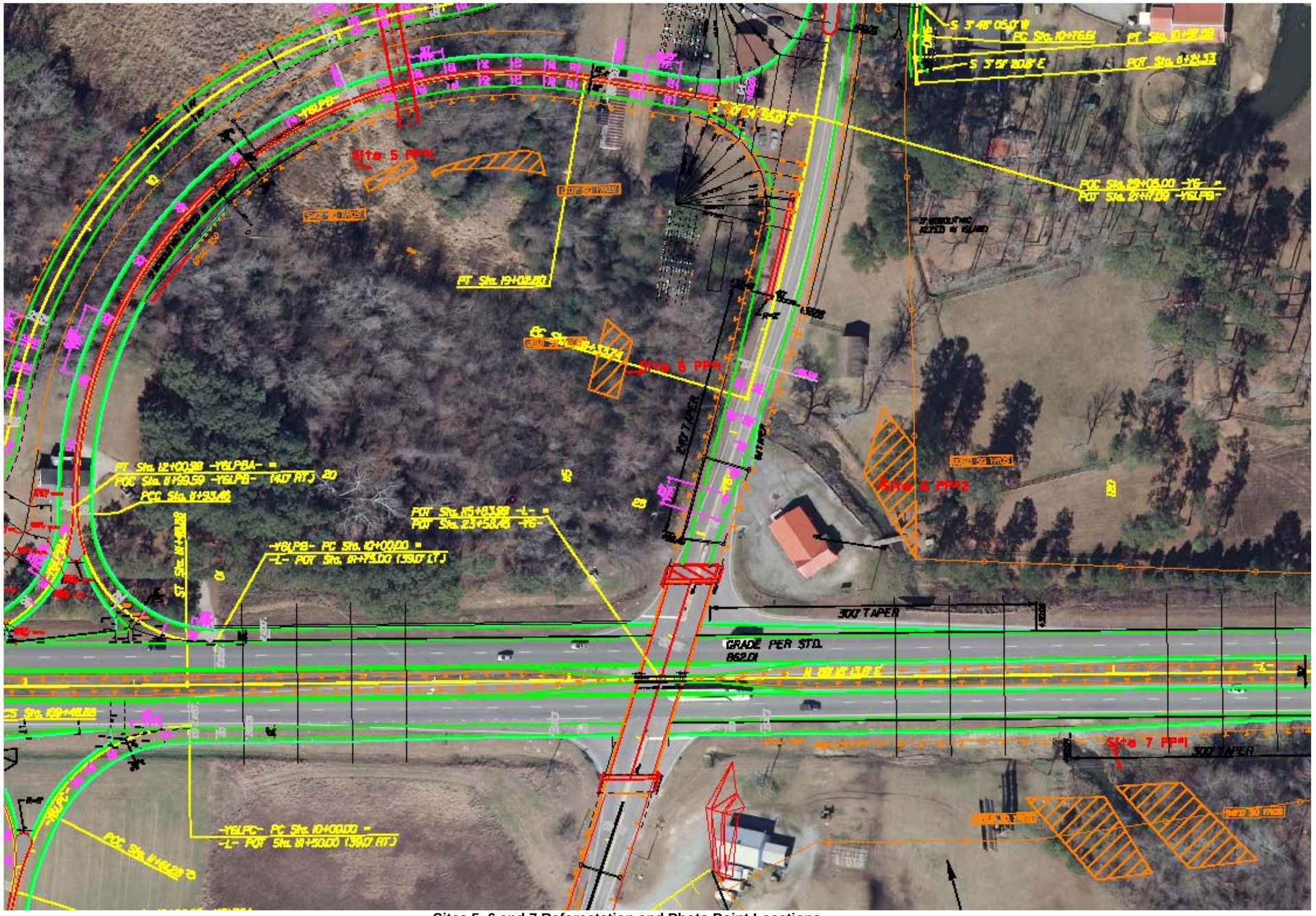
Site 6 PP #2

Site 7 PP#1

September 2017



Site 3 Reforestation, Vegetation Plot, and Photo Point Locations



Sites 5, 6 and 7 Reforestation and Photo Point Locations

VICINITY MAP
W-5107 Mitigation Sites 3, 5, 6, & 7
Johnston County, North Carolina

0 0.25 0.5 1 Miles

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