

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

Project Title: U-3615B COE Action ID: SAW-1999-21179  
Stream Name: UT to West Fork of the Deep River – Site 3 DWR Number: 2013-0477  
City, County and other Location Information: The mitigation site is located on Skeet Club Road across from Polar Creek Lane in Guilford County.  
Date Construction Completed: Streambank reforestation completed on February 22, 2018  
Monitoring Year: ( 4 ) of 5  
Ecoregion: Southern Outer Piedmont 8 digit HUC unit 03030002  
USGS Quad Name and Coordinates: Kernersville 36.038457, -80.013254  
**Rosgen Classification:** B4C  
Length of Project: 760 linear feet  
Urban or Rural: Urban Watershed Size: 0.68 sq. miles  
Monitoring DATA collected by: M. Green and M. Quick Date: 2-2-21 and 8-4-21  
Applicant Information:  
Name: NCDOT Roadside Environmental Unit  
Address: 1425 Rock Quarry Road Raleigh, NC 27610  
Telephone Number: (919) 615-6733 Email address: [mlgreen@ncdot.gov](mailto:mlgreen@ncdot.gov)  
Consultant Information:  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Telephone Number: \_\_\_\_\_ Email address: \_\_\_\_\_  
**Project Status:** Complete

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**Monitoring Level required by COE and DWR (404 permit/ 401 Cert.):** Level

**USACE permit states to follow the U-3615B Stream Mitigation Plan dated January 12, 2013.**

**Mitigation Plan States:**

**6.0 Performance Standards**

Buffer vegetation success criteria are based on the survival of at least 260 stems per acre at year five. Stream channel relocation success will be based on channel stability, vegetation survival, and placement of structures.

**7.0 Monitoring Requirements**

NCDOT will visually monitor the stream relocation as well as established vegetation plots. These monitoring activities will be conducted bi-annually for a five year period and documented in an annual report distributed to the regulatory agencies.

**NCDWR permit conditions:**

**21.** The permittee shall visually monitor the vegetative plantings to assess and ensure complete stabilization of the mitigation stream segments. Riparian area success shall be determined by conducting stem counts to ensure a tree survival rate of 320 stems/acre. 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 NCDWR in a final report within sixty days after completing monitoring. After 3 years the NCDOT shall contact NCDWR to schedule a site visit to close out the mitigation site.

24. The permittee shall monitor the buffer mitigation site. Monitoring shall consist of stem counts. An annual report shall be submitted to NCDWR for a period of 5 years showing monitoring results, survival rate, success of tree and vegetation establishment, and that diffuse flow through the riparian buffer has been maintained. The first annual report shall be submitted within one year of final planting. Failure to achieve a buffer density of 320 trees per acre after 5 years will require the annual report to provide appropriate remedial actions to be implemented and a schedule for implementation. Approval of the final annual report and a formal close out of the mitigation site by NCDWR is required.

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 10 photos were taken from 5 photo point locations and 2 additional overview photos of the site.**

**Dates reference photos have been taken at this site: 8-20-18, 1-23-19, 6-13-19, 1-23-20, 6-18-20, 2-2-21, 8-4-21**

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:** \_\_\_\_\_

February 2018: Streambank reforestation was completed

August 2018: Year 1 Monitoring noted Buttonbush and Silky Dogwood live stakes were surviving along the streambank. The site has 650 trees per acre surviving for Year 1.

January 2019: Year 2 Winter photos taken.

June 2019: Year 2 Monitoring noted Buttonbush and Silky Dogwood live stakes were surviving along the streambank. The site has 626 trees per acre surviving for Year 2. Other vegetation noted onsite included baccharis, pokeberry, alder, wax myrtle, briars and various grasses.

January 2020: Year 3 winter photos taken.

June 2020: Year 3 summer monitoring noted Buttonbush and Silky Dogwood live stakes were surviving along the streambank. The site has 619 trees per acre surviving for Year 3. Other vegetation noted onsite included baccharis, alder, blackberry, briars, wax myrtle, soft rush, multi-flora rose, elderberry, Bradford pear, and various grasses.

**January 2021: Type II reforestation completed on the south side of the stream around the stormwater device**

**February 2021: Year 4 winter photos taken.**

**August 2021: Year 4 summer monitoring noted Buttonbush and Silky Dogwood live stakes were surviving along the streambank. The site has 618 trees per acre surviving for Year 4. NCDOT will continue to monitor the planted vegetation in 2022.**

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

Plot #	Overcup Oak	Sycamore	Green Ash	River Birch	Total (Year 4)	Total (at planting)	Density (Trees/Acre)
1	12	6	18	1	37	42	599
2	12	1	24	7	44	47	637
Year 4 Average Density (Trees/Acre)							618
Year 3 Average Density (Trees/Acre)							619
Year 2 Average Density (Trees/Acre)							626
Year 1 Average Density (Trees/Acre)							650

### 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 UT to West Fork of the Deep River onsite stream mitigation is stable for the Year 4 evaluation. No instability was noted along the stream. One bankfull event was noted during the 2021 monitoring year which was observed by debris deposited onto the floodplain. NCDOT will continue to monitor channel stability at the UT to West Fork of the Deep River Mitigation Site in 2022.

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?					
Bankfull events	Wrack line 8-20-18	Wrack line 1-23-19	Wrack line 6-13-19	Wrack line 1-23-20	Wrack line 6-18-20
	Wrack line 2-2-21				

### Section 4. DEBIT LEDGER

The entire 760 linear feet of UT to West Fork of the Deep River stream relocation site was used at a 1:1 ratio for the U-3615B project to compensate for unavoidable stream impacts.



# UT to West Fork of the Deep River



PP #1 Upstream



PP#1 Downstream



PP #2 Upstream



PP #2 Downstream



PP #3 Upstream



PP #3 Downstream

February 2021



# UT to West Fork of the Deep River



PP#4 Upstream



PP#4 Downstream



PP#5 Upstream



PP#5 Downstream



Overview photo looking upstream from driveway pipe



Overview photo looking downstream from driveway pipe

February 2021



# UT to West Fork of the Deep River



Reforestation completed around stormwater device

February 2021



Reforestation completed around stormwater device



# UT to West Fork of the Deep River



PP #1 Upstream



PP#1 Downstream



PP #2 Upstream



PP #2 Downstream



PP #3 Upstream



PP #3 Downstream

August 2021



# UT to West Fork of the Deep River



PP#4 Upstream



PP#4 Downstream



PP#5 Upstream



PP#5 Downstream



Vegetation Plot #1



Vegetation Plot #2

August 2021





**U-3615B UT to West Fork of the Deep River  
Photo Point and Vegetation Plot Locations**



