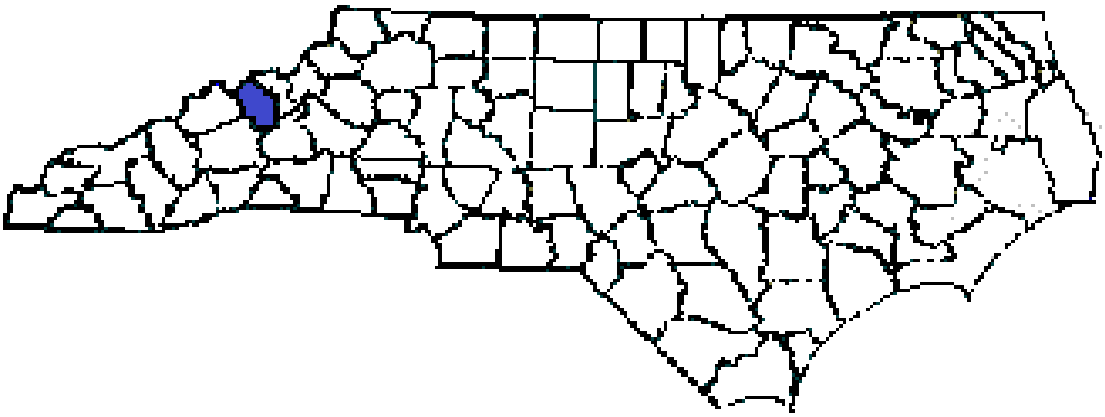
ANNUAL REPORT FOR 2021



Long Branch Site #5A Mitigation Site
ONE ID #: 100-013
Yancey County
TIP No. R-2519B
COE Action ID: SAW-2004-9987181 / 2004-30631
NCDWR Project #: 2013-0743v.2

Prepared By:
Roadside Environmental Unit and Environmental Analysis Unit
North Carolina Department of Transportation
September 2021

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SUMMARY

The following report summarizes the stream monitoring activities that have occurred during the Year 2021 at the Long Branch Site #5A Mitigation Site in Yancey County. This report provides the monitoring results for the second formal year of monitoring (Year 2021). The Year 2021 monitoring period was the second of five scheduled years of monitoring on the Long Branch Site #5A Mitigation Site (See Success Criteria Section 2.1).

Based on the overall conclusions of monitoring at the Long Branch Site #5A, it has met the required monitoring protocols for the second formal year of monitoring on the stream. The channel throughout the stream site is stable at this time with some minor undercutting along the left bank. A supplemental planting was completed along the streambank and buffer area in February 2021.

NCDOT proposes to continue stream and vegetation monitoring at the Long Branch Site #5A Mitigation Site in 2022.

1.0 INTRODUCTION

1.1 Project Description

The following report summarizes the stream monitoring activities that have occurred during the Year 2021 at the Long Branch Site #5A Mitigation Site. Site #5A is located on US 19 adjacent to the South Toe River crossing in Yancey County at Sta. 122+00 to 124+00 –L- Lt. (Figure 1). The Long Branch Site #5A was constructed to provide mitigation for stream impacts associated with Transportation Improvement Program (TIP) number R-2519B in Yancey and Mitchell Counties.

The mitigation site provided approximately 148 linear feet of stream restoration. The restoration of the Long Branch Site #5A Mitigation Site involved relocating 148 feet of Long Branch at the confluence with the South Toe River. A new floodplain and channel were excavated. The riparian buffer zone will also be planted. The new channel will have a 25-foot buffer on the north bank and a 30-foot buffer on the south bank. An existing utility easement will impact 20 feet from top of bank on the left side for the entire relocated channel.

1.2 Purpose

In order for a mitigation site to be considered successful, the site must meet the success criteria. This report details the monitoring in 2021 at the Long Branch Site #5A Mitigation Site. Hydrologic monitoring was not required for this site.

1.3 Project History

September 2020	Stream Channel and Vegetation Monitoring (Year 1)
February 2021	Supplemental Planting Completed
July 2021	Stream Channel and Vegetation Monitoring (Year 2)

1.4 Debit Ledger

The entire Long Branch Site #5A stream mitigation site was used for the R-2519B project to compensate for unavoidable stream impacts.

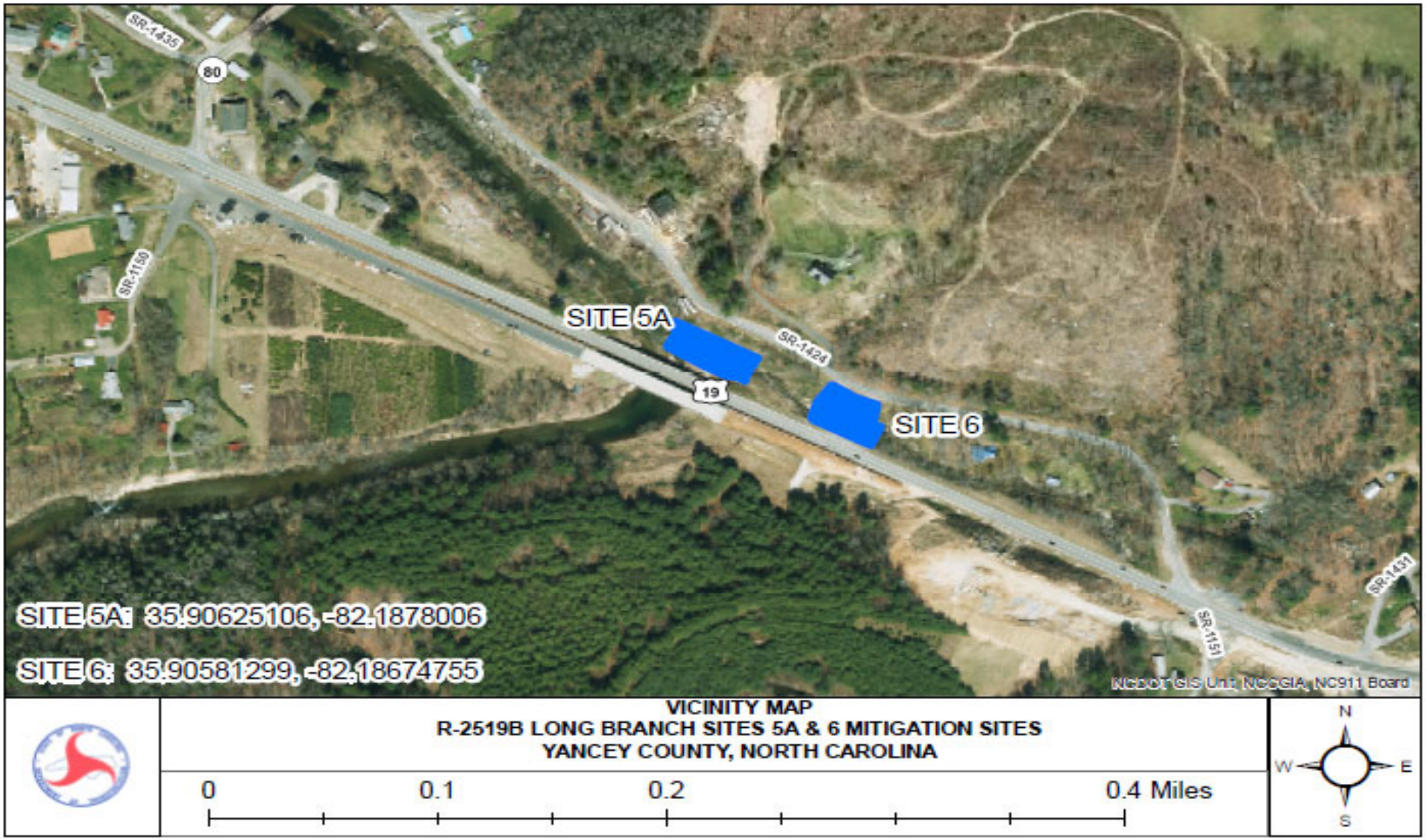

Figure 1. Vicinity Map

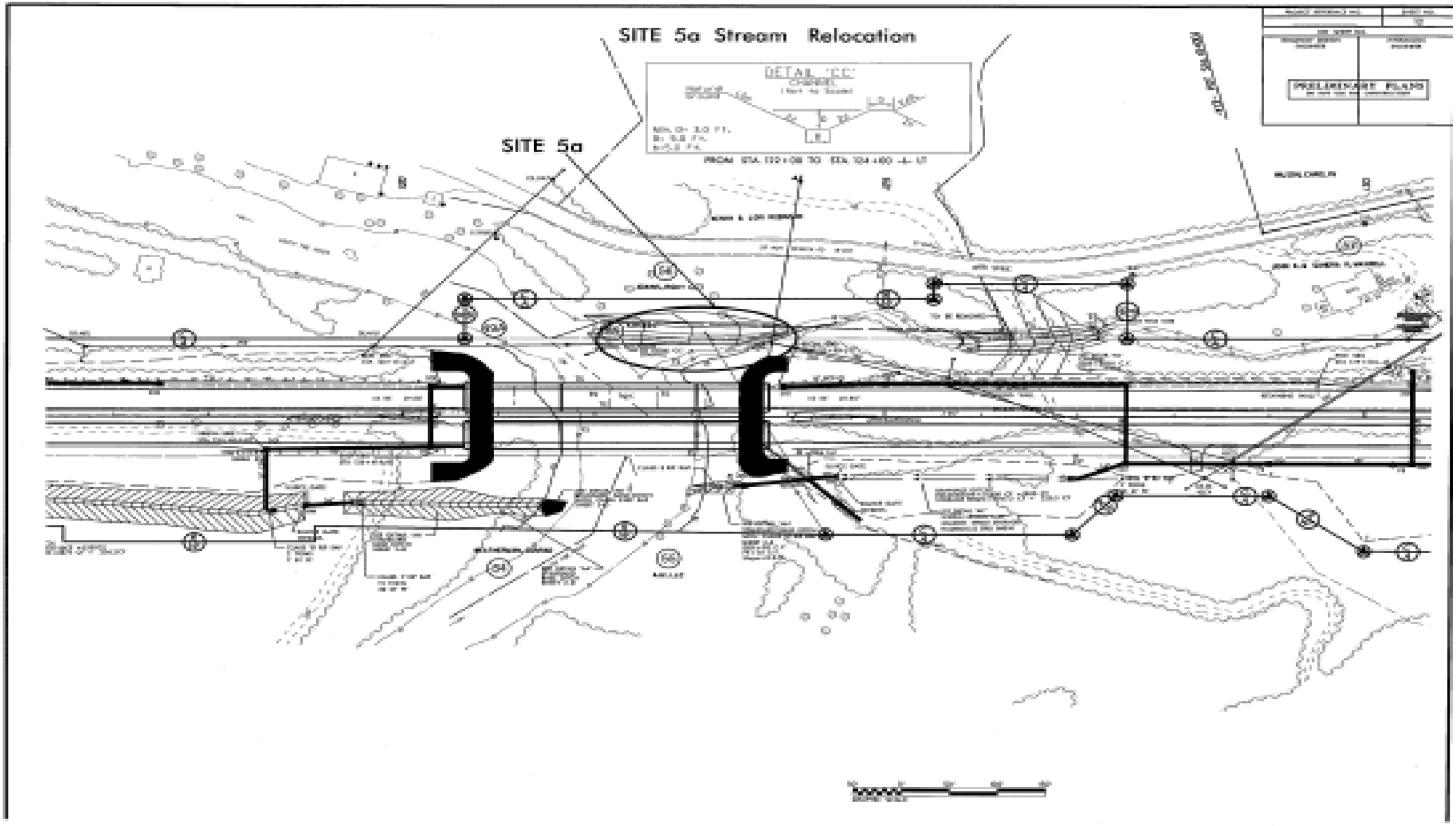

Figure 2. Site #5A Permit Drawing

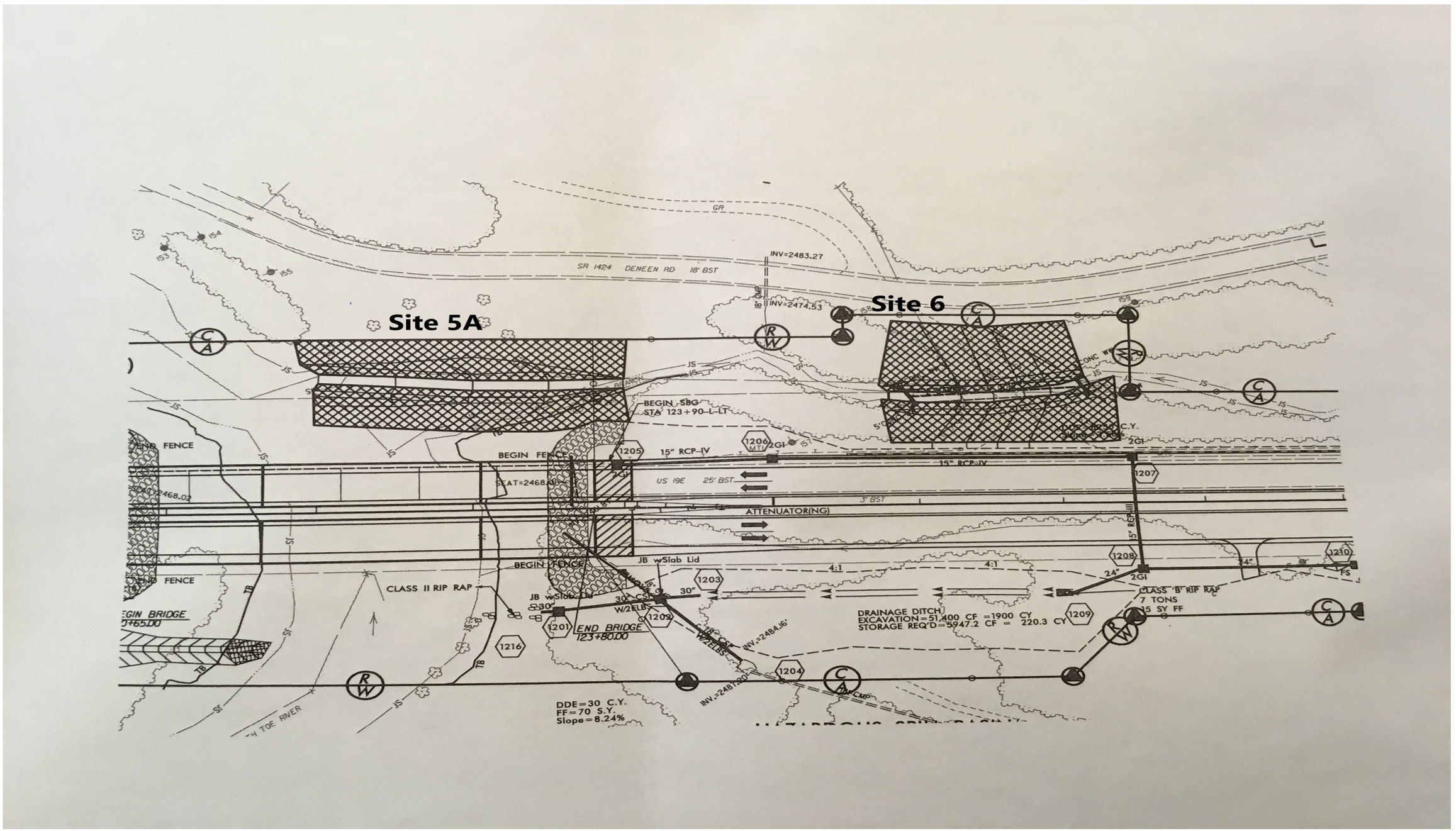

Figure 3. Site #5A Reforestation Plan

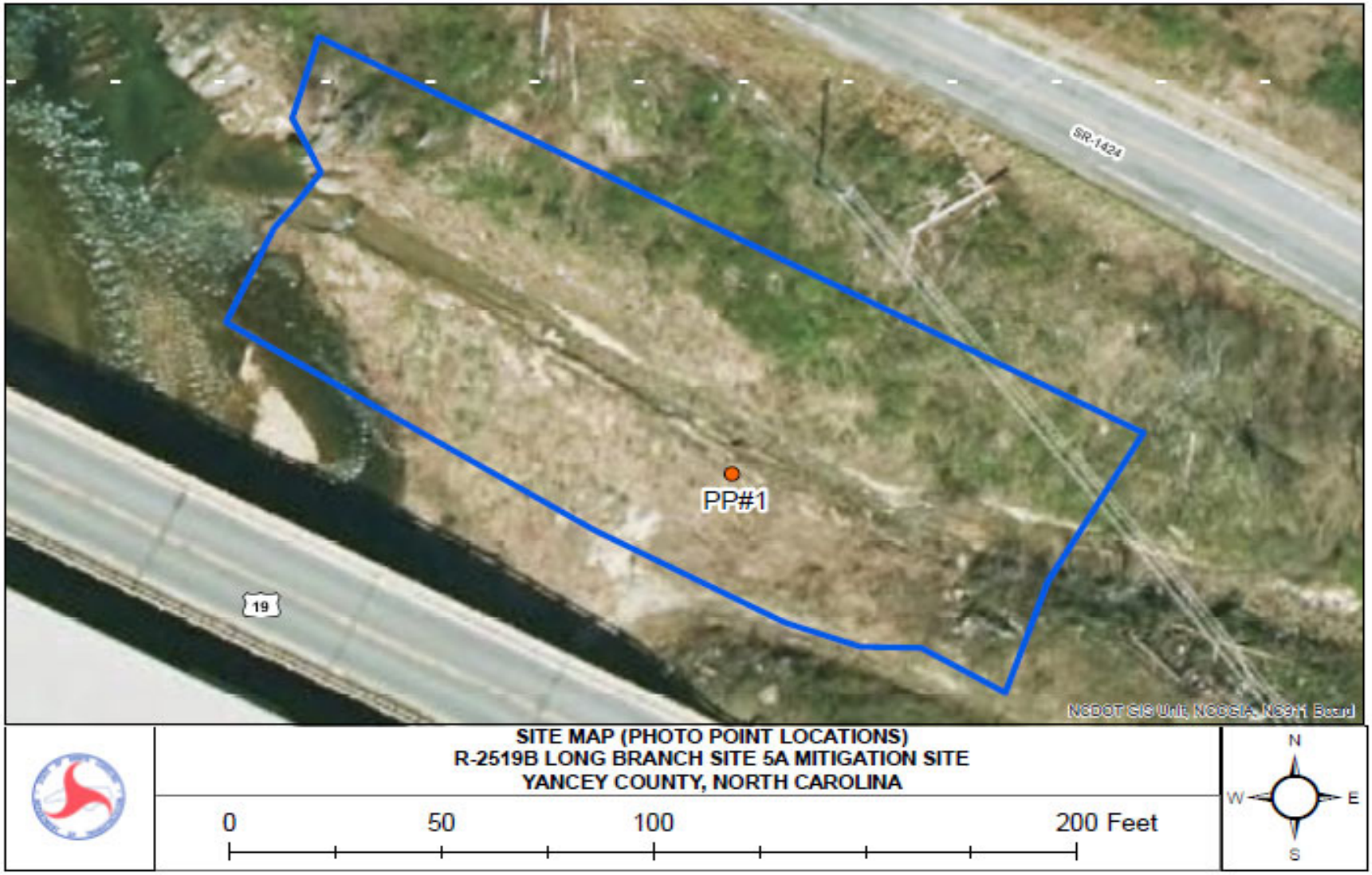

Figure 4. Site #5A Map

2.0 STREAM ASSESSMENT

2.1 Success Criteria

Based on email correspondence with the Regulatory Agencies it was agreed to maintain consistency and follow the mitigation plan language as it relates to the vegetation monitoring.

Mitigation Plan

Performance Standards
Performance standards are based on the April 2003 Stream Mitigation Guidelines. Success for vegetation monitoring within the riparian buffer areas will be based on the survival of at least 260 stems of 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.

Monitoring Requirements
Each site will be monitored for five years with no less than two bankfull events, which must occur in separate monitoring years and be documented. If less than two bankfull events occur during the first five years, monitoring will continue until the second bankfull event is documented. The following components of Level 1 monitoring will be performed annually for the monitoring period: reference photos, plant survival monitoring (identification of specific problem areas and remedial action), and visual inspection of channel stability. Vegetation stem counts will be conducted on Sites 8, 21, and 30 only. Physical measurements of channel stability/morphology will only be performed on Site 30. An as-built will be submitted for each site and will include stream channel profile and cross-section surveys which will provide a baseline for comparison if it is determined at any time during the monitoring period that a problem has occurred. Annual monitoring reports will be made available on the NCDOT website.

NCDWR Condition #1
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.

2.2 Stream Description

2.2.1 Post-Construction Conditions

The restoration of the Long Branch Site #5A Mitigation Site involved relocating 148 feet of Long Branch at the confluence with the South Toe River. A new floodplain and channel were excavated. The riparian buffer zone will also be planted. The new channel will have a 25-foot buffer on the north bank and a 30-foot buffer on the south bank. An existing utility easement will impact 20 feet from top of bank on the left side for the entire relocated channel.

2.2.2 Monitoring Conditions

The objective of the Long Branch Site #5A stream restoration was to restore the stream as identified in Rosgen's Applied River Morphology. A visual stream assessment will be conducted annually each year of the monitoring period.

2.3 Results of the Stream Assessment

2.3.1 Site Data

The visual assessment of the stream noted that the channel appears stable with some minor undercutting along the left bank. Little to no change was noted from the previous year. NCDOT will continue to monitor the channel stability at Site #5A in 2022.

3.0 VEGETATION: LONG BRANCH SITE #5A

3.1 Description of Species

The following tree species were planted on the streambank:

Salix nigra, Black Willow

Cornus amomum, Silky Dogwood

The following tree species were planted in the buffer area:

Liriodendron tulipifera, Yellow Poplar

Platanus occidentalis, Sycamore

Fraxinus pennsylvanica, Green Ash

Quercus alba, White Oak

Quercus rubra, Northern Red Oak

Betula nigra, River Birch

Quercus phellos, Willow Oak

3.2 Results of Vegetation Monitoring

Streambank & Buffer Vegetation: A supplemental planting with live stakes and bareroot seedlings was completed in February 2021. Silky Dogwood, Black Willow, Sycamore and Northern Red Oak were noted surviving along the streambank and within the buffer.

3.3 Conclusions

NCDOT proposes to continue monitoring the planted vegetation in 2022.

4.0 OVERALL CONCLUSIONS/RECOMMENDATIONS

The Long Branch Site #5A Mitigation Site has met the required monitoring protocols for the second formal year of monitoring. The channel throughout the stream site is stable at this time with some minor undercutting along the left bank. Planted vegetation survival has increased since the supplemental planting was completed.

NCDOT proposes to continue stream and vegetation monitoring the Long Branch Site #5A Mitigation Site in 2022.

5.0 REFERENCES

Mitigation Plan, US 19E Widening, Yancey and Mitchell Counties, North Carolina TIP Number R-2519B, WBS No. 35609.1.1, May 6, 2013 (Revised November 4, 2013)

Department of the Army Permit, Permittee: North Carolina Department of Transportation, Permit No. 2004-9987181 / 2004-30631, TIP No. R-2519B, Issuing Office: CESAW-RG-A

North Carolina Department of Environment and Natural Resources, Division of Water Resources, December 2, 2013, Proposed improvements to US 19E from SR 1186 in Yancey County to multilane section west of Spruce Pine in Mitchell County, State Project No. 6.909001T, WBS Element No. 35609.1.1, TIP R-2519B, NCDWR Project No. 2013-0743v.2

Rosgen, D.L, 1996. Applied River Morphology. Wildland Hydrology, Pagosa Springs, Colorado.

US Army Corps of Engineers (USACE), 2003. Stream Mitigation Guidelines. Prepared with cooperation from the US Environmental Protection Agency, NC Wildlife Resources Commission, and the NC Division of Water Resources.

APPENDIX A

SITE PHOTOGRAPHS

Long Branch Site #5A

Photo Point #1 (Upstream)

Photo Point #1 (Downstream)

Undercut left bank

July 2021