

Monitoring Data Record

Project Title: I-40 Slope Stabilization COE Action ID: SAW-2012-00546
 Stream Name: UT's to Hominy Creek DWR Number: 20120309
 City, County and other Location Information: Site is located on Holder Branch Rd adjacent to US 19/23 (Asheville Highway) east of Canton, NC in Haywood County
 Date Construction Completed: Planting completed on 2/6/14 Monitoring Year: (3) of 5
 Ecoregion: Southern Crystalline Ridges and Mountains 8 digit HUC unit 06010105
 USGS Quad Name and Coordinates: 35.538800, -82.796083

Rosgen Classification: _____

Length of Project: 615 ft. of stream enhancement (Stream SA 378ft. and Stream SE 237ft.)
 Urban or Rural: Rural Watershed Size: 0.44 sq. mi.
 Monitoring DATA collected by: M. Green and B. Bradley Date: 7/12/16

Applicant Information:

Name: NCDOT Roadside Environmental Unit
 Address: 1425 Rock Quarry Rd, Ste. 106, Raleigh, NC 27610
 Telephone Number: 919-861-3772 Email address: mlgreen@ncdot.gov

Consultant Information:

Name: _____
 Address: _____
 Telephone Number: _____ Email address: _____

Project Status: _____

Monitoring Level required by COE and DWR (404 permit/ 401 Cert.): Level 2

Permit States: The permittee shall monitor the completed stream relocation in accordance with Monitoring Level 2 of the US Army Corps of Engineers, Wilmington District, Stream Mitigation Guidelines of April 2003. The monitoring reports, including reference photographs, plant survival data and visual inspection notes identifying specific problem areas, will be submitted to the Corps of Engineers, Asheville Regulatory Field Office within 60 days of completion of the monitoring. The monitoring report will also include a discussion of any deviations to channel stability. The success of the stream relocation as project mitigation will be evaluated based on those success criteria listed in the reference Stream Mitigation Guidelines.

Mitigation Plan: Performance Standards: Success will be based on the completion of the removal of the degrading factors that are decreasing the stream function. Success for vegetation monitoring within the riparian buffer are based on the survival of at least 260 stems for five year old trees at year five. Assessment of channel stability will be based on the survival of riparian vegetation and lack of significant bank erosion, channel widening or down-cutting. Additional performance standards include evaluating stream SA and SE using the USACE Stream Quality Assessment Worksheet at the completion of the monitoring period to demonstrate an improvement in stream function. **Monitoring Requirements:** Photo points will be located within the stream mitigation areas at equal intervals along the channel with upstream and downstream views. Vegetation monitoring will consist of visual monitoring within the riparian buffer areas. The entire reach will be visually inspected for channel stability and vegetation survival. NCDOT will also conduct surveys for macro benthos once a year for five years following the completion of construction on the streams. These monitoring activities will be conducted for five years and documented in an annual report distributed to the regulatory agencies. Once monitoring is completed and the site is closed out, it will be placed in NCDOT's Stewardship Program for long term maintenance and protection.

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 6 photos were taken from 3 photo point locations plus 3 site overview photos

Dates reference photos have been taken at this site: 7/23/14, 7/7/15, 7/12/16

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

Other Information relative to site photo reference: _____

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):

Estimated causes, and proposed/required remedial action: _____

ADDITIONAL COMMENTS: NCDOT completed planting this site on February 6, 2014 with black willow, silky dogwood, tulip poplar, sycamore, white oak, green ash, and persimmon. Two vegetation plots (one 50x50ft. and one 25x100ft.) were set within the planted areas. Plant survival counts were conducted during the July 2016 monitoring evaluation with the results showing an average density of 680 trees per acre. White oak seedlings were noted surviving outside of the vegetation plots. Other species noted on site included jewelweed, fescue, cottonwood, soft rush, sumac, pokeberry, briars, sage, kudzu, and various grasses. A small patch of kudzu was noted within the buffer adjacent to Photo Point #2. NCDOT sprayed the kudzu on 7/12/16 and will monitor the site to see if further herbicide applications need to be done. NCDOT will continue to monitor plant survival in 2017.

Plot #	Black Willow	Silky Dogwood	Tulip Poplar	Sycamore	White Oak	Green Ash	Persimmon	Total (Year 3)	Total (at planting)	Density (Tree/Acre)
1	5	4	4	18		1		32	32	680
2				11		19	5	35	35	680
Year 3 Average Density										680
Year 2 Average Density										661
Year 1 Average Density										670

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 enhancement of the UT's to Hominy Creek has occurred through the removal of all of the degrading factors including the removal of the mobile home residence, storage buildings, livestock, and trash from the stream. Boulder toe protection was installed to stabilize the banks as shown in the as-built plans. The UT's to Hominy Creek were stable for the Year 3 monitoring evaluation. NCDOT will continue to monitor channel stability at the UT's to Hominy Creek in 2017.

Date Inspected	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 event dates and how it was noted					

Section 4. DEBIT LEDGER

The entire UT to Hominy Creek stream mitigation site was used for the I-5402 project to compensate for unavoidable stream impacts. See the table on the following page for explanation of credits generated at the site.

Stream Description	Stream Length	Stream Length Adjustment	Enhancement Credits (1:1.5)	Credit Increase Allowance (+9%)	Total Credits
50 foot buffer on one side	160	80*	53	7	60
50 foot buffer on both sides	455	455	303	41	344
Total Mitigation Credits			356	48	404

*Adjustment determined by the following; $106/2=80$

UT's to Hominy Creek



Photo Point #1 (Upstream)



Photo Point #1 (Downstream)



Photo Point #2 (Upstream)



Photo Point #2 (Downstream)



Photo Point #3 (Upstream)



Photo Point #3 (Downstream)

UT's to Hominy Creek



Overview photo looking at Stream SE

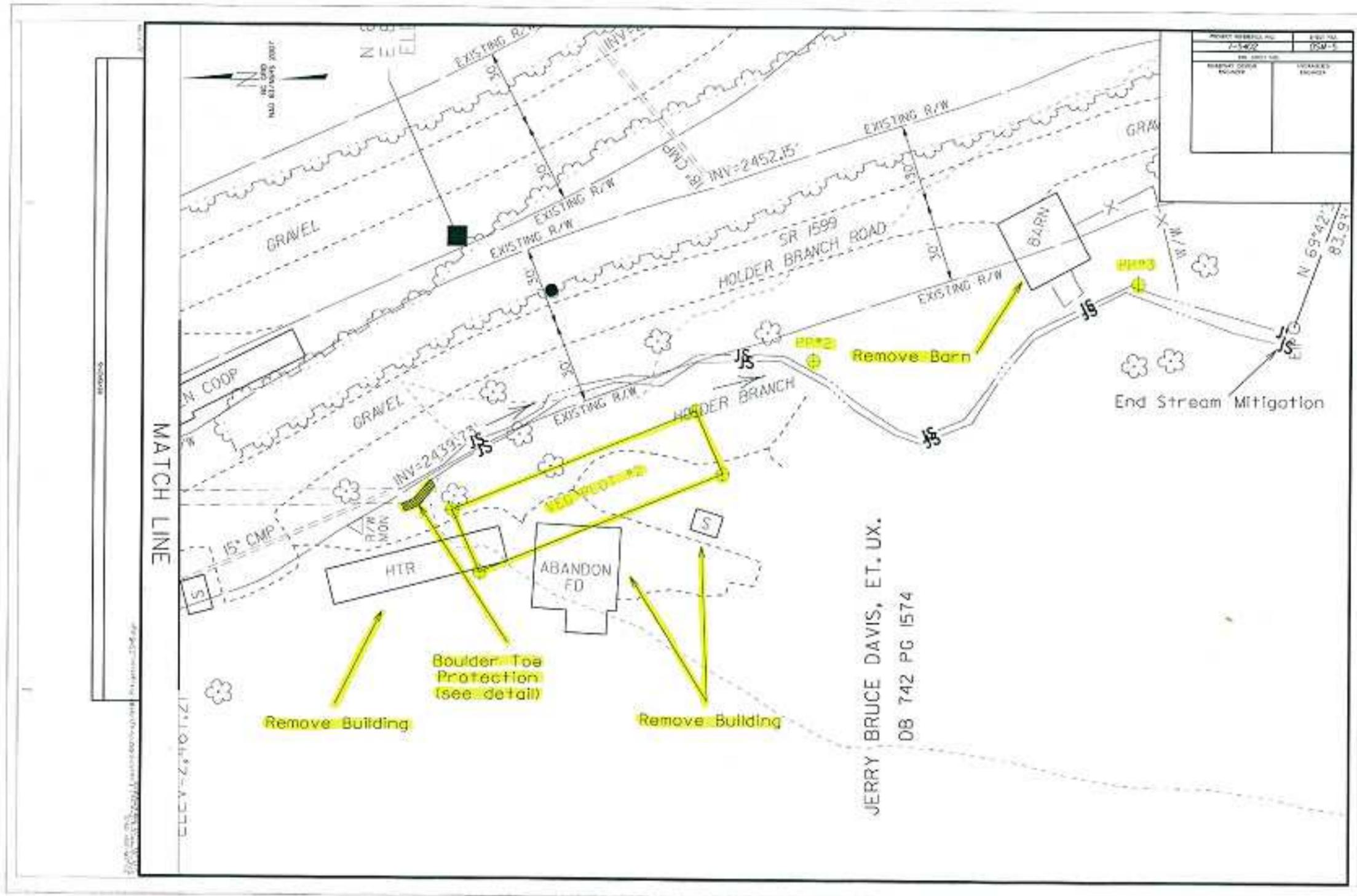


Overview photo looking at Stream SA



Overview photo looking at Stream SA

July 2016



Vegetation Plot and Photo Point Locations
 UT to Hominy Creek (Stream SA)
 Haywood County, North Carolina



	<p style="text-align: center;">Vicinity Map I-5402 UT's to Hominy Creek Mitigation Site Haywood County, North Carolina</p> <p style="text-align: center;">0 0.05 0.1 0.2 Miles</p> 	
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